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COMMENT & RESPONSE

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In Reply

We thank Krumholz et al for the interest in our work.[1] The authors raise the question of generalizability of our report on the association of the Hospital Readmissions Reduction Program (HRRP) with readmissions and mortality rates in heart failure (HF) by observing that our data are a sample of the overall Medicare population.[1] Prior studies have suggested that fee-for-service Medicare patients enrolled in the American Heart Association Get With The Guidelines (GWTG)–HF program appear representative of the overall Medicare HF population. The declining aggregate mortality rates in HF before the HRRP from 2006 to 2010 followed by an increase in mortality rates after 2010 in our report[1] is consistent with multiple national fee-for-service Medicare reports.[2,3] Published analyses using national fee-for-service Medicare data[2] showed a 1.3% absolute increase in 30-day HF mortality rates after vs before the HRRP, which is consistent with the 1.4% absolute increase found in our report,[1] suggesting our findings are indeed generalizable to all hospitals exposed to the HRRP.

Data on continuously enrolled hospitals in the GWTG-HF registry during the study period are detailed in the article.[1] There were 72 814 patients from 119 hospitals who were continuously enrolled during the study period. Further, only the first hospitalization of a given patient was counted as the index hospitalization; any subsequent hospitalizations were considered readmissions. In addition, many index hospitalizations were excluded if patients were younger than 65 years, there was no link between our data and fee-for-service Medicare data, or there was an in-hospital death during the index hospitalization, among others, as detailed in eFigure 1 in the article's Supplement.[1] For these reasons, the article's crude estimate of the number of HF hospitalizations per month that each participating hospital may have contributed to the GWTG-HF registry is inaccurate. The results from

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continuously participating hospital sites were consistent with the overall study population and showed a greater increase in the hazard of 30-day mortality after vs before the HRRP.

Although hospital-level analysis may provide some insights, it is not valid to assess the effect of the HRRP on either readmission or mortality rates by focusing exclusively on hospitals where readmissions declined or analyzing over a limited period of time (monthly intervals in the *JAMA* publication[2]). This is a critical issue because the influence of the HRRP was universal; thus, its consequences must be evaluated across the entire ecology. Hospital-level analyses using a single correlation coefficient are subject to ecological fallacy. The findings of harm at the patient level may result from a greater number of patients served at hospitals where readmissions declined but mortality rates increased. Further, harm at the patient level may have also resulted from hospitals where misguided attempts to reduce readmissions through restrictions on care and access failed to reduce readmissions but caused increased mortality rates. This question of harm is further amplified by the disproportionate effect of financial penalties applied to the most vulnerable hospitals and patients.

The approach to policy evaluation that our report took by using aggregate patient-level analyses is much more relevant and patient-centric.[1] Krumholz et al suggest that the 1.3% increase in 30-day mortality and approximately 2.2% increase in 90-day mortality in patients with HF after HRRP in their study is modest.[2] We take exception to this description, as the differences found may represent 5000 to 10 000 extra premature deaths per year, an unprecedented degree of possible harm resulting from an untested health care policy leading to consequences that are anything but modest.

Our analyses are not in isolation. There are now multiple studies[1–3] demonstrating that implementation of the HRRP was associated with a substantial and worrisome increase in mortality rates in patients hospitalized with HF. A healthy debate over methods is appropriate but should not be allowed to overshadow the immediate need to revisit this policy and reach a new version that addresses health care resource utilization while also putting patients first.

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