

See [Articles](#) page e406

Decreasing mortality masks a growing morbidity gap in patients with heart failure

Despite substantial decreases in mortality due to cardiovascular disease in the UK, inequalities in cardiovascular disease¹ and its associated mortality burden² have persisted. Within cardiovascular disease, heart failure poses an increasing health burden and challenge to health-care services with finite resources, due to lower case fatality than other cardiovascular diseases with earlier onset (eg, myocardial infarction) and an ageing population. 5-year survival rates in patients with heart failure is as poor as for several common cancers³ but estimates of the breadth of outcomes, and how such outcomes vary according to sex, age, and socioeconomic status is lacking. However, as the impact of this chronic condition increases on health services, the nature of living with, rather than dying from, heart failure is of increasing importance to patients and health services alike. Claire Lawson and colleagues⁴ Article in *The Lancet Public Health* provides one of the first studies of its scale to examine trends in secondary outcomes of heart failure and corresponding socioeconomic inequalities.

The authors used the Clinical Practice Research Datalink, which has data from primary care practices in England, UK, covering approximately 7% of the population, and linked it to Hospital Episodes Statistics database and national mortality data from the Office for National Statistics for the 20-year period, 1998–2017. They identified primary heart failure cases and followed them up until either admission to hospital (ie, hospitalisation) or death to estimate rates and trends in morbidity and mortality. They identified more than 88 000 patients with incident heart failure over the 20-year study period, with a mean age of 77.8 years (SD 11.3) at diagnosis of heart failure. The authors found a 6% cumulative decrease in age-adjusted all-cause mortality in the first year after diagnosis of heart failure over the study period but the improved survival was not matched by improved morbidity, with a cumulative 28% increase in age-adjusted all-cause hospitalisation in the first-year after diagnosis of heart failure over the study period, with the largest increase (42%) seen in hospitalisation due to non-cardiovascular disease events. Trends diverged substantially by age, with the older age groups (≥ 80 years) driving the increase in

hospitalisations, with a 3.0–4.4% annual increase over the study period. By contrast, little change was seen in hospitalisation in those younger than 70 years over the same period. The largest increases in hospitalisations, as for mortality, were attributable to non-cardiovascular disease causes in an ageing population with multiple morbidities.⁵

The increasing morbidity in patients with heart failure is puzzling and worrying, particularly given the general success in decreasing secondary outcomes in people with other related chronic conditions like diabetes and cardiovascular disease.^{6,7} As such, this study raises several unanswered questions. For example, are the shifts in the demographic characteristics of the underlying population driving these trends? Is multimorbidity making patients with heart failure more complex to manage given the inherent restraints across a traditional single-disease focus of health services? Finally, would a more thorough analysis of disaggregation of the growing portion of hospitalisations due to non-cardiovascular disease causes better inform preventive efforts to tackle this growing burden equitably?

Previous work⁵ using the same primary care dataset highlighted the scale of the heart failure burden in England. While this study⁵ estimated a decrease in the incidence of heart failure from 2002–14, it found a 23% increase in the number of people living with heart failure, largely driven by age and population growth. This previous work identified increases in age and multimorbidity at diagnosis of heart failure. Lawson and colleagues' study⁴ builds on this previous work to characterise the patient journey and their outcomes from heart failure diagnosis onwards. By identifying incident cases in primary care and following them up, rather than relying on hospital diagnoses alone, this study provides a comprehensive overview on morbidity and cause-specific health service use through to ultimate cause of death.

Lawson and colleagues' timely study highlight two interlinked themes, consistent with a growing body of evidence and emerging consensus across the health sphere: inequalities in health outcomes are either persisting or worsening, with even larger inequalities in

morbidity than for mortality,⁸ and the rapid emergence of multimorbidity, with the number of patients admitted to hospital with five or more conditions increasing from 10% to 33% over the past decade.⁹ Current services are not designed to effectively manage a growing multimorbid society, and this emerging threat attenuates existing socioeconomic inequalities.

