



<b>Unrestricted</b>					
<b>Data and Business Rules – Chronic kidney disease (CKD) Indicator Set</b>					
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**New GMS Contract QOF Implementation**

**Dataset And Business Rules**

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**Chronic Kidney Disease (CKD)**

**Amendment History:**

<b>Version</b>	<b>Date</b>	<b>Amendment History</b>
		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
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	20-Aug-2007	April 2007 SNOMED CT Release
10.2	23-Sep-2007	October 2007 Read Code Release October 2007 SNOMED CT Release
10.3	27-Nov-2007	Following 4-Country Review: Remove superfluous 'z' from all instances of G2zz.
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 (Replace CKD4 with CKD5)
11.2	21-Jul-2008	Following 4-Country Review CKD_COD corrected to reflect the CKD register (stages 3-5) 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 October 2008 SNOMED CT Release
13.0	05-Dec-2008	Signed off following 4 Country review
31.1	05-Feb-2009	QOF Review 2008
13.2	09-Mar-2009	Amendments following NHSE review
13.3	27_Apr-2009	Amendment following Four-Country Review
14.0	01-May-2009	Sign off following 4 Country review
14.1	25-June-2009	April 2009 Read Code Release
15.0	17-August-2009	Sign 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 April 2009 release of Read codes version 2, clinical terms version 3 (CTV3) and SNOMED-CT. For non SNOMED-CT, 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 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: 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 v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	<i>Latest first or new episode &lt; (REF_DAT)</i>	
	1Z12. 1Z13. 1Z14. 1Z15. 1Z16. 1Z1B. - 1Z1L.	200451000000101% 200461000000103% 200471000000105%	XaLHI% XaLHJ% XaLHK%		
	<i>(Chronic kidney disease codes 3-5)</i>				
<i>Excluded</i>	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	<i>Latest first or new episode &lt; (REF_DAT) AND &gt; Date of diagnostic code above</i>	
	1Z10. 1Z11. 1Z17. - 1Z1A.	200431000000108% 200441000000104%	XaLHH% XaLHG%		
	<i>(Chronic kidney disease codes 1-2)</i>				
<i>Excluded</i>	<i>Age &lt; 18 yrs at REF_DAT</i>				

**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	CKDEXC_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < (REF_DAT)
		9hE1. 9hE0.	196201000000104 196211000000102	XaLFn XaLFm	
		<i>(Chronic kidney disease exception reporting codes)</i>			
4	CKDEXC_DAT	Date of CKDEXC_COD			Chosen record
5	CKD_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest first or new episode < (REF_DAT)
		1Z12. 1Z13. 1Z14. 1Z15. 1Z16. 1Z1B. - 1Z1L.	200451000000101% 200461000000103% 200471000000105%	XaLHI% XaLHJ% XaLHK%	
		<i>(Chronic kidney disease codes 3-5)</i>			
6	CKD_DAT	Date of <u>CKD_COD</u>			Chosen record
7	BP_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < REF_DAT
		246..% (excluding 2460.,2468., 246H., 246I., 246K., 246L., 246M.)	163020007% (excluding 163021006, 163029008, 310357009, 310356000, 274283008%) 75367002% (excluding 37087001%, 315612005, 315613000, 386533006%, 6797001%, 251079001, 252076005%)	X773t% (excluding XaI9f, XaI9g) 246..% (excluding 2460.,2468. XaCFN, XaCFO)	

		<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 v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < REF_DAT
		8I3Y.	413123006	XaJkR	
		<i>(BP recording exception codes)</i>			
12	BPEX_DAT	Date of BPEX_COD			Chosen record
13	HTMAX_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < REF_DAT
		8BL0.	407567007	XaJ5h	
		<i>(Code for maximal BP therapy)</i>			
14	HTMAX_DAT	Date of HTMAX_COD			Chosen record
15	HYP_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < REF_DAT
		G2... G20..% G24..- G2z.. (Excluding G24z1)	38341003% (excluding 69909000, 72022006%, 198941007%, 367390009%, 62275004, 64715009%, 38481006%, 206596003, 169465000, 194791005% 199008003)	XE0Ub XE0Uc% G24..% (excluding 61462) G2...% Xa0Cs XSDSb G202. Xa3fQ	
		<i>(Hypertension diagnosis codes)</i>			
16	HYP_DAT	Date of HYP_COD			Chosen record

