

Contemporary Evidence About Hospital Strategies for Reducing 30-Day Readmissions

A National Study

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- Objectives** This study sought to determine the range and prevalence of practices being implemented by hospitals to reduce 30-day readmissions of patients with heart failure or acute myocardial infarction (AMI).
- Background** Readmissions of patients with heart failure or AMI are both common and costly; however, evidence on strategies adopted by hospitals to reduce readmission rates is limited.
- Methods** We used a Web-based survey to conduct a cross-sectional study of hospitals' reported use of specific practices to reduce readmissions for patients with heart failure or AMI. We contacted all hospitals enrolled in the Hospital to Home (H2H) quality improvement initiative as of July 2010. Of 594 hospitals, 537 completed the survey (response rate of 90.4%). We used standard frequency analysis to describe the prevalence of key hospital practices in the areas of: 1) quality improvement resources and performance monitoring; 2) medication management efforts; and 3) discharge and follow-up processes.
- Results** Nearly 90% of hospitals agreed or strongly agreed that they had a written objective of reducing preventable re-admission for patients with heart failure or AMI. More hospitals reported having quality improvement teams to reduce preventable readmissions for patients with heart failure (87%) than for patients with AMI (54%). Less than one-half (49.3%) of hospitals had partnered with community physicians and only 23.5% had partnered with local hospitals to manage patients at high risk for readmissions. Inpatient and outpatient prescription records were electronically linked usually or always in 28.9% of hospitals, and the discharge summary was always sent directly to the patient's primary medical doctor in only 25.5% of hospitals. On average, hospitals used 4.8 of 10 key practices; <3% of hospitals utilized all 10 practices.
- Conclusions** Although most hospitals have a written objective of reducing preventable readmissions of patients with heart failure or AMI, the implementation of recommended practices varied widely. More evidence establishing the effectiveness of various practices is needed. (J Am Coll Cardiol 2012;60:607-14) © 2012 by the American College of Cardiology Foundation

Nearly 1 in 4 patients hospitalized with heart failure and 1 in 5 patients hospitalized with acute myocardial infarction (AMI)

are readmitted within 30 days of discharge (1-3). These rates have been fairly stable or have increased slightly in recent years

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**Abbreviations
and Acronyms****AHA** = American Hospital
Association**AMI** = acute myocardial
infarction**COTH** = Council of
Teaching Hospitals**H2H** = Hospital to Home

(4,5). Higher readmissions rates have been associated with lower patient satisfaction (6) and are estimated to cost Medicare more than \$17 billion per year in hospital payments (7).

Randomized controlled trials have demonstrated successful efforts to reduce readmissions in a variety of patient populations (8–11), and a recent review sug-

gested a substantial proportion of readmissions might be avoidable (12). Strategies commonly recommended for reducing readmissions include improved patient education about their medications, patient-centered discharge instructions, follow-up telephone calls, home visits, and increased coordination with outpatient providers (13–16). Despite the national focus on readmission rates, contemporary data on these hospital practices aimed at reducing readmissions are lacking.

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Accordingly, we conducted a descriptive study to determine the range and prevalence of practices being implemented by hospitals to reduce 30-day readmissions of patients. We surveyed hospitals that were enrolled in Hospital to Home (H2H), a quality campaign sponsored by the American College of Cardiology and the Institute of Healthcare Improvement with the goal of reducing readmission rates by 20% by the end of 2012. More than 1,000 hospitals have enrolled in this national effort, supported by multiple professional associations and partners. Given its national spread and size, the H2H campaign (17) provides an ideal opportunity to examine changes over time in hospital practices; the present study reports baseline data on these practices.

Methods

Study design and sample. We conducted a cross-sectional study using a Web-based survey (Online Appendix) of hospitals to examine their reported use of specific hospital practices to reduce readmissions for patients with heart failure or AMI. We contacted all hospitals that enrolled in H2H during its first 8 months (October 1, 2009 to July 1, 2010) ($n = 594$). Of the 594 hospitals, 537 completed the survey, for a response rate of 90.4%. We sent a letter of invitation to the contact person registered with H2H. The roles reported by respondents varied, and many respondents reported having >1 role; nearly 60% were from quality management departments, 25% were from cardiology departments, 25% were from other clinical departments, 16% were from case management or care coordination, and 8% reported working in nonclinical roles. Respondents were instructed to coordinate with other relevant staff to com-

plete a single survey reflecting hospital practices. All research procedures were approved by the Institutional Review Board at the Yale School of Medicine.

