



Data and Business Rules – Heart failure Indicator Set					
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New GMS Contract QOF Implementation

Dataset and Business Rules

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Heart Failure Indicator Set

Amendment History:

Version	Date	Amendment History
		The version number starts at 7.1 in order to coincide with existing datasets and business rules.
7.1	21-Nov-2005	From Phil Brown
7.2	22-Nov-2005	Amended following review by Peter Horsfield
7.3	3-Dec-2005	Draft revised for internal review
7.4	23-Feb-2006	Amended following internal & 4 Countries review
8.0	15-Mar-2006	Signed off following 4 Country review
8.1	18-May-2006	Responding to queries raised Amend wording for Note 3
8.5	18-May-2006	Approved by NHSE
8.6	20-Oct-2006	April Read Code Release April SNOMED CT Release October Read Code Release Corrections and amendments following feedback
8.7	13-Nov-2006	Response to queries raised by 4 Country Review: Delete Suspected heart failure Reinsert LVD exception codes ECOG_COD: Enter missing '.' XACE_COD: Add "223073005" for consistency across different Business Rules sets
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	25-Aug-2007	April 2007 SNOMED CT Update
10.2	23-Sep-2007	October 2007 Read Code Release October 2007 SNOMED CT Release
11.0	28-Nov-2007	Signed off following 4 Country review
11.1	30-Jun-2008	April 2008 Read Code Release April 2008 SNOMED CT Release QOF Review 2007
12.0	24-Jul-2008	Signed off following 4 Country review
12.1	06-Oct-2008	October 2008 Read Code Release October 2008 SNOMED CT Release
13.0	05-Dec-2008	Signed off following 4 Country review
13.1	06-Feb-2009	QOF Review 2008
13.2	09-Mar-2009	Amendment following NHSE review
13.3	27-Apr-2009	Amendment following Four-Country Review
14.0	01-May-2009	Signed off following 4 Country review
14.1	25-June-2009	April 2009 Read Code Release
15.0	17-August-2009	Signed off following 4 Country review
15.1	12-October-2009	October 2009 Clinical Codes Release
15.2	28-October-2009	October 2009 Clinical Code Release review
16.0	02-December-2009	Sign off following 4 Country review
16.1	05-May-2010	Internal NHS IC review.
17.0	07-May-2010	April 2010 Read Code Release following NHS IC review.
18.0	29-October-2010	October 2010 Read Code Release following NHS IC review.
19.0	13-December-2010	Signed off following 4 Country review
20.0	13-May-2011	April 2011 Read Code Release following NHS IC review.

21.0	10-November-2011	October 2011 Read Code Release following NHS IC review
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New GMS contract Q&O framework implementation

Dataset and business rules – Heart failure 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 October 2011 release of Read codes version 2 and clinical terms version 3 (CTV3). The codes are shown within the document as a 5 character value to show that the Read Code is for a 5-Byte system.
 - i) Where a '%' wildcard is displayed, the Read Code is filled to 5 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 5 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).

The version number starts at 7.1 in order to coincide with existing datasets and business rules.

- 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 1st September and 31st 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 1st September 2004 and 31st 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: registration date < (REF_DAT); and deregistration date >= (REF_DAT)

- b) Diagnostic code status
 - i) patient population with heart failure

<i>Code criteria</i>	<i>Qualifying diagnostic codes</i>		<i>Time criteria</i>
<i>Required</i>	<i>Read codes v2</i>	<i>CTV3</i>	<i>Earliest < (REF_DAT)</i>
	G58..% G1yz1 662f. – 662i.	G58..% (excluding G5y4.%)	
	<i>Codes for Heart failure</i>		

- ii) patient population with heart failure due to LVD*

<i>Code criteria</i>	<i>Qualifying diagnostic codes</i>		<i>Time criteria</i>
<i>Included</i>	<i>Read codes v2</i>	<i>CTV3</i>	<i>Earliest < (REF_DAT)</i>
	G58..% G1yz1 662f. – 662i.	G58..% (excluding G5y4.%)	
	<i>Codes for Heart failure</i>		

<i>Required</i>	<i>Read codes v2</i>	<i>CTV3</i>	<i>Earliest < (REF_DAT)</i>
	G581.% 585f. 585g. G5yy9 G5yyA	XE2QG% XaJ98 XaJ99 XaI1q XaItG	
	<i>Codes for LVD</i>		

