Published in final edited form as:
JAMA Intern Med. 2014 January ; 174(1): 154–156. doi:10.1001/jamainternmed.2013.11574.

Contemporary Data about Hospital Strategies to Reduce Unplanned Readmissions: What Has Changed?

Elizabeth H. Bradley, PhD[1,2], **Heather Sipsma, PhD**[3], **Leora I. Horwitz, MD, MHS**[4,5], **Leslie Curry, MPH, PhD**[1,2], and **Harlan M. Krumholz, MD, SM**[1,2,4,6]

[1]Department of Health Policy and Management, Yale School of Public Health, New Haven, CT

[2]Robert Wood Johnson Clinical Scholars Program, Department of Medicine, Yale University School of Medicine, New Haven, CT

[3]Department of Women, Children and Family Health Science, University of Illinois at Chicago College of Nursing, Chicago, IL

[4]Center for Outcomes Research and Evaluation, Yale-New Haven Hospital, New Haven, CT

[5]Section of General Internal Medicine, Department of Medicine, Yale University School of Medicine, New Haven, CT

[6]Section of Cardiovascular Medicine, Department of Medicine, Yale University School of Medicine, New Haven, CT

Almost one in five hospitalized Medicare beneficiaries will experience an unplanned readmission within 30-days,with an estimated cost to Medicare of more than $17 billion annually.[1] In response, many hospitals have enrolled in quality collaboratives or campaigns to implement evidence-based strategies to reduce readmission rates. However, we have little information on the changes in practice that have occurred among the nation's hospitals. Such information is important to understand hospital responses to the policy changes.

Methods

We examined changes between 2010 and 2012 in the use of commonly recommended strategies to reduce unplanned readmissions in a national sample of hospitals participating in

Address for Correspondence: Elizabeth H. Bradley, PhD, 60 College Street, PO Box 208034, New Haven, CT 06520-8034; 203-499-7351; Fax: 203-785-6278; Elizabeth.Bradley@yale.edu.

Previous Meeting Presentation
The paper was presented at the 2013 Academy Health Annual Research Meeting, Baltimore, MD on June 24, 2013.

Author contributions
Study concept and design: EB, LH, LC, MW, HK
Acquisition of data: EB, HS, LC
Analysis and interpretation of data: EB, HS, LH, LC, MW, HK
Drafting of manuscript: EB, HS
Critical revision of the manuscript for important intellectual content: EB, HS, LH, MW, LC, HK
Statistical analysis: HS
Obtained funding: EB, LC, HK
Study supervision: EB

Conflicts of Interest and Disclosures:
No funding source had any role in the study design; in the collection, analysis, and interpretation of data; in the writing of the report; or in the decision to submit the article for publication. The content is solely the responsibility of the authors and does not necessarily represent the official views of The Commonwealth Fund, the National Institute on Aging, the National Institutes of Health, or the American Federation for Aging Research.
Dr. Krumholz reports that he is the recipient of a research grant from Medtronic through Yale University and chairs a cardiac scientific advisory board for United Health. Dr Walsh reports serving as a consultant to United Health Care and Eli Lilly.

the Hospital to Home Quality Improvement Initiative (H2H),[2] an initiative of the American College of Cardiology and Institute of Healthcare Improvement to reduce readmissions of patients with cardiovascular disease. Of the 594 hospitals that had enrolled in the initiative between October 1, 2009 and July 1, 2010, 537 (90.4%) completed the baseline Web-based survey, which was conducted between November 2010 and May 2011.A total of 437 (81.4%) of these hospitals completed a follow-up survey approximately 12–18 months later between November 2011 and October 2012. We determined differences in implementation of recommended strategies between the two time points using McNemar's chi-square tests and Bowker's tests of symmetry, with a significance threshold of P<0.01 to account for multiple comparisons. About 35% of the hospitals were teaching hospitals; 30% had 400 or more beds, 5% were rural, 73% were part of a multihospital system, and 22% were for-profit.

