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

Dataset and Business Rules

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Diabetes Mellitus Indicator Set

(DM)

Wales

Amendment History:

Version	Date	Amendment History
25.0W	05-June-2013	Signed off Welsh Government
26.0W	14-August-2013	April 2013 Read Code Release
27.0W		October 2013 Read Code Release
28.0W	27-July-2014	2014/15 Business rules update
30.0W	20-November-2014	October 2014 Read Code Release
2015-16 1.0W	01-July-2015	Business Rules update
2015-16 2.0W	04-Dec-2015	2015/16 October Business rules update
2016-17 1.0W	09-June-2016	2016-17 Business Rules update
2017-18 1.0W	01-July-2017	2017-18 Business Rules update
2018-19 1.0W	23-July-2018	2018-19 Business Rules update
2019-20 1.0	28-Oct-2019	2019-20 Business Rules update

New GMS contract QAIF 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 01.10.2020 equates to midnight on 30.09.2020).

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 2016 release of Read codes version 2. 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).

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 Flu). 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.

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, unless the operator "ALL" is used.

The "ALL" statement is used within the Qualifying Criteria for the Clinical data extraction criteria. Typically the selection for a READCODE_COD cluster field is based on a date of "LATEST" or "EARLIEST". The "ALL" statement is used to select all occurrences of any of the codes within the READCODE_COD cluster. It selects an array of instances, of which there may be more than one for each patient.

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)
b) < (less than)
c) = (equal to)
d) ≠ (not equal to)
e) AND
f) OR
g) NOT

7) Where date criteria are specified with intervals of multiples of months or years these should be interpreted as calendar months or calendar years.

Dataset Specification

1) Patient selection criteria:

a) Registration status

Current registration status	*Qualifying criteria*
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

Code criteria	*Qualifying diagnostic codes*	*Time criteria*
Included	*Read codes v2*	*Latest < (REF_DAT)*
	C10.., C109J, C109K, C10C., C10D., C10E.%, C10F.% (Excluding C10F8), C10G.%, C10H.%, C10M.%, C10N.%, C10P.%, PKyP., C10Q.	
	(Diagnostic codes for diabetes mellitus)	
Excluded	*Read codes v2*	*Latest < (REF_DAT) AND > Date of diagnostic code above*
	21263 212H.	
	(Codes for diabetes resolved)	
Excluded	Age < 17 yrs at REF_DAT	

2) Clinical data extraction criteria

Field Number	*Field name*	*Data item*	*Qualifying criteria*
1	PAT_ID	Patient ID number	Unconditional
2	REG_DAT	Date of patient registration	Latest < (REF_DAT)
3	DMEXC_COD	Read codes v2	Latest < (REF_DAT)
		9h4..% (excluding 9h43.)	
		(Diabetes exception reporting codes)	
4	DMEXC_DAT	Date of DMMAX_COD	Chosen record
5	DM_COD	*Read codes v2*	Earliest < (REF_DAT)
		C10.., C109J, C109K, C10C., C10D., C10E.%, C10F.% (Excluding C10F8), C10G.%, C10H.%, C10M.%, C10N.%,	
		(Codes for Diabetes)	
6	DM_DAT	Date of DM_COD	Chosen record
7	DMMAX_COD	*Read codes v2*	Latest < (REF_DAT)
		8BL2.	
		(Code for maximum tolerated diabetes treatment)	
8	DMMAX_DAT	Date of DMMAX_COD	Chosen record

9	IFCCHBA_COD	Read codes v2 42W5., 42W51 (IFCC HbA1c codes)	Latest < (REF_DAT)
10	IFCCHBA_VAL	Value 1 of IFCCHBA_COD	Chosen record
11	IFCCHBA_DAT	Date of IFCCHBA_COD	Chosen record
12	FEEXC_COD	Read codes v2 8I6G. 8I3W. 8IAo. 8IB6. (Foot examination exception codes)	Latest < (REF_DAT)
13	FEEXC_DAT	Date of FEEXC_COD	Chosen record
14	BP_COD	Read codes v2 246..% (excluding 2460., 2468., 246H., 246I., 246K., 246L., 246M., 246h., 246i., 246j., 246k. 246n.%) (BP recording codes)	Latest < REF_DAT
15	BP_DAT	Date of BP_COD	Chosen record
16	BP_SYS	Value 1 of BP_COD (Systolic BP value)	Chosen record