Measures. We examined hospital practices in 3 areas: quality improvement efforts and performance monitoring regarding readmission, medication management, and discharge and follow-up procedures. In addition, to summarize the data, we created a summary count variable of 10 specific practices across each of the 3 areas: 1) having a quality improvement team for reducing readmissions for heart failure, for AMI, or both; monitoring the percent of patients with follow-up appointments within 7 days of discharge; and monitoring 30-day readmission rates; 2) having medication management efforts, including providing patient education about the purpose of each medication and any alterations to the medication list; having a pharmacist usually responsible for conducting medication reconciliation at discharge; and having a pharmacy technician primarily responsible for obtaining medication history as part of medication reconciliation process; and 3) having discharge processes in which patients or their caregivers receive an emergency plan; having patients leave the hospital with an outpatient follow-up appointment already arranged; having a process in place to ensure the outpatient physicians are alerted to the patient's discharge status within 48 h of discharge; and contacting patients after discharge to follow-up on post-discharge needs or to provide additional patient education.

We assessed the internal consistency of the 10-item summary score using the Cronbach alpha coefficient, which was acceptable at 0.61. Practices included in the survey were selected based on existing literature and recommendations of the H2H campaign, taking into account practices that hospital staff might be expected to be able to address. We field tested the survey items using cognitive interviews (18) with hospital quality improvement directors to assess clarity and comprehensiveness. The summary score ranged from 0 to 10, and was supported by a number of studies (8,10,15,16,19–33), although definitive evidence on their effectiveness is lacking.

We also ascertained hospital characteristics, including number of staffed hospital beds, teaching status (member of the Association of American Medical Colleges Council of Teaching Hospitals [COTH] vs. nonteaching), multihospital affiliation (yes/no), and ownership (for-profit, nonprofit, and government) using data from the Annual Survey of the American Hospital Association (AHA) from 2009. We determined census regions from the U.S. Census Bureau and urban/suburban/rural location from the 2003 Urban Influence Codes.

Data analysis. We used standard frequency analysis to describe the sample of hospitals, the prevalence of each hospital practice, and the distribution of summary variables. We also used independent samples *t*-tests and chi-square tests as appropriate to compare our sample of H2H hospitals to all the other adult medical/surgical hospitals in the 2009 Annual Survey of the AHA. To examine variations in

summary scores by hospital characteristics, we conducted unadjusted analysis with correlation coefficients (for number of staffed beds), with analysis of variance (for geographic location, ownership type, and census region), and with *t*-tests (for teaching status and multihospital affiliation). The research was funded by the Commonwealth Fund, which had no influence on the methodology, findings, or interpretation. All analyses were conducted in SAS, version 9.2 (SAS Institute, Cary, North Carolina).

Results

Characteristics of hospital sample. The sample of 537 hospitals (response rate 90.4%) had a mean size of 316 beds, with 11% having ≥ 600 beds (Table 1). Compared with all other adult medical/surgical hospitals in the United States, hospitals in our sample had more beds, were more likely to be COTH hospitals and part of a multihospital system/chain, were less likely to be government-owned, and more likely to be urban; they also varied significantly in census region, with greater numbers in the South Atlantic region ($p < 0.05$).