Results

Statistically significant changes of substantial magnitude were apparent for several specific strategies(Table 1). At the follow-up survey, significantly more hospitals were partnering with other local hospitals to reduce readmissions (30.7% versus 22.9%, P=0.002), were discharging patients with a follow-up appointment already made (61.1% versus 52.4%, P-value=0.005), and were tracking the percent of patients who were discharged with follow-up appointments within 7 days (43.0% versus 32.2%, P-value<0.001) and those readmitted to other hospitals (19.0% versus 12.0%, P-value=0.001). More hospitals were estimating risk of readmission in a formal way (34.6% versus 22.5%, P-value<0.001), using electronic forms for medication reconciliation (81.0% versus 72.8%, P-value<0.001), and using "teach-back" techniques, in which providers ask patients to state in their own words clinical instructions given or decisions about treatment made (80.8% versus 68.9%, P-value<0.001). Last, more hospitals were providing action plans to discharged patients with heart failure (60.0% versus 52.2%, P-value=0.005) and calling patients after discharge to follow up on post-discharge needs or provide additional education (71.4% versus 62.9%, P-value<0.001).

For many of the strategies, however, we found no significant change in the proportion of hospitals implementing them (Table 2). At the follow-up survey, less than 40% of hospitals had in place a process for alerting outpatient physicians about discharges within 48 hours or for following up on test results that returned after the patient was discharged; less than one quarter of hospitals always sent the discharge summary to the primary care physician, and less than two-thirds always conducted nurse-to-nurse report before discharge to nursing homes. Results did not differ substantially for hospital subgroups based on numbers of beds, teaching status, ownership type, census region, or multihospital affiliation.

Discussion

Despite financial incentives for hospitals to reduce readmission rates, many hospitals are not implementing recommended strategies that have been shown to be associated with lower hospital RSRRs.[3–6] Our work provides national data among a group of hospitals most likely to engage in improvement activities and may partially explain the slow rate of improvement in readmission rates nationally. More consistently implemented strategies to promote safe transitions from hospital to home are likely critical for reducing readmission rates in the years ahead.

Acknowledgments

Funding and Support

Funding was provided by The Commonwealth Fund, One East 75th Street, New York, NY 10021 and Center for Cardiovascular Outcomes Research at Yale University, supported by the National Heart Lung, and Blood Institute, Bethesda, MD(U01HL105270-03).

Dr. Horwitz is supported by the National Institute on Aging, Bethesda, MD (K08 AG038336) and by the American Federation for Aging Research, New York, NY through the Paul B. Beeson Career Development Award Program. Dr. Horwitz is a Pepper Scholar with support from the Claude D. Pepper Older Americans Independence Center at Yale University School of Medicine, New Haven, CT (#P30AG021342 NIH/NIA)

REFERENCES

1. Jencks SF, Williams MV, Coleman EA. Rehospitalizations among patients in the Medicare fee-for-service program. N. Engl. J. Med. 2009; 360(14):1418–1428. [PubMed: 19339721]
2. [Accessed September 2012] H2H Quality Improvement Initiative. Available at: http://wwwh2hqualityorg/.
3. Hernandez AF, Greiner MA, Fonarow GC, et al. Relationship between early physician follow-up and 30-day readmission among Medicare beneficiaries hospitalized for heart failure. JAMA. 2010; 303(17):1716–1722. [PubMed: 20442387]
4. Brock J, Mitchell J, Irby K, et al. Association between quality improvement for care transitions in communities and rehospitalizations among Medicare beneficiaries. JAMA. 2013; 309(4):381–391. [PubMed: 23340640]
5. Hansen LO, Young RS, Hinami K, Leung A, Williams MV. Interventions to reduce 30-day rehospitalization: a systematic review. Ann. Intern. Med. 2011; 155(8):520–528. [PubMed: 22007045]
6. Phillips CO, Wright SM, Kern DE, Singa RM, Shepperd S, Rubin HR. Comprehensive discharge planning with postdischarge support for older patients with congestive heart failure: a meta-analysis. JAMA. 2004; 291(11):1358–1367. [PubMed: 15026403]

Table 1

Strategies adopted by significantly more hospitals by follow up (N=437 hospitals)

