Quality Improvement Data Report: Patient Safety and Prescribing

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 latest database build; for your practice, these data were extracted on Tuesday 26th June, 2018. 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 four 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
3. Prescribing of Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) in patients with Chronic Kidney Disease
4. Aspirin monotherapy in patients with Atrial Fibrillation

The first three of these indicators are taken from the Prescribing Safety Indicators section of the RCGP Patient Safety toolkit; the fourth has been identified as a priority indicator by the National Institute for Health and Care Excellence (NICE). All indicators have been selected based on user feedback, and after consultation with our clinical advisory group, which includes practising clinicians, officers of the RCGP and representatives from NICE and the Medicines and Healthcare products Regulatory Agency (MHRA).

A description of which patients are included or excluded is included in the Appendix. The definitions for each indicator are included in the description of each indicator. There is a detailed list of the codes used for this report on the CPRD website: https://www.cprd.com/generalpractitioner/QualityImprovementProject.asp.

Using the report

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.

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

1. To review the care of individual patients identified in the reports, and change their prescriptions where necessary and with the patient's consent
2. To flag all patients with the identified conditions in order to ensure that they will not be prescribed potentially unsafe drugs in future
3. As part of quality improvement meetings within the practice
4. To raise awareness of prescribing issues among practice staff
5. As evidence for appraisals and revalidation under Domain 2 Safety and Quality

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 ($\geq$ 2.4 g daily), dexibuprofen ($\geq$ 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.[1]

Which patients are included in this analysis?

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)
2. A broad definition, which includes all relevant codes identified by a review of the coding system

Benchmarking is based on the broad heart failure definition and patients meeting the narrower QOF definition are highlighted in the casefinding section.

Patients are defined as having Heart Failure if they have a record for heart failure at any time.

A description of which patients are included or excluded is included in the Appendix. There is a detailed list of the codes used for this report on the CPRD website: https://www.cprd.com/generalpractitioner/QualityImprovementProject.asp.

Benchmarking

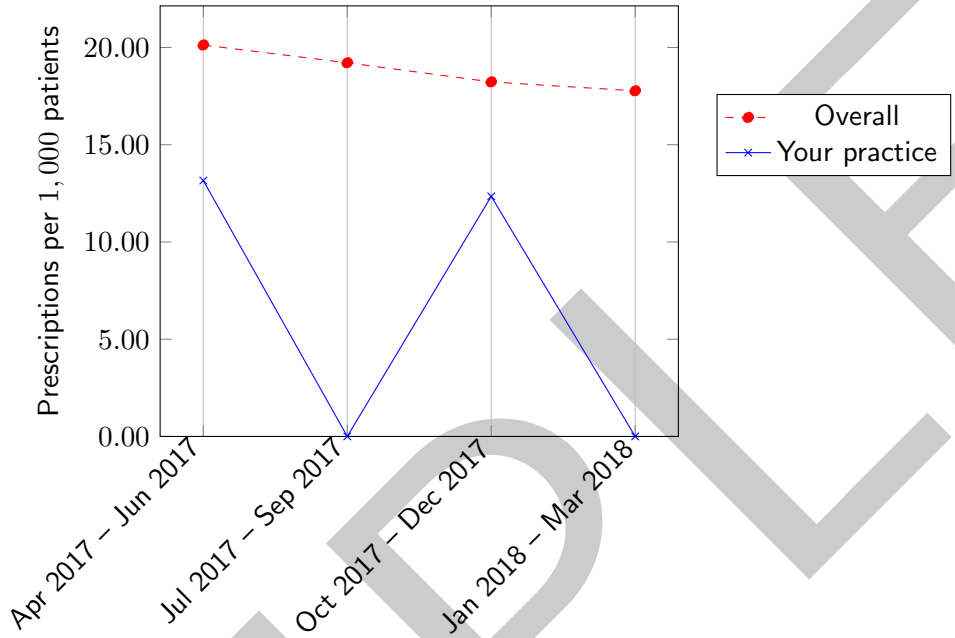
The following graphic presents trend lines for the rate of prescribing of NSAIDs in Heart Failure patients at your practice compared with the average rate for all practices within our dataset. The blue line shows your practice's rate; the red line shows the average across all practices contributing to CPRD. The graph contains four data points, starting in April 2017 and ending in March 2018. Each data point shows the rate for one quarter. (If you have received previous reports, please note that your practice's rate will have changed because the prescribing rate shown in the benchmarking chart covered a longer time period.)

