 **Predictive Factors and Implications for Inpatient Rehabilitation Readmissions**

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8:30-9:30 am

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Readmissions

Readmissions: Scope

- The Medicare Payment Advisory Committee (MedPAC) estimates that up to 80.4% of readmissions may be preventable, representing a potential savings to Medicare of over \$12 billion in one year
- CMS has added 30-day readmission rates for Medicare patients hospitalized for heart attack, heart failure and pneumonia to the measures published on its Hospital Compare website

Readmissions

- Nearly one in five patients who is discharged from the hospital will be readmitted within the month (30 days) and more than three-quarters of these readmissions are preventable (according to Centers for Medicare and Medicaid Services, 2009)
- Readmission rates have varied according to demographic, social and disease-related characteristics

Data Shows Readmissions are Frequent, Preventable, and Costly

Alarming Frequency: Percentage of Medicare Patients Readmitted Within 30 Days: 80.4% Readmitted

Highly Preventable: Percentage of Readmissions Among Medicare Patients Considered Preventable: 64% (7 Days), 76% (15 Days), 76% (30 Days)

Enormously Costly: Cost of Preventable Readmissions to the Medicare Program, 2006: Total Medicare Spending: \$102.6 B; Preventable Readmissions: \$6 B (7 Days), \$8 B (15 Days), \$12 B (30 Days)

Reference: Jencks, S, Williams, M, and Coleman, E (2009). Rehospitalizations among patients in the Medicare Fee-for-Service Program. *New England Journal of Medicine*. MedPAC Report, June 2007

Readmissions

Selected DRGs

Key Metrics*	Standard Performer	Top Performers	Stretch Goal
30-Day Readmit Rate	11.9% (10.9%)	8.55% (7.33%)	6.1% (6.1%)
CHF Rate	19.7% (25.4%)	14.9% (18.9%)	7.0% (9.5%)
Diabetes Rate	15.7% (18.2%)	10.0% (10.4%)	5.3% (6.9%)
Pneumonia Rate	13.5% (12.5%)	9.7% (8.0%)	5.9% (5.6%)
COPD Rate	17.4% (19.5%)	10.7% (12.2%)	6.5% (7.8%)

*0 = risk-adjusted rates.

Reference: April 2010 Sg2


Inpatient Rehabilitation Facility (IRF)

Year	Readmission to Acute Hospital (National Average)
2008	10.7%
2009	10.8%
2010	10.5%

Reference: Uniform Data System for Medical Rehabilitation National Average for Discharges to Acute Hospital

Readmissions

- Centers for Medicare and Medicaid (CMS) focus is to reduce avoidable readmissions
- As readmission rates affect payment and post acute care services move toward a bundled payment system, understanding the implications of discharge destinations as it influences outcomes and payment is imperative



Readmissions: Criteria

- Measured within 30-day time frame
- All cause
- Risk standardized

Readmissions: 30-day time frame

- Index admission: first admission for a patient within a specific time period
- Readmission clock starts counting at day of discharge
- Readmission: an admission to any acute care hospital that occurs within 30 days of discharge
- Considered a meaningful time frame for hospitals to coordinate and collaborate with clinical providers in the community-based setting

Reference: Centers for Medicare & Medicaid Services Methodology Report, 2008

Rehabilitation Readmissions

- Discharge to acute hospital **during** Inpatient Rehabilitation program
- Discharge to Acute hospital **after** completion of rehabilitation program (within 30 days)

Readmissions: All Cause

- Does not exclude elective or planned admissions
- Limits the susceptibility of readmission measures to gaming techniques

Reference: Centers for Medicare & Medicaid Services Methodology Report, 2008

Readmissions: Acute Hospital Rates of Rehospitalization within 30 days

Figure 1. Rates of rehospitalizations within 30 days after hospital discharge.

The rates include all patients in fee-for-service Medicare programs who were discharged between October 1, 2003, and September 30, 2004. The rate for Washington, DC, which does not appear on the map, was 23.2%.

