



<b>Data and Business Rules – Dementia Indicator Set</b>					
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## **New GMS Contract QOF Implementation**

### **Dataset and Business Rules**

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### **Dementia Indicator Set**

**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	24-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	16-Nov-2006	Responding to queries raised by 4 Country Review
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	22-Aug-2007	April 2007 SNOMED CT Release
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
11.2	21-Jul-2008	Following 4-Country Review: Bring Numerator Rule 1 into line with Denominator Rule 1 for indicator DEM02
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
13.2	09-Mar-2009	QOF Review 2008
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	Sign off following 4 Country release
15.1	12-October-2009	October 2009 Clinical Code Release
15.2	28-October-2009	October 2009 Clinical Code Release review
16.0	02-December-2009	Sign off following 4 Country 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.

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

### Dataset and business rules – Dementia 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 2010 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 its 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

<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>	Read codes v2	<i>CTV3</i>	<i>Earliest &lt; (REF_DAT)</i>
	Eu02.% E00..% Eu01.% E02y1 E012.% Eu00.% E041. Eu041 F110. – F112. F116.	X002w% Xa1GB% XE1Z6 (excluding X003E%)	
	<i>(Dementia codes)</i>		

**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	DEMEXC_COD	<i>Read codes v2</i>	<i>CTV3</i>	Latest < (REF_DAT)
		9hD0. 9hD1.	XaLFo XaLFp	
		<i>(Dementia exception reporting codes)</i>		
4	DEMEXC_DAT	Date of DEMEXC_COD		Chosen record
5	DEM_COD	<i>Read codes v2</i>	<i>CTV3</i>	Earliest < (REF_DAT)
		Eu02.% E00.% Eu01.% E02y1 E012.% Eu00.% E041. Eu041 F110. – F112. F116.	X002w% Xa1GB% XE1Z6 (excluding X003E%)	
		<i>(Codes for Dementia)</i>		
6	DEM_DAT	Date of DEM_COD		Chosen record

7	DEMR_COD	<i>Read codes v2</i>	<i>CTV3</i>	Latest < (REF_DAT)
		6AB..	XaMGF	
		<i>(Code for Dementia health review)</i>		
8	DEMR_DAT	Date of DEMR_COD		Chosen record
9	FBC_COD	<i>Read codes v2</i>	<i>CTV3</i>	Latest < (REF_DAT) AND >= (DEM_DAT - 6 months) AND <= (DEM_DAT + 6 months)
		423.. 426.. 42A.. 42H..	Xa96v 426.. 42A.. XaldY	
		<i>(Full blood count test recording)</i>		
		Date of FBC_COD		
10	FBC_DAT	Date of FBC_COD		Chosen record
11	CALC_COD	<i>Read codes v2</i>	<i>CTV3</i>	Latest < (REF_DAT) AND >= (DEM_DAT - 6 months) AND <= (DEM_DAT + 6 months)
		44h4. 44i8. 44h7. 44iE. 44iD. 44iC. 44h9. 44hD.	XaDvd XE2q3 XaIRk XaldR XaIU0 44iC. XaIRn XaX4E	
		<i>(Calcium test recording)</i>		
12	CALC_DAT	Date of CALC_COD		Chosen record
13	GLUC_COD	<i>Read codes v2</i>	<i>CTV3</i>	Latest < (REF_DAT) AND >= (DEM_DAT - 6 months) AND
		44TM. 44f..% 44g..%	XaJmX X772z% (excluding Xa974%, XE2mr, XE2ms, XE2mt)	

		44T1. - 44T3. 44TA. 44TE. - 44TK. 44U..% (Excluding 44Uz.) 44V.. - 44V3. 44V6. R102. R10D. R1057	44f..% XM0ly% 44T10 44T11 44T12 44U8. 44U9. XE25Z 44V1. 44V2. 44V3. XaMLQ R102. XaFxf XS7Nb	<= (DEM_DAT + 6 months)
		<i>(Glucose test recording)</i>		
14	GLUC_DAT	Date of GLUC_COD		Chosen record
15	RENAL_COD	<i>Read codes v2</i>	<i>CTV3</i>	Latest < (REF_DAT) AND >= (DEM_DAT - 6 months) AND <= (DEM_DAT + 6 months)
		44J9. 44JA. 44J3. 44JF. 44JC. 44JD.	XM0lt XaDvl XE2q5 XaETQ XaERX XaERc	
		<i>(Renal test recording)</i>		
16	RENAL_DAT	Date of RENAL_COD		Chosen record
17	LIVER_COD	<i>Read codes v2</i>	<i>CTV3</i>	Latest < (REF_DAT) AND >= (DEM_DAT - 6 months)
		44FA. 44FD.	XaERy XaERx	

