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Development of a Cross-Setting Quality Measure for Pressure Ulcers

OY2: Information Gathering Final Report

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EXECUTIVE SUMMARY

In accordance with the Centers for Medicare & Medicaid Services' (CMS) prioritization of "alignment and harmonization"[1] across quality measures, RTI International (RTI) studied the feasibility of, challenges in, and opportunities for developing a cross-setting pressure ulcer quality measure that can be harmonized for use across health care settings. The goals of this work were to evaluate the strengths and weaknesses of this measure, identify areas for further measure development, and understand the potential implications of expanding this measure into additional health care settings. To supplement the findings regarding a cross-setting quality measure, RTI also sought to identify successful practices in pressure ulcer prevention and management that could facilitate the development of tools and resources to improve pressure ulcer care. To facilitate quality measure development, RTI gathered information from October 1, 2012, through June 13, 2013.

Before beginning this work, RTI (CMS' measure development contractor) successfully supported CMS (measure steward) with the application to the National Quality Forum (NQF) for the expansion of the nursing home/skilled nursing facility (NH/SNF) pressure ulcer quality measure (NQF #0678, Percent of Residents with Pressure Ulcers That Are New or Worsened [Short-Stay]) to long-term care hospitals (LTCHs) and inpatient rehabilitation facilities (IRFs).[2] The expanded measure is renamed Percent of Residents *or Patients* with Pressure Ulcers That Are New or Worsened (Short-Stay) (NQF #0678).(Specifications for NQF #0678 are available in Section 3.1 of this report.) In an effort to align further with both the CMS and NQF[3] goals of measure harmonization, CMS requested that RTI explore the feasibility of using NQF #0678 as a starting point for the development of a cross-setting quality measure. This guidance was supported by NQF endorsement of this measure for three health care settings (NH/SNF, LTCH, and IRF), the subsequent successful implementation of this measure in these settings, positive feedback from stakeholders and experts convened by RTI, and a review of pressure ulcer quality measures identified through the environmental scan (described in this report).

A summary of the methods used, findings, and recommendations for next steps from this work is presented in **Table 1**.

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[1] Centers for Medicare & Medicaid Services. (2013, Semtember). *A blueprint for the CMS Measures Management System* (version 10.0). Available at http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/MMS/MeasuresManagementSystemBlueprint.html

[2] National Quality Forum, Consensus Standards Approval Committee. Meeting transcript: July 11, 2012. Available from http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier = id&ItemID = 71612

[3] National Quality Forum. (2008, April). *National voluntary consensus standards for developing a framework for measuring quality for prevention and management of pressure ulcers*. Available from http://www.qualityforum.org/Projects/Pressure_Ulcers.aspx

Table 1. Summary of Methods, Findings, and Next Steps

Topic	Methods and Purpose	Findings	Recommendations and Next Steps
Review of Quality Measures for Pressure Ulcers	Purpose • Identify themes in pressure ulcer quality measurement and confirm the decision to further develop NQF #0678. • Identify quality measures that address recommendations made by stakeholders, technical advisors, and the TEP. Methods • Searched two quality measure databases: o The NQF Quality Positioning System o The National Quality Measure Clearinghouse from the Agency for Healthcare Research and Quality • Identified current (as of May 29, 2013) measures that assess pressure ulcer prevention and pressure ulcer care	• NQF #0678 differs from other quality measures in several important aspects, including o outcome measure o incidence measure o obtained via patient / resident assessment o assesses pressure ulcers over time o accounts for worsening pressure ulcers • Several quality measures incorporate recommendations made by stakeholders and experts: o healed pressure ulcers o unstageable pressure ulcers o specific exclusions	• Continue with the plan to further develop NQF #0678. • Consider further review of those quality measures that operationalize concepts recommend by stakeholders and experts.
Development of a Cross-Setting Quality Measure for Pressure Ulcers	Purpose • Identify themes and recommendations regarding NQF #0678, in efforts to direct future measure development and expansion. • Facilitate possible future measure expansion to home health agencies and acute inpatient facilities. Methods • Analyzed all feedback and commentary provided by stakeholders and experts regarding NQF #0678 • Analyzed previously received measure feedback: o TEPs representing NHs/SNFs, LTCHs, and IRFs o NQF commentary o public comments received during the federal rulemaking process o questions submitted to the technical assistance mailboxes for the NH/SNF, LTCH, and IRF quality reporting programs • Interviewed technical advisors and health care facilities currently reporting NQF #0678 • Reviewed the current state of pressure ulcer measurement in home health agencies and acute inpatient hospitals	• Experts and stakeholders support the continued development and possible expansion of NQF #0678. • There are several areas for potential measure improvement. • Several recommendations regarding NQF #0678 have been made multiple times by different groups of reviewers. • Ongoing concerns include o data collection and alignment with NPUAP staging definitions o appropriate accounting for all stages and types of pressure ulcers (including unstageable pressure ulcers and deep tissue injuries) o accounting for healed pressure ulcers o appropriate risk adjustment and measure exclusions, including the exclusion of patients or residents at the end of life o use of the word “worsening” in the quality measure • Each individual health care setting has its own set of unique challenges, which will be important to consider for measure expansion.	• RTI used these findings to inform the agenda for the cross-setting TEP meeting held in June 2013.

(continued)

Table 1. Summary of Methods, Findings, and Next Steps (continued)

Topic	Methods and Purpose	Findings	Recommendations and Next Steps
Identification of Successful Practices of Pressure Ulcer Prevention and Management	Purpose • Identify trends among successful pressure ulcer prevention and management programs. • Inform the development of cross-setting pressure ulcer programs across health care facilities with different degrees of experience and resources. Methods • Conducted a literature scan aimed at identifying successful (evidence-based) pressure ulcer interventions • Conducted key informant interviews with seven organizations that have successfully implemented pressure ulcer prevention and management programs • Asked TEP members to provide written recommendations regarding successful or innovative practices for pressure ulcer prevention and management	Successful pressure ulcer prevention and management interventions do the following: • Develop cross-facility and cross-setting protocols for pressure ulcer prevention and care. • Expand wound care teams to include staff from multiple health care disciplines. • Use evidence-based bundles of interventions. • Focus on education. o Types of education include handouts, posters, in-person training, webinars, teleconferences, and rounds. o Education should start early in the intervention. o Education should address both clinical knowledge and data collection. • Focus on culture change and buy-in among both staff and leadership. • Hold staff accountable for the care they provide by continually assessing and reporting results across the facility. • Conduct root-cause analysis of pressure ulcers whenever possible. Future Research • More research is needed into the cross-setting applicability of pressure ulcer prevention tools, resources, and intervention programs. • Experts support the use of a standardized transfer form for pressure ulcers that includes questions about both pressure ulcers and risk factors for pressure ulcers.	• Encourage health care facilities to develop pressure ulcer programs that adhere to these principles. • Direct facilities to the many available tools and resources that have been created by these successful organizations. • Encourage cross-facility and cross-setting collaboration and communication. • Encourage facilities to consider using a standardized transfer form for pressure ulcers.

(continued)

Table 1. Summary of Methods, Findings, and Next Steps (continued)

Topic	Methods and Purpose	Findings	Recommendations and Next Steps
Convene Technical Expert Panel	Purpose • Solicit guidance on the development of a cross-setting quality measure for pressure ulcers. • Review NQF #0678 and identify the measure's strengths and areas for improvement. • Solicit TEP member recommendations regarding next steps for measure development. Methods • Posted a public call for TEP member nominations on the CMS website to identify individuals with the appropriate expertise. • Convened a TEP on June 13, 2013 • The TEP included individuals with setting-specific experience in NHs/SNFs, LTCHs, IRFs, acute inpatient hospitals, and home health agencies, as well as a patient representative. • TEP members had expertise in plastic surgery, nutrition, wound care, quality measure development, quality improvement, and the implementation of cross-setting initiatives.	TEP members were positive regarding the development of NQF #0678 and possible expansion to additional health care settings. The TEP recommended improvements to NQF #0678. • The current staging system is confusing and can lead to errors in reporting. o Consider either aligning language and staging definitions with those of the NPUAP or adopting a wound classification system based on wound thickness (full versus partial). • The use of the word "worsening" in the measure title is very negative. o A measure that addresses pressure ulcer healing would be more positive. o Healing is an important goal of pressure ulcer care. o Consumers who are selecting a health care facility are likely to be interested in pressure ulcer healing. • The TEP engaged in a lengthy discussion regarding the inclusion of Stage 1 pressure ulcers in the quality measures and was unable to reach a conclusion. • The increased attention toward pressure ulcers generated by this measure may cause staff to assume that wounds are caused by pressure, even when they are not. o Appropriate identification of wound etiology is an important step in the development of wound treatment plans. • Under the current staging system, there is confusion regarding staging for suspected deep tissue injuries and unstageable pressure ulcers. o These are important concepts that should be included as new pressure ulcers in the quality measure. o At this time it is not possible to assign a stage to these ulcers.	• Further explore the two recommendations regarding staging definitions for pressure ulcers, and consider implementing one in the next iteration of the quality measure: o Align all staging definitions with the NPUAP staging definitions or o Change the staging classification used in the quality measure to full versus partial thickness. • Include a healing element to the quality measure or develop a separate healing measure. • Consider including new unstageable pressure ulcers and suspected deep tissue injuries in the quality measure. o At this time these ulcers should not be assigned a stage. o Monitoring of research regarding the etiology and staging of these ulcers should continue. • Conduct a literature review focused on the reliability of assessing Stage 1 pressure ulcers, as well the relationship between Stage 1 pressure ulcers and the quality of care. • Consider excluding patients at the end of life from the measure. • Consider updating the risk adjustment covariates for this measure. (Current covariates include: function/limited mobility, bowel incontinence, diabetes or peripheral vascular disease/peripheral arterial disease, and body mass index) o Covariates for further consideration include indicators of malnutrition, history of pressure ulcers or pressure ulcers present on admission, and use of devices that place patients at greater risk. o Consider developing setting-specific risk adjustment specifications.

(continued)

Table 1. Summary of Methods, Findings, and Next Steps (continued)

Topic	Methods and Purpose	Findings	Recommendations and Next Steps
Convene Technical Expert Panel (continued)		• Several recommendations were made regarding improvements to the risk adjustment and exclusions for NQF #0678. • A great level of coordination of assessment tools, language, and definitions would be needed to achieve this goal of expansion to additional health care settings. • When expanding the measure, CMS should use pre-existing tools and data sets whenever possible.	• When considering expanding NQF #0678, explore approaches to better align with existing data collection systems and electronic health records. o Consider ways in which data collection systems can be utilized to facilitate more accurate data collection. • In future years, consider e-specifying the measure. Continue to provide training and resources to providers in all three health care settings currently reporting NQF #0678.

NOTES: CMS, Centers for Medicare & Medicaid Services; IRF, inpatient rehabilitation facility; LTCH, long-term care hospital; NH, nursing home; NPUAP, National Pressure Ulcer Advisory Panel; NQF, National Quality Forum; SNF, skilled nursing facility; TEP, technical expert panel.

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1. INTRODUCTION

In the Blueprint for the Centers for Medicare & Medicaid Services (CMS) Measures Management System Version 10.0, CMS identifies "alignment and harmonization" as one of the key priorities for quality measure development.[4] In accordance with this priority, CMS tasked RTI International (RTI) with examining current (as of October 2012) pressure ulcer measures in use in nursing home (NH), skilled nursing facility (SNF), inpatient rehabilitation facility (IRF), and long-term care hospital (LTCH) settings to assess the feasibility, challenges, and opportunities for harmonizing a pressure ulcer quality measure for use across these and other care settings.

As part of RTI's contract with CMS to develop quality measures that can be used to improve the quality of care for Medicare beneficiaries, RTI supported CMS to expand the NH/SNF pressure ulcer quality measure, National Quality Forum (NQF) #0678 Percent of Residents with Pressure Ulcers That Are New or Worsened (Short-Stay), to LTCHs and IRFs. The expanded measure is renamed Percent of Residents or Patients with Pressure Ulcers That Are New or Worsened (Short-Stay) (NQF #0678).(Specifications for this quality measure are available in Section 3.1 of this report.) Further, RTI, on behalf of CMS, facilitate the adoption of this measure through the FY 2012[5,6] and FY 2013[7,8] public rule-making process for the IRF and LTCH Quality Reporting Programs under Section 3004 of the Affordable Care Act. As a result of this work, IRF and LTCH providers are required to submit to CMS data elements needed to calculate this measure. This quality data submission began October 1, 2012, and is required in order for these providers to obtain their Annual Payment Update.[9,10]

Building upon the work to expand NQF #0678, CMS elected to explore the feasibility of expanding this measure to additional health care settings. CMS and RTI made the decision to further develop this measure, rather than selecting a different pressure ulcer quality measure, or developing a measure a new measure for a number of reasons:

1. Expanding an existing measure aligns with the CMS goal of measure harmonization. The importance of measure alignment and harmonization, especially within the

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4 Centers for Medicare & Medicaid Services. (2013, September). *A blueprint for the CMS Measures Management System* (version 10.0). Available at http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/MMS/MeasuresManagementSystemBlueprint.html

5 FY 2012 IRF PPS Final Rule (76 FR 47876 through 47880, August 2011)

6 FY 2012 IPPS/LTCH PPS Final Rule (76 FR 51749 through 51755, August 2011)

7 FY 2013 OPPS/ASC/IRF PPS Final Rule (77 FR 68505 through 68507, November 2012)

8 FY 2013 IPPS/LTCH PPS Final Rule (77 FR 53617 through 53619, August 2012)

9 Centers for Medicare & Medicaid Services. (2013, May). *Long-term care hospital quality reporting program manual* (version 2.0, draft). Available from http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/LTCH-Quality-Reporting/Downloads/LTCH-QR-Program-Manual-v20-DRAFT.zip

10 Centers for Medicare & Medicaid Services. (2013, May 31). *Inpatient rehabilitation facilities quality reporting program*. Retrieved from http://www.cms.gov/IRF-Quality-Reporting/

context of pressure ulcer quality measurement was also emphasized by the NQF steering committee in 2008, when they stated "To understand the impact of pressure ulcers across settings, quality measures addressing prevention, incidence, and prevalence of pressure ulcers must be harmonized and aligned".[11]

2. This measure has already been expanded to two additional health care settings (IRF and LTCH, from NH/SNF).

3. A review of NQF-endorsed quality measures (described in the next section) suggests that NQF #0678 includes several important elements (such as measuring pressure ulcers over time and accounting for worsening pressure ulcers), that other NQF-endorsed measures do not incorporate.

4. Feedback from a variety of stakeholders, as well as health care providers who are currently required to report this quality measure, has been generally positive.

To facilitate quality measure development, between October 1, 2012 through and September 29, 2013, RTI evaluated both the strengths and weaknesses of this measure and identified potential areas for further measure development. Additionally, RTI sought to understand the feasibility and potential implications of expanding this measure into additional health care settings. The ultimate goal of this work is to refine NQF #0678, improve the reliability, validity, and usability of the quality measure, to ensure that the specifications and data collection guidelines are applicable across multiple health care settings.

To supplement the cross-setting quality measure, CMS hopes to identify successful practices in pressure ulcer prevention and management. Identification of such practices could facilitate the development of tools and resources that would improve both within facility and cross-facility pressure ulcer care.

RTI utilized a variety of approaches to identify areas for measure refinement for NQF #0678, as well as successful practices in pressure ulcer prevention and management. This report summarizes these methodologies and RTI's findings. The report that follows is divided into six sections; each section provides information regarding the methodology, a summary and analysis of the findings, and recommendations regarding next steps.

Section 1 is the introduction.

[11] National Quality Forum. (2008, April). *National voluntary consensus standards for developing a framework for measuring quality for prevention and management of pressure ulcers.* Available from http://www.qualityforum.org/Projects/Pressure_Ulcers.aspx

Section 2 reviews quality measures for pressure ulcers as identified through the NQF website and the Agency for Healthcare Research and Quality (AHRQ)'s National Quality Measures Clearinghouse (NQMC), identifies measurement trends, and confirms the decision to further develop NQF #0678.

Section 3 includes a brief description of NQF #0678 and describes and identifies themes across the feedback and analysis received from stakeholders, technical experts, and providers throughout the history of the quality measure. Feedback reviewed in this section includes a summary of technical advisor and provider interviews conducted by RTI, a review of prior technical expert panel (TEP) proceedings, a summary of feedback obtained from the NQF, a summary of public comments received during federal rulemaking, and a review of technical assistance questions received in each of the three relevant health care settings (LTCHs, IRFs, and NHs/SNFs]). **Section 3** also briefly explores the possibility of expanding NQF #0678 to two additional health care settings, home health agencies and acute inpatient hospitals, and identifies some of the unique challenges that may arise in these settings.

Section 4 reviews the findings from both a literature scan and a series of key informant interviews RTI conducted to identify successful practices in pressure ulcer prevention and management.

Section 5 summarizes the findings from the cross-setting pressure ulcer TEP hosted by RTI on June 13, 2013.

Section 6 includes an overall summary and recommendations regarding next steps for quality measure development.

The findings and TEP member recommendations in this report will serve further refine a cross-setting quality measure and provide direction for additional measure development.

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2. QUALITY MEASURES FOR PRESSURE ULCERS

The primary goals of this section are to compile current (as of May 29, 2013) quality measures for pressure ulcers, to identify themes in pressure ulcer quality measurement, and to confirm the decision to further develop NQF #0678, rather than selecting a different quality measure to develop. The section begins by reviewing trends across all pressure ulcer quality measures and then more carefully reviews those measures that are NQF endorsed for pressure ulcer prevention and care. In addition to reviewing and confirming the decision to continue the development of NQF #0678, RTI also identifies those quality measures that operationalize important measure concepts, which NQF #0678 does not include. These measures may be valuable to review as part of future measure development.

2.1 Methods

RTI conducted a search of two quality measure databases using the search terms "pressure ulcer," "pressure," and "ulcer", and identified current (as of May 29, 2013) measures that assess pressure ulcer prevention and pressure ulcer care. RTI searched the following two databases:

1. The NQF Quality Positioning System: This system provides the most up-to-date list of all NQF-endorsed quality measures.

2. AHRQ's National Quality Measure Clearinghouse (NQMC): The NQMC is database of evidence-based health care quality measures and measure sets.

2.2 Findings

RTI identified 42 quality measures for pressure ulcer prevention and care, six of which are NQF endorsed (as of May 29, 2013). Appendix A lists each measure along with specifications and key information regarding each measure. Of the 42 measures identified, 13, including NQF #0678, are outcome-based quality measures and 29 are process based. Of the six NQF-endorsed quality measures, five (including NQF #0678) are outcome based, and only one is process based. Of the 29 process based measures, 21 evaluate whether or not appropriate assessments (pressure ulcer risk and skin assessments) were conducted, the rest focus on the documentation of a treatment plan for high-risk patients or patients with pressure ulcers.

The majority (7 of 13) of the outcome-based measures are prevalence measures that assess ulcers at a specific point in time. Although important, these prevalence measures may fail to take into account, where the pressure ulcer developed (in the facility or elsewhere), changes over time, and patients who are off the floor at the time of

assessment. Only five quality measures (including NQF #0678) account for changes in pressure ulcers over time, by including two separate assessments, or specifically evaluate ulcers that developed within the facility. Only one measure, NQF #0678, accounts for worsening pressure ulcers, as such, it is the only measure to account for the incidence of both new and worsening pressure ulcers.

RTI more closely examined the quality measures, to identify those measures that address recommendations made by our stakeholders, technical advisors, and the TEP (described later in this report) and found that only one quality measure specifically measures healed pressure ulcers (Percentage of Patients with Pressure Ulcers that Heal). Additionally there is only one measure that specifically includes unstageable pressure ulcers (Pressure Ulcer Rate (PDI 2) NQF #0337). The Pressure Ulcer Rate (PDI 2) measure is also one of three measures that exclude Stage 2 pressure ulcers and are limited to Stage 3, Stage 4 pressure ulcers.

RTI also reviewed the quality measure exclusions, in order to identify measures that reflect the recommendations made by stakeholders and experts. Although most of the measures have very limited exclusions, one (Pressure Ulcer: Rate per 1,000 Discharges) excludes patients with diagnosis of hemiplegia, paraplegia, quadriplegia, spina bifida, or anoxic brain damage, and another (Pressure Ulcer Prevalence [Hospital-Acquired]) excludes patients who refuse to be assessed, patients who are medically unstable at the time of the measurement, and patients who are actively dying. Finally, two measures (Pressure Ulcer: Rate per 1,000 Discharges, and Pressure Ulcer: Rate per 1,000 Eligible Admissions) exclude patients with procedure codes for debridement or pedicle graft before on the same day as a major operating room procedure.

2.3 NQF-Endorsed Quality Measures

As part of the development process for NQF #0678, and to determine if there are other NQF-endorsed measures which may be further developed and expanded to additional health care settings, RTI looked more closely at the five other NQF-endorsed quality measures for pressure ulcers. RTI focused on these five measures, because NQF endorsement ensures that the measure has been reviewed by a consensus board and has undergone a rigorous approval process.

NQF #0201 Pressure Ulcer Prevalence (Hospital Acquired), stewarded by the Joint Commission, is a prevalence based measure that evaluates the number of patients that have hospital-acquired (nosocomial) Stage 2 or greater pressure ulcers on the day the prevalence determination was conducted. Because it is a prevalence measure, it does not follow pressure ulcers over time, or account for pressure ulcers present on admission, and it only accounts for those individuals who were on the unit at the time of assessment.

NQF # 0679, Percent of High Risk Residents with Pressure Ulcers (Long-Stay): is a NH/SNF quality measure, stewarded by CMS, that is designed for a specific population, long stay, high risk residents, and may be less applicable to more general populations.

NQF #0181, Percentage of Patients who had an Increase in the Number of Pressure Ulcers, is a home health agency measure, stewarded by CMS, that accounts for an increase in pressure ulcers over time. While this measure assesses a patient over time, it fails to account for worsening pressure ulcer status. Additionally, this measure is designed for home health agencies, which represent a very unique population compared to other health care settings.

NQF #0538, Pressure Ulcer Prevention and Care, stewarded by CMS, is a three-part process measure for pressure ulcer prevention, assessment, and care, currently applied in home health agencies. Although the concepts evaluated by this measure are important, CMS is currently looking to further develop and expand an outcome-based pressure ulcer measure.

NQF # 0337, Pressure Ulcer Rate (PDI 2), is a claims based quality measure for pressure ulcers, stewarded by CMS and implemented in acute care hospitals. Due to the possible concerns regarding reliability with claims based reporting, CMS would prefer to utilize an assessment based quality measure for further development.

2.4 Summary and Conclusions

After reviewing the six NQF-endorsed quality measures (including NQF #0678) RTI supports CMS' decision to further develop NQF #0678. In addition to being successfully implemented and harmonized across three health care settings, this measure is outcomes based measure, accounts for both new and worsening pressure ulcers over time and utilizes provider assessments as the data collection tool.

