Validating Heart Failure Registers
In Cumbria and Lancashire

Lauren Butler
Service Development and Improvement Manager  July 2011
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1.0 Introduction

“Around 900,000 people in the UK today have Heart Failure (HF) – with almost as many with damaged hearts but, as yet, no symptoms of heart failure. Both the incidence and prevalence of heart failure increase steeply with age, with the average age at first diagnosis being 76 years. While around 1 in 35 people aged 65–74 years has heart failure, this increases to about 1 in 15 of those aged 75 – 84 years, and to just over 1 in 7 in those aged 85 years and above.”

The GMS QOF data is limited in its scope and completeness. Using the QOF data the current prevalence for the Lancashire and Cumbria Network is 0.9%; or 18,391 patients and it is expected that this is a substantial underestimate of the true prevalence level. With an elderly population we expect Lancashire & Cumbria to be higher than national average prevalence level of 0.7%. Research suggests that prevalence should be 1.5 to 2.3%.

This project aims to improve prevalence recorded by finding patients held within GP systems whom have been missed from the Heart Failure QOF register. It aims to improve the robustness of registers by ensuring all patients with Heart Failure are on the correct register and recommends the validation and improvement of existing registers. Appropriate case finding and identification of patients whom are unregistered will still need to take place.

2.0 Background and Project Outline

In early 2010, NHS East Lancashire (EL) and NHS Blackburn with Darwen (BwD) Heart Failure Teams explored the possibility of finding patients within GP practice systems with heart failure, yet who were not appearing on the QOF HF register as they had not been allocated a diagnosis code for HF (G58+). Initially lengthy manual searches were undertaken and it was clear that a large number of patients could be identified that could potentially have HF.

The Cardiac and Stroke Networks Cardiac Strategy 2010-2015 recommended that validation of registers within primary care is undertaken and that robust coding and diagnostic reporting systems provided by secondary care to support practices to readily identify those patients with heart failure be established. Therefore it was agreed that the Cardiac and Stroke Network in Lancashire & Cumbria (CSNLC) adopt this work and develop a pan Cumbria and Lancashire approach to this.

Individual PCTs were approached for involvement and this was achieved and implemented in all PCTs through varying approaches and levels of engagement.

At this time the PRIMIS team within NHS Cumbria worked with the manual searches developed by PRIMIS teams within EL and BwD to develop a set of MIQUEST queries that had ease of use, could be completed within 15 minutes and were linked to a front end tool to categorise patients into drug and non-drug Read Codes to aid review of patients by GPs.

Two primary care GP clinical leads were approached to support the project - Dr Chris Corrigan, NHS Cumbria and Dr Andrew Gallagher (GPwSI), NHS North Lancashire. Both undertook the MIQUEST queries and full reviews within their own practices to assess the following

1. Ease of use of the queries and tool
2. Establish estimated time taken for reviewing each patient’s electronic notes and code if appropriate. This was timed to take on average between 1-4 minutes per patient; Although some patients results/correspondence did require further investigation and therefore took longer to establish whether the patient had heart failure or not.
3. Provided consistent results regarding the numbers of potential patients found and the resulting yield outcomes from the review process from each search category. Usually the queries result in identifying 1.5 – 2.2% of the practice population with the review process resulting in **increasing the register by on average 25%**.

Once coded, these patients will appear on the clinical HF register, which will ensure thorough and improved clinical management and regular review of these patients but will also improve the quality of data held within GP systems, ensure appropriate payments to GP practices through QOF and increase prevalence of HF and bring prevalence by PCT and across the network closer to the expected level of 1.5 to 2.3%

**Existing Heart Failure Registers**

GMS QOF data provides one potential national data source for heart failure and local work undertaken has shown that validation of existing registers (HF1 QOF indicator) is required to ensure those registered with HF are also receiving correct treatment and care. Whilst this work was not undertaken as part of the project it remains a recommendation to be undertaken by GP practice and or medicine management teams.

**Improvement of communications between secondary and primary care**

Coding and discharge summaries provided by the acute trusts should support primary care practices to readily identify those patients with heart failure and provide clarity of diagnosis supported by Echocardiography reporting. Communication from secondary care to primary care should be improved across the Network and primary care Read Codes highlighted within Heart Failure specialist team discharge letters and/or communications whenever possible.

Engagement with acute trust Cardiologists and Medical Directors was undertaken with trusts highlighting the importance of clear diagnosis and management being communicated through discharge summaries and letters.

**3.0 Heart Failure Medicines and Medicines Management Support**

Whilst it was not the aim of the project to optimise or improve the use of heart failure medicines the uptake of ACE inhibitors and Beta-Blockers, QOF indicators HF 3 and HF 4 were assessed and the outcomes used to inform practices of current prescribing and exception reporting levels. These medicines are known to improve clinical outcomes, quality of life, reduce mortality and reduce emergency admissions and when given in combination at the correct and fully optimised dose can extend length of life and reduce NHS healthcare burden and expenditure.

The clinical benefits and cost effectiveness of standard pharmacological HF medicines is overwhelming and underpins all known guidelines for the treatment of Heart Failure. The Seattle Heart Failure Model (Appendix 2) demonstrates the extension of life years with optimal pharmacological treatment.