17	HYPRES_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < ( <i>REF_DAT</i> ) AND > <i>HYP_DAT</i>
		21261 212K.	162659009	21261	
		<i>(Codes for hypertension resolved)</i>			
18	HYPRES_DAT	Date of HYPRES_COD			Chosen record
19	XACE_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < <i>REF_DAT</i>
		14LM. U60C4 TJC77 - TJC79 ZV14D	407578004 407595007 295036000% 293500009% 223073005	XaJ5y XaJ8Y Xa60w% Xa5cT% XaIrq U60C4	
		<i>(Ace inhibitor contraindications; persistent)</i>			
20	XACE_DAT	Date of XACE_COD			Chosen record
21	TXACE_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < <i>REF_DAT</i>
		8I28. 8I3D. 8I64. 8I74.	315364008 134397009 134390006 407564000	XaG2W XaIIm XaIIIf XaJ5e	
		<i>(Ace inhibitor contraindications; expiring)</i>			
22	TXACE_DAT	Date of TXACE_COD			Chosen record
23	XAII_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < <i>REF_DAT</i>

		14LN. U60CB ZV14E	407579007 407590002% 401108004 407593000	XaJ5z XaJ8o XaIzK XaJ8W	
		<i>(AII antagonist contraindications: persisting)</i>			
24	XAII_DAT	Date of XACE_COD			Chosen record
25	TXAII_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < REF_DAT
		8I2H. 8I3P. 8I6C. 8I75.	394987009 401084003 407572003 407565004	XaInW XaIyw XaJ5m XaJ5f	
		<i>(AII antagonist contraindications: expiring)</i>			
26	TXAII_DAT	Date of TXAII_COD			Chosen record
27	ACE_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < REF_DAT
		bi...% bA...% bk6..%	41549009%	bi...% bA...%	
		<i>(Ace inhibitor prescription codes)</i>			
28	ACE_DAT	Date of ACE_COD			Chosen record
29	AII_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < REF_DAT
		bk3.. - bk5z. bk7.. - bk9z. bkB..%, bkD..%	96308008%	x03j2% x03ls% bkD..%	

		<i>(AII antagonist prescription codes)</i>			
30	AII_DAT	Date of AII_COD			Chosen record
31	CKDPRT_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < (REF_DAT)
		1Z1B. 1Z1D. 1Z1F. 1Z1H. 1Z1K. R110. R1100 R1103 R110z	324251000000105 324311000000101 324371000000106 324441000000106 324501000000107 207310001 207311002 312976007 207315006	XaO3t XaO3v XaO3x XaO3z XaO41 R110. R1100 XaE6q R110z	
		<i>(Codes for proteinuria for CKD)</i>			
32	CKDPRT_DAT	Date of CKDPRT_COD			Chosen record
33	APCR_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < (REF_DAT)
		44ID. 46TC.	313500004 271075006	XaEMS XE2n3	
		<i>(Codes for Alubumin: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 <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>CKDEXC_DAT</u> >= ( <u>REF_DAT</u> – 15 months)	Reject	Next rule
5	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>BP_DAT</u> >= ( <u>REF_DAT</u> – 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 <a href="#">BP_SYS</a> <= 140           AND If <a href="#">BP_DIA</a> <= 85           AND 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> - 9 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> - 9 months)	Reject	Next rule
6	If <a href="#">HTMAX_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="#">BP_SYS</a> <= 140           AND If <a href="#">BP_DIA</a> <= 85           AND If <a href="#">BP_DAT</a> >= ( <a href="#">REF_DAT</a> - 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) 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 <a href="#">APCR_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="#">CKDEXC_DAT</a> >= ( <a href="#">REF_DAT</a> – 15 months)	Reject	Next rule
4	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="#">APCR_DAT</a> >= ( <a href="#">REF_DAT</a> – 15 months)	Select	Reject