



Unrestricted					
Data and Business Rules – Diabetes Mellitus Indicator Set					
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New GMS Contract QOF Implementation

Dataset and Business Rules

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Diabetes Mellitus Indicator Set

Amendment History:

Version	Date	Amendment History
Draft 0.3	21-Jun-2003	From Peter Horsfield
1.0	24-Sep-2003	Standard Headers and footers Applied and set to approved.
1.1	03-Nov-2003	Added headers and footers to Version 0.4 received from Pete Horsfield on 03/11/03.
2.0	12-Nov-2003	Amended following 4 Country review
3.0	20-Jan-2004	Amended following January READ Code Release
4.0	04-Feb-2004	Amended following 4 Country, GPSS and internal review
4.1	09-Apr-2004	SNOMED-CT codes added, 4-byte Read codes removed
4.2	09-Jul-2004	Amended following July READ code release
5.0	27-Sep-2004	Amended following 4 country review
5.1	18-Jan-2005	Amended following January READ Code Release
5.2	18-Jan-2005	Amended following 4 Country review
6.0	21-July-2005	Signed off following 4 Country review
6.1	21-July-2005	Amended following July 2005 Read Code release and January 2005 SNOMED CT release
6.2	21-Aug-2005	Amended following 4 Country review
7.0	23-Sep-2005	Signed off following 4 Country review
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	26-Feb-2006	Amended following internal & 4 Countries review
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. for v2 (and equivalents for other sets) in EGFR_COD
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	DEMEXC_COD: Add missing '.' BMI_COD: Add missing '.' RET_COD: Add missing '.' MALT_COD: Remove duplicate entry of 19518008 Response to queries raised by 4 Country Review: remove Reaven's syndrome from V2.
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	09-Sept-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

		QOF Review 2007
12.0	24-Jul-2008	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 2, clinical terms version 3 (CTV3) and the July 2005 version of 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).
- 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 and demographic 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 < (REF_DAT)</i>
	C10E.% C10F.% (excluding C10F8)	46635009% 44054006%	X40J4% X40J5% X40J6	
	<i>(Diagnostic codes for diabetes mellitus)</i>			
<i>Excluded</i>	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	<i>Latest < (REF_DAT) AND > Date of diagnostic code above</i>
	21263 212H.	315051004	XaFsp	
	<i>(Codes for diabetes resolved)</i>			
<i>Excluded</i>	Age < 17 yrs at REF_DAT			

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	DMEXC_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < (REF_DAT)
		9h4..%	89841000000103%	XaJ4Q%	
		<i>(Diabetes exception reporting codes)</i>			
4	DMEXC_DAT	Date of DMEXC_COD			Chosen record
5	DM_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Earliest < (REF_DAT)
		C10E.% C10F.% (excluding C10F8)	46635009% 44054006%	X40J4% X40J5% X40J6	
		<i>(Codes for diabetes)</i>			
6	DM_DAT	Date of DM_COD			Chosen record
7	BMI_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < (REF_DAT)
		22K..%	60621009 301331008%	22K..% Xa7wG%	
		<i>(BMI codes)</i>			
8	BMI_DAT	Date of BMI_COD			Chosen record

9	DMMAX_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < (REF_DAT)
		8BL2.	407569005	XaJ5j	
		<i>(Code for maximum tolerated diabetes treatment)</i>			
10	DMMAX_DAT	Date of DMMAX_COD			Chosen record
11	HBA_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < (REF_DAT)
		42W..% 42c..% 44TB. 44TC. 44TL.	259689004% 40402000% 308112001% 269823000% 310309003 365846006% 365845005%	X80U3% X772q% XaBLm% XE24t% XaCES% XaJNg	
		<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 v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < (REF_DAT)
		44TD. 44Z1.%	7740009%	X772n%	
		<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 v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < (REF_DAT)