		44G7. 44G9. 44GB.	XaES4 XaES3 XaLJx	AND <= (DEM_DAT + 6 months)
		<i>(Liver test recording)</i>		
18	LIVER_DAT	Date of LIVER_COD		Chosen record
		<i>Read codes v2</i>	<i>CTV3</i>	Latest < (REF_DAT) AND
19	DEMTFT_COD	442W. 442X.	XaELV XaELW	>= (DEM_DAT – 6 months) AND
		<i>(Thyroid function tests for dementia screening)</i>		<= (DEM_DAT + 6 months)
20	DEMTFT_DAT	Date of DEMTFT_COD		Chosen record
		<i>Read codes v2</i>	<i>CTV3</i>	Latest < (REF_DAT) AND
21	VITB12_COD	42T.. 44Le.	XE2pf XaJ27	>= (DEM_DAT – 6 months) AND
		<i>(B12 level tests)</i>		<= (DEM_DAT + 6 months)
22	VITB12_DAT	Date of VITB12_COD		Chosen record
		<i>Read codes v2</i>	<i>CTV3</i>	Latest < (REF_DAT) AND
23	FOL_COD	42U5. 42UE.	42U5. X76tC	>= (DEM_DAT – 6 months) AND
		<i>(Folate level tests)</i>		<= (DEM_DAT + 6 months)
24	FOL_DAT	Date of FOL_COD		Chosen record

### **Indicator rulesets**

- 1 **Indicator DEM 1**: The practice can produce a register of patients diagnosed with dementia.

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 DEM 2: The percentage of patients diagnosed with dementia whose care has been reviewed in the preceding 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>DEM_R_DAT</u> >= ( <u>REF_DAT</u> - 15 months) AND If <u>DEM_R_DAT</u> >= <u>DEM_DAT</u>	Select	Next rule
2	If <u>REG_DAT</u> >= ( <u>REF_DAT</u> - 3 months)	Reject	Next rule
3	If <u>DEMEXC_DAT</u> >= ( <u>REF_DAT</u> - 15 months)	Reject	Next rule
4	If <u>DEM_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>DEM_R_DAT</u> >= ( <u>REF_DAT</u> - 15 months) AND If <u>DEM_R_DAT</u> >= <u>DEM_DAT</u>	Select	Reject

- 3 **Indicator DEM 3:** The percentage of patients with a new diagnosis of dementia (from April 2011) with a record of FBC, calcium, glucose, renal and liver function, thyroid function tests, serum vitamin B12 and folate levels recorded 6 months before or after entering on to the register

### **Overview**

This indicator has been developed to measure the effectiveness of the provision of a clinical care component for patients with dementia. The aspect that is being measured is that relating to the provision of a complete set of screening tests.

### **Disease register**

The disease register is made up of patients who are eligible to receive the required care component. In this case, patients who have a diagnosis of dementia (i.e. there is evidence in the patient's electronic health record of a dementia diagnosis code).

### **Numerator and Denominator**

The success criteria for this indicator (numerator) are achieved for those patients in the denominator who have all of the tests recorded (not necessarily on the same day) up to 6 months before or up to 6 months after entering on to the register.

The patients that make up the denominator for this indicator are those patients where it is appropriate for the care component to be carried out. This is the relevant disease register adjusted for exclusions and exceptions.

### **Exclusions**

For this indicator there are two exclusions.

- The indicator is specifically looking at newly diagnosed patients from a specific point in time when the associated clinical guidance was available: patients without a diagnosis of dementia after **1 April 2011** are excluded
- Consideration has to be made for those patients diagnosed with dementia within 6 months of the end of the QoF period i.e. the 6 month 'window' for the tests would then span 2 years. If at least one of the tests has not been carried then it would be unreasonable for the patient to be considered unsuccessful until the full 6 months are checked, which can only be done in the next QOF period. Such patients are excluded for this year.

### **Exceptions**

Patients that don't achieve the success criteria of the indicator are checked for valid exceptions.

For this indicator the exceptions are:

- any patient who has been registered within the last 3 months of the qualifying year (new patient). New patients may be regarded as exceptions if they fulfil the criteria of the indicator but have not yet had all of the tests - maybe because there hasn't been an opportunity in the qualifying year to arrange them.
- any patient that has a relevant dementia exception code recorded within the previous 15 months.

- any patient that has been diagnosed with dementia within the last 3 months of the year (new diagnosis of dementia). Newly diagnosed patients may be regarded as exceptions if they fulfil the criteria of the indicator but have not yet had the tests - maybe because there hasn't been an opportunity in the qualifying year to arrange them.

Note: For the 'new' dementia patient exception, this is only applicable for the first 'ever' diagnosis of dementia for the patient. For a subsequent diagnosis, this exception rule is not considered.

