



Unrestricted					
Data and Business Rules – Diabetes Mellitus Indicator Set					
Author	Paul Amos	Version No	11.0	Version Date	28-Nov-2007

New GMS Contract QOF Implementation

Dataset and Business Rules

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Diabetes Mellitus Indicator Set

Amendment History:

Version	Date	Amendment History
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. 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	17-May-2006	Responding to queries raised a) Amend wording for Note 3 b) Add 451E in EGFR_COD
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

New GMS contract Q&O framework implementation

Dataset and business rules – Diabetes mellitus 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 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

<i><u>Current registration status</u></i>	<i><u>Qualifying criteria</u></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 and demographic status

<i>Code criteria</i>	<i>Qualifying diagnostic codes</i>	<i>Time criteria</i>
<i>Included</i>	<i>Read codes v0</i>	<i>Latest < (REF_DAT)</i>
	C2C.% C2D.%	
	<i>(Diagnostic codes for diabetes mellitus)</i>	
<i>Excluded</i>	<i>Read codes v0</i>	<i>Latest < (REF_DAT) AND > Date of diagnostic code above</i>
	212H	
	<i>(Code for diabetes resolved)</i>	
<i>Excluded</i>	Age < 17 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	DMEXC_COD	<i>Read codes v0</i>	Latest < (REF_DAT)
		9h4.%	
		<i>(Diabetes exception reporting codes)</i>	
4	DMEXC_DAT	Date of DMEXC_COD	Chosen record
5	DM_COD	<i>Read codes v0</i>	Earliest < (REF_DAT)
		C2C.% C2D.%	
		<i>(Codes for diabetes)</i>	
6	DM_DAT	Date of DM_COD	Chosen record
7	BMI_COD	<i>Read codes v0</i>	Latest < (REF_DAT)
		22K.%	
		<i>(BMI codes)</i>	
8	BMI_DAT	Date of BMI_COD	Chosen record
9	DMMAX_COD	<i>Read codes v0</i>	Latest < (REF_DAT)
		8BL2	
		<i>(Code for maximum tolerated diabetes treatment)</i>	
10	DMMAX_DAT	Date of DMMAX_COD	Chosen record
11	HBA_COD	<i>Read codes v0</i>	Latest < (REF_DAT)
		42W.% 42c.% 44TB 44TC 44TL	
		<i>(HbA1c codes)</i>	
12	HBA_VAL	Value 1 of HBA_COD	Chosen record
13	HBA_DAT	Date of HBA_COD	Chosen record

14	FRU_COD	<i>Read codes v0</i>	Latest < (REF_DAT)
		44TD 44Z1	
		<i>(Serum fructosamine codes)</i>	
15	FRU_VAL	Value 1 of FRU_COD	Chosen record
16	FRU_DAT	Date of FRU_COD	Chosen record
17	RET_COD	<i>Read codes v0</i>	Latest < (REF_DAT)
		2BB.% 3128 3129 312E - 312G 58C1 68A7, 68A8 66AD 9N1v 9N2U 9N2V 9N2e 9N2f 8HBG 8HBH 8HBD 9NNC	
		<i>(Retinal screening codes)</i>	
18	RET_DAT	Date of RET_COD	Chosen record
19	RETEXC_COD	<i>Read codes v0</i>	Latest < (REF_DAT)
		8I6F 8I3X 9OLD	
		<i>(Retinal screening exception codes)</i>	
20	RETEXC_DAT	Date of RETEXC_COD	Chosen record
21	PP_COD	<i>Read codes v0</i>	Latest < (REF_DAT)
		24E1 - 24EF 24F1 - 24FF 585V - 585Y 585a - 585e 9NND 8H7r	
		<i>(Peripheral pulse codes)</i>	
22	PP_DAT	Date of PP_COD	Chosen record