The data from QOF assessing the percentage of patients with known Left Ventricular (LV) Dysfunction receiving ACE inhibitors and Beta-Blockers shows varied prescribing levels from practice to practice. In particular the high levels of Beta-Blocker exception reporting highlights that many patients do not receive optimal pharmacological treatment. Furthermore during the course of the project it was noted when assessing patients notes that many patients receiving these medicines are not always on optimum doses. Although this was not formally measured it was recognized that support from medicines management teams was required to support practices to achieve better clinical outcomes of HF medicines prescribing, although as exception reporting allows, most practices achieved maximum QOF points for all indicators.
The following medicines management teams have agreed to include heart failure medicines within their work programme for 2011 to 2012:

NHS Cumbria
NHS Blackburn with Darwen

4.0 Support to implementation of NICE; education and raising awareness

To support the roll out of the project and provide education to GPs for the clinical diagnostic and treatment pathways for heart failure, primary care educational events for GPs and practice staff were held across most PCTs. A Heart Failure Fact Sheet (Appendix 3) was developed initially to support the implementation of BNP testing but also aims to support GPs clinically, and reflects the latest NICE guidance issued August 2010, CG108, Chronic heart failure; Management of chronic heart failure in adults in primary and secondary care.

Resources and support

Resources were developed as part of the project to support GPs and practice teams. These include:

1. A hints and tips sheet to support undertaking the MIQUEST queries, validation and appropriate coding required (Appendix 4)
2. A coding crib sheet to support practice admin teams in the future to improve and raise awareness of codes required for heart failure patients (Appendix 5)
3. HF Fact Sheet (Appendix 3).

5.0 Financial assessment

Cost Expenditure

Increase in payments through QOF should support review work being undertaken by GPs. Shown below are the heart failure points awarded through the Quality Outcomes Framework (QOF).

<table>
<thead>
<tr>
<th>Heart failure</th>
<th>Points</th>
<th>Payment stages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Records</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HF 1. The practice can produce a register of patients with heart failure</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Initial diagnosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HF 2. The percentage of patients with a diagnosis of heart failure (diagnosed after 1 April 2006) which has been confirmed by an echocardiogram or by specialist assessment</td>
<td>6</td>
<td>40-90%</td>
</tr>
<tr>
<td>Ongoing management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HF 3. The percentage of patients with a current diagnosis of heart failure due to Left Ventricular Dysfunction (LVD) who are currently treated with an ACE inhibitor or Angiotensin Receptor Blocker (ARB), who can tolerate therapy and for whom there is no contra-indication</td>
<td>10</td>
<td>40-80%</td>
</tr>
</tbody>
</table>
Estimated cost per patient – QOF

For 2009/2010 practices on average received £126.77 per point achieved.

Adjusted list size - the allocation of £126.77 is based on an average practice size (of 5,891), known as the ‘contractor population index (CPI)’. To calculate the adjusted payment, the practice population is adjusted by 5,891 (average practice population in England).

Adjusted Disease Prevalence Factor (ADPF) – the prevalence of the disease registered within each practice also requires adjustment. For 2009-10 national prevalence for heart failure was 0.7% (41 patients for standard 5891 patient practice).

Assuming all practices achieve four points for having a register, there are a further 25 points available for established diagnosis and correct management of heart failure patients.

So an average practice population size of 5,891 has 41 patients with heart failure

The average practice earns if they achieve full points:
+10 points for patients with heart failure (first two indicators) = £1,267.70
+19 points for patients with heart failure due to Left Ventricular Dysfunction (LVD) appropriately managed with ACE and Beta-Blockers, (second two indicators) = £2,408.63
Total = £3,676.33

Adjusted Practice Disease Factor - by undertaking this project, even if practices are achieving full points, additional revenue can still be accrued by increasing the prevalence and by adjusting.

THE STATEMENT OF FINANCIAL ENTITLEMENTS (AMENDMENT) DIRECTIONS 2010⁵ (Appendix 6) outlines the way that the payments for each QOF point is varied dependent on the prevalence for a given disease register.

Project pilot sites – adjusted list size results - the number of new patients identified has typically been found to increase the HF register size by up to 25%, thereby increasing the payment per point to 25% above the national mean to £158.46.

The average practice will then earn if they achieve full points:
+10 points for patients with heart failure (first two indicators) = £1,584.60
+19 points for patients with heart failure due to Left Ventricular Dysfunction (LVD) appropriately managed with ACE and Beta-Blockers, (second two indicators) = £3,010.74
Total = £4,595.34

Therefore an average practice could potentially earn an additional £919.01 by adding an extra 10 patients to their register. Based on an average practice achieving full points for the HF indicators therefore each new patient is worth £94.19.

To demonstrate calculations of the potential increase in practice revenue through prevalence factor adjustments, the potential increase of £919.01 for an average practice size of 5,891 can be extrapolated to population sizes within PCTs as seen in the table below.

<p>| HF 4. The percentage of patients with a current diagnosis of heart failure due to LVD who are currently treated with an ACE inhibitor or Angiotensin Receptor Blocker, who are additionally treated with a beta-blocker licensed for heart failure, or recorded as intolerant to or having a contraindication to beta-blockers. | 9 | 40-60% |</p>
<table>
<thead>
<tr>
<th>PCT</th>
<th>Population</th>
<th>Potential additional practice revenue if local practice prevalence rises from the national average to 25% above the national average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackburn with Darwen</td>
<td>141,000</td>
<td>£21,996</td>
</tr>
<tr>
<td>Blackpool</td>
<td>143,000</td>
<td>£22,308</td>
</tr>
<tr>
<td>Central Lancashire</td>
<td>452,000</td>
<td>£70,513</td>
</tr>
<tr>
<td>Cumbria</td>
<td>496,000</td>
<td>£77,377</td>
</tr>
<tr>
<td>East Lancashire</td>
<td>385,000</td>
<td>£60,061</td>
</tr>
<tr>
<td>North Lancashire</td>
<td>329,000</td>
<td>£51,325</td>
</tr>
</tbody>
</table>

**Cost savings**

Health Economics of pharmacological management: ACE inhibitors

Evidence shows that the use of ACE inhibitors in heart failure reduces hospitalisation by slowing disease progression, improves Quality of Life (QoL) and extends length of life. Hospitalisation accounts for 60-70% of all NHS heart failure expenditure in the UK. A reduction in hospitalisation for progressive heart failure has been shown in patients taking ACE inhibitors.

