One- to 10-Day Versus 11- to 30-Day All-Cause Readmission and Mortality in Older Patients With Heart Failure

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Introduction :

*Heart failure (HF) is the leading cause for 30-day all-cause readmission in older Medicare beneficiaries and 30-day all-cause readmission is associated with a higher risk of mortality.

*However, it remains unclear whether timing of 30-day readmission is associated with mortality. It has been suggested that early 30-day readmissions are potentially more preventable and thus markers of poor quality of care.

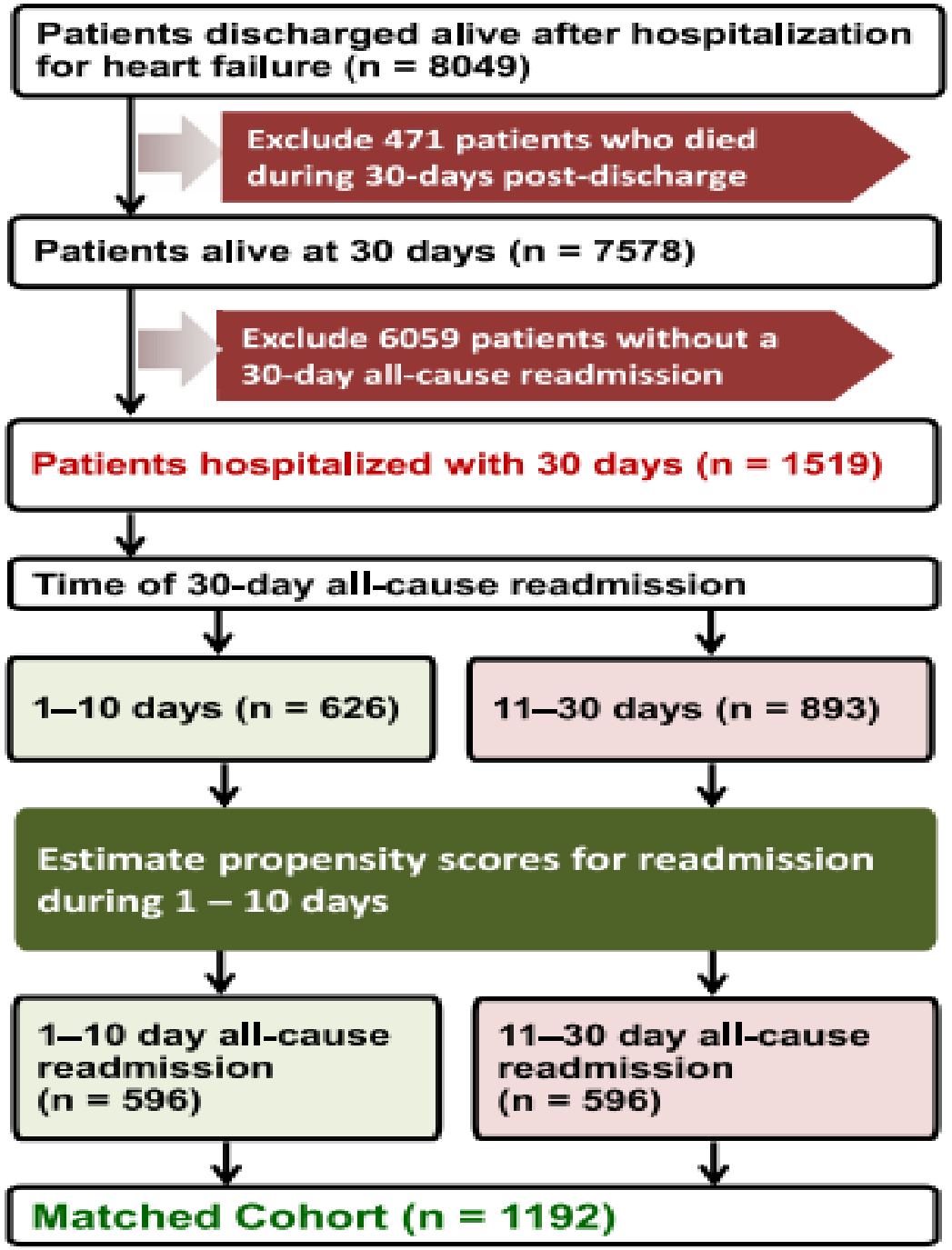
* For hospitalized HF patients, it is also not clear if the association between an early or late 30-day readmission and mortality would vary by the cause of 30-day readmission.

objective :

- The objective of this study was to examine the association between early versus late 30-day readmission, and if this association was modified by cause of 30-day readmission.

Methods :

- In the current analysis, we examined if that association varied by timing of 30-day all-cause readmission. Of the 8,049 Medicare beneficiaries hospitalized for HF, 1,688 had 30-day all-cause readmissions, of whom 1,519 were alive at 30 days. Of these, 626 (41%) had early (first 10 days) 30-day readmission. Propensity scores for early 30- day readmission, estimated for all 1,519 patients, were used to assemble a matched cohort of 596 pairs of patients with early versus late (11 to 30 days) all-cause readmission balanced on 34 baseline characteristics.