**Indicator DEM 3:** The percentage of patients with a new diagnosis of dementia (from April 2011) with a record of FBC, calcium, glucose, renal and liver function, thyroid function tests, serum vitamin B12 and folate levels recorded 6 months before or after entering on to the register

a) Denominator ruleset

<i>Rule number</i>	<i>Rule</i>	<i>Action if true</i>	<i>Action if false</i>
1	If <u>DEM_DAT</u> >= 01.04.2011	Next Rule	Reject
2	If <u>DEM_DAT</u> >= ( <u>REF_DAT</u> – 6 months) AND (If <u>FBC_DAT</u> = Null OR <u>CALC_DAT</u> = Null OR <u>GLUC_DAT</u> = Null OR <u>RENAL_DAT</u> = Null OR <u>LIVER_DAT</u> = Null OR <u>DEMTFT_DAT</u> = Null OR <u>VITB12_DAT</u> = Null OR <u>FOL_DAT</u> = Null)	Reject	Next Rule
3	If <u>FBC_DAT</u> ≠ Null  <b>AND</b> <u>CALC_DAT</u> ≠ Null  <b>AND</b> <u>GLUC_DAT</u> ≠ Null  <b>AND</b> <u>RENAL_DAT</u> ≠ Null  <b>AND</b> <u>LIVER_DAT</u> ≠ Null  <b>AND</b> <u>DEMTFT_DAT</u> ≠ Null  <b>AND</b> <u>VITB12_DAT</u> ≠ Null	Select	Next rule

	<b>AND</b> <u>FOL_DAT</u> ≠ Null		
4	If <u>REG_DAT</u> >= ( <u>REF_DAT</u> - 3 months)	Reject	Next rule
5	If <u>DEMEXC_DAT</u> >= ( <u>REF_DAT</u> - 15 months)	Reject	Next rule
6	If <u>DEM_DAT</u> >= ( <u>REF_DAT</u> - 3 months)	Reject	Select

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

<u>Rule number</u>	<u>Rule</u>	<u>Action if true</u>	<u>Action if false</u>
1	If <u>FBC_DAT</u> ≠ Null <b>AND</b> <u>CALC_DAT</u> ≠ Null <b>AND</b> <u>GLUC_DAT</u> ≠ Null <b>AND</b> <u>RENAL_DAT</u> ≠ Null <b>AND</b> <u>LIVER_DAT</u> ≠ Null <b>AND</b> <u>DEMTFT_DAT</u> ≠ Null <b>AND</b> <u>VITB12_DAT</u> ≠ Null <b>AND</b> <u>FOL_DAT</u> ≠ Null	Select	Reject

**Additional Notes:****Denominator****Exclusions**

**Rule 1:** This indicator is looking at patients who are newly diagnosed with dementia after 1<sup>st</sup> April 2011. So the objective of this rule is to exclude patients from the register whose first diagnosis was before 1<sup>st</sup> April 2011. If the patient is newly diagnosed after 1<sup>st</sup> April 2011 they are passed on to the next rule.

**Rule 2:** The objective of this rule is to check that patients who have not achieved the **full** success criteria, but were diagnosed in the last 6 months of the QOF period, are not included in the denominator (or numerator). Subsequent rules ensure that this patient would be 'checked' in the following QOF period to ensure whether or not the full set of tests was carried out.

If the patient has not been newly diagnosed in the last 6 months of the period they are passed on to next rule.

If a patient has been newly diagnosed in the last 6 months of the period **and** all the tests have been carried out as intended they are also passed on to next rule.

**Success**

**Rule 3:** The objective of this rule is to identify patients who have successful recordings for all the tests. The patient must have recordings of all the tests (FBC, calcium test, glucose test, renal test, liver test, thyroid function test, serum vitamin B12, folate levels test) within 6 months before a diagnosis or up to 6 months after a diagnosis.

If the patient does not have all tests recorded within the appropriate time frame ([as specified in the clinical data extraction criteria](#)) they are passed on to the next rule.

**Exceptions**

It is worth remembering at this point that if a patient has a recording of all the tests within 6 months before a diagnosis or up to 6 months after a diagnosis then they will already have been selected into the denominator in Rule 3.

**Rule 4:** The aim of this rule is to identify any patient that 'recently registered' at the practice. If the patient has registered at the practice in the last 3 months, the patient should not be included in the denominator. If the patient was not registered in the last 3 months they are passed on to the next rule.

**Rule 5:** The aim of this rule is to identify any patient that has a valid dementia exception code recorded. If this has been recorded in the previous 15 months, the patient can be excepted and is not included in the denominator. Otherwise they are passed on to the next rule.

**Rule 6:** The aim of this rule is to identify any patient that has been 'recently diagnosed' as a dementia patient. If the patient has been diagnosed with dementia in the last 3 months, the patient can be excepted and is not included in the denominator. Otherwise the patient is selected into the denominator.

**Numerator**

The success criterion for this indicator is as per Denominator Rule 3.