**N.B. Codes required to be present from both groups to qualify a patient for inclusion*

2) Clinical data extraction criteria

<u>Field Number</u>	<u>Field name</u>	<u>Data item</u>		<u>Qualifying criteria</u>
1	PAT_ID	Patient ID number		Unconditional
2	REG_DAT	Date of patient registration		Latest < (REF_DAT)
3	HFEXC_COD	<i>Read codes v2</i>	<i>CTV3</i>	Latest < (REF_DAT)
		9hH..%	XaMJ9%	
		<i>(Heart failure exception reporting codes)</i>		
4	HFEXC_DAT	Date of HFEXC_COD		Chosen record
5	HF_COD	<i>Read codes v2</i>	<i>CTV3</i>	Earliest < (REF_DAT)
		G58..% G1yz1 662f. – 662i.	G58..% (excluding G5y4.%)	
		<i>(Heart failure codes)</i>		
6	HF_DAT	Date of HF_COD		Chosen record
7	ECOG_COD	<i>Read codes v2</i>	<i>CTV3</i>	

		5853. 58531 585f. 585g. 5C20. 33BD. 8HQ7. R1320 R1322 5531. 5533. 5538. 79380 79382, 8H4R. 8HVJ. 8H44. 8H7o0	X77c1% (excluding X70mc) XaJ98 XaJ99 58531 Xalx9 XaION XaJKz R1320 R1322 5531. 5533. XaJi7 X77cC% (excluding XE0Ep%), XaLFu 8H44. XaBTR% XaXBj	Earliest < REF_DAT AND >= (HF_DAT - 3 months)
		<i>(Echocardiogram codes)</i>		
8	ECOG_DAT	Date of ECOG_COD		Chosen record
9	ECEXC_COD	<i>Read codes v2</i>	<i>CTV3</i>	Earliest < (REF_DAT) AND >= (HF_DAT)
		56F1. 5534.	XaJIC XaJHZ	
		<i>(Codes for Echo declined)</i>		
10	ECEXC_DAT	Date of ECEXC_COD		Chosen record
11	XACE_COD	<i>Read codes v2</i>	<i>CTV3</i>	Latest < REF_DAT

		14LM. U60C4 TJC77 – TJC79 ZV14D	XaJ5y XaJ8Y Xa60w% Xa5cT% XaIrq U60C4	
		<i>(Ace inhibitor contraindications; persistent)</i>		
12	XACE_DAT	Date of XACE_COD		Chosen record
13	TXACE_COD	<i>Read codes v2</i>	<i>CTV3</i>	Latest < REF_DAT
		8I28. 8I3D. 8I64. 8I74.	XaG2W XaIIm XaIf XaJ5e	
		<i>(Ace inhibitor contraindications; expiring)</i>		
14	TXACE_DAT	Date of TXACE_COD		Chosen record
15	XAII_COD	<i>Read codes v2</i>	<i>CTV3</i>	Latest < REF_DAT
		14LN. U60CB ZV14E	XaJ5z XaJ8o XaIzK XaJ8W	
		<i>(All antagonist contraindications: persisting)</i>		
16	XAII_DAT	Date of XACE_COD		Chosen record

17	TXAII_COD	<i>Read codes v2</i>	<i>CTV3</i>	Latest < REF_DAT
		8I2H. 8I3P. 8I6C. 8I75.	XaInW Xalyw XaJ5m XaJ5f	
		<i>(All antagonist contraindications: expiring)</i>		
18	TXAII_DAT	Date of TXAII_COD		Chosen record
19	ACE_COD	<i>Read codes v2</i>	<i>CTV3</i>	Latest < REF_DAT
		bi...% bA...% bk6..%	bi...% bA...%	
		<i>(Ace inhibitor prescription codes)</i>		
20	ACE_DAT	Date of ACE_COD		Chosen record
21	AII_COD	<i>Read codes v2</i>	<i>CTV3</i>	Latest < REF_DAT
		bk3.. - bk5z. bk7.. - bk9z. bkB..%, bkC..%, bkD..%	x03j2% x03ls% bkD..%	
		<i>(All antagonist prescription codes)</i>		
22	AII_DAT	Date of AII_COD		Chosen record
23		Read codes v2	CTV3	Latest < REF_DAT

