2018 CMS Web Interface

Diabetes Mellitus (DM) Composite (All or Nothing Scoring)

DM-2 (NQF 0059): Diabetes: Hemoglobin A1c (HbA1c) Poor Control (>9%)

DM-7 (NQF 0055): Diabetes: Eye Exam

Measure Steward: NCQA

Contents

INTRODUCTION

There are a total of 15 individual measures (including one composite consisting of two measures) included in the 2018 CMS Web Interface targeting high-cost chronic conditions, preventive care, and patient safety. The measures documents are represented individually and contain measure specific information. The corresponding coding documents are posted separately in an Excel format.

The measure documents are being provided to allow group practices and Accountable Care Organizations (ACOs) an opportunity to better understand each of the 15 individual measures included in the 2018 CMS Web Interface data submission method. Each measure document contains information necessary to submit data through the CMS Web Interface.

Narrative specifications, supporting submission documentation, and calculation flows are provided within each document. Please review all of the measure documentation in its entirety to ensure complete understanding of these measures.

CMS WEB INTERFACE SAMPLING INFORMATION

BENEFICIARY SAMPLING

For more information on the sampling process and methodology please refer to the 2018 CMS Web Interface Sampling Document, which will be made available during the performance year at CMS.gov.

NARRATIVE MEASURE SPECIFICATION
DM-2: Diabetes: Hemoglobin A1c (HbA1c) Poor Control (>9%)

DESCRIPTION:
Percentage of patients 18 - 75 years of age with diabetes who had hemoglobin A1c > 9.0% during the measurement period

IMPROVEMENT NOTATION:
Lower score indicates better quality

INITIAL POPULATION:
Patients 18 - 75 years of age with diabetes with a visit during the measurement period

DENOMINATOR:
Equals Initial Population

DENOMINATOR EXCLUSIONS:
None

DENOMINATOR EXCEPTIONS:
None

NUMERATOR:
Patients whose most recent HbA1c level (performed during the measurement period) is > 9.0%

NUMERATOR EXCLUSIONS:
Not Applicable

DEFINITIONS:
None

GUIDANCE:
Patient is numerator compliant if most recent HbA1c level is > 9%, the most recent HbA1c result is missing, or if there are no HbA1c tests performed and results documented during the measurement period. If the HbA1c test result is in the medical record, the test can be used to determine numerator compliance.

Only patients with a diagnosis of Type 1 or Type 2 diabetes should be included in the denominator of this measure; patients with a diagnosis of secondary diabetes due to another condition should not be included.

NARRATIVE MEASURE SPECIFICATION
DM-7: Diabetes: Eye Exam

DESCRIPTION:
Percentage of patients 18 - 75 years of age with diabetes who had a retinal or dilated eye exam by an eye care professional during the measurement period or a negative retinal exam (no evidence of retinopathy) in the 12 months prior to the measurement period

IMPROVEMENT NOTATION:
Higher score indicates better quality

INITIAL POPULATION:
Patients 18 - 75 years of age with diabetes with a visit during the measurement period

DENOMINATOR:
Equals Initial Population

DENOMINATOR EXCLUSIONS:
None

DENOMINATOR EXCEPTIONS:
None

NUMERATOR:
Patients with an eye screening for diabetic retinal disease. This includes diabetics who had one of the following:

A retinal or dilated eye exam by an eye care professional in the measurement period or a negative retinal exam (no evidence of retinopathy) by an eye care professional in the year prior to the measurement period

NUMERATOR EXCLUSIONS:
Not Applicable

DEFINITIONS:
None

GUIDANCE:
Only patients with a diagnosis of Type 1 or Type 2 diabetes should be included in the denominator of this measure; patients with a diagnosis of secondary diabetes due to another condition should not be included.

The eye exam must be performed by an ophthalmologist or optometrist.

SUBMISSION GUIDANCE

PATIENT CONFIRMATION

Establishing patient eligibility for reporting requires the following:

- Determine if the patient's medical record can be found
  - If you can locate the medical record select "Yes"

  OR

  - If you cannot locate the medical record select "No - Medical Record Not Found"

  OR

  - Determine if the patient is qualified for the sample
    - If the patient is deceased, in hospice, moved out of the country or was enrolled in HMO select "Not Qualified for Sample", select the applicable reason from the provided drop-down menu, and enter the date the patient became ineligible

Guidance ***Patient Confirmation***

If "No – Medical Record Not Found" or "Not Qualified for Sample" is selected, *the patient is completed but not confirmed. The patient will be "skipped" and another patient must be reported in their place, if available. The CMS Web Interface will automatically skip any patient for whom "No – Medical Record Not Found" or "Not Qualified for Sample" is selected in all other measures into which they have been sampled.*

If "Not Qualified for Sample" is selected and the date is unknown, *you may enter the last date of the measurement period (i.e., 12/31/2018).*

The Measurement Period is defined *as January 1 – December 31, 2018.*

NOTE:

- ***In Hospice****: Select this option if the patient is not qualified for sample due to being in hospice care at any time during the measurement period (this includes non-hospice patients receiving palliative goals or comfort care)*
- ***Moved out of Country:*** *Select this option if the patient is not qualified for sample because they moved out of the country any time during the measurement period*
- ***Deceased:*** *Select this option if the patient died during the measurement period*
- ***HMO Enrollment:*** *Select this option if the patient was enrolled in an HMO at any time during the measurement period (i.e., Medicare Advantage, non-Medicare HMOs, etc.)*

SUBMISSION GUIDANCE

COMPOSITE CONFIRMATION

- Determine if the patient has a documented history OR active diagnosis of diabetes during the measurement period or year prior to the measurement period
  - If the patient has a documented history of DM in the medical record select "Yes"

  OR

  - If you are unable to confirm the diagnosis of DM for the patient select "Not Confirmed - Diagnosis"

  OR

  - If there is an "other" CMS approved reason for patient disqualification from the measure select "No - Other CMS Approved Reason"

Denominator codes can be found in the 2018 CMS Web Interface DM Composite Coding Document. The Downloadable Resource Mapping Table can be located in Appendix II of this document.