Patients discharged alive after hospitalization for heart failure (n = 8049)
Exclude 471 patients who died during 30-days post-discharge
Patients alive at 30 days (n = 7578)
Exclude 6059 patients without a 30-day all-cause readmission
Patients hospitalized with 30 days (n = 1519)
Time of 30-day all-cause readmission
1–10 days (n = 626)
11–30 days (n = 893)
Estimate propensity scores for readmission during 1 – 10 days
1–10 day all-cause readmission (n = 596)
11–30 day all-cause readmission (n = 596)
Matched Cohort (n = 1192)

- They conducted a subgroup analysis to examine if the association between early vs late 30-day readmission and mortality varied between patients readmitted for HF versus for other reasons

results

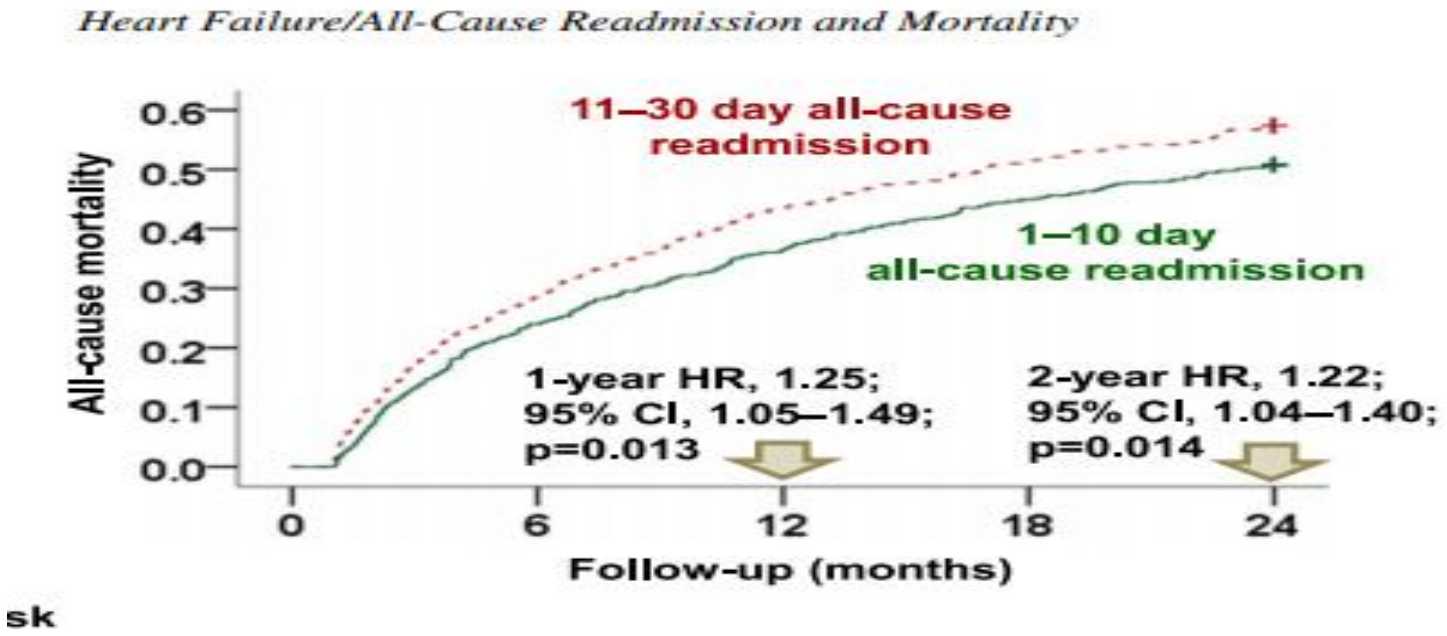
- Two-year all-cause mortality occurred in 51% and 57% of matched patients with early versus late 30-day all-cause readmissions, respectively (hazard ratio [HR] associated with late 30-day readmission, 1.22; 95% confidence interval [CI], 1.04 to 1.42; p = 0.014).

Table 2
All-cause mortality in 1,192 propensity score-matched patients with heart failure who had a 30-day all-cause readmission, by early (1 to 10 days) versus late (11 to 30 days) readmission

Mortality	Events (%)		Hazard ratio* (95% CI); p value
	1—10 days (n = 596)	11—30 days (n = 596)	
1-year	218 (37%)	259 (44%)	1.25 (1.05—1.49); p = 0.013
2-year	303 (51%)	342 (57%)	1.22 (1.04—1.40); p = 0.014

* Hazard ratios when 11- to -30-day readmission was compared with 1-to-10-day readmission.

- Figure 2. Kaplan-Meier plot for all-cause mortality in a propensity-matched cohort of 1,192 older patients with heart failure with a 30-day all-cause readmission, by timing of readmission (CI = confidence interval; HR = hazard ratio; HRs when 11-to-30-day readmission was compared with 1-to-10-day readmission)



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- This association was not observed in the subset of 436 patients whose 30-day all-cause readmission was due to HF, 2-year all-cause mortality occurred in 60% and 59% of patients with early versus late 30-day all-cause readmissions (HR, 1.01; 95% CI, 0.79 to 1.28; p = 0.963),
- but was observed in the subset of 756 patients whose 30-day all-cause readmission was not due to HF, 2-year all-cause mortality occurred in 45% and 56% of patients with early versus late 30-day all-cause readmissions, respectively (HR associated with late readmission, 1.37; 95% CI, 1.11 to 1.67; p = 0.002).

Conclusion:

- in a high-risk subset of older hospitalized HF patients readmitted within 30 days, readmission during 11 to 30 (vs 1 to 10) days was associated with a higher risk of death and this association appeared to be more pronounced in those readmitted for non–HF-related reasons.