



| <b>Unrestricted</b>   |           |            |      |              |             |
|---|-----------|------------|------|--------------|-------------|
| <b>Data and Business Rules – Coronary Heart Disease Specification</b> |           |            |      |              |             |
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## **New GMS Contract QOF Implementation**

### **Dataset and Business Rules**

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### **Coronary Heart Disease Indicator Set**

**Amendment History:**

| <b>Version</b> | <b>Date</b>  | <b>Amendment History</b>   |
|----------------|--------------|--|
| 0.1            | 09-Jul-2004  | From Peter Horsfield. Extracted from July Read Code Release. Contains Read v0 only.  |
| 1.0            | 27-Sep-2004  | Amended following 4 Country Review   |
| 1.1            | 18-Jan-2005  | Amended following January Read Code Release  |
| 1.2            | 21-Jun-2005  | Amended following 4 Country Review   |
| 2.0            | 21-July-2005 | Signed off following 4 Country Review  |
| 2.1            | 21-July-2005 | Amended following July 2005 Read Code release and January 2005 SNOMED CT release   |
| 2.2            | 21-Aug-2005  | Amended following 4 Country review   |
| 3.0            | 23-Sep-2005  | Signed off following 4 Country review  |
| 3.1            | 21-Nov-2005  | Amended following review by Phil Brown   |
| 3.2            | 22-Nov-2005  | Amended following review by Peter Horsfield  |
| 3.3            | 3-Dec-2005   | Draft revised for internal review  |
| 7.4            | 26-Feb-2006  | Amended following internal & 4 Countries review.<br>Also includes uplifting to 7.4 to bring the 4-Byte documents to the same version number as the 5-Byte/CTV3/SNOMED-CT documents |
| 8.0            | 15-Mar-2006  | Signed off following 4 Country review  |
| 8.1            | 18-May-2006  | Responding to queries raised<br>Amend wording for Note 3   |
| 8.5            | 18-May-2006  | Approved by NHSE   |
| 8.6            | 20-Oct-2006  | April Read Code Release<br>October Read Code Release<br>Corrections and amendments following feedback  |
| 8.7            | 09-Nov-2006  | Following 4-Country Review<br>Diagnostic Code Status: Add "excluding G4A."<br>IHD_COD: Add "excluding G4A."<br>EXC_COD: Correct 8H4R. to 8H4R                                      |
| 9.0            | 30-Nov-2006  | Approved by NHSE   |
| 9.1            | 11-Apr-2007  | April 2007 Read Code Release   |
| 10.0           | 18-Jun-2007  | Signed off following 4 Country review  |
| 10.1           | 23-Sep-2007  | October 2007 Read Code Release   |
| 11.0           | 28-Nov-2007  | Signed off following 4 Country review  |
| 11.1           | 30-Jun-2008  | April 2008 Read Code Release<br>QOF Review 2007  |
| 12.0           | 24-Jul-2008  | Signed off following 4 Country review  |
| 12.1           | 06-Oct-2008  | October 2008 Read Code Release   |
| 13.0           | 05-Dec-2008  | Signed off following 4 Country review  |

## **New GMS contract Q&O framework implementation**

### Dataset and business rules – Coronary heart disease indicator set

#### Notes

- 1) The specified dataset and rulesets are to support analysis of extracted data to reflect the status at a specified point in time of patient records held by the practice. In the context of this document that specified time point is designated the 'Reference date' and identified by the abbreviation 'REF\_DAT'. In interpreting the specification REF\_DAT should be taken to mean midnight of the preceding day (i.e. a REF\_DAT of 01.04.2003 equates to midnight on 31.03.2003).
- 2) To support accurate determination of the population of patients to which the indicators should relate (the denominator population) these rulesets have been compiled with a prior assumption that the reference date is specified prior to extraction of data and is available for computation in the data extraction routine. The reference date will also be required to be included in the data extraction to support processing of rules that are dependent upon it. It is possible that an alternative approach could be adopted in which rules to determine the denominator population by registration status would be applied as a component of rule processing. If this second approach were to be adopted it would be essential to specify default time criteria for determining the registration characteristics of the denominator population during the data extraction process. Additionally there would be a requirement to supplement the dataset and rulesets to support identification of the appropriate denominator population.
- 3) Clinical codes quoted are (where known) from the April 2006 release of Read codes (version 0). The codes are shown within the document as a 4 character value to show that the Read Code is for a 4-Byte system.
  - i) Where a '%' wildcard is displayed, the Read Code is filled to 4 characters with full-stops. When implementing a search for the Read Code, only the non full-stop values should be used in the search, For example, a displayed Read Code of c1.% should be implemented as a search for c1%, i.e. should find c1 and any of it's children.
  - ii) Where a range of read codes are displayed, the Read Code is filled to 4 characters with full-stops. When implementing the search, only the non full-stop values should be used in the search, For example, a displayed Read Code range of G342 – G3z. should find all codes between G342 and G3z (including any children where applicable).
- 4) Datasets comprise a specification of two elements:
  - a) Patient selection criteria. These are the criteria used to determine the patient population against whom the indicators are to be applied.
    - i) Registration status. This determines the current patient population at the practice
    - ii) Diagnostic code status. This determines the current patient population (register size) for a given clinical condition