Across all quality measures, NQF #0678 is one of the few quality measures that is outcome based, is based on assessments (rather than claims), measures incidence, assesses pressure ulcers over time, and accounts for pressure ulcers present on admission. It is also the only measure that accounts for worsening pressure ulcers. Although CMS is currently working to further develop NQF #0678, in the future it may be valuable to explore the quality measure: Percentage of Patients with Pressure Ulcers that Heal (stewarded by the American Medical Association), to better understand how wound healing can be operationalized within a quality measure, as recommended by several experts and stakeholders. Additionally CMS may wish to consider reviewing measures that incorporate a range of clinical exclusions, in order to align with the recommendations made by technical advisors, stakeholders, and the cross-setting pressure ulcers TEP.

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3. DEVELOPMENT OF A CROSS-SETTING QUALITY MEASURE FOR PRESSURE ULCERS

The primary goal of this section is to summarize feedback and commentary made by stakeholders and experts, regarding NQF #0678, Percent of Residents or Patients with Pressure Ulcers that are New or Worsened (Short-Stay). The section begins by providing a brief description of the quality measure and information regarding the primary items used for data collection, and moves on to review feedback obtained from a range of experts and stakeholders throughout the history of the quality measure. This feedback includes previously obtained (outside of the scope of and/or prior to this cross-setting pressure ulcer measure development work) analysis and commentary, as well a summary of a set of interviews conducted by RTI. The section concludes with a brief exploration of the feasibility of expanding this measure to two additional health care settings: home health agencies and acute inpatient hospitals. Throughout the section, RTI identifies common themes across all feedback, both previously obtained and current, to help direct further measure development.

3.1 Description and Specifications: NQF #0678

NQF #0678, Percent of Residents or Patients with Pressure Ulcers that are New or Worsened (Short-Stay), was developed and implemented for SNFs/NHs in 2011, as part of the transition from the Minimum Data Set (MDS) version 2.0 to the MDS 3.0. The measure was later expanded to, and the specifications were modified as appropriate for LTCHs and IRFs, with data collection beginning in October 2012. Data for NQF #0678 is collected using the MDS 3.0, the IRF-PAI, and the LTCH Continuity Assessment Record & Evaluation (CARE) Data Set.

This incidence measure reports the percent of short-stay residents or patients with Stage 2–4 pressure ulcers that are new or worsened since the prior assessment. For the LTCH and IRF settings, prior assessment refers to admission assessment.

3.1.1 Measure Specifications

Numerator: The number of short-stay residents or patients with a target assessment during the selected time window who have one or more Stage 2–4 pressure ulcers that are new or that have worsened compared with the previous assessment.

Stage 1 ulcers are excluded from the measure because studies at the time of development suggested that the inclusion of Stage 1 pressure ulcers in the quality measures adds little

value, penalizes facilities for early identification, and that there are difficulties in objectively measuring Stage 1 pressure ulcers across different populations.[12]

Denominator: All LTCH patients and IRF patients with an admission and discharge assessment and all short-stay NH/SNF residents with one or more assessments that are eligible for a look-back scan, except those who meet the exclusion criteria.

Short-stay NH/SNF residents are defined as those residents with 100 or fewer cumulative days in the facility.

Exclusions: A patient or short-stay resident is excluded from the denominator if missing data precludes calculation of the measure. Assessments or tracking records performed at the time of patient or resident death are excluded.

Risk Adjustment: Resident- or patient-level limited covariate risk adjustment is performed. Resident- or patient-level covariates are used in a logistic regression model to calculate a resident- or patient-level expected quality measure score (the probability that the resident or patient will have that outcome, given the presence or absence of characteristics measured by the covariates). Then, an average of all resident- or patient-level expected quality measure scores for the facility is calculated to create a facility-level expected quality measure score. The final facility-level adjusted quality measure score is based on a calculation that combines the facility-level expected score and the facility-level observed score. Covariates include

- an indicator of function or limited mobility (varies by setting),
- an indicator of bowel incontinence,
- an indicator of diabetes and/or peripheral vascular disease/peripheral arterial disease
- an indicator of body mass index.

Details regarding the calculation of NQF #0678 using each of the three relevant assessment tools (MDS 3.0, LTCH CARE Data Set, and IRF-PAI), along with the items related to the covariates, are included in the data sets and manuals for each setting. The setting-specific manuals also include details regarding correctly staging and coding pressure ulcers, along with thorough examples. The manuals are available from the following sites:

- *MDS 3.0* Quality Measures Users Manual*, V8.0:* *http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/NHQIQualityMeasures.html*

[12] Lynn, J., West, J., Hausmann, S., Gifford, D., Nelson, R., McGann, P., … Ryan, J. A. (2007). Collaborative clinical quality improvement for pressure ulcers in nursing homes. *Journal of the American Geriatrics Society, 55,* 1663–1669.

- *IRF-PAI Training Manual:* http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/InpatientRehabFacPPS/Downloads/IRFPAI-manual-2012.pdf

- *LTCH Quality* Reporting *Program Manual, V2.0:* http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/LTCH-Quality-Reporting/Downloads/LTCH-QR-Program-Manual-v20-DRAFT.zip

This report does not walk through the data items, instructions, and nuances for each data set. As such, it is important to review the manuals for each health care setting, to fully understand and to best evaluate NQF #0678.

3.2 Previously Obtained Measure Feedback

In order to gain a comprehensive understanding of the strengths and weakness of NQF #0678, RTI compiled all of the feedback obtained regarding the quality measure throughout its history, beginning in 2009 when the measure was first developed for the NH/SNF setting, during the transition from the MDS 2.0 to the MDS 3.0, and identified trends across the different types of commentary. Identification of these trends will allow CMS and RTI to ascertain the primary concerns regarding the measure and to set priorities for future measure development.

Feedback was compiled from several sources, including TEPs representing each of the three health care settings currently reporting NQF #0678 (NH/SNFs, LTCHs and IRFs), commentary provided by the NQF during the measure review process, public comments received during the federal rulemaking process, and questions submitted to the technical assistance mailboxes for each of the three settings. A summary of the overall findings and trends identified across all commentary is provided below, followed by a brief description of each source of feedback. For more details regarding a particular piece of commentary it is best to go to the original transcript or report.

3.2.1 Overall Findings

Experts and stakeholders were generally positive regarding NQF #0678 and the continued reporting and development of the quality measure. Reviewers particularly recognized both the importance and scientific soundness of the quality measure; however, they also had several recommendations regarding ways the quality measure could be improved. Although some of these comments were made only once and were particular to an individual group or health care setting, several comments were made multiple times by different groups of reviewers.

Table 2 displays the most common concerns and recommendations made by experts and stakeholders throughout the measure history of NQF #0678 and indicates which groups of stakeholder or experts identified each concern or recommendation.

As Table 2 demonstrates, one of the most frequently mentioned concerns regarding NQF #0678 is the use of the term "worsening" and the concept of worsening pressure ulcers. Several individuals expressed that "worsening" is an ambiguous term and that worsening ulcers are very difficult to identify. This is of particular concern when considering certain types of ulcers, especially deep tissue injuries (DTIs) that initially appear to be one stage and may take several days to evolve and declare their final stage. Additionally, the processes of healing and treatment may cause an ulcer to appear worsened, when it is in fact improving.[13] This concern about worsening pressure ulcers also surfaced in regards to pressure ulcers present on admission. Health care providers were worried that a suspected pressure ulcers or DTI may still be in the process of declaring upon admission and that the admitting facility could be held responsible for the poor quality of care provided at the prior care setting. The same providers were also concerned regarding those ulcers that had healed immediately before admission, and may easily re-appear after admission.

Table 2. Previously Obtained Feedback Regarding NQF #0678

Concern or Recommendation	NH/ SNF TEP	LTCH TEP	IRF TEP	NQF	LTCH Public Comments	IRF Public Comments	MDS, LTCH, IRF Help Desks
Concern Regarding the Word "Worsening"		X	X	X	X	X	
Device Related Pressure Ulcer			X			X	X
Staff Training/Burden of Implementation		X				X	
Data Collection and Accuracy	X	X	X				X
Include Stage 1 Ulcers						X	X
Switch to Partial/Full Thickness Classification System	X	X					
Document Complete Trajectory of Every Ulcer						X	
Pressure Ulcers Present on Admission: *Recently Healed and/or Not Fully Declared Ulcers that Re-Appear or Declare at a Later Stage After Admission*	X						X
Inconsistent Staging Definitions: Align with NPUAP	X	X	X	X			X
Reconsider Unstageable Pressure Ulcers & DTIs	X	X	X	X	X		X
Update Risk Adjustment	X	X	X	X	X	X	
Exclude Residents/Patients at End of Life		X	X			X	
Account for Seasonal Variation	X			X			
Give Credit for Healing Pressure Ulcers			X		X	X	X
Three-Day Interrupted Stay: *Accountability for Patients who are Transferred from and Return to the Facility within Three Days*			X		X		X
Limit Measure to Stage 3 and 4 Pressure Ulcers		X	X			X	

[13] Often providers refer to wound debridement as a treatment that may cause a pressure ulcer to appear worsened. It is important to note that debridement is defined as "the removal of nonviable material, foreign bodies, and poorly healing tissue from a wound" (Steed, D. L. [2004]. Debridement. *American Journal of Surgery, 187*[5A]:71S–74S). While debridement should not worsen a wound, debridement may allow providers to assess the true depth and area of a wound, thus revealing the worsening of the wound that took place prior to debridement.

Another major concern regarding the quality measure was the accuracy of data and burden of staff training. Both LTCH and IRF TEP members expressed that there is a lack of standardization in assessment items, measure definition, and attribution across different facilities and that it would be very challenging to ensure accuracy of pressure ulcer staging and coding. This concern was further reflected in the questions received in the three technical assistance mailboxes. In all three settings, NHs, LTCHs and IRFs, providers submitted several detailed questions regarding the appropriate coding and staging of ulcers, demonstrating that there remains significant confusion among some facilities. One frequently suggested first step to addressing this issue was to align CMS staging definitions with the staging guidelines from the National Pressure Ulcer Advisory Panel (NPUAP).

Recommendations regarding which types and stages of pressure ulcers to include in the quality measure ranged from "include all stages (event Stage 1 pressure ulcers)" to "include only Stage 3 and 4 pressure ulcers." The most common recommendation made across all groups was that CMS should continue to consider the way they include unstageable pressure ulcers and DTIs in the quality measure.

Several commenters and reviewers expressed that NQF #0678 should address pressure ulcers that have healed or have improved. Although many individuals applauded CMS' decision to align with NPAUP and not allow "backstaging"[14] of pressure ulcers that are healing, others noted that this decision leaves unaddressed the issue of giving facilities credit for improving or healing pressure ulcers. Stakeholders and experts pointed out that healing is an important clinical priority for pressure ulcer care that should not be ignored.

Among LTCH and IRF providers there was some concern regarding the 3-day interrupted stay rule, which holds providers accountable for a patient who is discharged from their facility and returns within 3 days. Although these providers recognized the importance of care coordination and communication, they felt it was unreasonable to hold them accountable for care that was provided in another health care facility.

Several stakeholders and experts made recommendations regarding both the risk adjustment and exclusions for NQF #0678. These recommendations varied by group and setting, however, all agreed that CMS should continue to review these specifications of the measure. The most frequently made recommendation regarding exclusions across three health care settings was to exclude patients at the end of life.

[14] The decision not to include "backstaging" in the quality measure was made based on NPUAP's clinical recommendation (http://www.npuap.org/wp-content/uploads/2012/01/Reverse-Staging-Position-Statement.pdf) not to backstage pressure ulcers because backstaging "does not accurately characterize what is physiologically occurring." NPUAP states in their position paper, "Pressure ulcers heal to progressively more shallow depth, they do not replace lost muscle, subcutaneous fat, or dermis before they re-epithelialize. Instead, the ulcer is filled with granulation (scar) tissue composed primarily of endothelial cells, fibroblasts, collagen and extracellular matrix. A Stage IV pressure ulcer cannot become a Stage III, Stage II, and/or subsequently Stage I."

The following sections provide a brief description of the feedback obtained from each group contributing to the summary in **Table 2.**

3.2.2 Technical Expert Panel Reviews

TEPs representing all three health care settings (NH/SNF, LTCHs and IRFs) met throughout the history of NQF #0678 to discuss its development and implications in their respective health care settings. RTI reviewed and briefly summarized the proceedings of each TEP meeting below.

Nursing Home/Skilled Nursing Facility Technical Expert Panel

The NH/SNF TEP met in 2009[15] to advise RTI on the transition from the MDS 2.0 to the MDS 3.0. The key changes, related to the pressure ulcer items in the MDS, which the TEP reviewed, are displayed in **Figure 1**.

Figure 1. Changes in Pressure Ulcer Data Collection Items: Transition from MDS 2.0 to MDS 3.0

- Revision of data items: whenever possible language was revised to align with other health care settings and advisory groups such as the National Pressure Ulcer Advisory Panel (NPUAP) language.
- Elimination of reverse staging (an ulcer cannot be declared a lower stage at a later assessment).
- Pressure ulcer staging based on deepest anatomical change (to align with Wound Ostomy, and Continence Nurses Society (WOCN), National Pressure Ulcer Advisory Panel (NPUAP).
- Unstageable pressure ulcers are assessed as separate items (NPUAP, WOCN).
- The number of pressure ulcer that were present on admission is collected for each stage.
- Stage 1 pressure ulcers are not included in the proposed quality measure. Researchers have suggested that inclusion of Stage 1 pressure ulcers in the quality measures adds little value, penalizes facilities for early identification, and they are inconsistently assessed especially for populations with darker skin.

TEP Recommendations: Overall the NH/SNF TEP was supportive of the MDS 3.0 pressure ulcer items and felt they represented a significant improvement over the prior items. They were particularly pleased with the decision to more closely align staging definitions with NPUAP definitions, as well as the decision not to allow reverse staging. The TEP did express

[15] Constantine, R., Walsh, E., Brown, D., Freiman, M., Greene, A., West, N., …, Cromwell, G. (2009, March). *Technical expert panel report: Transition of publicly reported nursing home measures to MDS 3.0.* Prepared for the Centers for Medicare & Medicaid Services. Research Triangle Park, NC: RTI International.

several concerns regarding the items. Their key concerns, which are still relevant to the current version of NQF #0678, are listed below.

- Some TEP members thought DTIs and all unstageable pressure ulcers that are present at admission should be excluded from the measure. They suggested that DTIs often open as part of the healing process, but an open wound is generally counted as a negative occurrence. Other TEP members believed that DTIs should be considered a risk factor for pressure ulcers.

- Many TEP members recommended combining Stage 3 and 4 pressure ulcers into one category, because few were reported at the time of review. Also, a University of Colorado report on Pressure Ulcers,[16] which the TEP reviewed, reported that recent research indicates that Stage 2 ulcers respond differently to intervention than do more severe ulcers.[17] Therefore, many TEP members recommended that Stage 2 ulcers should be reported separately, while Stage 3 and 4 ulcers should be reported together.

- Some TEP members recommended excluding residents at the end of life. Many TEP members thought this exclusion would be too broad and felt that total co-morbidity of disease was more important. TEP members felt that co-morbidity would be important for risk adjustment

- The data presented to the TEP suggested that the post-acute care pressure ulcer measure was affected by seasonal variation, suggesting that factors other than quality of care influence facility triggering rates.

Long-Term Care Hospital Technical Expert Panel

The LTCH TEP considered NQF #0678 for application in the LTCH setting in January 2011,[18] July 2011,[19] and March 2012.[20] The TEP rated the measure as very high in importance and scientific soundness however, they were concerned regarding usability and feasibility. Their key concerns were as follows:

- The TEP was concerned regarding the time required for staff education and training to implement the measure. TEP members shared that there is a lack of standardization in assessment, measure definition, and issues of attribution across different facilities.

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[16] Brega, A., Goodrich, G., Hittle, D., Conway, K., & Levy, C. (2008). *Empirical review and validation of refined pressure ulcer quality measures* (draft). Denver, CO: University of Colorado at Denver, Division of Health Care Policy and Research.

[17] Lynn, J., West, J., Hausmann, S., Gifford, D., Nelson, R., McGann, P., Ryan, J. A. (2007). Collaborative clinical quality improvement for pressure ulcers in nursing homes. *Journal of the American Geriatrics Society, 55,* 1663–1669.

[18] Thaker, S., Gage, B. J., Bernard, S. L., & Nguyen, K. H. (2011, March). *Technical expert panel report: Quality measures for long-term care hospitals*. Prepared for the Centers for Medicare & Medicaid Services. Research Triangle Park, NC: RTI International.

[19] Thaker, S., Nguyen, K. H., Bernard, S. L., Gage, B. J., Lewis, R., West, N., & Jarrett, N. (2011, September). *Technical expert panel report: Summary of long-term care hospital (LTCH) technical expert panel.* Prepared for the Centers for Medicare & Medicaid Services. Research Triangle Park, NC: RTI International.

[20] Call notes: Development and maintenance of symptom management measures, HHSM-500-2008-00021I. LTCH TEP call. March 8, 2012. Available by request from RTI.

- Some TEP members questioned the use of the word "worsening" in the title of the measure and some felt that the worsening component should be eliminated from the measure." They were concerned regarding the ability to determine whether a pressure ulcer has truly worsened, given that an existing pressure ulcer could appear as if it has worsened, but this may be due to treatment and/or the healing process and not poor quality of care.

- LTCH TEP members expressed the need for standardization and harmonization with the NPUAP, in terms of the definitions and language around pressure ulcers. The TEP was particularly concerned regarding the definition of DTIs. They felt that the way CMS defined DTIs made it difficult to differentiate between DTIs and Stage 2 pressure ulcers and encouraged CMS to use the NPUAP definition for DTIs.

- The TEP felt the measure should be risk-adjusted to take into account the many co-morbidities common among LTCH patients. They recommended testing the following variables for risk adjustment: pre-albumin and albumin; enforced immobility; medication-related wound healing impairments (steroids, metabolites); length of stay in acute hospital settings; intensive care unit use; weight loss; and presence of pelvic or long-bone fractures.

- Some experts strongly suggested consideration of a process measure for pressure ulcers as well as a measure to address resolution of wounds.

- TEP members discussed the possibility of including healed pressure ulcers in the quality measure. One TEP member shared that most pressure ulcers will not heal during the length of an LTCH stay, as such this TEP member did not believe a measure of pressure ulcer healing would reflect the true quality of care in LTCHs.

- Similar to the NH/SNF TEP, the LTCH TEP recommended CMS consider the inclusion of unstageable ulcers and DTIs in the quality measure.

- The TEP recommended excluding patients at the end of life.

- One LTCH TEP member recommended including only pressure ulcers that are Stage 3 or greater.

- The LTCH TEP also suggested that the increased focus on pressure ulcers may result in an overuse of ultrasound on admission as an attempt to document pressure ulcers present on admission.

Inpatient Rehabilitation Facility Technical Expert Panel

The IRF TEP discussed NQF #0678 in January[21] and July[22] of 2011 and had several similar recommendations to those made by the LTCH TEP. They were generally positive about the

[21] Bernard, S. L., Gage, B. J., Etlinger, A. L., Nguyen, K. H., & Thaker, S. (2011, March). *Technical expert panel report: Quality measures for inpatient rehabilitation facilities*. Prepared for the Centers for Medicare & Medicaid Services. Research Triangle Park, NC: RTI International.

[22] Bernard, S. L., Gage, B. J., Etlinger, A. L., West, N., Lewis, R., Thaker, S. & Deutsch, A. (2011, August). *Technical expert panel report: Quality measures for inpatient rehabilitation facilities*. Prepared for the Centers for Medicare & Medicaid Services. Research Triangle Park, NC: RTI International.

measure and rated it highly in importance, scientific soundness, and usability, however, they did have several recommendations. Their key concerns were as follows:

- Like their LTCH counterparts the IRF TEP were concerned regarding the use of the word "worsened" in the measure and stated that worsening is hard to identify. They stated that many ulcers are still evolving at admission and are getting worse due to damage done before admission to the IRF.

- Similar to the LTCH and NH/SNF TEPs the IRF experts stressed the importance of alignment with the NPUAP staging definitions.

- The IRF TEP expressed concerns regarding the lack of standardization in pressure ulcer measurement, as well as with the subjectivity of the staging of severe pressure ulcers, and the lack of clinician training in this area. They felt it would be difficult to come up with a documentation system that would be consistent across all providers and worried about the training required to implement this quality measure.

- The experts stressed the importance of risk adjustment and mentioned several factors which may contribute to pressure ulcer development and worsening, including severity of illness, seasonal variation, patient's level of skin moisture, nutrition, the use of lifting devices, level of nursing, sensory impairment, neurological disorders, and spinal cord injury. Several TEP members also mentioned that behavioral symptoms and cognitive impairment can play important roles in the formation of pressure ulcers, given their relationship to restraint use and adherence to therapeutic interventions

- TEP members felt that inability to reverse stage[23] fails to recognize facilities for pressure ulcers that heal.

- This TEP recommended that the measure be defined with the following categories: Stage 3 and 4, unstageable, deep-tissue injury, and full-thickness wounds.

National Quality Forum Quality Measure Reviews

The NQF has conducted two full reviews of NQF #0678. The first occurred in 2010 as part of the review process for updating quality measures to comply with the implementation of a new version of the MDS, version 3.0. At that time the NH steering committee reviewed NQF #0678 as part of a group of 25 nursing home quality measures under consideration. Although the committee supported this measure and identified it as well-specified and important, they did identify a few weaknesses and voted to approve the measure for time limited endorsement, requiring submission and review of testing results to obtain full endorsement. The committee requested that the measure testing include consideration of the weaknesses, which are still potentially relevant to the current version of NQF #0678 include: The weaknesses identified by the committee that are still relevant to the current version of NQF #0678, include the following:

[23] See footnote 14 on the NPUAP's position statement on reverse staging

- The committee was concerned that the measure fails to address several risk factors that may influence the development of pressure ulcers, including the patient's level of skin moisture or nutrition, the use of lifting devices, and levels of nurse staffing.
- One committee member expressed concern that the MDS coding requirement for the definition of a DTI differs from the definition used by the NPUAP.
- Seasonal variation is not considered in the measure specifications.

In July 2012 the NQF Consensus Standards Approval Committee reviewed the measure to determine whether the time-limited status could be removed from the measure endorsement status. At the same time, the NQF Consensus Standards Approval Committee considered the application to expand the measure to LTCHs and IRFs. RTI and CMS provided results for validity and reliability testing for measure, as well as information regarding the applicability of the measure to the two additional settings. NQF voted to remove the time-limited status from the measure endorsement and did not make any other comments regarding the measure.[24]

National Quality Forum Measure Application Partnership

A review of all final reports provided by the Measure Application Partnership (MAP) to the Department of Health and Human Services regarding the selection of performance measure and setting strategic goals for quality measurement, does not reveal any significant commentary regarding NQF #0678. Although the MAP acknowledges that pressure ulcers are a high impact condition in the post-acute setting and an important goal for improvement of patient safety and care coordination[25,26], and lists NQF #0678 as one of the available quality measures relevant to pressure ulcers, is does not provide substantial feedback about the measure.

