

# The impact of an inpatient heart failure team at a Tertiary Cardiac Centre in Wales

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Heart failure (HF) is common, affecting 1-2% of the population and is the leading cause of acute hospital admission in patients over 65<sup>1</sup>. More than 900,000 people are diagnosed in the UK and this is increasing with our ageing population<sup>2</sup>.

The management of HF has a huge financial burden on the NHS at £2.3 billion a year or 2% of the whole NHS budget<sup>3</sup>, with 70% spent on in-patient care<sup>4</sup>. In 80% of cases, the diagnosis occurs in hospital, despite 40% of patients experiencing symptoms that could have prompted an earlier review which might have prevented the admission<sup>5</sup>.

During hospitalisation, patient outcomes improve with specialist team involvement and guidelines focus on delivering care on specialist cardiology wards<sup>1,6</sup>.

Morriston Hospital is a regional tertiary centre providing specialist cardiac services to the 1.1m population of South West Wales. Due to restrictive cardiac bed capacity it has not been considered practical to deliver most HF management within the cardiac centre and care has historically been delivered on general wards with limited specialist team input.

In 2018, we introduced a hospital wide heart failure ward round to address this and demonstrated a significant improvement in quality of care and patient outcomes. Further developments of the HF service have included daily NT-proBNP testing and an additional heart failure nurse, but their impact has not yet been assessed.

## OBJECTIVE

The project aims to evaluate the impact of offering additional heart failure specialist input in the form of NT-proBNP testing and an additional nurse on inpatients with a primary diagnosis of heart failure with reduced ejection fraction with EF ≤40% (HFrEF), irrespective of their location within the hospital.



## METHOD

We identified all patients discharged from our hospital with a primary diagnosis of HFrEF between September '21 and February '22. We collected data related to the NICE quality standards for management of acute heart failure<sup>1</sup>.

We compared our data to previous baseline data collected from September '18 to February '19 to assess the impact of the service changes implemented.

## RESULTS

The number of patients admitted with a primary diagnosis of HFrEF increased by 43% from 58 (2018-9) to 83 (2021-2). In both periods, patients were of similar age (74 v. 76 years, p=0.38). The patients' characteristics are summarised in **Table 1**

**Table 2** compares those seen versus those not seen by the heart failure team.

**Table 3** shows that more patients had NT-proBNP testing, more patients were seen by the heart failure team but 16% did not receive specialist input. Good levels of medical treatment were achieved<sup>6</sup>, but few patients were seen within 2 weeks of discharge.

**Graph 1** shows the association between being seen by a heart failure team and achievement of guideline directed therapy at discharge (deaths excluded).

**Graph 2** shows the association between being seen by the team and mortality and readmission.

Table 1 Demographics	n=83
Age (mean)	75 years
Male	52 (63%)
Location	
Cardiology	55 (66%)
Medicine	24 (29%)
Surgery	4 (5%)
Length of Stay (mean)	7.4 days
NT-proBNP (mean)	13466ng/l

Table 2 Population	n(%)	EF	NT-proBNP	Age
Seen by HF team	70(84)	26%	14191	76
Not seen by HF team	13(16)	30%	8471	75

Table 3 NICE Quality Standard	2018-19 (n=58)	2021-22 (n=83)	P value
QS1 – NT-proBNP	32.8%	85.5%	p < 0.05
QS2 - Echo < 48hrs	79.3%	79.5%	p = 0.97
QS3 - Heart Failure Team	62.1%	84.3%	p < 0.05
QS4 - Betablocker	No data	97%	
QS5 - ACE inhibitor / MRA	No data	87% 65%	
QS6 - Review within 2 weeks	13.8%	8.4%	p = 0.31

## CONCLUSION

Our original QIP in 2018 showed that a HF team improves outcomes irrespective of patient location within the hospital.

The 43% increase in patients admitted with a primary diagnosis of HFrEF since 2018 is likely to reflect increased prevalence, increased awareness of heart failure in inpatients, access to NT-proBNP to make the diagnosis and access to the expanded heart failure specialist team. Of those admitted, more had NT-proBNP measured, there was no change in the proportion having an echocardiogram in under 48hours, but more were referred to the heart failure team.

The proportion of patients on each drug treatment for HFrEF and on quadruple therapy was numerically higher in patients seen by the team compared to those not seen. There was a numerical reduction in readmission at >30 days, inpatient mortality and mortality post discharge in patients seen by the team.

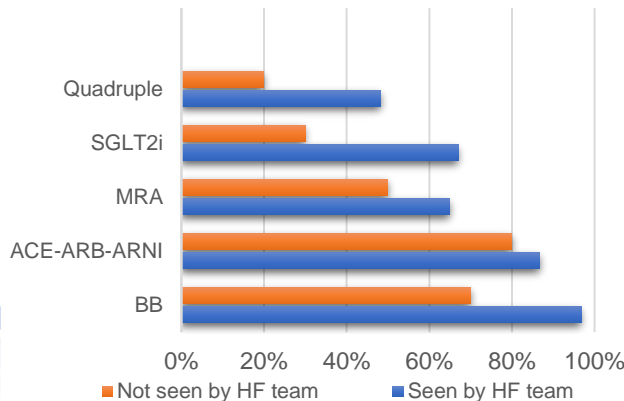
Despite this, a minority of patients admitted to our hospital with a primary diagnosis of heart failure are not referred for specialist team input and the reasons are unclear.

This is observational data and there may be confounders in the reasons why patients are referred to the team that influence outcomes.

## REFERENCES

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Graph 1 Heart failure therapies on discharge n=70



Graph 2 Mortality and readmissions