There are three scenarios within the diagnostic code status, these are where

- There is a single morbidity patient population (disease register) required (e.g. within CHD). Where this occurs, a single set of rules for identifying the patient population is provided.
- There is a single co-morbidity patient population (disease register) required (e.g. within Smoking). Where this occurs, a set of rules for **each** morbidity is provided. A patient **must** only be included in the patient population (register size) **once**.
- There are multiple patient populations (disease registers) required (e.g. within Heart Failure). Where this occurs, a single set of rules for **each** patient population is provided.  
N.B. where there are multiple patient populations (disease registers), it is possible that one or more will also be a co-morbidity patient population (e.g. within Depression)

Where this occurs, details of which register population applies to which indicator(s) are provided. Where the register size applies to an indicator, this is the base denominator population for that indicator.

- b) Clinical data extraction criteria. These are the data items to be exported from the clinical system for subsequent processing to calculate points allocations. They are expressed in the form of a MIQUEST 'Report-style' extract of data.

The record of each patient that satisfies the appropriate selection criteria for a given indicator will be interrogated against the clinical data criteria (also appropriate to that indicator). A report of the data contained in the selected records will be exported in the form of a fixed-format tabular report. Each selected patient will be represented by a single row in the report. Rows will contain a fixed number of fields each containing a single data item. The number of fields in each row and their data content will be determined by the clinical data criteria. Data items that match the clinical data criteria will be exported in the relevant field of the report. Where there is no data to match a specific clinical criterion a null field will be exported.

- 5) Rulesets are specified as multiple rules to be processed sequentially. Processing of rules should terminate as soon as a 'Reject' or 'Select' condition is encountered
- 6) Rules are expressed as logical statements that evaluate as either 'true' or 'false'. The following operators are required to be supported:
- |                     |        |
|---------------------|--------|
| a) > (greater than) | e) AND |
| b) < (less than)    | f) OR  |
| c) = (equal to)     | g) NOT |
| d) ≠ (not equal to) |        |
- 7) Where date criteria are specified with intervals of multiples of months or years these should be interpreted as calendar months or calendar years.
- 8) The new GMS contract requires that influenza vaccinations should be given between 1<sup>st</sup> September and 31<sup>st</sup> March of any given contract year in order to qualify for the relevant indicators. Hence in the contract year 2004 – 2005 the relevant dates will be 1<sup>st</sup> September 2004 and 31<sup>st</sup> March 2005 inclusive. In this document these dates are expressed as variable parameters FLU\_COM and FLU\_END respectively. For the purposes of data extraction these variables will be required to be specified prior to processing the relevant rules.

**Dataset Specification**1) Patient selection criteria:

## a) Registration status

| <u>Current registration status</u> | <u>Qualifying criteria</u>   |
|------------------------------------|--|
| Currently registered for GMS       | Most recent registration date < (REF_DAT)  |
| Previously registered for GMS      | Any sequential pairing of registration date and deregistration date where both of the following conditions are met:<br>registration date < (REF_DAT); AND deregistration date >= (REF_DAT) |

## b) Diagnostic code status

| <i>Code criteria</i> | <i>Qualifying diagnostic codes</i>             | <i>Time criteria</i>           |
|----------------------|--|--------------------------------|
| <i>Included</i>      | <i>Read codes v0</i>                           | <i>Earliest &lt; (REF_DAT)</i> |
|                      | G4.. - G451<br>G45Z - G4Z.<br>(excluding G4A.) |                                |