Table 1 Descriptive Characteristics of Surveyed Hospitals (n = 537)

Characteristic	n (%)*
Hospital teaching status	
COTH	76 (14.2%)
Nonteaching	461 (85.9%)
No. of staffed beds	
<200	181 (34.0%)
200-399	201 (37.8%)
400-599	90 (16.9%)
600+	60 (11.3%)
Mean (SD)	316 (220)
Census region	
New England	21 (3.9%)
Middle Atlantic	58 (10.8%)
East North Central	99 (18.5%)
West North Central	45 (8.4%)
South Atlantic	122 (22.8%)
East South Central	52 (9.7%)
West South Central	55 (10.3%)
Mountain	33 (6.2%)
Pacific	51 (9.5%)
Puerto Rico	1 (0.2%)
Geographic location	
Urban	457 (85.3%)
Suburban	53 (9.9%)
Rural	26 (4.9%)
Ownership type	
For-profit	129 (24.0%)
Nonprofit	360 (67.0%)
Government	48 (8.9%)
Multihospital affiliation	
Yes	384 (71.5%)
No	153 (28.5%)

*Number missing by item ranged from 0 to 5.
COTH = Council of Teaching Hospitals.

Hospital practices to reduce readmission rates. **QUALITY IMPROVEMENT RESOURCES AND PERFORMANCE MONITORING.** Nearly 90% of hospitals agreed or strongly agreed that they had a written objective of reducing preventable readmission for patients with heart failure or AMI (Table 2). Most hospitals reported having a reliable process to identify patients with heart failure at the time of admission; most hospitals reported having a quality improvement team in place to reduce preventable readmission for these patients with heart failure. Members of that team were typically staff nurses, quality improvement staff, social workers, physicians, and senior management. Pharmacists were included on teams in two-thirds of the hospitals. Hospitals had less focus on readmission after hospitalization for AMI, with 54% of hospitals reporting they had a quality improvement team in place to reduce preventable readmission after hospitalization for AMI. Slightly more than one-half of hospitals had a multidisciplinary care team to manage patients at high risk for readmissions, more than two-thirds had partnered with home care or skilled nursing facilities to reduce readmission rates, less than one-half had partnered with community physicians, and one-quarter had partnered with local hospitals to reduce readmissions.

In terms of monitoring performance data, nearly all hospitals reported tracking the 30-day readmission rate; two-thirds had a designated person or group to review unplanned readmissions that occurred within 30 days of discharge. Other indicators were monitored by hospitals less frequently, such as the proportion of discharge summaries sent to the primary physician (22.7% of hospitals monitored this proportion), percent of patients with follow-up appointment within 7 days (32.1%), and proportion of patients readmitted to another hospital (11.4%). Approximately one-fifth (22.3%) of hospitals reported that they formally estimated the risk of readmission and used it in clinical care during patient hospitalization.

MEDICATION MANAGEMENT PRACTICES. In about 14% of hospitals, the responsibility for medication reconciliation was sometimes not formally assigned (Table 3). Nevertheless, nearly three-quarters of hospitals reported having some electronic medical record or Web-based form to facilitate medication reconciliation. Typically, emergency medicine staff or the admitting medical team obtained the medical history, with less common involvement of pharmacy staff. For nearly one-half of the hospitals, a pharmacist or pharmacy technician was never involved with obtaining the medication history, and a small proportion of hospitals reported always making contact with an outside pharmacy or with the primary physician as part of the medication reconciliation process (in 3.2% and 13.9% of hospitals, respectively). The majority of hospitals reported that all patients or their caregivers received discharge instructions and names, doses, and frequency of discharge medications when they left the hospital, and the majority reported using “teach-back” techniques for patient and family education.