Guidance Denominator

If "Not Confirmed – Diagnosis" or "No – Other CMS Approved Reason" is selected, *the patient will be "skipped" and another patient must be reported in their place, if available. The patient will only be removed from the measure for which one of these options was selected, not all CMS Web Interface measures.*

CMS Approved Reason *may only be selected when approved by CMS. To request a CMS Approved Reason, you would need to provide the patient rank, measure and reason for request in a Quality Payment Program Service Desk inquiry. A CMS decision will be provided in the resolution of the inquiry. The patient will be "skipped" and another patient must be reported in their place, if available.*

NOTE:

- ***Active Diagnosis*** *is defined as a diagnosis that is either on the patient's problem list, a diagnosis code listed on the encounter, or is documented in a progress note indicating that the patient is being treated or managed for the disease or condition during the measurement period*

SUBMISSION GUIDANCE

NUMERATOR SUBMISSION

DM-2: Diabetes: Hemoglobin A1c (HbA1c) Poor Control (>9%)

- Determine if the patient had one or more HbA1c tests performed during the measurement period
  - If the patient did not have one or more HbA1c tests documented select "No"

  OR

  - If the patient had one or more HbA1c tests documented select "Yes"
    - If yes, record the most recent date the blood was drawn for the HbA1c in **MM/DD/YYYY** format

    AND

    - If yes, record the most recent HbA1c value OR if test was performed but result is not documented, record "0" (zero) value

Numerator codes can be found in the 2018 CMS Web Interface DM Composite Coding Document. The Downloadable Resource Mapping Table can be located in Appendix II of this document.

Guidance Numerator

***If "No" is selected**, do not provide Date Drawn and HbA1c Value.*

NOTE:

- ***Synonyms for HbA1c testing may include** Glycohemoglobin A1c, HbA1c, Hemoglobin A1c, HgbA1c, A1c*
- ***Use the following priority ranking:***
  Lab report draw date
  Lab report date
  Flow sheet documentation
  Practitioner notes
  Other documentation
- ***Patient Reported Requirement:** Date and most recent value (distinct value required)*
- ***Ranges and thresholds do not meet criteria** for this indicator. A distinct numeric result is required for numerator compliance*
- ***At a minimum**, documentation in the medical record must include a note indicating the date on which the HbA1c test was performed and the result. If the day is unknown enter 01 i.e. 05/01/2018*
- ***Documentation of most recent HbA1c result** may be completed during a telehealth encounter*
- **HbA1c finger stick tests** administered by a healthcare provider at the point of care are allowed

SUBMISSION GUIDANCE

NUMERATOR SUBMISSION

DM-7: Diabetes: Eye Exam

- Determine if patient was screened for diabetic retinal disease identified by one of the following: A retinal or dilated eye exam by an eye care professional during the measurement period **OR** a negative retinal exam (no evidence of retinopathy) by an eye care professional in the year prior to the measurement period
  - If the patient was not screened for diabetic retinal disease select "No"

  OR

  - If the patient was screened for diabetic retinal disease select "Yes"

Numerator codes can be found in the 2018 CMS Web Interface DM Composite Coding Document. The Downloadable Resource Mapping Table can be located in Appendix II of this document.

Guidance Numerator

NOTE:

- ***Patient Reported Requirement:*** *Date (year) and result/finding*
- ***If an endocrinologist or PCP performs the appropriate imaging*** *in their office and the results are reviewed by an eye care professional (optometrist or ophthalmologist) during the measurement period or the year prior to the measurement period (if negative for retinopathy) then it is eligible for use in reporting*
- ***If the eye exam is not performed or reviewed by an ophthalmologist or optometrist,*** *results may be read by a qualified reading center that operates under the direction of a medical director who is a retinal specialist*
- ***Use of retinal imaging is acceptable*** *as long as it includes the date when the fundus photography was performed and evidence that an eye care professional reviewed the results*
- ***Documentation of diabetic retinal disease screening*** *may be completed during a telehealth encounter*

