

# Readmissions: What is the Truth?

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**ACA of 2010: Codified the Triple Aim- Better Outcomes → Better Population Health → Lower Health Care Costs = Patient Centered Care**

## **Heightened Attention to Outcomes in FFS**

- Established Outcomes Analysis Mechanisms
  - Hospital Reporting Metrics
  - Hospital Acquired Infections – value matters
- Broadened hospital responsibility
  - Established Hospital Readmissions program to account for 30 days post-discharge
- Established Quality Reporting Programs for IRFs, LTCHs, Hospice
  - Rounds out the Medicare quality reporting programs to include remaining PAC providers

# Broadened Attention to Outcomes Across Settings

- Value-Based Payment Programs
  - Accountable Care Organizations
  - Bundled Payment Programs
  - Medical Homes
- National Quality Strategy
  - CMS List of Quality Measures Under Consideration
    - National Quality Forum
  - CMS List of Measures Under Consideration for IMPACT Act of 2014
    - CMS website
  - CMMI Technical Expert Panel on Population Health Measures

# Hospital Readmission Rates: Compare Data

- 30-day unplanned readmission for heart attack (AMI) patients
- 30-day unplanned readmission for heart failure (HF) patients
- 30-day unplanned readmission for pneumonia patients
- 30-day unplanned readmission for hip/knee replacement patients
- 30-day unplanned readmission for stroke patients
- 30-day unplanned readmission for chronic obstructive pulmonary disease (COPD) patients
- 30-day overall rate of unplanned readmission after discharge from the hospital (hospital-wide readmission).
  - **Note:** This measure includes patients admitted for internal medicine, surgery/gynecology, cardiorespiratory, cardiovascular, and neurology services. It is not a composite measure.

# CMS 2015 Readmission Measures Under Consideration

- **For SNF Setting (NQF #2510):** Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM)
- **HH Services (NQF #2380):**Rehospitalization During the First 30 Days of Home Health
- **IRF Setting (NQF #2502):** All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities
- **For LTCH Setting (NQF #2512):** All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (LTCHs)

# Predicting Readmission Rates in PAC Populations

## ➤ **CMS and ASPE have funded numerous national studies**

- Gage et al, 2009 – Identifying the Logic to Assign PAC Claims to Episodes of Care for Comparing Relative Resource Use - Claims-based analysis of Medicare hospital discharges return to hospitalization by site of First PAC
  - ❑ Examined number of days between sites of care and variation by type of hospital discharge
- Gage et al, 2009– Examining the Landscape of Formal and Informal Delivery Systems...for Bundle Payment Modifications - Claims-based analysis of factors predicting rehospitalization for Medicare PAC populations, including use of hospital-owned/co-located subproviders
- Gage et al, 2012 – Findings from the National PAC Payment Reform Demonstration - Claims and assessment-based analysis of factors predicting rehospitalization for Medicare PAC populations using standardized data

## ➤ **Private Sector Initiatives – Under BPCI/ACOs, Hospital or System specific analysis of EHR or other data to identify high-risk populations but results are limited in value-based programs**

# Barriers To Predicting Expected Readmissions in a Value-Based System

- Need standardized data sources for cross-setting analysis
  - Who is *readmitted*?
    - Data must follow the patient across time
    - Claims data are standardized and can identify the readmission but provide limited data for identifying high risk cases – age, sex, primary diagnosis, comorbidities
    - Other data sources are either provider or system specific (electronic health records) or differ by type of provider (assessment data, including MDS, OASIS, IRF-PAI)

# Patient Assessment Domain Comparisons Across Assessment Tools

## Similar Domains

- Medical complexity
- Motor Functional status
- Cognitive status
- Social support and environmental factors

## Differences

- Individual items that measure each concept
- Rating scales used to measure items
- Look-back or assessment periods
- Unidimensionality of individual items



# PAC Payment Reform Demonstration as mandated by the Deficit Reduction Act of 2005 called for standardized data to...

- Compare patients across settings
  - Is the same patient treated in more than one type of licensed provider?
  - If so, did both types of providers achieve equal outcomes?
  - If so, were different types of PAC providers paid different amounts for treating similar patients - each PPS uses different items to measure the same concepts.
- Improve coordination of care – one set of terms to define pressure ulcer severity, functional impairment, cognitive impairment across providers.
- Improve data exchangeability – need standard language to transfer information between providers treating the case.

