

# The barriers to effective management of heart failure in general practice

J A Hickling, I Nazareth and S Rogers

## SUMMARY

**Background:** Several studies have shown that most patients with heart failure are not investigated and treated according to published guidelines. More effective management could reduce both mortality and morbidity from heart failure.

**Aim:** To identify the reasons for gaps between recommended and actual management of heart failure in general practice.

**Design of study:** A nominal group technique was used to elicit general practitioners' (GPs') perceptions of the reasons for differences between observed and recommended practice.

**Setting:** Ten Medical Research Council General Practice Framework practices in the North Thames region.

**Method:** Data were collected on the investigation and treatment of heart failure in the 10 participating practices and presented to 49 GPs and 10 practice nurses from those practices.

**Results:** Of the 674 patients requiring echocardiograms, 226 were referred for echocardiography (34%), and 183/391 (47%) with probable heart failure were prescribed angiotensin-converting enzyme inhibitors. A wide variety of barriers were elicited. The main barrier to the use of echocardiograms in the diagnosis of heart failure was lack of open access. The main barrier to the use of angiotensin-converting enzyme inhibitors in treating heart failure was GPs' concerns about their possible adverse effects.

**Conclusion:** The barriers to the effective management of heart failure in general practice are complex. We recommend further research to establish whether multifaceted intervention programmes based on our findings can improve the management of heart failure in primary care.

**Keywords:** congestive heart failure; evidence-based guidelines; angiotensin-converting enzyme inhibitor; attitude of health personnel.

## Introduction

HEART failure affects between 1.3% and 2.9% of people in the United Kingdom and up to 8% of people over 65.<sup>1-3</sup> Prevalence rates are predicted to rise significantly<sup>4</sup> and the five-year survival rate for patients who survive the first 90 days is 50%.<sup>5</sup> Evidence-based guidelines recommend echocardiograms (or ventriculograms) for assessing patients with possible chronic heart failure and angiotensin-converting enzyme (ACE) inhibitors to reduce morbidity and mortality;<sup>6</sup> however, only a minority of patients are investigated with echocardiograms or treated with ACE inhibitors.<sup>1,2</sup>

Existing barriers to change must be identified before research evidence can be successfully implemented in clinical practice.<sup>7</sup> Barriers in general practice can exist at the level of the organisation, the patient, the doctor, and the doctor-patient interaction.<sup>8</sup> Previous studies have used structured interviews<sup>9</sup> or questionnaires<sup>10</sup> to address a limited range of barriers to the optimal management of heart failure and produced some contradictory results that ignored the wider complexities of general practice.

This study aims to allow practitioners to determine and rank a broader range of barriers relating to actual practice. We used a novel practice-based approach, combining the presentation of data on current management of heart failure with the nominal group technique to elicit and rank relevant barriers.

## Method

### Practices

Medical Research Council General Practice Research Framework (MRCGPRF) practices in the North Thames Region were invited to participate in a programme to improve cardiovascular disease management. Smaller practices were not suitable for the approaches being investigated and were excluded, leaving 45 eligible practices, of which 20 agreed to participate. Eight entered a feasibility study for an intervention trial and 12 participated in a study of current practice. Ten of these participated in the nominal group process and feature in this paper.

### Assessment of current management of heart failure

Patients aged 60 years and over who were prescribed loop diuretics were identified from computerised records. The aim was to review between 75 and 100 case notes per practice and a variable sample fraction was used to achieve this. Overall, 61% of eligible case notes were sampled and data collected on medical history, symptoms, signs, investigations, and diagnoses. Information on prescription of ACE inhibitors was collected from computerised records. Cases

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**HOW THIS FITS IN**

*What do we know?*

The investigation and treatment of heart failure is currently inadequate. The reasons for this are poorly understood.

*What does this paper add?*

A wide variety of complex barriers to the effective management of heart failure exist in general practice. A multi-faceted intervention to overcome these barriers may be the most effective method of improving heart failure management. Further research is required to confirm this.



- For each question, participants were encouraged to list any relevant factor on paper in private.
- Each participant was then asked in turn to offer one factor they had recorded and these were listed on a flip chart by JH until no more were offered.
- Clarification stage: the group discussed each factor, and where appropriate, combined two or more factors that were thought to overlap significantly.
- Participants ranked the five factors they thought were most 'important' in private: five points for the most important, four points for the second most important and so on.
- The sum of each factor's scores was then calculated for each practice.

*Box 1. Nominal group process.*

were classified as probable, possible or unlikely, drawing on a published algorithm for the diagnosis of heart failure.<sup>6</sup> Difficult cases were resolved by discussion among the investigators. We calculated the number of patients investigated by echocardiogram or ventriculogram as a percentage of all those who should have undergone such investigation. The denominator included all patients classified with probable and possible heart failure, plus those patients unlikely to have heart failure who had undergone imaging showing normal cardiac function. It was assumed that the latter subgroup had originally been investigated because of a suspicion of heart failure even though this was subsequently disproved. The number of patients receiving ACE inhibitors as a percentage of those who might be expected to benefit from them was also calculated. This denominator included only patients with probable or possible heart failure.

