Quality Improvement Data Report:

Prescribing in Patients with Heart Failure

Introduction

This report has been prepared in order to provide feedback on what we have found when assessing the data you have provided to CPRD. These data have been extracted from the January 2017 database build. Due to the lead-in time required for data extraction, processing and analysis, more up-to-date data are likely to be present in your practice system.

This report focuses on prescribing in patients with Heart Failure, and includes two indicators:

1. Prescribing of Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) in patients with Heart Failure
2. Prescribing of Thiazolidinediones (glitazones) in patients with Heart Failure

These indicators are taken from the Prescribing Safety Indicators section of the RCGP Patient Safety toolkit, and have been selected after consultation with the National Institute for Health and Care Excellence (NICE) and the Medicines and Healthcare products Regulatory Agency (MHRA).

This report is intended to help you by identifying patients whose care may need review. The inclusion of patients within this report does not imply that they are on an unsafe treatment pathway – every patient's treatment should be determined by their physician according to their individual circumstances.

Definitions of heart failure

We have used two different data definitions to identify patients with Heart Failure, based on the Read code hierarchy:

1. A narrow definition, based on the business rules for the Quality and Outcomes Framework (QOF)[1]
2. A broad definition, which includes all relevant codes identified by a review of the coding system[1]

The indicators within this report are shown for two patient groups – one using the narrow definition and one using the broad definition.

[1] See appendix section 1 for a listing of the codes used.

Indicator 1: Prescribing of Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) in patients with Heart Failure

Rationale – why this indicator?

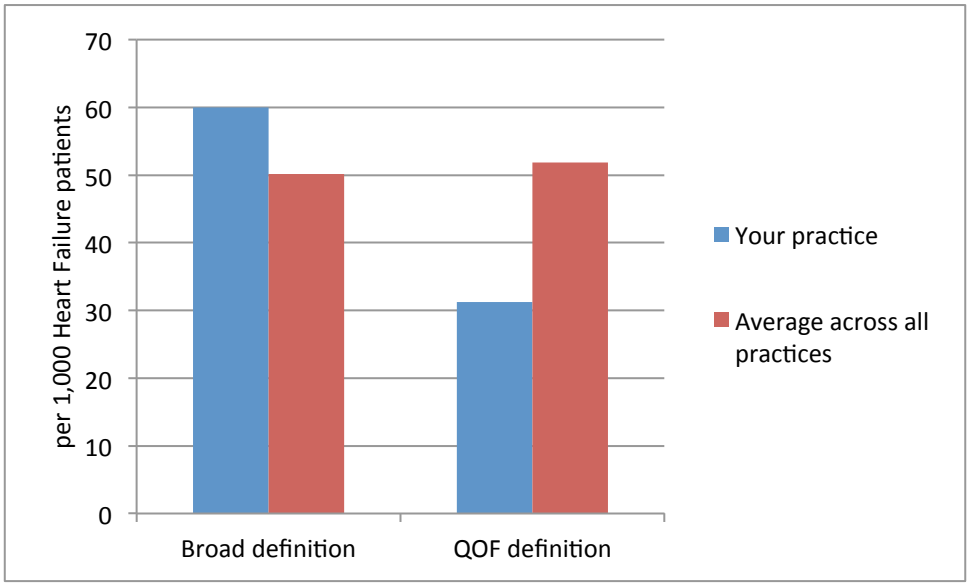
The prescribing of all NSAIDs are contra-indicated for patients with severe Heart Failure. Diclofenac, aceclofenac, ibuprofen (≥ 2.4 g daily), dexibuprofen (≥ 1.2 g daily) and the selective inhibitors of cyclo-oxygenase-2 (celecoxib, etoricoxib and parecoxib) are contra-indicated in mild to severe heart failure; they should be used with caution in patients with a history of heart failure. Other non-selective NSAIDs should be used with caution in heart failure. The lowest effective dose of NSAID should be prescribed for the shortest period of time to control symptoms and the need for long-term treatment should be reviewed periodically.[2]

Benchmarking

The following graphic presents the rate of prescribing of NSAIDs[3] in Heart Failure patients at your practice. This is based on prescriptions during 2016 for patients currently registered at your practice[4] with a record for heart failure at any time. The blue bars represent data at your practice; red bars represent the average across all practices contributing to CPRD.