23	FEEXC_COD	<i>Read codes v0</i>	Latest < (REF_DAT)
		8I6G 8I3W	
		<i>(Foot examination exception codes)</i>	
24	FEEXC_DAT	Date of FEEXC_COD	Chosen record
25	NPT_COD	<i>Read codes v0</i>	Latest < (REF_DAT)
		311A 29B7-29BC 29B1-29B3 29H1 – 29HB 66Ac 9NND 8H7r	
		<i>(Neuropathy testing codes)</i>	
26	NPT_DAT	Date of NPT_COD	Chosen record
27	BP_COD	<i>Read codes v0</i>	Latest < REF_DAT
		246.% (excluding 2460, 246H, 246I, 246K, 246L, 246M)	
		<i>(BP recording codes)</i>	
28	BP_DAT	Date of BP_COD	Chosen record
29	BP_SYS	Value 1 of BP_COD <i>(Systolic BP value)</i>	Chosen record
30	BP_DIA	Value 2 of BP_COD <i>(Diastolic BP value)</i>	Chosen record
31	BPEX_COD	<i>Read codes v0</i>	Latest < REF_DAT
		8I3Y	
		<i>(BP recording exception codes)</i>	
32	BPEX_DAT	Date of BPEX_COD	Chosen record
33	HTMAX_COD	<i>Read codes v0</i>	Latest < REF_DAT
		8BL0	
		<i>(Code for maximal BP therapy)</i>	
34	HTMAX_DAT	Date of HTMAX_COD	Chosen record
35	PRT_COD	<i>Read codes v0</i>	Latest < (REF_DAT)
		RB2. - RB20 RB2Z C261	
		<i>(Codes for proteinuria)</i>	

36	PRT_DAT	Date of PRT_COD	Chosen record
37	MALT_COD	<i>Read codes v0</i>	Latest < (REF_DAT)
		467A 467E 46W.% 46TC 46N5 - 46N8 46N3 46N4	
		<i>(Codes for microalbuminuria testing)</i>	
38	MALT_DAT	Date of MALT_COD	Chosen record
39	CRE_COD	<i>Read codes v0</i>	Latest < (REF_DAT)
		44J3 44JC 44JD 44JF	
		<i>(Codes for serum creatinine)</i>	
40	CRE_DAT	Date of CRE_COD	Chosen record
41	EGFR_COD	<i>Read codes v0</i>	Latest < (REF_DAT)
		451E 451F 451G	
		<i>(Codes for estimated glomerular filtration rate)</i>	
42	EGFR_DAT	Date of EGFR_COD	Chosen record
43	MAL_COD	<i>Read codes v0</i>	Latest < (REF_DAT)
		C260	
		<i>(Codes for microalbuminuria)</i>	
44	MAL_DAT	Date of MAL_COD	Chosen record
45	XACE_COD	<i>Read codes v0</i>	Latest < REF_DAT
		14LM Q564	
		<i>(Ace inhibitor contraindications; persistent)</i>	
46	XACE_DAT	Date of XACE_COD	Chosen record
47	TXACE_COD	<i>Read codes v0</i>	Latest < REF_DAT
		8128 813D 8164 8174	

		<i>(Ace inhibitor contraindications; expiring)</i>	
48	TXACE_DAT	Date of TXACE_COD	Chosen record
49	XAII_COD	<i>Read codes v0</i>	Latest < REF_DAT
		14LN Q567	
		<i>(All antagonist contraindications: persisting)</i>	
50	XAII_DAT	Date of XACE_COD	Chosen record
51	TXAII_COD	<i>Read codes v0</i>	Latest < REF_DAT
		8I2H 8I3P 8I6C 8I75	
		<i>(All antagonist contraindications: expiring)</i>	
52	TXAII_DAT	Date of TXAII_COD	Chosen record
53	ACE_COD	<i>Read codes v0</i>	Latest < REF_DAT
		bi.% bA.% bk6.%	
		<i>(Ace inhibitor prescription codes)</i>	
54	ACE_DAT	Date of ACE_COD	Chosen record
55	AII_COD	<i>Read codes v0</i>	Latest < REF_DAT
		bk3. - bk5z bk7. - bk9z bkB.%	
		<i>(All antagonist prescription codes)</i>	
56	AII_DAT	Date of AII_COD	Chosen record
57	CHOL_COD	<i>Read codes v0</i>	Latest < REF_DAT
		44OE 44P. - 44P4 44PH 44PJ	
		<i>(Total cholesterol codes)</i>	
58	CHOL_DAT	Date of CHOL_COD	Chosen record
59	CHOL_VAL	Value 1 of CHOL_COD <i>(Total cholesterol value)</i>	Chosen record
60	CHEXC_COD	<i>Read codes v0</i>	Latest < REF_DAT
		Q563	