PubMed Search and Key Stakeholder Websites

RTI searched both PubMed and several government and key stakeholder websites to identify any additional commentary on the quality measure as of August 2013; however, no relevant feedback was identified.

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[24] National Quality Forum Consensus Standards Approval Committee. (2012, July 11). *Transcript.* Retrieved from http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier = id&ItemID = 71612

[25] National Quality Forum. (2012, February). *MAP coordination strategy for post-acute care and long-term care performance measurement*. Retrieved from http://www.qualityforum.org/publications/2012/02/map_coordination_strategy_for_post-acute_care_and_long-term_care_performance_measurement.aspx

[26] National Quality Forum. (2011, October). *MAP coordination strategy for healthcare-acquired conditions and readmissions across public and private payers*. Retrieved from http://www.qualityforum.org/Publications/2011/10/MAP_Coordination_Strategy_for_Healthcare-Acquired_Conditions_and_Readmissions_Across_Public_and_Private_Payers.aspx

Search terms used included "Percent of Residents or Patients with Pressure Ulcers that are New or Worsened," "Percent of Residents with Pressure Ulcers that are New or Worsened," "NQF #0678", "pressure ulcer quality measures," "pressure ulcers," and "quality measures"

A list of the websites included in the search is below:

Government Websites: AHRQ**,** Joint Commission, U.S. Department of Veterans Affairs

Wound Care Organizations: NPUAP**,** Wound Ostomy and Continence Nurses Society**,** National Alliance of Wound Care**.** Association for the Advancement of Wound Care

Quality Improvement Organizations: Institute for Health Improvement, National Committee for Quality Insurance

Setting and Provider Organizations: American Nursing Association, American Medical Association, American Medical Directors Association, American Healthcare Association Advancing Excellence in America's Nursing Homes, National Association of Long Term Hospitals, American Medical Rehabilitation Providers Association, National Association for Home Care & Hospice, American Hospital Association, American Physical Therapy Association, Academy of Nutrition and Dietetics

Public Comments

Both the LTCH and IRF Quality Reporting Programs utilized the federal rulemaking process to propose and finalize the implementation NQF #0678 in their respective health care settings. During the FY 2012, 2013, and 2014 rulemaking periods both reporting programs received public comments in reaction to NQF #0678. A review of these comments provides an opportunity to understand the concerns that stakeholders have in regards to the quality measures and gain insights into future areas for quality measure improvement.

RTI compiled the comments received (as summarized in the federal register) in reaction to the implementation of NQF #0678 in both the LTCH and IRF quality reporting programs in the following six final rules:

LTCH Final Rules

- FY 2012 Inpatient Prospective Payment System (IPPS)/LTCH PPS Final Rule (76 FR 51749 - 51755, August 2011)
- FY 2013 IPPS/LTCH PPS Final Rule (77 FR 53617-53619 August 2012)
- FY 2014 IPPS/LTCH PPS Final Rule (78 FR 50861 through 50863, August 2013)

IRF Final Rules

- FY 2012 IRF PPS Final Rule (76 FR 47876 through 47880, August 2011)

- FY 2013 Outpatient Prospective Payment System/Ambulatory Surgery Center/IRF PPS Final Rule (77 FR 68505 through 68507, November 2012)
- FY 2014 IRF PPS Final Rule (78 FR 26909 through 26930, August 2013)

RTI reviewed all comments received by the quality reporting programs, across three years, and summarized the trends below. The goal of the summary is to provide an overview of those comments that may be considered for future measure development. Comments that pertain to issues that have been addressed, are inaccurate, or do not directly relate to the measure are not included the summary.

LTCH Quality Reporting Program

Overall Measure Concept and Title: Although several stakeholders were supportive of this measure, a few did not believe it was appropriate for CMS to implement a measure in the LTCH setting that was originally developed for the NH/SNF setting. While many of these comments were received in the years before NQF endorsement, commenters continued to express concerns regarding the appropriateness of the measure in the FY2014 final rule (after endorsement had been obtained for the LTCH setting).

Commenters were concerned regarding pressure ulcers that develop at another facility during a 3-day interrupted stay and did not want to be held accountable for their care. One commenter mentioned that when a patient is discharged from an LTCH to another facility, the LTCH is not able to control the care provided in the other facility and does not have a professional responsibility for the care of the patient (FY2013, FY2014).

Several commenters had suggestions regarding alternate measure concepts for CMS to consider, including

- a measure that specifically addresses pressure ulcer healing. (FY2014),
- a measure of hospital-acquired infections of pressure ulcers or wounds. (FY2014), and
- a measure of patients per 1,000 days who suffered a pressure ulcer (FY2012).

Measure Specifications: Only a limited number of commenters remarked on the specifications of this measure. One commenter suggested that the measure does not properly take into account unavoidable pressure ulcers, or ulcers that are not caused by poor quality care. This commenter expressed that not all pressure ulcers progress through the numeric stages that are included in the data elements that LTCHs must report on, and that worsening should not be defined as a pressure ulcer which increases in stage (FY2014).

Specific Data Elements: One commenter expressed concern regarding the presence of a pressure ulcer that cannot be staged and stated that such an ulcer should not be classified as ''unstageable simply because it was not examined.'' The commenter was concerned regarding dressings that are not removed at admission and stated that ''it would border on negligent if a dressing was not removed from a known wound on an admission to an LTCH within the 3 days assessment.'' (FY2014)

IRF Quality Reporting Program

Overall Measure Concept and Title: Similar to the LTCH stakeholders, IRF stakeholders questioned the appropriateness NQF #0678 Percent of Residents or Patients with Pressure Ulcers that are New or Worsened (Short-Stay) to the IRF setting because it was originally developed for the NH/SNF setting. One commenter recommended that CMS refrain from adopting the NQF-endorsed version of the measure and wait to align with the findings of the cross-setting pressure ulcer TEP. (FY2014)

One commenter expressed concern regarding comparing pressure ulcer rates between IRFs, because of the variety of patient populations served by different IRFs. The commenter suggested that CMS develop a mechanism whereby IRFs are not compared to IRFs that serve different populations. (FY2013)

IRF stakeholders were also worried about the use of the term "worsening" in the title and expressed that there is ambiguity in the definition of worsening. Commenters recommended the measure be based solely on "new" pressure ulcers. (FY2012) Additionally, several commenters wanted to ensure they were not unfairly held accountable for wounds they did not cause. For example, one commenter mentioned the removal of a ''non-removable device or other dressing'' during the IRF stay, for which there was no documentation from the discharging hospital, should not be counted on the IRF-PAI. (FY2014) Another stated that "DTIs are ''wounds'' that are evolving or in the process of ''declaring'' their final stage and that some DTIs cannot be adequately recorded upon admission, and the wound later progresses to its final stage, it will appear that the IRF was responsible for the pressure ulcer, instead of the location where the DTI occurred."(FY2013)

One commenter suggested that CMS take pressure ulcer healing into account in the quality measure (FY2014) and another recommended the use of the NPUAP Push tool to assess wound healing. (FY2012)

In the FY2014 final rule, several commenters were concerned regarding the burden caused by the new pressure ulcer items added to the IRF-PAI.

Measure Specifications: Several commenters applauded CMS' adoption of NPUAP's stance that measurement of pressure ulcers should not be based on reverse staging. (FY2012) However, several also had concerns regarding measure specifications:

- One commenter suggested that CMS only include Stages 3 and 4 pressure ulcers in the quality measure (harmonizing with the IPPS). (FY2012)
- Some commenters questioned why unstageable pressure ulcers and suspected DTIs (sDTIs) were not included in the measure. (FY2012)
- Several commenters recommended CMS consider including Stage 1 pressure ulcers in the quality measure. One commenter explained that if Stage 1 wounds are not adequately treated, they will progress to more serious wounds. (FY2012, FY2014)
- Several commenters requested that CMS consider adding impairment group as a risk adjuster for the pressure ulcer measure. (FY2014)

Specific Data Elements: Several commenters suggested that there was confusion regarding how to code certain types of pressure ulcers and pointed out that the staging definitions did not match with the NPUAP definitions. One commenter in particular stated that CMS has given conflicting guidance on how to stage and document pressure ulcer data on the Inpatient Rehabilitation Facility–Patient Assessment Instrument (IRF-PAI) during several different provider outreach activities. Another commenter stated that "modifications to the ''Quality Indicator'' section of the IRF-PAI are confusing."(FY2013)

One commenter recommended that measure should track the size, in addition to the stage, of each ulcer. (FY2012)

Quality Reporting Help Desks

RTI reviewed all of the frequently asked questions pertaining to the pressure ulcer items sent to the CMS for the MDS 3.0 Helpdesk (Submitted to CMS), the LTCH Quality Reporting Program Helpdesk (LTCHQualityQuestions@cms.hhs.gov) and the IRF Quality Reporting Program Helpdesk (IRF.Questions.cms.hhs.gov), as of July 31, 2013 and identified themes relevant to potential measure development.

Overall the review of questions received in the mailboxes did not introduce any new areas of potential measure development for the quality measure. However, it did confirm that there are providers who are confused regarding this coding and staging of pressure ulcers. Many providers, in all three settings, submitted questions regarding very specific clinical scenarios and asked for help completing the relevant data set. Providers also submitted detailed questions focused on such issues as the timing of assessments, what types of providers were authorized to conduct assessment, documentation of wounds that split or merge, documentation of surgical wounds and/or wounds that were debrided, documentation of other types of ulcers such as Kennedy ulcers and mucosal ulcers, and scenarios where the

staff was unable to assess the wound (due to patient refusal or clinical indications against turning).

One particular area of confusion across all three settings was the documentation of unstageable pressure ulcers and DTIs. In addition to expressing a lack of clarity regarding how to document these wounds, providers expressed some disagreement about how they were counted in the quality measure. For example, one LTCH Provider asked, "Why has CMS adapted National Pressure Ulcer Advisory Panel (NPUAP) guidelines related to blisters and deep tissue injury?" Another suggested that a Stage 2 wound which was found to be covered in slough should automatically be considered worsened, and that the presence of slough should indicate at least a Stage 3 wound.

Several providers also had questions regarding pressure ulcers that healed or improved during the stay. Although many providers were aware of CMS' policy not to "backstage" ulcers, they still hoped to receive credit for improving wounds and especially for those wounds that healed completely during the stay.

Finally, many providers were concerned regarding pressure ulcers that were present on admission. They specifically asked about those wounds that were recently closed or healed just before admission and could easily open up again. Additionally providers asked about wounds that were documented as one stage at discharge by the prior facility, but appeared at a different stage upon admission.

3.3 Technical Advisor and Provider Interviews

RTI conducted a series of interviews regarding NQF #0678 and the development of a cross-setting quality measure. The primary goal of these interviews was to gain insights into both the strengths, and areas of concern and confusion surrounding the quality measure, and to identify topics for future discussion by a cross-setting pressure ulcer TEP. These interviews included conversations with five technical advisors who had worked with CMS during the development and implementation of the pressure ulcer measure (NQF #0678) or consulted on other pressure ulcer-related projects. Technical experts provided feedback regarding the measure, its specification, data collection tools used, and concerns regarding pressure ulcer quality measurement. RTI also interviewed staff at one LTCH and one IRF that had recently implemented the pressure ulcer measure (NQF #0678) and asked them to provide feedback on their experience with the quality measure thus far. These interviews included both clinical staff working at the patient bedside and team members responsible for data collection and entry into the respective data sets.

3.3.1 Methods

The interviews were conducted via telephone between December 2012 and March 2013. RTI developed an individual set of questions before each interview, based on the expertise of the interviewee. CMS reviewed each set of questions in advance and RTI and CMS collaborated to conduct the interviews.

3.3.2 Findings

General Comments

Interviewees were generally supportive of the NQF #0678. However, some individuals expressed concern regarding the conflict the measure created between clinical goals and quality measure goals. One example of this concern occurs in the IRF setting: often the use of important clinical devices for rehabilitative therapies may lead to the unintended consequence of pressure ulcer development. In this case, providers are asked to choose between providing optimal rehabilitative care and preventing pressure ulcers.

Interviewees reported that the implementation of the quality measure did not require extensive modification of clinical or workflow practices, although it did increase awareness of pressure ulcer assessment. Some organizations required additional staff training on appropriate pressure ulcer assessment, staging, and documentation to guarantee accuracy. Staff mentioned that at times, especially early in implementation, the burden of data collection was overwhelming.

Measure Definition

Several interviewees shared that clinical staff were often confused because the definitions of the pressure ulcers stages in the quality measure differed from those provided by other organizations, such as NPUAP. They emphasized the importance of aligning staging definitions with clinical guidelines, especially the NPUAP guidelines. They also suggested that unstageable pressure ulcers and suspected DTIs should be included in the quality measure, as these can have significant implications regarding the quality of care.

Interviewees had mixed opinions regarding the reporting of Stage 1 pressure ulcers. While some believed that Stage 1 ulcers and their management were important indicators of the quality of care, others stated that only Stage 2 or higher—or, in some cases, Stage 3 or higher—were indicative of quality of care. Those who did not support the inclusion shared that Stage 1 ulcers cannot be reliably identified and can be caused by a variety of factors that are not always related to the quality of care. One technical advisor suggested that, rather than being numerically staged, ulcers should be described as “partial thickness” or “full thickness.”

Another concern expressed during the interviews was that, in its current form, the pressure ulcer measure does not document the complete trajectory of each individual pressure ulcer.

Although some organizations believed that this trajectory would be important to include, others said that it was unnecessary and a summary measure would be adequate. Furthermore, some organizations noted that facilities should be able to document whether a pressure ulcer was acquired and healed during the stay, as this is a key indicator of quality of care provided.

Data Collection

With respect to data collection, the greatest challenge described by interviewees was assessing whether or not providers are collecting, reporting, and submitting data appropriately and, if not, identifying ways to train providers. Many interviewees discussed the importance of the accuracy of coding and suggested that providers have difficulty with current definitions in the pressure ulcer quality measure (NQF #0678), especially because they differ from the NPUAP definitions.

One technical advisor suggested that it would be valuable to modify the data collection systems to reduce errors in reporting. For example, some providers code a pressure ulcer as Stage 2 despite its having slough and eschar. Data collection instruments could note whether a pressure ulcer has slough and eschar and, if the provider indicates that the pressure ulcer is Stage 2, the instrument can suggest correction.

The most frequently mentioned source of inaccurate coding was related to DTIs that originally appear as a Stage 2 and later declare as Stage 3 or 4 and whether this occurrence qualifies as "worsened."

Several individuals also expressed concerns about the reporting of unstageable pressure ulcers and the ability of providers to game the system by covering ulcers with dressings and devices. They also expressed concerns regarding attribution for pressure ulcers that were present on admission. While they acknowledged that the measure does account for these ulcers, they expressed the importance of ensuring that admitting facilities are not held accountable, especially as this measure is further developed and possibly expanded. One interviewee who works at a facility currently reporting NQF #0678, expressed that it was unfair to be held accountable for an ulcer that develops during a 3-day interrupted stay.

Electronic Data Collection

Several interviewees were experts in electronic data collection and had contributed significantly to development of large data warehouses. These experts stated that one of the major challenges with electronic data collection across multiple settings is agreeing on definitions and specifications that work for all providers. Additionally, it is important to think about data usability and flow within the natural provider workflow, and data collection systems would ideally pull from pre-existing medical records and health information systems. Otherwise, the time burden of data collection can become a concern. Electronic

data collection systems can be built to include a series of checks to ensure better accuracy and quality of data entry.

Risk Adjustment

Although there was agreement that the current covariates are appropriate for the measure, several of the technical advisors suggested that the measure be adjusted for terminally ill patients or patients undergoing comfort care. Additional risk factors recommended for consideration included septic patients, patients who had cardiac arrest, patients with severe hypoxia, hemodynamically unstable patients, and patients with unintended weight loss.

3.4 Expansion to Additional Health Care Settings

One of the long-term goals of the development of NQF #0678 is to consider expanding the quality measure into additional health care settings. Two of these potential settings are home health agencies and acute inpatient hospitals. To facilitate the expansion to these facilities and identify areas for potential concern, RTI conducted a brief review of the current state of pressure ulcer measurement in these settings.

3.4.1 Home Health Agencies

home health agencies report data using the modified Outcome and Assessment Information Set (OASIS-C) data set for collection of pressure ulcer data as part of the Home Health Quality Initiative. The Home Health Quality Initiative requires public reporting of one quality measure related to pressure ulcers. This measure, NQF #0538, is a three-component process measure that includes pressure ulcer risk assessment, pressure ulcer prevention plan of care, and pressure ulcer prevention implemented during short-term episodes of care. In addition to this quality measure, the Home Health Quality Initiative collects data on six additional process measures and three outcome measures, the results of which are shared only with home health agencies. **Table 3** displays the Home Health Quality Measures and their specifications.

In addition to publicly reporting NQF #0538, in their 2011 Final Rule (42 FR 70372–70485, November 2010) the Home Health Quality Initiative, finalized “Increase in the Number of Pressure Ulcers” for public reporting This quality measure assesses the percentage of patient episodes in which there was an increase in the number of unhealed pressure ulcers. This measure was removed from the Home Health Quality Initiative in the 2012 Final Rule, (76 FR 68526–68605, November 2011), because the Home Health Quality Initiative “determined that the rates for this measure do not distinguish between poor performance and good performance and the risk adjustment model for this measure is insufficient.” The decision to remove this measure due to insufficient data indicates a potential concern regarding the availability of pressure ulcer data, and the implications this could have on data collection for NQF #0678.

Table 3. Home Health Quality Initiative — Pressure Ulcer Quality Measures*

Title	Description	Numerator	Denominator	Exclusions
Pressure Ulcer Prevention and Care (NQF #0538)	Pressure Ulcer Risk Assessment Conducted: Percentage of home health episodes of care in which the patient was assessed for risk of developing pressure ulcers at start/resumption of care. Pressure Ulcer Prevention Included in Plan of Care: Percentage of home health episodes of care in which the physician-ordered plan of care included interventions to prevent pressure ulcers. Pressure Ulcer Prevention Implemented during Short Term Episodes of Care: Percentage of short term home health episodes of care during which interventions to prevent pressure ulcers were included in the physician-ordered plan of care and implemented.	Pressure Ulcer Risk Assessment Conducted: Number of home health episodes of care in which the patient was assessed for risk of developing pressure ulcers either via an evaluation of clinical factors or using a standardized tool, at start/resumption of care. Pressure Ulcer Prevention Included in Plan of Care: Number of home health episodes of care in which the physician-ordered plan of care included interventions to prevent pressure ulcers. Pressure Ulcer Prevention Implemented during Short Term Episodes of Care: Number of home health episodes of care during which interventions to prevent pressure ulcers were included in the physician-ordered plan of care and implemented.	Pressure Ulcer Risk Assessment Conducted: Number of home health episodes of care ending during the reporting period, other than those covered by generic exclusions. Pressure Ulcer Prevention Included in Plan of Care: Number of home health episodes of care ending during the reporting period, other than those covered by generic exclusions. Pressure Ulcer Prevention Implemented during Short Term Episodes of Care: Number of home health episodes of care ending during the reporting period, other than those covered by generic or measure-specific exclusions	Pressure Ulcer Risk Assessment Conducted: No measure-specific exclusions. Pressure Ulcer Prevention Included in Plan of Care: Episodes in which the patient is not assessed to be at risk for pressure ulcers. Pressure Ulcer Prevention Implemented during Short Term Episodes of Care: Number of home health episodes in which the patient was not assessed to be at risk for pressure ulcers, or the home health episode ended in transfer to an inpatient facility or death.
Pressure Ulcer Treatment Based on Principles of Moist Wound Healing in Plan of Care	Percentage of home health episodes of care in which the physician-ordered plan of care includes pressure ulcer treatment based on principles of moist wound healing (or an order was requested).	Number of home health episodes of care in which pressure ulcer treatment based on principles of moist wound healing was specified in the physician-ordered plan of care (or an order was requested).	Number of home health episodes of care ending with discharge, death, or transfer to inpatient facility during the reporting period, other than those covered by generic or measure-specific exclusions.	Home health episodes where patient has no pressure ulcers with need for moist wound healing at start/resumption of care.

(continued)

Table 3. Home Health Quality Initiative - Pressure Ulcer Quality Measures* (continued)

Title	Description	Numerator	Denominator	Exclusions
Treatment of Pressure Ulcers Based on Principles of Moist Wound Healing Implemented during Short Term Episodes of Care	Percentage of short term home health episodes of care during which pressure ulcer treatment based on principles of moist wound healing was included in the physician-ordered plan of care and implemented.	Number of home health episodes of care during which pressure ulcer treatment based on principles of moist wound healing was included in the physician-ordered plan of care and implemented.	Number of home health episodes of care ending with a discharge or transfer to inpatient facility during the reporting period, other than those covered by generic or measure-specific exclusions.	Home health episodes where patient has no pressure ulcers with need for moist wound healing between start/resumption of care assessment and discharge/transfer, OR an assessment for recertification or other follow-up was conducted between start/resumption of care and transfer or discharge, OR patient died.
Treatment of Pressure Ulcers Based on Principles of Moist Wound Healing Implemented during Long Term Episodes of Care	Percentage of long-term home health episodes of care during which pressure ulcer treatment based on principles of moist wound healing was included in the physician-ordered plan of care and implemented (since the previous OASIS assessment).	Number of home health episodes of care during which pressure ulcer treatment based on principles of moist wound healing was included in the physician-ordered plan of care and implemented (since the previous OASIS assessment).	Number of home health episodes of care ending with a discharge or transfer to inpatient facility during the reporting period, other than those covered by generic or measure-specific exclusions.	Home health episodes where patient has no pressure ulcers with need for moist wound healing between previous assessment and discharge/transfer, OR NO assessment for recertification or other follow-up was conducted between start/resumption of care and transfer or discharge, OR patient died.
Treatment of Pressure Ulcers Based on Principles of Moist Wound Healing Implemented during All Episodes of Care	Percentage of home health episodes of care during which pressure ulcer treatment based on principles of moist wound healing was included in the physician-ordered plan of care and implemented (since the previous OASIS assessment).	Number of home health episodes of care during which pressure ulcer treatment based on principles of moist wound healing was included in the physician-ordered plan of care and implemented (since the previous OASIS assessment).	Number of home health episodes of care ending with a discharge or transfer to inpatient facility during the reporting period, other than those covered by generic or measure-specific exclusions.	Home health episodes where patient has no pressure ulcers with need for moist wound healing between previous assessment and discharge/transfer, OR patient died.