		2BB..% 3128.% 3129. 312E. - 312G. 58C1. 68A7. 68A8. 66AD. 8HBD. 8HBG. 8HBH. 9N1v. 9N2U. 9N2V. 9N2e. 9N2f. 9NNC.	163982004% 282096008% 53524009% (excluding 56072006) 313340009, 134395001 170757007 390841005 390856001 390735007% 185307008 305721007 313987006% 164734008% 164735009	2BB..% 3129. Xa1zl XE1Oe% XaEJQ XaIIj, 66AD. XaIPm Ua1qM% 9N2U. XaATf XaIPm XaJLa XaJLb XaJO7 XaEUK% 31280% 31281	
(Retinal screening codes)					
18	RET_DAT	Date of RET_COD			Chosen record
19	RETEXC_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < (REF_DAT)
		8I6F. 8I3X. 9OLD.	408396006 413122001 417681008	XaJOD XaJkQ XaKT5	
		(Retinal screening exception codes)			
20	RETEXC_DAT	Date of RETEXC_COD			Chosen record
21	PP_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < (REF_DAT)

		24E1. - 24EF. 24F1. - 24FF. 585V. - 585Y. 585a. - 585e. 9NND. 8H7r.	420876000% 268447006 (excluding 8306009% 252452009%, 401215001, 401216000) 312364000%, , 408394009, 390890005,	XE1hO% (excluding 24EZ.) XE1hP% (excluding 24FZ.) XaIul, XaIum XaIun, XaIuo, XaIup, XaIuq, XaIur, XaIus, XaIut XaJO9, XaIQS, Xa7sl Xa7sm, Xa7sn, Xa7so Xa7sv, Xa7sw, Xa7sx Xa7sy, XaBmV	
		<i>(Peripheral pulse codes)</i>			
22	PP_DAT	Date of PP_COD			Chosen record
23	FEEXC_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < (REF_DAT)
		8I6G. 8I3W.	408397002 412752009	XaJOE XaJix	
		<i>(Foot examination exception codes)</i>			
24	FEEXC_DAT	Date of FEEXC_COD			Chosen record
25	NPT_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < (REF_DAT)
		311A. 29B7. - 29BV. 29B1. - 29B3. 29H1. - .29HB. 66Ac. 9NND. 8H7r.	134388005 299910003% (excluding 299910003) 299932007% (excluding 299932007) , 401081006, 408394009, 390890005	XaIRE%, XaIRF%, XaIeD XaIeE, XaIeF, XaIeG 29B1., 29B21, 29B20 29B3., 29H..% (excluding 29H.,, 29HZ.) XaIyt, XaJO9, XaIQS	

		<i>(Neuropathy testing codes)</i>			
26	NPT_DAT	Date of NPT_COD			Chosen record
27	BP_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < REF_DAT
		246..% (excluding 2460., 246H., 246I., 246K., 246L., 246M.)	163020007% (excluding 163021006, 310357009, 274283008% 310356000) 75367002% (excluding 37087001%, 315612005, 315613000, 386533006%, 6797001%, 251079001, 252076005%)	X773t% (excluding XaI9f, XaI9g) 246..% (excluding 2460., XaCFN, XaCFO)	
		<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 v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < REF_DAT
		8I3Y.	413123006	XaJkR	
		<i>(BP recording exception codes)</i>			
32	BPEX_DAT	Date of BPEX_COD			Chosen record
33	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>			
34	HTMAX_DAT	Date of HTMAX_COD			Chosen record
35	PRT_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < (REF_DAT)
		R110. - R1100 R110z C10EK C10FL K190X Kyu5G	207310001 207311002 207315006 236720004 198552009 236500003% 89238002, 12178007	R110. R1100 R110z X30Q1 X30Q2 Kyu5G XaIzM, XaIzQ X30Km%	
		<i>(Codes for proteinuria)</i>			
36	PRT_DAT	Date of PRT_COD			Chosen record
37	MALT_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < (REF_DAT)
		467A. 467E. 467H. 46W..% 46TC. 46N5. - 46N8. 46N3. 46N4.	19518008, 271075006 167582007, 167583002 401095009 46716003% 250726007, 270999004	X77YO XE2n3 46W0. 46W1. XaIz7 XE2eI% XE2eH XE2eG% (excluding XaJfr%) XaJmI	
		<i>(Codes for microalbuminuria testing)</i>			
38	MALT_DAT	Date of MALT_COD			Chosen record