Please note that the data for GP practices in CPRD has not been adjusted for case mix, deprivation, etc. A lower or higher rate than the average does not necessarily mean that your practice is better or worse than the average GP practice.

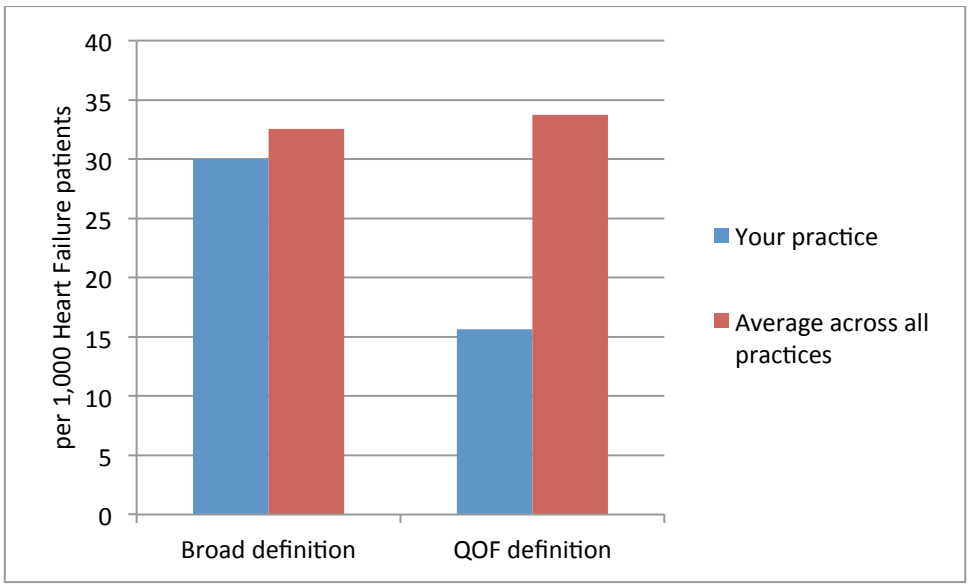
Figure 1: Prescribing of NSAIDs per thousand heart failure patients



[2] *British National Formulary* 10.1.1 Non-steroidal anti-inflammatory drugs
[3] See appendix section 2 for a description of how this was defined.
[4] See appendix section 3 for a description of which patients are included/excluded.

The following graphic presents the rate of prescribing of NSAIDs[5] in Heart Failure patients aged over 65. (We have separated out this population group because much of the research literature behind this indicator focuses on it.)

Figure 2: Prescribing of NSAIDs per thousand heart failure patients aged 65 or over



[5] See appendix section 2 for a description of how this was defined.

Case-finding

Based on the last collection from your practice on **21st January 2017**, we identified **15,609** currently registered patients[6], and we found:

- 200 patients with heart failure based on the broad definition
    - 12 of these patients with a record of at least one dispensing of an NSAID during 2016, these patients are:

Patient Identifier (As seen in Vision)	Vision alpha phonetic	Age	NSAID type(s)
0qd@	zero quebec delta @	<65	Naproxen
1wfN	one whiskey foxtrot NOVEMBER	65+	Ibuprofen
2egM	two echo golf MIKE	65+	Naproxen Piroxicam
3rh0	three romeo hotel zero	<65	Ibuprofen
4tj1	four tango juliet one	65+	Naproxen
5yk2	five yankee kilo two	65+	Etoricoxib
6ul3	six uniform lima three	<65	Naproxen
7iZ4	seven india ZULU four	<65	Meloxicam
8oX5	eight oscar X-RAY five	<65	Ibuprofen
9pC6	nine papa CHARLIE six	65+	Naproxen
0aV7	zero alpha VICTOR seven	<65	Naproxen
1sB8	one sierra BRAVO eight	65+	Diclofenac Naproxen