(continued)

Table 3. Home Health Quality Initiative - Pressure Ulcer Quality Measures* (continued)

Title	Description	Numerator	Denominator	Exclusions
Pressure Ulcer Prevention Implemented during Long Term Episodes of Care	Percentage of long-term home health episodes of care during which interventions to prevent pressure ulcers were included in the physician-ordered plan of care and implemented (since the previous OASIS assessment).	Number of home health episodes of care during which interventions to prevent pressure ulcers were included in the physician-ordered plan of care and implemented (since the previous OASIS assessment).	Number of home health episodes of care ending with a discharge or transfer to inpatient facility during the reporting period, other than those covered by generic or measure-specific exclusions.	Home health episodes for which formal assessment indicates the patient was NOT at risk of developing pressure ulcers at or since the last OASIS assessment before transfer/discharge, OR NO assessment for recertification or other follow-up was conducted between start/resumption of care and transfer or discharge, OR the patient died.
Pressure Ulcer Prevention Implemented during All Episodes of Care	Percentage of home health episodes of care during which interventions to prevent pressure ulcers were included in the physician-ordered plan of care and implemented (since the previous OASIS assessment).	Number of home health episodes of care during which interventions to prevent pressure ulcers were included in the physician-ordered plan of care and implemented (since the previous OASIS assessment).	Number of home health episodes of care ending with a discharge or transfer to inpatient facility during the reporting period, other than those covered by generic or measure-specific exclusions.	Home health episodes for which formal assessment indicates the patient was NOT at risk of developing pressure ulcers at or since the last OASIS assessment before transfer or discharge, OR the patient died.
Increase in Number of Pressure Ulcers (NQF #0201, withdrawn)	Percentage of home health episodes of care during which the patient had a larger number of pressure ulcers at discharge than at start of care.	Number of home health episodes of care where the discharge assessment indicates more pressure ulcers (stage II or higher, or unstageable) at discharge than at start/resumption of care.	Number of home health episodes of care ending with a discharge during the reporting period, other than those covered by generic or measure-specific exclusions.	Home health episodes of care that end with inpatient facility transfer or death

(continued)

Table 3. Home Health Quality Initiative - Pressure Ulcer Quality Measures* (continued)

Title	Description	Numerator	Denominator	Exclusions
Discharged to the Community Needing Wound Care or Medication Assistance	Percentage of home health episodes of care at the end of which the patient was discharged, with no assistance available, needing wound care or medication assistance.	Number of home health episodes of care where, at discharge, patient remained in the home, did not have a live-in caregiver, and had a pressure ulcer of stage III or IV, or a non-healing surgical wound, or a non-healing stasis ulcer, or was totally dependent in medication administration.	Number of home health episodes of care ending with a discharge during the reporting period, other than those covered by generic or measure-specific exclusions.	Home health episodes of care for which discharge disposition is unknown at discharge, OR episodes that end with inpatient facility transfer or death
Discharged to the Community with an Unhealed Stage II Pressure Ulcer	Percentage of home health episodes of care at the end of which the patient was discharged with a stage II pressure ulcer that has remained unhealed for 30 days or more while a home health patient.	Number of home health episodes of care where, at discharge, patient remained in the home and had a pressure ulcer of stage II more than 30 days old, and the patient has been on service at least 30 days.	Number of home health episodes of care ending with a discharge during the reporting period, other than those covered by generic or measure-specific exclusions.	Home health episodes of care for which discharge disposition is unknown at discharge, OR episodes that end with inpatient facility transfer or death.

* Measures in this table were obtained from: Centers for Medicare and Medicaid Services. Home Health Quality Initiative Quality Measures. Available (Accessed: 11/4/13): http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HomeHealthQualityInits/HHQIQualityMeasures.html

RTI spoke with a representative for the Home Health Quality Initiative at CMS, who shared the history above, as well as three concerns regarding the expansion of NQF #0678 to home health agencies.

- Home health agencies present a unique set of challenges in pressure ulcer prevention with respect to patients transferred to acute care settings. Transfers make it difficult to identify an accurate number of patients who acquire pressure ulcers because data are not collected if a patient is transferred or discharged to an acute care setting.
- In home health agencies there are greater challenges surrounding adherence to care plans, which make it significantly more difficult for providers to achieve high scores on outcome-based quality measures.
- Only a very small number of Home Health patients acquire pressure ulcers; this small number makes it difficult to risk adjust any pressure ulcer measure.

Despite these concerns, the Home Heath Quality Initiative has added item #M1309 (Worsening in Pressure Ulcer Status since SOC/ROC [start or resumption of care]) to the recently proposed OASIS-C1, which is modeled after the MDS 3.0 item that is used to calculate NQF #0679, M0800: Worsening in Pressure Ulcer Status Since Prior Assessment.

3.4.2 Acute Inpatient Hospitals

The acute inpatient quality reporting (IQR) program currently reports pressure ulcers through AHRQ Patient Safety Indicator (PSI) 03, which is one component of the AHRQ PSI Composite Measure (PSI 90). This measure is a claims based measure reporting discharges among cases meeting the inclusion and exclusion rules for the denominator with ICD-9-CM code of pressure ulcer in any secondary diagnosis field and ICD-9-CM code of pressure ulcer Stage 3 or 4 (or unstageable) in any secondary diagnosis field. The denominator is defined as all medical and surgical discharges age 18 years and older defined by specific diagnosis-related groups (DRGs) or Medicare Severity DRGs (MS-DRGs).

The acute IQR program previously reported the health care-acquired condition (HAC) Pressure Ulcers Stage 3 or 4, which was first finalized in its August 16, 2010, Final Rule (75 FR 50194–50196, available at http://www.gpo.gov/fdsys/pkg/FR-2010-08-16/html/2010-19092.htm). The HACs were removed from the hospital IQR program as part of the FY 2013 IPPS/LTCH PPS Final Rule (77 FR 535097-53509 August 2012) in response to the MAP's recommendation to replace them with NQF-endorsed measures and to reduce redundancy of measures in the program. The removal was strongly supported by providers, who requested the immediate removal to minimize the potential for hospitals to be penalized twice under hospital IQR and HAC payment provisions.

RTI and CMS met with two members of the CMS IQR team to obtain IQR input and inform future efforts to develop a cross-setting measure that might be applicable to Acute Inpatient setting. The IQR team stated that the IPPS is currently looking for an NQF-endorsed measure to replace the previously removed HACs and is currently investigating using the electronic health record (EHR) and creating electronic outcome measures. It is very important to the IQR team that data collection tools are designed to minimize burden and ensure that data collection is incorporated into patient flow.

The IQR team also expressed that some providers may be concerned about transitioning away from the claims-based quality measure to an assessment based quality measure. Additionally, because this measure was originally developed for the NH/SNF setting, providers would likely be concerned about its applicability to acute care. However, the IQR team is open to exploring this measure (NQF #0678) for potential expansion.

3.5 Summary and Conclusions

A review of all previously obtained and current feedback relevant to NQF #0678 reveals that although experts and stakeholders support the continued development, and possible expansion of this quality measure, there are several potential areas for improvement. **Table 4** is an updated version of the table presented earlier in this section. This version includes a new column that reflects the concerns and recommendations identified during the interviews conducted by RTI.

As Table 4 demonstrates, several of the recommendations and concerns regarding NQF #0678 including data collection and alignment with NPUAP definitions, appropriate accounting for pressure ulcers of all stages and types (including unstageables and DTIs), addressing healing pressure ulcers, appropriate risk adjustment, exclusion of patients at the end of life, and the use of the word worsening, have remained unresolved throughout the history of the quality measure and are unresolved to date. The interviews conducted by RTI confirm that these concerns are still present among experts and health care providers, and also introduce a new set of questions regarding the best way to maximize electronic data collection systems and ensure data usability.

Table 4. Previously Obtained Feedback and Feedback from Interviews Regarding NQF #0678

Concern or Recommendation	NH / SNF TEP	LTCH TEP	IRF TEP	NQF	LTCH Public Comments	IRF Public Comments	MDS, LTCH, IRF Help Desks	Interviews
Concern Regarding the Word "Worsening"		X	X	X	X	X		
Device Related Pressure Ulcer			X			X	X	X
Staff Training/Burden of Implementation		X				X		X
Data Collection and Accuracy	X	X	X				X	X
Include Stage 1 Ulcers						X	X	Mixed response
Switch to Partial/Full Thickness Classification System	X	X						X
Document Complete Trajectory of Every Ulcer						X		Mixed response
Pressure Ulcers Present on Admission: *Recently Healed and/or Not Fully Declared Ulcers that Re-Appear or Declare at a Later Stage After Admission.*	X						X	
Inconsistent Staging Definitions: Align with NPUAP	X	X	X	X			X	X
Reconsider Unstageable Pressure Ulcers & DTIs	X	X	X	X	X		X	X
Update Risk Adjustment	X	X	X	X	X	X		X
Exclude Residents/Patients at End of Life		X	X			X		X
Account for Seasonal Variation	X			X				
Give Credit for Healing Pressure Ulcers			X		X	X	X	
Three-Day Interrupted Stay: *Accountability for Patients who are Transferred from and Return to the Facility within Three Days*			X		X		X	X
Limit Measure to Stage 3 and 4 Pressure Ulcers		X	X			X		
Consistency of Definitions for Electronic Data Collection								X
Consideration of Unique Needs of Home Health and Acute Inpatient Hospital Patients								X

RTI used the findings and recommendations from the interviews to develop the agenda for the cross-setting TEP meeting held in June 2013, described in **Section 5** of this report. The agenda from the TEP meeting is available in appendix C. The agenda items and questions posed to TEP members stem from the issues highlighted in the table above.

In addition to measure development, it is important to carefully consider next steps regarding expansion to additional health care settings. Both home health agencies and acute inpatient hospitals have specific sets of challenges that will need to be considered before expansion. It will be critical to include team members and technical experts from both settings in any discussions of measure modification and expansion to ensure alignment moving forward.

4. IDENTIFICATION OF SUCCESSFUL PRACTICES IN PRESSURE ULCER PREVENTION AND MANAGEMENT

To identify successful practices in pressure ulcer prevention and management, RTI conducted a focused literature scan to identify successful, evidence-supported pressure ulcer interventions and interviewed key informants with organizations that have successfully implemented prevention and management interventions.

This section includes summaries of the methods and findings of both the literature scan and key informant interviews, as well as a description of the trends found across the two components.

4.1 Literature Scan

The goal of the literature scan was to discover themes in the approaches used in pressure ulcer prevention and management across successful interventions. RTI identified interventions in which health care facilities, implemented a multimodal pressure ulcer program (programs that included a combination of one or more interventions) that were geared towards either the prevention or management of pressure ulcers, or both. "Successful" programs were defined as interventions that included a study of their effectiveness and had evidence to demonstrate their success (rather than a case study or anecdote). The literature scan also included identification of studies in which a new method or tool for pressure ulcer measurement or risk assessment was developed and tested.

4.1.1 Methods

RTI developed a detailed inclusion and exclusion criteria to conduct six focused searches in PubMed to identify successful interventions for pressure ulcer prevention and management (see **Table 5**). The team created the following predefined list of search terms with 5-years (2008–2012), human species, and English language limits.

- pressure ulcer prevention
- pressure ulcer management
- pressure ulcer intervention
- pressure ulcer measurement
- pressure ulcer risk assessment
- cross-setting pressure ulcers

Members of the research team reviewed all titles and abstracts identified through searches against our inclusion and exclusion criteria. The team utilized a standardized form to guide

the inclusion and exclusion process and to screen titles, abstracts, and full reviews and to gather information about study characteristics. Reviewers conducted full-text reviews of those studies marked for possible inclusion.

Table 5. Inclusion and Exclusion Criteria for Pressure Ulcer Literature Scan

Category	Criteria	
	Inclusion	**Exclusion**
Study population	▪ Patients or residents across health care settings, including LTCHs, IRFs, NHs & SNFs, acute care hospitals, and home health multi-setting interventions ▪ Patients or residents of all races, ethnicities, cultural groups	
Study outcomes	▪ Prevention of pressure ulcers ▪ Reduction of or improvement in pressure ulcers or both ▪ Improvement of care coordination for pressure ulcers across settings ▪ Development of a new or improved method for measuring pressure ulcers ▪ Development of a new or improved method for identifying pressure ulcer risk	▪ Studies that are solely focused on cost should be excluded; however, studies that include costs with another outcome are included. ▪ Studies that focus on the evaluation of specific tools or technologies for pressure ulcer care (e.g., studies focused on specific types of mattresses) should be excluded.
Study geography	All countries ranked "very high human development" according to the Human Development Index (http://hdr.undp.org/en/statistics/)	All other countries
Time period	Five years (2008–2012)	
Settings	LTCHs, IRFs, NH/SNF, acute care hospitals, home health *Note: Alternate titles for these settings found in the literature also apply.* *Note: Other settings may be included if the intervention could be applicable across different settings.*	
Interventions	▪ Comprehensive interventions or programs to prevent pressure ulcers ▪ Comprehensive interventions or programs to reduce and manage pressure ulcers ▪ Interventions or tools to improve measurement of pressure ulcers ▪ Interventions or tools to improve assessment of pressure ulcer risk	▪ Interventions that are aimed only at reducing costs ▪ Programs for pressure ulcer reduction or management that include only one intervention
Publication language	English	All other languages
Admissible evidence (study design and other criteria)	▪ Methods for pressure ulcer prevention, reduction, management, or measurement must be explained clearly enough that they could potentially be repeated in another facility. ▪ All study durations will be accepted.	▪ Single case reports or small case series ▪ Editorials, letters, nonsystematic literature reviews ▪ Observational studies that did not involve the implementation of a new program or measurement or risk assessment tool

4.1.2 Results

RTI received a total of 1,365 unduplicated yields from the six search terms listed above. After a review of titles and abstracts against the inclusion and exclusion criteria, we included 68 citations. The "pressure ulcer measurement" search term had the highest yield (*n* = 411) and the "pressure ulcer prevention" search term had the largest number of included studies (*n* = 49).

For each study that met the inclusion criteria, RTI identified the setting, goals, and primary methods used in the intervention. Additionally, RTI specifically identified and more closely evaluated those studies that implemented a pressure ulcer intervention across multiple health care settings.

4.1.3 Findings

The most common intervention implemented across all studies was the implementation of an evidence-based bundle that was composed of several different clinical components, followed by increased staff education. These findings align with a recent systematic review of the literature conducted by Niederhauser and colleagues which noted evidence-based interventions and health facility staff education as two of the recurring components used in the development and implementation of pressure ulcer prevention and management interventions and programs.[27]

Across successful interventions, project staff often worked together to review current literature and best practice and design evidence based care bundles for pressure ulcers. One example of such bundles is the Ascension Heath S.K.I.N. Bundle.[28] S.K.I.N. stands for Surfaces, Keep the patients turning, Incontinence management, and Nutrition.

Several projects also focused heavily on increasing education regarding pressure ulcer assessment and management. Study teams used several different methods to facilitate education including webinars, telephone calls, and regular rounds. Although education was often geared toward different types of providers, many health care facilities paid special attention to nursing education. Additionally, several authors discussed the importance of obtaining buy-in at the nursing level and selected nursing staff as clinical champions to spread their intervention.

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[27] Niederhauser, A., Van Deusen Lukas, C., Parker, V., Ayello, E. A., Zulkowski, K., & Berlowitz, D. (2012). Comprehensive programs for preventing pressure ulcers: A review of the literature. *Advances in Skin and Wound Care, 25,* 167–188.

[28] Gibbons, W., Shanks, H. T., Kleinhelter, P., & Jones, P. (2006). Eliminating facility acquired pressure ulcers at Ascension Health. *Joint Commission Journal on Quality and Patient Safety, 32,* 488–496.

Rather than prescribing a specific protocol for care, several organizations focused their interventions on providing the appropriate risk assessment and pressure ulcer evaluation tools, along with developing flexible management plans to meet the individual needs of each patient. Additionally, more recent studies focused on the use of health information technology and EHRs to individualize care. Varied technologies were used, including decision support tools, and immediate reporting of and accountability for results. **Table 6** briefly summarizes the eight studies that used health information technology and EHRs to improve pressure ulcer care. Finally, although several researchers discussed the importance of leadership buy-in, no study directly evaluated the effectiveness of buy-in in improving pressure ulcer prevention or management.

Table 6. Studies that Utilized Health Information Technology and Electronic Health Records to Improve Pressure Ulcer Care

Citation	Setting	Type of Technology	Brief Description of Technology Used & Results
Fossum M, Terjesen S, Odegaard M, Sneltvedt U, Andreassen L, Ehnfors M, Ehrenberg **A. Clinical decision support systems to prevent and treat pressure ulcers and under-nutrition in nursing homes.** Stud Health Technol Inform. 2009;146:877-8.	NH/SNF	Decision Support Systems	▪ Developed a clinical decision support system for the prevention of pressure ulcers and under-nutrition, that is completely integrated in the electronic health record in nursing homes
Fossum M, Alexander GL, Ehnfors M, Ehrenberg A. **Effects of a computerized decision support system on pressure ulcers and malnutrition in nursing homes for the elderly**. Int J Med Inform. 2011 Sep;80(9):607-17.	NH/SNF	Decision Support Systems	▪ Evaluated the effects of implementing a clinical decision support system to improve prevention and care of pressure ulcers and improve nutrition amongst nursing home residents ▪ Resulted in a significant reduction in the proportion of malnourished residents in the intervention group between the 2007 and 2009
Kim H, Choi J, Thompson S, Meeker L, Dykes P, Goldsmith D, Ohno-Machado L. **Automating pressure ulcer risk assessment using documented patient data.** Int J Med Inform. 2010 Dec;79(12):840-8.	Acute Inpatient	Decision Support Systems	▪ Developed a rule-based prototype decision support tool; Braden-scale based Automated Risk-assessment Tool (BART) to test whether pressure ulcer risk scores can be determined automatically based on the documented patient data ▪ Demonstrated the potential for reuse of documented patient data to automatically populate pressure ulcer risk using the Braden scale

(continued)

Table 6. Studies that Utilized Health Information Technology and Electronic Health Records to Improve Pressure Ulcer Care (continued)

Citation	Setting	Type of Technology	Brief Description of Technology Used & Results
Ballard N, McCombs A, Deboor S, Strachan J, Johnson M, Smith MJ, Stephens K, Pelter MM. **How our ICU decreased the rate of hospital-acquired pressure ulcers.** J Nurs Care Qual. 2008 Jan-Mar;23(1):92-6.	Acute Inpatient	Real Time Reporting/ Improved Reporting	▪ Translated numeric data into graphs to facilitate staff understanding and created an Access database to track weekly prevalence ▪ Resulted in decreased rates of Hospital Acquired Pressure Ulcers *Part of an approach that included increased staff awareness, "turn rounds," increased prevalence assessments and redesigned structure of the skin team.*
Horn SD, Sharkey SS, Hudak S, Gassaway J, James R, Spector W. **Pressure ulcer prevention in long-term-care facilities: a pilot study implementing standardized nurse aide documentation and feedback reports.** Adv Skin Wound Care. 2010 Mar;23(3):120-31.	NH/SNF	Real Time Reporting/ Improved Reporting	▪ Developed streamlined standardized certified nursing assistant documentation and weekly reports to identify high-risk residents and to integrate clinical reports into day-to-day practice and clinical decision making Resulted in a combined 33% reduction in the CMS high-risk pressure ulcer quality measure in 18 months and a reduction in newly occurring pressure ulcers (across seven facilities)
Milne CT, Trigilia D, Houle TL, Delong S, Rosenblum D. **Reducing pressure ulcer prevalence rates in the long-term acute care setting.** Ostomy Wound Manage. 2009 Apr;55(4):50-9.	LTCH	New or Improved EHR	▪ Improved assessment and documentation methods, enhanced staff education, revised electronic records, wound care product reviews, and a facility-wide commitment to improved care ▪ Resulted in a reduction in facility-acquired pressure ulcer prevalence from 41% at baseline to an average of 4.2% during the following 12 months
Dowding DW, Turley M, Garrido T. **The impact of an electronic health record on nurse sensitive patient outcomes: an interrupted time series analysis.** J Am Med Inform Assoc. 2012 Jul Aug;19(4):615-20.	Acute Inpatient	New or Improved EHR	▪ Developed an integrated EHR including computerized physician order entry, nursing documentation, risk assessment tools, and documentation tools Resulted in an increase in documentation rates for hospital-acquired pressure ulcer risk and a 13% decrease in HAPU rates
Hammett L, Harvath TA, Flaherty-Robb M, Sawyer G, Olson D. **Remote wound care consultation for nursing homes: using a web-based assessment and care planning tool**. J Gerontol Nurs. 2007 Nov;33(11):27-35.	NH/SNF	Remote Consultation	▪ Developed and pilot tested a web-based pressure ulcer management tool used for remote consultation

Cross-Setting Interventions

RTI more closely reviewed studies that were implemented across multiple health care settings and found that, similar to the overall theme, the implementation of an evidence-based bundle and increased education were the most common interventions. Often these evidence-based bundles and educational programs were identified by a group of cross-setting study staff who met to review recognized guidelines and evidence and identify a common set of interventions to use in all facilities. For example, Jankowski and colleagues utilized a cross-setting pressure ulcer team to translate evidence-based patient care strategies to clinical practice within participating hospitals.[29] The study identified staff education and training as a gap in achieving optimal pressure ulcer prevention and researchers made recommendations to address this gap through pressure ulcer prevention education across a broad spectrum of hospital staff. In a different study, Werkmen and colleagues chose to focus on providing education and information that was focused mostly on patient assessment and the expansion of the pressure ulcer care team to include a wider variety of staff in the care team (Wound Ostomy Care Nurses, physical therapists, and nutritionists).[30]

Training and education in successful cross-setting projects was provided through a variety of channels, with a wide variety of time and technology resources used. Some researchers, such as Werkman and team, utilized relatively inexpensive forms of communication, such as providing handouts, packets, and signs to providers.[31] Others, spent time conducting individual site visits and regular standing conference calls to ensure that each intervention was specific to the sites' needs. Schroeder reported more expensive techniques, such as regular webinars and the inclusion of national pressure ulcer experts, in the studied intervention.[32] It is important to note that Schroeder paired the national experts with local champions to bring the message closer to home.

Outcomes Reported

Pressure ulcer incidence, rates, and size, status were the most frequently reported outcomes used to assess the efficacy of the cross-setting interventions. The non-cross-setting interventions often reported on health care professionals' knowledge of pressure ulcer prevention and management.

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[29] Jankowski, I. M., & Nadzam, D. M. (2011). Identifying gaps, barriers, and solutions in implementing pressure ulcer prevention programs. *Joint Commission Journal on Quality and Patient Safety, 37,* 253–264.

[30] Werkman, H., Simodejka P., & DeFilippis, J. (2008). Partnering for prevention: A Pressure Ulcer Prevention Collaborative project. *Home Healthcare Nurse, 26,* 17–22.

[31] Ibid.