		<i>(Codes for exception from serum cholesterol target; persisting)</i>	
61	CHEXC_DAT	Date of CHEXC_COD	Chosen record
62	TCHEXC_COD	<i>Read codes v0</i>	Latest < REF_DAT
		8BL1 813C 8127 8163 8176	
		<i>(Codes for exception from serum cholesterol target; expiring)</i>	
63	TCHEXC_DAT	TCHEXC_COD	Chosen record
64	XFLU_COD	<i>Read codes v0</i>	Latest < REF_DAT
		14LJ Q5AB	
		<i>(Flu vaccine contraindications: persisting)</i>	
65	XFLU_DAT	Date of XFLU_COD	Chosen record
66	TXFLU_COD	<i>Read codes v0</i>	Latest < REF_DAT
		812F 816D 68NE 9OX5	
		<i>(Flu vaccine contraindications: expiring)</i>	
67	TXFLU_DAT	Date of TXFLU_COD	Chosen record
68	FLU_COD	<i>Read codes v0</i>	Latest < REF_DAT
		n47.% 65E.%	
		<i>(Flu vaccination codes)</i>	
69	FLU_DAT	Date of FLU_COD	Chosen record

Indicator rulesets

- 1 Indicator DM 19: The practice can produce a register of all patients aged 17 years and over with diabetes mellitus, which specifies whether the patient has Type 1 or Type 2 diabetes.

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 DM 2: The percentage of patients with diabetes whose notes record BMI 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 BMI_DAT >= (REF_DAT – 15 months)	Select	Next rule
2	If REG_DAT >= (REF_DAT – 3 months)	Reject	Next rule
3	If DMEXC_DAT >= (REF_DAT – 15 months)	Reject	Next rule
4	If DM_DAT >= (REF_DAT – 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 BMI_DAT >= (REF_DAT – 15 months)	Select	Reject

- 3 Indicator DM 5: The percentage of patients with diabetes who have a record of HbA1c or equivalent 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>HBA_DAT</u> >= (<u>REF_DAT</u> – 15 months)	Select	Next rule
2	If <u>FRU_DAT</u> >= (<u>REF_DAT</u> – 15 months)	Select	Next rule
3	If <u>REG_DAT</u> >= (<u>REF_DAT</u> – 3 months)	Reject	Next rule
4	If <u>DMEXC_DAT</u> >= (<u>REF_DAT</u> – 15 months)	Reject	Next rule
5	If <u>DM_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>HBA_DAT</u> >= (<u>REF_DAT</u> – 15 months)	Select	Next rule
2	If <u>FRU_DAT</u> >= (<u>REF_DAT</u> – 15 months)	Select	Reject

- 4 Indicator DM 20: The percentage of patients with diabetes in whom the last HbA1C is 7.5 or less (or equivalent test/reference range depending on local laboratory) 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>HBA_VAL</u> <= 7.5 AND If <u>HBA_DAT</u> >= (<u>REF_DAT</u> - 15 months)	Select	Next rule
2	If <u>FRU_VAL</u> <= 346 AND If <u>FRU_DAT</u> >= (<u>REF_DAT</u> - 15 months)	Select	Next rule
3	If <u>REG_DAT</u> >= (<u>REF_DAT</u> - 9 months)	Reject	Next rule
4	If <u>DMEXC_DAT</u> >= (<u>REF_DAT</u> - 15 months)	Reject	Next rule
5	If <u>DM_DAT</u> >= (<u>REF_DAT</u> - 9 months)	Reject	Next rule
6	If <u>DMMAX_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>HBA_VAL</u> <= 7.5 AND If <u>HBA_DAT</u> >= (<u>REF_DAT</u> - 15 months)	Select	Next rule
2	If <u>FRU_VAL</u> <= 346 AND If <u>FRU_DAT</u> >= (<u>REF_DAT</u> - 15 months)	Select	Reject

