Table 1. The Most Frequently Used Variables, Along With the Number of Times Used in the Different Models, and Their Predictive Scores.

		Odds Ratio			Hazard Ratio		
		z-Score	Mean	95% CI	z-Score	Mean	95% CI
CHF and ADHF							
Age, yrs	78	17,656	1.04	1.03 to 1.04	20,728	1.06	1.06 to 1.07
Sex	53	15,542	1.12	1.11 to 1.14	10,813	1.22	1.19 to 1.26
Systolic blood pressure	51	31,799	1.3	1.29 to 1.32	19,353	1.16	1.15 to 1.18
Sodium	46	33,502	1.41	1.39 to 1.43	30,343	1.09	1.08 to 1.09
Diabetes	41	15,849	1.14	1.12 to 1.15	21,227	1.44	1.41 to 1.47
Creatinine	38	34,191	1.12	1.11 to 1.13	10,411	1.07	1.05 to 1.08
New York Heart Association functional class	35	15,109	4.14	3.96 to 4.33	17,683	1.41	1.37 to 1.45
Blood urea nitrogen	28	60,698	2.28	2.26 to 2.31	12,495	1.07	1.06 to 1.09
Ejection fraction	23				12,843	1.08	1.07 to 1.1
Hemoglobin	23	15,346	1.12	1.11 to 1.14	8,526	1.08	1.06 to 1.1
(N-terminal pro) B-type natriuretic peptide	23				15,327	1.44	1.39 to 1.49
CHF							
Age, yrs	75	17,566	1.04	1.03 to 1.04	20,650	1.06	1.06 to 1.07
Sex	53	15,542	1.12	1.11 to 1.14	10,813	1.22	1.19 to 1.26
Systolic blood pressure	46	54,716	1.16	1.15 to 1.16	18,647	1.18	1.16 to 1.19
Sodium	44	33,502	1.41	1.39 to 1.43	36,527	1.07	1.06 to 1.07
Diabetes	41	15,849	1.14	1.12 to 1.15	21,227	1.44	1.41 to 1.47
Creatinine	37	34,191	1.12	1.11 to 1.13	10,411	1.07	1.05 to 1.08
New York Heart Association functional class	34	15,109	4.14	3.96 to 4.33	17,506	1.41	1.37 to 1.44
Blood urea nitrogen	25	61,497	2.37	2.34 to 2.39	12,014	1.07	1.06 to 1.08
Ejection fraction	23				12,843	1.08	1.07 to 1.1
(N-terminal pro) B-type natriuretic peptide	23				27,196	1.11	1.1 to 1.12
Etiology	22				6,795	1.23	1.17 to 1.29
ADHF							
Systolic blood pressure	7	2,181	1.22	1.04 to 1.41	0.378	1.28	-0.01 to 2.57
Age,yrs	6	8,454	1.46	1.37 to 1.55	0.254	1.27	-0.57 to 3.11
Blood urea nitrogen	4	0.25	1.26	-0.55 to 3.07	0.339	1.33	-0.32 to 2.98

Heart Failure admissions	4	12,443	1.44	1.39 to 1.5	0.737	2	
Sodium	4	0.53	1.53	-0.04 to 3.1	1,663	1.33	0.99 to 1.67
Dementia/Alzheimer	3	6,306	2.42	2.15 to 2.7			
Cancer	2	0.827	1.86	0.39 to 3.33			
Cerebrovascular	2	0.41	1.43	-0.28 to 3.14			
Creatinine	2						
Sex	2	0.636	1.63	0.13 to 3.13	0.438	1.33	

Table 2. c-statistics of the BIOSTAT-CHF prediction models (standard error in brackets).

	Mortality	Hospitalisation	Mortality & Hospitalisation
Baseline Clinical model	0.74 (±0.004)	0.694 (±0.004)	0.709 (±0.004)
Model+biomarkers	0.751(±0.004)	0.71 (±0.004)	0.719 (±0.004)
Model+biomarkers +Proteomic data	0.751 (±0.004)	0.709 (±0.004)	0.724 (±0.004)
Model+biomarkers +Proteomic data+Genetic data	0.756 (±0.004)	0.71 (±0.005)	0.726 (±0.004)

Table 3. Clinical Characteristics of Final Validation Cohort (n=1738):

Age (Median / IQR) (years)	75 (67-82)
Males (%)	66%
NYHA functional Class	
I	1%
II	41%

III	44%
IV	14%
Primary Aetiology HF	
Ischaemic	65%
Non-Ischaemic	35%
Previous HF admissions in last year	26%
Clinical History	
Myocardial.infarction	49%
Atrial.fibrillation	44%
Hypertension	58%
Diabetes	32%
COPD	18%
Renal disease	45%
Visit Type	
Outpatient	
Clinics	44%
GP	2%
Inpatient	54%
Echo Data	
Reduced Ejection Fraction	79%
Normal/Preserved EF	16%
No Echo data available	5%
Medications	
ACE Inhibitors	52%
Angiotensin Receptor Blockers	19%
Beta-blockers	73%
Calcium Channel Blockers	9%
Digoxin	18%
Loop Diuretics	99.4%
Warfarin	36%
Statins	63.5%
Metformin	11.5%

Sulfonylureas	8.6%
Insulin	4.4%
Blood Pressure median (IQR)	
SBP	123 (110-140)
DBP	69 (60-77)
HR	72 (62-84)
Anthropometric Measurements	
BMI (kg/m^2)	28.1 (24.6-32.5)
Waist/Hip Ratio	0.97 (0.92-1.03)