[32] Schroeder, S. D. (2010). Quality focus: Cross-setting collaboration to improve pressure ulcers. *South Dakota Journal of Medicine, 63,* 143.

Measurement Tools

RTI identified a few publications in which a new pressure ulcer measurement tool was developed. However, most of the literature that focused on measurement tools reported on the efficacy of existing tools. Those researchers that reported developing new tools often designed them specifically for a special population (e.g. pediatric patients, individuals with diabetes).

4.1.4 Implications for Future Research

Across all articles included in the literature scan, we found a predominance of single-setting interventions with relatively few cross-setting interventions. Pressure ulcer programs identified by the scan frequently used bundled, evidence-based approaches and focused on training and education. These programs often included standardized risk assessment tools paired with management plans that were designed to be flexible to meet the individual needs of each patient. Based on the findings of the literature scan, RTI identified the following areas for potential future research: the need to evaluate the effectiveness of increased buy-in at both the staff and leadership levels, and the need to identify the most effective modes of pressure ulcer education and the appropriate level of education needed for each staff member. Most importantly, more work needs to be done to identify the cross-setting applicability of evidence-based interventions and programs for pressure ulcers.

4.2 Key Informant Interviews

RTI conducted interviews with representatives from nine organizations that had implemented an innovative program involving pressure ulcer prevention or management. These organizations implemented their interventions across a wide range of health care settings, including individual hospitals, across several hospitals in a network, across NHs/SNFs, in home health agencies, throughout an integrated delivery system (including health insurance, and a network of hospitals and providers), across a partnership of NHs/SNFs and acute inpatient hospitals, and within a network of home health agencies, acute inpatient hospitals, ambulatory care facilities, long-term care facilities, and emergency departments (EDs). The purpose of these interviews was to learn more about each program, obtain a better understanding of the decisions made during the program's development process, discuss the challenges in implementation, and evaluate the applicability of the approach to other types of care facilities. Interviews were conducted via telephone between December 2012 and March 2013. Before each interview, RTI reviewed materials provided by the organization and developed a unique set of questions geared towards the particular program or intervention. CMS reviewed each set of questions in advance, and RTI and CMS worked together to conduct each interview.

4.2.1 Findings

All nine organizations shared that the success of their pressure ulcer programs could largely be attributed to internal changes within their organization, such as shifting the paradigm to

view pressure ulcers as a "never event" and making data collection a regular part of care to improve quality. Staff at organizations that have successfully implemented pressure ulcer prevention and management programs highlighted the importance of not only focusing on pressure ulcer clinical care, but also educating staff about the importance of accurate data collection. Furthermore, key informants stressed that it was imperative to involve all levels of care providers, from a range of clinical departments, in regular meetings where pressure ulcer care is collectively discussed and modified. Staff also identified accountability and ownership by care teams as a key component to success in pressure ulcer prevention and management. Several key informants recommended regularly assessing results and sharing results within the facility, with units held accountable for their results.

Key informants described successful programs as both a top-down and bottom-up effort. Both staff and leadership were motivated to work toward providing high-quality, evidence-based care and to eliminate pressure ulcers. When RTI asked key informants to identify ways in which successful interventions could be duplicated at organizations with limited resources, several reported that facilities must find ways to make it easier for staff to provide evidence-based care and accurately evaluate and document pressure ulcers. One example of this shared by one organization, is playing "turn music" at regular intervals over the hospital loudspeaker.

All key informants mentioned the importance of staff training and highlighted the need to engage all levels of care providers. They also noted that training should begin early in the implementation process, be ongoing, and include both clinical and data collection-related information. A variety of training models were successfully implemented, depending on the nature of the program. Most frequently, organizations utilized the train-the-trainer model. Organizations also reported that it was helpful to identify a pressure ulcer champion at the unit level to motivate other staff and answer questions. In one case, an organization designated separate clinical and data collection champions.

Five of the nine organizations reported that their program either developed an evidence based pressure ulcer bundle, or identified a pre-existing bundle to use in their facility.

Overall, all key informants felt that improving pressure ulcer care takes time and that success cannot be expected immediately. However, all key informants also reported that an organization does not need to be recognized as a leader in clinical care or quality to implement a successful pressure ulcer improvement program.

4.3 Intervention Highlight: Development of a Standardized Transfer Form for Pressure Ulcers

As part of its review of successful practices, RTI considered the development of a standardized transfer form as a possible tool to improve communication, increase the quality

of pressure ulcer care across settings, and help track patients as they move through the health care continuum.

4.3.1 Technical Advisor Feedback

RTI spoke with five technical advisors (individuals who worked with CMS during the development and implementation of the pressure ulcer measure (NQF #0678) or consulted on other pressure ulcer-related projects) and asked them for their feedback regarding the implementation of a standardized transfer form for purposes of coordinated care across the continuum of care for patients with pressure ulcers. All supported the implementation of a standardized form, and recommended several items for inclusion in the form, in order to make it effective for both identifying pressure ulcers and assessing patient risk for further development of pressure ulcers. Recommended items included the following:

1. Presence of any skin conditions or wounds (and their etiology, if applicable)
2. Current pressure ulcer treatment
3. Size of wound
4. Indication of whether exudate is coming from the wound or if the wound is infected
5. Indication of whether or not the patient had a pressure ulcer that healed since admission
6. Patient nutritional status
7. Patient functional status
8. Assessment of whether patient can toilet himself or herself
9. Assessment of whether patient can feed himself or herself
10. Indication of whether patient can bear his or her own weight
11. Risk assessment for pressure ulcer development
12. Risk assessment of patient for falls
13. Risk assessment for tube feeding
14. Risk assessment for seizures
15. Assessment of mental status.

4.3.2 Development of a Cross-Setting Transfer Tool for Pressure Ulcers

During our key informant interviews, we conducted one interview with an organization that developed a standardized transfer tool for pressure ulcers for use across health care facilities and settings, including acute inpatient and long-term care facilities. The tool was developed

in 2009 by a cross-setting work group that identified a common set of data elements that could be used across settings to capture the status of pressure ulcers and pressure ulcer care. The workgroup also developed supporting documentation (e.g. implementation instructions and presser ulcer resources) to accompany the transfer tool and implemented the tool through a series of educational sessions, developed hospital-NH partnerships. Finally they utilized clinical experts and champions to facilitate a cultural change around pressure ulcers.

Based on the organization's anecdotal experience, the transfer tool helped improve the communication between settings, with the current care setting providing basic information about the patient's risk for developing pressure ulcers and current pressure ulcers, if any, for the next care setting. They reported that the transfer tool was well received by the medical community and throughout the region, eventually morphing into broader statewide initiative.

4.4 Summary and Conclusions

The findings regarding the key components in successful pressure ulcer prevention and management programs were similar across the literature scan and key informant interviews. These findings allow us to identify several themes and recommendations for the development of future pressure interventions and resources that can be used across multiple health care settings.

- Successful interventions often use an evidence-based bundle of interventions
- Education of staff is one of the key components of a successful intervention. Education can be offered in a variety of forms, including handouts, posters, in-person training sessions, train-the-trainer techniques, webinars, teleconferences, and rounds. Education should start early in the intervention, be ongoing, and focus on both clinical and data collection components.
- Culture change and staff buy-in are key components to successfully implementing a pressure ulcer prevention or management program. Buy-in should focus on both leadership and staff. Staff level buy-in should be facilitated by the use of unit champions.
- Accountability and ownership are key components to success. Care must continually be assessed, and results should be shared across the facility, with units held accountable for their results.
- Additional research is needed into the cross-setting applicability of pressure ulcer tools, resources, and intervention programs. The development of a standardized transfer form for use across health care settings would be a valuable way to improve communication, coordination, and the quality of pressure ulcer care. The transfer form should include information about each pressure ulcer and its treatment, as well as information about risk factors for pressure ulcers.

5. TECHNICAL EXPERT PANEL

5.1 Introduction

RTI convened a TEP to solicit guidance on the development of a cross-setting quality measure for pressure ulcers. The TEP provided detailed input regarding the further development and possible expansion of NQF #0678, Percent of Residents or Patient with Pressure Ulcers that are New or Worsened (Short-Stay). The recommendations provided by the TEP, in conjunction with findings from key informant interviews, will serve as a foundation for the identification of next steps in RTI's work on a cross-setting quality measure for pressure ulcers.

Individuals with setting specific experience in NHs/SNFs, LTCHs, IRFs, acute inpatient hospitals, and home health agencies, as well as national clinical experts from organizations such as NPUAP and the American Nurses Association, were selected to participate in the TEP. TEP members provided expertise in several topics related to pressure ulcers, including plastic surgery, nutrition, wound care, quality measure development, and quality improvement, as well as implementation of cross-setting initiatives. In addition to diversity in experience and expertise, individuals from across the United States served on the TEP. The TEP also included a patient representative to ensure the inclusion of patient/consumer voice in the further development of the quality measure.

The Pressure Ulcer TEP met in person on June 13, 2013, in Baltimore, MD. In addition to the TEP members, others in attendance included CMS project staff, and members of the RTI team. A list of TEP members and meeting attendees is provided in Appendix B.

5.2 Methods

The primary purpose of the TEP was to review NQF #0678, Percent of Residents or Patients with Pressure Ulcers that are New or Worsened (Short-Stay), identify the measure's strengths and areas for improvement, and ascertain TEP member recommendations regarding next steps for measure development. Additionally, RTI sought input regarding best practice for prevention and management of pressure ulcers. The meeting agenda is available in Appendix C.

The following goals and objectives were shared with the TEP:

TEP Meeting Goals:

- To develop a better understanding of issues related to the development of a harmonized cross-setting pressure ulcer quality measure
- To identify key issues surrounding the development of a pressure ulcer measure, including measurement, risk adjustment, and data collection

- To identify setting specific and content area specific concerns regarding pressure ulcer quality measurement
- To explore successful strategies for prevention and management of pressure ulcers

TEP Meeting Objectives:

- To provide the TEP with context for discussion and foster a shared understanding of the goals and objectives of the TEP meeting
- To obtain TEP feedback regarding NQF #0678, Percent of Residents or Patients with Pressure Ulcers that are New or Worsened (Short-Stay), and explore potential areas for modification of data elements
- To identify setting specific concerns regarding this measure
- To discuss the feasibility of expanding the use of this measure to additional health care settings
- To discuss additional risk factors relevant for risk adjustment of this measure for each setting and across settings
- To identify successful strategies in pressure ulcer prevention and management and identify pressure ulcer items to be included on the transfer form

Before the in-person meeting, TEP members received a series of six questions (listed in **Figure 2**) regarding quality measurement for pressure ulcers, setting specific concerns and the identification of best practices for pressure ulcer prevention and management. Seven of the 12 TEP members submitted answers to these questions in advance of the meeting; responses were summarized and used to motivate meeting discussions.

In addition to the six questions, TEP members received preparatory packets that included the following information:

1. A spreadsheet displaying a listing of and key information regarding the universe of Pressure Ulcer Quality Measures as available on the NQF website and the AHRQ's NQMC (Appendix A of this report),
2. Measure Specifications for NQF #0678: Percent of Residents or Patients with Pressure Ulcers that are New or Worsened (Short-Stay)
3. A memo describing the analysis of 2011 MDS 3.0 data, conducted by RTI
4. Copies of selected current and proposed pressure ulcer data items and relevant risk adjustment items for the calculation of NQF #0678. Data items were extracted from the MDS (version 3.0), the LTCH Continuity Assessment Record and Evaluation (CARE) Data Set, the IRF-PAI, and the OASIS–C.

Figure 2. Pre-TEP Meeting Questions

TEP members were invited to respond to the questions below prior to the in-person meeting.

1. Please share your input, based on your experience, knowledge, and expertise, on whether and why Stage 1 pressure ulcers should be included/excluded from a quality measure for pressure ulcers?
2. Please share your input, based on your experience, knowledge, and expertise, about whether and why facilities should track and report on each pressure ulcer individually or track and report using a summary measure?
3. Please indicate for each of the following factors whether they are a risk factor for the development or worsening of pressure ulcers that should be considered during the development or enhancement of a quality measure for pressure ulcers:

   Function or Mobility:
   Bowel Incontinence:
   Diabetes:
   Peripheral Vascular Disease (PVD):
   Body Mass Index (BMI):
   Malnutrition:
   Comatose:

   Please list any additional risk factors in the development or worsening of pressure ulcers.
4. Please list 2-4 concerns you have regarding pressure ulcer quality measurement that are specific to the needs of patients or residents in your facility (e.g. nursing home, inpatient rehabilitation facility) or area of expertise (nutrition).
5. How would you incorporate patient needs and/or preferences into the development or enhancement of a quality measure for pressure ulcers?
6. CMS is looking to identify best practices in pressure ulcer prevention and management. Please describe 1-5 practices that you have seen implemented and have found particularly valuable to improving pressure ulcer care.

The meeting was organized around in-depth discussions of the quality measure NQF #0678: Percent of Residents or Patients with Pressure Ulcers that are New or Worsened (Short-Stay). Background information and a measure overview were provided as well as a summary of feedback obtained in response to questions sent to TEP members; pressure ulcer data analysis from the 2010 and 2011 MDS 3.0 dataset was reviewed as it related to specific items collected for the measure. The TEP members were asked targeted questions regarding NQF #0678 and quality measurement in each of the health care settings represented at the TEP. Data for this TEP report come from meeting audiotapes and notes.

This section begins with a summary of overarching concerns and issues raised by the TEP related to NQF #0678 and pressure ulcer quality measurement and reporting. The summary is followed by an in-depth reporting on each topic of discussion focusing on points of concern, points of consensus, and points for further consideration in the development of a cross-setting pressure ulcer quality measure. The section concludes with a summary of RTI's recommendations regarding future work and next steps for development of the quality measure.

5.3 Findings

5.3.1 Overarching Concerns

TEP members were generally positive regarding the further development of NQF #0678 and possible expansion of the quality measure to additional health care settings, however, they expressed concerns and strongly encouraged CMS to consider coordinating language and staging definitions with NPUAP in order to avoid confusion and foster consistent staging. Alternately they recommended that CMS consider departing from the current staging system and adopting a wound classification system based on wound thickness (full versus partial). TEP members also recommended that CMS develop a quality measure with a more positive tone, such as "healing" pressure ulcers, suggesting that the use of the word "worsening" in the title of the measure is particularly negative. There was a lengthy discussion regarding the inclusion of Stage 1 pressure ulcers in the quality measure, however, the TEP was unable to reach an agreement regarding this issue. Additional recommendations were provided regarding ulcer etiology, attribution of pressure ulcers, suspected sDTIs, and unstageable pressure ulcers, as well as improvements to the risk adjustment and exclusions for the quality measure. With regards to future expansion of the measure to additional health care settings, TEP members agreed that a great level of coordination of assessment tools, language, and definitions would be needed to achieve this goal, and encouraged CMS to work towards using pre-existing tools and data sets whenever possible.

5.3.2 Measure Concept & Title

Use of the Word "worsening" in the Title

Concerns were expressed regarding the use of the word "worsening" in the title of this quality measure. Although the TEP supported the concept of measuring pressure ulcers that are new or worsening, and did not recommend that CMS change the quality measure in this regard, they felt that the word worsening should be removed from the title. This recommendation was based on TEP member feedback that the word worsening has a negative connotation and is a source of angst for health care providers.

Etiology of Pressure Ulcers

The implementation of NQF #0678 has, lead to heightened awareness of pressure ulcers across health care facilities. Although this change is commonly viewed as a positive consequence of the quality measure, the TEP shared that increased attention can also lead to an increase in false identification of pressure ulcers. TEP members explained that identifying the etiology of a wound is a complex process and may be very challenging for less experienced clinical staff. The increased attention on pressure ulcers may cause staff to assume that wounds are caused by pressure, even when they are not, or default to pressure if the true etiology is ambiguous. Additionally, there is often confusion regarding

wounds that are not caused by, but may be worsened by pressure. Correctly identifying the etiology of a wound is an important step in developing an appropriate treatment plan. TEP members believed that clinical staff at all facilities should be required to consider the etiology of every wound, and should always have the option to label a wound "unidentified etiology."

Attribution of Pressure Ulcers

The TEP felt that NQF #0678 adequately addresses the issues of pressure ulcers present on admission by only including those ulcers that are new or worsened in the quality measure. Additionally a few TEP members shared that the recent increase in attention towards pressure ulcers has led to better communication and coordination at patient discharge. However, they also felt that discharge communication and documentation could be further improved. One particular area of concern they identified, is wounds that are developing or are newly present at admission, but are not yet visually apparent at the time of assessment. The TEP pointed out that patients who are getting transferred to a higher level of care, are likely to have a deteriorating condition and are therefore more likely to develop wounds during the transfer process. When these wounds are not yet apparent at admission, the admitting facility may be held responsible.

Inclusion of Healed Ulcers

TEP members highly recommended that CMS consider either including healed ulcers in the quality measure for pressure ulcers, or developing a second measure that reflects provider success in healing pressure ulcers. As previously stated, reporting of worsening ulcers is viewed as a negative approach and does not give facilities credit for healing, which, in addition to prevention and management, is an important goal of pressure ulcer care. Additionally, a health care facility may appear to provide a poor quality of care because they have a few new or worsened ulcers, but this may not reflect the fact that they have healed many ulcers. TEP member recommended a measure and measurement tools that focus on the positive. A more positive focus may also encourage improved cross-facility conversation, discharge planning, and collaboration. In regards to public reporting, TEP members, particularly the patient representative, believed that patients and families who have experience with wounds and are looking to select a health care facility would likely pay more attention to healing, as it reflects a facility's ability to manage wounds.

Some TEP members expressed concerns regarding measuring healed ulcers in certain health care settings. Acute Inpatient stays and IRF stays are of such short duration, it is unlikely that an acute hospital or IRF would have sufficient time with a patient to heal ulcers. In other settings, such as IRFs, treatment goals may sometimes conflict with ulcer healing. An example was given that some pieces of rehabilitation equipment, even when used correctly, may give rise to pressure ulcers or prevent healing from taking place. As such, TEP members suggested using a tool that documents improvement or progress in the healing

process. The TEP discussed the use of the NPUAP PUSH tool to document healing and confirmed that it can offer validation of healing. However, some felt that the PUSH tool is not sensitive enough and that a more sensitive tool should be developed. They also emphasized the importance of careful consideration to staff burden when selecting a measurement tool. TEP members recommended the development of a healing tool that would be applicable across settings, can be completed at discharge, and would be sensitive to small changes in ulcers.

Use of a Summary Measure versus Documenting the Complete Trajectory of Every Ulcer

In advance of the meeting, RTI asked TEP members whether it was necessary to track each pressure ulcer individually, or if it was reasonable to use a summary quality measure. The TEP provided mixed responses. Those in support of a summary measure expressed that the goal of quality measurement is to identify system wide concerns and find trends in pressure ulcer care among and across care settings, rather than to monitor individual patients and ulcers. Additionally, TEP members shared that tracking each ulcer would be burdensome to providers and may be challenging with rotating staff. The volume of data generated by such tracking would also be unwieldy and difficult to process effectively into a quality measure.

On the other hand, those in support of a measure that tracked each ulcer expressed that tracking individual ulcers would better facilitate benchmarking of healing and worsening. Also tracking each ulcer would be a more effective way to document small but significant changes (such as size) that are not necessarily reflected in a summary count. Individual tracking would also help document cases in which one ulcer healed, but a new ulcer developed. At the organizational level, tracking each ulcer would result in more specific quality improvement projects and education.

The TEP concluded that there is a difference between what a health care facility site tracks and what gets reported in a quality measure. Although it is important for health care facilities to document each individual ulcer, TEP members agreed that for the sake of quality measurement it is crucial to find a balance between data collection and the value of the measure. TEP members questioned how detailed information about each ulcer would be used by CMS, and identified the need to utilize the least burdensome way of collecting data that provides the most important information.

Gaming

During the course of the meeting, TEP members identified two possible methods of gaming this quality measure:

- Some providers may avoid removing dressings, in order to avoid staging ulcers. One TEP member reported that her facility evaluated this issue and this occurs in a very small number of cases

- Because the current staging system can be confusing, staff could potentially use this ambiguity to their advantage and intentionally misidentify a wound.

5.3.3 Measure Specifications

Inclusion of Stage 1 pressure ulcers

Stage 1 ulcers were originally excluded from the quality measure, due to research (Lynn, 2007) suggesting that providers have difficulty in objectively measuring Stage 1 pressure ulcers across different populations, particularly among darker skin patients

Before the meeting TEP members were asked their opinions regarding the inclusion of Stage 1 pressure ulcers in a quality measure and they provided mixed responses. Three (of seven) TEP members did not support the inclusion of Stage 1 pressure ulcers in the quality measure. Their feedback is summarized below:

- "Nursing staff have trouble identifying Stage 1 ulcers, especially amongst dark skinned individuals"

- Reporting Stage 1 ulcers may present a skewed view of the quality of care Facilities that prevent a Stage 1 ulcer from progressing are providing high quality care.

- "Stage 1 pressure ulcers are often confused and misdiagnosed."

- Providers have trouble differentiating Stage 1 ulcers from moisture associated skin damage.

- There is disagreement regarding the etiology of Stage 1 pressure ulcers. In some cases the ulcer is caused by friction, rather than pressure and may be a superficial skin injury, not a pressure ulcer.

Four (of seven) TEP members who responded supported the inclusion of Stage 1 quality measures. Their feedback is summarized below:

- Worsening of Stage 1 Ulcers can be prevented using early identification, appropriate and timely prevention strategies, and appropriate management of co-morbidities.

- Stage 1 ulcers are preventable and should be managed.

- "A Stage 1 pressure ulcer is an observable pressure related alteration in intact skin that has important clinical implications."

- Studies are now coming out that suggest reliability of Stage 1 pressure ulcer staging.

- "There are likely also errors in reporting Stage II pressure ulcers because of confusion with moisture associated skin dermatitis. There are likely errors in reporting Stage III ulcers because it may be difficult to differentiate a Stage III from

a Stage II or a Stage IV ulcer especially over bony prominences with little subcutaneous tissue. There are likely errors in Stage IV reporting because some will classify Stage IV pressure ulcers as unstageable if any slough or eschar tissue are present even if the wound bed is visible If there are errors in all other Stages, why only exclude Stage 1?"

- A few studies have identified little difference in risk factors for pressure ulcers when Stage 1 are included or excluded from the analysis.

During the meeting, the TEP was unable to come to consensus about the inclusion of Stage 1 pressure ulcers in the quality measure. Several TEP members were strongly against reporting Stage 1 ulcers, due to the trouble identifying Stage 1 ulcers and confusion regarding their etiology. They expressed that reporting Stage 1 ulcer along with the other ulcers is not fair because of the differences in etiology, and stated "it was like comparing oranges and apples." One TEP member pointed out that it would be better to have many Stage 1 ulcers and low numbers of higher Stages, versus many higher Stage ulcers with few Stage 1s, and that public reporting of Stage 1 pressure ulcers could be very misleading for the consumer. Additionally TEP members felt that having several Stage 1 ulcers was not necessarily indicative of poor quality of care.