Table 2 Quality Improvement Resources and Performance Monitoring

Practices	n (%)*
Hospital has reducing preventable readmissions as a written objective	
Strongly agree/agree	483 (89.9%)
Not sure/disagree/strongly disagree	54 (10.1%)
Hospital has a reliable process in place to identify patients with HF at the time they are admitted.	440 (82.2%)
Hospital has QI teams devoted to reducing preventable readmissions for patients with HF	
Yes	467 (87.0%)
No	70 (13.0%)
Members of QI teams focusing on readmission for patients with HF (select all that apply)†	
Nurses	459 (98.3%)
QI/quality management staff	447 (95.7%)
Social workers and/or case managers	418 (89.5%)
Physicians	415 (88.9%)
Senior management of the hospital	407 (87.2%)
Pharmacists	306 (65.5%)
Advanced practice nurses or physician assistants	271 (58.0%)
Hospital governing board members	86 (18.4%)
Patient or family representatives	56 (12.0%)
Hospital has QI teams devoted to reducing preventable readmissions for patients with AMI	
Yes	287 (53.5%)
No	250 (46.6%)
Members of QI teams focusing on readmission for patients with AMI (select all that apply)†	
Nurses	275 (95.8%)
QI/quality management staff	269 (93.7%)
Physicians	259 (90.2%)
Senior management of the hospital	244 (85.0%)
Social workers and/or case managers	225 (78.4%)
Pharmacists	179 (62.4%)
Advanced practice nurses or physician assistants	155 (54.0%)
Hospital governing board members	62 (21.6%)
Patient or family representatives	41 (14.3%)
Hospital has a multidisciplinary team to manage the care of patients who are at high risk of readmission	302 (56.5%)
Hospital has partnered with the following to reduce readmission rates (select all that apply)	
Community home care agencies and/or skilled nursing facilities	363 (67.9%)
Community physicians or physician groups	263 (49.3%)
Other local hospitals	125 (23.5%)
Hospital tracks the following for quality improvement efforts	
Timeliness of discharge summary	374 (70.2%)
Proportion of discharge summaries that are sent to primary physician	121 (22.7%)
Percent of patients discharged with follow-up appointment within 7 days	171 (32.1%)
Accuracy of medication reconciliation	390 (73.2%)
30-day readmission rate	504 (94.6%)
Early (<7 days) readmission rate	297 (55.7%)
Proportion of patients readmitted to another hospital	61 (11.4%)
Has a designated person or group to review unplanned readmissions that occur within 30 days of the original discharge	339 (63.5%)
Estimates risk of readmission in a formal way and uses it in clinical care during patient hospitalization	119 (22.3%)

*Number missing by item ranged from 0 to 5. †Among hospitals reporting corresponding quality improvement teams.

AMI = acute myocardial infarction; HF = heart failure; QI = quality improvement.

DISCHARGE AND FOLLOW-UP PRACTICES. Almost 60% of hospitals reported providing patients (or their caregivers) some type of emergency plan and providing an action plan for patients with heart failure if symptoms changed (Table 4). Less than one-half responded that patients with home health services were provided direct contact for a specific inpatient physician in case of questions. Fewer hospitals reported that there was a process in place to ensure that outpatient physicians were alerted to the discharge within 48 h, and about 30% of hospitals did not routinely make discharge summaries available for viewing within 7 days of discharge. About one-third of hospitals assigned someone to follow-up on test results that were received after the patient was discharged, nearly two-thirds reported that they regularly called patients after discharge, and less than one-quarter reported arranging home visits for most or all patients with heart failure or AMI after discharge. In the case of patients discharged to skilled nursing facilities, less than two-thirds of hospitals reported that nurse-to-nurse report was always conducted before transfer.

SUMMARY SCORE OF PRACTICES. Less than 3% of hospitals had in place all the practices that comprised our summary score (Fig. 1). The average number of 10 key practices reported to be in place was 4.8. More than 30% of hospitals had all quality improvement and performance monitoring practices in place, and approximately 15% had all the discharge and follow-up practices in place (Table 5). A minority (5%) of hospitals had all the medication management practices in place. Census region was significantly associated with summary scores (with Pacific region having the highest scores and the Mountain region having the lowest scores). Hospital teaching status, urban/suburban/rural location, number of beds, chain affiliation, and ownership type were not significantly associated with summary scores for heart failure or for AMI.

Discussion

We found that the majority of hospitals reported having written objectives to reduce readmission, quality improvement teams focused on readmissions, and ongoing monitoring of 30-day readmission rates, whereas many of the specific practices considered to be important for preventing readmissions were implemented by fewer hospitals. We also found wide variation among this set of hospitals, although all had enrolled in a national campaign to reduce readmissions. Although 12% of hospitals had implemented ≤ 2 of 10 key practices, another 12% had implemented ≥ 8 of these 10 practices, indicating substantial heterogeneity among hospitals in strategies to reduce readmissions of patients with heart failure and AMI.