DOCUMENTATION REQUIREMENTS

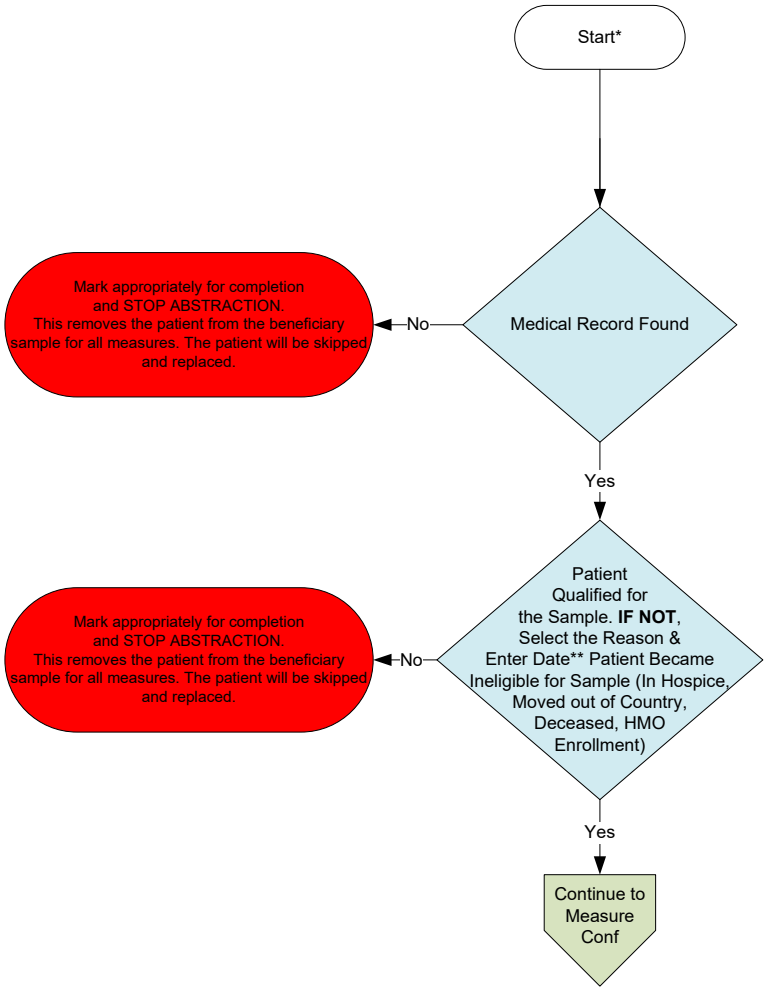
When submitting data through the CMS Web Interface, the expectation is that medical record documentation is available that supports the action reported in the CMS Web Interface i.e., medical record documentation is necessary to support the information that has been submitted.

Claims data cannot be used to confirm a diagnosis (DM, IVD, HTN, etc.,) used for sampling purposes as claims are the original source of the diagnosis sampling. Claims data can be used to prepare the CMS Web Interface Excel, but supporting medical record documentation will be required to substantiate what is reported in the event of an audit.

Appendix I: Performance Calculation Flow

Patient Confirmation Flow

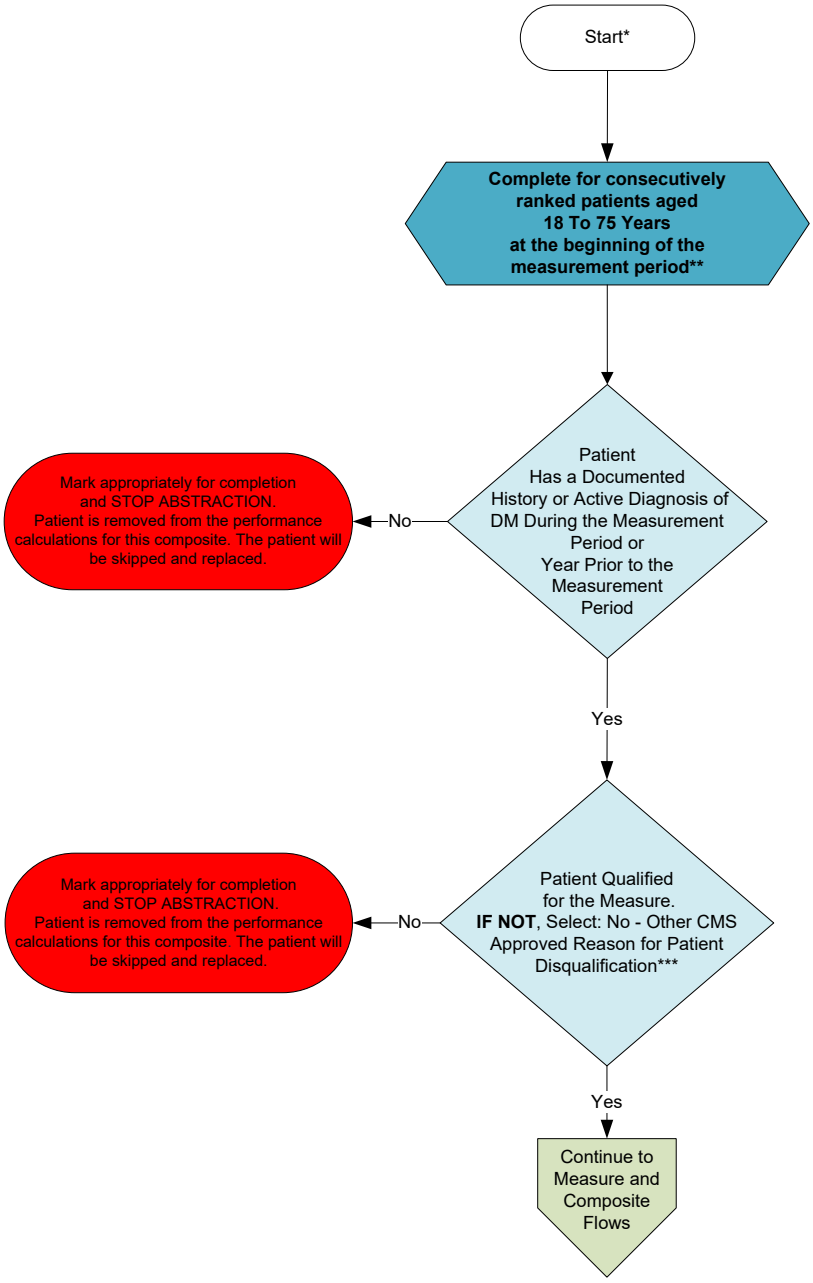
For 2018, confirmation of the “Medical Record Found”, or indicating the patient is “Not Qualified for Sample” with a reason of "In Hospice", "Moved out of Country", "Deceased", or "HMO Enrollment", will only need to be done **once** per patient.