One TEP member felt strongly that reporting Stage 1 ulcers was more transparent, especially since there could be also be errors in reporting of other Stages, and that new data suggests more reliability in Stage 1 reporting. She expressed the importance of providing aggregate information across the whole spectrum.

Full vs. Partial Thickness in lieu of current staging system

During the discussion of Stage 1 pressure ulcers, The TEP noted that the current staging system is confusing and can lead to errors in reporting. Additionally, they noted that the current system does not have a place for unstageable ulcers or DTIs.

All TEP members agreed that it would be more valuable to identify wounds as full or partial thickness rather than using the current four-stage system. They expressed that changing the current staging system would increase accuracy and decrease the ability to game the system. TEP members also pointed out that the most important difference between Stages is between Stage 2 and 3 (not Stage 3 to 4), which aligns with the division between full versus partial thickness. TEP members also noted the common view that all pressure ulcers progress in the same way (Stage 2 to 3, Stage 3 to 4) is inaccurate and using more general categories would better represent the different types of ulcers.

The TEP concluded that the current view of Stages was outdated and that measuring the transition from partial to full thickness wounds wound reflect the most important information, increase data accuracy and be easier to for staff to understand.

Exclusions

Several TEP members recommended adding hospice as an exclusion from the quality measure. However, some TEP members had concern regarding the fact that average length of stay in hospice is increasing, and hospice patients may be receiving care in a wide range of health care settings (e.g., home, nursing NHs/SNFs, in-patient hospice facility). Additionally, if the goal is to identify those patients at the end of their lives, not all of these patients enter hospice care. The TEP did not reach a conclusion about which hospice patients to exclude or how to identify these patients. All TEP members agreed that documenting and incorporating patient preferences at end of life regarding interventions to prevent and manage pressure ulcers need to be respected.

Risk Adjustment

NQF #0678 is currently risk adjusted using four covariates: Function/mobility, bowel incontinence, diabetes or peripheral vascular disease and low body mass index. TEP members made recommendations regarding these covariates as well as additional risk factors to consider.

- Current Covariates:
  - TEP members were supportive of the inclusion of function/mobility and bowel incontinence
  - There was general support for the inclusion of diabetes as a covariate, however, before the meeting one TEP members recommended diabetes be changed to “uncontrolled diabetes”
  - There was general support for the inclusion of PVD as a covariate, however, before the meeting one TEP member recommended PVD be changed to “impaired circulation” and stated that this would include not only diabetic neuropathy, but spinal cord injury, traumatic brain injury, cerebrovascular accident, and multiple other neurologic diagnoses.
  - TEP members supported the concept of risk adjustment for nutritional status but did not feel body mass index was a good indicator of nutritional status, especially among older individuals. TEP members discussed the possible inclusion of weight loss however, they pointed out that malnutrition can exist in the presence of obesity. Other suggested indicators of malnutrition were poor hand grip, c-reactive protein levels, patients who had been in shock, and the ICD-9 code for malnutrition.
- Additional Risk Factors: Before the meeting, RTI asked TEP members to identify additional risk factors for pressure ulcers. Six individuals submitted recommendations. Their recommendations are listed in **Table 7**.

Table 7. Additional Risk Factors Identified by the TEP before the TEP Meeting

Risk Factor	# of Times Mentioned*	Risk Factor	# of Times Mentioned*
Impaired Sensation	2	End of Life	1
Number of Medical Devices Present	2	Communication Difficulties	1
Impaired Circulation	1	Presence of Pressure Ulcer On Admission	1
Microclimate (skin humidity & temperature)	1	Recent Hospitalizations	1
Moisture	1	Surgery Time Longer Than 4 Hours	1
Bony Deformities	1	G-Tube	1
Contractures	1	Individuals Who Refuse Treatment	1
End-stage renal disease	1	—	—

*Total number of times each risk factor was written in a free response questionnaire requesting additional risk factors for pressure ulcers, out of six responders.

- TEP members also suggested that although harmonization is important, CMS should consider modifying the risk adjustment based on the population and specific needs of each health care setting.
  - The TEP specifically discussed risk adjusting for patient adherence. RTI suggested that non-adherence may be randomly distributed, however, TEP members indicated that socioeconomic factors that may have an effect on non-adherence are not always randomly distributed. TEP members recommended further exploration of this topic as part of future measure development.
  - During their discussion, the TEP also noted that both pressure ulcers present on admission and having a history of pressure ulcers can increase the risk of additional pressure ulcer development and may be important risk factors to include in the quality measure.

5.3.4 Specific Data Elements

Staging definitions & accuracy of data collection

TEP members encouraged CMS to align staging definitions with the NPUAP staging definitions. Under the current staging definition, a provider could easily confuse a Stage 2 pressure ulcer with an sDTI, because the definitions are so similar. Although no one definition is perfect, having different definitions results in confusion for providers and may lead to inaccurate data collection. The TEP voiced concern that when the staging definition does not match what providers are used to, they may default to what they know. It is

important to ensure that all providers are using the same definition across health care settings.

The TEP also encouraged CMS to coordinate data collection systems with other standard setting bodies such as the National Database of Nursing Home Quality Indicators. They noted the burden for providers to enter similar data into several different systems (especially when each asks for something different). Also, consistency between the data providers are entering for CMS and that of the providers' EHR and internal data submission systems is crucial.

Suspected Deep Tissue Injuries (sDTIs) and Unstageable Pressure Ulcers

Under the current staging system there is confusion regarding staging for sDTIs and unstageable pressure ulcers. TEP members agreed that most sDTIs should be staged as at least a Stage 3 or 4, however, there is no consensus in the current science as to the etiology or staging of these ulcers. The TEP pointed out that the current staging system and the current measure do not work well for these types of ulcers. They also expressed concerns regarding potential for gaming the system by continually keeping these ulcers unstageable (for example, avoiding debridement or keeping a dressing on extra long) to avoid future penalty if worsening occurs. The TEP members agreed that both new unstageable ulcers and sDTIs should be included in the quality measure, however, it is not possible to assign them to a Stage at this time. TEP members also recommended giving facilities credit for healing of unstageable pressure ulcers and sDTIs.

5.3.5 Patient Preferences

Before the meeting, seven TEP members submitted recommendations regarding ways to include patient preferences in the quality measure. Their feedback is summarized in **Figure 3.** These recommendations focused on identifying patients' preferences, including patients in assessment and planning processes; improving patient education; accounting for patient distress or discomfort related to the pressure ulcers; and accounting for patients who are non-compliant.

Figure 3. TEP Members Recommendations Regarding Incorporating Patient Needs and Preferences into Quality Measurement for Pressure Ulcers

- Offer options for off-loading/pressure relieving interventions
- Include patient measures or aspects of patient distress and discomfort related to a pressure ulcer (e.g., what about the appearance, smell, sensations bother a patient/family), and changes in their opinions with improvements when assessing healing or worsening
- Account for refusal of interventions in the quality measure
- Account for non-adherence to interventions in the quality measure
- Include patients as part of the assessment process to identify what makes them feel most comfortable as they require repeated assessments and/or treatments
- Include patients as part of the educational process about the issues occurring with their body so they can make informed decisions
- Include patients as part of the care planning to see how they can assist with PU prevention and PU interventions
- Patients at end of life, for whom pressure ulcer prevention is no longer a realistic therapeutic goal, should be excluded from the quality report
- Address pain management and the needs and patient preferences at then end of life

During the meeting, TEP members agreed that patient satisfaction is very important and that a pressure ulcer quality measure could be better designed to meet the needs of consumers. As mentioned earlier, the TEP recommended including a healed component, in order to help patients understand a facility's ability to treat pressure ulcers. The TEP also expressed the importance of ensuring the quality measure is adaptable to patient preferences, especially at the end of life.

5.3.5 Feasibility of Expansion to Acute Inpatient Hospitals

The TEP was generally supportive of the possibility of expanding NQF #0678 to acute inpatient hospitals and pointed out that these hospitals are already collecting data on Stage 3 and 4 pressure ulcers as part of their application for magnet status. Additionally, acute inpatient hospitals submit pressure ulcer information into the National Database of Nursing Home Quality Indicators. TEP members stressed the importance of harmonizing data collection efforts and encouraged CMS to consider using a pre-existing tool (such as the MDS 3.0) for data collection in this setting, rather than developing another tool. If possible CMS should focus on developing data collection systems that are compatible with EHRs and other pre-existing programs to maximize data that is already being collected.

The greatest setting specific concern expressed regarding acute inpatient facilities was the lack of clarity concerning when admissions begin for purposes of the quality measure. A patient can be in the ED for several days or be on observation status for a few days before the official start of admission. CMS would need to make decisions regarding the timing of the admission assessment, and how pressure ulcers that develop in the ED are counted. Additionally, TEP members pointed out that there are several special populations within

hospitals, including intensive care and pediatric patients. CMS would need to decide if these populations are included in the quality measure and if so, how their data should be risk adjusted.

5.3.6 Feasibility of Expansion to Home Health Agencies

TEP members encouraged CMS to continue to report process based measures, in addition to expanding the outcome-based NQF #0678 to HHAs Regarding the expansion, they shared that the HHA treatment goals are often more focused on healing ulcers that developed in other settings, rather than preventing ulcers. Additionally, TEP members pointed out that patient compliance is a much more serious issue in this setting. Finally, the TEP expressed concern regarding staff knowledge of wound care and the extra training that may be required to ensure high scores on this quality measure.

5.3.7 Additional Setting Specific Concerns

Nursing Homes/Skilled Nursing Facilities

TEP members' primary concern regarding NHs/SNFs is that training is inconsistent regarding pressure ulcer staging and care. The inconsistent training can lead to inaccurate or inconsistent data collection. Additionally, in NHs/SNFs, there is a concern regarding staff rotation and inconsistency regarding patient assignment, which can also lead to errors in data collection. In some cases, NHs/SNFs are staffed by licensed practical nurses who are not allowed to perform pressure ulcer assessments. As the measure continues to be developed, offering continued training and support for NHs/SNFs will be important.

Long-Term Care Hospitals

The TEP did not express any major concerns about the use of NQF #0678 in the LTCH setting.

Inpatient Rehabilitation Facilities

Within the IRF setting, particular concern regarding device related pressure ulcers is common. TEP Members shared that often a device is critical to treatment and cannot be removed or repositioned to avoid the development of a pressure ulcer. One TEP members stated that 20% of pressure ulcers found on ears are due to the use of devices. Another TEP member expressed that there are ways to improve devices to prevent pressure ulcers. One example of this is adding padding to an oxygen tube. A different TEP member suggested that CMS risk adjust for devices in IRFs. Overall TEP members did not reach agreement regarding how devices should be counted in the quality measure.

One TEP member expressed concern regarding the substantial increase in the length of the proposed IRF-PAI and the burden this may pose on providers.

5.3.8 Additional Recommendations Regarding NQF #0678

A few additional comments and suggestions made by TEP members regarding this quality measure (both at the TEP meeting and in their written comments) included the following:

- Conduct additional research regarding co-morbidities and pressure ulcers.
- Make sure to include EDs in prevention, management, and quality measurement for pressure ulcers. TEP members were concerned regarding the potential for long waiting time, lack of specialty surface beds, and limited monitoring for pressure ulcers in EDs. They stressed that EDs need to be held accountable for pressure ulcer prevention and management, and for ensuring appropriate discharge and coordination with admitting facilities.
- Identify a universal definition of unavoidable/avoidable pressure ulcers that is applicable across care settings.

5.3.9 Best Practices for Prevention and Management of Pressure Ulcers

Before the meeting, RTI asked TEP members to submit recommendations regarding successful or innovative practices for pressure ulcer prevention and management. Seven TEP members responded and their recommendations are summarized by type of approach, in **Table 8**. Their feedback focused on areas such as developing cross-facility and cross-setting protocols, improving the culture and education around pressure ulcer care, expanding the wound care team to include staff from multiple health care disciplines, including nurse educators, wound ostomy care nurses, physical therapists, occupational therapists, and nutritionists, conducting root-cause analysis of all pressure ulcers, holding team members accountable for care, utilizing a multi-modal approach to pressure ulcer care, and implementing evidence based care bundles. Due to time limitation, the TEP was unable to engage in a discussion of best practices during the in-person meeting.

Table 8. Successful Practices for Pressure Ulcer Prevention and Management as Recommended by TEP Members Before the TEP meeting*

Category of Approach	Recommendations
Standardization and Coordination across Sites/Settings	▪ Universal pressure ulcer prevention interventions for high risk individuals, as well as specialized precautions for specific higher risk groups as needed ▪ Provide evidenced based tools for all health care organizations to use, and identify experts to assist with education ▪ Warm hand offs of patients as they transfer across the continuum of care ▪ Appropriate follow up documentation
Health Care Team	▪ Wound team including RN; nurse educator; wound, ostomy, and continence nurse or nurse practitioner; physical therapist; occupational therapist; dietician ▪ Rather than sending the patient to a wound care clinic, the wound care professional visits the patient in the facility environment (long-term care) ▪ Inter-professional teams
Analysis and Reporting	▪ "Root cause" analysis of most frequent pressure ulcers, e.g., types of patients, units, location of pressure ulcers etc. ▪ Periodic reporting of/attention to pressure ulcer epidemiology (admission prevalence, incidence, success in healing, etc.) to nursing staff with some reward for successes ▪ Patient rounds by a specialty (i.e., wound, ostomy, and continence nurse [WOCN]) or trained skin champion directed by a WOC nurse with nursing staff focused on pressure ulcer treatment and healing and skin assessment and prevention ▪ Regular monitoring of processes and outcomes
Education & Culture Change	▪ Incorporate pressure ulcer prevention practices into everyday care and use of enablers ▪ Problem-solve together vs. blaming each other ▪ Implementation of strategies to keep staff involved such as ongoing education and acknowledging and sharing successes ▪ Leadership engagement and support; in the hospital, use of unit-based champions ▪ Systems change ▪ Skin champions on each unit ▪ Online educational programs for all levels of staff to take to increase their knowledge and online programs to help RN become certified ▪ Braden Scale as part of patient handoff
Policies/ Procedures	▪ Review of agency pressure ulcer prevention policies and implementation of current guidelines on pressure ulcer risk and prevention
Setting/population Specific Recommendations	▪ Look at new tools needed to evaluate risk of pressure ulcers in specialty sites such as an emergency department ▪ Knowledge of patient/family/caregiver willingness and ability to provide care is important to pressure ulcer prevention (home health) ▪ Knowledge of patient/family and community resources is valuable to improving pressure ulcer care (home health)

* Seven TEP members electronically submitted feedback on successful practices for pressure ulcer prevention and management prior to the in-person meeting. The language in the table is verbatim input of these TEP members, with the exception of small edits made for clarity.

5.4 Summary

The TEP was supportive of further development and possible expansion of NQF #0678, Percent of Residents or Pressure Ulcers with Pressure Ulcers that are New or Worsened (Short-Stay). However, they strongly encouraged CMS to consider either aligning the staging definitions and language used in the measure with NPUAP definitions, or switching to a wound classification methodology that focuses on full versus partial thickness pressure ulcers. TEP members were also particularly concerned regarding the use of the term "worsening" in the title of the quality measure and recommended that CMS consider a measure that focuses on healing of pressure ulcers. TEP members were supportive of CMS continuing to use a summary quality measure and recommended that CMS continue to include sDTIs and unstageable ulcers in the quality measure, without assigning these ulcers a Stage. The TEP engaged in a lengthy discussion regarding the inclusion of Stage 1 pressure ulcers in the quality measure but were unable to reach consensus regarding this question. The TEP also provided recommendations regarding improvements to the risk adjustment and exclusions for the quality measure.

Regarding future expansion of the measure to additional health care settings, TEP members were supportive of this possibility but encouraged CMS to work closely with the settings to maximize preexisting data sets and carefully consider the population and needs of each setting before expansion.

Although the TEP members did not have time to discuss best practices for prevention and management of pressure ulcers, their written recommendations suggest that pressure ulcer prevention and management should focus on implementing cross-facility and cross-setting protocols, improving the culture and education around pressure ulcer care, expanding the wound care team to include providers from multiple disciplines, analyzing root causes of pressure ulcers, holding staff accountable for pressure ulcer care, utilizing a multi-modal approach to pressure ulcer care, and implementing evidence-based care bundles.

Based on the discussions described above, combined with findings from our environmental scan and interviews, RTI made several recommendations for next steps for the further development and expansion of NQF #0678. Please see **Section 6** of this report for a complete list of these recommendations.

6. RECOMMENDATIONS AND NEXT STEPS

Motivated by the goal of quality measure "alignment and harmonization," CMS tasked RTI International to explore the feasibility of developing a cross-setting quality measure for pressure ulcers. CMS and RTI selected the quality measure NQF #0678, Percent of Residents or Patients with Pressure Ulcers that are New or Worsened (Short-Stay), as the starting point for this work and RTI engaged in information gathering regarding this quality measure. The goals for this work were to identify the strengths and weaknesses of this measure and to identify potential areas for further measure development, and to understand the feasibility and potential implications of expanding this measure into additional health care settings. To supplement the quality measure, RTI also sought to identify successful practices in pressure ulcer prevention and management.

RTI utilized a variety of approaches to obtain recommendations for measure development for NQF #0678, including a review of previously obtained measure feedback, a series of interviews, and a TEP. Findings suggest that experts and stakeholders alike support the continued development and possible expansion of this quality measure, and also recommend that CMS consider several different approaches to improving it.

Table 9 is the final version of feedback presented throughout this report and includes a compilation of the most frequently voiced concerns and recommendations by stakeholders and experts regarding NQF #0678.

Table 9. List of Feedback Regarding NQF #0678

Concern or Recommendation	NH/ SNF TEP	LTCH TEP	IRF TEP	NQF	LTCH Public Comments	IRF Public Comments	MDS, LTCH, IRF Help Desks	Interviews	Cross-Setting PU TEP
Concern Regarding the Word "Worsening"		X	X	X	X	X			X
Device Related Pressure Ulcer			X			X	X	X	X
Staff Training/Burden of Implementation		X				X		X	X
Data Collection and Accuracy	X	X	X				X	X	X
Include Stage 1 Ulcers						X	X	Mixed response	Mixed response
Switch to Partial/Full Thickness Classification System	X	X						X	X
Document Complete Trajectory of Every Ulcer						X		Mixed response	
Pressure Ulcers Present on Admission: *Recently Healed and/or Not Fully Declared Ulcers that Re-Appear or Declare at a Later Stage After Admission*	X						X		X
Inconsistent Staging Definitions: Align with NPUAP	X	X	X	X			X	X	X
Reconsider Unstageable Pressure Ulcers & DTIs	X	X	X	X	X		X	X	X
Update Risk Adjustment*	X	X	X	X	X	X		X	X
Exclude Residents/Patients at End of Life		X	X			X		X	X
Account for Seasonal Variation	X			X					
Give Credit for Healing Pressure Ulcers			X		X	X	X		X
Three-Day Interrupted Stay: *Accountability for Patients who are Transferred from and Return to the Facility within Three Days*			X		X		X	X	
Limit Measure to Stage 3 and 4 Pressure Ulcers		X	X			X			
Consistency of Definitions for Electronic Data Collection								X	X
Consideration of Unique Needs of Home Health and Acute Inpatient Hospital Patients								X	X

* Recommendations regarding modifications to risk adjustment varied across the different sources of feedback. Examples of risk factors that warrant further consideration include: Malnutrition, history of pressure ulcers or pressure ulcers present on admission, and the use of devices that place patients at greater risk. Experts also recommend that CMS consider developing risk adjustment specifications that are specific to the needs of each individual health care setting.

Based on the table above, recommendations of the TEP, and feedback from the technical advisor and health facility interviews, RTI has the following recommendations for next steps for the further development and expansion of NQF #0678.

Recommendations for Next Steps

- Further explore the two recommendations regarding staging definitions for pressure ulcers, identify the strengths, weaknesses and feasibility of each option, and consider implementing one in the next iteration of the quality measure:

  1. Align all staging definitions with the NPUAP staging definitions

  2. Change the wound classification used in the quality measure to full versus partial thickness, rather than using the 4 Stage system

- Include an assessment of pressure ulcer healing in the quality measure or develop a separate healing measure.

- Consider including new unstageable pressure ulcers and sDTIs in the quality measure. However, at this time, the TEP does not feel comfortable assigning these pressure ulcers a stage. Monitoring of published research regarding the etiology and staging of these ulcers should continue.

- To further address whether Stage 1 pressure ulcers should be included in the quality measure, a literature review focused on the reliability of assessing Stage 1 pressure ulcers and the relationship between Stage 1 pressure ulcers and the quality of care needs to be conducted. As a next step, RTI and CMS have discussed that the findings from this review could be presented to the TEP to facilitate future discussions and recommendations regarding the inclusion of Stage 1 pressure ulcers in the quality measure.

- Consider excluding patients at the end of life from the quality measure.

- There are several additional risk factors that warrant further consideration, including malnutrition, history of pressure ulcers or pressure ulcers present on admission, and use of devices that place patients at greater risk. Also, consider developing risk adjustment specifications that are specific to the needs of each individual health care setting.

- When considering expanding NQF #0678 to additional healthcare settings, explore approaches to better align with existing data collection systems and EHRs. In future years, consider e-specifying the quality measure.

- Consider specific populations and concerns that arise from the expansion of the quality measure to additional health care settings.

- Identify ways in which data collection systems can be utilized to facilitate more accurate data collection.

- Continue to provide training and resources to providers in all three health care settings currently reporting NQF #0678, to ensure accuracy of pressure ulcer assessments, and reliability and validity of data collection.

In addition to the quality measure development work, RTI has identified several themes among successful interventions and programs for pressure ulcer prevention and management that can be implemented in health care facilities with a wide range of resources and expertise. RTI recommends that CMS encourage health care facilities to develop pressure ulcer programs that adhere to these principals and direct them to the many available tools and resources that have been created by these successful organizations. Additionally RTI recommends that CMS to continue to encourage cross-facility and cross-setting collaboration and communication to improve pressure ulcer prevention and management across the continuum of care. The key principles identified in successful interventions and TEP members include the following:

- It is important to focus on the development of cross-facility and cross-setting protocols for pressure ulcer prevention and care.
- Wound care teams should include staff from multiple health care disciplines.
- Successful interventions often use an evidence-based bundle of interventions.
- Education of staff is one of the key components of a successful intervention. Education can be offered in a variety of forms, including handouts, posters, in-person training sessions, train-the-trainer techniques, webinars, teleconferences, and rounds. Education should start early in the intervention, be ongoing, and focus on both clinical and data collection components.
- Culture change and staff buy-in are key components to successfully implementing a pressure ulcer prevention or management program. Buy-in should focus on both leadership and staff. Staff level buy-in should be facilitated by the use of unit champions.
- Accountability and ownership are key components to success. Care must continually be assessed, and results should be shared across the facility, with units held accountable for their results.
- Additional research is needed into the cross-setting applicability of pressure ulcer tools, resources, and intervention programs.
- The development of a standardized transfer form for use across health care settings would be a valuable way to improve communication, coordination, and the quality of pressure ulcer care. The transfer form should include information about each pressure ulcer and its treatment, as well as information about risk factors for pressure ulcers.