NSAID prescriptions are included in the chart if they have been prescribed in that quarter.

Please also 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 the information is presented for context.

[1] British National Formulary 10.1.1 Non-steroidal anti-inflammatory drugs

Figure 1: Prescribing of NSAIDs per thousand heart failure patients April 2017 – March 2018



Case-finding

The following case-finding is based on patients that were prescribed NSAIDs between April 2017 and June 2018.

From the 12,236 patients registered at your practice on the data extraction date, we found:

- 34 patients with heart failure based on the QOF definition
  - None of these patients had a record of dispensing of an NSAID between April 2017 and June 2018.
- 48 additional patients with heart failure based on the broad definition
  - No patients that did not meet the QOF criteria had a record of dispensing of an NSAID between April 2017 and June 2018.

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.

Indicator 2: Prescribing of glitazones in patients with Heart Failure

Rationale - why this indicator?

Pioglitazone should not be used in people with heart failure or history of heart failure. Incidence of heart failure is increased when pioglitazone is combined with insulin.[2]

Which patients are included in this analysis?

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)
2. A broad definition, which includes all relevant codes identified by a review of the coding system

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

Patients are defined as having Heart Failure if they have a record for heart failure at any time.

Glitazone prescriptions are included in the analysis if they have been prescribed between April 2017 and June 2018.

A description of which patients are included or excluded is included in the Appendix. There is a detailed list of the codes used for this report on the CPRD website: https://www.cprd.com/generalpractitioner/QualityImprovementProject.asp.

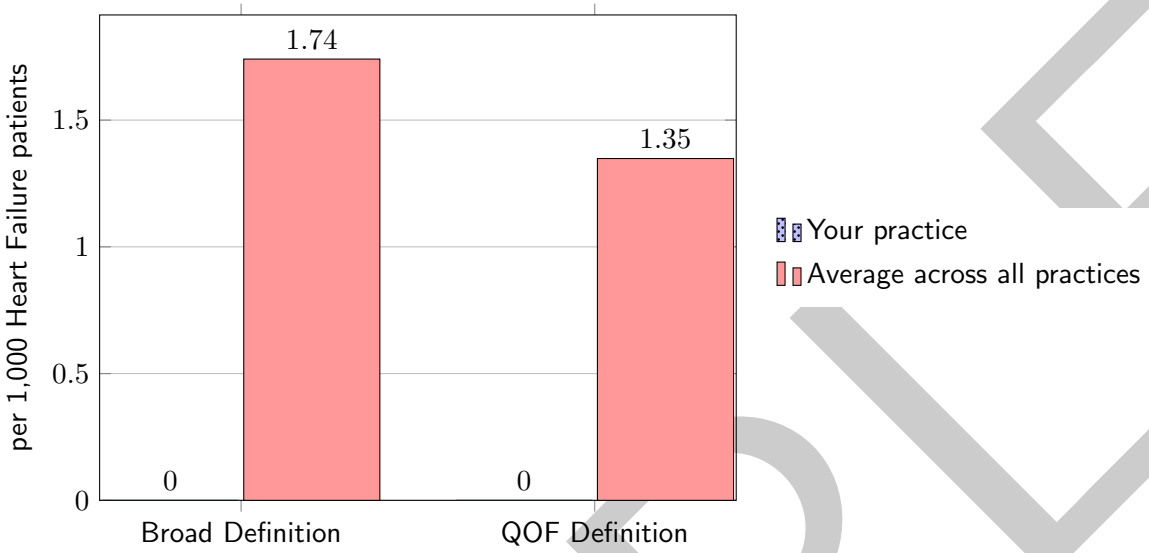
Benchmarking

The following graphic presents the rate of prescribing of glitazones in Heart Failure patients at your practice compared with the average rate for all practices within our dataset. The blue bar shows your practice's rate; the red bar shows the average across all practices contributing to CPRD. Unlike the other indicators in this report, we have not presented a trend line, because low numbers of Heart Failure patients who have been prescribed glitazones across the dataset mean that a trend graph would be misleading.