- 5 Indicator DM 7: The percentage of patients with diabetes in whom the last HbA1C is 10 or less (or equivalent test/reference range depending on local laboratory) 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>HBA_VAL</u> <= 10 AND If <u>HBA_DAT</u> >= (<u>REF_DAT</u> - 15 months)	Select	Next rule
2	If <u>FRU_VAL</u> <= 400 AND If <u>FRU_DAT</u> >= (<u>REF_DAT</u> - 15 months)	Select	Next rule
3	If <u>REG_DAT</u> >= (<u>REF_DAT</u> - 9 months)	Reject	Next rule
4	If <u>DMEXC_DAT</u> >= (<u>REF_DAT</u> - 15 months)	Reject	Next rule
5	If <u>DM_DAT</u> >= (<u>REF_DAT</u> - 9 months)	Reject	Next rule
6	If <u>DMMAX_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>HBA_VAL</u> <= 10 AND If <u>HBA_DAT</u> >= (<u>REF_DAT</u> - 15 months)	Select	Next rule
2	If <u>FRU_VAL</u> <= 400 AND If <u>FRU_DAT</u> >= (<u>REF_DAT</u> - 15 months)	Select	Reject

- 6 Indicator DM 21: The percentage of patients with diabetes who have a record of retinal screening 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 RET_DAT >= (REF_DAT – 15 months)	Select	Next rule
2	If REG_DAT >= (REF_DAT – 3 months)	Reject	Next rule
3	If DMEXC_DAT >= (REF_DAT – 15 months)	Reject	Next rule
4	If RETEXC_DAT >= (REF_DAT – 15 months)	Reject	Next rule
5	If DM_DAT >= (REF_DAT – 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 RET_DAT >= (REF_DAT – 15 months)	Select	Reject

- 7 Indicator DM_9: The percentage of patients with diabetes with a record of the presence or absence of peripheral pulses 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>PP_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>DMEXC_DAT</u> >= (<u>REF_DAT</u> – 15 months)	Reject	Next rule
4	If <u>FEEXC_DAT</u> >= (<u>REF_DAT</u> – 15 months)	Reject	Next rule
5	If <u>DM_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>PP_DAT</u> >= (<u>REF_DAT</u> – 15 months)	Select	Reject

- 8 Indicator DM 10: The percentage of patients with diabetes with a record of neuropathy testing 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>NPT_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>DMEXC_DAT</u> >= (<u>REF_DAT</u> – 15 months)	Reject	Next rule
4	If <u>FEEXC_DAT</u> >= (<u>REF_DAT</u> – 15 months)	Reject	Next rule
5	If <u>DM_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>NPT_DAT</u> >= (<u>REF_DAT</u> – 15 months)	Select	Reject

- 9 Indicator DM 11: The percentage of patients with diabetes who have a record of the 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>DMEXC_DAT</u> >= (<u>REF_DAT</u> – 15 months)	Reject	Next rule
5	If <u>DM_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

10 Indicator DM 12: The percentage of patients with diabetes in whom the last blood pressure is 145/85 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> <= 145 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>DMEXC_DAT</u> >= (<u>REF_DAT</u> - 15 months)	Reject	Next rule
5	If <u>DM_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> <= 145 AND If <u>BP_DIA</u> <= 85 AND If <u>BP_DAT</u> >= (<u>REF_DAT</u> - 15 months)	Select	Reject

- 11 Indicator DM 13: The percentage of patients with diabetes who have a record of micro-albuminuria testing in the previous 15 months (exception reporting for patients with proteinuria).