Authors: Stephen F. Jacob, M.D., J.E.H., M.Ed., V. Williams, M.D., and Eric A. Coleman, M.D., M.P.H.
 Journal: *New England Journal of Medicine*, April 2, 2009 360(14):1418-28

Readmissions: Risk Standardized

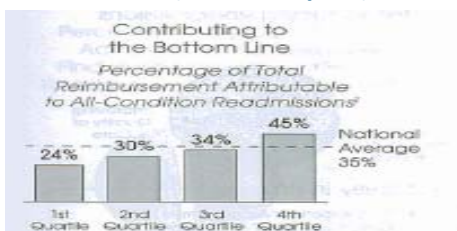
- For acute hospitals, CMS uses inpatient and outpatient claims data from the previous year to assess risk
- Risk considerations include patient variables such as specific condition categories, age, gender and procedure history
- Methodology for IRFs not yet available

Reference: Centers for Medicare & Medicaid Services Methodology Report, 2008

Rehabilitation Readmissions

- Readmissions represent revenue at risk
- Readmissions represent lack of functional outcomes/optimization of rehabilitation outcomes
- Financial reductions
 - Transfer reductions
 - Loss of potential revenue due to an early transfer
 - Payment on a per diem basis and fewer days than the expected Case Mix Group (CMG) Length of Stay

Financial Disincentives to Reduce Readmissions (Acute Hospital)



■ In many cases, readmissions generating significant revenue

Reference: Jencks, S., Williams, M. and Coleman, E. (2009). Rehospitalizations among patients in the Medicare Fee-for-Service Program. *New England Journal of Medicine*. MedPAC Report, June 2007

Rehabilitation Readmissions

	30-day Readmission	Non-30-day Readmission (Complete CMG)	Length of Stay
CMG 0106 (no comorbidities)	Readmission to acute care (10 days) \$11,612.26-2% = \$11,380.02	\$17,694.94	16 day LOS

Highlighted Readmissions Publications

National: Orthopedic Readmissions

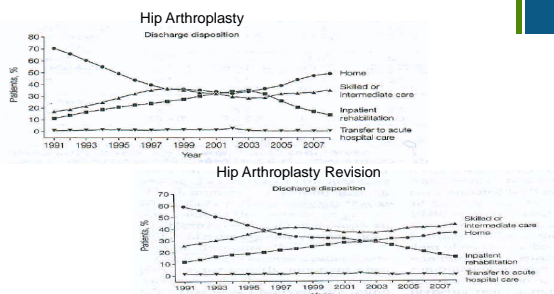
- Objective: To examine demographics and outcomes of patients undergoing primary and revision total hip arthroplasty
- Design: Observational cohort of 1,453,494 Medicare Part A beneficiaries who underwent primary total hip arthroplasty and 348,596 who underwent revision total hip arthroplasty
- Participants: Identified using *International Classification of Diseases, Ninth Revision, Clinical Modification* codes for primary and revision total hip arthroplasty between 1991 and 2008

National: Orthopedic Readmissions

- Conclusion:
 - Among Medicare beneficiaries who underwent primary and revision hip arthroplasty between 1991 and 2008, there was a decrease in hospital length of stay but an increase in the rates of discharge to postacute care and readmission
 - For Total Hip Arthroplasty: 30-day All cause readmission increased from 5.9% (1991-1992) to 8.5% (2007-2008)
 - For Total Hip Arthroplasty Revision: 30-day All cause readmission increased from 8.7% (1991-1992) to 14.1% (2007-2008)

Reference: Cram, P, Lu, X, Kaboli, PJ, Vaughan-Sarrazin, MS, Cai, X, Wolf, BR, and Li, Y (2011). Clinical characteristics and outcomes of Medicare patients undergoing total hip arthroplasty, 1991-2008. *JAMA*, Vol 305 (15), 1560-1567.

National: Orthopedic Readmissions



Reference: Cram, P, Lu, X, Kaboli, PJ, Vaughan-Sarrazin, MS, Cai, X, Wolf, BR, and Li, Y (2011). Clinical characteristics and outcomes of Medicare patients undergoing total hip arthroplasty, 1991-2008. *JAMA*, Vol 305 (15), 1560-1567.

CSMC: Orthopedic Readmissions

- Objective: To determine if discharge destination after hospitalization for hip or knee replacement influences the hospital readmission rate
- Design: Retrospective cohort study including consecutive patients with primary diagnosis of hip or knee replacement discharged from the acute hospital in a three-year period
- Participants: Data for 606 orthopedic patients discharged from the acute hospital were abstracted from the University HealthSystem Consortium's (UHC) clinical data base for the study hospital

CSMC: Orthopedic Readmissions

- **Conclusion:**
 - Discharge to inpatient rehabilitation was associated with a significantly lower readmission rate than discharge to home or a skilled nursing facility within 180 days
 - Identification of patients with orthopedic procedures who may benefit from inpatient rehabilitation and further medical management prior to discharge from the acute hospital may be an important strategy in prevention of hospital readmission

Reference: Riggs, RV, Roberts, P, Aronow, H, and Younan, T (2010). Joint replacement and hip fracture readmission rates: Impact of discharge destination. *PM&R*, Vol 2(9), 806-810.