Modelling undertaken by NICE suggests that by extending the use of ACE inhibitors it could result in net cost savings of £418,762.00 and for a population of 500,000 an additional 42 deaths per annum could be prevented.6

This was reviewed and not discounted in the release of updated NICE HF guidance; Chronic heart failure; Management of chronic heart failure in adults in primary and secondary care, 2010.1

Health Economics of pharmacological management: Beta Blockers

From the 2003 Guideline, economic evidence consistently showed Beta-Blockers to be cost effective, largely through costs saved from the reduced risk of hospitalisation. In the UK, only carvedilol and bisoprolol were licensed for the treatment of heart failure at the time of issue of the 2003 Guideline.

However results from research showed that adding nebivolol to standard care is cost-effective in the UK for elderly patients with heart failure.1

Nebivolol is now licensed for the treatment of heart failure.

Specialist Heart Failure Services

The data supporting the widespread introduction of services based on the expert management applied by specialist heart failure programmes of care achieve benefits for patients and carers. Furthermore, these services have the potential to deliver significant cost savings.

The figure below shows the expected cost benefits of a UK wide heart failure service. The graph shows the approximate savings achieved via a 20 – 50% reduction in the typical pattern of recurrent hospital stay seen in patients with heart failure in the UK.7
The black dotted line shows the cost of applying optimal heart failure management through a formal heart failure service (40% reduction in hospital stay) and the grey dotted line shows that if the cost of gold-standard pharmacology is deducted from this calculation, given that it should be applied regardless of the presence or absence of a service, this figure relates to a 30% reduction in recurrent hospital stays.

The following cost savings were taken from the Cardiac Strategy 2010-2015, Cardiac and Stroke Networks in Lancashire & Cumbria.

<table>
<thead>
<tr>
<th>PCT</th>
<th>Total Readmissions</th>
<th>Total with No Readmissions</th>
<th>Total Heart Failure</th>
<th>Percentage Readmissions</th>
<th>30% of Readmissions</th>
<th>Total Saving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackburn with Darwen</td>
<td>57</td>
<td>99</td>
<td>156</td>
<td>36.54%</td>
<td>17</td>
<td>£59,500.00</td>
</tr>
<tr>
<td>Blackpool</td>
<td>77</td>
<td>73</td>
<td>150</td>
<td>51.33%</td>
<td>23</td>
<td>£80,500.00</td>
</tr>
<tr>
<td>Central Lancs</td>
<td>223</td>
<td>253</td>
<td>476</td>
<td>46.86%</td>
<td>67</td>
<td>£234,500.00</td>
</tr>
<tr>
<td>Cumbria</td>
<td>211</td>
<td>291</td>
<td>502</td>
<td>42.03%</td>
<td>63</td>
<td>£220,500.00</td>
</tr>
<tr>
<td>East Lancs</td>
<td>170</td>
<td>234</td>
<td>404</td>
<td>42.08%</td>
<td>51</td>
<td>£178,500.00</td>
</tr>
<tr>
<td>North Lancs</td>
<td>132</td>
<td>199</td>
<td>331</td>
<td>39.88%</td>
<td>46</td>
<td>£140,000.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>870</strong></td>
<td><strong>1149</strong></td>
<td><strong>2019</strong></td>
<td><strong>43.09%</strong></td>
<td><strong>261</strong></td>
<td><strong>£913,500.00</strong></td>
</tr>
</tbody>
</table>

HRG
E18 - Heart Failure or Shock >69 or w cc
E19 - Heart Failure or Shock <70 w/o cc

Tariff used
£3,500.00

The table above indicates the possible savings that each PCT could make if a 30% reduction in readmission rates was achieved across the Network through optimal medical management of ACE and Beta-Blockers.

NOTE: any increase in prescribing will need to be deducted from the total savings. The annual cost per patient for an ACE inhibitor, Beta-Blockers and diuretics will not exceed £300 (BNF) however, for some of these patients; it will only be the cost of up-titration.
Cost analysis – Expenditure: savings outcomes

<table>
<thead>
<tr>
<th>PCT</th>
<th>Additional increase Cost QOF</th>
<th>Savings 30% re-admission rates from strategy</th>
<th>Outcome (savings)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackburn with Darwen</td>
<td>£21,996</td>
<td>£59,500</td>
<td>£37,504</td>
</tr>
<tr>
<td>Blackpool</td>
<td>£22,308</td>
<td>£80,500</td>
<td>£58,192</td>
</tr>
<tr>
<td>Central Lancs</td>
<td>£70,513</td>
<td>£234,500</td>
<td>£163,987</td>
</tr>
<tr>
<td>Cumbria</td>
<td>£77,377</td>
<td>£220,500</td>
<td>£143,123</td>
</tr>
<tr>
<td>East Lancashire</td>
<td>£60,061</td>
<td>£178,500</td>
<td>£118,439</td>
</tr>
<tr>
<td>North Lancashire</td>
<td>£51,325</td>
<td>£140,000</td>
<td>£88,675</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>£698,595</td>
</tr>
</tbody>
</table>

It is recognised that the cost savings for re-admission rates are based on whole HF populations being managed optimally with ACE and Beta-Blockers and therefore is not just calculated on those extra patients identified through the project and the searches. However the clinical outcomes seen from the project so far do indicate that a wide variation of use of ACE and Beta-Blockers exists between practices with in some cases high exception reporting rates particularly for Beta-Blocker use. Therefore the project recommends clinical review of all patients (new and existing) to ensure optimal prescribing of ACE and Beta-Blockers ensuring optimal dose is achieved.