# Findings From the National PAC Payment Reform Demonstration-

- Does First Site of PAC Affect the Probability of Readmission in 30 Days Following Hospital Discharge?
  - Nationally diverse sample
  - Nationally standardized assessment items to compare case-mix complexity
  - Uniform measures of resource intensity across LTCHs, IRFs, SNFs, HHAs

# Continuity Assessment Record and Evaluation (CARE) Item Development

Sponsored by CMS, Office of Clinical Standards and Quality

- Project Officer: Judith Tobin, CMS
- Principal Investigator/RTI Team: Barbara Gage, Shula Bernard, Roberta Constantine, Melissa Morley, Mel Ingber
- Co- Principal Investigators: Rehabilitation Institute of Chicago, Northwestern University
- Consultants: Visiting Nurse Services of NY, University of Pennsylvania, RAND, Case Western University
- Input by pilot test participants, including participating acute hospitals, LTCHs, IRFs, SNFs, and HHAs

# CARE Item Priorities and Guiding Principles

- The CARE items should be designed to collect standardized information at discharge from acute hospitals and at admission and discharge from the four PAC providers: LTCHs, IRFs, SNFs, and HHAs.
- The CARE tool items should inform payment policy discussions by including measures of the needs and the clinical characteristics of the patient that are **predictive of resource intensity needs**.
- The CARE tool items should **inform the evaluation of treatment outcomes** by including patient-specific factors that measure outcomes and the appropriate risk adjustment thereof. Outcomes should include but not be limited to measures of functional status.
- The CARE tool items should document clinical factors **associated with patient discharge placement decisions** for the purposes of allowing the clinicians treating the patients to make appropriate discharge placement decisions.
- The CARE tool should be appropriate for collecting standardized patient assessment information as a patient is transferred from one setting to another and, by standardizing how information is collected, **foster high-quality, seamless care transitions**

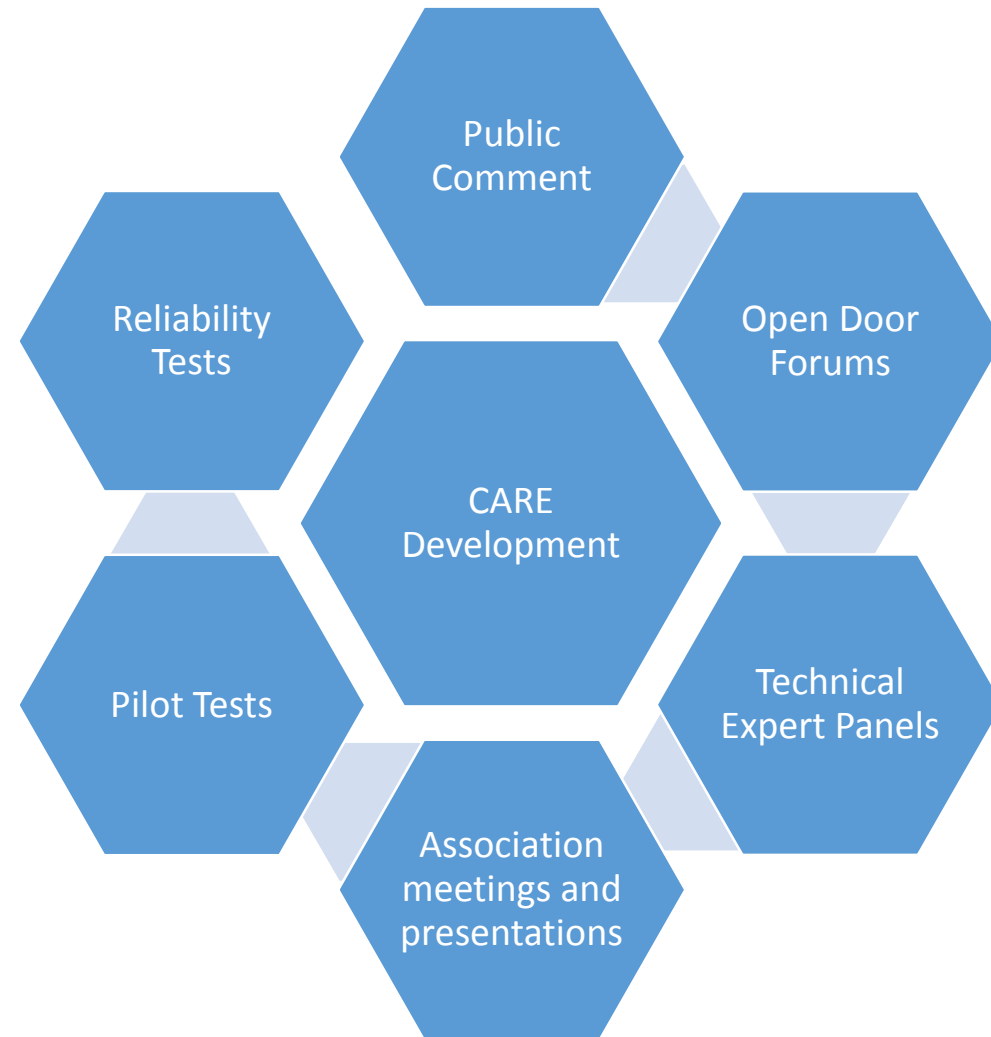
# Standardizing Patient Assessment Items: CARE Item Development Process

