

Patients' journey of care following incident heart failure: diagnostic tests, treatments and care pathways in 93,000 patients

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Background: In the UK, outpatient care of heart failure patients, including referrals to specialists, diagnostic investigations, and drug prescriptions, falls under the responsibility of general practitioners. A comprehensive assessment of physicians' adherence to essential care delivery components may help refine service delivery policies and prioritise further research, but current evidence base is limited.

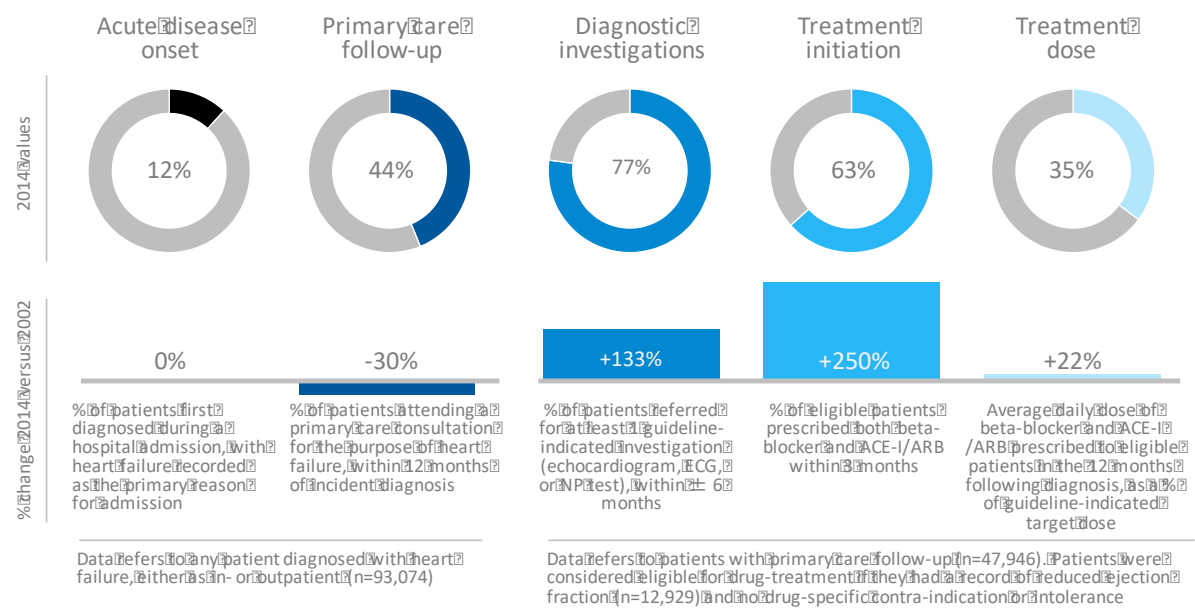
Methods: We used linked primary and secondary electronic health records from the Clinical Practice Research Datalink (CPRD) of 93,000 individuals diagnosed with incident heart failure between 2002 and 2014. We investigated primary care follow-up rates, defined as a heart failure related primary care consultation within 12 months of incident diagnosis. Among those with primary care follow-up ($n=47,946$), we further explored guideline-indicated diagnostic tests within ± 6 months of diagnosis; and in eligible patients (those with reduced ejection fraction with no contraindication or intolerance) we investigated prescriptions for guideline-indicated drug treatments. Logistic regression models were used to examine odds ratios (OR) and 95% confidence intervals, adjusting for year of diagnosis, age, sex, region and socio-economic status.

Results: The proportion of patients with primary care follow-up, declined over time, from 63% in 2002 to 44% in 2014 ($p<0.01$). In parallel, among those with primary care follow-up, guideline-indicated diagnostic investigations and treatment initiation increased substantially. In 2014 77% of patients were referred for either a natriuretic peptides test, an echocardiogram or an electrocardiogram, compared with 33% in 2002 ($p<0.01$); while 63% of eligible patients were prescribed both beta-blockers (BB) and either an angiotensin-converting-enzyme inhibitor (ACE-I) or angiotensin receptor blocker (ARB) within 3 months of diagnosis, compared with 18% in 2002 ($p<0.01$). However, in 2014, the average daily dose prescribed in the 12 months following diagnosis remained far below guideline-indicated target dosages: 49% for ACE-I or ARB, 29 % for BB; and showed no signs of consistent increment, despite guideline recommendations to regularly uptitrate doses. Men were more likely to receive guideline-indicated diagnostic tests (OR: 1.46 [1.41, 1.52]), treatments (OR: 1.28 [1.12, 1.47]), and primary care follow-up (OR: 1.22 [1.19, 1.25]). Patients aged over 75 years were less likely to receive treatments (OR: 0.71 [0.60, 0.85]), and primary care follow-up (OR: 0.65 [0.59, 0.72]).

Conclusion: In the UK, general practitioners' uptake of guideline-indicated diagnostic tests and treatments have increased over time. However, medication dosages remain far below the guideline-indicated target dosages and significant care gaps were observed in women and the elderly. Moreover, the declining number of patients who receive heart failure care in the primary care setting is concerning and may affect the overall care of patients with heart failure.

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Figure: Patients’ journey of care following incident heart failure.



Abbreviations: CPRD = Clinical Practice Research Datalink, NP = natriuretic peptides, ECG = electrocardiogram, ACE-I = angiotensin-converting-enzyme inhibitor, ARB = angiotensin receptor blocker.