CSMC: Orthopedic Readmissions

<i>Discharge Destination</i>	<i>Number</i>	<i>Percentage</i>	<i>Readmission Rate</i>
Home – Routine Self Care	136	22.4%	5.1%
Home – with Home Health	95	15.7%	10.5%
Inpatient Rehabilitation	189	31.2%	4.2%
Skilled Nursing Facility	174	28.7%	12.6%
Other (ICF, hospice, AMA, unknown)	12	2.0%	25.0%

n = 606; Chi-Square = 15.294, df=4, p = 0.004

Reference: Riggs, RV, Roberts, P, Aronow, H, and Younan, T (2010). Joint replacement and hip fracture readmission rates: Impact of discharge destination. *PM&R*, Vol 2(9), 806-810.

National: Stroke Readmissions

- **Objective:** To identify predictors of complicated transitions within 30 days after discharge from hospitalization for acute stroke
- **Design:** Retrospective analysis of administrative data
- **Patients:** Data for 422 hospitals in the southern and eastern United States

National: Stroke Readmissions

- Conclusions:
 - Significant numbers of stroke patients experience complicated transitions soon after hospital discharge
 - Sociodemographic factors and initial discharge site distinguish patients with multiple complicated transitions
 - Discharge site: SNF=34%; Home without homecare=31%; Home with homecare=15%; IRF=20%
 - These factors may enable prospective identification and targeting of stroke patients at risk for "bouncing back"

Reference: Kind, AJH, Smith, MA, Frytak, JR, and Finch, MD (2007). Bouncing Back: Patterns and predictors of complicated transitions 30 days after hospitalization for acute ischemic stroke. *Journal of American Geriatrics Society*, Vol 55, 365-373.

CSMC: Stroke Readmissions

- Objective: To determine whether a weighted comorbidity index can predict discharge to acute care after controlling for stroke functional severity and other individual factors
- Design: Retrospective cohort design
- Participants: Sample included all new onset stroke (n=597) admissions from January 1, 2002 through December 31, 2004

CSMC: Stroke Readmissions

- Results: With the addition of the comorbidity index, study was able to predict discharge to acute care as opposed to completion of an inpatient rehabilitation program
- Higher the comorbidity index, the more likely the patient was discharged to acute care

CSMC: Stroke Readmissions

- Hematologic or lymphatic malignancy, gastrointestinal bleed, and hypercoagulative state comorbidities increased the relative odds of being discharged to acute care
- Greater disability at admission was associated as higher discharge to acute care

National: Cancer Readmissions

- Objective: Cancer rehabilitation is an important but often underutilized treatment in the comprehensive care of the cancer patient. Cancer patients have varying levels of access to rehabilitation services
- Acute inpatient, inpatient consultation-based, and outpatient-based cancer rehabilitation services have been described in the literature Discussed acute inpatient cancer rehabilitation and some of its outcomes at the University of Texas MD Anderson Cancer Center in Houston, TX, which is the only national comprehensive cancer center to have its own acute inpatient rehabilitation unit dedicated solely to cancer patients

National: Cancer Readmissions

- Design: Retrospective review of the inpatient medical records of consecutive inpatients admitted to the acute inpatient cancer rehabilitation unit from September 2008 to August 2009 for the following information: patient age, sex, primary tumor type, rehabilitation diagnoses, length of stay, discharge destination, and payer source

National: Cancer Readmissions

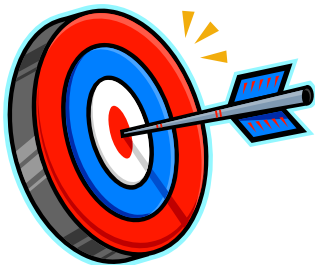
- Participants: From September 2008 to August 2009, the physical medicine and rehabilitation service at MD Anderson Cancer Center had 1098 inpatient consultations, of which 427 patients were admitted to the inpatient rehabilitation
- Conclusions: An active inpatient rehabilitation unit within a national comprehensive cancer center receives referrals from patients with a wide variety of tumor types and is able to successfully discharge home 76% of its patients

Reference: Shi, Ku, Ying, G, Konzen, B, Fu, J, Yadav, R, Bruera, E (2011). Inpatient cancer rehabilitation: The experience of a national comprehensive cancer center. *American Journal of Physical Medicine & Rehabilitation*, Vol 90 (5), 563-568.