*See the Measure Submission Document for further instructions on how to submit this composite
** If date is unknown, enter 12/31/2018

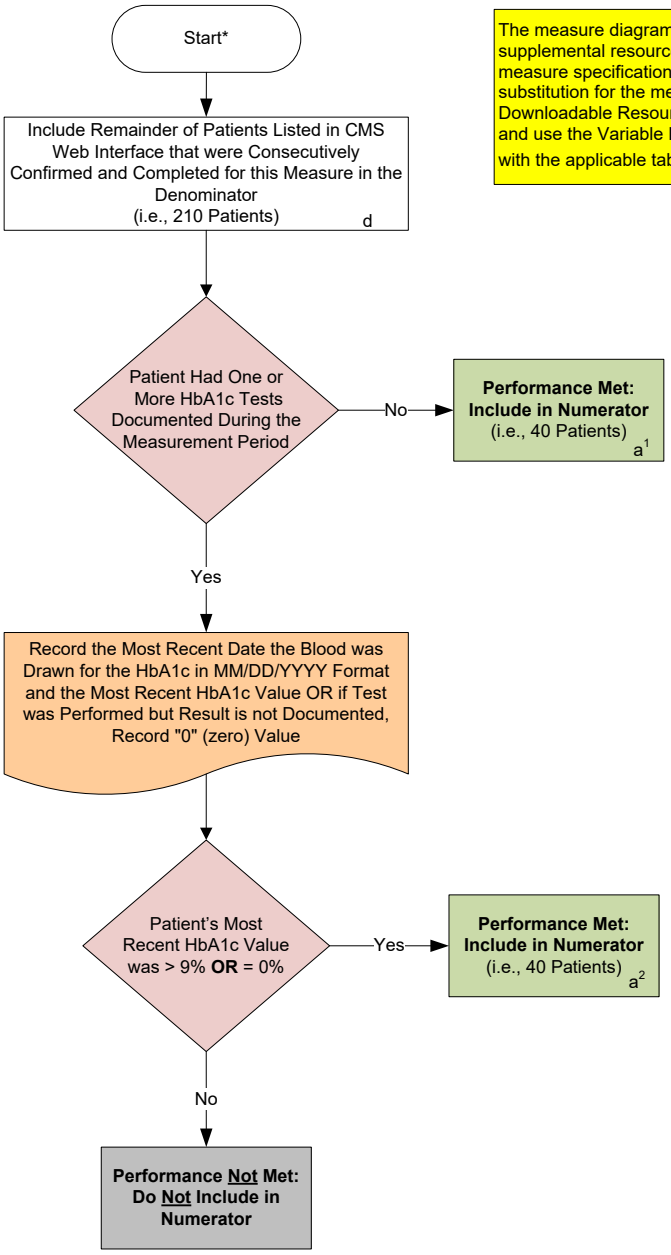
Measure Confirmation Flow for Diabetes

For 2018, measure specific reasons a patient is "Not Confirmed" or excluded for "Denominator Exclusion" or "Other CMS Approved Reason" will need to be done for each measure where the patient appears.



*See the Measure Submission Document for further instructions on how to submit this composite
**Further information regarding patient selection for specific disease and patient care measures can be found in the CMS Web Interface Sampling Methodology Document. For patients who have the incorrect date of birth listed, a change of the patient date of birth by the abstractor may result in the patient no longer qualifying for the DM Composite. If this is the case, the system will automatically remove the patient from the composite requirements.
***"Other CMS Approved Reason", may only be selected if you have received an approval from CMS in the resolution of a requested Quality Payment Program Service Desk Inquiry at qpp@cms.hhs.gov

Measure Flow for DM-2



The measure diagrams were developed by CMS as a supplemental resource to be used in conjunction with the measure specifications. They should not be used as a substitution for the measure specification. For Downloadable Resource Mapping Table, go to Appendix II and use the Variable Names located in the appendix along with the applicable tabs within the DM Coding Document.