- 64 patients with heart failure based on the QOF definition
    - 2 of these patients with a record of at least one dispensing of an NSAID during 2016, these patients are:

Patient Identifier (As seen in Vision)	Vision alpha phonetic	Age	NSAID type(s)
0aV7	zero alpha VICTOR seven	65+	Naproxen
1sB8	one sierra BRAVO eight	<65	Diclofenac Naproxen

[6] See appendix section 3 for a description of which patients are included/excluded.

What next?

Prescribing of NSAIDs should be included in your regular reviews of the patient's treatment. NICE guidance recommends:

- The decision to prescribe an NSAID should be based on an assessment of a person's individual risk factors, including any history of cardiovascular and gastrointestinal illness.
- Naproxen (1000 mg a day or less) and low-dose ibuprofen (1200 mg a day or less) are considered to have the most favourable thrombotic cardiovascular safety profiles of all NSAIDs.
- The lowest effective dose should be used for the shortest duration necessary to control symptoms.
- A person's need for symptomatic relief and response to treatment should be re-evaluated periodically.

Clinicians who have used this report have told us that they used it in the following ways:

1. Reviews of the care of individual patients identified in the reports:
    a. Acute (one-off) prescriptions: no further action required
    b. Repeat prescriptions of NSAIDs for chronic pain were inactivated and meetings arranged with patients to discuss their ongoing pain management.
    c. With their consent, some patients were moved to other pain medication.
    d. Some patients decided that the benefits of NSAIDs outweighed the risks. In these cases, NSAID prescription continued but was altered to low-dose naproxen or ibuprofen.
2. Quality improvement within the practice:
    a. Flags were added to the notes of all heart failure patients suggesting the avoidance of NSAIDs
    b. All clinicians within participating practices were made aware of the identified issues with prescribing and patient safety
3. Appraisal and revalidation
    a. Reviews carried out as a result of receiving this report were written up as evidence under Domain 2 – Safety and Quality

Indicator 2: Prescribing of glitazones in patients with Heart Failure

Rationale – why this indicator?

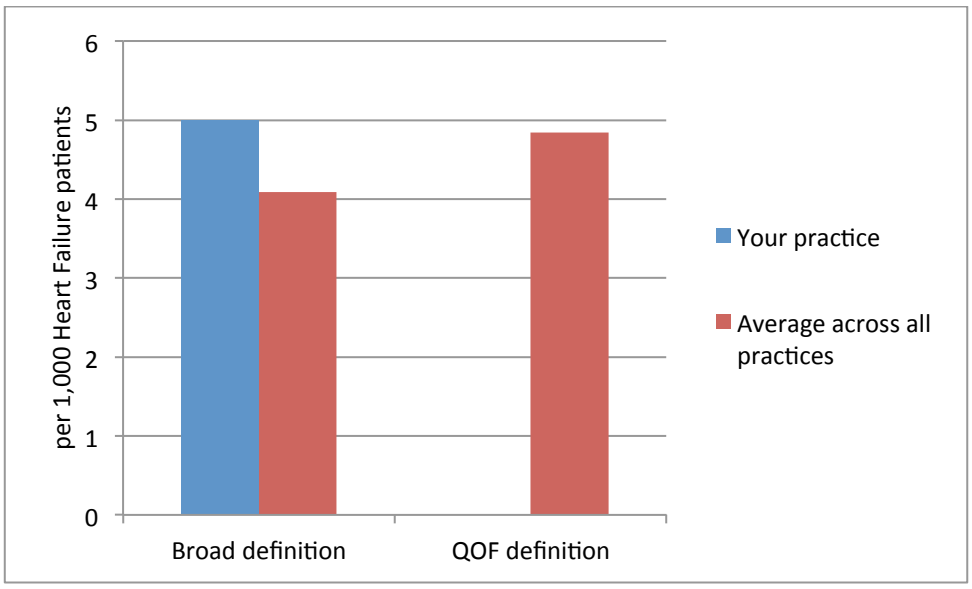
Rosiglitazone and pioglitazone should not be used in people with heart failure or history of heart failure; incidence of heart failure is increased when rosiglitazone or pioglitazone are combined with insulin.[7]

