ACO #8 Risk-Standardized, All Condition Readmission

Measure Information Form (MIF)

DATA SOURCE

- Medicare inpatient claims

- Medicare beneficiary enrollment data

- Accountable Care Organization (ACO) assignment file

MEASURE SET ID

ACO #8

EFFECTIVE DATE

1/1/2020

NQF ID

#1789

CARE SETTING

Hospital

UNIT OF MEASUREMENT

Accountable Care Organization (ACO)

MEASUREMENT DURATION

Calendar Year[1]

MEASUREMENT PERIOD

Calendar Year[1]

MEASURE TYPE

Outcome

MEASURE SCORING

Risk-Standardized Readmission Rate (RSRR)

PAYER SOURCE

Medicare Fee-for-Service

IMPROVEMENT NOTATION

Lower RSRR scores indicate better quality

MEASURE STEWARD

Centers for Medicare and Medicaid Services (CMS)

COPYRIGHT / DISCLAIMER

This ACO risk standardized all condition readmission quality measure is adapted from a hospital risk standardized all condition readmission quality measure developed for CMS by Yale in 2011 and updated by Yale in 2014 (Horwitz et al., 2014).

MEASURE DESCRIPTION

Risk-adjusted percentage of Accountable Care Organization (ACO) assigned beneficiaries who were hospitalized and readmitted to a hospital within 30 days of discharge from the index hospital admission.

In addition to the official calendar-year performance rate, performance rates also will be calculated on a quarterly basis using a rolling 12-month window and provided in a quarterly report for informational purposes.

---

[1] In addition to the official calendar-year performance rate, performance rates also will be calculated on a quarterly basis using a rolling 12-month window and provided in a quarterly report for informational purposes.

RATIONALE

Readmission following an acute care hospitalization is a costly and often preventable event. During 2003 and 2004, almost one-fifth of Medicare beneficiaries—more than 2.3 million patients—were readmitted within 30 days of discharge (Jencks et al., 2009). A Commonwealth Fund report estimated that if national readmission rates were lowered to the levels achieved by the top performing regions, Medicare would save $1.9 billion annually.

Hospital readmission is also disruptive to patients and caregivers and puts patients at additional risk of hospital-acquired infections and complications (Horwitz et al., 2011). Some readmissions are unavoidable, but readmissions may also result from poor quality of care, inadequate coordination of care, or lack of effective discharge planning and transitional care.

Since studies have shown readmissions within 30 days to often be related to quality of care, coordination of care, or other factors within the control of health care providers, interventions have been able to reduce 30-day readmission rates for a variety of medical conditions. High readmission rates and institutional variation in readmission rates indicate an opportunity for improvement; it is important to consider an all-condition 30-day readmission rate as a quality measure (Horwitz et al., 2011).

CLINICAL RECOMMENDATION STATEMENT

Randomized controlled trials have shown that improvements in health care can directly reduce readmission rates, including the following interventions: quality of care during the initial admission; improvement in communication with patients, caregivers and clinicians; patient education; pre-discharge assessment; and coordination of care after discharge (Naylor et al., 1994, 1999; Krumholz et al., 2002; van Walraven et al., 2002; Conley et al., 2003; Coleman et al., 2004; Phillips et al., 2004; Jovicic et al., 2006; Garasen et al., 2007; Mistiaen et al., 2007; Courtney et al., 2009; Jack et al., 2009; Koehler et al., 2009; Weiss et al., 2010; Stauffer et al., 2011; Voss et al., 2011). Successful randomized trials have reduced 30-day readmission rates by as much as 20–40% (Horwitz et al., 2011).

ACOs will have incentives under the Medicare Shared Savings Program and Pioneer Model to manage the range of medical care, coordination of care, and other factors affecting readmission rates for their assigned beneficiaries. By taking responsibility for all aspects of the medical care of their assigned beneficiaries, ACOs will be able to assess the range of possible interventions affecting readmissions and then select the interventions appropriate for each population of patients included in among their assigned beneficiaries.