2) Clinical data extraction criteria

| <i>Field Number</i> | <i>Field name</i> | <i>Data item</i>  | <i>Qualifying criteria</i>                        |
|---------------------|-------------------|---|---|
| 1                   | PAT_ID            | Patient ID number   | Unconditional                                     |
| 2                   | REG_DAT           | Date of patient registration                                    | Latest < REF_DAT                                  |
| 3                   | CHDEXC_COD        | <i>Read codes v0</i>  | Latest < REF_DAT                                  |
|                     |                   | 9h0.%   |   |
|                     |                   | <i>(CHD exception reporting codes)</i>                          |   |
| 4                   | CHDEXC_DAT        | Date of CHDEXC_COD  | Chosen record                                     |
| 5                   | IHD_COD           | <i>Read codes v0</i>  | Earliest < REF_DAT                                |
|                     |                   | G4.. - G451<br>G45Z - G4Z.<br>(excluding G4A.)                  |   |
|                     |                   | <i>(Ischaemic heart disease codes)</i>                          |   |
| 6                   | IHD_DAT           | Date of IHD_COD   | Chosen record                                     |
| 7                   | ANG_COD           | <i>Read codes v0</i>  | Earliest episode < REF_DAT                        |
|                     |                   | G44.%   |   |
|                     |                   | <i>(Angina codes)</i>   |   |
| 8                   | ANG_DAT           | Date of ANG_COD   | Chosen record                                     |
| 9                   | MI_COD            | <i>Read codes v0</i>  | Latest first or new episode < REF_DAT             |
|                     |                   | G41.<br>G46.<br>G48.<br>G49.                                    |   |
|                     |                   | <i>(Myocardial infarction codes)</i>                            |   |
| 10                  | MI_DAT            | Date of MI_COD  | Chosen record                                     |
| 11                  | EXR_COD           | <i>Read codes v0</i>  | Earliest < REF_DAT AND<br>>= (ANG_DAT - 3 months) |
|                     |                   | 3213<br>33B9<br>8H44, 8HRA, 8HVJ, 8HTJ<br>9N0f<br>5744,<br>8H4R |   |
|                     |                   | <i>(Exercise test codes)</i>                                    |   |
| 12                  | EXR_DAT           | Date of EXR_COD   | Chosen record                                     |

|    |            |   |   |
|----|------------|---|---|
| 13 | EXREXC_COD | <i>Read codes v0</i>                                    | Earliest <<br>REF_DAT AND<br>>= ANG_DAT |
|    |            | 813S<br>33BE  |   |
|    |            | <i>(Exception codes for exercise test)</i>              |   |
| 14 | EXREXC_DAT | Date of EXREXC_COD                                      | Chosen record                           |
| 15 | BP_COD     | <i>Read codes v0</i>                                    | Latest <<br>REF_DAT                     |
|    |            | 246.% (excluding 2460, 246H,<br>246I, 246K, 246L, 246M) |   |
|    |            | <i>(BP recording codes)</i>                             |   |
| 16 | BP_DAT     | Date of BP_COD  | Chosen record                           |
| 17 | BP_SYS     | Value 1 of BP_COD<br><i>(Systolic BP value)</i>         | Chosen record                           |
| 18 | BP_DIA     | Value 2 of BP_COD<br><i>(Diastolic BP value)</i>        | Chosen record                           |
| 19 | BPEX_COD   | <i>Read codes v0</i>                                    | Latest <<br>REF_DAT                     |
|    |            | 813Y  |   |
|    |            | <i>(BP recording exception codes)</i>                   |   |
| 20 | BPEX_DAT   | Date of BPEX_COD  | Chosen record                           |
| 21 | HTMAX_COD  | <i>Read codes v0</i>                                    | Latest <<br>REF_DAT                     |
|    |            | 8BL0  |   |
|    |            | <i>(Code for maximal BP therapy)</i>                    |   |
| 22 | HTMAX_DAT  | Date of HTMAX_COD                                       | Chosen record                           |
| 23 | CHOL_COD   | <i>Read codes v0</i>                                    | Latest <<br>REF_DAT                     |
|    |            | 44OE<br>44P. - 44P4<br>44PH<br>44PJ                     |   |
|    |            | <i>(Total cholesterol codes)</i>                        |   |
| 24 | CHOL_DAT   | Date of CHOL_COD  | Chosen record                           |
| 25 | CHOL_VAL   | Value 1 of CHOL_COD<br><i>(Total cholesterol value)</i> | Chosen record                           |
| 26 | CHEXC_COD  | <i>Read codes v0</i>                                    | Latest <<br>REF_DAT                     |

|    |            |  |                     |
|----|------------|--|---------------------|
|    |            | Q563<br><i>(Codes for exception from serum cholesterol target; persisting)</i> |                     |
| 27 | CHEXC_DAT  | Date of CHEXC_COD  | Chosen record       |
| 28 | TCHEXC_COD | <i>Read codes v0</i>   | Latest <<br>REF_DAT |
|    |            | 8BL1<br>8I3C<br>8I27<br>8I63<br>8I76   |                     |
|    |            | <i>(Codes for exception from serum cholesterol target; expiring)</i>           |                     |
| 29 | TCHEXC_DAT | TCHEXC_COD   | Chosen record       |
| 30 | XSAL_COD   | <i>Read codes v0</i>   | Latest <<br>REF_DAT |
|    |            | 14LK<br>Q545   |                     |
|    |            | <i>(Salicylate contra-indications: persistent)</i>                             |                     |
| 31 | XSAL_DAT   | Date of XSAL_COD   | Chosen record       |
| 32 | TXSAL_COD  | <i>Read codes v0</i>   | Latest <<br>REF_DAT |
|    |            | 8I24<br>8I38<br>8I66<br>8I70   |                     |
|    |            | <i>(Salicylate contra-indications: expiring)</i>                               |                     |
| 33 | TXSAL_DAT  | Date of TXSAL_COD  | Chosen record       |
| 34 | XWAR_COD   | <i>Read codes v0</i>   | Latest <<br>REF_DAT |
|    |            | 14LP<br>Q565   |                     |
|    |            | <i>(Warfarin contraindications: persistent)</i>                                |                     |
| 35 | XWAR_DAT   | Date of XWAR_COD   | Chosen record       |
| 36 | TXWAR_COD  | <i>Read codes v0</i>   | Latest <<br>REF_DAT |