Benchmarking

The following graphic presents the rate of prescribing of glitazones[8] in Heart Failure patients at your practice. This is based on prescriptions during 2016 for patients currently registered at your practice[9] with a record for heart failure at any time. The blue bars represent data at your practice; red bars represent the average across all practices contributing to CPRD.

Please note that the data for GP practices in CPRD has not been adjusted for case mix, deprivation, etc. A lower or higher rate than the average does not necessarily mean that your practice is better or worse than the average GP practice.

Figure 1: Prescribing of glitazones per thousand heart failure patients



[7] MHRA. *Drug Safety Update*, Volume 1, Issue 5 December 2007
[8] See appendix section 2 for a description of how this was defined.
[9] See appendix section 3 for a description of which patients are included/excluded.

Case-finding

Based on the last collection from your practice on **21st January 2017**, we identified **15,609** currently registered patients[10], and we found:

- 200 patients with heart failure based on the broad definition
    - 1 of these patients with a record of at least one dispensing of a glitazones during 2016, these patients are:

Patient Identifier (As seen in Vision)	Vision alpha phonetic
1sB8	one sierra BRAVO eight

- 64 patients with heart failure based on the QOF definition
    - 0 of these patients with a record of at least one dispensing of a glitazones during 2016

What next?

It is recommended that prescribing of glitazones should be discontinued for patients with a diagnosis of Heart Failure; alternative therapies for Diabetes should be considered.

As above (see **What Next?** Section for Indicator 1), clinicians who have used this report have told us that they used it for:

1. Reviews of the care of individual patients identified in the reports
    a. Repeat prescriptions of glitazones were inactivated and meetings arranged with patients to discuss alternative treatments.
    b. With their consent, patients were moved to other diabetes medication.
2. Quality improvement within the practice:
    a. Flags were added to the notes of all heart failure patients suggesting the avoidance of glitazones
    b. All clinicians within participating practices were made aware of the identified issues with prescribing and patient safety
3. Appraisal and revalidation (as evidence under Domain 2 – Safety and Quality)

[10] See appendix section 3 for a description of which patients are included/excluded.

Further information

The RCGP patient safety toolkit, from which these indicators are taken, is available online: www.rcgp.org.uk/clinical-and-research/toolkits/patient-safety.aspx

Prescribing and patient safety is also covered in the RCGP's e-learning portfolio for members: gpeportfolio.rcgp.org.uk/Login.aspx

The RCGP has a range of resources designed to support GPs with the process of quality improvement: www.rcgp.org.uk/clinical-and-research/our-programmes/quality-improvement.aspx

NICE publishes guidance on the management of patients with heart failure:

- Clinical Guidance: Chronic heart failure in adults: management www.nice.org.uk/guidance/cg108

NICE publishes the following guidance material on NSAIDs for clinicians:

- Clinical Knowledge Summary: Prescribing issues for NSAIDs http://cks.nice.org.uk/nsaids-prescribing-issues#!scenario
- Key Therapeutic Topic: Non-steroidal anti-inflammatory drugs www.nice.org.uk/advice/ktt13/chapter/evidence-context

The management of Heart Failure patients with Diabetes is covered in NICE guidance on Diabetes:

- Type 2 diabetes in adults: management www.nice.org.uk/guidance/ng28

The MHRA monitors the safety of all medicines and vaccines on the market in the UK, and publishes detailed information on its website (www.mhra.gov.uk). The European Medicines Agency likewise monitors drug safety across Europe, and its assessments are published on its website (www.ema.europa.eu).