The data collected that supports this is shown below and only shows (as collected by QOF) those patients whom a code of left ventricular dysfunction (LVD) has been applied.

### 6.0 PCT Results

For the purposes of benchmarking all PCTs prevalence from April 2010 to March 2011 is depicted in the graph below. It is recognised that not all GP practices undertook the validation work in all PCTs however individual practices reported a significant increase in prevalence.

NHS Blackpool and NHS Central Lancashire did not begin this project or validation work until after March 2011 and therefore will not show any change.
The relative percentage change in prevalence by PCT is seen below.

<table>
<thead>
<tr>
<th>PCT</th>
<th>Apr'10</th>
<th>Mar'11</th>
<th>% Relative Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackburn with Darwen</td>
<td>0.74%</td>
<td>0.80%</td>
<td>8.33%</td>
</tr>
<tr>
<td>Blackpool</td>
<td>0.99%</td>
<td>0.96%</td>
<td>-2.95%</td>
</tr>
<tr>
<td>Central Lancashire</td>
<td>0.81%</td>
<td>0.82%</td>
<td>0.74%</td>
</tr>
<tr>
<td>Cumbria</td>
<td>0.96%</td>
<td>1.02%</td>
<td>6.78%</td>
</tr>
<tr>
<td>East Lancashire</td>
<td>0.82%</td>
<td>0.84%</td>
<td>2.74%</td>
</tr>
<tr>
<td>North Lancashire</td>
<td>0.96%</td>
<td>0.99%</td>
<td>2.51%</td>
</tr>
</tbody>
</table>

Each PCT approached this project at different times throughout 2010-2011, with varying approaches to implementation. Within Appendix 1, individual PCT reports can be seen including prevalence data and practice data for HF3 and HF4 QOF indicators.

7.0 Summary and recommendations

Due to changes within the new QOF GMS contract 2011-2012, the current QMAS data system is being updated and new data will not be available until October 2011.

The data presented is from April 2010 to March 2011, however it is anticipated that further improvements will be seen as validation work continues.
**Recommendations**

1. For PCT/Clinical Commissioning Groups (CCG) and data quality teams to continue support those practices who have not done so, to undertake validation and improve the quality of Heart Failure Registers and future coding of this patient group in GP practices.

2. For those medicines management teams not undertaking work on heart failure within 2011-12 to consider HF medicines as a priority for work programmes in 2012-13.

3. For medicine management teams undertaking HF work within 2011-12 to feed back to other PCTs and the network regarding outcomes from this work and to inform other PCTs of any improvements made to systems or clinical outcomes for this patient group.

4. For PCT/CCG and future PBC groups to ensure processes are in place to support up-titration of HF medicines to optimum doses across all practices and to ensure this is monitored to assess any reduction in HF admissions and improvements in mortality data for Heart Failure.

By ensuring robust registers and improving clinical coding in general practice, more accurate prevalence levels can be used to inform planning and commissioning of future heart failure services. By ensuring where possible, patients receive ACE Inhibitors and Beta-Blockers as first line treatment, at optimal doses, can maximise cost savings, reduce admission rates and improve the clinical outcomes for patients with this long-term condition.

**Acknowledgements**

To project clinical leads, all project team members within individual health economies (Appendix 1), Medicines Management teams and Peter Osborne, Data Analyst, Cardiac and Stroke Networks in Lancashire & Cumbria.

**8.0 References**


3. Cardiac Strategy 2010-2015, Cardiac and Stroke Networks in Lancashire & Cumbria


9.0 Appendices

Appendix 1 - Individual PCT reports

For the purpose of this report, individual practice names and practice numbers have been omitted. PCTs prevalence is shown separately and whilst the scales are the same, the ranges chosen are appropriate to that PCTs prevalence.

NHS Blackburn with Darwen
Paula Black - Service Transformation Manager
Angela Graves - Clinical Lead East Lancashire Heart Failure Service
East Lancashire Data Quality Team (covering both BWD & East Lancs)
Liz Stott - Primary Care Contracts Manager

Implementation
NHS Blackburn with Darwen and East Lancashire were the PCTs that embarked upon this work initially, acting as pilot sites for the project that was then adopted, developed and implemented pan Lancashire and Cumbria. This project was supported by the PCT Commissioning CVD Leads and the East Lancashire Data Quality Team. Once the MIQUEST queries had been finalised, in September 2010, the East Lancashire Data Quality Team were able to run the searches in all 29 practices. Within Blackburn with Darwen, validation was carried out by a member of the HF Specialist Team/CVD Commissioning Manager and results of the validation passed onto GPs within each practice who were then advised to place the patient on the Heart Failure Register. Supporting information and resources were provided at all practice visits and also through a large educational event on heart failure that was provided in March 2011 to GP and practice teams in East Lancashire and Blackburn with Darwen.

Prevalence Change

![Blackburn with Darwen - QOF Heart Failure Prevalence (Apr'10 to Mar'11)](image-url)
HF Medicines

Baseline Data Heart Failure Indicators 3 and 4 for March 2010

Final Data Heart Failure Indicators 3 and 4 for March 2011

NHS Blackpool
Jeannie Hayhurst - Clinical Redesign Manager
Louise Gore - IM&T Programme Manager
Leanne Rudnick – GP, CVD Lead
Dr Alison Seed – Consultant Cardiologist, Heart Failure Specialist.

Implementation
NHS Blackpool initiated this work in November 2010 and its implementation was supported by the IM & T Data Quality Team and Clinical Redesign Manager as part of the ‘reducing non-elective admissions’ project work being undertaken in NHS Blackpool.