SAMPLE CALCULATION:

Performance Rate=

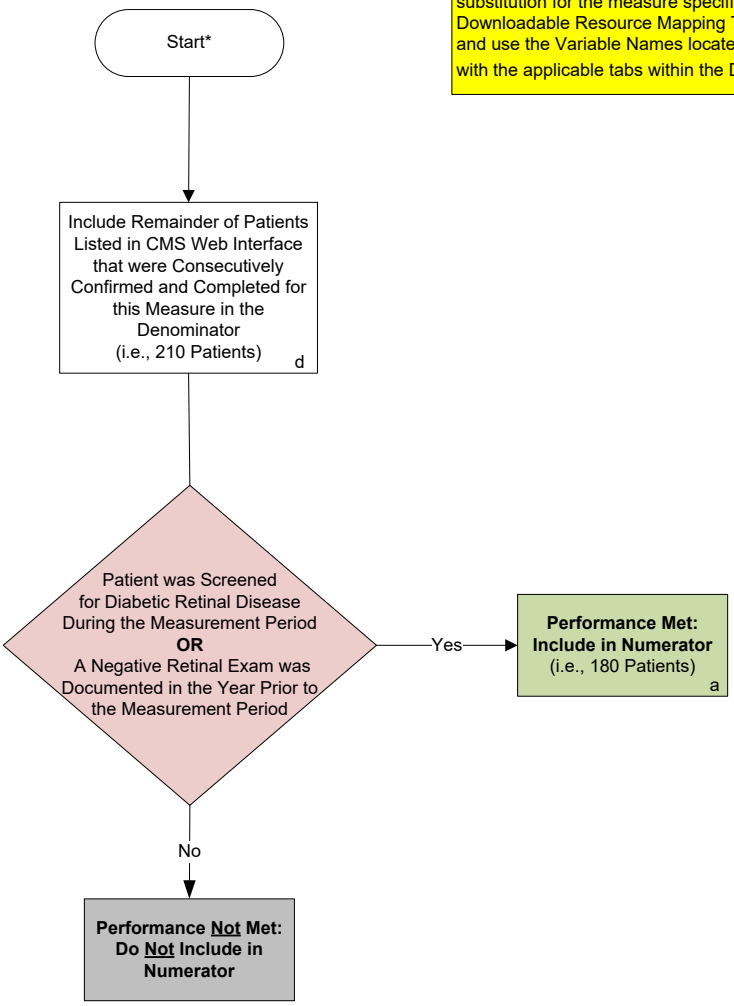
Performance Met (a^1=40 Patients + a^2=40 Patients) / Denominator (d=210 Patients) = 80 Patients / 210 Patients = 38.10%

CALCULATION MAY CHANGE PENDING PERFORMANCE MET ABOVE
FOR THIS MEASURE, A LOWER RATE INDICATES BETTER PERFORMANCE/CONTROL

*See the Measure Submssion Document for further instructions on how to submit this measure

Measure Flow for DM-7

The measure diagrams were developed by CMS as a supplemental resource to be used in conjunction with the measure specifications. They should not be used as a substitution for the measure specification. For Downloadable Resource Mapping Table, go to Appendix II and use the Variable Names located in the appendix along with the applicable tabs within the DM Coding Document.



SAMPLE CALCULATION:

