THE DEVELOPMENT AND EVALUATION OF THE GREATER MANCHESTER HEART FAILURE INVESTIGATION TOOL (GM-HFIT): A CATALYST FOR SERVICE IMPROVEMENT

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BACKGROUND:

Heart failure (HF) is a complex and highly debilitating clinical syndrome. Clear guidelines identify the optimum management of patients living with HF in primary settings but implementation of these in practice remains suboptimal. Patients often do not consistently receive care that aligns with clinical guidelines and this impacts negatively on morbidity and mortality rates (Calvin et al., 2012).

AIMS:

To develop and evaluate a service improvement tool kit, the **Greater Manchester Heart Failure Investigation Tool (GM-HFIT).** Specific aims include:

- Optimising the identification and ongoing management of people diagnosed with HF.
- Ensuring patient care is consistent with evidence based guidelines from the National Institute for Health and Care Excellence (NICE 2010) and the European Society of Cardiology (ESC 2012).
- Improving the knowledge and skills of heath care professionals in relation to HF.
- Improving data quality and standardisation of documentation.

METHODS:

Figure 1

Design: A prospective pre-test, post-test evaluation of service improvement through the development and implementation of a toolkit, the GM-HFIT, for use in GP practices.

Sample & setting: GM-HFIT was initially developed, piloted, refined, and implemented in one large PCT in Greater Manchester 2009 - 2011. The project was then rolled out to a complete CCG (27 of 33 practices) and one locality of a CCG (12 of 12 practices) between 2012-2013.

Procedure & Measures: (Figure 1) At baseline, each patient case on the HF register was manually audited by a heart failure specialist nurse (HFSN). Based on this assessment, patients were classed as appropriate, inappropriate or as requiring further investigation for the HF register. The management of each patient on the HF register was assessed against 21 key performance indicators (KPIs) derived from the NICE chronic HF guidelines (table 1). Case finding was based on 15 searches using Read codes for medications, echocardiography and associated conditions. Records were reviewed by a HFSN supported by a Knowledge Transfer Associate (KTA) and individual patient recommendations were provided as required

Table 1

Audit data
Diagnosis confirmed using echocardiogram
Aetiology investigated / confirmed
Functional capacity assessed/ severity using NYHA
Heart failure review
Weight done at review
Ankle oedema checked
BP recorded
Pulse rate checked
Pulse rhythm checked
Has an ECG been performed
ACE use or contraindicated in LVSD patients
Treated to target dose of ACE-I or ARB*
Beta blocker use or contraindicated in LVSD patients
Treated to target dose of BB*
Screening for depression
Smoking status checked
Alcohol intake checked
Nutritional information given
Flu vaccine given
Pneumococcal vaccine given
Self care/ education material given

The results of the verification, audit and case finding exercises were fed back to the practice by the HFSN who completed the audit. Facilitation was provided throughout the project by HFSNs and KTAs. This was provided through interactive education and individual practice support with tailored education sessions for clinical and non clinical staff, assistance with standardising practice systems, for example, coding and advice regarding individual patient management. Re-audit was conducted 10-11 months later.

Data analysis: Anonymous patient data was entered into the GM-HFIT template and exported to an excel file for the purpose of the audit, and then imported to an SPSS v20 database for further analysis:
Analysis 1 – At re-audit (T2), records from new cases and cases that had arisen from active case finding during the audit period were extracted for comparison with existing cases. Existing cases were defined as those who had records in both the original audit (T1) and T2. Demographics and disease characteristics across the three groups were compared using chi squared tests.

Analysis 2 - In order to evaluate practice change, data from patients on the HF register were compared at T1 and T2. All patients who had records at both T1 and T2 were extracted to form a matched dataset. Demographics and disease characteristics were compared using McNemar's test for matched pairs.