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 the information is presented for context.

[2] MHRA. Drug Safety Update, Volume 1, Issue 5 December 2007. The original guidance includes rosiglitazone; the use of rosiglitazone has since been suspended

Figure 2: Prescribing of glitazones per thousand heart failure patients



Case-finding

From the 12,236 patients registered at your practice on the data extraction date, we found:

- 34 patients with heart failure based on the QOF definition
  - None of these patients had a record of dispensing of a glitazone between April 2017 and June 2018.
- 48 additional patients with heart failure based on the broad definition
  - No patients that did not meet the QOF criteria had a record of dispensing of a glitazone between April 2017 and June 2018.

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.

Indicator 3: Prescribing of NSAIDs in patients with Chronic Kidney Disease

Rationale - why this indicator?

In people with Chronic Kidney Disease (CKD) the chronic use of NSAIDs may be associated with progression and acute use is associated with a reversible decrease in GFR.[3]

Which patients are included in this analysis?

We have used a data definition to identify patients with CKD that is based on both coded test results and the Read code hierarchy. Patients are defined as having CKD if their two most recent eGFR readings are < 45 or they have a record for CKD (Stages 3, 4 or 5, excluding 3a) at any time. The code ranges used for this definition are on the CPRD website: https://www.cprd.com/generalpractitioner/QualityImprovementProject.asp.

A description of which patients are included or excluded is included in the Appendix. There is a detailed list of the codes used for this report on the CPRD website: https://www.cprd.com/generalpractitioner/QualityImprovementProject.asp.

Benchmarking

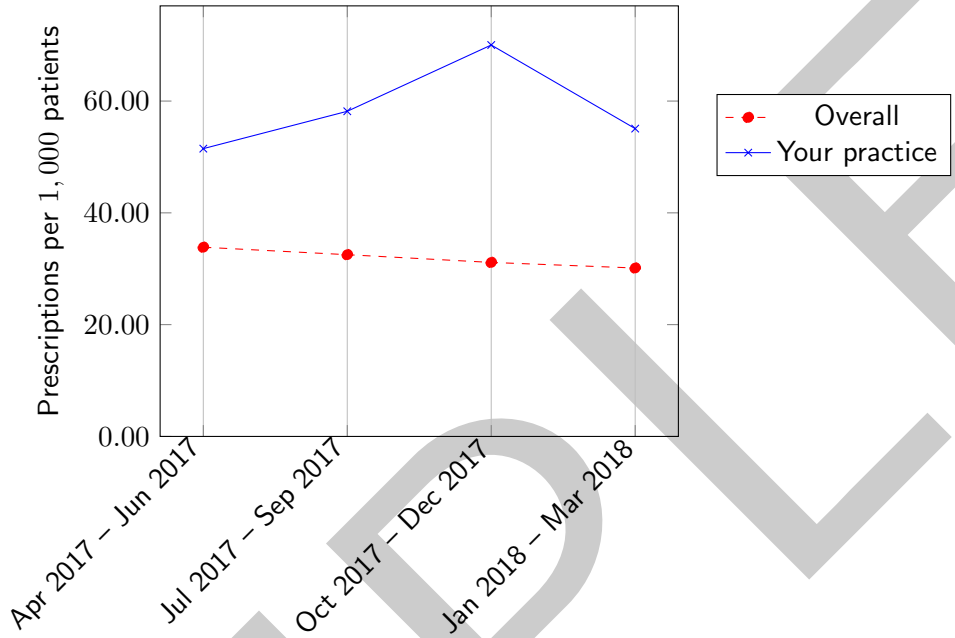
The following graphic presents trend lines for the rate of prescribing of NSAIDs in CKD patients at your practice compared with the average rate for all practices within our dataset. The blue line shows your practice's rate; the red line shows the average across all practices contributing to CPRD. The graph contains four data points, starting in April 2017 and ending in March 2018. Each data point shows the rate for one quarter. (If you have received previous reports, please note that your practice's rate will have changed because the prescribing rate shown in the benchmarking chart covered a longer time period.)