17	BP_DIA	Value 2 of BP_COD (Diastolic BP value)	Chosen record
18	BPEX_COD	Read codes v2	Latest < REF_DAT
		8I3Y.	
		(BP recording exception codes)	
19	BPEX_DAT	Date of BPEX_COD	Chosen record
20	HTMAX_COD	Read codes v2	Latest < REF_DAT
		8BL0.	
		(Code for maximal BP therapy)	
21	HTMAX_DAT	Date of HTMAX_COD	Chosen record
22	NPTEXC_COD	Read codes v2	
		8I6G. 8I3W. 8IAn. 8IB5.	
		(Neuropathy testing exception codes)	
21	NPTEXC_DAT	Date of NPTEXC_COD	Chosen record

t	FRC_COD	Read codes v2	Latest < (REF_DAT)
		2G5E. 2G5F. 2G5G. 2G5H. 2G5I. 2G5J. 2G5K. 2G5L. 2G5d. 2G5e.	
		(Foot Risk Classification)	
24	FRC_DAT	Date of FRC_COD	Chosen record
25	AMPR_COD	*Read codes v2*	Latest < (REF_DAT)
		2G42. 2G44. 2G46.	
		(Right Foot Amputation Codes)	
26	AMPR_DAT	Date of AMPR_COD	Chosen record
27	AMPL_COD	Read codes v2	Latest < (REF_DAT)
		2G43. 2G45. 2G47.	
		(Left Foot Amputation Codes)	
28	AMPL_DAT	Date of AMPL_COD	Chosen record

29	DSEP_COD	*Read codes v2*	Earliest (>= DM_DAT) AND (< REF_DAT)
		8Hj0. 8Hj3. 8Hj4. 8Hj5.	
		(Referred for diabetes structured education programme)	
30	DSEP_DAT	Date of DSEP_COD	Chosen record
31	DSEPEXC_COD	*Read codes v2*	Latest < REF_DAT
		9OLM. 8IE9. 8IEa., 9NST.	
		(Diabetes structured education programme exception codes)	
32	DSEPEXC_DAT	Date of DSEPEXC_COD	Chosen record
33	DSEPNAEXC_ C OD	*Read codes v2*	Latest < REF_DAT
		8I94.	
		(Diabetes structured education programme not available)	
34	DSEPNAEXC_D AT	Date of DSEPNAEXC_COD	Chosen record

Indicator rulesets

Indicator DM001: The contractor establishes and maintains a register of all patients aged 17 or over with diabetes mellitus, which specifies the type of diabetes where a diagnosis has been confirmed.

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.

Indicator DM002: The percentage of patients with diabetes, on the register, in whom the last blood pressure reading (measured in the preceding 15 months) is 150/90 mmHg or less.

a) Denominator ruleset

Rule number	Rule	Action if true	Action if false
1	If (BP_SYS <= 150 AND If BP_DIA <= 90 AND If BP_DAT >= (REF_DAT – 15 months))	Select	Next rule
2	If BPEX_DAT>= (REF_DAT – 15 months)	Reject	Next rule
3	If REG_DAT >= (REF_DAT – 9 months)	Reject	Next rule
4	If DMEXC_DAT >= (REF_DAT – 15 months)	Reject	Next rule
5	If DM_DAT >= (REF_DAT – 9 months)	Reject	Next rule
6	If HTMAX_DAT >= (REF_DAT – 15 months)	Reject	Select

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

Rule number	Rule	Action if true	Action if false
1	If (BP_SYS <= 150 AND If BP_DIA <= 90 AND If BP_DAT >= (REF_DAT – 15 months))	Select	Reject

Indicator DM003: The percentage of patients with diabetes, on the register, in whom the last blood pressure reading (measured in the preceding 15 months) is 140/80 mmHg or less.