RELEASE NOTES / SUMMARY OF CHANGES

Based on version 2019.1 (beta) of the AHRQ CCS map for ICD-10-CM/PCS codes and solicited input from clinicians, the following changes were made to the measure cohorts:

- Changes to the surgery/gynecology cohort inclusion list:

    - The addition of AHRQ CCS procedure category 163 ('Other non-OR therapeutic procedures on musculoskeletal system');

- The removal of select singular ICD-10-PCS codes (associated with AHRQ CCS procedure category 49 'Other OR heart procedures'); and,
- The removal of AHRQ CCS procedure category 112 ('Other OR therapeutic procedures of urinary tract') as a whole category, and a subset of ICD-10-PCS codes that fell under this category was retained in the singular ICD-10-PCS code list.

- Changes to the medicine and cardiorespiratory cohort inclusion lists:

   - The shifting of four AHRQ CCS diagnosis categories from the medicine to cardiorespiratory inclusion list:
      - CCS 129 ('Aspiration pneumonitis; food/vomitus');
      - CCS 130 ('Pleurisy; pneumothorax; pulmonary collapse');
      - CCS 132 ('Lung disease due to external agents'); and,
      - CCS 133 ('Other lower respiratory disease').

The planned readmission algorithm was revised to align with the planned readmission algorithm (PRA) v4.0_2020. Changes include:

- Revisions to the Agency for Healthcare Quality and Research (AHRQ) Clinical Classification Software (CCS) procedure groups and codes considered potentially planned (see Table ACO PAA PA3 Value Set):

   - Added:
      - 1 AHRQ CCS procedure group to the set of potentially planned procedures (Procedure CCS 162)
      - 3 AHRQ CCS procedure groups to the set of potentially planned procedures (Procedure CCS 96, 118, and 163). A subset of 67 codes within these CCSs that were previously listed in the individual codes section are no longer listed separately

   - Removed:
      - One AHRQ CCS procedure group (CCS 112 'Other OR therapeutic procedures of urinary tract'), but retained a subset of 1,214 codes within this CCS to the individual codes section that are considered potentially planned
      - One AHRQ CCS procedure group (CCS 202 'Electrocardiogram')
      - 74 individual ICD-10-PCS codes within procedure CCS 174 "Other non-OR therapeutic procedures on skin subcutaneous tissue fascia and breast" that are no longer considered potentially planned
      - 6 individual ICD-10-PCS codes within procedure CCS 95 "Other non-OR lower GI therapeutic procedures" that are no longer considered potentially planned

- Revisions to the set of AHRQ diagnosis CCS groups and individual diagnosis codes considered acute (see Table ACO PAA PA4 Value Set):

   - Added:
      - One AHRQ CCS diagnosis group CCS 100 "Acute myocardial infarction" that is considered acute, but removed a subset of 12 codes within this CCS that were previously included in individual codes section as acute

- 37 individual ICD-10-CM codes within CCS diagnosis groups 97, 101, 106, 108, 115, and 133 that are considered acute

TECHNICAL SPECIFICATIONS

- Target Population
- ACO assigned or aligned Medicare beneficiaries

DENOMINATOR

DENOMINATOR STATEMENT

All relevant hospitalizations for ACO assigned beneficiaries aged 65 or older at non-Federal, short-stay acute-care or critical access hospitals.

DENOMINATOR DETAILS

The ICD-10 diagnosis and procedure codes of the index admission are aggregated into clinically coherent groups of conditions/procedures (condition categories or procedure categories) by using the Agency for Healthcare Research and Quality (AHRQ) Clinical Classifications System (CCS). Each admission is assigned to one of five mutually exclusive specialty cohorts: medicine, surgery/gynecology, cardiorespiratory, cardiovascular, and neurology (Please see Table ACR Cohort_CCS and Table ACR Cohort_ICD-10 in the Value Set). The cohorts reflect how care for patients is organized within hospitals. To assign admissions to cohorts, admissions are first screened for the presence of an eligible surgical procedure category. Admissions with an eligible surgical procedure category are assigned to the surgical cohort, regardless of the diagnosis code of the admission. All remaining admissions are assigned to cohorts based on the discharge condition category of the principal diagnosis.