|    |           |  |                     |
|----|-----------|--|---------------------|
|    |           | 8I25<br>8I3E<br>8I65<br>8I71<br>8I2R<br>8I3d<br>8I6N<br>8I7A |                     |
|    |           | <i>(Warfarin contraindications:<br/>expiring)</i>            |                     |
| 37 | TXWAR_DAT | Date of TXWAR_COD  | Chosen record       |
| 38 | XCLO_COD  | <i>Read codes v0</i>   | Latest <<br>REF_DAT |
|    |           | 14LQ<br>Q566   |                     |
|    |           | <i>(Clopidogrel contraindications:<br/>persistent)</i>       |                     |
| 39 | XCLO_DAT  | Date of XCLO_COD   | Chosen record       |
| 40 | TXCLO_COD | <i>Read codes v0</i>   | Latest <<br>REF_DAT |
|    |           | 8I2K<br>8I3R<br>8I6B<br>8I72                                 |                     |
|    |           | <i>(Clopidogrel contraindications:<br/>expiring)</i>         |                     |
| 41 | TXCLO_DAT | Date of TXCLO_COD  | Chosen record       |
| 42 | OSAL_COD  | <i>Read codes v0</i>   | Latest <<br>REF_DAT |
|    |           | 67I8<br>8B63<br>8B3T<br>8B6P                                 |                     |
|    |           | <i>(OTC salicylate codes)</i>                                |                     |
| 43 | OSAL_DAT  | Date of OSAL_COD   | Chosen record       |
| 44 | SAL_COD   | <i>Read codes v0</i>   | Latest <<br>REF_DAT |
|    |           | bu2.%<br>di1.%<br>j11.%<br>blm.%<br>bu4.%                    |                     |
|    |           | <i>(Salicylate prescription codes)</i>                       |                     |
| 45 | SAL_DAT   | Date of SAL_COD  | Chosen record       |
| 46 | CLO_COD   | <i>Read codes v0</i>   | Latest <<br>REF_DAT |

|    |           |  |                     |
|----|-----------|--|---------------------|
|    |           | bu5.%<br><i>(Clopidogrel prescription codes)</i>     |                     |
| 47 | CLO_DAT   | Date of CLO_COD                                      | Chosen record       |
| 48 | WAR_COD   | <i>Read codes v0</i>                                 | Latest <<br>REF_DAT |
|    |           | bs..%<br>8B2K  |                     |
|    |           | <i>(Warfarin prescription codes)</i>                 |                     |
| 49 | WAR_DAT   | Date of WAR_COD                                      | Chosen record       |
| 50 | XBB_COD   | <i>Read codes v0</i>                                 | Latest <<br>REF_DAT |
|    |           | 14LL<br>Q562   |                     |
|    |           | <i>(Beta-blocker contraindications: persistent)</i>  |                     |
| 51 | XBB_DAT   | Date of XBB_COD                                      | Chosen record       |
| 52 | TXBB_COD  | <i>Read codes v0</i>                                 | Latest <<br>REF_DAT |
|    |           | 8I26<br>8I36<br>8I62<br>8I73                         |                     |
|    |           | <i>(Beta-blocker contraindications: expiring)</i>    |                     |
| 53 | TXBB_DAT  | Date of TXBB_COD                                     | Chosen record       |
| 54 | BB_COD    | <i>Read codes v0</i>                                 | Latest <<br>REF_DAT |
|    |           | bd..%  |                     |
|    |           | <i>(Beta-blocker prescription codes)</i>             |                     |
| 55 | BB_DAT    | Date of BB_COD                                       | Chosen record       |
| 56 | XACE_COD  | <i>Read codes v0</i>                                 | Latest <<br>REF_DAT |
|    |           | 14LM<br>Q564   |                     |
|    |           | <i>(Ace inhibitor contraindications; persistent)</i> |                     |
| 57 | XACE_DAT  | Date of XACE_COD                                     | Chosen record       |
| 58 | TXACE_COD | <i>Read codes v0</i>                                 | Latest <<br>REF_DAT |