a) Denominator ruleset

Rule number	Rule	Action if true	Action if false
1	If (BP_SYS<= 140 AND If BP_DIA <= 80 AND If BP_DAT >= (REF_DAT – 15 months))	Select	Next rule
2	If BPEX_DAT>= (REF_DAT – 15 months)	Reject	Next rule
3	If REG_DAT >= (REF_DAT – 9 months)	Reject	Next rule
4	If DMEXC_DAT >= (REF_DAT – 15 months)	Reject	Next rule
5	If DM_DAT >= (REF_DAT – 9 months)	Reject	Next rule
6	If HTMAX_DAT >= (REF_DAT – 15 months)	Reject	Select

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

Rule number	Rule	Action if true	Action if false
1	If (BP_SYS <= 140 AND If BP_DIA <= 80 AND If BP_DAT >= (REF_DAT – 15 months))	Select	Reject

Indicator DM007: The percentage of patients with diabetes, on the register, in whom the last IFCC-HbA1c is 59 mmol/mol or less in the preceding 15 months.

a) Denominator ruleset

Rule number	Rule	Action if true	Action if false
1	If (IFCCHBA_VAL <= 59 AND If IFCCHBA_DAT >= (REF_DAT – 15 months))	Select	Next rule
2	If REG_DAT >= (REF_DAT – 9 months)	Reject	Next rule
3	If DMEXC_DAT >= (REF_DAT – 15 months)	Reject	Next rule
4	If DM_DAT >= (REF_DAT – 9 months)	Reject	Next rule
5	If DMMAX_DAT >= (REF_DAT – 15 months)	Reject	Select

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

Rule number	Rule	Action if true	Action if false
1	If (IFCCHBA_VAL <= 59 AND If IFCCHBA_DAT >= (REF_DAT – 15 months))	Select	Reject

Indicator DM012: The percentage of patients with diabetes, on the register, with a record of a foot examination and risk classification: 1) low risk (normal sensation, palpable pulses), 2) increased risk (neuropathy or absent pulses), 3) high risk (neuropathy or absent pulses plus deformity or skin changes in previous ulcer) or 4) ulcerated foot within the preceding 15 months.

a) Denominator ruleset

Rule number	Rule	Action if true	Action if false
1	If FRC_DAT >= (REF_DAT – 15 months)	Select	Next rule
2	If AMPR_DAT ≠ Null AND If AMPL_DAT ≠ Null	Reject	Next rule
3	If FEEXC_DAT >= (REF_DAT – 15 months)	Reject	Next rule
4	If NPTEXC_DAT >= (REF_DAT – 15 months)	Reject	Next rule
5	If REG_DAT >= (REF_DAT – 3 months)	Reject	Next rule
6	If DMEXC_DAT >= (REF_DAT – 15 months)	Reject	Next rule
7	If DM_DAT >= (REF_DAT – 3 months)	Reject	Select

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

Rule number	Rule	Action if true	Action if false
1	If FRC_DAT >= (REF_DAT – 15 months)	Select	Reject

Indicator DM014: The percentage of patients newly diagnosed with diabetes, on the register, in the preceding 1 April to 31 March who have a record of being referred to a structured education programme within 9 months after entry on to the diabetes register

a) Denominator ruleset

Rule number	Rule	Action if true	Action if false
1	If DM_DAT < 01.04.2019	Reject	Next rule
2	If DM_DAT <= (REF_DAT – 21 months)	Reject	Next rule
3	If DM_DAT > (REF_DAT – 9 months) AND If DSEP_DAT = Null	Reject	Next rule
4	If DSEP_DAT < (REF_DAT – 12 months)	Reject	Next rule
5	If DSEP_DAT <= (DM_DAT + 9 months)	Select	Next rule
6	If DSEPEXC_DAT >= (REF_DAT – 15 months)	Reject	Next rule
7	If DSEPNAEXC_DAT >= (REF_DAT – 15 months)	Reject	Next rule
8	If REG_DAT >= (REF_DAT – 3 months)	Reject	Next rule
9	If DMEXC_DAT >= (REF_DAT – 15 months)	Reject	Next rule
10	If DM_DAT >= (REF_DAT – 3 months)	Reject	Select

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

Rule number	Rule	Action if true	Action if false
1	If DSEP_DAT <= (DM_DAT + 9 months)	Select	Reject