### Description

Composite (“optimal” care) measure of the percentage of adult patients who have type 1 or type 2 diabetes with optimally managed modifiable risk factors.

### Methodology

Population identification is accomplished via a query of a practice management system or Electronic Medical Record (EMR) to identify the population of eligible patients (denominator). Data elements are either extracted from an EMR system or abstracted through medical record review. Submission of total patient population is preferred. Submission of a sample is an option.

### Rationale

According to the MN Department of Health, diabetes is a high impact clinical condition in Minnesota. More than 1 in 3 adults and 1 in 6 youth in Minnesota have diabetes or are at high risk of developing it. Each year more than 20,000 Minnesotans are newly diagnosed with diabetes. Diabetes is the sixth leading cause of death in Minnesota and is a significant risk factor in developing cardiovascular disease and stroke, non-traumatic lower extremity amputations, blindness, and end-stage renal disease. Diabetes costs Minnesota almost $2.7 billion annually, including medical care, lost productivity and premature mortality. According to the American Diabetes Association, an estimated 23.6 million American children and adults have diabetes. Most people with diabetes have other risk factors, such as high blood pressure and cholesterol that increase the risk for heart disease and stroke. In fact, more than 65% of people with diabetes die from these complications.

### Denominator

Established patient who meets each of the following criteria is included in the population (denominator):

- Patient was age 18 to 75 during the measurement period (date of birth was 01/01/1935 to 12/31/1992).
- Patient was seen by an eligible provider in an eligible specialty face-to-face at least 2 times during the last 2 years (01/01/2009 to 12/31/2010) with visits coded with a diabetes ICD-9 code (in any position, not only primary). Use this date of service range when querying the practice management or EMR system to allow a count of the visits within this time frame.
- Patient was seen by an eligible provider in an eligible specialty face-to-face at least 1 time during the last 12 months (01/01/2010 to 12/31/2010) for any reason. This may or may not include one of the face-to-face diabetes visits.

**Eligible specialties:** Family Medicine, Internal Medicine, Geriatric Medicine, Endocrinology.

**Eligible providers:** Medical Doctor (MD), Doctor of Osteopathy (DO), Physician Assistant (PA), Nurse Practitioner (NP).

**Diabetes mellitus ICD-9 codes:** 250—250.93

### Allowable Exclusions

- Patient was a permanent nursing home resident home during the measurement period
- Patient was in hospice at any time during the measurement period
- Patient died prior to the end of the measurement period
- Patient was pregnant during measurement period *(Diabetes mellitus complicating pregnancy, ICD-9 codes: 648.0-648.04)*
- Documentation that diagnosis was coded in error
### Optimal Diabetes Care

<table>
<thead>
<tr>
<th>Percentage of diabetes patients age 18-75 in the measurement period (01/01/2010-12/31/2010) who met all of the following targets:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The most recent HbA1c in the measurement period has a value &lt;8.0</td>
</tr>
<tr>
<td>• The most recent LDL test in the measurement period has a value &lt;100</td>
</tr>
<tr>
<td>• The most recent Blood Pressure in the measurement period has a systolic value of &lt;130 and a diastolic value of &lt;80 (both values must be less than)</td>
</tr>
<tr>
<td>• There is documentation in the chart that the patient is currently a non-tobacco user.</td>
</tr>
<tr>
<td>• If the patient has a co-morbidity of Ischemic Vascular Disease (see page 3), there is documentation in the measurement period that the patient is on daily aspirin or there is documentation of an accepted contraindication (any date).</td>
</tr>
</tbody>
</table>

### ICD-9-CM Coding Conventions Used in MNCM Documentation

MNCM uses the standard HEDIS coding conventions from HEDIS 2010, *Comprehensive Diabetes Care*. From the HEDIS manual:

*Unless otherwise noted, codes are stated to the minimum specificity required. For example, if a code is presented to the third digit, any valid fourth or fifth digits may be used. When necessary, a code may be specified with an “x,” which represents a required digit; for example, ICD-9-CM Diagnosis code 640.0x indicates a fifth digit is required, but the fifth digit could be any number allowed by the coding manual.*

<table>
<thead>
<tr>
<th>DIABETES</th>
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</thead>
<tbody>
<tr>
<td>250.00</td>
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<tr>
<td>250.01</td>
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<td>250.42</td>
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<td>250.43</td>
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</tbody>
</table>
Documentation of Ischemic Vascular Disease (IVD) Diagnosis

The following information sources must be used to determine a diagnosis of IVD (do not limit search by using only one source):

- Patient’s problem list,
- Documentation in patient’s record (progress notes, etc.), and
- ICD-9 codes (EMR or practice management system):