|    |           |  |                     |
|----|-----------|--|---------------------|
|    |           | 8I28<br>8I3D<br>8I64<br>8I74<br><i>(Ace inhibitor<br/>contraindications; expiring)</i> |                     |
| 59 | TXACE_DAT | Date of TXACE_COD  | Chosen record       |
| 60 | XAII_COD  | <i>Read codes v0</i>   | Latest <<br>REF_DAT |
|    |           | 14LN<br>Q567   |                     |
|    |           | <i>(AII antagonist<br/>contraindications: persisting)</i>                              |                     |
| 61 | XAII_DAT  | Date of XACE_COD   | Chosen record       |
| 62 | TXAII_COD | <i>Read codes v0</i>   | Latest <<br>REF_DAT |
|    |           | 8I2H<br>8I3P<br>8I6C<br>8I75   |                     |
|    |           | <i>(AII antagonist<br/>contraindications: expiring)</i>                                |                     |
| 63 | TXAII_DAT | Date of TXAII_COD  | Chosen record       |
| 64 | ACE_COD   | <i>Read codes v0</i>   | Latest <<br>REF_DAT |
|    |           | bi..%<br>bA..%<br>bk6.%  |                     |
|    |           | <i>(Ace inhibitor prescription<br/>codes)</i>  |                     |
| 65 | ACE_DAT   | Date of ACE_COD  | Chosen record       |
| 66 | AII_COD   | <i>Read codes v0</i>   | Latest <<br>REF_DAT |
|    |           | bk3. - bk5z<br>bk7. - bk9z<br>bkB.%, bkD.%   |                     |
|    |           | <i>(AII antagonist prescription<br/>codes)</i>   |                     |
| 67 | AII_DAT   | Date of AII_COD  | Chosen record       |
| 68 | XFLU_COD  | <i>Read codes v0</i>   | Latest <<br>REF_DAT |
|    |           | 14LJ<br>Q5AB   |                     |
|    |           | <i>(Flu vaccine contraindications:<br/>persisting)</i>                                 |                     |
| 69 | XFLU_DAT  | Date of XFLU_COD   | Chosen record       |

|    |           |  |                     |
|----|-----------|--|---------------------|
| 70 | TXFLU_COD | <i>Read codes v0</i>                                 | Latest <<br>REF_DAT |
|    |           | 8I2F<br>8I6D<br>68NE<br>9OX5                         |                     |
|    |           | <i>(Flu vaccine contraindications:<br/>expiring)</i> |                     |
| 71 | TXFLU_DAT | Date of TXFLU_COD                                    | Chosen record       |
| 72 | FLU_COD   | <i>Read codes v0</i>                                 | Latest <<br>REF_DAT |
|    |           | n47.%<br>65E.%                                       |                     |
|    |           | <i>(Flu vaccination codes)</i>                       |                     |
| 73 | FLU_DAT   | Date of FLU_COD                                      | Chosen record       |

**Indicator rulesets**

- 1 Indicator CHD 1: The practice can produce a register of patients with coronary heart disease

The terms of this indicator will be satisfied if the practice is able to produce a data extraction according to the above criteria.

No numerator or denominator determination is required.

- 2 Indicator CHD 2: The percentage of patients with newly diagnosed angina (diagnosed after 1 April 2003) who are referred for exercise testing and/or specialist assessment.

a) Denominator ruleset

| <i>Rule number</i> | <i>Rule</i>   | <i>Action if true</i> | <i>Action if false</i> |
|--------------------|---|-----------------------|------------------------|
| 1                  | If <u>ANG_COD</u> = Null  | Reject                | Next rule              |
| 2                  | If <u>ANG_DAT</u> >= 01.04.2003   | Next rule             | Reject                 |
| 3                  | If <u>EXR_DAT</u> <= ( <u>ANG_DAT</u> + 12 months) AND<br>If <u>EXR_DAT</u> >= ( <u>ANG_DAT</u> - 3 months) | Select                | Next rule              |
| 4                  | If <u>REG_DAT</u> >= ( <u>REF_DAT</u> - 3 months)   | Reject                | Next rule              |
| 5                  | If <u>CHDEXC_DAT</u> >= ( <u>REF_DAT</u> - 15 months)   | Reject                | Next rule              |
| 6                  | If <u>EXREXC_DAT</u> <= ( <u>ANG_DAT</u> + 12 months)   | Reject                | Next rule              |
| 7                  | If <u>ANG_DAT</u> >= ( <u>REF_DAT</u> - 3 months)   | Reject                | Select                 |

b) Numerator ruleset: To be applied to the above denominator population

| <i>Rule number</i> | <i>Rule</i>   | <i>Action if true</i> | <i>Action if false</i> |
|--------------------|---|-----------------------|------------------------|
| 1                  | If <u>EXR_DAT</u> <= ( <u>ANG_DAT</u> + 12 months) AND<br>If <u>EXR_DAT</u> >= ( <u>ANG_DAT</u> - 3 months) | Select                | Reject                 |

Indicator CHD 5: The percentage of patients with coronary heart disease, whose notes have a record of blood pressure in the previous 15 months.