NSAID prescriptions are included in the chart if they have been prescribed in that quarter.

Please also 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 the information is presented for context.

[3] https://www.nice.org.uk/guidance/cg182/chapter/1-recommendations

Figure 3: Prescribing of NSAIDs per thousand CKD patients



Case-finding

The following case-finding is based on patients that were prescribed NSAIDs between April 2017 and June 2018.

From the 12,236 patients registered at your practice on the data extraction date, we found:

- 352 patients with CKD
  - 20 of these patients had a record of at least one dispensing of an NSAID during the time period covered by our analysis; these patients are:

EMIS Patient Identifier	Approx. Age	Substance
2827	84	ibuprofen 200mg tablets
5884	81	ibuprofen 200mg tablets
848	70	indometacin 25mg capsules
9408	73	naproxen 250mg tablets
4783	76	naproxen 250mg gastro-resistant tablets
7262	77	ibuprofen 400mg tablets
8343	74	naproxen 250mg gastro-resistant tablets
4824	90	diclofenac sodium 75mg gastro-resistant modified-release capsules
2354	81	ibuprofen 400mg tablets
1780	81	celecoxib 100mg capsules
8635	73	naproxen 250mg gastro-resistant tablets
9945	84	ibuprofen 400mg tablets
3314	79	ibuprofen 400mg tablets
3624	81	naproxen 250mg tablets
4249	81	naproxen 250mg gastro-resistant tablets
1475	68	naproxen 250mg gastro-resistant tablets

EMIS Patient Identifier (cont.)	Approx. Age (cont.)	Substance (cont.)
4276	78	diclofenac sodium 75mg gastro-resistant modified-release capsules
5017	69	ibuprofen 400mg tablets
1396	91	naproxen 250mg gastro-resistant tablets
2127	82	naproxen 250mg tablets

What next?

Exercise caution when treating people with CKD with NSAIDs over prolonged periods of time. Monitor the effects on GFR, particularly in people with a low baseline GFR and/or in the presence of other risks for progression.[4]

[4] https://www.nice.org.uk/guidance/cg182/chapter/1-recommendations

Indicator 4: Aspirin monotherapy in patients with Atrial Fibrillation

Rationale - why this indicator?

In patients with AF, aspirin is associated with increased risk of nonfatal and fatal bleeding.

This indicator is based on a NICE Do Not Do Recommendation: Do not offer aspirin monotherapy solely for stroke prevention to people with atrial fibrillation. [5]

The evidence for effective stroke prevention with aspirin in AF is weak, with a potential for harm, as data indicate that the risk of major bleeding or intracranial haemorrhage with aspirin is not significantly different to that of oral anticoagulants, especially in the elderly. [6]

Which patients are included in this analysis?

This analysis identifies patients with a record of Atrial Fibrillation (AF) who have been prescribed aspirin but have NOT been prescribed an anticoagulant.

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

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

Benchmarking is based on the broad definition and patients meeting the narrower QOF definition are highlighted in the casefinding section.

Patients are defined as having AF if they have a record for AF at any time. Patients with a code of AF Resolved at any time have been excluded.

Anticoagulant prescriptions included in the analysis include Low-molecular-weight heparin (LMWH) in addition to the anticoagulants indicated for use in primary care, in order to minimise the number of false positives in our analysis.

A description of which patients are included or excluded is included in the Appendix. There is a detailed list of the codes used for this report on the CPRD website: https://www.cprd.com/generalpractitioner/QualityImprovementProject.asp.

