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National Trends in Heart Failure Hospitalization and Readmissions Associated With Policy Changes—Reply

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biomarkers during hospitalization might help to understand the underlying pathophysiological mechanisms of myocardial injury in T2MI in more detail; however, it is of limited value in the early discrimination of T2MI vs T1MI.

It seems that as a single variable, no cardiovascular biomarker is able to provide a high enough diagnostic accuracy for clinical decision-making, and a detailed clinical assessment, electrocardiography, the exact identification of possible T2MI triggers, and cardiac imaging in conjunction with the most established cardiovascular biomarkers, especially high-sensitivity cardiac troponin, remain key for an early and accurate differentiation of T2MI vs T1MI.⁴

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National Trends in Heart Failure Hospitalization and Readmissions Associated With Policy Changes

To the Editor We read with great interest the article by Agarwal et al¹ regarding national trends in heart failure hospitalizations and readmissions from 2010 to 2017. The authors found that the primary heart failure hospitalization

declined from 2010 to 2014, followed by an increase from 2014 to 2017. However, it is important to note that 2014 is the time when Medicaid was expanded in many states under the Affordable Care Act.² Therefore, it is possible that the observed trend could be explained by Medicaid expansions. Indeed, the data the authors provided showed that an increase in hospitalizations was observed mainly among Medicaid beneficiaries (Table 2¹), supporting this hypothesis. If the data allow, it would be informative to see whether the trends differ between states that expanded Medicaid compared with those that did not. If the research question is to investigate the underlying mechanisms as to why we are observing such trends, we believe the quasiexperimental designs, such as a difference-in-difference (DID) design or event study design, using residents of nonexpansion states as the control may be appropriate. Similarly, it is important to note that the US Centers for Medicare & Medicaid Services introduced the Hospital Readmissions Reduction Program (HRRP) in October 2012, which financially penalizes hospitals with higher-than-expected readmission rates for selected conditions, including heart failure. Although evidence is mixed, prior studies have found that the HRRP may be effective in reducing the readmission rates, and this may affect the observed trends.^{3,4} Given the overall trends may be confounded by the introduction of Medicaid expansions (in some states) and HRRP (introduced nationally), we believe that it may be informative if authors could disentangle the underlying national trends from the effect of policies (Medicaid expansions and HRRP) that were introduced during the study period.

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1. Agarwal MA, Fonarow GC, Ziaeian B. National trends in heart failure hospitalizations and readmissions from 2010 to 2017. *JAMA Cardiol*. 2021;6(8): 952-956. doi:10.1001/jamacardio.2020.7472

2. Blavin F. Association between the 2014 Medicaid expansion and US hospital finances. JAMA. 2016;316(14):1475-1483. doi:10.1001/jama.2016.14765

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 McWilliams JM, Barnett ML, Roberts ET, Hamed P, Mehrotra A. Did hospital readmissions fall because per capita admission rates fell? *Health Aff (Millwood)*. 2019;38(11):1840-1844. doi:10.1377/hlthaff.2019.00411 In Reply We welcome the letter by Kuno et al demonstrating their interest in our recent article describing national trends in heart failure (HF) hospitalizations and readmissions from 2010 to 2017,¹ and we appreciate the comments they raised. We found that crude rates of overall and unique hospitalizations for HF declined from 2010 to 2014, followed by an increase from 2014 to 2017. Additionally, readmission visits after index HF hospitalizations followed a similar trend. The correspondence highlights the importance of better defining the impact of health policies such as the Medicaid expansion and Hospital Readmissions Reduction Program (HRRP) on the national trends in HF hospitalizations during the period of study. The authors suggest performing state-specific comparative analysis subgrouped by Medicaid expansion to better test such a hypothesis.

We agree that such an analysis may better explain some of the reasons behind changes in HF hospitalization trends. However, National Readmission Database sponsored by the Agency for Healthcare Research and Quality precludes identification of states or hospitals in their data use agreement with investigators, and all observations are deidentified to protect personal health information.² The Agency for Healthcare Research and Quality does sponsor the State Inpatient Database, which requires greater scrutiny for access given the potential for personal health information disclosure and hospital identification. Harmonizing the data across all available State Inpatient Databases is an intensive research undertaking.

Previously, the Get With The Guidelines Registry reported that Medicaid expansion was associated with a significant decline in uninsured HF hospitalizations.³ With respect to HRRP on inpatient HF hospitalizations, Khan et al⁴ reported higher 30-day and 90-day all-cause readmissions rates during the HRRP penalty phase compared with the pre-HRRP announcement in the National Readmission Database data set. We acknowledge that better understanding to disentangle these policy effects is of utmost importance, and the considerations raised by Kuno and colleagues provide direction for further study. The findings that national HF hospitalizations overall, unique hospitalizations, and readmissions are all increasing over time should raise substantial concerns and major efforts to address, including individualized strategies for HF prevention, management, and surveillance.

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1. Agarwal MA, Fonarow GC, Ziaeian B. National trends in heart failure hospitalizations and readmissions from 2010 to 2017. *JAMA Cardiol*. 2021;6(8): 952-956. doi:10.1001/jamacardio.2020.7472

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 Khan MS, Sreenivasan J, Lateef N, et al. Trends in 30- and 90-day readmission rates for heart failure. *Circ Heart Fail*. 2021;14(4):e008335. doi:10.1161/CIRCHEARTFAILURE.121.008335

CORRECTION

Error in Figure: In the Original Investigation titled "Long-term Benefits and Harms Associated With Genetic Cholesteryl Ester Transfer Protein Deficiency in the General Population," 1 published online October 6, 2021, 3 of the 8 bars in the left graph of Figure 4 representing myocardial infarction, age-related macular degeneration (AMD), and dry AMD, respectively, and all 3 bars in the right graph of Figure 4 representing AMD, dry AMD, and wet AMD, respectively, do not match in length the difference in their respective numbers of events given in the tabular data to the left of the graphs. This article was corrected online.

1. Nordestgaard LT, Christoffersen M, Lauridsen BK, et al. Long-term benefits and harms associated with genetic cholesteryl ester transfer protein deficiency in the general population. *JAMA Cardiol*. Published online October 6, 2021. doi:10.1001/jamacardio.2021.3728

Omitted Affiliation: In the Original Investigation titled "Effect of a Self-care Intervention on 90-Day Outcomes in Patients With Acute Heart Failure Discharged From the Emergency Department: A Randomized Clinical Trial,"¹ published in the February 2021 issue, an affiliation was omitted. A second affiliation for Sean P. Collins, MD, MSc, and Jin H. Han, MD, should have been given as "Geriatric Research, Education, and Clinical Center, Tennessee Valley Healthcare System, Nashville." This article was corrected online.

1. Collins SP, Liu D, Jenkins CA, et al. Effect of a self-care intervention on 90-day outcomes in patients with acute heart failure discharged from the emergency department: a randomized clinical trial. *JAMA Cardiol*. 2021;6(2):200-208. doi:10.1001/jamacardio.2020.5763