Rationale: Conditions typically cared for by the same team of clinicians are expected to experience similar added (or reduced) levels of readmission risk. The surgery/gynecology cohort includes admissions likely cared for by surgical or gynecological teams. These admissions are identified using AHRQ procedure categories. The cardiorespiratory cohort includes several condition categories with very high readmission rates such as pneumonia, chronic obstructive pulmonary disease, and heart failure. These admissions are combined into a single cohort because they are often clinically indistinguishable and patients are often simultaneously treated for several of these diagnoses. The cardiovascular cohort includes condition categories such as acute myocardial infarction that in large hospitals might be cared for by a separate cardiac or cardiovascular team. The neurology cohort includes neurologic condition categories such as stroke that in large hospitals might be cared for by a separate neurology team. Generally, the medicine cohort includes all non-surgical patients who were not assigned to any of the other cohorts. For further details, and list of CCS by category, see the accompanying ACO 8 Value Set.

In order to define the eligible admissions, the ICD-10 codes of the index admission are first aggregated into clinically coherent conditions by using the AHRQ CCS Software. There are a total of 285 mutually exclusive AHRQ condition categories, most of which are single,

homogenous diseases such as pneumonia or acute myocardial infarction. Some are aggregates of conditions, such as "other bacterial infections." Mental health and substance abuse categories are included. In addition, AHRQ provides 231 mutually exclusive procedure categories to group procedures a patient might have had during hospitalization.

Admissions are eligible for inclusion in the measure if:

1. Patient is enrolled in Medicare FFS.
   Rationale: Claims data are consistently available only for Medicare FFS beneficiaries.

2. Patient is aged 65 years or older.
   Rationale: Medicare patients younger than 65 usually qualify for the program due to severe disability. They are not included in the measure because Medicare patients younger than 65 are considered to be too clinically distinct from Medicare patients 65 and over.

3. Patient was discharged from a non-federal acute care hospital.
   Rationale: Data from federal hospitals were not available during the development of this measure.

4. Patient did not die in the hospital.
   Rationale: Only patients who are discharged alive are eligible for readmission.

5. Patient is not transferred to another acute care facility upon discharge.
   Rationale: Readmission is attributed to the hospital that discharged the patient to the non-acute care setting. Transferred patients are still included in the measure cohort (denominator), but the initial admitting hospital is not accountable for the outcome.

6. Patient is enrolled in Part A for the 12 months prior to and including the date of the index admission.
   Rationale: The 12-month prior enrollment ensures a full year of administrative data for risk adjustment.

Note that a readmission within 30 days will also be eligible as an index admission, if they meet all other eligibility criteria. This allows the measure to capture repeated readmissions for the same patient, whether at the same hospital or another.

The measure considers multiple continuous hospitalizations as a single acute episode of care. Admissions to a hospital within one day of discharge from another hospital are considered transfers, whether or not the first institution indicates intent to transfer the patient in the discharge disposition code. Readmissions for transferred patients are attributed to the hospital that ultimately discharges the patient to a non-acute care setting.

If a patient is readmitted to the same hospital on the same day of discharge for the same diagnosis as the index admission, the measure considers the patient to have had one single continuous admission. However, a diagnosis of the readmission that differs from the index admission is considered a readmission.

In-hospital deaths are identified using the discharge disposition vital status indicator in the IDR. Transfers to other acute care facilities are identified in the claims when a patient is discharged

from an acute care hospital and admitted to another acute care hospital on the same day or next day. Facilities considered in this measure are identified by facility type indicated by the numbering system of CMS Certification Numbers (CCN). For more information, please see section Numbering System for CMS Certification Numbers (CCN) of the State Operations Manual Chapter 2—The Certification Process:

https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/som107c02.pdf

DENOMINATOR EXCLUSIONS

Excluded from the measure are all admissions for which full data are not available or for which 30-day readmission by itself cannot reasonably be considered a signal of quality of care.

Exclusions:

1. Admissions for patients without 30 days of post-discharge data
   Rationale: This is necessary in order to identify the outcome (readmission) in the dataset.

2. Admissions for patients lacking a complete enrollment history for the 12 months prior to admission
   Rationale: This is necessary to capture historical data for risk adjustment.

3. Admissions for patients discharged against medical advice (AMA)
   Rationale: Hospital had limited opportunity to implement high quality care.