c) Denominator ruleset

| <i>Rule number</i> | <i>Rule</i>   | <i>Action if true</i> | <i>Action if false</i> |
|--------------------|---|-----------------------|------------------------|
| 1                  | If <u>BP_DAT</u> >= ( <u>REF_DAT</u> – 15 months)     | Select                | Next rule              |
| 2                  | If <u>BPEX_DAT</u> >= ( <u>REF_DAT</u> – 15 months)   | Reject                | Next rule              |
| 3                  | If <u>REG_DAT</u> >= ( <u>REF_DAT</u> – 3 months)     | Reject                | Next rule              |
| 4                  | If <u>CHDEXC_DAT</u> >= ( <u>REF_DAT</u> – 15 months) | Reject                | Next rule              |
| 5                  | If <u>IHD_DAT</u> >= ( <u>REF_DAT</u> – 3 months)     | Reject                | Select                 |

d) Numerator ruleset: To be applied to the above denominator population

| <i>Rule number</i> | <i>Rule</i>                                       | <i>Action if true</i> | <i>Action if false</i> |
|--------------------|---|-----------------------|------------------------|
| 1                  | If <u>BP_DAT</u> >= ( <u>REF_DAT</u> – 15 months) | Select                | Reject                 |

3 Indicator CHD 6: The percentage of patients with coronary heart disease, in whom the last blood pressure reading (measured in the previous 15 months) is 150/90 or less.

a) Denominator ruleset

| <i>Rule number</i> | <i>Rule</i>  | <i>Action if true</i> | <i>Action if false</i> |
|--------------------|--|-----------------------|------------------------|
| 1                  | If <u>BP_SYS</u> <= 150           AND<br>If <u>BP_DIA</u> <= 90           AND<br>If <u>BP_DAT</u> >= ( <u>REF_DAT</u> - 15 months) | Select                | Next rule              |
| 2                  | If <u>BPEX_DAT</u> >= ( <u>REF_DAT</u> - 15 months)  | Reject                | Next rule              |
| 3                  | If <u>REG_DAT</u> >= ( <u>REF_DAT</u> - 9 months)  | Reject                | Next rule              |
| 4                  | If <u>CHDEXC_DAT</u> >= ( <u>REF_DAT</u> - 15 months)  | Reject                | Next rule              |
| 5                  | If <u>IHD_DAT</u> >= ( <u>REF_DAT</u> - 9 months)  | Reject                | Next rule              |
| 6                  | If <u>HTMAX_DAT</u> >= ( <u>REF_DAT</u> - 15 months)   | Reject                | Select                 |

b) Numerator ruleset:    To be applied to the above denominator population

| <i>Rule number</i> | <i>Rule</i>  | <i>Action if true</i> | <i>Action if false</i> |
|--------------------|--|-----------------------|------------------------|
| 1                  | If <u>BP_SYS</u> <= 150           AND<br>If <u>BP_DIA</u> <= 90           AND<br>If <u>BP_DAT</u> >= ( <u>REF_DAT</u> - 15 months) | Select                | Reject                 |

- 4 Indicator CHD 7: The percentage of patients with coronary heart disease, whose notes have a record of total cholesterol in the previous 15 months

a) Denominator ruleset

| <i>Rule number</i> | <i>Rule</i>   | <i>Action if true</i> | <i>Action if false</i> |
|--------------------|---|-----------------------|------------------------|
| 1                  | If <u>CHOL_DAT</u> >= ( <u>REF_DAT</u> – 15 months)   | Select                | Next rule              |
| 2                  | If <u>REG_DAT</u> >= ( <u>REF_DAT</u> – 3 months)     | Reject                | Next rule              |
| 3                  | If <u>CHDEXC_DAT</u> >= ( <u>REF_DAT</u> – 15 months) | Reject                | Next rule              |
| 4                  | If <u>IHD_DAT</u> >= ( <u>REF_DAT</u> – 3 months)     | Reject                | Select                 |

b) Numerator ruleset: To be applied to the above denominator population

| <i>Rule number</i> | <i>Rule</i>   | <i>Action if true</i> | <i>Action if false</i> |
|--------------------|---|-----------------------|------------------------|
| 1                  | If <u>CHOL_DAT</u> >= ( <u>REF_DAT</u> – 15 months) | Select                | Reject                 |

5 Indicator CHD 8: The percentage of patients with coronary heart disease, whose last measured total cholesterol (measured in the previous 15 months) is 5 mmol/l or less.