APPENDIX A:
PRESSURE ULCER QUALITY MEASURES

Table A displays the universe of quality measures related to pressure ulcers. The table includes all NQF endorsed quality measures as listed on the NQF website, on 11/4/13, as well as quality measures for pressure ulcers that are not NQF endorsed, as listed on AHRQ's National Quality Measure Clearinghouse (NQMC) on 5/29/13. Specifications for each measure have been provided, along key information for each measure.

All measure specifications included in the table were copied verbatim from the information provided on the NQF website (http://www.qualityforum.org/QPS), or the AHRQ NQMC (http://www.qualitymeasures.ahrq.gov/), on the dates listed above. For current specifications, including information about electronic Clinical Quality Measures (eCQM), please visit the NQF and AHRQ NQMC websites.

The five rows designated with asterisks were completed on the basis of RTI's assessment of the specifications provided on the NQF website or the AHRQ NQMC. The term "not specified" indicates that the column is relevant to the specific quality measure, but the information was not available in the specifications at the time of review. NA indicates that the column is not applicable to the quality measure.

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NQF-Endorsed Measures (As listed on the NQF website, as of November 4, 2013)	
Measure #	1
Title	Percent of Residents or Patients with Pressure Ulcers That Are New or Worsened (Short-Stay) (NQF #0678)
Steward	CMS
Year listed for most current version	2013
Setting	▪ Other (LTCH) ▪ IRF ▪ NH/SNF
Description	This measure reports the percent of short-stay residents, or patients with Stage 2-4 pressure ulcers that are new or worsened since the prior assessment
Numerator	The numerator is the number of residents or patients with a target assessment during the selected time window, who have one or more Stage 2-4 pressure ulcer(s) that are new or that have worsened compared with the prior assessment
Denominator	All LTCH patients and IRF patients with an admission and discharge assessment and all short-stay nursing home residents with one or more assessments that are eligible for a look back scan, except those who meet the exclusion criteria
Exclusions	▪ A patient or short-stay resident is excluded from the denominator if missing data precludes calculation of the measure ▪ Assessments or tracking records performed at the time of patient or resident death are excluded ▪ Nursing homes, LTCHs, and IRFs with denominator counts of less than 20 in the sample will be excluded from public reporting owing to small sample size
Outcome/process*	Outcome
Account for worsening*	Yes
Assess healed ulcers*	No
Stage 1 ulcers included*	No
Unstageable ulcers included*	No
Data source**	▪ LTCH CARE Data Set ▪ IRF-PAI ▪ MDS 3.0

(continued)

NQF-Endorsed Measures (As listed on the NQF website, as of November 4, 2013) (continued)	
Measure #	2
Title	Pressure Ulcer Prevalence (Hospital-Acquired) (NQF #0201)
Steward	The Joint Commission
Year listed for most current version	2012
Setting	▪ Hospital/Acute Care Facility ▪ IRF ▪ LTCH ▪ NH/SNF
Description	The total number of patients that have hospital-acquired (nosocomial) category/Stage 2 or greater pressure ulcers on the day of the prevalence measurement episode
Numerator	Patients that have at least one category/Stage 2 or greater hospital-acquired pressure ulcer on the day of the prevalence measurement episode
Denominator	All patients surveyed for the measurement episode
Exclusions	▪ Patients who refuse to be assessed ▪ Patients who are off the unit at the time of the prevalence measure (i.e., surgery, x-ray, physical therapy, etc.) ▪ Patients who are medically unstable at the time of the measurement for whom assessment would be contraindicated at the time of the measurement (i.e., unstable blood pressure, uncontrolled pain, or fracture waiting repair) ▪ Patients who are actively dying and pressure ulcer prevention is no longer a treatment goal
Outcome/process*	Outcome
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	No
Unstageable ulcers included*	No
Data source**	▪ Electronic Clinical Data ▪ Paper Medical Records

(continued)

NQF-Endorsed Measures (As listed on the NQF website, as of November 4, 2013) (continued)	
Measure #	3
Title	Percent of High Risk Residents with Pressure Ulcers (Long Stay) (NQF #0679)
Steward	CMS
Year listed for most current version	2013
Setting	NH/SNF
Description	▪ The measure reports the percentage of all long-stay residents in a nursing facility with an annual, quarterly, significant change or significant correction MDS 3.0 assessment during the selected quarter (3-month period) who were identified as high risk and who have one or more Stage 2-4 pressure ulcer(s). ▪ High risk populations are those who are comatose, or impaired in bed mobility or transfer, or suffering from malnutrition
Numerator	▪ The numerator is the number of long-stay residents who have been assessed with an OBRA, PPS or discharge M DS 3.0 assessments during the selected time window and who are defined as high risk with one or more Stage 2-4 pressure ulcer(s) ▪ High risk populations are those who are comatose, or impaired in bed mobility or transfer, or suffering from malnutrition
Denominator	The denominator includes all long-stay residents who with a selected target assessment who meet the definition of high risk, except those with exclusions
Exclusions	▪ A long-stay resident is excluded from the denominator if the MDS 3.0 assessment in the current quarter is an OBRA admission assessment or a 5-day PPS assessment or a readmission/return PPS assessment, or if a resident did not meet the pressure ulcer conditions for the numerator AND any stage 2, 3, or 4 item is missing ▪ The OBRA admission assessment and two PPS assessment types are excluded because pressure ulcers identified on them reflect care received in the previous setting and does not reflect the quality of care provided in the nursing home ▪ Nursing homes with fewer than 30 residents in the sample are excluded from public reporting
Outcome/process*	Outcome
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	No
Unstageable ulcers included*	No
Data source**	MDS 3.0

NQF-Endorsed Measures (As listed on the NQF website, as of November 4, 2013) (continued)	
Measure #	4
Title	Increase in Number of Pressure Ulcers (NQF #0181)
Steward	CMS
Year listed for most current version	2009
Setting	Home Health
Description	Percentage of patients who had an increase in the number of pressure ulcers
Numerator	Number of home health episodes where [(a) the value recorded for the total number of stageable pressure ulcers [(M0462 – number at Stage 1) + (M0452 - number at Stage 2) + (M0452 - number at Stage 3) + (M0452 number at Stage 4) or (b) "0" if M0448 = 0 and M0462 = 0] on the discharge assessment is numerically greater than the value resulting from the same calculation using the responses on the start (or resumption) of care assessment - indicating an increase in the number of pressure ulcers
Denominator	All home health episodes except those where (1) The total number of pressure ulcers reported on the start (or resumption) of care assessment is 16 These patients are excluded because it would be impossible for them to show increase in the number of pressure ulcers OR (2) The patient did not have a discharge assessment because the episode of care ended in transfer to inpatient facility or death at home
Exclusions	All home health episodes where (1) The total number of pressure ulcers reported on the start (or resumption) of care assessment is 16 These patients are excluded because it would be impossible for them to show increase in the number of pressure ulcers. OR (2) The patient did not have a discharge assessment because the episode of care ended in transfer to inpatient facility or death at home
Outcome/process*	Outcome
Account for worsening*	Yes
Assess healed ulcers*	No
Stage 1 ulcers included*	Yes
Unstageable ulcers included*	No
Data source**	OASIS-C

NQF-Endorsed Measures (As listed on the NQF website, as of November 4, 2013) (continued)	
Measure #	5
Title	Pressure Ulcer Prevention and Care (NQF #0538)
Steward	CMS
Year listed for most current version	2012
Setting	Home Health
Description	▪ Pressure Ulcer Risk Assessment Conducted: Percentage of home health episodes of care in which the patient was assessed for risk of developing pressure ulcers at start/resumption of care ▪ Pressure Ulcer Prevention Included in Plan of Care: Percentage of home health episodes of care in which the physician-ordered plan of care included interventions to prevent pressure ulcers ▪ Pressure Ulcer Prevention Implemented during Short Term Episodes of Care: Percentage of short term home health episodes of care during which interventions to prevent pressure ulcers were included in the physician-ordered plan of care and implemented
Numerator	▪ Pressure Ulcer Risk Assessment Conducted: Number of home health episodes of care in which the patient was assessed for risk of developing pressure ulcers either via an evaluation of clinical factors or using a standardized tool, at start/ resumption of care ▪ Pressure Ulcer Prevention Included in Plan of Care: Number of home health episodes of care in which the physician-ordered plan of care included interventions to prevent pressure ulcers ▪ Pressure Ulcer Prevention Implemented during Short Term Episodes of Care: Number of home health episodes of care during which interventions to prevent pressure ulcers were included in the physician-ordered plan of care and implemented
Denominator	▪ Pressure Ulcer Risk Assessment Conducted: Number of home health episodes of care ending during the reporting period, other than those covered by generic exclusions ▪ Pressure Ulcer Prevention Included in Plan of Care: Number of home health episodes of care ending during the reporting period, other than those covered by generic exclusions ▪ Pressure Ulcer Prevention Implemented during Short Term Episodes of Care: Number of home health episodes of care ending during the reporting period, other than those covered by generic or measure-specific exclusions
Exclusions	▪ Pressure Ulcer Risk Assessment Conducted: No measure-specific exclusions ▪ Pressure Ulcer Prevention Included in Plan of Care: Episodes in which the patient is not assessed to be at risk for pressure ulcers. ▪ Pressure Ulcer Prevention Implemented during Short Term Episodes of Care: Number of home health episodes in which the patient was not assessed to be at risk for pressure ulcers, or the home health episode ended in transfer to an inpatient facility or death.
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	NA
Unstageable ulcers included*	NA
Data source**	▪ Electronic Clinical Data ▪ Electronic Health Record (EHR)

NQF-Endorsed Measures (As listed on the NQF website, as of November 4, 2013) (continued)	
Measure #	6
Title	Pressure Ulcer Rate (PDI 2) (NQF #0337)
Steward	Agency for Healthcare Research and Quality
Year listed for most current version	2012
Setting	Hospital/Acute Care Facility
Description	Percent of discharges among cases meeting the inclusion and exclusion rules for the denominator with ICD-9-CM code of pressure ulcer in any secondary diagnosis field and ICD-9-CM code of pressure ulcer Stage III or IV (or unstageable) in any secondary diagnosis field
Numerator	Discharges among cases meeting the inclusion and exclusion rules for the denominator with ICD-9-CM code of pressure ulcer in any secondary diagnosis field and ICD-9-CM code of pressure ulcer Stage 3 or 4 or unstageable) in any secondary diagnosis field.
Denominator	All surgical and medical discharges under age 18 defined by specific DRGs or MS-DRGs
Exclusions	▪ neonates ▪ with length of stay of less than 5 days ▪ with preexisting condition of pressure ulcer (see Numerator) (principal diagnosis or secondary diagnosis present on admission) ▪ in MDC 9 (Skin, Subcutaneous Tissue, and Breast) ▪ with an ICD-9-CM procedure code for debridement or pedicle graft before or on the same day as the major operating room procedure (surgical cases only) ▪ with an ICD-9-CM procedure code of debridement or pedicle graft as the only major operating room procedure (surgical cases only) ▪ Transfer from a hospital (different facility) ▪ Transfer from a Skilled Nursing Facility (SNF) or Intermediate Care Facility (ICF) ▪ Transfer from another health care facility ▪ MDC 14 (pregnancy, childbirth, and puerperium) ▪ with missing discharge gender (SEX = missing), age (AGE = missing), quarter (DQT R = missing), year (YEAR = missing) or principal diagnosis (DX1 = missing)
Outcome/process*	Outcome
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	No
Unstageable ulcers included*	Yes
Data source**	Medicare Claims

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13	
Measure #	7
Title	Percentage of at-risk patients with documentation in the medical record that a head-to-toe skin inspection was completed
Steward	Institute for Clinical Systems Improvement
Year listed for most current version	2012
Setting	Ambulatory/Office-based care
Description	Percentage of at-risk patients with documentation in the medical record that a head-to-toe skin inspection was completed
Numerator	Number of patients who had a head-to-toe skin inspection completed
Denominator	Number of patients seen in an outpatient care setting and at risk for pressure ulcers
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	NA
Unstageable ulcers included*	NA
Data source**	Electronic Health Record (EHR)

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	8
Title	Percentage of patients with documentation in the medical record indicating a risk assessment for five questions
Steward	Institute for Clinical Systems Improvement
Year listed for most current version	2012
Setting	Ambulatory/office based care
Description	▪ Percentage of patients with documentation in the medical record indicating a risk assessment was done, using the following questions: – Is the patient bed- or wheelchair-bound, or does he/she require assistance to transfer? – Will the patient be immobile or sedated for more than two hours? – Is the patient incontinent of urine and/or stool? – Does the patient have existing pressure ulcers or history of pressure ulcers? – Does the patient appear visibly malnourished? For younger children, is the baby/child demonstrating inadequate tissue perfusion with evidence of skin breakdown?
Numerator	▪ Number of patients who had pressure ulcer risk reassessment done using following questions: – Is the patient bed or wheelchair-bound, or does he/she require assistance to transfer? – Will the patient be immobile or sedated for more than two hours? – Is the patient incontinent of urine and/or stool? – Does the patient have existing pressure ulcers or history of pressure ulcers? – Does the patient appear visibly malnourished? For younger children, is the baby/child demonstrating inadequate tissue perfusion with evidence of skin breakdown?
Denominator	Number of patients seen in an outpatient care setting after hospitalization
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	NA
Unstageable ulcers included*	NA
Data source**	Electronic Health Record (EHR)

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	9
Title	Percentage of patients with documentation of interventions, including patient education, in the medical record
Steward	Institute for Clinical Systems Improvement
Year listed for most current version	2012
Setting	Ambulatory/Office-based care
Description	Percentage of patients with documentation of interventions, including patient education, in the medical record
Numerator	Number of patients with documentation of interventions, including patient education, in the medical record
Denominator	Number of patients seen in an outpatient care setting after hospitalization and/or patients admitted to the hospital
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	NA
Unstageable ulcers included*	NA
Data source**	Electronic Health Record (EHR)

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	10
Title	Pressure ulcer prevention and treatment protocol: percentage of patients, evaluated for pressure ulcer, with documentation of a pressure ulcer.
Steward	Institute for Clinical Systems Improvement
Year listed for most current version	2012
Setting	Ambulatory/Office based Care
Description	This measure is used to assess the percentage of patients, evaluated for pressure ulcer, with documentation of a pressure ulcer
Numerator	Number of patients with evaluation and documentation of a pressure ulcer
Denominator	Number of patients with evaluation and documentation of a pressure ulcer
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Electronic Health Record (EHR)

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	11
Title	Pressure ulcer prevention and treatment protocol: percentage of patients with documentation in the medical record indicating a risk assessment was done, using specific questions.
Steward	Institute for Clinical Systems Improvement
Year listed for most current version	2012
Setting	Ambulatory/Office based Care
Description	▪ This measure is used to assess the percentage of patients with documentation in the medical record indicating a risk assessment was done using the following questions: – Is the patient bed- or wheelchair-bound, or does he/she require assistance to transfer? – Will the patient be immobile or sedated for more than two hours? – Is the patient incontinent of urine and/or stool? – Does the patient have existing pressure ulcers or history of pressure ulcers? – Does the patient appear visibly malnourished? For younger children, is the baby/child demonstrating inadequate tissue perfusion with evidence of skin breakdown?
Numerator	▪ Number of patients who had a pressure ulcer risk reassessment done using the following questions: – Is the patient bed- or wheelchair-bound, or does he/she require assistance to transfer? – Will the patient be immobile or sedated for more than two hours? – Is the patient incontinent of urine and/or stool? – Does the patient have existing pressure ulcers or history of pressure ulcers? – Does the patient appear visibly malnourished? – For younger children, is the baby/child demonstrating inadequate tissue perfusion with evidence of skin breakdown?
Denominator	Number of patients seen in an outpatient care setting (see the related "Denominator Inclusions/Exclusions" field)
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	NA
Unstageable ulcers included*	NA
Data source**	Electronic Health Record (EHR)

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	12
Title	Pressure ulcer prevention and treatment protocol: percentage of outpatients with a pressure ulcer(s) with documentation in the medical record that education was provided to patient, family, or caregiver regarding the treatment, progression, and prevention of pressure ulcers
Steward	Institute for Clinical Systems Improvement
Year listed for most current version	2012
Setting	Ambulatory/Office based Care
Description	This measure is used to assess the percentage of outpatients with a pressure ulcer with documentation in the medical record that education was provided to patient, family, or caregiver regarding the treatment, progression, and prevention of pressure ulcers
Numerator	Number of patients who had education provided to patient, family and/or caregiver regarding the treatment, progression, and prevention of pressure ulcers
Denominator	Number of patients seen in outpatient care settings after hospitalization and have pressure ulcers
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Electronic Health Record (EHR)

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	13
Title	Inpatient Percentage of patients with pressure ulcers whose medical record contains documentation of a comprehensive patient assessment and thorough wound evaluation including staging classification upon admission/identification of a hospital-acquired pressure ulcer
Steward	Institute for Clinical Systems Improvement
Year listed for most current version	2012
Setting	Hospital Inpatient
Description	▪ (Inpatient) ▪ Percentage of patients with pressure ulcer(s) whose medical record contains documentation of a comprehensive patient assessment and thorough wound evaluation including staging classification upon admission/identification of a hospital-acquired pressure ulcer that includes the following: – History and physical – Wound description/staging – Etiology of pressure – Nutritional status – Bacterial colonization/infection – Psychosocial needs (e.g., anxiety, depression, worries)
Numerator	▪ Number of patients with pressure ulcer(s) whose medical record contains documentation of a comprehensive patient assessment and thorough wound evaluation including staging classification upon admission/identification of a hospital-acquired pressure ulcer that includes the following: – History and physical – Wound description/staging – Etiology of pressure – Nutritional status – Bacterial colonization/infection – Psychosocial needs (e.g. anxiety, depression, worries)
Denominator	Number of patients admitted to the hospital who have pressure ulcers
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Electronic Health Record (EHR)

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	14
Title	Percentage of patients with documentation in the medical record indicating a patient risk was reassessed daily (using the Braden Scale or Braden Q)
Steward	Institute for Clinical Systems Improvement
Year listed for most current version	2012
Setting	Hospital Inpatient
Description	Percentage of patients with documentation in the medical record indicating a patient risk was reassessed daily (using the Braden Scale or Braden Q)
Numerator	Number of patients who had pressure ulcer reassessment done daily after admission into the hospital for using the Braden Scale or Braden Q
Denominator	Number of patients in the hospital
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Electronic Health Record (EHR)

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	15
Title	Percentage of patients with documentation in the medical record that a head-to-toe re-inspection and palpation were completed every 8-24 hours, depending on the status of the patient
Steward	Institute for Clinical Systems Improvement
Year listed for most current version	2012
Setting	Hospital Inpatient
Description	Percentage of patients with documentation in the medical record that a head-to-toe re-inspection and palpation were completed every 8-24 hours, depending on the status of the patient
Numerator	Number of patients who had a head-to-toe skin inspection and palpation completed every 8-24 hours, depending on status of the patient
Denominator	Number of patients in the hospital with a pressure ulcer
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Electronic Health Record (EHR)

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	16
Title	Pressure Ulcer Prevention and Treatment Protocol: Percent of Patients with Documentation in the Medical Record That a Head-to-Toe Skin Inspection and Palpation Were Completed Within Six Hours of Admission
Steward	Institute for Clinical Systems Improvement
Year listed for most current version	2012
Setting	Hospital Inpatient
Description	This measure is used to assess the percent of patients with documentation in the medical record that a head-to-toe skin inspection and palpation were completed within six hours of admission
Numerator	Number of patient medical records that indicate a head-to-toe skin inspection and palpation were completed within six hours of admission
Denominator	Total number of medical records audited for evidence of head-to-toe skin inspection
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	NA
Unstageable ulcers included*	NA
Data source**	Electronic Health Record (EHR)

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	17
Title	Rate or percentage of patients with documentation of a pressure ulcer
Steward	Institute for Clinical Systems Improvement
Year listed for most current version	2012
Setting	Hospital Inpatient
Description	Rate or percentage of patients with documentation of a pressure ulcer
Numerator	Number of patients with documentation of a pressure ulcer
Denominator	Number of patients admitted to the hospital for any reason
Exclusions	None Noted
Outcome/process*	Outcome
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Electronic Health Record (EHR)

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	18
Title	Pressure ulcer prevention and treatment protocol: percentage of patients with documentation in the medical record that communication of a transfer/discharge plan for patients with a pressure ulcer(s) took place addressing skin status and the pressure ulcer prevention plan when transferring patient care to another care provider
Steward	Institute for Clinical Systems Improvement
Year listed for most current version	2012
Setting	Hospital Inpatient
Description	▪ This measure is used to assess the percentage of patients with documentation in the medical record that communication of a transfer/discharge plan for patients with a pressure ulcer(s) took place addressing skin status and the pressure ulcer prevention plan when transferring patient care to another care provider: – Change of shifts – Transfers between departments – Transfer to another unit or facility – At time of discharge
Numerator	▪ Number of patients with documentation in the medical record that communication of a transfer/discharge plan for patients with a pressure ulcer(s) took place addressing skin status and the pressure ulcer prevention plan when transferring patient care to another care provider: – Change of shifts – Transfers between departments – Transfer to another unit or facility – At time of discharge
Denominator	Number of patients admitted to the hospital and discharged from the hospital or transferred to another care system who have pressure ulcers
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Electronic Health Record (EHR)

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	19
Title	Pressure ulcer prevention and treatment protocol: percentage of inpatients with pressure ulcer(s) whose medical record contains documentation of a comprehensive patient assessment and thorough wound evaluation
Steward	Institute for Clinical Systems Improvement
Year listed for most current version	2012
Setting	Hospital Inpatient
Description	▪ This measure is used to assess the percentage of inpatients who had comprehensive patient assessment and thorough wound evaluation including staging classification upon admission/identification of a hospital-acquired pressure ulcer that includes the following: – History and physical – Wound description/staging – Etiology of pressure – Nutritional status – Bacterial colonization/infection – Psychosocial needs (anxiety, depression, worries)
Numerator	▪ Number of patients who had comprehensive patient assessment and thorough wound evaluation including staging classification upon admission/identification of a hospital-acquired pressure ulcer that includes the following: – History and physical – Wound description/staging – Etiology of pressure – Nutritional status – Bacterial colonization/infection – Psychosocial needs (anxiety, depression, worries)
Denominator	Number of patients admitted to the hospital who have pressure ulcers
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Electronic Health Record (EHR)