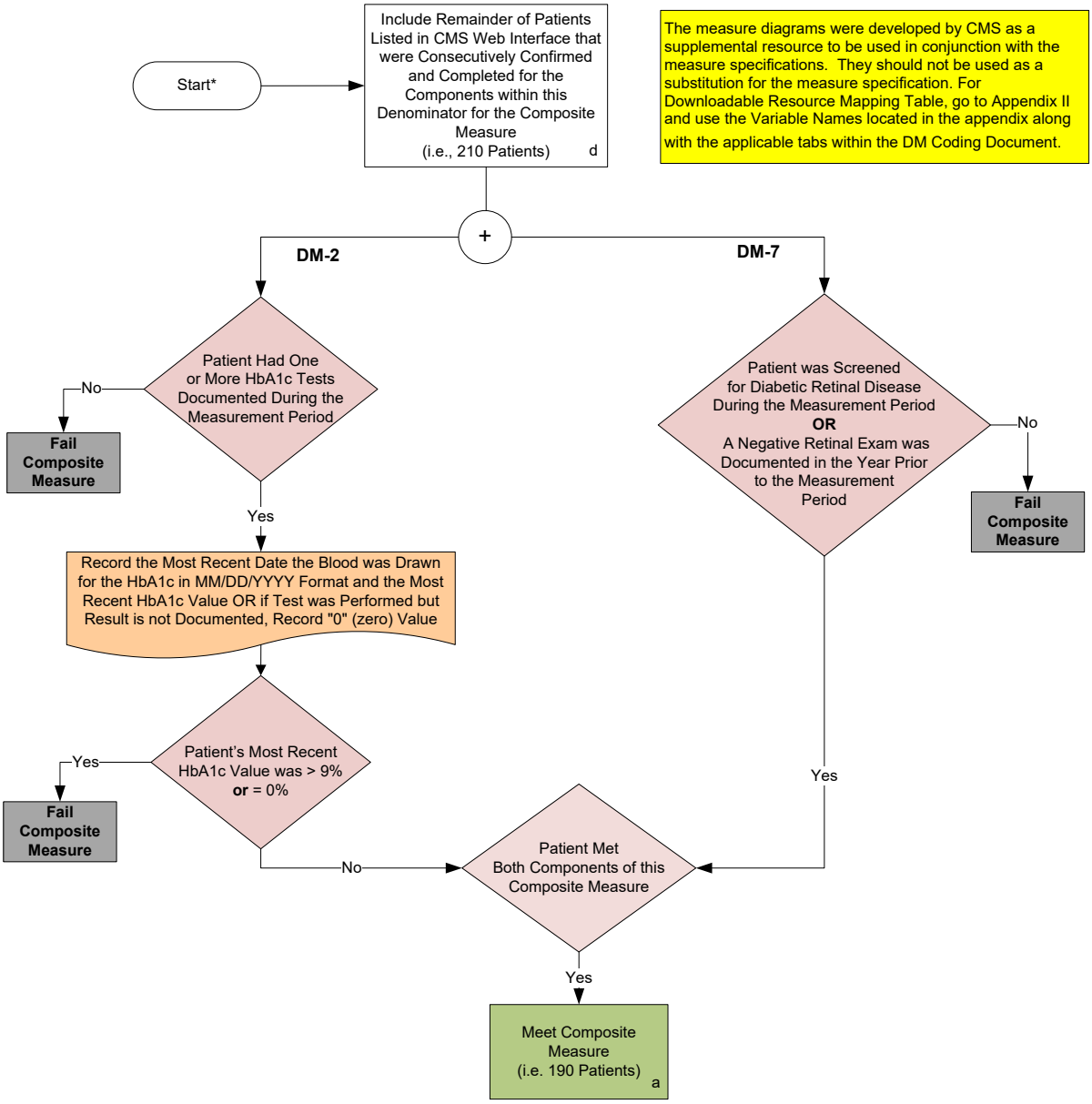
Performance Rate=

Performance Met (a = 180 Patients) / Denominator (d = 210 Patients) = 180 Patients / 210 Patients = 85.71%

CALCULATION MAY CHANGE PENDING PERFORMANCE MET ABOVE

*See the Measure Submission Document for further instructions on how to submit this measure

Diabetes Composite Flow



SAMPLE CALCULATION: (Overall Composite)

Composite Score

2 of 2 Components of the Composite Met (a=190 Patients) / Composite Denominator (d=210 Patients) = 190 Patients / 210 Patients = 90.48%

*See the Measure Submission Document for further instructions on how to submit this composite

Patient Confirmation Flow

For 2018, confirmation of the "Medical Record Found", or indicating the patient is "Not Qualified for Sample" with a reason of "In Hospice", "Moved out of Country", "Deceased", or "HMO Enrollment", will only need to be done **once** per patient. Refer to the Measure Submission Document for further instructions.

1. Start Patient Confirmation Flow.

2. Check to determine if Medical Record can be found.
    a. If no, Medical Record not found, mark appropriately for completion and stop abstraction. This removes the patient from the beneficiary sample for all measures. The patient will be skipped and replaced. Stop processing.
    b. If yes, Medical Record found, continue processing.

3. Check to determine if Patient Qualified for the sample.
    a. If no, the patient does not qualify for the sample, select the reason why and enter the date (if date is unknown, enter 12/31/2018) the patient became ineligible for sample. For example; In Hospice, Moved out of Country, Deceased, HMO Enrollment. Mark appropriately for completion and stop abstraction. This removes the patient from the beneficiary sample for all measures. The patient will be skipped and replaced. Stop processing.
    b. If yes, the patient does qualify for the sample; continue to the Measure Confirmation Flow for Diabetes.

Measure Confirmation Flow for Diabetes

For 2018, measure specific reasons a patient is "Not Confirmed" or excluded for "Denominator Exclusion" or "Other CMS Approved Reason" will need to be done for each measure where the patient appears. Refer to the Measure Submission Document for further instructions.

1. Start Measure Confirmation Flow for Diabetes. Complete for consecutively ranked patients aged 18 to 75 years at the beginning of the measurement period. Further information regarding patient selection for specific disease and patient care measures can be found in the CMS Web Interface Sampling Methodology Document. For patients who have the incorrect date of birth listed, a change of the patient date of birth by the abstractor may result in the patient no longer qualifying for the DM composite. If this is the case, the system will automatically remove the patient from the composite requirements.

2. Check to determine if the patient has a documented history or active diagnosis of diabetes during the measurement period or year prior to the measurement period.
    a. If no, the patient does not have a documented history of diabetes during the measurement period or year prior to the measurement period, mark appropriately for completion and stop abstraction. Patient is removed from the performance calculations for this composite. The patient will be skipped and replaced. Stop processing
    b. If yes, the patient does have a documented history of diabetes during the measurement period or year prior to the measurement period, continue processing.

3. Check to determine if the patient qualifies for the composite (Other CMS Approved Reason).
    a. If no, the patient does not qualify for the composite select: No – Other CMS Approved Reason for patient disqualification. Mark appropriately for completion and stop abstraction. Patient is removed from the performance calculations for this composite. The patient will be skipped and replaced. "Other CMS Approved Reason" may only be selected if you have received an approval from CMS in the resolution of a requested Quality Payment Program Service Desk Inquiry at qpp@cms.hhs.gov. Stop processing.
    b. If yes, the patient does qualify for the composite, continue to DM-2 measure flow.

Measure Flow for DM-2

The measure diagrams were developed by CMS as a supplemental resource to be used in conjunction with the measure specifications. They should not be used as a substitution for the measure specifications. For Downloadable Resource Mapping Table, go to Appendix II and use the Variable Names located in the appendix along with the applicable tabs within the DM Coding Document.