4. Admissions for patients to a PPS-exempt cancer hospital
   Rationale: These hospitals care for a unique population of patients that is challenging to compare to other hospitals*.*

5. Admissions for patients with medical treatment of cancer
   Rationale: These admissions have a very different mortality and readmission profile than the rest of the Medicare population, and outcomes for these admissions do not correlate well with outcomes for other admissions. (Patients with cancer who are admitted for other diagnoses or for surgical treatment of their cancer remain in the measure).

6. Admissions for primary psychiatric disease
   Rationale: Patients admitted for psychiatric treatment are typically cared for in separate psychiatric or rehabilitation centers which are not comparable to acute care hospitals.

7. Admissions for rehabilitation care
   Rationale: These admissions are not for acute care or to acute care hospitals.

DENOMINATOR EXCEPTIONS AND EXCLUSIONS DETAILS

Denominator exclusions are identified based on variables contained in the Integrated Data Repository (IDR). For Medicare FFS patients:

1. Lack of enrollment in Medicare FFS for 30 days post-discharge is identified by patient enrollment status in Part A FFS claims; the enrollment indicators must be appropriately marked for the month(s) which falls within 30 days of hospital discharge date.

2. Lack of continuous enrollment in Medicare FFS for 12 months prior to index hospital stay is determined by patient enrollment status in Part A FFS using CMS' IDR; the enrollment indicators must be appropriately marked for each of the 12 months prior to the index hospital stay.

3. Discharges AMA are identified using the discharge disposition indicator within the IDR.

4. PPS-exempt cancer hospitals are identified by their Medicare provider ID.

5. Cancer discharge condition categories are excluded from the measure (Please see Table ACR Exclusions Value Set).

6. Psychiatric discharge condition categories are excluded from the measure (Please see Table ACR Exclusions Value Set).

7. Admissions for rehabilitation care are identified by principal diagnosis codes (ICD-10 codes) included in CCS 254.

NUMERATOR

NUMERATOR STATEMENT

Risk-adjusted unplanned readmissions at a non-Federal, short-stay, acute-care or critical access hospital, within 30 days of discharge from the index admission included in the denominator.

NUMERATOR DETAILS

The outcome for this measure is unplanned all-cause readmission within 30 days of discharge date of an eligible index admission. Because planned readmissions are not a signal of quality of care, the measure does not count planned readmissions in the outcome. The measure uses an algorithm to identify "planned readmissions" in claims data that will not count as readmissions in the measure. The algorithm is based on three main principles:

1. A few specific, limited types of care are always considered planned (transplant surgery, maintenance chemotherapy/radiotherapy/ immunotherapy, rehabilitation).

2. Otherwise, a planned readmission is defined as a non-acute readmission for a scheduled procedure.

3. Admissions for acute illness or for complications of care are never planned.

The algorithm, which was originally developed in 2011, and later updated in 2018, to identify planned readmissions uses a flowchart and four tables of specific procedure categories and discharge diagnosis categories to classify readmissions as planned. Readmissions are considered planned if any of the following occurs during the readmission:

1. A procedure is performed that is in one of the procedure categories that are always planned regardless of diagnosis (Please see Table ACO PAA—PA1 Value Set).

2. The principal diagnosis is in one of the diagnosis categories that are always planned (Please see Table ACO PAA—PA2 Value Set).

3. A procedure is performed that is in one of the potentially planned procedure categories (or partial categories) (Please see Table ACO PAA PA3 Value Set) and the principal diagnosis is not in the list of acute discharge diagnoses (Please see Table ACO PAA PA4 Value Set).

STRATIFICATION OR RISK ADJUSTMENT

This measure uses risk adjustment and is not stratified.

For risk adjustment, hierarchical, logistic regression models are used to model the log-odds of readmission within 30 days of discharge, as a function of patient-level demographic and clinical characteristics and a random ACO-level intercept. This model specification accounts for within-ACO correlation of the observed outcomes and models the assumption that underlying differences in quality among the ACOs being evaluated lead to systematic differences in outcomes. In brief, the approach simultaneously models two levels (patient and ACO) to account for the variance in patient outcomes within and between ACOs. At the patient level, each model adjusts the log-odds of readmission within 30-days of discharge for age and selected clinical covariates, identified ICD-10 codes, grouped into CMS Condition Categories (CMS-CC) (Please see Table ACR risk factor CCs ACO Value Set). The second level models the ACO-specific intercepts as following a normal distribution. The ACO intercept represents the underlying ACO specific risk of readmission, after accounting for patient risk.