The British National Formulary (BNF) contains full information on all prescription drugs: www.evidence.nhs.uk/formulary/bnf/current

The STOPP START (Screening Tool of Older People's potentially inappropriate Prescriptions; Screening Tool to Alert doctors to Right Treatments) toolkit is available from many sources online, for instance: www.cumbria.nhs.uk/ProfessionalZone/MedicinesManagement/Guidelines/StopstartToolkit2011.pdf

The following papers are a suggested starting-point for all clinicians who wish to understand the research that underpins the indicators in this report:

- Coxib and traditional NSAID Trialists' (CNT) Collaboration 2013. Vascular and upper gastrointestinal effects of non-steroidal anti-inflammatory drugs: meta-analyses of individual participant data from randomised trials. Lancet. 2013 Aug 31;382(9894):769-79. doi: 10.1016/S0140-6736(13)60900-9. www.thelancet.com/journals/lancet/article/PIIS0140-6736(13)60900-9/abstract
- Arfè A. et al. 2016 Non-steroidal anti-inflammatory drugs and risk of heart failure in four European countries: nested case-control study *BMJ* 2016; 354 :i4857 www.bmj.com/content/354/bmj.i4857
- O'Mahony D. et al. 2014. STOPP/START criteria for potentially inappropriate prescribing in older people: version 2. Age Ageing (2014) doi: 10.1093/ageing/afu145. http://ageing.oxfordjournals.org/content/early/2014/11/18/ageing.afu145.short
- Nesto R. et al. 2003. Thiazolidinedione Use, Fluid Retention, and Congestive Heart Failure: A Consensus Statement From the American Heart Association and American Diabetes Association. Circulation (2003). Doi: 10.1161/01.CIR.0000103683.99399.7E http://circ.ahajournals.org/content/108/23/2941

Appendix

1: Data definitions for Heart Failure patients

The narrow, or QOF, definition for Heart Failure patients includes the following Read codes:

Read code	Read term
662f.00	New York Heart Association classification - class I
662g.00	New York Heart Association classification - class II
662h.00	New York Heart Association classification - class III
662i.00	New York Heart Association classification - class IV
G1yz100	Rheumatic left ventricular failure
G58..00	Heart failure
G58..11	Cardiac failure

The broad definition for Heart Failure patients includes the following Read codes:

Read code	Read term
2126400	Heart failure resolved
14A6.00	H/O: heart failure
14AM.00	H/O: Heart failure in last year
1O1..00	Heart failure confirmed
388D.00	New York Heart Assoc classification heart failure symptoms
585f.00	Echocardiogram shows left ventricular systolic dysfunction
661M500	Heart failure self-management plan agreed
662f.00	New York Heart Association classification - class I
662g.00	New York Heart Association classification - class II
662h.00	New York Heart Association classification - class III
662i.00	New York Heart Association classification - class IV
662p.00	Heart failure 6 month review
662T.00	Congestive heart failure monitoring
662W.00	Heart failure annual review
679W100	Education about deteriorating heart failure
679X.00	Heart failure education
67D4.00	Heart failure information given to patient
8B29.00	Cardiac failure therapy
8CeC.00	Preferred place of care for next exacerbation heart failure
8CL3.00	Heart failure care plan discussed with patient
8CMK.00	Has heart failure management plan
8CMW800	Heart failure clinical pathway
8H2S.00	Admit heart failure emergency
8HBE.00	Heart failure follow-up
8Hg8.00	Discharge from practice nurse heart failure clinic