1. Start processing 2018 DM-2 (NQF 0059) Flow for the patients that qualified for the sample in the Patient Confirmation Flow and the Measure Confirmation Flow for Diabetes. Note: Include remainder of patients listed in the CMS Web Interface that were consecutively confirmed and completed for this measure in the denominator. For the sample calculation in the flow these patients would fall into the 'd' category (eligible denominator, i.e. 210 patients).

2. Check to determine if the patient had one or more HbA1c tests performed during the measurement period.
    a. If no, patient did not have one or more HbA1c tests performed during the measurement period, performance is met and the patient will be included in the numerator. For the sample calculation in the flow these patients would fall into the 'a¹' category (numerator, i.e. 40 patients). Stop processing.
    b. If yes, the patient had one or more HbA1c tests performed during the measurement period, record the most recent date the blood was drawn for the HbA1c in MM/DD/YYYY format and the most recent HbA1c value OR if test was performed but result is not documented, record "0" (zero) value. Continue processing.

3. Check to determine if the patient's most recent HbA1c value was greater than nine percent or equal to zero percent.
    a. If no, patient's most recent HbA1c value was not greater than nine percent or equal to zero percent, performance is not met and the patient should not be included in the numerator. Stop processing.
    b. If yes, patient's most recent HbA1c value was greater than nine percent or equal to zero percent, performance is met and the patient will be included in the numerator. For the sample calculation in the flow these patients would fall into the 'a²' category (numerator, i.e. 40 patients). Stop processing.

Sample Calculation
Performance Rate Equals
Performance Met is category 'a¹ plus a²' in the measure flow (80 patients)
Denominator is category 'd' in measure flow (210 patients)
80 (Performance Met) divided by 210 (Denominator) equals a performance rate of 38.10 percent
Calculation May Change Pending Performance Met
For this Measure, a Lower Rate Indicates Better Performance/Control

Measure Flow for DM-7

The measure diagrams were developed by CMS as a supplemental resource to be used in conjunction with the measure specifications. They should not be used as a substitution for the measure specifications. For Downloadable Resource Mapping Table, go to Appendix II and use the Variable Names located in the appendix along with the applicable tabs within the DM Coding Document.

1. Start processing 2018 DM-7 (NQF 0055) Flow for the patients that qualified for the sample in the Patient Confirmation Flow and the Measure Confirmation Flow for Diabetes. Note: Include remainder of patients listed in the CMS Web Interface that were consecutively confirmed and completed for this measure in the denominator. For the sample calculation in the flow these patients would fall into the 'd' category (eligible denominator, i.e. 210 patients).

2. Check to determine if the patient was screened for diabetic retinal disease during the measurement period OR a negative retinal exam was documented in the year prior to the measurement period.
    a. If no, the patient was not screened for diabetic retinal disease during the measurement period OR a negative retinal exam was not documented in the year prior to the measurement period, performance is not met and the patient should not be included in the numerator. Stop processing.
    b. If yes, the patient was screened for diabetic retinal disease during the measurement period OR a negative retinal exam was documented in the year prior to the measurement period, performance is met and the patient should be included in the numerator. For the sample calculation in the flow these patients would fall into the 'a' category (numerator, i.e. 180 patients). Stop processing.

Sample Calculation
Performance Rate Equals
Performance Met is category 'a' in the measure flow (180 patients)
Denominator is category 'd' in measure flow (210 patients)
180 (Performance Met) divided by 210 (Denominator) equals a performance rate of 85.71 percent
Calculation May Change Pending Performance Met

Measure Flow Diabetes Composite

The measure diagrams were developed by CMS as a supplemental resource to be used in conjunction with the measure specifications. They should not be used as a substitution for the measure specifications. For Downloadable Resource Mapping Table, go to Appendix II and use the Variable Names located in the appendix along with the applicable tabs within the DM Coding Document.

1. Start processing 2018 Diabetes Composite Measure Flow for the patients that qualified for sample in the Patient Confirmation Flow and the Measure Confirmation Flow for Diabetes. Note: Include remainder of patients listed in the CMS Web Interface that were consecutively confirmed and completed for the components within this denominator for the composite measure. For the sample calculation in the flow these patients would fall into the 'd' category (eligible denominator, i.e. 210 patients).

2. Check to determine if the patient had one or more HbA1c tests during the measurement period (DM-2).
    a. If no, the patient did not have one or more HbA1c tests during the measurement period, the patient fails the composite measure. Stop processing composite measure.
    b. If yes, the patient did have one or more HbA1c tests during the measurement period, record the most recent date the blood was drawn for the HbA1c in MM/DD/YYYY format and the most recent HbA1c value OR if test was performed but result is not documented, record "0" (zero) value. Continue processing.

3. Check to determine if the patient's most recent HbA1c value was greater than nine percent or equal to zero percent.
    a. If no, the patient's most recent HbA1c value was not greater than nine percent or equal to zero percent, the patient passes 1 of the 2 components of the Diabetes composite measure. Continue processing for DM-7.
    b. If yes, the patient's most recent HbA1c value was greater than nine percent or equal to zero percent, the patient fails 1 of the 2 components of the Diabetes composite measure. Stop processing composite measure.