CSMC: Cancer Readmissions Transferring IRF Cancer patients Back to Acute Care (TRIPBAC)

- Current Study underway at CSMC
- Aims:
 - To characterize cancer rehabilitation patients and determine predictive factors for TRIPBAC
 - To quantify the effectiveness and costs of rehabilitating cancer patients in the IRF

ALERT!



New Required Quality Indicators

- Beginning in FY 2014, the increase factor will be decreased by 2 percentage points for any IRFs that do not submit data on quality indicators
- The indicators must begin to be collected October 2012 (FY 2013)
- Two required indicators include:
 - Catheter-associated urinary tract infection (CAUTI)
 - Pressure ulcers that are new or have worsened

Catheter Associated Urinary Track Infection (CAUTI)

- Developed by the CDC, NQF-endorsed measure is designed for the inpatient acute care hospital—in particular, patients in the ICU
- Collection using the CDC’s National Healthcare Safety Network (NHSN), an Internet-based health surveillance system

Catheter-Associated Urinary Track Infection (CAUTI)

- Urinary tract infections (UTI) are defined using symptomatic urinary tract infection (SUTI) criteria or Asymptomatic Bacteremic UTI (ABUTI) criteria
- Report UTIs that are catheter-associated (i.e. patient had an indwelling urinary catheter at the time of or within 48 hours before onset of the event)
- CAUTI rate per 1000 urinary catheter days is calculated by dividing the number of CAUTIs by the number of catheter days and multiplying the result by 1000
- Urinary Catheter Utilization Ratio is calculated by dividing the number of urinary catheter days by the number of patient days

New or Worsened Pressure Ulcers

- NQF-endorsed measure for short-stay nursing home patients
- Percentage of patients who have one or more new stage 2–4 pressure ulcers, or similarly staged ulcers that have worsened from admission to discharge

New or Worsened Pressure Ulcers

Quality Indicators

Pressure Ulcers
 Current Number of Unhealed (non-epithelialized) Pressure Ulcers at Each Stage:
 #SA Stage 2: Partial thickness loss of dermis presenting as a shallow open ulcer with a red or pink wound bed, without slough. May also present as an intact or ruptured blister.
 #SB Stage 3: Full thickness tissue loss. Subcutaneous fat may be visible but bone, tendon or muscle is not exposed. Slough may be present but does not obscure the depth of tissue loss. May include undermining and tunneling.
 #SC Stage 4: Full thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present on some parts of the wound bed. Often includes undermining and tunneling.

Number of Stage 2 pressure ulcers: Admission _____ Discharge _____
 Number of Stage 3 pressure ulcers: Admission _____ Discharge _____
 Number of Stage 4 pressure ulcers: Admission _____ Discharge _____

Worsening in Pressure Ulcer Status Since Admission
 Include the number of current pressure ulcers that were not present or were at a lesser stage at admission. If no current pressure ulcer at a given stage, enter 0.
 #WA Stage 2: Enter Number: _____
 #WB Stage 3: Enter Number: _____
 #WC Stage 4: Enter Number: _____

Healed Pressure Ulcers
 #DA: Were pressure ulcers present on admission? (0 = No, 1 = Yes)
 Include the number of pressure ulcers that were healed on admission that have completely closed (healed) and re-epithelialized. Do not include pressure ulcers at a given stage since admission, enter 0.
 (Code only if item SDA is 1 - yes)
 #DD Stage 2: Enter Number: _____
 #DC Stage 3: Enter Number: _____
 #DA Stage 4: Enter Number: _____

Readmissions

- A third quality indicator, the **30-day comprehensive all-cause-risk-standardized readmission measure**, will not be implemented until October 2014
- Although “all cause risk factors” has not been defined yet, it is expected to include any preventable medical complication for which the patient is readmitted to an acute hospital within 30 days of discharge from an IRF
- CMS expects to finalize the 30 day comprehensive all-cause-risk-standardized readmission measure by October 1, 2012 for implementation by October 1, 2014