a) Denominator ruleset

| <i>Rule number</i> | <i>Rule</i>  | <i>Action if true</i> | <i>Action if false</i> |
|--------------------|--|-----------------------|------------------------|
| 1                  | If <u>CHOL_VAL</u> <= 5 AND<br>If <u>CHOL_DAT</u> >= ( <u>REF_DAT</u> - 15 months)     | Select                | Next rule              |
| 2                  | If <u>REG_DAT</u> >= ( <u>REF_DAT</u> - 9 months)                                      | Reject                | Next rule              |
| 3                  | If <u>CHDEXC_DAT</u> >= ( <u>REF_DAT</u> - 15 months)                                  | Reject                | Next rule              |
| 4                  | If <u>IHD_DAT</u> >= ( <u>REF_DAT</u> - 9 months)                                      | Reject                | Next rule              |
| 5                  | If <u>CHEXC_COD</u> ≠ Null OR<br>If <u>TCHEXC_DAT</u> >= ( <u>REF_DAT</u> - 15 months) | Reject                | Select                 |

b) Numerator ruleset: To be applied to the above denominator population

| <i>Rule number</i> | <i>Rule</i>  | <i>Action if true</i> | <i>Action if false</i> |
|--------------------|--|-----------------------|------------------------|
| 1                  | If <u>CHOL_VAL</u> <= 5 AND<br>If <u>CHOL_DAT</u> >= ( <u>REF_DAT</u> - 15 months) | Select                | Reject                 |

- 6 Indicator CHD 9: The percentage of patients with coronary heart disease with a record in the previous 15 months that aspirin, an alternative anti-platelet therapy, or an anti-coagulant is being taken (unless a contraindication or side effects are recorded).

a) Denominator ruleset

| <i>Rule number</i> | <i>Rule</i>  | <i>Action if true</i> | <i>Action if false</i> |
|--------------------|--|-----------------------|------------------------|
| 1                  | If <a href="#">SAL_DAT</a> >= ( <a href="#">REF_DAT</a> - 15 months) OR<br>If <a href="#">WAR_DAT</a> >= ( <a href="#">REF_DAT</a> - 15 months) OR<br>If <a href="#">CLO_DAT</a> >= ( <a href="#">REF_DAT</a> - 15 months) OR<br>If <a href="#">OSAL_DAT</a> >= ( <a href="#">REF_DAT</a> - 15 months) | Select                | Next rule              |
| 2                  | If <a href="#">REG_DAT</a> >= ( <a href="#">REF_DAT</a> - 3 months)  | Reject                | Next rule              |
| 3                  | If <a href="#">CHDEXC_DAT</a> >= ( <a href="#">REF_DAT</a> - 15 months)  | Reject                | Next rule              |
| 4                  | If <a href="#">IHD_DAT</a> >= ( <a href="#">REF_DAT</a> - 3 months)  | Reject                | Next rule              |
| 5                  | If <a href="#">XSAL_COD</a> = Null AND<br>If <a href="#">TXSAL_DAT</a> = Null  | Select                | Next rule              |
| 6                  | If <a href="#">XSAL_COD</a> = Null AND<br>If <a href="#">TXSAL_DAT</a> < ( <a href="#">REF_DAT</a> - 15 months)  | Select                | Next rule              |
| 7                  | If <a href="#">XWAR_COD</a> = Null AND<br>If <a href="#">TXWAR_DAT</a> = Null  | Select                | Next rule              |
| 8                  | If <a href="#">XWAR_COD</a> = Null AND<br>If <a href="#">TXWAR_DAT</a> < ( <a href="#">REF_DAT</a> - 15 months)  | Select                | Next rule              |
| 9                  | If <a href="#">XCLO_COD</a> = Null AND<br>If <a href="#">TXCLO_DAT</a> = Null  | Select                | Next rule              |
| 10                 | If <a href="#">XCLO_COD</a> = Null AND<br>If <a href="#">TXCLO_DAT</a> < ( <a href="#">REF_DAT</a> - 15 months)  | Select                | Reject                 |

b) Numerator ruleset: To be applied to the above denominator population

| <i>Rule number</i> | <i>Rule</i>  | <i>Action if true</i> | <i>Action if false</i> |
|--------------------|--|-----------------------|------------------------|
| 1                  | If <a href="#">SAL_DAT</a> >= ( <a href="#">REF_DAT</a> - 15 months) OR<br>If <a href="#">WAR_DAT</a> >= ( <a href="#">REF_DAT</a> - 15 months) OR<br>If <a href="#">CLO_DAT</a> >= ( <a href="#">REF_DAT</a> - 15 months) OR<br>If <a href="#">OSAL_DAT</a> >= ( <a href="#">REF_DAT</a> - 15 months) | Select                | Reject                 |

- 7 Indicator CHD 10: The percentage of patients with coronary heart disease who are currently treated with a beta blocker (unless a contraindication or side effects are recorded).