8HgD.00	Discharge from heart failure nurse service
8HHb.00	Referral to heart failure nurse
8HHz.00	Referral to heart failure exercise programme
8Hk0.00	Referred to heart failure education group
8HTL.00	Referral to heart failure clinic
8HTL000	Referral to rapid access heart failure clinic
8I98.00	Heart failure rehabilitation programme not available
8IB8.00	Referral to heart failure exercise programme not indicated
8IE0.00	Referral to heart failure education group declined
8IE1.00	Referral to heart failure exercise programme declined
9N0k.00	Seen in heart failure clinic
9N2p.00	Seen by community heart failure nurse
9N4s.00	Did not attend practice nurse heart failure clinic
9N4w.00	Did not attend heart failure clinic
9N6T.00	Referred by heart failure nurse specialist
9Or..00	Heart failure monitoring administration
9Or0.00	Heart failure review completed
9Or1.00	Heart failure monitoring telephone invite
9Or2.00	Heart failure monitoring verbal invite
9Or3.00	Heart failure monitoring first letter
9Or4.00	Heart failure monitoring second letter
9Or5.00	Heart failure monitoring third letter
G1yz100	Rheumatic left ventricular failure
G232.00	Hypertensive heart&renal dis wth (congestive) heart failure
G58..00	Heart failure
G58..11	Cardiac failure
G580.00	Congestive heart failure
G580.11	Congestive cardiac failure
G580.12	Right heart failure
G580.13	Right ventricular failure
G580.14	Biventricular failure
G580000	Acute congestive heart failure
G580100	Chronic congestive heart failure
G580200	Decompensated cardiac failure
G580300	Compensated cardiac failure
G580400	Congestive heart failure due to valvular disease
G581.00	Left ventricular failure
G581.11	Asthma - cardiac
G581.13	Impaired left ventricular function
G581000	Acute left ventricular failure
G582.00	Acute heart failure
G583.00	Heart failure with normal ejection fraction
G583.11	HFNEF - heart failure with normal ejection fraction
G583.12	Heart failure with preserved ejection fraction

G584.00	Right ventricular failure
G58z.00	Heart failure NOS
G58z.11	Weak heart
G58z.12	Cardiac failure NOS
G5y4z00	Post cardiac operation heart failure NOS
G5yy900	Left ventricular systolic dysfunction
G5yyB00	Right ventricular diastolic dysfunction
Q490.00	Neonatal cardiac failure
SP11111	Heart failure as a complication of care
ZRad.00	New York Heart Assoc classification heart failure symptoms

2: Data definitions

Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)

NSAIDs codes were selected using the ATC codes for 'anti-inflammatory and anti-rheumatic products, non-steroids – M01A' and 'Anti-inflammatory preparations, non-steroids for topical use - M02AA'. Results for multi-ingredient products e.g. muscle rubs were removed if they contained <1% NSAIDs.

The following products were excluded:

- Oral solutions with a product strength of <5mg/ml
- Gels with a product strength of <5mg/gram
- Tablets with product strength of <10mg
- Suppositories with a product strength of <7.5MG
- Aspirin

Thiazolidinediones (glitazones)

Glitazones included pioglitazone, rosiglitazone and their formulations in combination with metformin.

3: Currently registered patients

This report includes only currently registered patients, where their data is deemed of acceptable quality for use in research by CPRD. This may differ from the list size you would expect for your practice.

Patients are labelled as currently registered if the practice has contributed data in the last six months and the patient has no record of transfer out for any reason.

Patients are labelled having data of acceptable quality for use in research by a process that identifies and excludes patients with non-continuous follow up or patients with poor data recording that raises suspicion as to the validity of the that patients record. Patient data is checked, for the following issues:

- An empty or invalid registration date (applied or accepted)
- Absence of a record for the year of birth
- A registration date (applied or accepted) prior to their birth year
- A transfer out reason with no transfer out date
- A transfer out date with no transfer out reason
- A transfer out date prior to their registration date (applied or accepted)
- A gender other than Female/Male/Indeterminate
- An age of greater than 115 at the date of last data collection from the practice
- Recorded health care episodes in years prior to their birth year
- All recorded health care episodes have empty or invalid event dates
- Registration status of temporary patient

If any of these conditions are true then the patient is labelled unacceptable, and is not recommended for use in research. Approximately 15% of patient records are excluded for this reason.