

The Hospital Readmissions Reduction Program and Observation Hospitalizations

Ann M Sheehy, MD, MS^{1,2,3*}, Farah Kaikow, MPP, MD^{1,3}, W Ryan Powell, MA, PhD^{1,2,4}, Andrea Gilmore Bykovskiy, PhD, RN^{1,2,5}, Christie M Bartels, MD, MS^{1,6}, Blair Golden, MD, MS^{1,3}, Amy JH Kind, MD, PhD^{1,2,4,7}

¹Health Services and Care Research Program, University of Wisconsin Department of Medicine, Madison, Wisconsin; ²Center for Health Disparities Research, University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin; ³Department of Medicine, Division of Hospital Medicine, University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin; ⁴Department of Medicine, Division of Geriatrics and Gerontology, University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin; ⁵School of Nursing, University of Wisconsin, Madison, Wisconsin; ⁶Department of Medicine, Division of Rheumatology, University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin; ⁷Department of Veterans Affairs Geriatrics Research Education and Clinical Center, Madison, Wisconsin.

The Centers for Medicare & Medicaid Services (CMS) Hospital Readmissions Reduction Program (HRRP) penalizes hospitals having excess inpatient rehospitalizations within 30 days of index inpatient stays for targeted conditions. Observation hospitalizations are increasing in frequency and may clinically resemble inpatient hospitalizations, yet HRRP excludes observation in index and 30-day rehospitalization counts. Using 100% 2014 Medicare fee-for-service claims and CMS's 30-day rehospitalization methodology, we modeled how observation hospitalizations impact HRRP metrics when counted as index (denominator) and 30-day (numerator)

rehospitalizations. Of 3,806,772 index hospitalizations for HRRP conditions, 418,923 (11%) were observation; 18% (155,553/876,033) of rehospitalizations were invisible to HRRP due to observation hospitalization as index (34%; 63,740/188,430), 30-day outcome (53%; 100,343/188,430), or both (13%; 24,347/188,430). By ignoring observation hospitalizations as index and 30-day events, nearly one of five HRRP rehospitalizations is missed. Policymakers might consider this an opportunity to address broad challenges of the two-tiered observation and inpatient hospital billing distinction. *Journal of Hospital Medicine* 2021;16:409-411. © 2021 Society of Hospital Medicine

The Hospital Readmissions Reduction Program (HRRP) was designed to improve quality and safety for traditional Medicare beneficiaries.¹ Since 2012, the program has reduced payments to institutions with excess inpatient rehospitalizations within 30 days of an index inpatient stay for targeted medical conditions. Observation hospitalizations, billed as outpatient and covered under Medicare Part B, are not counted as index or 30-day rehospitalizations under HRRP methods. Historically, observation occurred almost exclusively in observation units. Now, observation hospitalizations commonly occur on hospital wards, even in intensive care units, and are often clinically indistinguishable from inpatient hospitalizations billed under Medicare Part A.² The Centers for Medicare & Medicaid Services (CMS) state that beneficiaries expected to need 2 or more midnights of hospital care should generally be considered inpatients, yet observation hospitalizations commonly exceed 2 midnights.^{3,4}

The increasing use of observation hospitalizations^{5,6} raises questions about its impact on HRRP measurements. While observation hospitalizations have been studied as part of 30-day follow-up (numerator) to index inpatient hospitaliza-

tions,^{5,6} little is known about how observation hospitalizations impact rates when they are factored in as both index stays (denominator) and in the 30-day rehospitalization rate (numerator).^{2,7} We analyzed the complete combinations of observation and inpatient hospitalizations, including observation as index hospitalization, rehospitalization, or both, to determine HRRP impact.

METHODS

Study Cohort

Medicare fee-for-service standard claim files for all beneficiaries (100% population file version) were used to examine qualifying index inpatient and observation hospitalizations between January 1, 2014, and November 30, 2014, as well as 30-day inpatient and observation rehospitalizations. We used CMS's 30-day methodology, including previously described standard exclusions (Appendix Figure),⁸ except for the aforementioned inclusion of observation hospitalizations. Observation hospitalizations were identified using established methods,^{3,9,10} excluding those observation encounters coded with revenue center code 0761 only^{3,10} in order to be most conservative in identifying observation hospitalizations (Appendix Figure). These methods assign hospitalization type (observation or inpatient) based on the final (billed) status. The terms *hospitalization* and *rehospitalization* refer to both inpatient and observation encounters. The University of Wisconsin Health Sciences Institutional Review Board approved this study.

*Corresponding Author: Ann M Sheehy, MD, MS; Email: asr@medicine.wisc.edu; Telephone: 608-261-1571; Twitter: @SheehyAnn.

Published online first June 16, 2021.

Find additional supporting information in the online version of this article.