Benchmarking

The following graphic presents trend lines for the rate of prescribing of Aspirin in atrial fibrillation patients at your practice with no prescription for anticoagulant compared with the average rate for all practices within our dataset. The blue line shows your practice's rate; the red line shows the average across all practices contributing to CPRD. The graph contains four data points, starting in April 2017 and ending in March 2018. Each data point shows the rate for one quarter. (If you have received previous reports, please note that your practice's rate will have changed because the prescribing rate shown in the benchmarking chart covered a longer time period.)

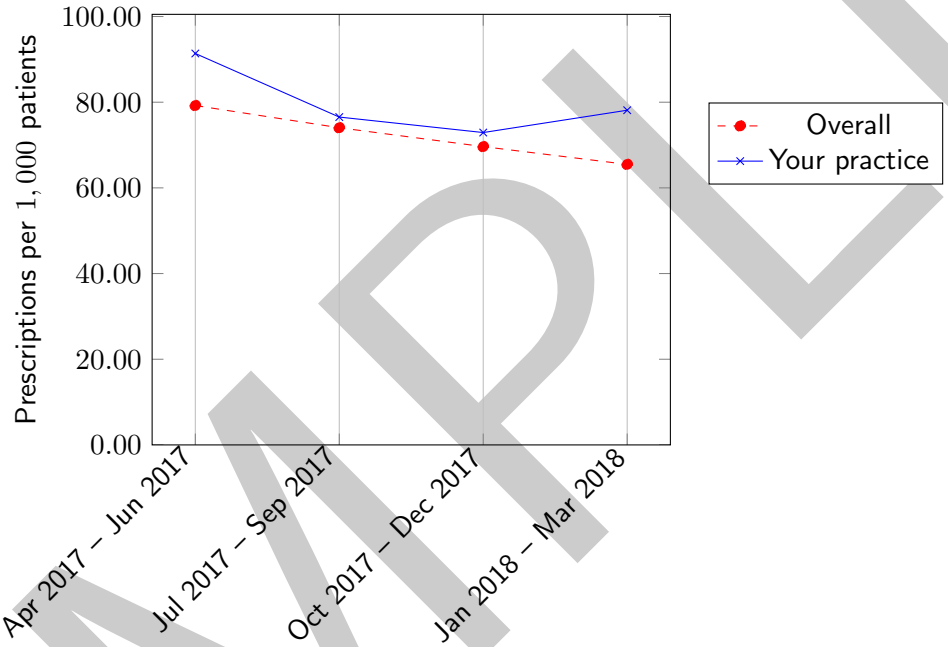
[5] https://www.nice.org.uk/donotdo/do-not-offer-aspirin-monotherapy-solely-for-stroke-prevention-to-people-withatrial-fibrillation

[6] https://academic.oup.com/eurheartj/article/33/21/2719/493051#89295009

Aspirin prescriptions are included in the chart if they have been prescribed to an AF patient in that quarter and the AF patient was not prescribed anticoagulants in the quarter.

Please also 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 the information is presented for context.

Figure 4: Prescribing of Aspirin per thousand atrial fibrillation patients



Case-finding

The following case-finding is based on patients that were prescribed Aspirin between April 2017 and June 2018and were not prescribed anticoagulants in that period.

From the 12,236 patients registered at your practice on the data extraction date, we found:

- 191 patients with atrial fibrillation based on the QOF definition
  - 13 of these patients had a record of at least one dispensing of Aspirin and no record indicating a prescription of an anticoagulant between April 2017 and June 2018; these patients are:

EMIS Patient Identifier	Approx. Age	Substance
6523	80	aspirin 75mg dispersible tablets
6323	75	aspirin 75mg tablets
5223	87	aspirin 75mg gastro-resistant tablets
6321	80	aspirin 75mg tablets
2654	82	aspirin 75mg dispersible tablets
4865	89	aspirin 75mg gastro-resistant tablets
15432	70	aspirin 75mg gastro-resistant tablets
1653	72	aspirin 75mg tablets
2315	72	aspirin 75mg dispersible tablets
1235	71	aspirin 75mg dispersible tablets