## CARE Item Selection:

Item selection was based on input from the clinical and measurement communities serving PAC populations in acute and PAC settings

## Consensus Input:

Over 25 national associations, including the AHA, AMRPA, NALTH, ALTHA, AHCA, Leading Age, NAHC, VNAA, APTA, AOTA, ASHA, ARN, ANA, CMAA and others provided input on item selection to measure medical, functional, cognitive status and social supports consistently across settings



# Reliability of the Standardized CARE Items

- Most CARE items based on existing validated items currently used in the Medicare program; but few items had been used in multiple settings or across different levels of care.
- Two types of reliability tests were conducted to examine whether the items performed consistently across settings and across disciplines
  - 1) Traditional Inter-rater Reliability (pairs of assessors rate the same patient similarly)
  - 2) Video Reliability (cross disciplinary rating of standard video patients)

# CARE Item Reliability

- Findings in Report to Congress - CARE standardized items can be used reliably across settings
  - IRR results indicated **substantial to almost perfect** agreement for the majority of items evaluated – most had already been found reliable in at least one setting
  - The few lower kappa scores tended to be for low prevalence items
  - IRR results for CARE items are in line with the majority of IRR results available for equivalent items on MDS, OASIS, and FIM

# Power of Standardized Assessment Data

Standardized Assessment data allowed us to compare patients and providers:

1. Discharge Destination comparisons

- Characteristics of patients discharged to LTCH, IRF, SNF, HH as first sites of PAC under current policies

2. Outcomes/patient/setting

- Physical Function: Self-Care
- Physical Function: Mobility
- **Medical Status: Readmission within 30 days discharge from acute hospital**

(See PAC PRD Final Report on CMS website, Gage et al, 2012.)



# Post Acute Payment Reform Sample

- Over 200 providers including:
  - Acute Hospitals
  - Long Term Care Hospitals
  - Inpatient Rehabilitation Facilities
  - Skilled Nursing Facilities
  - Home Health Agencies

# Market/Site Selection

## ➤ Market selection criteria

- Geographic variation
- PAC “richness” variation
- Rural/urban

## ➤ Provider selection criteria

- Size (large, medium, small)
- Hospital-based units and Free-standing
- Chain/system-based and independents

# Post Acute Payment Reform Demonstration Markets

Nationally diverse, 2 hour radius

- Boston, Massachusetts
- Chicago, Illinois
- Dallas, Texas
- Tampa, Florida
- Lincoln/Omaha, Nebraska
- Sioux Falls, South Dakota

- Louisville/Lexington, Kentucky
- Wilmington, North Carolina
- Rochester, New York
- San Francisco, California
- Seattle, Wa/Portland, Oregon
- Columbia, Mo.

## Phase 2: “Markets”

- New York
  - Upstate
  - New York City/New Jersey
- Philadelphia, Pennsylvania
- Baltimore, Maryland
- Roanoke/Lynchburg, Virginia

- Raleigh/Durham, North Carolina
- Detroit, Michigan
- LA, California
- Cleveland, Ohio
- Portland, Maine
- Concord, New Hampshire

# CARE assessment counts by assessment type, by provider type

	HHA	SNF	IRF	LTCH	Acute	Total
Admission	5,624	6,054	7,380	4,175	2,179	25,412
Discharge	4,905	5,345	7,144	3,570	5,164	26,128
Expired	34	185	14	373	74	680
Interim	811	398	64	442	17	1,732
<b>Total</b>	11,374	11,982	14,602	8,560	7,434	53,952
# providers	44	60	39	28	35	206

# How well do the CARE items work in explaining patient variation?

When patient level clinical information is used in a model, the inclusion of setting indicators does not have a large effect on explanatory power.