	Overall N (%)		
	Baseline	**Follow up**	**p-value[a]**
Hospital partners with the following to reduce readmission rates (select all that apply)			
Community home care agencies and/or skilled nursing facilities	302 (69.3%)	325 (74.4%)	0.033
Community physicians or physician groups	222 (50.9%)	251 (57.4%)	0.021
Other local hospitals	100 (22.9%)	134 (30.7%)	0.002
Patients are discharged from the hospital with an outpatient follow-up appointment already arranged			
Never	14 (3.2%)	9 (2.1%)	0.005
Sometimes	194 (44.4%)	161 (36.8%)	
Usually	185 (42.3%)	218 (49.9%)	
Always	44 (10.1%)	49 (11.2%)	
Hospital tracks the percent of patients discharged with follow-up appointment ≤ 7 days	140 (32.2%)	188 (43.0%)	<0.001
Hospital tracks the proportion of patients readmitted to another hospital	52 (12.0%)	83 (19.0%)	0.001
Estimates risk of readmission in a formal way and uses it in clinical care during patient hospitalization	98 (22.5%)	151 (34.6%)	<0.001
Tools in place to facilitate medication reconciliation (select all that apply)			
Paper-based standardization form	239 (54.7%)	194 (44.4%)	<0.001
Electronic medical record/web-based form	318 (72.8%)	354 (81.0%)	<0.001
Hospital promotes use of teach-back techniques (having the patient “teach” new information back to educator) for patient and family education	301 (68.9%)	353 (80.8%)	<0.001
All patients with heart failure (or their caregivers) receive an action plan for managing changes in condition, in written form at the time of discharge	228 (52.2%)	262 (60.0%)	0.005
Patients are regularly called after discharge to either follow upon post-discharge needs or to provide additional education	275 (62.9%)	312 (71.4%)	<0.001

Numbers missing ranged by item from 0 to 3 for 2010; no item was missing data for time 2012.

[a]P-values from McNemar’s Chi-square tests.

Table 2

Strategies not adopted by significantly more hospitals by follow (N=437 hospitals)

	N (%)		
	Baseline	**Follow up**	**p-value[a]**
All patients (or their caregivers) receive at the time of discharge information about the purpose of each medication, which medications are new, which medications have changed in dose or frequency, and/or which medications are to be stopped	340 (78.0%)	338 (77.4%)	0.774
Process is in place to ensure outpatient physicians are alerted to the patient's discharge within 48 hours of discharge	168 (38.5%)	160 (36.6%)	0.439
Proportion of patients for whom a paper or electronic discharge summary is sent directly to the patient's primary MD			0.483
None	33 (7.6%)	38 (8.7%)	
Some	123 (28.2%)	121 (27.7%)	
Most	163 (37.4%)	174 (39.8%)	
All	117 (26.8%)	104 (23.8%)	
Patient's discharge summary typically completed and available for viewing[b]			0.264
Upon discharge	35 (8.0%)	41 (9.5%)	
Within 48 hours of discharge	184 (42.2%)	194 (45.1%)	
Within 7 days	85 (19.5%)	79 (18.4%)	
Within 30 days	121 (27.8%)	113 (26.3%)	
There are no explicit goals or policies defining a time-frame for completing the discharge summary	11 (2.5%)	3 (0.7%)	
Someone in the hospital is assigned to follow up on test results that return after the patient is discharged	149 (34.3%)	171 (39.1%)	0.067
Has a designated person or group to review unplanned readmissions that occur within 30 days of the original discharge	271 (62.2%)	293 (67.1%)	0.067
For patients being discharged to skilled nursing facility, nurse-to-nurse report is always conducted prior to transfer	264 (60.4%)	273 (62.5%)	0.435
The following is always provided to skilled nursing facilities upon discharge:			
Completed discharge summary	208 (47.6%)	221 (50.6%)	0.274
Reconciled medication list	363 (83.1%)	377 (86.3%)	0.140
Medication administration record	288 (65.9%)	288 (65.9%)	1.000
Direct contact number of inpatient treating physician	145 (33.2%)	161 (36.8%)	0.182

Numbers missing ranged by item from 0 to 2 for time 2010; one item

[b] missing 7 responses for time 2012.

[1] Indicates hospitals that provide direct contact information for a specific physician in case of emergency and/or any other type of emergency plan.

[a] P-values from McNemar's Chi-square tests and Bowker's tests of symmetry.