



Heart Failure: A Multisystem Cardiometabolic Disease

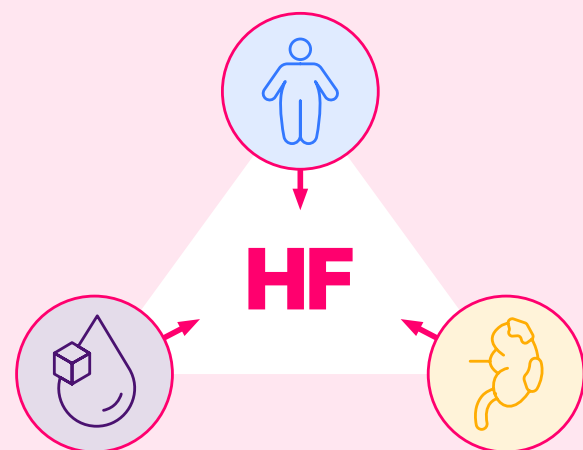
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Introduction and Epidemiology

HF is a clinical syndrome in which **structural** or **functional abnormalities** impair cardiac **filling** or **ejection**.¹

Global prevalence has more than **doubled** from **25.43 million** people in 1990 **to** **>64 million** people in 2023 and remains a **leading cause of hospitalisation** in **adults aged >65 years**.^{1,2}

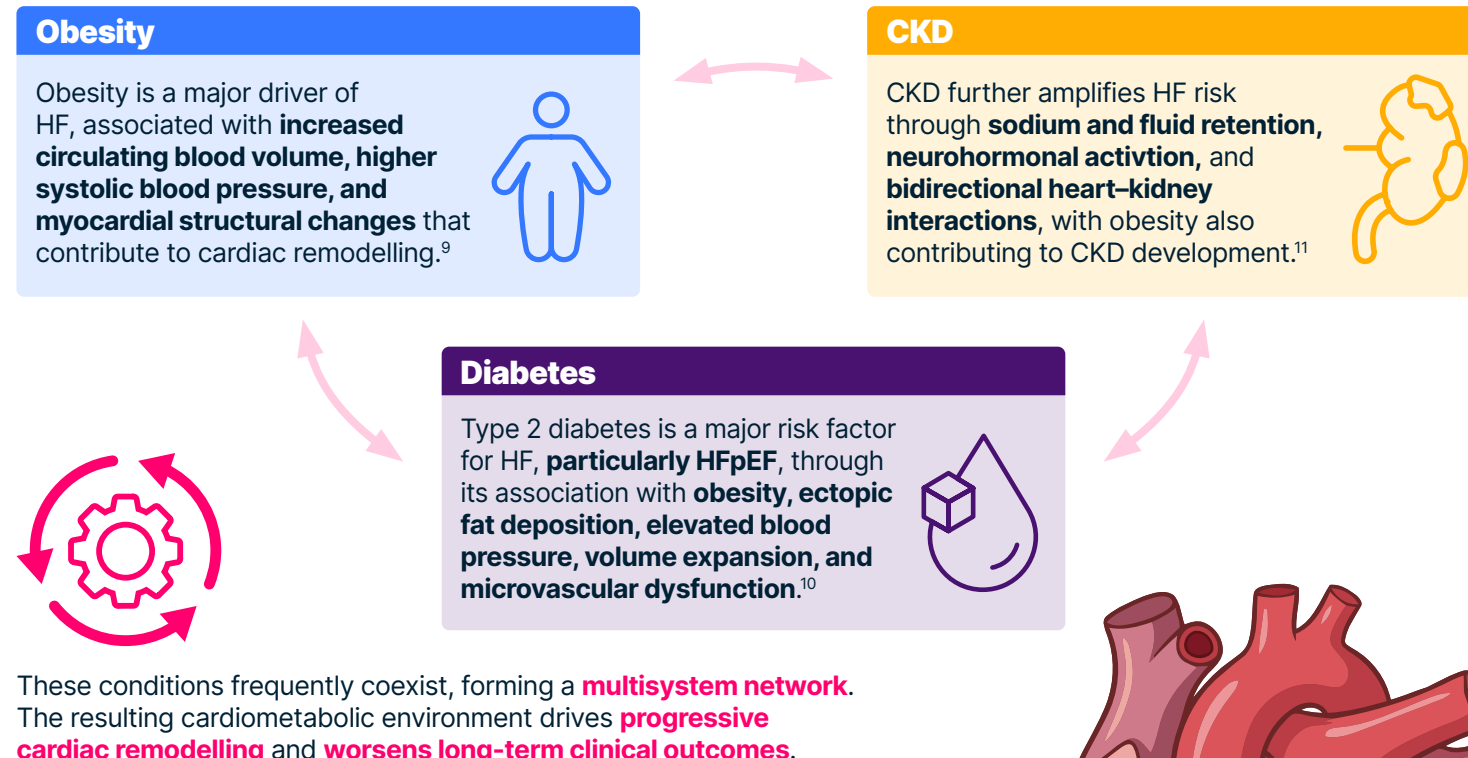
UK prevalence is projected to **double** by **2040**.^{3,4}



Increasingly driven by **obesity**, **diabetes**, and **CKD**, HF (particularly HFpEF) is now recognised as a **systemic cardiometabolic disorder**.^{5–7}

Cardiometabolic Drivers of HF

HF increasingly develops within a **cardiorenal–metabolic continuum**, in which **hypertension**, **metabolic disease**, **vascular dysfunction**, and **multiorgan interactions** contribute to progressive **myocardial impairment**.⁸



Expert Opinions

“With rising levels of obesity and Type 2 diabetes, along with improved survival among individuals living with obesity, **the prevalence of heart failure – particularly HFpEF – is increasing**. This condition is now widely recognised to have a strong metabolic basis.”

– **Naveed Sattar**,
University of Glasgow, UK

“In terms of tackling obesity, **GLP-1 receptor agonists lead to effective weight loss**, but **loss of muscle mass in addition to fat mass**. Incorporating **isometric and resistance exercises** may be essential to minimise the loss of muscle mass and strength, especially in older people.”

– **Carl Lavie**,
Ochsner Medical Center, New Orleans, Louisiana, USA

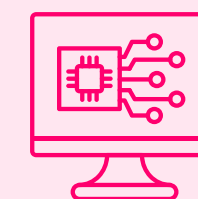
Early Detection and Precision Intervention

Earlier identification of HF risk is a key priority. **Natriuretic peptides** remain central to diagnosis and risk stratification, while additional biomarkers of inflammation and fibrosis are under investigation for their potential role in risk assessment and disease characterisation.¹²



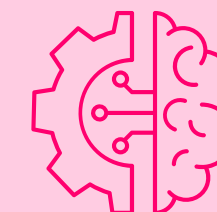
Advanced imaging, including **strain imaging** and **cardiac magnetic resonance**, can identify **subclinical myocardial dysfunction** before overt HF develops.¹³

Wearables and remote monitoring allow continuous tracking of **physiological signals**, such as heart rhythm and activity.¹⁴



AI algorithms increasingly analyse these data, detecting early signs of dysfunction.¹⁵

AI is also being applied to **ECG and imaging** to predict future HF risk, supporting a shift towards **predictive, data-driven care**.¹⁶



Abbreviations:

CKD: chronic kidney disease; HF: Heart failure; HFpEF: Heart failure with preserved ejection fraction

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