	XLBB_COD	14LL. TJC6.% U60B7 U60B9 - U60BB ZVu6i, ZVu6o, ZVu6q, ZV14C	XaJ5x TJC6.% Xa5LL% XaQad, XaQac, XaQab,U60B7, XaQaf, XaQag, XaQah XaJ8U Xa5jo%	
		(Beta-blocker contraindications: persisting)		
24	XLBB_DAT	Date of XLBB_COD		Chosen record
25	TXLBB_COD	Read codes v2	CTV3	Latest < REF_DAT
		8I26. 8I2g. - 8I2i. 8I36. 8IAS. - 8IAV. 8I62. 8I6i. - 8I6k. 8I73. 8I7K. - 8I7M.	XaFt0% XaFsB% XaFvr% XaJ5d%	
		(Beta-blocker contraindications: expiring)		
26	TXLBB_DAT	Date of LBB_cod		Chosen record
27	LBB_COD	Read codes v2	CTV3	Latest < REF_DAT
		bdf..% bdl..% bdm..%	x01C1% bdl..% bdm..%	

		(Licensed Beta-blocker prescription codes)		
28	LBB_DAT	Date of LBB_COD		Chosen record
29	ULBB_COD	Read codes v2	CTV3	Latest < REF_DAT
		bd...% (Excluding bdf..% bdl..% bdm..%)	bd...% (excluding k832.%, k83z.%, k83y.%, bd4.., k83.., k85y.%, k85z.%, x01C8%, k8b..%, x03hf% x01C1%, bdl..% bdm..%)	
		(UnLicensed Beta-blocker prescription codes)		
30	ULBB_DAT	Date of ULBB_COD		Chosen record

Indicator rulesets

- 1 **Indicator HF 1:** The practice can produce a register of patients with heart failure.

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 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.

a) Denominator ruleset: To be applied to the patient population with heart failure

<i>Rule number</i>	<i>Rule</i>	<i>Action if true</i>	<i>Action if false</i>
1	If <u>HF_DAT</u> >= 01.04.2006	Next rule	Reject
2	If <u>ECOG_DAT</u> <= (<u>HF_DAT</u> + 12 months) AND If <u>ECOG_DAT</u> >= (<u>HF_DAT</u> - 3 months)	Select	Next rule
3	If <u>REG_DAT</u> >= (<u>REF_DAT</u> - 3 months)	Reject	Next rule
4	If <u>HFEXC_DAT</u> >= (<u>REF_DAT</u> - 15 months)	Reject	Next rule
5	If <u>ECEXC_DAT</u> <= (<u>HF_DAT</u> + 12 months)	Reject	Next rule
6	If <u>HF_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>ECOG_DAT</u> <= (<u>HF_DAT</u> + 12 months) AND If <u>ECOG_DAT</u> >= (<u>HF_DAT</u> - 3 months)	Select	Reject

- 3 Indicator 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 contraindication.

- a) Denominator ruleset: To be applied to the patient population with heart failure due to LVD

<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 If <u>AII_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>HFEXC_DAT</u> >= (<u>REF_DAT</u> - 15 months)	Reject	Next rule
4	If <u>HF_DAT</u> >= (<u>REF_DAT</u> - 3 months)	Reject	Next rule
5	If <u>XACE_COD</u> = Null AND If <u>TXACE_DAT</u> = Null	Select	Next rule
6	If <u>XACE_COD</u> = Null AND If <u>TXACE_DAT</u> < (<u>REF_DAT</u> - 15 months)	Select	Next rule
7	If <u>XAII_COD</u> = Null AND If <u>TXAII_DAT</u> = Null	Select	Next rule
8	If <u>XAII_COD</u> = Null AND 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 If <u>AII_DAT</u> >= (<u>REF_DAT</u> - 6 months)	Select	Reject

- 4 Indicator 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 (ARB), who are additionally treated with a beta-blocker licensed for heart failure, or recorded as intolerant to or having a contraindication to beta-blockers.

- a) Denominator ruleset: To be applied to the patient population with heart failure due to LVD

<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 If <u>AII_DAT</u> >= (<u>REF_DAT</u> - 6 months)	Next Rule	Reject
2	If <u>LBB_DAT</u> >= (<u>REF_DAT</u> - 6 months)	Select	Next rule
3	If <u>ULBB_DAT</u> >= (<u>HF_DAT</u> - 6 months)	Reject	Next rule
4	If <u>REG_DAT</u> >= (<u>REF_DAT</u> - 3 months)	Reject	Next rule
5	If <u>HFEXC_DAT</u> >= (<u>REF_DAT</u> - 15 months)	Reject	Next rule
6	If <u>HF_DAT</u> >= (<u>REF_DAT</u> - 3 months)	Reject	Next rule
7	If <u>XLBB_COD</u> = Null AND If <u>TXLBB_DAT</u> = Null	Select	Next rule
8	If <u>XLBB_COD</u> = Null AND If <u>TXLBB_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>LBB_DAT</u> >= (<u>REF_DAT</u> - 6 months)	Select	Reject