Readmissions

- Goal: To be consistent with the NQF-endorsed CMS hospital risk-adjusted 30 day readmission measures
- Under consideration
 - Planned versus Unplanned
 - Time period for readmission
 - Risk adjustment
 - Condition specific risk adjustment

CARF Stroke Specialty Readmission Standard

- Stroke Specialty Program gathers follow-up information on a representative sample of the persons served, including information on re-hospitalizations
- At least annually addresses performance in relationship to established targets, trends, actions for improvement, and results of performance improvement plans
- Includes necessary education and training of persons served, families/support systems, and healthcare providers

Drivers of Readmissions


Readmissions as a Measure of Quality

- Hospital readmissions are sometimes indicators of poor care or missed opportunities to better coordinate care
- Challenges to improving the quality of care transitions are impacted by collaboration between health care settings
- Initiatives to improve communication, coordination of care after discharge, and improve the quality of care during the initial admission may prevent readmissions



Readmissions as a Measure of Quality

- Patients often experience difficulties during the transition to home or post-acute care
- While in the hospital, patients tend to rely on professional caregivers
- Upon discharge, patients are expected to assume a self-management role in recovery with little support and preparation (Coleman and Berenson, 2004)
- Despite the needs and opportunities associated with transition, hospitals and other providers have not invested in their role in managing the transition



Drivers of Readmissions/ Rehospitalization

- Fragmentation of data
- Medication management issues/discrepancies
- At-risk patients not properly identified at discharge
- Lack of post-discharge follow-up
- Lack of disease-specific management

Drivers of Readmissions/ Rehospitalization

- Break down in communication
- Comorbidity management
- Lack of support system
- Psychosocial factors
- Lack of integration of community awareness and resources

Transitions of Care

Transitions of Care

- As health care providers work to create and expand comprehensive systems of care, the importance of **well-integrated post-acute care** becomes increasingly important
- Appropriate post-acute transitional care
 - Reduces costs
 - Increases hospital capacity
 - Improves patient outcomes

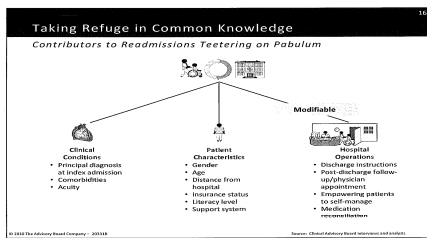
Transitions of Care

- As Accountable Care Organizations and bundled payments become reality, acute care providers need to do all that they can to **reduce penalty risks** and provide the safest care for discharged patients including **reducing readmissions**
- **Improving care transitions** to all post-acute care settings is a priority for acute hospitals

Transitions of Care

- Support patients and families during care transitions
- Increase skills among healthcare providers
- Enhance the ability of **health information technology to promote health information exchange** across care settings
- Implement interventions to **improve quality and safety**
- **Develop performance measures** and public reporting mechanisms

Transitions of Care



Transitions of Care

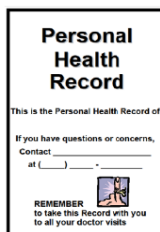
- Ensuring the patient/family/caregiver(s) understand the transition plan
- Follow-up on the transition plan
- Facilitate communication/linkages among all concerned
 - Patient/family/caregiver
 - Next level of care providers (physicians/therapy, etc.)

Transitions of Care Checklist

- Transition of Care Checklist should include:
 - Reconciled medications
 - Feeding/eating instructions
 - Weight parameters
 - Recommended exercises/activities
 - Report on the patient's mental status/cognition
 - Contact information for the patient's most recent care provider
 - Follow-up appointments
 - Personal Health Record

Personal Health Record

- Educational intervention that focuses therapeutic inputs from the interdisciplinary care team on the transition from hospital to home and promotes patient and caregiver self-management



Personal Health Record

- Advance Directives
- Allergies
- Emergency contact information
- Equipment and devices
- Functional Status
- Healthcare providers involved with care
- Hospital Preference
- Immunization Status
- Insurance Information
- Medical diagnoses/conditions
- Medications
- Physicians involved with care
- Prosthetic and orthotic information
- Risk factors
- Swallowing
- Vision and hearing