Members of the PCT Developments Team ran the searches within each practice and this was followed by a visit to each practice by the Clinical Redesign Manager, explaining the project and its importance and providing the guidance to support future validation work.

Whilst the searches and visits were undertaken before the end of March 2011, many GPs deferred from undertaking validation until after the QOF year end. Final prevalence results may not be seen as a result of this work until March 2012.
Prevalence Change

Blackpool - QOF Heart Failure Prevalence (Apr’10 to March’11)

HF Medicines

Baseline Data Heart Failure Indicators 3 and 4 for March 2010

Final Data Heart Failure Indicators 3 and 4 for March 2011
NHS Central Lancashire
Chris Nicholson – Cardiac Nurse Specialist, Heart Failure
Mary Lyons – Public Health Specialist
Dr Richard Parry – Chair CVD Serviceline
Ben Jacobs – IT Training & Data Quality Manager
Jane Goulding – Deputy Data Quality Manager
Chris Naish - Assistant Quality Manager, Quality and Clinical Outcomes

Implementation
NHS Central Lancashire implemented this project through the CVD Serviceline group with support from the Data Quality Teams. The searches were made available to all practices on the ‘share point’ server and resources and information regarding the validation project sent out electronically to all practices.

An educational event on heart failure was delivered to Chorley GPs in March 2011 at which the validation process and work highlighted. A further event is planned for Preston GPs in July 2011.

NHS Central Lancashire did not implement this project until February 2011 and it is anticipated that register validation work will continue throughout 2011. Final prevalence results may not be seen as a result of this work until March 2012; however prevalence data for 2010-2011 has been included to give clarity as to the baseline position.

Prevalence Change

![Prevalence Change Graph](image-url)
HF Medicines

Baseline Data Heart Failure Indicators 3 and 4 for March 2010

NHS Central Lancashire
QOF Heart Failure Indicator 3
ACE Inhibitor Use - LVD Diagnosis

Final Data Heart Failure Indicators 3 and 4 for March 2011

NHS Central Lancashire
QOF Heart Failure Indicator 4
Beta Blocker Use - LVD Diagnosis

NHS Cumbria
Dr Chris Corrigan - GP Clinical Project Lead
Carol McTurk - Head of PRIMIS Informatics, NHS Cumbria
Mandy Kennedy – Project Lead for On-going Conditions

Implementation
NHS Cumbria agreed to the delivery of this project and to provide support by the PRIMIS Team, in particular to develop the manual searches into MIQUEST queries and to develop a ‘front end’ tool (see below) that made the validation process easier for GPs to undertake. Once these were developed by PRIMIS, NHS Cumbria, they were shared across all PCT project teams to aid delivery of the project within all health economies.
The project was primarily rolled out to all six localities through the GP Referral Support and Pathway Enhancement group (RSPE). Educational (Protected Learning Time - PLT) events and GP RSPE lead meetings were used to present the project and provide the resources and educational clinical information around Heart Failure. The searches and validation work was to be solely undertaken by practice teams and GPs within the 91 individual practices across Cumbria. Individual locality data can be seen in Appendix 4.

To support communications and spread of this project to all practices, this work was also highlighted in the NHS Cumbria primary care newsletter.

Prevalence Change
HF Medicines

Baseline Data Heart Failure Indicators 3 and 4 for March 2010

NHS Cumbria
QOF Heart Failure Indicator 3
ACE Inhibitor Use - LVD Diagnosis

NHS Cumbria
QOF Heart Failure Indicator 4
Beta Blocker Use - LVD Diagnosis

Final Data Heart Failure Indicators 3 and 4 for March 2011

NHS Cumbria
QOF Heart Failure Indicator 3
ACE Inhibitor Use - LVD Diagnosis

NHS Cumbria
QOF Heart Failure Indicator 4
Beta Blocker Use - LVD Diagnosis

NHS East Lancashire
Cath Richardson – Heart Failure Specialist Nurse
Angela Graves - Clinical Lead, East Lancashire Heart Failure Service
Julie Moorcroft and East Lancashire Data Quality Team (covering both BwD & East Lancashire)
Dr Andrew Brown – GP, CVD Lead
Aidan Kirkpatrick – Consultant in Public Health
Andrew Laverty - Head of Health Economics & Clinical Commissioning Project Manager

Implementation
As stated above, NHS Blackburn with Darwen and East Lancashire were the PCTs that embarked upon this work initially, acting as pilot sites for the project that was then adopted, developed and implemented across Lancashire and Cumbria. In NHS East Lancashire this project was supported by the Heart Failure specialist nursing team, public health CVD lead, GP CVD lead and the East Lancashire Data Quality Team. Once the MIQUEST queries had been finalised, in September 2010, the East Lancashire Data Quality Team were able to run the searches in all 68 practices. Validation was carried out by a member of the HF specialist team and results of the validation passed onto GPs within each practice who were then advised to place the patient on the Heart Failure register. Supporting information and resources were provided at all practice visits and also through the educational event on heart failure that was provided in March 2011 to GP and practice teams in East Lancashire and Blackburn with Darwen.
Prevalence Change

**East Lancashire - QOF Heart Failure Prevalence (Apr'10 to Mar'11)**

HF Medicines

**Baseline Data Heart Failure Indicators 3 and 4 for March 2010**

**Final Data Heart Failure Indicators 3 and 4 for March 2011**
NHS North Lancashire
Dr Andrew Gallagher – GPwSI Cardiology (North Lancashire - North) and GP Clinical Project Lead
Alicia Elliott - Primary Care Data Quality Lead
Steve Abernethy - Primary Care Data Quality Lead

Implementation
Within NHS North Lancashire, PCT support was initially provided by Public Health CVD Lead with continued support from the IM & T Data Quality Team. The searches and supporting resources were electronically distributed to practices and GP leads within the north of this health economy.