4. Check to determine if the patient was screened for diabetic retinal disease during the measurement period OR a negative retinal exam was documented in the year prior to the measurement period (DM-7).
    a. If no, the patient was not screened for diabetic retinal disease during the measurement period OR a negative retinal exam was not documented in the year prior to the measurement period, the patient fails 1 of 2 components of the Diabetes composite measure. Stop processing composite measure.
    b. If yes, the patient was screened for diabetic retinal disease during the measurement period OR a negative retinal exam was documented in the year prior to the measurement period, the patient passes 1 of 2 components of the Diabetes composite measure. Continue processing.

5. Determine if the patient passed DM-2 and DM-7 components of the composite measure. If the patient passed both components, the patient meets the composite measure. For the sample calculation in the flow these patients would fall into the 'a' category (numerator, i.e. 190 patients).

Sample Calculation
Performance Rate Equals
Performance Met is category 'a' in the measure flow (190 patients)
Denominator is category 'd' in measure flow (210 patients)
190 (Performance Met) divided by 210 (Denominator) equals a performance rate of 90.48 percent
Calculation May Change Pending Performance Met

Appendix II: Downloadable Resource Mapping Table

Each data element within this measure's denominator or numerator is defined as a pre-determined set of clinical codes. These codes can be found in the 2018 CMS Web Interface DM Coding Document.

***DM Composite (All or Nothing Scoring)**

Measure Component/Excel Tab	Data Element	Variable Name	Coding System(s)
Denominator/Denominator Codes	Diabetes Diagnosis	DM_DX_CODE	I9 I10 SNM
Numerator/Numerator Codes	Hemoglobin A1c (DM-2)	A1C_CODE	LN WITH most recent A1c date and value
	Eye Exam (DM-7)	EYE_EXAM_CODE	SNM
		NEGATIVE_FINDING_CODE	SNM

**For EHR mapping, the coding within the DM Composite is considered to be all inclusive*

Appendix III: Measure Rationale and Clinical Recommendation Statements

RATIONALE:

DM-2: Diabetes: Hemoglobin A1c (HbA1c) Poor Control (>9%)

As the seventh leading cause of death in the U.S., diabetes kills approximately 75,000 people a year (CDC FastStats 2015). Diabetes is a group of diseases marked by high blood glucose levels, resulting from the body's inability to produce or use insulin (CDC Statistics 2014, ADA Basics 2013). People with diabetes are at increased risk of serious health complications including vision loss, heart disease, stroke, kidney failure, amputation of toes, feet or legs, and premature death. (CDC Fact Sheet 2014).

In 2012, diabetes cost the U.S. an estimated $245 billion: $176 billion in direct medical costs and $69 billion in reduced productivity. This is a 41 percent increase from the estimated $174 billion spent on diabetes in 2007 (ADA Economic 2013).

Reducing A1c blood level results by 1 percentage point (eg, from 8.0 percent to 7.0 percent) helps reduce the risk of microvascular complications (eye, kidney and nerve diseases) by as much as 40 percent (CDC Estimates 2011).

DM-7: Diabetes: Eye Exam

As the seventh leading cause of death in the U.S., diabetes kills approximately 75,000 people a year (CDC FastStats 2015). Diabetes is a group of diseases marked by high blood glucose levels, resulting from the body's inability to produce or use insulin (CDC Statistics 2014, ADA Basics 2013). People with diabetes are at increased risk of serious health complications including vision loss, heart disease, stroke, kidney failure, amputation of toes, feet or legs, and premature death. (CDC Fact Sheet 2014).

In 2012, diabetes cost the U.S. an estimated $245 billion: $176 billion in direct medical costs and $69 billion in reduced productivity. This is a 41 percent increase from the estimated $174 billion spent on diabetes in 2007 (ADA Economic 2013).

In 2005-2008, of adults with diabetes aged 40 years or older, 4.2 million (28.5%) people had diabetic retinopathy, damage to the small blood vessels in the retina that may result in loss of vision. (CDC Statistics, 2014).

CLINICAL RECOMMENDATION STATEMENTS:

DM-2: **Diabetes: Hemoglobin A1c (HbA1c) Poor Control (>9%)**

American Diabetes Association (2017):

- A reasonable A1C goal for many nonpregnant adults is <7%. (Level of evidence: A)

- Providers might reasonably suggest more stringent A1C goals (such as <6.5%) for selected individual patients if this can be achieved without significant hypoglycemia or other adverse effects of treatment. Appropriate patients might include those with short duration of diabetes, type 2 diabetes treated with lifestyle or metformin only, long life expectancy, or no significant cardiovascular disease (CVD). (Level of evidence: C)

- Less stringent A1C goals (such as <8%) may be appropriate for patients with a history of severe hypoglycemia, limited life expectancy, advanced microvascular or macrovascular complications, extensive comorbid conditions, or long-standing diabetes in whom the general goal is difficult to attain despite diabetes self-management education, appropriate glucose monitoring, and effective doses of multiple glucose-lowering agents including insulin. (Level of evidence: B)

DM-7: Diabetes: Eye Exam

American Diabetes Association (ADA) (2017):

- Adults with type 1 diabetes should have an initial dilated and comprehensive eye examination by an ophthalmologist or optometrist within 5 years after the onset of diabetes. (Level of evidence: B)

- Patients with type 2 diabetes should have an initial dilated and comprehensive eye examination by an ophthalmologist or optometrist at the time of the diagnosis of diabetes. (Level of evidence: B)

Appendix IV: Use Notices, Copyrights, and Disclaimers

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