## Overall MSE-based $R^2$ for each Resource Intensity model

Model	Setting only	Patient only	Both
Routine RII			
All PAC	0.448	0.683	0.753
HHA-Inpatient	0.448	0.745	0.754
Therapy RII			
All PAC	0.249	0.281	0.362
HHA-Inpatient	0.249	0.356	0.371

# Does the Probability of Hospital Readmissions within 30 Days of Acute Discharge Vary by PAC Provider?

## ➤ Sample

- Any case with CARE PAC admission within 7 days of acute discharge
- Excludes patients dying within 30 day risk period with no acute readmission

## ➤ Total N= 9,557

## ➤ Readmission is defined as

- Admission to acute hospital within 30 days of prior discharge from an acute hospital, regardless of whether patient was still in PAC
- All-cause

# Outcomes: Hospital Readmissions

Unadjusted Readmission Rates  
(within 30 days of acute hospital discharge)

<b>First Setting</b>	<b>Sample Size</b>	<b>% Readmitted</b>
LTCH	1,947	21.1
IRF	3,594	17.4
SNF	2,743	19.8
HHA	1,273	20.2
Total	9,557	19.2



# Case-Mix Control Factors

- Selected independent variables examined
  - Hospital primary discharge diagnosis (MDC stratified by Surgical)
  - Comorbidities (Hierarchical Condition Categories)
  - Days since hospital discharge
  - Cognitive status
  - Functional impairments
    - Impairment in bowel or bladder management
    - Swallowing disorder signs and symptoms
    - Communication deficits
    - Respiratory impairment
    - Mobility endurance
    - Motor function independence

Note: Data obtained from CARE admission or hospital claims diagnoses.

# Outcomes: Hospital Readmissions

## All-Patients Model results predicting readmission within 30 days of acute discharge

Setting	Odds Ratio	P-value
HHA	1.07	0.70
IRF	0.85	0.15
<b>LTCH</b>	<b>0.56</b>	<b>&lt;0.0001</b>
SNF (referent)	1.00	-----

Adjusted for: Age, race/ethnicity, gender, days since prior acute discharge, primary diagnosis, comorbid condition, cognitive status, central line management, assistance needed with bowel device, indwelling or external bladder device used, swallowing signs and symptoms, rarely/never understands verbal content, impaired respiratory status, impaired mobility endurance, motor function score at admission. N = 9,557, C-statistic: 0.66.

# Factors Associated with Higher/Lower Risk of Hospital Readmissions

## Increased risk [referent]

- Lower age [85+]
  - ≤64; 65-74
- Primary diagnoses [Other, med]
  - COPD
  - Vascular surgical
  - Cardiac surgical
  - Cardiac medical
  - Kidney and urinary (surgical and medical)
- Comorbidities
  - Metabolic (diabetes and other)
  - HF and shock
  - Respiratory diagnoses
  - Acute and chronic renal

## Decreased risk [referent]

- Male
- Primary diagnoses [Other, med]
  - Orthopedic surgical
- Comorbidities
  - UTI
- Cognitive status [severe]
  - Intact or borderline
- Higher motor function
- Swallowing [no signs/symptoms]
  - NPO

# Outcomes: Hospital Readmission

## Key Findings:

- After controlling for patient acuity, provider type is a statistically significant predictor
  - LTCH patients have a lower risk of readmission to ACH within 30 days of discharge from hospital than SNF patients
  - Probability results vary by medical conditions: LTCH findings held for respiratory and circulatory patients, but no significant difference by PAC setting for musculoskeletal or nervous system patients (based on prior acute discharge diagnosis)
  - Findings are consistent with prior work looking at the same 30 day risk period (Gage et al., 2009)

# Outcomes: Hospital Readmission

## Cautions and limitations:

- Risk window definitions matter: LTCH patients did not have a lower probability of readmission after 30 days (Morley et al. 2011)
- Clinical threshold to require readmission is likely different for LTCH, which are hospital level providers, compared to sub-acute providers such as HHA or SNF
- Omitted variables related to readmission risk and PAC setting (e.g., organizational relationship between PAC and acute hospitals)

# Links and Downloads

## ➤ **Post-Acute Care Payment Reform Demonstration: Final Report (Volumes 1-4)**

- [http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Reports/Research-Reports-Items/PAC\\_Payment\\_Reform\\_Demo\\_Final.html](http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Reports/Research-Reports-Items/PAC_Payment_Reform_Demo_Final.html)

## ➤ **The Report to Congress (RTC):**

- [http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Reports/downloads/Flood\\_PACPRD\\_RTC\\_CMS\\_Report\\_Jan\\_2012.pdf](http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Reports/downloads/Flood_PACPRD_RTC_CMS_Report_Jan_2012.pdf)

# Post Acute Center for Research ([www.PACCR.org](http://www.PACCR.org))

## PAC Policy Education/Research

- **Forum** for national leaders in PAC policy research, including economists, clinicians, case managers, and other experts
- **Education Resources on Translating Policy to Practice**
  - Webinars
  - Circular newsletters
  - Resources on “best practices”
- **Innovation Lab** for testing delivery system refinement and providing **policy feedback**

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