Practices within the south did not formally implement the project. This may reflect on the relatively small overall PCT prevalence change although individual practices reported high levels of successful identification of patients.

Prevalence Change

![Graph showing prevalence change](image)

HF Medicines

Baseline Data Heart Failure Indicators 3 and 4 for March 2010
Final Data Heart Failure Indicators 3 and 4 for March 2011
### Appendix 2 – The Seattle Heart Failure Model

The Seattle Heart Failure Model can be used to assess patients' life expectancy.

**60 year old male, non ischaemic, NYHA 2, EF 35%, QRS 100ms needing Frusimide 40mg**

<table>
<thead>
<tr>
<th></th>
<th>Mean life expectancy</th>
<th>5 year survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>No ACE inhibitors or Beta-Blockers</td>
<td>6.3 yrs</td>
<td>55%</td>
</tr>
<tr>
<td>ACE inhibitors</td>
<td>7.4 yrs</td>
<td>63%</td>
</tr>
<tr>
<td>Beta-Blockers</td>
<td>8.2 yrs</td>
<td>67%</td>
</tr>
<tr>
<td>ACE inhibitors and Beta-Blockers</td>
<td>9.5 yrs</td>
<td>74%</td>
</tr>
</tbody>
</table>
Diagnosing heart failure

**Symptoms and signs of heart failure**

<table>
<thead>
<tr>
<th></th>
<th>Sensitivity %</th>
<th>Specificity %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dyspnoea</td>
<td>66</td>
<td>52</td>
</tr>
<tr>
<td>Ankle swelling</td>
<td>23</td>
<td>80</td>
</tr>
<tr>
<td>Orthopnoea</td>
<td>21</td>
<td>81</td>
</tr>
<tr>
<td>PND</td>
<td>33</td>
<td>76</td>
</tr>
<tr>
<td>Fatigue</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Signs: tachycardia, displaced apex, gallop rhythm, elevated JVP, leg and sacral oedema, hepatomegaly, ascites.

**Serum natriuretic peptides:**

Expensive test, please do not use as breathlessness screen!

- **NTPro-BNP**  
  - High: > 2000 pg/ml (236 pmol/l)  
  - Raised: 400-2000 pg/ml (47-236 pmol/l)  
  - Normal: < 400 pg/ml (47 pmol/l)

- **BNP**  
  - High: > 400 pg/ml (>116 pmol/l)  
  - Raised: 100-400 pg/ml (29-116 pmol/l)  
  - Normal: < 100 pg/ml (< 29 pmol/l)

Other causes of elevated BNP/NT-BNP include ischaemia, tachycardia, LVH and chronic renal failure. BNP may be normal in very well controlled heart failure.

**Differential diagnoses to consider:**

- Obesity
- Chest disease including COPD
- Venous insufficiency lower limbs
- Drug induced ankle swelling (esp calcium ch blockers)
- Drug induced fluid retention (eg NSAIDs)
- Hypoalbuminaemia
- Renal or hepatic disease
- Pulmonary embolism
- Depression and/or anxiety
- Severe anaemia
- Thyroid disease

**NYHA Classification**

I. no limitations, no symptoms with ordinary physical activity
II. slight limitation, symptoms with ordinary activity
III. marked limitation, symptoms with less than ordinary activity
IV. breathless at rest, any physical activity increases symptoms

Symptoms: dyspnoea, fatigue, palpitations

**Diastolic HF (Heart Failure with Preserved Ejection Fraction - HFPEF)**

Just because LV function is normal, doesn’t mean it isn’t heart failure but only consider if HFPEF if BNP elevated. Due to reduced ventricular filling in diastole eg stiff ventricle or loss of atrial kick in AF. Typical picture is elderly hypertensive with fluid retention. Difficult to diagnose, echocardiogram may show ‘diastolic markers’ or left ventricular hypertrophy but absence of these doesn’t necessarily rule it out.

**Aetiology**

- Ischaemic heart disease
- Hypertension
- Valvular disease
- Dilated cardiomyopathy
- Hypertrophic cardiomyopathy
- Pulmonary disease
- Alcohol
- Chemotherapy
- Tachycardiomyopathy
- etc

**References:** NICE Chronic Heart Failure August 2010, NICE Cardiac Resynchronisation Therapy 2007; Map of Medicine.

Timing recommendations may vary according to local circumstances but should be an aspiration. Further references available on request. This isn’t perfect, there are bits missing; there is only so much you can fit on one sheet of A4. Comments please andrew.gallagher@gp-P81056.nhs.uk; Dr.Seed@bfwhospitals.nhs.uk

Appendix 3
**Treating heart failure**

**Lifestyle advice**
- **Exercise**: encourage regular exercise within capabilities
- **Diet**: encourage salt free diet
- **Smoking**: strongly advise patients not to smoke
- **Alcohol**: advise patients with alcohol related heart failure to abstain
- **Sexual activity**: be prepared to discuss

**Specialist assessment**
- **Offer both ACE inhibitors and beta-blockers licensed for heart failure as first-line treatment**
- **Consider an ARB if intolerant of ACE inhibitors**
- **Consider hydralazine in combination with nitrates if intolerant of ACE inhibitors and ARBs**
- **Consider an ICD where appropriate**