Received: February 11, 2021; Revised: March 31, 2021; Accepted: April 2, 2021

© 2021 Society of Hospital Medicine DOI 10.12788/jhm.3634

TABLE 1. Hospitalization and 30-Day Rehospitalization by Index and 30-Day Encounter Type, All Diagnoses

Index hospitalization (denominator)	Any (n = 8,859,534)	Inpatient (n = 7,261,697)	Observation (n = 1,597,837)
Rehospitalization (numerator)	Any 19% (1,689,609) ^a	Inpatient 18% (1,299,360)	Observation 3% (195,882)
		Inpatient 11% (174,658)	Observation 5% (85,457)

^a Total 30-day rehospitalizations currently excluded from 30-day metrics: 1,689,609 – 1,299,360 = 390,249 (23%). Of 455,997 index/30-day pairs containing observation, 38% (174,658) were observation/inpatient, 43% (195,882) were inpatient/observation, and 19% (85,457) were observation/observation.

TABLE 2. Hospitalization and 30-Day Rehospitalization by Index and 30-Day Encounter Type, HRRP^a Conditions Only

Index HRRP hospitalization (denominator)	Any (n = 3,806,772)	Inpatient (n = 3,387,849)	Observation (n = 418,923)
Rehospitalization (numerator)	Any 23% (876,033) ^b	Inpatient 21% (720,480)	Observation 3% (100,343)
		Inpatient 15% (63,740)	Observation 6% (24,347)

^a HRRP conditions included congestive heart failure, chronic obstructive pulmonary disease, myocardial infarction, and pneumonia.

^b Total 30-day rehospitalizations currently excluded from the HRRP: 876,033 – 720,480 = 155,553 (18%). Of 188,430 index/30-day pairs containing observation, 34% (63,740) were observation/inpatient, 53% (100,343) were inpatient/observation, and 13% (24,347) were observation/observation.

Abbreviation: HRRP, Hospital Readmissions Reduction Program.

Hospital Readmissions Reduction Program

Index HRRP admissions for congestive heart failure, chronic obstructive pulmonary disease, myocardial infarction, and pneumonia were examined as a prespecified subgroup.^{1,11} Coronary artery bypass grafting, total hip replacement, and total knee replacement were excluded in this analysis, as no crosswalk exists between *International Classification of Diseases, Ninth Revision* codes and Current Procedural Terminology codes for these surgical conditions.¹¹

Analysis

Analyses were conducted at the encounter level, consistent with CMS methods.⁸ Descriptive statistics were used to summarize index and 30-day outcomes.

RESULTS

Of 8,859,534 index hospitalizations for any reason or diagnosis, 1,597,837 (18%) were observation and 7,261,697 (82%) were inpatient. Including all hospitalizations, 23% (390,249/1,689,609) of rehospitalizations were excluded from readmission measurement by virtue of the index hospitalization and/or 30-day rehospitalization being observation (Table 1 and Table 2).

For the subgroup of HRRP conditions, 418,923 (11%) and 3,387,849 (89%) of 3,806,772 index hospitalizations were observation and inpatient, respectively. Including HRRP conditions only, 18% (155,553/876,033) of rehospitalizations were excluded from HRRP reporting owing to observation hospitalization as index, 30-day outcome, or both. Of 188,430 index/30-day pairs containing observation, 34% (63,740) were observation/inpatient, 53% (100,343) were inpatient/observation, and 13% (24,347) were observation/observation (Table 1 and Table 2). The distribution of index and rehospitalization types was similar across HRRP conditions (Appendix Table).

DISCUSSION

By ignoring observation hospitalizations in 30-day HRRP quality metrics, nearly one of five potential rehospitalizations is missed. Observation hospitalizations commonly occur as either the index event or 30-day outcome, so accurately determining 30-day HRRP rates must include observation in both positions. Given hospital variability in observation use,^{3,7} these findings are critically important to accurately understand rehospitalization risk and indicate that HRRP may not be fulfilling its intended purpose.

Including all hospitalizations for any diagnosis, we found that observation and inpatient hospitalizations commonly occur within 30 days of each other. Nearly one in four hospitalization/rehospitalization pairs include observation as index, 30-day rehospitalization, or both. Although not directly related to HRRP metrics, these data demonstrate the growing importance and presence of outpatient (observation) hospitalizations in the Medicare program.

Our study adds to the evolving body of literature investigating quality measures under a two-tiered hospital system where inpatient hospitalizations are counted and observation hospitalizations are not. Figueroa and colleagues¹² found that improvements in avoidable admission rates for patients with ambulatory care-sensitive conditions were largely attributable to a shift from counted inpatient to uncounted observation hospitalizations. In other words, hospitalizations were still occurring, but were not being tallied due to outpatient (observation) classification. Zuckerman et al⁵ and the Medicare Payment Advisory Commission (MedPAC)⁶ concluded that readmissions improvements recognized by the HRRP were not explained by a shift to more observation hospitalizations following an index inpatient hospitalization; however, both studies included observation hospitalizations as part of 30-day rehospitalization (numerator) only, not also as part of index hospitalizations (de-

nominator). Our study confirms the importance of including observation hospitalizations in both the index (denominator) and 30-day (numerator) rehospitalization positions to determine the full impact of observation hospitalizations on Medicare's HRRP metrics.