Practices were particularly variable within the area of medication management, and the findings suggested that

Table 3 Medication Management Practices	
Practices	n (%)*
Who is responsible for conducting medication reconciliation at discharge?	
Discharging physician, physician assistant or nurse practitioner	
Never	14 (2.6%)
Sometimes	42 (7.9%)
Usually	76 (14.2%)
Always	403 (75.3%)
Nurse	
Never	55 (10.3%)
Sometimes	51 (9.6%)
Usually	49 (9.2%)
Always	379 (71.0%)
Pharmacist	
Never	313 (58.7%)
Sometimes	163 (30.6%)
Usually	21 (3.9%)
Always	36 (6.8%)
Responsibility not formally assigned	
Never	458 (86.3%)
Sometimes	23 (4.3%)
Usually	21 (4.0%)
Always	29 (5.5%)
Tools in place to facilitate medication reconciliation (select all that apply)	
Paper-based standardization form	292 (54.4%)
Electronic medical record/Web-based form	396 (73.7%)
How often does each of the following occur as part of the medication reconciliation process at your hospital?	
Emergency medicine staff obtains medication history	
Never	3 (0.6%)
Sometimes	40 (7.5%)
Usually	154 (28.8%)
Always	338 (63.2%)
Admitting medical team obtains medication history	
Never	8 (1.5%)
Sometimes	33 (6.2%)
Usually	98 (18.3%)
Always	396 (74.0%)
Pharmacist or pharmacy technician obtains medication history	
Never	248 (46.4%)
Sometimes	161 (30.2%)
Usually	47 (8.8%)
Always	78 (14.6%)
Contact is made with outside pharmacies	
Never	78 (14.6%)
Sometimes	369 (69.2%)
Usually	69 (13.0%)
Always	17 (3.2%)
Contact is made with primary physician	
Never	29 (5.4%)
Sometimes	282 (52.8%)
Usually	149 (27.9%)
Always	74 (13.9%)
Outpatient and inpatient prescription records are linked electronically	
Never	327 (61.4%)
Sometimes	93 (17.5%)
Usually	61 (11.4%)
Always	52 (9.8%)

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Table 3 Continued	
Practices	n (%)*
Third-party prescription database that provides historical fill and refill information (e.g., Health Care Systems).	
Never	444 (83.3%)
Sometimes	55 (10.3%)
Usually	15 (2.8%)
Always	19 (3.6%)
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	
	412 (77.2%)
Hospital promotes use of teach-back techniques (having the patient "teach" new information back to educator) for patient and family education	
	374 (69.8%)

*Number missing by item ranged from 0 to 6.

medication reconciliation processes were nonstandardized at most hospitals. Although the majority of hospitals reported that physicians, physician assistants, or nurse practitioners were always responsible for conducting medication reconciliation, nearly one-third of hospitals reported pharmacists were sometimes responsible, and 14% of hospitals suggested that the responsibility was at least sometimes not formally assigned to anyone. Additionally, for more than one-half of the hospitals, making contact with outside pharmacies or the primary physician was sometimes, but not always, part of the medication reconciliation process, again underscoring the variability in this process. Although patient education about medications was apparently robust, with 70% of hospitals reporting the use of "teach-back" techniques and 77% reporting that all medication details were given to patients at discharge, lack of standard processes for both the reconciliation and patient education regarding medications is potentially problematic.

Several of the discharge and follow-up practices, which were shown to be associated with reduced readmissions (16), were practiced by less than one-half of hospitals. Central to effective continuity of care is the linking of inpatient and post-discharge (e.g., outpatient, home care, or skilled nursing facility) providers and information. Nevertheless, a process to alert outpatient physicians within 48 h of the patient's discharge and a process to follow-up on test results that were returned after a patient's discharge were present in 37% and 36% of hospitals, respectively. In the cases of patients discharged with home health services or to skilled nursing facilities, direct contact information for an inpatient physician in case of questions was reported to be provided in 47% and 34% of hospitals, respectively. The limited use of some evidence-based practices found in the present study was consistent with recent qualitative data suggesting that hospital and professional cultures tend to focus on the inpatient part of the patient's care and are less endorsing of responsibilities post-discharge (34).