A fixed, common set of variables is used in all of the models for simplicity and ease of data collection and analysis. However, a hierarchical, logistic regression model is estimated for each specialty cohort separately and the coefficients associated with each variable may vary across specialty cohorts. To group ICD-10 codes into comorbid risk variables, CMS Condition Category (CMS-CCs) groups are used. Diagnoses recorded in hospital claims during the year prior to hospitalization and secondary diagnoses from the index admission (that do not represent complications) are used in assigning risk-adjustment variables for each admission, grouped by selected CMS-CCs. Diagnoses that are present in the index hospitalization claim but not in the prior year and which are considered complications of care are not included in the risk adjustment; see Table CoC—ACR Value Set for diagnosis categories considered to be complications of care. The ICD-10 diagnosis code crosswalk to CMS-CCs can be found here: https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Risk-Adjustors

The models also include condition-specific indicators for all AHRQ CCS categories with sufficient volume (defined as those with more than 1,000 admissions nationally each year for Medicare FFS data) as well as a single indicator for conditions with insufficient volume in each model. This controls for service mix differences among hospitals within each major cohort.

This ACO-wide readmission quality measure was adapted from the hospital-wide readmission quality measure in one way. The unit of analysis was changed from the hospital to the ACO. This was possible because both the hospital-wide readmission measure and the ACO-wide readmission measures assess readmission performance for a population that has patients clustered together (either in hospitals or in ACOs). The goal is to isolate the effects of

ACO #8 Risk-Standardized, All Condition Readmission

MEDICARE
SHARED SAVINGS
PROGRAM

CMS
CENTERS FOR MEDICARE & MEDICAID SERVICES

beneficiary characteristics on the probability that a patient will be readmitted from the effects of being in a specific hospital or ACO. In addition, planned readmissions can be excluded for the ACO-wide readmission quality measure in the same way they are excluded for the CMS hospital-wide readmission measure.

RISK VARIABLES COMMON TO ALL ACR SPECIALTY COHORTS (VERSION 22 CONDITION CATEGORIES)

- CMS-CCs // Description

- n/a // Mean age minus 65, years

- CMS-CC 8 // Metastatic cancer/acute leukemia

- CMS-CC 9, 10 // Severe Cancer

- CMS-CC 11, 12, 13, 14 // Other cancers

- CMS-CC 46 // Severe hematological disorders

- CMS-CC 48 // Coagulation defects and other specified hematological disorders

- CMS-CC 49 // Iron deficiency or other unspecified anemias and blood disease

- CMS-CC 27, 28 // End-stage liver disease

- CMS-CC 34, 36 // Pancreatic disease

- CMS-CC 134 // Dialysis status

- CMS-CC 135, 136, 137, 138, 139,140 // Acute renal failure

- CMS-CC 132, 186 // Transplants

- CMS-CC 1, 3, 4, 5, 6 // Severe Infection

- CMS-CC 7, 114, 115, 116 // Other infectious diseases and pneumonias

- CMS-CC 2 // Septicemia/Shock

- CMS-CC 85 // CHF

- CMS-CC 86, 87, 88, 89, 102, 105, 106, 107, 108, 109 // Coronary atherosclerosis or angina, cerebrovascular disease

- CMS-CC 96, 97 // Specified arrhythmias

- CMS-CC 84 // Cardio-respiratory failure or cardio-respiratory shock (add ICD-10 R09.02 and R09.01)

- CMS-CC 111 // COPD

- CMS-CC 112 // Fibrosis of lung or other chronic lung disorders

- CMS-CC 21 // Protein-calorie malnutrition

- CMS-CC 23, 24 // Disorders of fluid, electrolyte, acid-base

- CMS-CC 40 // Rheumatoid arthritis and inflammatory connective tissue disease

- CMS-CC 17, 18, 19, 122, 123 // Diabetes mellitus

- CMS-CC 157, 158, 159, 160, 161 // Decubitus ulcer or chronic skin ulcer

- CMS-CC 70, 71, 72, 73, 74, 103, 104, 189, 190 // Hemiplegia, paraplegia, paralysis, functional disability

- CMS-CC 79 // Seizure disorders and convulsions

- CMS-CC 82 // Respirator dependence/tracheostomy status

- CMS-CC 54, 55 // Drug and Alcohol disorders

- CMS-CC 57, 58, 59, 61, 63 // Psychiatric comorbidity

- CMS-CC 170 // Hip fracture/dislocation

For further details see the accompanying ACO 8 Value Set.

