



<b>Unrestricted</b>					
<b>Data and Business Rules – Chronic kidney disease (CKD) Indicator Set</b>					
Author	Paul Amos	Version No	14.0	Version Date	01-May-2009

## **New GMS Contract QOF Implementation**

### **Dataset And Business Rules - Chronic Kidney Disease (CKD)**

**Amendment History:**

Version	Date	Amendment History
		The version number starts at 3.1 in order to coincide with existing datasets and business rules.
Draft 3.1	21-Nov-2005	From Phil Brown
Draft 3.2	22-Nov-2005	Amended following review by Peter Horsfield
Draft 3.3	3-Dec-2005	Draft revised for internal review
7.4	23-Feb-2006	Amended following internal & 4 Countries review. 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 Amend wording for Note 3
8.5	18-May-2006	Approved by NHSE
8.6	20-Oct-2006	April Read Code Release October Read Code Release Corrections and amendments following feedback
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 QOF Review 2007 (Replace CKD4 with CKD5)
11.2	21-Jul-2008	Following 4-Country review: Introduce new CKDPRT cluster (for proteinuria for CKD purposes)
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
13.1	05-Feb-2009	QOF Review 2008
13.2	09-Mar-2009	Amendments following NHSE review
13.3	27-Apr-2009	Amendments following Four-Country Review
14.0	01-May-2009	Signed off following 4 Country review

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

### Dataset and business rules – Chronic Kidney Disease (CKD) 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 2008 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).

The version number starts at 3.1 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 for 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

<i>Current registration status</i>	<i>Qualifying criteria</i>
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>Code criteria</i>	<i>Qualifying diagnostic codes</i>	<i>Time criteria</i>
<i>Included</i>	<i>Read codes v0</i>	<i>Latest first or new episode &lt; (REF_DAT)</i>
	1Z12 1Z13 1Z14 1Z15 1Z16 1Z1B - 1Z1L	
	<i>(Chronic kidney disease codes 3-5)</i>	
<i>Excluded</i>	<i>Read codes v0</i>	<i>Latest first or new episode &lt; (REF_DAT) AND &gt; Date of diagnostic code above</i>
	1Z10 1Z11 1Z17 - 1Z1A	
	<i>(Chronic kidney disease codes 1-2)</i>	
<i>Excluded</i>	Age < 18 yrs at REF_DAT	

**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	CKDEXC_COD	<i>Read codes v0</i>	Latest < (REF_DAT)
		9hE0 9hE1	
		<i>(Chronic kidney disease exception reporting codes)</i>	
4	CKDEXC_DAT	Date of CKDEXC_COD	Chosen record
5	CKD_COD	<i>Read codes v0</i>	Latest first or new episode < (REF_DAT)
		1Z12 1Z13 1Z14 1Z15 1Z16 1Z1B - 1Z1L	
		<i>(Chronic kidney disease codes 3-5)</i>	
6	CKD_DAT	Date of CKD_COD	Chosen record
7	BP_COD	<i>Read codes v0</i>	Latest < REF_DAT
		246.% (excluding 2460, 2468, 246H, 246I, 246K, 246L, 246M)	
		<i>(BP recording codes)</i>	
8	BP_DAT	Date of BP_COD	Chosen record
9	BP_SYS	Value 1 of BP_COD <i>(Systolic BP value)</i>	Chosen record
10	BP_DIA	Value 2 of BP_COD <i>(Diastolic BP value)</i>	Chosen record
11	BPEX_COD	<i>Read codes v0</i>	Latest < REF_DAT
		8I3Y	
		<i>(BP recording exception codes)</i>	
12	BPEX_DAT	Date of BPEX_COD	Chosen record
13	HTMAX_COD	<i>Read codes v0</i>	Latest < REF_DAT
		8BLO	
		<i>(Code for maximal BP therapy)</i>	

14	HTMAX_DAT	Date of HTMAX_COD	Chosen record
15	HYP_COD	<i>Read codes v0</i>	Latest < REF_DAT
		G3.. G31. G35. - G3Z.	
		<i>(Hypertension diagnosis codes)</i>	
16	HYP_DAT	Date of HYP_COD	Chosen record
17	HYPRES_COD	<i>Read codes v0</i>	Latest < (REF_DAT) AND > HYP_DAT
		212K	
		<i>(Codes for hypertension resolved)</i>	
18	HYPRES_DAT	Date of HYPRES_COD	Chosen record
19	XACE_COD	<i>Read codes v0</i>	Latest < REF_DAT
		14LM Q564	
		<i>(Ace inhibitor contraindications; persistent)</i>	
20	XACE_DAT	Date of XACE_COD	Chosen record
21	TXACE_COD	<i>Read codes v0</i>	Latest < REF_DAT
		8128 813D 8164 8174	
		<i>(Ace inhibitor contraindications; expiring)</i>	
22	TXACE_DAT	Date of TXACE_COD	Chosen record
23	XAII_COD	<i>Read codes v0</i>	Latest < REF_DAT
		14LN Q567	
		<i>(AII antagonist contraindications: persisting)</i>	
24	XAII_DAT	Date of XACE_COD	Chosen record
25	TXAII_COD	<i>Read codes v0</i>	Latest < REF_DAT
		812H 813P 816C 8175	
		<i>(AII antagonist contraindications: expiring)</i>	
26	TXAII_DAT	Date of TXAII_COD	Chosen record
27	ACE_COD	<i>Read codes v0</i>	Latest < REF_DAT