Why might these practices be lacking in so many hospitals? One reason might be because they require added

Table 4 Discharge and Follow-Up Procedures

Practices	n (%)*
For all patients	
All patients (or their caregivers) receive the following in written form at the time of discharge:	
Discharge instructions	490 (91.4%)
Names, doses, and frequency of all discharge medications	468 (87.5%)
Educational information about HF, when relevant	389 (72.6%)
Symptoms that prompt immediate call to physician or return to hospital	356 (66.5%)
Educational information about AMI	350 (65.3%)
Any type of emergency plan†	316 (59.0%)
Action plan for HF patients for managing changes in condition	284 (53.0%)
Personal health record	141 (26.5%)
Discharge summary	105 (19.6%)
Patients are discharged from the hospital with an outpatient follow-up appointment already arranged	
Never	20 (3.7%)
Sometimes	224 (41.9%)
Usually	235 (43.9%)
Always	56 (10.5%)
Patients with home health services are provided direct contact information for a specific inpatient physician in case of questions	
Process is in place to ensure outpatient physicians are alerted to the patient's discharge within 48 h of discharge	199 (37.3%)
Proportion of patients for whom a paper or electronic discharge summary is sent directly to the patient's primary medical doctor	
None	43 (8.1%)
Some	154 (28.8%)
Most	201 (37.6%)
All	136 (25.5%)
Patient's discharge summary typically completed and available for viewing	
Upon discharge	43 (8.1%)
Within 48 h of discharge	223 (41.8%)
Within 7 days	94 (17.6%)
Within 30 days	159 (29.8%)
No explicit goals or policies regarding time frame for completing the discharge summary	14 (2.6%)
Someone in the hospital is assigned to follow-up on test results that return after the patient is discharged	191 (35.8%)
Patients are regularly called after discharge to either follow-up on post-discharge needs or to provide additional education	337 (63.0%)
Home visits are arranged for all or most patients after discharge	
After discharge, patients	
Receive telemonitoring	
None	245 (45.8%)
Some	266 (49.7%)
Most	23 (4.3%)
All	1 (0.2%)
Receive referrals to cardiac rehabilitation	
None	27 (5.1%)
Some	192 (36.0%)
Most	204 (38.3%)
All	110 (20.6%)
Are enrolled in chronic disease management programs	
None	161 (30.2%)
Some	325 (60.9%)
Most	41 (7.7%)
All	7 (1.3%)

Continued in the next column

Table 4 Continued

Practices	n (%)*
For patients transferred to skilled nursing facilities	
Nurse-to-nurse report is always conducted before transfer	327 (61.1%)
Information always provided to the facility upon discharge	
Completed discharge summary	253 (47.3%)
Reconciled medication list	441 (82.4%)
Medication administration record	353 (66.0%)
Direct contact number of inpatient treating physician	181 (33.8%)

*Number missing by item ranged from 1 to 4. †Indicates hospitals that provide direct contact information for a specific physician in case of emergency and/or any other type of emergency plan. Abbreviations as in Table 2.

resources. Particularly in the case of producing timely discharge summaries and ensuring adequate patient and caregiver education about complex medication and other issues, it is possible that constraints on staff time is a major rate-limiting step to implementing some of these potentially best practices. Perhaps a more important challenge, however, is the management challenge of coordinating efforts to ensure timely and proper discharge. Especially under the pressure of morning discharges, coordination among various physicians, pharmacists, nurses, and the many ancillary staff to achieve a smooth discharge might be extremely complex. Without standardized systems and across a diverse care team balancing multiple priorities, ensuring these practices requires substantial coordination, which might be difficult to accomplish. Lastly, clinicians and administrators might be uncertain about the efficacy of various strategies as we lack definitive studies demonstrating their impact on readmission. As a result, adoption of these strategies might be slower, particularly in the absence of definitive evidence supporting their effectiveness for reducing readmission rates.