Transition Performance Metrics

- Readmission Rates (within 24 hours, 7 days, 30 days)
- Community discharge rates
- Emergency department visit rates
- Patient satisfaction scores
- Telehealth offerings
- Acceptance of clinically complex patients
- Medication reconciliation compliance rates
- Improvements in patient's functional status

Readmissions to Measurable Results

Readmissions to Measurable Results

Understand your Readmissions
(Monthly Performance Reports)

Develop Performance Improvement around
Readmissions

Data Interpretation and Develop and Implement
Action Plans around Readmissions

Inpatient Rehabilitation Readmission Comparisons between Hospitals

UHC Service Line: Rehabilitation (Applied to Index Cases)
January-December 2010

Hospital	Cases	LOS Outliers	Rate Denom Cases	Denom LOS Outliers	Mean LOS (Obs)	Mean LOS (Exp)	LOS Index	30 Day Readmit Cases	% 30 Day Readmit	14 Day Readmit Cases	% 14 Day Readmit	7 Day Readmit Cases	% 7 Day Readmit
Hospital A	193(1)		193(1)		15.70	17.08	0.92	9	4.66	8	4.15	7	3.63
Hospital B	747(0)	746(0)			11.38	13.88	0.82	39	5.09	20	4.02	24	3.22
Hospital C	570(2)		567(2)		16.44	17.12	0.96	22	3.88	19	3.32	17	3.00
Hospital D	500(0)		499(0)		8.36	12.88	0.65	34	6.81	31	6.21	29	5.81
Hospital E	456(16)		456(16)		19.36	14.64	1.32	20	4.39	19	4.17	16	3.51
Hospital F	413(0)		412(0)		12.77	13.59	0.94	33	8.01	25	6.07	24	5.83
Hospital G	559(0)		559(0)		11.23	12.79	0.88	21	3.76	17	3.04	14	2.50
Hospital H	565(0)		565(0)		10.23	13.59	0.75	19	3.36	17	3.01	16	2.83

Understand Your Readmissions: Rehab Discharges & Readmissions within 30 Days

Rehab Discharges & Re-admitted_30days



Date	Discharged from Rehab, not re-admitted to Rehab	Discharged from Rehab, not re-admitted to Rehab	Discharged from Rehab, not re-admitted to Rehab	Discharged from Rehab, not re-admitted to Rehab	Discharged from Rehab, not re-admitted to Rehab	Discharged from Rehab, not re-admitted to Rehab	Discharged from Rehab, not re-admitted to Rehab
October 2010							
November 2010							
December 2010							
January 2011							
February 2011							
March 2011							
April 2011							
May 2011							
June 2011							
July 2011							
August 2011							

Data Interpretation and Action Plans around Readmissions

Data Interpretation and Action Plans around Readmissions

Top Reasons for 30-Day Ischemic Stroke Readmission

Readmission Cause	Percentage
Recurrent Stroke	31%
Chronic Condition	17%
Stroke Complication	10%
Treatment Complication	9%

- Septicemia
- UTI
- Gastrointestinal hemorrhage

Data Interpretation and Action Plans around Readmissions

Standardize the Discharge Process

- Discharge Checklist
 - Reconcile medications
 - Reconcile discharge plan with national guidelines
 - Make follow-up appointments
 - Follow-up on outstanding tests
 - Arrange post-discharge services
 - Create a written discharge plan
 - Inform patient what to do if problem arises
 - Educate patient
 - Assess patient understanding
 - Send discharge summary to primary care physician
 - Reinforce the discharge plan via telephone

Reference: <http://www.ahrq.gov/qual/impptdis.htm>

Key Operational Factors to Prevent Readmissions

Inpatient Care Processes	Effective Discharge Planning	Post-Discharge Follow-up
<ul style="list-style-type: none"> • Quality of clinical care received across inpatient stay • Appropriate medication reconciliation • Compliance with evidence-based care 	<ul style="list-style-type: none"> • Effectiveness of discharge instructions, patient education, and family/caregiver training • Comprehensive patient/family/caregiver education on medications, diet/nutrition, exercise/activity, and care plan • Proper assessment of patient needs post-discharge • Community referrals 	<ul style="list-style-type: none"> • Extent to which patient receives necessary follow-up care after hospital stay • Scheduling of follow-up physician appointments • Scheduling of follow-up therapy appointments • Follow-up telephone calls • Appropriate referrals and integration with community resources

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