| Table J-17. Studies evaluating independent predictive value of NT-proBNP for the outcome of all-cause mortality - admission and discharge (from 24 months to 7 years) in patients with decompensated heart failure | | | | | | | | |
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| **Author**  **Year** | **Study Design**  **Population** | **n**  **Mean Age (SD)**  **% male** | **BNP Levels (pg/mL)** | **Prognostic Markers** | **Followup**  **Outcomes**  **(#events, #risk)** | **Model** | **Adjusted/Non-adjusted Covariates** | **Measure(s) of Risk (95% CI,)** |
| Andersson68  2008 | Cohort  Elderly patients (age >65y) admitted to ED with HF | n=365  mean age:  alive=80y (73-85)\*\*  dead=83y (78-88)\*\*  51.0% male | ADM mean:  alive=5,734 (3,696-10,966)\*\*  dead=1,668 (6,337-28,605)\*\*  D/C mean: NR  Cutpoint: NR | log2NT-proBNP, age, systolic BP, furosemide, ACE inhibitors/ARBs | 24m  All-cause mortality  (127, 365) | Multivariable cox regression | Age, systolic BP, furosemide, ACE inhibitors/ARBs | ADM: HR=1.6 (1.4-1.9) per doubling the NT-proBNP levels, p<0.001 |
| Cohort  Patients in Q2 (NT-proBNP, 3,001-5,000) vs. Q1 (NT-proBNP <3,000) | n=131  mean age:  NR  % male: NR | ADM mean: NR  D/C mean: NR  Cutpoint: 3,001-5,000 | NT-proBNP (quartiles), LVEF, NYHA class, chest radiology | 24m  All-cause mortality  (NR) | Multivariable cox regression | LVEF, NYHA class, chest radiology | ADM: HR=3.4 (0.79-15.0), p=0.10 |
| Cohort  Patients in Q3 (NT-proBNP, 5,001-10,000) vs. Q1 (NT-proBNP <3,000) | n=129  mean age:  NR  % male: NR | ADM mean: NR  D/C mean: NR  Cutpoint: 5,001-10,000 | NT-proBNP (quartiles), LVEF, NYHA class, chest radiology | 24m  All-cause mortality  (NR) | Multivariable cox regression | LVEF, NYHA class, chest radiology | ADM: HR=4.5 (1.1-19.0), p=0.04 |
| Cohort  Patients in Q4 (NT-proBNP >10,000) vs. Q1 (NT-proBNP <3,000) | n=165  mean age:  NR  % male: NR | ADM mean: NR  D/C mean: NR  Cutpoint: >10,000 | NT-proBNP (quartiles), LVEF, NYHA class, chest radiology | 24m  All-cause mortality  (NR) | Multivariable cox regression | LVEF, NYHA class, chest radiology | ADM: HR=7.4 (1.8-30.0), p=0.006 |
| Pascual-Figal74  2011 | Cohort  Patients admitted with acute decompensated HF | n=107  mean age:  72y (13)  56.0% male: | ADM mean: 3,724 (1,954-7,666)\*\*  D/C mean: NR  Cutpoint: NR | NT-proBNP, sST2, hs-cTnT, age, sex, BMI, Hb, NYHA class, BUN, prior MI, creatinine, LVEF | 739\*\* d  All-cause mortality  (29, 107) | Bootstrapped multivariable cox regression | sST2, hs-cTnT, age, sex, BMI, Hb, NYHA class, BUN, prior MI, creatinine | HR=1.005 (1.000-1.01) per 100pg/mL increase |

| Table J-17. Studies evaluating independent predictive value of NT-proBNP for the outcome of all-cause mortality - admission and discharge (from 24m to 7 years) in patients with decompensated heart failure (continued) | | | | | | | | |
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| **Author**  **Year** | **Study Design**  **Population** | **n**  **Mean Age (SD)**  **% male** | **BNP Levels (pg/mL)** | **Prognostic Markers** | **Followup**  **Outcomes**  **(#events, #risk)** | **Model** | **Adjusted/Non-adjusted Covariates** | **Measure(s) of Risk (95% CI,)** |
| Harutyunyan79  2012  ECHO | Cohort  Patients with HF and severe LVSD | n=717  mean age:  70y (NR)  73.0% male | ADM mean: NR  D/C mean: NR  Cutpoint: NR | log2NT-proBNP, age, gender, and LVEF, Hb, history of HF, ischemic HD, COPD, stroke/TIA, and DM, log2hs-CRP, eGFR | 6.8y  All-cause mortality  (458, 717) | Multivariable cox regression | Age, gender, and LVEF,  Hb, history of HF, ischemic HD, COPD, stroke/TIA, and DM, log2hs-CRP, eGFR | ADM HR=1.28 (1.15, 1.44), p<0.0001 |

**Abbreviations:** ACE = angiotensin converting enzyme; ADM = admission; ARB = angiotensin receptor blockers; BMI = body mass index; BNP = B-type natriuretic peptide; BP = blood pressure; BUN=blood urea nitrogen; 95% CI, = confidence interval; COPD = chronic obstructive pulmonary disease; d = day(s); D/C = discharge; DM = diabetes mellitus; ECHO = EchoCardiography and Heart Outcome Study; ED = emergency department; eGFR = estimated glomerular filtration rate; Hb = hemoglobin; HD = heart disease; HF = heart failure; HR = hazard ratio; hs-CRP = high-sensitivity c-reactive protein; hs-cTnT = high-sensitivity cardiac troponin T; LVEF = left ventricular ejection fraction; LVSD = left ventricular systolic dysfunction; m = month(s); MI = myocardial infarction; n=number; NR = not reported; NS = non-significant; NT-proBNP = N-terminal pro-B-type natriuretic peptide; NYHA = New York Heart Association; OR = odds ratio; pg/mL = picograms per milliliter; RR = relative risk; SD = standard deviation; sST2 = soluble ST2; TIA = transient ischemic attack; vs. = versus; y = year(s)