# SUPPLEMENTAL MATERIAL

**Table S1. Variable Missing Rates and Imputation Methods for Model Covariates.**

| Variable | Missing Rate | Note on Missing Imputation |
|---|---|---|
| Demographics | | |
| Age* | 0 | |
| Female | 0 | |
| Race | 2.41 | Recode as "Other" |
| SES | 0 | |
| Medical history: any field except smoking | 5.25 | Impute to "No," as we assume it was not checked when none applied |
| Medical history: smoking | 0.26 | Impute to "No," as we assume it was not checked when none applied |
| Vitals on admission | | |
| Heart rate, bpm* | 12.59 | Multiple imputation |
| SBP, mmHg* | 11.45 | Multiple imputation |
| DBP, mmHg* | 11.45 | |
| BMI* | 32.71 | |
| LVEF groups | 1.18 | Recode category based on multiple imputed EF |

| | | |
|---|---|---|
| EF source | 1.18 | |
| EF, %* | 5.91 | Multiple imputation |
| Lab measures | | |
| Serum sodium, mEq/L* | 33.38 | Multiple imputation |
| BNP, pg/mL* | 47.18 | |
| NT-proBNP, pg/mL* | 91.81 | |
| Serum creatinine, mg/dL* | 24.72 | |
| BUN, mg/dL* | 33.04 | Multiple imputation |
| Discharge year of index hospitalization* | 0 | |
| LOS | 0 | |
| Transferred-in | 6.21 | Impute to "No" |
| Hospital characteristics | | |
| Number of beds* | 0.06 | Impute to median |
| Geographic region | 0 | |
| Rural location | 0 | |
| Teaching status | 0.24 | Impute to "No," as we assume teaching hospitals are well identified in |

| | | |
|---|---|---|
| | | GWTG-HF Registry |
| Heart transplant site | 10.66 | Impute to "No," as we assume hospitals capable of performing heart transplant are well identified in GWTG-HF Registry |

[*]Continuous variables

Shaded variables are model covariates.

BMI indicates body mass index; BNP, b-type natriuretic peptide; bpm, beats per minute; BUN, blood urea nitrogen; DSP, diastolic blood pressure; EF, ejection fraction; LOS, length of stay; LVEF, left ventricular ejection fraction; NT-proBNP, N-terminal pro B-type natriuretic peptide; SBP, systolic blood pressure; SES, socioeconomic status