SAMPLING

N/A

CALCULATION ALGORITHM

1. Models for each specialty cohort are specified and estimated using a separate hierarchical logistic regression model for that cohort. Each model is then used to calculate a standardized risk ratio (SRR) for each ACO which contributes index admissions to that model. These SRRs, weighted by volume, are then pooled for each ACO to create a composite ACO-wide SRR.

2. For each specialty cohort within an ACO, the numerator of the SRR ("predicted") is the number of readmissions for patients within the specialty cohort within 30 days predicted on the basis of the ACO's performance with its observed case mix, and the denominator ("expected") is the number of readmissions expected for patients within the specialty cohort on the basis of the overall performance with that ACO's case mix. This approach is analogous to a ratio of "observed" to "expected" used in other types of statistical analyses. It conceptually allows for a comparison of a particular ACO's performance given its case-mix to an average ACO's performance with the same case-mix. Thus, an SRR less than 1 indicates lower-than-expected readmission or better quality and an SRR greater than 1 indicates higher-than-expected readmission or worse quality.

3. These SRRs are then pooled for each ACO to create a composite ACO-wide SRR. This pooled SRR is the geometric mean of the specialty cohort SRRs, weighted by the number of admissions in the specialty cohort, and the pooled SRR is then multiplied by the overall

crude readmission rate to produce the risk standardized readmission rate (RSRR) for reporting.

REFERENCES

Coleman, E. A., Smith, J. D., Frank, J. C., Min, S.-J., Parry, C., & Kramer, A. M. (2004). Preparing patients and caregivers to participate in care delivered across settings: The Care Transitions Intervention. *Journal of the American Geriatrics Society*, *52*(11), 1817–1825. http://dx.doi.org/10.1111/j.1532-5415.2004.52504.x

Conley, R. R., Kelly, D. L., Love, R. C., & McMahon, R. P. (2003). Rehospitalization risk with second-generation and depot antipsychotics. *Annals of Clinical Psychiatry*, *15*(1), 23–31. https://link.springer.com/article/10.1023/A:1023276509470

Courtney, M., Edwards, H., Chang, A., Parker, A., Finlayson, K., & Hamilton, K. (2009). Fewer emergency readmissions and better quality of life for older adults at risk of hospital readmission: A randomized controlled trial to determine the effectiveness of a 24-week exercise and telephone follow-up program. *Journal of the American Geriatrics Society*, *57*(3), 395–402. http://dx.doi.org/10.1111/j.1532-5415.2009.02138.x

Garåsen, H., Windspoll, R., & Johnsen, R. (2007). Intermediate care at a community hospital as an alternative to prolonged general hospital care for elderly patients: A randomised controlled trial. *BMC Public Health*, *7*(1), 68. http://dx.doi.org/10.1186/1471-2458-7-68

Horwitz, L., Partovian, C., Lin, Z., et al. (2011). *Hospital-wide all-cause risk-standardized readmission measure: Measure methodology report.* Prepare for the U.S. Centers for Medicare and Medicaid Services. New Haven, Connecticut: Yale New Haven Health Services Corporation/Center for Outcomes Research & Evaluation.

Horwitz, L., Partovian, C., Lin, Z., et al. (2014). *2014 Measure Updates and Specification Report: Hospital-Wide All-Cause Risk-Standardized Readmission Measure—Version 3.0.* Prepare for the U.S. Centers for Medicare and Medicaid Services. New Haven, Connecticut: Yale New Haven Health Services Corporation/Center for Outcomes Research & Evaluation.