Study limitations. This is the first national study we know of that documented specific hospital practices undertaken to reduce readmission rates. Nevertheless, the results should be

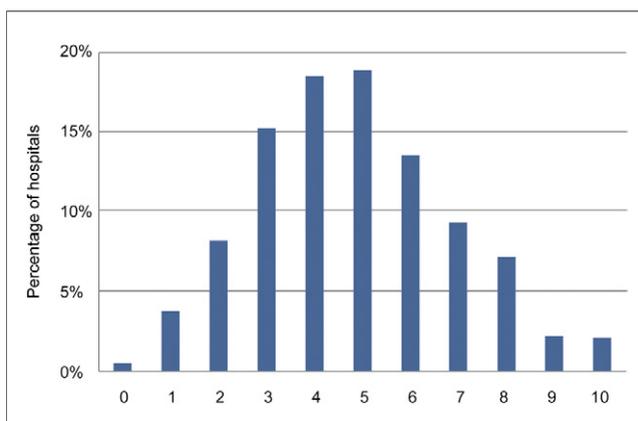


Figure 1 Percentage of Hospitals Implementing 10 Key Practices

Summary scores indicating the frequency with which hospitals implemented key practices in quality improvement and performance monitoring, medication management, and discharge and follow-up

Table 5 Summary Scores of Hospital Practices to Reduce Preventable Readmissions

Practices	Score	n (%)*
Quality improvement resources and performance monitoring		
Having at least one quality improvement team for reducing readmissions for heart failure, AMI or both	0	28 (5.3%)
Monitoring proportion of discharged patients with follow-up appointment within 7 days	1	334 (62.8%)
Monitoring 30-day readmission rates	2	4 (0.8%)
	3	166 (31.2%)
Medication management		
Providing information to all patients about medications (including the purpose of each medication; which medications were new; which medications had changed in dose or frequency; and which medications had been stopped)	0	95 (17.8%)
	1	309 (58.0%)
Having pharmacist responsible for conducting medication reconciliation at discharge	2	103 (19.3%)
Having pharmacy technician primarily responsible for obtaining medication history as part of medication reconciliation process	3	26 (4.9%)
Discharge and follow-up		
Providing patients or their caregivers direct contact information for a specific physician in case of an emergency and/or other type of emergency plan	0	48 (9.0%)
Arranging an outpatient follow-up appointment before patients leave the hospital	1	115 (21.5%)
Ensuring the outpatient physicians are alerted to a patient's discharge within 48 h	2	168 (31.5%)
Calling patients regularly after discharge to either follow-up on post-discharge needs or to provide additional education	3	124 (23.2%)
	4	79 (14.8%)

*Summations for each practice set had between 3 and 5 missing values.

interpreted in light of the study's limitations. First, the study was descriptive and could not evaluate the effect of these practices on outcomes, including readmission rates. Readmission rate data will be linked to these practices in future reports from this study as the data become available. Second, implementation of these practices was self-reported by the primary hospital contact for the H2H campaign, often by the quality improvement director. We did request, however, that respondents consult with other key staff to complete the survey to ensure a more comprehensive and informed view of practices implemented. Furthermore, such practices are complex and cannot be fully characterized using quantitative methods, although items were field tested before the survey. Lastly, our findings might have overestimated the use of these practices nationally, because hospitals enrolled with H2H might be more motivated to reduce readmissions, or might have underestimated their use if hospitals with particular concerns might have been more likely to enroll. Nevertheless, among this large sample of hospitals with a high response rate, we found limited use of several practices that have been widely recommended.

Conclusions

We examined the reported use of key practices to reduce readmissions for patients with heart failure and AMI. Although some practices were implemented by many hospitals, most hospitals did not report having a comprehensive set of recommended practices in place. The lack of implementation of key practices was most apparent in the areas of medication management and discharge and follow-up processes. Particularly striking was the substantial variability in hospital practices to reduce readmission rates. Given the diversity of efforts to reduce readmission rates, establishing more definitive evidence about the effective hospital practices in this area is warranted. Nevertheless, our findings

suggest opportunities for continued improvement in communication and care coordination, which may assist in hospital efforts to reduce readmission rates.

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Key Words: AMI ■ discharge ■ heart failure ■ medication reconciliation ■ quality improvement ■ readmissions.

 **APPENDIX**

For the Hospital-to-Home (H2H) Survey, please see the online version of this article.