39	CRE_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < (REF_DAT)
		44J3.% 44JC. 44JD. 44JF.	113075003% 313936008, 313817004 166715006, 166716007 166717003, 166714005 365757006	XE2q5% XaETQ, XaERX 44J30, 44J31, 44J32 44J33	
		<i>(Codes for serum creatinine)</i>			
40	CRE_DAT	Date of CRE_COD			Chosen record
41	EGFR_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < (REF_DAT)
		451E. 451F. 451G.	166181000000100 222521000000103 80274001	XaK8y XSFyN XaMDA	
		<i>(Codes for estimated glomerular filtration rate)</i>			
42	EGFR_DAT	Date of EGFR_COD			Chosen record
43	MAL_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < (REF_DAT)
		R1103 C10EL C10FM	312976007, 312975006 236499007% 401110002, 401112005	XaE6p, XaE6q X30KI% XaIyz, XaIzN, XaIzR	
		<i>(Codes for microalbuminuria)</i>			
44	MAL_DAT	Date of MAL_COD			Chosen record
45	XACE_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < REF_DAT

		14LM. U60C4 TJC77 – TJC79 ZV14D	407578004 407595007 295036000% 293500009% 223073005	XaJ5y XaJ8Y Xa60w% Xa5cT% XaIrq U60C4	
		<i>(Ace inhibitor contraindications; persistent)</i>			
46	XACE_DAT	Date of XACE_COD			Chosen record
47	TXACE_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < REF_DAT
		8I28. 8I3D. 8I64. 8I74.	315364008 134397009 134390006 407564000	XaG2W XaIIm XaIIf XaJ5e	
		<i>(Ace inhibitor contraindications; expiring)</i>			
48	TXACE_DAT	Date of TXACE_COD			Chosen record
49	XAI COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < REF_DAT
		14LN. U60CB ZV14E	407579007 407590002% 401108004 407593000	XaJ5z XaJ8o XaIzK XaJ8W	
		<i>(AII antagonist contraindications: persisting)</i>			
50	XAI DAT	Date of XACE_COD			Chosen record
51	TXAI 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>			
52	TXAII_DAT	Date of TXAII_COD			Chosen record
53	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>			
54	ACE_DAT	Date of ACE_COD			Chosen record
55	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>			
56	AII_DAT	Date of AII_COD			Chosen record
57	CHOL_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < REF_DAT
		44OE. 44P.. - 44P4. 44PH. 44PJ.	390956002 270996006% 315017003, 166828006 166830008, 166829003 166831007, 121868005%	XaIRd XE2eD% XaFs9 XaJe9 44P1., 44P2., 44P3., 44P4.	

		<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 v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < REF_DAT
		U60CA TJC24 TJC25	395229006 293432006%	XaIsC, XaIro XaJYw Xa5bP%	
		<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 v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < REF_DAT
		8BL1. 8I3C. 8I27. 8I63. 8I76.	407568002 134396000 134391005 315363002 413174003	XaJ5i XaIil XaIlg XaG2V XaJYw	
		<i>(Codes for exception from serum cholesterol target; expiring)</i>			
63	TCHEXC_DAT	TCHEXC_COD			Chosen record
64	XFLU_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < REF_DAT
		14LJ. U60K4 ZV14F	315631004 407587008 407594006 294647003% 293111007%	XaIAA XaJ7u XaJ8X Xa5um% Xa5WJ%	
		<i>(Flu vaccine contraindications: persisting)</i>			
65	XFLU_DAT	Date of XFLU_COD			Chosen record
66	TXFLU_COD	<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	Latest < REF_DAT
		8I2F. 8I6D. 68NE. 9OX5.	315640000 390796006 171272004 407573008	XaIBI XaIOT 68NE. XaJ5n	
		<i>(Flu vaccine contraindications: expiring)</i>			
67	TXFLU_DAT	Date of TXFLU_COD			Chosen record

		<i>Read codes v2</i>	<i>SNOMED-CT</i>	<i>CTV3</i>	
68	FLU_COD	n47..% 65E..% ZV048	46233009% (excluding 333680004%) 86198006% 315701000	n47..% 65E..% ZV048	Latest < REF_DAT
<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 HBA_DAT >= (REF_DAT - 15 months)	Select	Next rule
2	If FRU_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 HBA_DAT >= (REF_DAT - 15 months)	Select	Next rule
2	If FRU_DAT >= (REF_DAT - 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 <u>PRT_COD</u> ≠ Null	Reject	Next rule
2	If <u>MALT_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>MALT_DAT</u> >= (<u>REF_DAT</u> – 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 CHOL_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 CHOL_DAT >= (REF_DAT – 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