Our study has limitations. We focused on nonsurgical HRRP conditions, which may have impacted our findings. Additionally, some authors have suggested including emergency department (ED) visits in rehospitalization studies.⁷ Although ED visits occur at hospitals, they are not hospitalizations; we excluded them as a first step. Had we included ED visits, encounters excluded from HRRP measurements would have increased, suggesting that our findings, while sizeable, are likely conservative. Additionally, we could not determine the merits or medical necessity of hospitalizations (inpatient or outpatient observation), but this is an inherent limitation in a large claims dataset like this one. Finally, we only included a single year of data in this analysis, and it is possible that additional years of data would show different trends. However, we have no reason to believe the study year to be an aberrant year; if anything, observation rates have increased since 2014,⁶ again pointing out that while our findings are sizable, they are likely conservative. Future research could include additional years of data to confirm even greater proportions of rehospitalizations exempt from HRRP over time due to observation hospitalizations as index and/or 30-day events.

Outpatient observation hospitalizations can occur anywhere in the hospital and are often clinically similar to inpatient hospitalizations, yet observation hospitalizations are essentially invisible under inpatient quality metrics. Requiring the HRRP to include observation hospitalizations is the most obvious solution, but this could require major regulatory and legislative change^{11,13}—change that would fix a metric but fail to address broad policy concerns inherent in the two-tiered observation and inpatient billing distinction. Instead, CMS and Congress might consider this an opportunity to address the oxymoron of “outpatient hospitalizations” by engaging in comprehensive observation reform.

Disclosures: The authors have no conflicts to disclose.

Funding: This project was supported by a National Institutes of Health–National Institute on Minority Health and Health Disparities Award

(R01MD010243 [Principal investigator Dr Kind]) and National Institutes of Health –National Institute on Aging Award (RF1AG057784 [Principal investigators: Drs Kind and Bendlin]). This material is the result of work also supported with the resources and the use of facilities at the University of Wisconsin Department of Medicine Health Services and Care Research Program. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

References

- Centers for Medicare & Medicaid Services. Hospital Readmissions Reduction Program (HRRP). Accessed March 12, 2021. <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Readmissions-Reduction-Program>
- Sabbatini AK, Wright B. Excluding observation stays from readmission rates—what quality measures are missing. *N Engl J Med*. 2018;378(22):2062–2065. <https://doi.org/10.1056/NEJMp1800732>
- Sheehy AM, Powell WR, Kaiksow FA, et al. Thirty-day re-observation, chronic re-observation, and neighborhood disadvantage. *Mayo Clin Proc*. 2020;95(12):2644–2654. <https://doi.org/10.1016/j.mayocp.2020.06.059>
- US Department of Health and Human Services. Office of Inspector General. Vulnerabilities remain under Medicare's 2-midnight hospital policy. December 19, 2016. Accessed February 11, 2021. <https://oig.hhs.gov/oei/reports/oei-02-15-00020.asp>
- Zuckerman RB, Sheingold SH, Orav EJ, Ruhter J, Epstein AM. Readmissions, observation and the Hospital Readmissions Reduction Program. *N Engl J Med*. 2016;374(16):1543–1551. <https://doi.org/10.1056/NEJMs1513024>
- Medicare Payment Advisory Commission. Mandated report: the effects of the Hospital Readmissions Reduction Program. In: Report to the Congress: Medicare and the Health Care Delivery System. 2018;3–31. Accessed March 17, 2021. Available at: http://www.medpac.gov/docs/default-source/reports/jun18_medpacreporttocongress_rev_nov2019_note_sec.pdf?sfvrsn=0
- Wadhwa RK, Yeh RW, Maddox KEJ. The Hospital Readmissions Reduction Program—time for a reboot. *N Engl J Med*. 2019;380(24):2289–2291. <https://doi.org/10.1056/NEJMp1901225>
- National Quality Forum. Measure #1789: Hospital-wide all-cause unplanned readmission measure. Accessed January 30, 2021. <http://www.qualityforum.org/QPS/MeasureDetails.aspx?standardID=1789&print=1&entityTypeID=1>
- Sheehy AM, Shi F, Kind AJH. Identifying observation stays in Medicare data: policy implications of a definition. *J Hosp Med*. 2019;14(2):96–100. <https://doi.org/10.12788/jhm.3038>
- Powell WR, Kaiksow FA, Kind AJH, Sheehy AM. What is an observation stay? Evaluating the use of hospital observation stays in Medicare. *J Am Geriatr Soc*. 2020;68(7):1568–1572. <https://doi.org/10.1111/jgs.16441>
- Centers for Medicare & Medicaid Services. Hospital Readmissions Reduction Program (HRRP) Archives. Accessed February 10, 2021. <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/HRRP-Archives>
- Figueroa JF, Burke LG, Zheng J, Orav EJ, Jha AK. Trends in hospitalization vs observation stay for ambulatory care-sensitive conditions. *JAMA Intern Med*. 2019;179(12):1714–1716. <https://doi.org/10.1001/jamainternmed.2019.3177>
- Public Law 111-148, Patient Protection and Affordable Care Act, 111th Congress. March 23, 2010. Accessed March 12, 2021. <https://www.congress.gov/111/plaws/publ148/PLAW-111publ148.pdf>