Jack, B. W., Chetty, V. K., Anthony, D., Greenwald, J. L., Sanchez, G. M., Johnson, A. E., . . . Culpepper, L. (2009). A reengineered hospital discharge program to decrease rehospitalization: A randomized trial. *Annals of Internal Medicine*, *150*(3), 178–187. http://dx.doi.org/10.7326/0003-4819-150-3-200902030-00007

Jencks, S. F., Williams, M. V., & Coleman, E. A. (2009). Rehospitalizations among patients in the Medicare fee-for-service program. *The New England Journal of Medicine*, *360*(14), 1418–1428. http://dx.doi.org/10.1056/NEJMsa0803563

Koehler, B. E., Richter, K. M., Youngblood, L., Cohen, B. A., Prengler, I. D., Cheng, D., & Masica, A. L. (2009). Reduction of 30-day postdischarge hospital readmission or emergency department (ED) visit rates in high-risk elderly medical patients through delivery of a targeted care bundle. *Journal of Hospital Medicine*, *4*(4), 211–218. http://dx.doi.org/10.1002/jhm.427

ACO #8 Risk-Standardized, All Condition Readmission

MEDICARE
SHARED SAVINGS
PROGRAM

CMS
CENTERS FOR MEDICARE & MEDICAID SERVICES

Jovicic, A., Holroyd-Leduc, J. M., & Straus, S. E. (2006). Effects of self-management intervention on health outcomes of patients with heart failure: A systematic review of randomized controlled trials. *BMC Cardiovascular Disorders*, *6*(1), 43. http://dx.doi.org/10.1186/1471-2261-6-43

Krumholz, H. M., Amatruda, J., Smith, G. L., Mattera, J. A., Roumanis, S. A., Radford, M. J., . . . Vaccarino, V. (2002). Randomized trial of an education and support intervention to prevent readmission of patients with heart failure. *Journal of the American College of Cardiology*, *39*(1), 83–89. http://dx.doi.org/10.1016/S0735-1097(01)01699-0

Mistiaen, P., Francke, A. L., & Poot, E. (2007). Interventions aimed at reducing problems in adult patients discharged from hospital to home: A systematic meta-review. *BMC Health Services Research*, *7*(1), 47. http://dx.doi.org/10.1186/1472-6963-7-47

Naylor, M., Brooten, D., Jones, R., Lavizzo-Mourey, R., Mezey, M., & Pauly, M. (1994). Comprehensive discharge planning for the hospitalized elderly. A randomized clinical trial. *Annals of Internal Medicine*, *120*(12), 999–1006. http://dx.doi.org/10.7326/0003-4819-120-12-199406150-00005

Naylor, M. D., Brooten, D., Campbell, R., Jacobsen, B. S., Mezey, M. D., Pauly, M. V., & Schwartz, J. S. (1999). Comprehensive discharge planning and home follow-up of hospitalized elders: A randomized clinical trial. *Journal of the American Medical Association*, *281*(7), 613–620. http://dx.doi.org/10.1001/jama.281.7.613

Phillips, C. O., Wright, S. M., Kern, D. E., Singa, R. M., Shepperd, S., & Rubin, H. R. (2004). Comprehensive discharge planning with postdischarge support for older patients with congestive heart failure: A meta-analysis. *Journal of the American Medical Association*, *291*(11), 1358–1367. http://dx.doi.org/10.1001/jama.291.11.1358

Stauffer, B. D., Fullerton, C., Fleming, N., Ogola, G., Herrin, J., Stafford, P. M., & Ballard, D. J. (2011). Effectiveness and cost of a transitional care program for heart failure: A prospective study with concurrent controls. *Archives of Internal Medicine*, *171*(14), 1238–1243. http://dx.doi.org/10.1001/archinternmed.2011.274

van Walraven, C., Seth, R., Austin, P. C., & Laupacis, A. (2002). Effect of discharge summary availability during post-discharge visits on hospital readmission. *Journal of General Internal Medicine*, *17*(3), 186–192. http://dx.doi.org/10.1046/j.1525-1497.2002.10741.x

Voss, R., Gardner, R., Baier, R., Butterfield, K., Lehrman, S., & Gravenstein, S. (2011). The care transitions intervention: Translating from efficacy to effectiveness. *Archives of Internal Medicine*, *171*(14), 1232–1237. http://dx.doi.org/10.1001/archinternmed.2011.278

Weiss, M., Yakusheva, O., & Bobay, K. (2010). Nurse and patient perceptions of discharge readiness in relation to postdischarge utilization. *Medical Care*, *48*(5), 482–486. http://dx.doi.org/10.1097/MLR.0b013e3181d5feae