Lawson and colleagues found a persistent higher rate of hospitalisation in the most deprived socioeconomic quintile than in the most affluent quintile, with the largest inequality gap evident in the number of hospitalisations due to non-cardiovascular disease causes being much higher in the most deprived quintile than in the most affluent quintile (101.7 [95% CI 93.9–109.5] per 100 person-years vs 73.4 [68.3–78.6] per 100 person-years). Furthermore, non-cardiovascular disease was the primary diagnosis in 73% of all hospitalisations in patients with heart failure, and those who were diagnosed with heart failure in a hospital consistently had worse outcomes both in hospitalisations and mortality compared with those who had been diagnosed in the community did. These findings suggest that improving the morbidity of this patient group will require preventive action that is patient focused rather than disease focused. Research using integrated health-care datasets, as in Lawson and colleagues' study, are important to characterise such changes and make the compelling case for a fundamental reorganisation of how management of chronic diseases is organised, from single-disease focus towards a more holistic, morbidity-focused service with the patient truly at the centre of each and every care pathway. Without a coherent approach to morbidity in

patients with chronic diseases with multiple long-term conditions, efforts to decrease inequalities in outcomes of chronic diseases might be futile.

*Jonathan Pearson-Stuttard, Edward W Gregg

Department of Epidemiology and Biostatistics and MRC-PHE Centre for Environment and Health, School of Public Health, Imperial College London, London W2 1NY, UK
j.pearson-stuttard@imperial.ac.uk

Copyright © 2019 The Author(s). Published by Elsevier Ltd. This is an Open Access article under the CC BY 4.0 license.

- 1 Pearson-Stuttard J, Bajekal M, et al. Recent UK trends in the unequal burden of coronary heart disease. *Heart* 2012; **98**: 1573–82.
- 2 Bennett JE, Pearson-Stuttard J, Kontis V, Capewell S, Wolfe I, Ezzati M. Contributions of diseases and injuries to widening life expectancy inequalities in England from 2001 to 2016: a population-based analysis of vital registration data. *Lancet Public Health* 2018; **3**: e586–97.
- 3 Askoxylakis V, Thieke C, Pleger ST, et al. Long-term survival of cancer patients compared to heart failure and stroke: a systematic review. *BMC Cancer* 2010; **10**: 105.
- 4 Lawson CA, Zaccardi F, Squire I, et al. 20-year trends in cause-specific heart failure outcomes by sex, socioeconomic status, and place of diagnosis: a population-based study. *Lancet Public Health* 2019; **4**: e406–20.
- 5 Conrad N, Judge A, Tran J, et al. Temporal trends and patterns in heart failure incidence: a population-based study of 4 million individuals. *Lancet* 2018; **391**: 572–80.
- 6 Desai JR, Vazquez-Benitez G, Xu Z, et al. Who must we target now to minimize future cardiovascular events and total mortality?: Lessons from the Surveillance, Prevention and Management of Diabetes Mellitus (SUPREME-DM) cohort study. *Circ Cardiovasc Qual Outcomes* 2015; **8**: 508–16.
- 7 Gregg EW, Cheng YJ, Srinivasan M, et al. Trends in cause-specific mortality among adults with and without diagnosed diabetes in the USA: an epidemiological analysis of linked national survey and vital statistics data. *Lancet* 2018; **391**: 2430–40.
- 8 Office for National Statistics. An overview of lifestyles and wider characteristics linked to Healthy Life Expectancy in England: June 2017. June 28, 2017. <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthinequalities/articles/healthrelatedlifestyleandwidercharacteristicsofpeoplelivinginareaswiththehighestorlowesthealthylife/june2017> (accessed July 4, 2019).
- 9 Stafford M, Thorlby R, Fisher R, Turton C, Deeny S. Understanding the health care needs of people with multiple health conditions. The Health Foundation, November, 2018. <https://www.health.org.uk/publications/understanding-the-health-care-needs-of-people-with-multiple-health-conditions> (accessed July 4, 2019).