EMIS Patient Identifier (cont.)	Approx. Age (cont.)	Substance (cont.)
	85	aspirin 75mg tablets
12351	57	aspirin 75mg tablets
4562	92	aspirin 75mg tablets

- 14 additional patients with atrial fibrillation based on the broad definition
  - One patient did not meet the QOF criteria and had a record of at least one dispensing of Aspirin and no record indicating a prescription of an anticoagulant between April 2017 and June 2018; this patient is

EMIS Patient Identifier	Approx. Age	Substance
6234	67	aspirin 75mg dispersible tablets

What next?

NICE guidance recommends:

- Do not offer stroke prevention therapy to people aged under 65 years with atrial fibrillation and no risk factors other than their sex (that is, very low risk of stroke equating to a CHA2DS2-VASc score of 0 for men or 1 for women).
- Where stroke prevention therapy is appropriate for patients with AF, patients must also be prescribed anticoagulants. Full recommendations for these patients are available in NICE guidance for the management of AF: https://www.nice.org.uk/guidance/cg180/chapter/recommendations#interventions-to-prevent-stroke-2

Further information

The RCGP patient safety toolkit, from which indicators 1-3 are taken, is available online:

- http://www.rcgp.org.uk/clinical-and-research/toolkits/patient-safety.aspx

Prescribing and patient safety is also covered in the RCGPs e-learning portfolio for members:

- http://gpeportfolio.rcgp.org.uk/Login.aspx

The RCGP has a range of resources designed to support GPs with the process of quality improvement:

- http://www.rcgp.org.uk/clinical-and-research/our-programmes/quality-improvement.aspx

NICE publishes guidance on the management of patients covered by the indicators in this report:

- Clinical Guideline: Chronic heart failure in adults: management
  - http://www.nice.org.uk/guidance/cg108
- Clinical Guideline: Chronic Kidney Disease in Adults: assessment and management
  - https://www.nice.org.uk/guidance/cg182
- Clinical Guideline: Atrial Fibrillation: management
  - https://www.nice.org.uk/guidance/cg180

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

Stroke prevention for patients with AF is covered in the following NICE publications:

- Clinical Guideline: Atrial Fibrillation: management; Section 1.4 Assessment of stroke and bleeding risks
  - https://www.nice.org.uk/guidance/cg180/chapter/1-Recommendations#assessment-of-stroke-and-bleeding-risks-2
- Pathway: Preventing stroke in people with atrial fibrillation
  - https://pathways.nice.org.uk/pathways/atrial-fibrillation/preventing-stroke-in-people-with-atrial-fibrillation

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

The British National Formulary (BNF) contains full information on all prescription drugs:

- https://bnf.nice.org.uk/

The STOPP START (Screening Tool of Older Peoples potentially inappropriate Prescriptions; Screening Tool to Alert doctors to Right Treatments) toolkit is available from many sources online, for instance:

- http://www.cgakit.com/m-2-stopp-start

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.ncbi.nlm.nih.gov/pmc/articles/PMC3778977/
- 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
  - http://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
- Eibert R. Heerdink, Hubert G. Leufkens, Ron M. C. Herings, Jan P. Ottervanger, Bruno H. C. Stricker, Albert Bakker. NSAIDs Associated With Increased Risk of Congestive Heart Failure in Elderly Patients Taking Diuretics. Arch Intern Med. 1998;158(10):11081112. doi:10.1001/archinte.158.10.1108
  - https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/205965
- 2012 focused update of the ESC Guidelines for the management of atrial fibrillation: An update of the 2010 ESC Guidelines for the management of atrial fibrillation. Developed with the special contribution of the European Heart Rhythm Association. European Heart Journal, Volume 33, Issue 21, 1 November 2012, Pages 27192747, doi.org/10.1093/eurheartj/ehs253
  - https://academic.oup.com/eurheartj/article/33/21/2719/493051#89295009

Appendix

1 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
- 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.