**Offer rehabilitation and education, and diuretics for congestion and fluid retention**

** CRT (resynchronisation pacing +/- ICD)**

- **Reslip**
- **LVEF ≤35%**

**Drug Treatment for Heart Failure Due to LVSD**

**ACE inhibitors**
- **Start low and titrate upwards at intervals of every 2 weeks**
- **Measure urea, creatinine and electrolytes with each dosage increment**
- **Up-titration to be limited by symptomatic low blood pressure and renal function only if creatinine increases by > 50% or to > 200mmol/L**
- **Avoid in significant aortic stenosis**

**Beta-blockers**
- **Start low and go slow**, dosage increments every 2-4 weeks
- **Monitor P, BP and clinical status after each titration**
- **Warn patients that they may experience transient mild symptomatic deterioration but should improve with continued treatment**
- **Switch stable patients on Bβ for co-morbidity to a ββ licensed for heart failure, 50mg of atenolol is approx equivalent to 10mg bisoprolol**
- **Up-titration to be limited by symptomatic low blood pressure or by bradycardia (if symptomatic or heart rate < 50)**
- **Most patients with COPD without reversibility will tolerate**
- **Effective and safe in elderly, PVD, DM, Ed.**

**Aldosterone antagonists**
- **Option if symptomatic in spite of optimised treatment esp in NYHA III-IV**
- **Monitor renal profile at 1w, 1m and every 6m if on ACEI/ARB**

**ARBs**
- **Consider as alternative to ACEI if intolerant**
- **Consider addition to ACEI if unable to take ββ, care with renal function!**
- **On specialist advice in addition to ACEI and ββ if persistent symptoms**
- **ACEI+ββ+ either ARB or aldosterone antagonist, NOT both**

**Digoxin**
- **Usual dosage 125mcg; no need to monitor levels**
- **Aspirin**
- **use only if other indication eg CHD/PVD**

**Target doses**
- **Ramiplril 10mg/day**
- **Bisoprolol 10mg od**
- **Enalapril 20mg bd**
- **Carvedilol 50mg bd > 80Kg**
- **Lisinopril 35mg / day**
- **> 80Kg**
- **Candesartan 32 mg daily**
- **Nebivolol 10mg daily**

**Monitoring**
- **Monitor all patients. Include:**
  - **Clinical assessment of functional capacity, fluid status, cardiac rhythm (min at least pulse), cognitive status and nutritional status**
  - **Re-iterate lifestyle advice especially diet, exercise, smoking**
  - **Review of drug treatment include need to change and monitoring for side effects**
  - **Minimum of urea, electrolytes, creatinine, eGFR**
  - **Monitor at short intervals (days to 2 weeks) if clinical condition or drug treatment has changed, otherwise monitor at least 6 monthly.**

**Diastolic heart failure/HF-PEF**
- **Manage fluid retention with diuretics**
- **Currently no trial evidence for ACEIs or beta blockers but look for an excuse to use these anyway**
- **If AF, consider adding digoxin**
- **Recommend palliative care/intervention for hypertension**

**Palliative Care phase if....**
- **NYHA IV in spite of optimal treatment.**
- **Clinician would not be surprised if died within 12 months**
Using the QOF data, the prevalence for the Lancashire and Cumbria Network is 0.9%; which is a substantial underestimate of the true prevalence level, believed to be closer to 1.5-2.3%.

**Clinical Considerations:**
- This whole project is based on the premise that adding patients accuracy of HF register increases patients' chances of receiving optimum management of their condition. Therefore, your practice should also consider whether you deliver regular review for your HF patients, (QOF seeks 12-monthly but NICE suggests 6-monthly) to ensure they not only receive the right drugs at the maximum tolerated dose but also receive them in the doses proven to deliver benefit.
- NB: If you find any patients who not only have Heart Failure but also have Aortic Stenosis (AS), it is important to add clear guidance onto the record for that patient that they must not be given ACE/ARB (contraindicated in AS) unless a cardiologist assessed them to be safe to continue.
- Left Ventricular Systolic Dysfunction (LVSD) is defined as being present if The Ejection Fraction is less than 50% (or classed as mild, moderate or severe).
- At this point in time, Left Ventricular Diastolic Dysfunction (LVDD) (=Left Ventricular Failure with Preserved Ejection Fraction, LVF PEF) is of uncertain clinical significance. Its management is one of managing all risk factors (lifestyle, DM, BP, Chol etc).
- Make sure NYHA codes (662f – 662i) are NOT used by your practice teams unless they are sure that the patient has confirmed Heart Failure and as such are already on the HF Register.
- If a final diagnosis is unclear, consider asking for confirmation of diagnosis from specialist.

**Practical Tips:**
- MIQUEST search extractions fall into two categories:
  - Non-drug searches: Typically, you can expect to place around 50% of patients identified onto the HF register (G58). It is therefore recommended these are undertaken first.
  - Drug searches: These are typically larger groups. You can expect to place around 10% of patients identified onto the HF register (G58).
- This exercise likely requires the clinical knowledge of a doctor. Pilot practices tried with admin staff (used for summarising notes) but interpretation of findings required higher level of expertise.
- It should take approximately 1-4 minutes for a GP to review each patient, though some longer.

**Suggested method:**
- Open the clinical record for the patient identified on the MIQUEST responses.
- From the MIQUEST extractions, look at the date (American format) to help you identify time period to interrogate.
- Look through hospital letters around that time.
- When adding patients to the register, make sure the date of entry reflects the date of first diagnosis for ALL of the entries. Use the following codes:
  - Add **G58** (Heart Failure) for all patients to ensure they join the HF register.
  - Add **G581** (Left Ventricular Failure) if the HF is identified to be Left Ventricular Dysfunction, **G5yy9** (LVSD) or **G5yyA** (LVDD).
  - Add “Echo” or, if applicable, it is better to use **585f** Echo shows LV Systolic Dysfunction, (worth adding ejection fraction % into free text for future reference) or **585g** if shows LV Diastolic Dysfunction.