**Practice meetings**

Meetings were held at each practice to which all GPs and practice nurses were invited. Practice nurses have a relatively minor role in heart failure management but form an important part of practice teams. It was anticipated that they might offer a different perspective on barriers based on their different relationships with patients.

Meetings began with a presentation of the heart failure management data for that practice alongside aggregated data from all 10 study practices. Two nominal group processes (Box 1)<sup>11,12</sup> were then conducted: one to elicit factors limiting the use of echocardiograms, the other to elicit factors limiting usage of ACE inhibitors. Participants were asked only to suggest factors they thought were barriers in their own practice. Two meetings were observed by an experienced researcher (one of the authors, IN) to ensure standardisation of the process.

**Analysis of factors**

The unique factors formulated by each practice were analysed by two researchers (JH and IN) for common themes (barriers). A comprehensive list of common themes was drawn up and each individual factor was reclassified under a single theme. For example, the following individual factors were formulated by three separate practices to explain the low usage of echocardiograms: 'well-controlled on existing medication, trial of ACE', 'certain diagnosis [without echocardiogram]', and 'diagnosis from other investiga-

tions'. A common theme was identified in these three factors, namely that echocardiograms were considered unnecessary on specific clinical grounds (Table 1). This reclassification by theme allowed us to aggregate the large number of unique factors from all participating practices into a unified and concise list of themes.

Where a factor had been ranked most highly by a practice, the corresponding theme was allocated five points, four points if ranked second, and so on. The points allocated to each theme were then added up to produce rank sums that provide an approximate measure of each theme's relative importance.

**Results**

*Practices and participants*

Among the 10 study practices, the mean patient list size was 8778 (range = 5700–14850) and the mean number of partners per practice was 4.6. Eight were situated in London, and two in neighbouring counties. There were no statistically significant differences between participating and non-participating practices ( $P = 0.840$ ,  $P = 0.925$ , and  $P = 0.963$  respectively).

Thirty-nine principals and four registrars attended out of 49 invited (88% response). Twenty-eight practice nurses were invited and 10 (36%) attended. Participating nurses often felt they had less to contribute because of their limited involvement in the management of heart failure, but were fully involved in the group processes.

*Current management of heart failure*

*Classification.* Of the patients whose records were examined, 44.3% (391/883) were classified as having probable heart failure, 25.2% (223/883) as having possible heart failure, and 30.5% (269/883) as unlikely to have heart failure. Sixty of the latter group had undergone echocardiograms demonstrating normal cardiac function. Thus there was at least a suspicion of heart failure in 674 (391 + 223 + 60) patients.

*Use of investigations.* Of the 674 patients mentioned above, 226 had been referred for echocardiograms or ventriculograms (33.5%, 95% confidence interval [95% CI] = 30.1–37.2%). The median referral rate for individual practices was 33.0% with an interquartile range (IQR) of 21.6–45.4%.

*Use of ACE inhibitors.* Of the 391 classified as probable heart

Table 1. Main themes reducing echocardiogram usage.

	Rank sum
Lack of or limited open access to echocardiograms and delays	44
Echocardiogram considered unnecessary: alternative methods, ACE inhibitors unsuitable or already prescribed	40
Patient factors: old age, other severe illnesses, low life expectancy, immobility and transport needs	29
Hospital factors: low utilisation of echocardiograms by local hospitals, unhelpful cardiology service	18
Doctor factors: ignorance or inexperience of echocardiograms, human fallibility or fatigue	14.5
Cost: investigations, transport, doctor's time	4.5

failure, 182 (46.5%, 95% CI = 41.9–51.8%) were taking ACE inhibitors (median for individual practices = 46.2%, IQR = 39.4–58.3%.) Of the 223 patients classified with possible heart failure, 52 (23.3%, 95% CI = 18.3–29.3%) were taking ACE inhibitors (median for individual practices = 18.5%, IQR = 13.1–30.8%).

### Nominal group meetings

*Factors reducing echocardiogram utilisation.* Eight of the 10 practices ranked lack of open access as the most important factor limiting utilisation of echocardiograms. Four practices cited long delays and underutilisation of echocardiograms by cardiology departments. Eight practices ranked alternative diagnostic methods as factors reducing echocardiogram usage. A variety of patient factors were widely perceived as barriers to the greater use of echocardiograms. The main themes across all practices are summarised in Table 1.

*Factors reducing the utilisation of ACE inhibitors.* All practices mentioned the adverse effects of ACE inhibitors and six ranked them as the greatest barrier. Reluctance to disturb the status quo by introducing ACE inhibitors was another important barrier, mentioned by seven practices and ranked first or second by five. Other factors included inadequate knowledge and lack of confidence of the doctor in managing heart failure, the 'hassle' of frequent dose titration, renal monitoring and follow-up, patient factors, and the cost of therapy. Table 2 summarises the main themes.