a) Denominator ruleset

<i>Rule number</i>	<i>Rule</i>	<i>Action if true</i>	<i>Action if false</i>
1	If PRT_COD ≠ Null	Reject	Next rule
2	If MALT_DAT >= (REF_DAT – 15 months)	Select	Next rule
3	If REG_DAT >= (REF_DAT – 3 months)	Reject	Next rule
4	If DMEXC_DAT >= (REF_DAT – 15 months)	Reject	Next rule
5	If DM_DAT >= (REF_DAT – 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 MALT_DAT >= (REF_DAT – 15 months)	Select	Reject

- 12 Indicator DM 22: The percentage of patients with diabetes who have a record of estimated glomerular filtration rate (eGFR) or serum creatinine testing 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>CRE_DAT</u> >= (<u>REF_DAT</u> – 15 months) OR If <u>EGFR_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>DMEXC_DAT</u> >= (<u>REF_DAT</u> – 15 months)	Reject	Next rule
4	If <u>DM_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>CRE_DAT</u> >= (<u>REF_DAT</u> – 15 months) OR If <u>EGFR_DAT</u> >= (<u>REF_DAT</u> – 15 months)	Select	Reject

- 13 Indicator DM 15: The percentage of patients with diabetes with a diagnosis of proteinuria or micro-albuminuria who are treated with ACE inhibitors (or A2 antagonists).

a) Denominator ruleset

<i>Rule number</i>	<i>Rule</i>	<i>Action if true</i>	<i>Action if false</i>
1	If <u>PRT_COD</u> = Null AND If <u>MAL_COD</u> = Null	Reject	Next rule
2	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
3	If <u>REG_DAT</u> >= (<u>REF_DAT</u> - 3 months)	Reject	Next rule
4	If <u>DMEXC_DAT</u> >= (<u>REF_DAT</u> - 15 months)	Reject	Next rule
5	If <u>DM_DAT</u> >= (<u>REF_DAT</u> - 3 months)	Reject	Next rule
6	If <u>XACE_COD</u> = Null AND If <u>TXACE_DAT</u> = Null	Select	Next rule
7	If <u>XACE_COD</u> = Null AND If <u>TXACE_DAT</u> < (<u>REF_DAT</u> - 15 months)	Select	Next rule
8	If <u>XAII_COD</u> = Null AND If <u>TXAII_DAT</u> = Null	Select	Next rule
9	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

- 14 Indicator DM 16: The percentage of patients with diabetes who 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>DMEXC_DAT</u> >= (<u>REF_DAT</u> – 15 months)	Reject	Next rule
4	If <u>DM_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

15 Indicator DM 17: The percentage of patients with diabetes whose last measured total cholesterol within 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 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>DMEXC_DAT</u> >= (<u>REF_DAT</u> - 15 months)	Reject	Next rule
4	If <u>DM_DAT</u> >= (<u>REF_DAT</u> - 9 months)	Reject	Next rule
5	If <u>CHEXC_COD</u> ≠ Null OR 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 If <u>CHOL_DAT</u> >= (<u>REF_DAT</u> - 15 months)	Select	Reject

16 Indicator DM 18: The percentage of patients with diabetes who have had influenza immunisation in the preceding 1 September to 31 March.

a) Denominator ruleset

<i>Rule number</i>	<i>Rule</i>	<i>Action if true</i>	<i>Action if false</i>
1	If <u>FLU_DAT</u> >= <u>FLU_COM</u> AND If <u>FLU_DAT</u> <= <u>FLU_END</u>	Select	Next rule
2	If <u>REG_DAT</u> >= (<u>REF_DAT</u> – 3 months)	Reject	Next rule
3	If <u>DMEXC_DAT</u> >= (<u>REF_DAT</u> – 15 months)	Reject	Next rule
4	If <u>DM_DAT</u> >= (<u>REF_DAT</u> – 3 months)	Reject	Next rule
5	If <u>XFLU_COD</u> ≠ Null	Reject	Next rule
6	If <u>TXFLU_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>FLU_DAT</u> >= <u>FLU_COM</u> AND If <u>FLU_DAT</u> <= <u>FLU_END</u>	Select	Reject