RESULTS:

At T1, the 39 participating practices had 1,446 patients on HF registers. At T2, 1953 patient files were extracted, 30 patient files were excluded due to missing data, and five were lost to follow up as deceased. The final data set included 1,918 patients. Of these, 1130 were existing cases, present at both T1 and T2, 205 were new cases and 583 identified through case finding. At baseline, an audit of participating GP practices' HF registers indicated a HF prevalence lower (0.68%) than the national average, which was expected to be around 1-2% as described by the British Heart Foundation (2010).

Figure 2

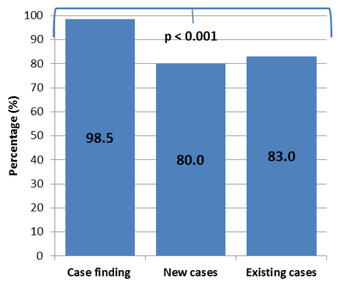
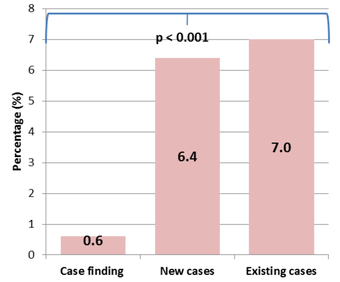


Figure 3



Of the 1,918 patient cases at T2, 1,675 were 'appropriate', 94 were 'inappropriate' and 147 'needed further investigation' for inclusion on the HF register. Patients on the register due to 'case finding' at T2 were significantly more likely to be appropriate for the register than new cases and existing cases (p<0.001) (Figure 2). Additionally, new cases added to the register since project initiation were significantly less likely to be inappropriate for the HF register compared to existing cases (p<0.001) (figure 3).

Figure 4

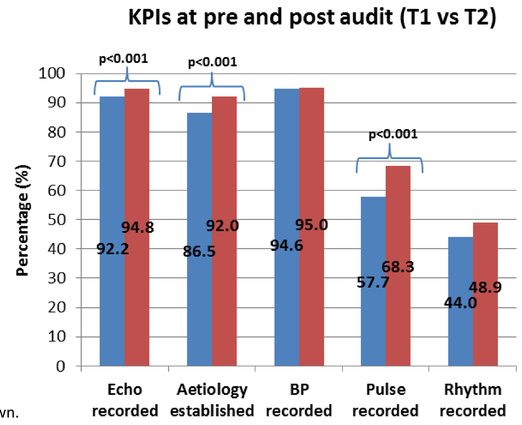


Figure 4 shows pre and post audit results for KPIs. There was a significant improvement in the number of recorded echocardiograms, established aetiologies and pulse rate recordings between T1 and T2 (p<0.001). There was no significant difference in the proportion of patients prescribed angiotensin converting enzyme inhibitors (ACEI) or beta blockers (BB) but improvement in the proportion of patients receiving, or being up-titrated, to target ACEI or BB doses was demonstrated (p<0.001). The proportion of HF patients who received, or were scheduled for primary care HF review increased significantly (p<0.001). Following the implementation of GM-HFIT there was a significant increase in the prevalence of HF cases recorded on GP practice HF registers (0.92%).

Limitations: Only 39 practices were involved in the audit/re-audit cycle and re-audit was done within a short time frame. Thus, the sustainability of improvements in these practices is not known.

CONCLUSIONS:

- The introduction of GM-HFIT led to service improvements in the identification and management of patients with HF in primary care.
- New cases of patients added to HF register were significantly less likely to be inappropriate compared to existing cases.
- The improvement in the accuracy of HF registers was attributable to the addition of patients identified through the case finding as having a confirmed diagnosis of HF.
- HF patients were more likely to be receiving target doses of either ACEI or BB after audit .

- *Calvin J, Shanbhag S, Avery E, Kane J, Richardson D, Powell L. (2012) Adherence to evidence based guidelines for heart failure in physicians and their patients: lessons from the Heart Failure Adherence Retention Trial (HART) Congestive Heart Failure 18 (2) pp 73-78.*
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