### Discussion

This study provides a comprehensive assessment of GPs' perceptions of the barriers to implementing guidelines for the investigation and treatment of heart failure. Innovations in general practice are slow to be implemented. The views expressed by the general practitioners in this study represent those that could be expected half-way through a change cycle. The use of the nominal group process as described in this paper sheds light on the wide variety of barriers to implementing change and could therefore help shorten the length of the change cycle. This could also result in quicker adoption of other innovations to clinical practice.

### Investigation of heart failure

Open access to echocardiograms by GPs is a controversial topic;<sup>13</sup> however, our results suggest that limited access is an important barrier to the effective management of heart failure. Long waits and cardiologists' reluctance to use echocardiograms represent further barriers. The only prac-

tice that had open access had the highest rate of referral for echocardiogram. Some practices perceived that a definite diagnosis could be made by alternative methods, such as chest radiographs and electrocardiograms, but the evidence suggests this is a misconception.<sup>14</sup> Lack of awareness of the benefits of echocardiograms by GPs has been suggested as a barrier elsewhere.<sup>9</sup>

A number of patient factors were also perceived as important barriers. For example, doctors may feel that the marginal benefit of echocardiograms in some elderly patients is outweighed by the stress and disruption of a hospital visit. GPs may be making cost-benefit judgements when considering the use of echocardiography in individual patients, though responders rarely cited financial cost itself as a barrier.

### Treatment of heart failure

The adverse effects of ACE inhibitors were perceived to be the greatest barrier to their use. In this study, fewer than half of the patients with probable heart failure were prescribed ACE inhibitors, although studies show tolerance rates of 80–90%.<sup>15</sup> Similar observations were made in a questionnaire survey which indicated that 46% of GPs have concerns about the adverse effects of these drugs.<sup>10</sup> Reluctance to disturb the status quo by introducing ACE inhibitors was another important barrier. Our participants also thought the 'hassle' of dose titration, renal monitoring and follow-up reduced their initiation of ACE inhibitors. Diagnostic uncertainty was identified as a barrier and is consistent with other evidence suggesting that patients with a clear diagnosis are more likely to receive ACE inhibitors.<sup>16</sup>

Finally, GPs avoided the use of ACE inhibitors in the elderly and those with co-existing pathology and polypharmacy because of the increased risk of adverse effects and lower perceived benefit.

### Study design

The combination of audit feedback with the nominal group technique is an innovative methodology for exploring barriers to effective practice and has several potential strengths. These include encouraging participants to report actual experiences, the use of group dynamics, and the absence of a predefined agenda. Some potential weaknesses are also recognised.

*Generalisability.* The study practices were drawn from the MRC General Practice Research Framework and may be unrepresentative of general practices nationwide. Their management of heart failure, however, was similar to other practices<sup>1,2</sup> and their access to echocardiograms was simi-

Table 2. Main themes reducing ACE inhibitor usage.

	Rank sum
Drug factors: side effects, contraindications, and cautions of ACE inhibitors	62
Inertia: good symptom control on diuretics is put at risk when starting ACE inhibitors	30
Doctor factors: low awareness, knowledge, and skills in managing heart failure, uncertainty of ACE inhibitor benefits in particular patients	15.5
Difficulty of follow-up: dose titration and renal monitoring reduce patient compliance and general practitioners' initiation of therapy	12
Diagnostic uncertainty and fear of undetected contraindications because of limited access to echocardiograms	10.5
Doctor-patient relationship: Poor communication, patient education, non-compliance. Doctors avoid treatment in such cases	6.5
Patient factors: old age, multi-organ disease, reduced life expectancy, polypharmacy	6.5
Cost: expense of ACE inhibitors and follow-up	3

lar to national figures.<sup>17</sup>

**Reliability and validity.** Participants' reported perceptions may not represent the real barriers. The approach used and the nominal group technique are designed to reduce this source of bias.<sup>11,12,18</sup> Participants nevertheless appeared to rank external barriers more highly than those under their own control and may be attempting to rationalise significant gaps in their current clinical practice. The importance of this reporting effect is hard to ascertain, though the wide range of barriers, many of them self-critical, and the consistency between practices add weight to their validity.

### Conclusion

There is much evidence that research findings do not always translate into clinical practice. Identification of the barriers to the application of research evidence using qualitative methods is essential if practice is to be improved.<sup>7,19</sup> We have identified a complex range of barriers specific to the effective investigation and treatment of heart failure in general practice. This suggests that a multifaceted intervention may be the best approach for increasing the implementation of recommendations for the effective management of heart failure in primary care. We recommend that further research is now needed to examine whether complex intervention programmes designed to tackle these barriers can improve the management of heart failure in primary care.

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