a) Denominator ruleset

| <i>Rule number</i> | <i>Rule</i>   | <i>Action if true</i> | <i>Action if false</i> |
|--------------------|---|-----------------------|------------------------|
| 1                  | If <u>BB_DAT</u> >= ( <u>REF_DAT</u> – 6 months)      | Select                | Next rule              |
| 2                  | If <u>REG_DAT</u> >= ( <u>REF_DAT</u> – 3 months)     | Reject                | Next rule              |
| 3                  | If <u>CHDEXC_DAT</u> >= ( <u>REF_DAT</u> – 15 months) | Reject                | Next rule              |
| 4                  | If <u>IHD_DAT</u> >= ( <u>REF_DAT</u> – 3 months)     | Reject                | Next rule              |
| 5                  | If <u>XBB_COD</u> ≠ Null                              | Reject                | Next rule              |
| 6                  | If <u>TXBB_DAT</u> >= ( <u>REF_DAT</u> – 15 months)   | Reject                | Select                 |

b) Numerator ruleset: To be applied to the above denominator population

| <i>Rule number</i> | <i>Rule</i>                                      | <i>Action if true</i> | <i>Action if false</i> |
|--------------------|--|-----------------------|------------------------|
| 1                  | If <u>BB_DAT</u> >= ( <u>REF_DAT</u> – 6 months) | Select                | Reject                 |

8 Indicator CHD 11: The percentage of patients with a history of myocardial infarction (diagnosed after 1 April 2003) who are currently treated with an ACE inhibitor or angiotensin II antagonist.

a) Denominator ruleset

| <i>Rule number</i> | <i>Rule</i>   | <i>Action if true</i> | <i>Action if false</i> |
|--------------------|---|-----------------------|------------------------|
| 1                  | If <u>MI_DAT</u> >= 01.04.2003  | Next rule             | Reject                 |
| 2                  | If <u>ACE_DAT</u> >= ( <u>REF_DAT</u> - 6 months) OR<br>If <u>AII_DAT</u> >= ( <u>REF_DAT</u> - 6 months) | Select                | Next rule              |
| 3                  | If <u>REG_DAT</u> >= ( <u>REF_DAT</u> - 3 months)   | Reject                | Next rule              |
| 4                  | If <u>CHDEXC_DAT</u> >= ( <u>REF_DAT</u> - 15 months)   | Reject                | Next rule              |
| 5                  | If <u>MI_DAT</u> >= ( <u>REF_DAT</u> - 3 months)  | Reject                | Next rule              |
| 6                  | If <u>XACE_COD</u> = Null AND<br>If <u>TXACE_DAT</u> = Null   | Select                | Next rule              |
| 7                  | If <u>XACE_COD</u> = Null AND<br>If <u>TXACE_DAT</u> < ( <u>REF_DAT</u> - 15 months)                      | Select                | Next rule              |
| 8                  | If <u>XAII_COD</u> = Null AND<br>If <u>TXAII_DAT</u> = Null   | Select                | Next rule              |
| 9                  | If <u>XAII_COD</u> = Null AND<br>If <u>TXAII_DAT</u> < ( <u>REF_DAT</u> - 15 months)                      | Select                | Reject                 |

b) Numerator ruleset: To be applied to the above denominator population

| <i>Rule number</i> | <i>Rule</i>   | <i>Action if true</i> | <i>Action if false</i> |
|--------------------|---|-----------------------|------------------------|
| 1                  | If <u>ACE_DAT</u> >= ( <u>REF_DAT</u> - 6 months) OR<br>If <u>AII_DAT</u> >= ( <u>REF_DAT</u> - 6 months) | Select                | Reject                 |

9 Indicator CHD 12: The percentage of patients with coronary heart disease who have a record of influenza immunisation in the preceding 1st September to 31st March.

a) Denominator ruleset

| <i>Rule number</i> | <i>Rule</i>  | <i>Action if true</i> | <i>Action if false</i> |
|--------------------|--|-----------------------|------------------------|
| 1                  | If <a href="#">FLU_DAT</a> >= <a href="#">FLU_COM</a> AND<br>If <a href="#">FLU_DAT</a> <= <a href="#">FLU_END</a> | Select                | Next rule              |
| 2                  | If <a href="#">REG_DAT</a> >= ( <a href="#">REF_DAT</a> - 3 months)  | Reject                | Next rule              |
| 3                  | If <a href="#">CHDEXC_DAT</a> >= ( <a href="#">REF_DAT</a> - 15 months)  | Reject                | Next rule              |
| 4                  | If <a href="#">IHD_DAT</a> >= ( <a href="#">REF_DAT</a> - 3 months)  | Reject                | Next rule              |
| 5                  | If <a href="#">XFLU_COD</a> ≠ Null   | Reject                | Next rule              |
| 6                  | If <a href="#">TXFLU_DAT</a> >= ( <a href="#">REF_DAT</a> - 15 months)   | Reject                | Select                 |

b) Numerator ruleset: To be applied to the above denominator population

| <i>Rule number</i> | <i>Rule</i>  | <i>Action if true</i> | <i>Action if false</i> |
|--------------------|--|-----------------------|------------------------|
| 1                  | If <a href="#">FLU_DAT</a> >= <a href="#">FLU_COM</a> AND<br>If <a href="#">FLU_DAT</a> <= <a href="#">FLU_END</a> | Select                | Reject                 |