**Financial Considerations:**
QOF payments could increase by an average of £95 per patient added, through adjustment of prevalence factor for an average sized practice with an average prevalence of 0.7 % increasing their register size by 25%.
Appendix 5

QOF Read Codes for Heart Failure

If ‘Heart Failure’ diagnosis is seen on correspondence - code G58

This puts the patient on the HF register (and hits the HF 1 QOF indicator)

But also consider and add one of the following codes if appropriate:

- LVF G581
- Echo shows LVSD 585f
- Echo shows LVDD 585g
- LVSD G5yy9
- LVDD G5yyA

These put the patient on the LVD register and will contribute to HF3 and HF4 QOF payment indicators

If any of the above descriptions (codes) are seen without a diagnosis of Heart Failure please check with the GP and add HF (G58) code if appropriate
THE STATEMENT OF FINANCIAL ENTITLEMENTS (AMENDMENT) DIRECTIONS 2010 outlines on page 32 the way that the payments for each QOF point is varied dependent on the prevalence for a given disease register as follows:

**F.4.** Subject to the provisions at F.5 and F.6 relating to calculations in respect of Achievement Payments relating to financial years prior to 1st April 2010, the Adjusted Practice Disease Factor is calculated by:

(a) calculating the national range of Raw Practice Disease Prevalences in England (PCTs are to use the national range established annually through the Quality and Outcomes Framework Management and Analysis System (QMAS));

(b) re-basing the contractor figures around the new national English mean (available at the end of each month) to give the Adjusted Practice Disease Factor (APDF). For example, an APDF of 1.2 indicates a 20% greater prevalence than the mean, in the adjusted distribution. The re-basing ensures that in the period commencing on 1st April 2010 and ending on 31st March 2011 the average contractor (i.e. one with an APDF of 1.0) would receive £126.77 per point, after adjustment;

(c) thus, adjusting via the factor the contractor's average pounds per point for each disease, rather than the contractor's points score. For example, a contractor with an APDF of 1.2 for CHD in the period commencing on 1st April 2010 and ending on 31st March 2011 would receive £152.12 per point scored on the CHD indicators.
Appendix 7 - Cumbria locality data

The data provided below shows locality specific data. As throughout this report, individual practice data has been anonymised. If practices require their own data, please contact the PRIMIS team, NHS Cumbria.

Heart Failure prevalence, QOF Indicator HF1

The overall increase for the whole PCT is a relative increase of 6.4%. All localities have shown an increase in prevalence with the most significant rise of 13.7% seen in Carlisle. However as with other PCTs some localities may not yet have undertaken validation and therefore further improvements may be seen by the end of March 2012.

Heart Failure, QOF Indicator HF3 – ACE Inhibitor use and level of exception reporting

The graphs below show the use of ACE inhibitors for those patients coded with LVD (Left Ventricular Dysfunction) and the percentage of patients excepted at the end of year 2010 and 2011.

Allerdale - showed no significant change
Carlisle - overall, treated more patients and excepted same or less
Copeland - showed no significant change
Eden - overall, treated more patients and excepted less
Furness overall, treated more patients and excepted same or less
South Lakes - showed no significant change
Allerdale Locality
HF3 - ACE Inhibitor Use 09/10 & 10/11 (LVD Diagnosis)

Carlisle Locality
HF3 - ACE Inhibitor Use 09/10 & 10/11 (LVD Diagnosis)

*Notes: For 09/10, the difference shown between treated and excepted are the % of patients excepted.
Copeland Locality
HF3 - ACE Inhibitor Use 09/10 & 10/11 (LVD Diagnosis)

<table>
<thead>
<tr>
<th>Practice</th>
<th>10/11 Treated</th>
<th>10/11 Excepted</th>
<th>09/10 Treated</th>
<th>09/10 Excepted</th>
</tr>
</thead>
</table>

Note: For 09/10, the difference shown between treated and excepted are the % of patients excepted.

Eden Locality
HF3 - ACE Inhibitor Use 09/10 & 10/11 (LVD Diagnosis)

<table>
<thead>
<tr>
<th>Practice</th>
<th>10/11 Treated</th>
<th>10/11 Excepted</th>
<th>09/10 Treated</th>
<th>09/10 Excepted</th>
</tr>
</thead>
</table>

Note: For 09/10, the difference shown between treated and excepted are the % of patients excepted.
Furness Locality
HF3 - ACE Inhibitor Use 09/10 & 10/11 (LVD Diagnosis)

*Notes: For 09/10, the difference shown between treated and excepted are the % of patients excepted

South Lakes Locality
HF3 - ACE Inhibitor Use 09/10 & 10/11 (LVD Diagnosis)

*Notes: For 09/10, the difference shown between treated and excepted are the % of patients excepted
Heart Failure, QOF Indicator HF4 – Beta Blocker use and level of exception reporting

The graphs below show the use of Beta-Blockers for those patients coded with LVD (Left Ventricular Dysfunction) and the percentage of patients excepted at the end of year 2010 and 2011.

Allerdale – overall, treated more patients and excepted less
Carlisle – overall, treated more patients and excepted less
Copeland - showed no significant change
Eden – overall, treated more patients with no significant change in exception rates
Furness – overall no significant change in the numbers of patients treated but excepted less
South lakes – showed no significant change
Furness Locality
HF4 - Beta Blocker Use 09/10 & 10/11 (LVD Diagnosis)

South Lakes Locality
HF4 - Beta Blocker Use 09/10 & 10/11 (LVD Diagnosis)

*Notes: For 09/10, the difference shown between treated and excepted are the % of patients excepted.