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	20
Title	Pressure ulcer prevention and treatment protocol: percentage of patients with documentation in the medical record indicating a risk assessment (using the Braden Scale or Braden Q) was completed upon admission
Steward	Institute for Clinical Systems Improvement
Year listed for most current version	2012
Setting	Hospital Inpatient
Description	This measure is used to assess the percentage of patients with documentation in the medical record indicating a risk assessment (using the Braden Scale or Braden Q) was completed upon admission
Numerator	Number of patients who had pressure ulcer risk assessment done upon admission into the hospital using the Braden Scale or Braden Q
Denominator	Number of patients admitted to the hospital
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	NA
Unstageable ulcers included*	NA
Data source**	Electronic Health Record (EHR)

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	21
Title	Pressure ulcer prevention and treatment protocol: percentage of patients with a pressure ulcer who are transferred/discharged with documentation in the medical record of the transfer/discharge plan
Steward	Institute for Clinical Systems Improvement
Year listed for most current version	2012
Setting	Hospital Inpatient
Description	This measure is used to assess the percentage of patients with a pressure ulcer who are transferred/discharged, with documentation in the medical record of the transfer/discharge plan
Numerator	Number of patients with a pressure ulcer with documentation in the medical record of the transfer/discharge plan
Denominator	Number of patients admitted to the hospital and discharged from the hospital or transferred to another care system who have pressure ulcers
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Electronic Health Record (EHR)

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	22
Title	Pressure ulcer prevention and treatment protocol: percentage of inpatients with a pressure ulcer that are discharged home, with documentation in the medical record that written instructions and educational materials were given to the patient and/or his/her caregiver at discharge or during the hospital stay
Steward	Institute for Clinical Systems Improvement
Year listed for most current version	2012
Setting	Hospital Inpatient
Description	This measure is used to assess the percentage of inpatients with a pressure ulcer who are discharged home, with documentation in the medical record that written instructions and educational materials were given to the patient and/or his/her caregiver at discharge or during the hospital stay (includes causes of pressure ulcers, ways to prevent them, dietary needs, positioning, signs of infection, types of tissue, normal and abnormal colors of tissue, infection control, dressing change techniques, goal and purpose)
Numerator	Number of patients who, upon the discharge from hospital, had documentation in the medical record that written instructions and educational materials were given to the patient and/or his/her caregiver at discharge or during the hospital stay (includes causes of pressure ulcers, ways to prevent them, dietary needs, positioning, signs of infection, types of tissue, normal and abnormal colors of tissue, infection control, dressing change techniques, goal and purpose)
Denominator	Number of patients admitted to the hospital and discharged from the hospital or transferred to another care system who have pressure ulcers
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Electronic Health Record (EHR)

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	23
Title	Pressure ulcer prevention and treatment protocol: percentage of inpatients with pressure ulcers whose medical record contains documentation of a partial wound assessment with every dressing change
Steward	Institute for Clinical Systems Improvement
Year listed for most current version	2012
Setting	Hospital Inpatient
Description	This measure is used to assess the percentage of inpatients with pressure ulcers whose medical record contains documentation of a partial wound assessment with every dressing change
Numerator	Number of patients who had partial wound assessment with every dressing change
Denominator	Number of patients in the hospital who have pressure ulcers
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Electronic Health Record (EHR)

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	24
Title	Prevention of pressure ulcers: percentage of patients 65 years of age or older who were assessed within 24 hours of admission to hospital for the risk of developing pressure ulcers
Steward	Institute for Clinical Systems Improvement
Year listed for most current version	2012
Setting	Hospital Inpatient
Description	Number of patients 65 years of age or older who have been in hospital at least two days and who, according to documented evidence, were assessed within 24 hours of admission for the risk of developing pressure ulcers x 100
Numerator	This measure is used to determine the percentage of patients 65 years of age or older who were assessed within 24 hours of admission to hospital for the risk of developing pressure ulcers. Note: This indicator may apply to other ages. Focusing on elderly make possible simultaneous measurement with other indicators in the same sample of patients and underlines the appropriateness of the indicator compliance. Any standard risk-assessment tool is accepted
Denominator	Total number of patients 65 years of age or older who have been hospitalized at least two days. Note: This indicator may apply to other ages.
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	NA
Unstageable ulcers included*	NA
Data source**	Administrative Clinical Data Medical Record

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	25
Title	Percentage of patients with a pressure ulcer or pressure ulcer risk with documented periodic assessment for specific risk factors
Steward	American Medical Directors Association Professional Association
Year listed for most current version	2004
Setting	SNF
Description	This measure is used to assess the percentage of patients with pressure ulcer or pressure ulcer risk factors with documented periodic assessment for specific risk factors
Numerator	Number of patients who have pressure ulcer or pressure ulcer risk with documented periodic assessment for specific risk factors
Denominator	All patients who have a pressure ulcer or pressure ulcer risk
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Medical Record

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	26
Title	Pressure ulcers: percentage of patients in facility admitted with a pressure ulcer
Steward	American Medical Directors Association Professional Association
Year listed for most current version	2004
Setting	SNF
Description	This measure assesses the percentage of patients in facility admitted with a pressure ulcer
Numerator	Number of patients from the denominator admitted with a pressure ulcer
Denominator	All patients admitted to facility
Exclusions	None Noted
Outcome/process*	Outcome, Assesses ulcers present on admission
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Medical Record

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	27
Title	Pressure ulcers: percentage of patients in facility who develop pressure ulcers while in the facility
Steward	American Medical Directors Association Professional Association
Year listed for most current version	2004
Setting	SNF
Description	This measure is used to assess the percentage of patients in facility that develop pressure ulcers while in the facility
Numerator	Number developing pressure ulcers
Denominator	All patients
Exclusions	None Noted
Outcome/process*	Outcome
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Medical Record

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	28
Title	Pressure Ulcers: Percentage of Patients with Clinically Significant Complications
Steward	American Medical Directors Association Professional Association
Year listed for most current version	2004
Setting	SNF
Description	This measure is used to assess the percentage of patients with pressure ulcers with clinically significant complications
Numerator	Number with pressure ulcers with clinically significant complications
Denominator	Number of individuals with pressure ulcers
Exclusions	None Noted
Outcome/process*	Outcome, Assesses clinically significant complications
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Medical Record

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	29
Title	Pressure Ulcers: Percentage of Patients with Documented Assessment of Pressure Ulcer Using a Formal Wound Staging Classification
Steward	American Medical Directors Association Professional Association
Year listed for most current version	2004
Setting	SNF
Description	This measure is used to assess the percentage of patients with documented assessment of pressure ulcer using a formal wound staging classification.
Numerator	Number with documented assessment of pressure ulcer using a formal wound staging classification
Denominator	All patients with pressure ulcers
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Medical Record

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	30
Title	Pressure Ulcers: Percentage of Patients with Documented Assessment of Risks for Possible Pressure Ulcer Development
Steward	American Medical Directors Association Professional Association
Year listed for most current version	2004
Setting	SNF
Description	This measure is used to assess the percentage of patients with documented assessment of risks for possible pressure ulcer development.
Numerator	Number with documented assessment of risks for possible pressure ulcer development
Denominator	All patients
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	NA
Unstageable ulcers included*	NA
Data source**	Medical Record

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	31
Title	Pressure Ulcers: Percentage of patients with Documented Assessment of Skin for Breakdown
Steward	American Medical Directors Association Professional Association
Year listed for most current version	2004
Setting	SNF
Description	This measure is used to assess the percentage of patients with documented assessment of skin for breakdown
Numerator	Number with documented* assessment of skin for breakdown *Documentation refers to whether a procedure/discussion was indicated/done or not indicated/not done
Denominator	All patients
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	NA
Unstageable ulcers included*	NA
Data source**	Medical Record

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	32
Title	Pressure Ulcers: Percentage of Patients with Pressure Ulcers that Heal
Steward	American Medical Directors Association Professional Association
Year listed for most current version	2004
Setting	SNF
Description	This measure is used to assess the percentage of patients with pressure ulcers that heal
Numerator	Number of individuals with pressure ulcers that heal
Denominator	Number of individuals with pressure ulcers
Exclusions	None Noted
Outcome/process*	Outcome
Account for worsening*	No
Assess healed ulcers*	Yes
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Medical Record

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	33
Title	Pressure Ulcers: Percentage of patients with pressure ulcers with documented treatment plan for pressure reduction approaches
Steward	American Medical Directors Association Professional Association
Year listed for most current version	2004
Setting	SNF
Description	This measure is used to assess the percentage of patients with pressure ulcers with documented treatment plan for pressure ulcer reduction approaches
Numerator	Number with pressure ulcers who have documented treatment plan for pressure reduction approaches
Denominator	Number of individuals with pressure ulcers
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Medical Record

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	34
Title	Pressure Ulcers: Percentage of patients with pressure ulcers with documented treatment plans citing identified risk factor and co-morbid conditions
Steward	American Medical Directors Association Professional Association
Year listed for most current version	2004
Setting	SNF
Description	This measure is used to assess the percentage of patients with pressure ulcers with documented treatment plans citing identified risk factors and co-morbid conditions.
Numerator	Number with pressure ulcers and documented treatment plans citing identified risk factors and co-morbid conditions
Denominator	Number of individuals with pressure ulcers who have identified risk factors or co-morbid conditions
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Medical Record

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	35
Title	Pressure Ulcers: Percentage of patients with Pressure Ulcers with Necrotic Tissue or Slough with Documented Treatment Plan for Wound Debridement
Steward	American Medical Directors Association Professional Association
Year listed for most current version	2004
Setting	SNF
Description	This measure is used to assess the percentage of patients with pressure ulcers with necrotic tissue or slough with documented treatment plan for wound debridement.
Numerator	Number with pressure ulcers with necrotic tissue or slough with documented treatment plan for wound debridement
Denominator	Number diagnosed with pressure ulcers with necrotic tissue or slough
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Medical Record

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	36
Title	Pressure Ulcers: Percentage of patients with Pressure Ulcers with Periodic Documentation on Status of the Characteristics of Wound (e.g., size, depth, color, induration, odor, discharge)
Steward	American Medical Directors Association Professional Association
Year listed for most current version	2004
Setting	SNF
Description	This measure is used to assess the percentage of patients with pressure ulcers with periodic documentation on status of the characteristics of the wound (e.g., size, depth, color, induration, odor, discharge)
Numerator	Number with pressure ulcers and with periodic documentation on status of the characteristics of the wound (e.g., size, depth, color, induration, odor, discharge)
Denominator	Number of individuals with pressure ulcers
Exclusions	None Noted
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Medical Record

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	37
Title	Pressure Ulcers: Rate per 1,000 Discharges
Steward	Agency for Healthcare Research and Quality
Year listed for most current version	2012
Setting	Not Specified
Description	This measure is used to assess the number of cases of pressure ulcer per 1,000 discharges with a length of stay greater than 4 days
Numerator	Discharges with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code of pressure ulcer in any secondary diagnosis field among cases meeting the inclusion and exclusion rules for the denominator
Denominator	All medical and surgical discharges, 18 years and older, defined by specific Diagnosis-Related Groups (DRGs) or Medicare Severity DRGs (MS-DRGs)
Exclusions	▪ With length of stay of less than 5 days ▪ With principal diagnosis of pressure ulcer or secondary diagnosis present on admission ▪ Major Diagnostic Category (MDC) 9 (Skin, Subcutaneous Tissue, and Breast) ▪ MDC 14 (pregnancy, childbirth, and puerperium) ▪ With any diagnosis of hemiplegia, paraplegia, or quadriplegia ▪ With any diagnosis of spina bifida or anoxic brain damage ▪ With an International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) procedure code for debridement or pedicle graft before or on the same day as the major operating room procedure (surgical cases only) ▪ With any diagnosis of Stage 1 or Stage 2 pressure ulcer ▪ Transfer from a hospital (different facility) ▪ Transfer from a Skilled Nursing Facility (SNF) or Intermediate Care Facility (ICF) ▪ Transfer from another health care facility
Outcome/process*	Outcome
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	No
Unstageable ulcers included*	Not specified
Data source**	Administrative Clinical Data

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	38
Title	Pressure Ulcers: Rate per 1,000 Eligible Admissions
Steward	Agency for Healthcare Research and Quality
Year listed for most current version	2012
Setting	Not Noted
Description	This measure is used to assess the number of patients with decubitus ulcer per 1,000 eligible admissions with a length of stay of 5 or more days
Numerator	Discharges among cases meeting the inclusion and exclusion rules for the denominator with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code of decubitus ulcer in any secondary diagnosis field
Denominator	All surgical and medical discharges under age 18 defined by specific Diagnosis-Related Groups (DRGs) and Medicare Severity DRGs (MS-DRGs)
Exclusions	▪ Neonates ▪ With length of stay of less than 5 days ▪ With preexisting condition of pressure ulcer (see the "Numerator Description" field) (primary or secondary diagnosis present on admission) ▪ In Major Diagnostic Category (MDC) 9 (Skin, Subcutaneous Tissue, and Breast) ▪ With an International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) procedure code for debridement or pedicle graft before or on the same day as the major operating room procedure (surgical cases only) ▪ With an ICD-9-CM procedure code for debridement or pedicle graft as the only major operating room procedure (surgical cases only) ▪ With diagnosis of Stage 1 or Stage 2 pressure ulcer ▪ Transfer from a hospital (different facility) ▪ Transfer from a Skilled Nursing Facility (SNF) or Intermediate Care Facility (ICF) ▪ Transfer from another health care facility ▪ MDC 14 (pregnancy, childbirth and puerperium)
Outcome/process*	Outcome
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not Specified
Unstageable ulcers included*	Not Specified
Data source**	Medicare Claims

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	39
Title	Percent of At-Risk Patients Receiving Full Pressure Ulcer assessment
Steward	Institute for Health-care Improvement
Year listed for most current version	2006
Setting	Not Specified
Description	The percentage of patients for whom all components of proper pressure ulcer admission assessment were performed and documented. If a component of the admission assessment was not applied due to a documented contra-indication, it counts as appropriately performed for the purposes of this measure. Proper pressure ulcer admission assessment includes the following two components: 1. Assessment of pressure ulcer risk using an agreed-upon risk assessment tool; and 2. Skin assessment to identify existing pressure ulcers
Numerator	Number of patients for whom all components of proper pressure ulcer admission assessment were performed and documented. If a component of the admission assessment was not applied due to a documented contraindication count it as appropriately performed for the purposes of this measure. Proper pressure ulcer admission assessment includes the following two components: 1. Assessment of pressure ulcer risk using an agreed-upon risk assessment tool; and 2. Skin assessment to identify existing pressure ulcers
Denominator	Total number of admitted patients
Exclusions	No Exclusions
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	NA
Unstageable ulcers included*	NA
Data source**	Not Specified

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	40
Title	Percent of At-Risk Patients Receiving Full Pressure Ulcer Bundle
Steward	Institute for Health-care Improvement
Year listed for most current version	2006
Setting	Not Specified
Description	The percentage of patients identified as at risk for pressure ulcers for whom all components of proper pressure ulcer care were performed and documented in the calendar day before review. If a component of care is not applied due to a documented contra-indication, count it as appropriately performed for the purposes of this measure. Proper pressure ulcer care includes the following five components: 1. Daily inspection of skin for pressure ulcers 2. Proper management of moisture, including both cleaning and moisturizing skin 3. Optimization of nutrition 4. Repositioning every two hours 5. Use of pressure-relieving surfaces
Numerator	Number of patients identified as at risk for pressure ulcers for whom all components of proper pressure ulcer care were performed and documented in the calendar day before review. If a component of care is not applied due to a documented contra-indication, count it as appropriately performed for the purposes of this measure. Proper pressure ulcer care includes the following five components: 1. Daily inspection of skin for pressure ulcers 2. Proper management of moisture, including both cleaning and moisturizing skin 3. Optimization of nutrition 4.Repositioning every two hours 5. Use of pressure-relieving surfaces
Denominator	Total number of patients identified as being at risk for pressure ulcers.
Exclusions	Patients admitted on current day or prior calendar day
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	NA
Unstageable ulcers included*	NA
Data source**	Not Specified

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	41
Title	Percent of Patients Receiving Daily Pressure Ulcer Risk Reassessment
Steward	Institute for Health-care Improvement
Year listed for most current version	2006
Setting	Not Specified
Description	The percentage of patients for whom a pressure ulcer risk reassessment (using an agreed-upon risk assessment tool) was documented as performed daily or with greater frequency (or for whom an appropriate contra-indication was documented)
Numerator	The number of patients for whom a pressure ulcer risk reassessment (using an agreed-upon risk assessment tool) was documented as performed daily or with greater frequency (or for whom an appropriate contraindication was documented)
Denominator	All patients
Exclusions	Patients with length of stay less than 24 hours
Outcome/process*	Process
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	NA
Unstageable ulcers included*	NA
Data source**	Not Specified

Other Pressure Ulcers Quality Measures (As listed on the Agency for Healthcare Research and Quality (AHRQ) National Quality Measure Clearinghouse (NQMC), as of 5/29/13 (continued)	
Measure #	42
Title	Pressure Ulcer Incidence per 1000 Patient Days
Steward	Institute for Health-care Improvement
Year listed for most current version	2006
Setting	Not Specified
Description	The number of pressure ulcers developed in hospital per 1000 patient days
Numerator	Number of pressure ulcers developed in hospital
Denominator	Total number of patient days
Exclusions	No Exclusions
Outcome/process*	Outcome
Account for worsening*	No
Assess healed ulcers*	No
Stage 1 ulcers included*	Not specified
Unstageable ulcers included*	Not specified
Data source**	Not Specified

* Completed based on RTI's assessment of the specifications provided on the NQF website or the AHRQ NQMC website. The term "not specified" indicates that the column is relevant to the specific quality measure, but that the correct response is unclear based on RTI's evaluation of the specifications. The letters "NA" indicates that the column is not applicable to the quality measure.

** The terms "Electronic Health Record (EHR)," and "Electronic Clinical Data," reflect the data sources as listed on the NQF website or AHRQ NQMC. They do not relate to or reflect the status of the measure in regards to electronic specification (e-specification), or inclusion in the electronic Clinical Quality Measure (eCQM) program.

APPENDIX B:
PRESSURE ULCER TECHNICAL EXPERT PANEL MEMBERS AND MEETING ATTENDEES

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Technical Expert Panel Members

Name	Title / Organization
1. Elizabeth Ayello, PhD, RN, ACNS-BC, CWON, ETN, MAPWCA, FAAN	President Ayello, Harris & Associates, Inc
2. Sandra Berquist-Beringer, PhD, RN, CWCN	Associate Professor The University of Kansas, School of Nursing
3. Donna Bliss, PhD, RN, FAAN, FGSA	Professor University of Minnesota School of Nursing
4. Michele Cournan, DNP, RN, CRRN, CNS, FNP, ANP-BC *Attended by telephone*	Director, Clinical Operations Sunnyview Rehabilitation Hospital
5. Kathleen Deck, RN, CWON	Wound Care Specialist Barlow Respiratory Hospital
6. Jean de Leon, MD	Clinical Professor University of Texas
7. Nancy Merlino Leveille, RN, MS	Senior Director, Member Operational Support New York State Health Facilities Association
8. Lynn Moore, RD, LD	President Nutrition Systems Consulting, Inc.
9. Conchita Rader, RN, MA, CFCN, CWCN	Wound Care Coordinator Kessler Institute for Rehabilitation
10. Aamir Siddiqui, MD, FACS	Division Head, Plastic and Reconstructive Surgery & Medical Director of Wound Care Services Henry Ford Hospital
11. Sheri Slater, BS	Patient Representative
12. Darlene Thompson, RN, CRRN, NE-BC	Vice President Clinical Information Systems and Training Kindred Healthcare

Centers for Medicare and Medicaid Services Staff[33]

Name	Title / Affiliation
Stella Mandl, BSW, BSN, PHN, RN	Contracting Officer's Representative, Development and Maintenance of Symptom Management Measures Project Division of Chronic and Post Acute Care (DCPAC)
Charles Padgett, RN	Contracting Officer's Representative, Development and Maintenance of Symptom Management Measures Project Division of Chronic and Post Acute Care (DCPAC)
Ellen Berry, PT	Technical Director, Data Specifications and Data Collection Division of National Systems (DNS)
Tara McMullen, MPH, MPP, PhD(c)	Health Insurance Specialist Division of Chronic and Post Acute Care (DCPAC)
Mary Pratt, RN, MSN	Director Division of Chronic and Post Acute Care (DCPAC)
Kim Roche, MA, BSN, RN	Nurse Consultant Division of Chronic and Post Acute Care (DCPAC)
Kadie Thomas, BS	Health Insurance Specialist Center for Medicare (CM)

RTI International Project Staff

Name	Title / Role on Project
Shulamit Bernard, PhD	Senior Technical Advisor
Samruddhi Thaker, MBBS, MHA, PhD	Project Director, Development and Maintenance of Symptom Management Measures Project & Task Lead, LTCH Quality Measures
Margot Schwartz, MPH	Task Lead, Cross-Setting Pressure Ulcer Quality Measure
Laura Smith, PhD	Associate Project Director, Nursing Home Quality Measures Project
Magdalena Ignaczak, BS	Public Health Analyst
Anne Deutsch, RN, CRRN, PhD *Attended by telephone*	Task Lead, IRF Quality Measures & Function Quality Measure

Consultants

Name	Title
Dave Malitz, PhD *Attended by telephone*	Subcontractor, Nursing Home Quality Measures Project, Stepwise Systems, Inc.

[33] In addition to the CMS staff who attended the TEP meeting, CMS and RTI consulted with a wide range of CMS staff during the measure development process, including representatives from the Home Health Agency and Acute Inpatient teams.

APPENDIX C:
TECHNICAL EXPERT PANEL MEETING AGENDA

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Agenda: Technical Expert Panel Meeting
Development of a Cross-Setting Quality Measure for Pressure Ulcers
June 13, 2013: 8:30 a.m.–5:00 p.m.

Welcome and Introductions
Goals of TEP Meeting
Stella Mandl, CMS
Shula Bernard, RTI International
Samruddhi Thaker, RTI International

Review of Pressure Ulcers Quality Measures &
Overview: Percent of Residents or Patients with Pressure Ulcers That Are New or Worsened (Short-Stay) (NQF #0678)
Margot Schwartz, RTI International

Review of Key Informant Interview Findings Related to NQF #0678
Margot Schwartz, RTI International

Review of MDS 3.0 Data Analysis
Laura Smith, RTI International

Discussion of NQF #0678
1. Measure Concept and Direction
2. Measure Title and Specifications
3. Risk Factors and Risk Adjustment
4. Data Elements and Data Collection

Setting Specific Discussions
1. Feasibility of Expansion to Home Health
2. Feasibility of Expansion to Acute Inpatient Setting
3. Nursing Homes/Skilled Nursing Facilities
4. Long-Term Care Hospitals
5. Inpatient Rehabilitation Facilities

Meeting Summary and Next Steps