		bi..% bA..% bk6.%  <i>(Ace inhibitor prescription codes)</i>	
28	ACE_DAT	Date of ACE_COD	Chosen record
29	AII_COD	<i>Read codes v0</i>	Latest < REF_DAT
		bk3. - bk5z bk7. - bk9z bkB.%, bkD.%	
		<i>(AII antagonist prescription codes)</i>	
30	AII_DAT	Date of AII_COD	Chosen record
31	CKDPRT_COD	<i>Read codes v0</i>	Latest < REF_DAT
		1Z1B, 1Z1D 1Z1F, 1Z1H 1Z1K RB2. - RB20 RB2Z	
		<i>(Codes for proteinuria for CKD)</i>	
32	CKDPRT_DAT	Date of CKDPRT_COD	Chosen record
33	APCR_COD	<i>Read codes v0</i>	Latest < REF_DAT
		44ID 46TC	
		<i>(Codes for Albumin:Creatinine &amp; Protein:Creatinine Ratio for CKD)</i>	
34	APCR_DAT	Date of APCR_COD	Chosen record

### **Indicator rulesets**

- 1 Indicator CKD 1: The practice can produce a register of patients aged 18 years and over with CKD. (US National Kidney Foundation: Stage 3-5 CKD).

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 CKD 2: The percentage of patients on the CKD register whose notes have a record of blood pressure 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 <a href="#">BP_DAT</a> >= ( <a href="#">REF_DAT</a> – 15 months)	Select	Next rule
2	If <a href="#">BPEX_DAT</a> >= ( <a href="#">REF_DAT</a> – 15 months)	Reject	Next rule
3	If <a href="#">REG_DAT</a> >= ( <a href="#">REF_DAT</a> – 3 months)	Reject	Next rule
4	If <a href="#">CKDEXC_DAT</a> >= ( <a href="#">REF_DAT</a> – 15 months)	Reject	Next rule
5	If <a href="#">CKD_DAT</a> >= ( <a href="#">REF_DAT</a> – 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 <a href="#">BP_DAT</a> >= ( <a href="#">REF_DAT</a> – 15 months)	Select	Reject

- 3 Indicator CKD 3: The percentage of patients on the CKD register in whom the last blood pressure reading, measured in the previous 15 months, is 140/85 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> <= 140            AND If <u>BP_DIA</u> <= 85            AND 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>CKDEXC_DAT</u> >= ( <u>REF_DAT</u> - 15 months)	Reject	Next rule
5	If <u>CKD_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> <= 140            AND If <u>BP_DIA</u> <= 85            AND If <u>BP_DAT</u> >= ( <u>REF_DAT</u> - 15 months)	Select	Reject

- 4 **Indicator CKD 5:** The percentage of patients on the CKD register with hypertension and proteinuria, who are treated with an angiotensin converting enzyme inhibitor (ACE-I) or angiotensin receptor blocker (ARB) (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>HYP_DAT</u> ≠ Null AND If <u>HYPRES_DAT</u> = Null	Next rule	Reject
2	If <u>CKDPRT_DAT</u> = Null	Reject	Next rule
3	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
4	If <u>REG_DAT</u> ≥ ( <u>REF_DAT</u> – 3 months)	Reject	Next rule
5	If <u>CKDEXC_DAT</u> ≥ ( <u>REF_DAT</u> – 15 months)	Reject	Next rule
6	If <u>CKD_DAT</u> ≥ ( <u>REF_DAT</u> – 3 months)	Reject	Next rule
7	If <u>XACE_COD</u> = Null AND If <u>TXACE_DAT</u> = Null	Select	Next rule
8	If <u>XACE_COD</u> = Null AND If <u>TXACE_DAT</u> < ( <u>REF_DAT</u> – 15 months)	Select	Next rule
9	If <u>XAII_COD</u> = Null AND If <u>TXAII_DAT</u> = Null	Select	Next rule
10	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

- 5 Indicator CKD 6: The percentage of patients on the CKD register whose notes have a record of a urine albumin: creatinine ratio (or protein: creatinine ratio) test in the previous 15 months.

The negotiating parties have confirmed that the majority of pathology laboratories in the UK have the capability and capacity to provide these tests.

a) Denominator ruleset:

<i>Rule number</i>	<i>Rule</i>	<i>Action if true</i>	<i>Action if false</i>
1	If <u>APCR_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>CKDEXC_DAT</u> >= ( <u>REF_DAT</u> – 15 months)	Reject	Next rule
4	If <u>CKD_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>APCR_DAT</u> >= ( <u>REF_DAT</u> – 15 months)	Select	Reject