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>410 – 410.92</td>
<td>Acute Myocardial Infarction (AMI)</td>
</tr>
<tr>
<td>411 – 411.89</td>
<td>Post Myocardial Infarction Syndrome</td>
</tr>
<tr>
<td>412</td>
<td>Old AMI</td>
</tr>
<tr>
<td>413 – 413.9</td>
<td>Angina Pectoris</td>
</tr>
<tr>
<td>414.0 – 414.07</td>
<td>Coronary Artherosclerosis</td>
</tr>
<tr>
<td>414.2</td>
<td>Chronic Total Occlusion of Coronary Artery</td>
</tr>
<tr>
<td>414.8</td>
<td>Other Chronic Ischemic Heart Disease (IHD)</td>
</tr>
<tr>
<td>414.9</td>
<td>Chronic IHD</td>
</tr>
<tr>
<td>429.2</td>
<td>Cardiovascular (CV) disease, unspecified</td>
</tr>
<tr>
<td>433 – 433.91</td>
<td>Occlusion and stenosis of pre-cerebral arteries</td>
</tr>
<tr>
<td>434 – 434.91</td>
<td>Occlusion of cerebral arteries</td>
</tr>
<tr>
<td>440.1</td>
<td>Atherosclerosis of renal artery</td>
</tr>
<tr>
<td>440.2 – 440.29</td>
<td>Atherosclerosis of native arteries</td>
</tr>
<tr>
<td>440.4</td>
<td>Chronic Total Occlusion of Artery of the Extremities</td>
</tr>
<tr>
<td>444 – 444.9</td>
<td>Arterial embolism and thrombosis</td>
</tr>
<tr>
<td>445 - 445.8</td>
<td>Atheroembolism</td>
</tr>
</tbody>
</table>
## Cost and Prevalence

According to the MN Department of Health, diabetes is a high impact clinical condition. One in three Minnesotans have prediabetes or diabetes. Each year, 20,000 Minnesotans are newly diagnosed with diabetes. Diabetes is the sixth leading cause of death in Minnesota and is a significant risk factor in developing cardiovascular disease and stroke, non-traumatic lower extremity amputations, and the leading cause for both adult blindness and end-stage renal disease. Diabetes costs Minnesota 2.7 billion annually, or $12,000 per Minnesotan with diabetes, including medical care, lost productivity and premature mortality.\(^1\)

According to the American Diabetes Association, an estimated 23.6 million American children and adults have diabetes.\(^2\) Most people with diabetes have other risk factors, such as high blood pressure and cholesterol that increase the risk for heart disease and stroke. In fact, more than 65% of people with diabetes die from these complications.

### Current Measure Details

MN Community Measurement has been reporting an Optimal Diabetes Care measure since 2007. The measure is an all-or-none, composite measure. All diabetic patients attributed to a clinic site need to meet these criteria to be considered optimally managed:

- Blood pressure less than 130/80
- LDL or “bad” cholesterol less than 100 mg/dl
- Blood sugar (HbA1c) at or below 8%
- Tobacco free
- Daily aspirin use if patient has a diagnosis of ischemic vascular disease (or valid contraindication to aspirin)

An all-or-none, composite measure for diabetic patients is important as research shows that patients meeting all the components are more likely to significantly reduce their risk of complications, co-morbidities and/or catastrophic events as compared to patients with only one component in control.

### Degree of Improvability

MN Community Measurement began collecting data for this measure in 2007. Data from the past three years shows statewide optimal management average rates increasing as shown below:

- 14% in 2007
- 17% in 2008
- 19% in 2009

The 19% average equates to more than 21,000 individuals who are optimally managed along all five components (A1c, blood pressure, lipids, tobacco non-user and daily aspirin). While increasing averages are encouraging, a less than 20% optimally managed rate leaves room for improvement. In addition, variation in rates by clinic site locations demonstrates that higher rates are possible to attain.

### Degree of Inclusiveness

Diabetes is prevalent in all ages and demographics of patients. However, some people are at increased risk of acquiring the illness. People at increased risk for diabetes include people who are older, African American, Asian American, Hispanic/Latino, or American Indian. In addition, a family history of diabetes or a previous personal history of gestational diabetes are markers for increased risk as well.

### Fit with National, Regional, and

The Optimal Diabetes Care all-or-none, composite measure aligns many of its elements with existing NQF measures:

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### Local Priorities

- Target age range for the population
- Diagnosis codes (exception is pregnancy)
- Time period for data collection
- Exclusions

In addition, the Optimal Diabetes Care measure is currently being reviewed by NQF for endorsement with MN Community Measurement as the measure sponsor/steward.

### Performance Variation

For data submitted to MN Community Measurement on 2008 dates of service, 18.9% of the patients met all five component targets in the composite measure and were considered optimally managed. This rate is a weighted average of the total population of patients for clinics submitting data – which includes both clinics that submitted total population data and clinics that submitted a random sample of diabetes patients (Total Population = 178,748 / Submitted = 112,819). It is estimated that the data represents approximately 79% of all diabetics in the state of Minnesota.

Performance variation is detectable at the clinic site level. For the 2008 data, there was a wide range of variability.

- MN Optimal Diabetes Care average rate = 19%
- Minimum rate = 0%
- Maximum rate = 45%

Not only does the Optimal Asthma Care composite rate vary, but there is also variability for each of the components that make up the measure. For example, the blood pressure component shows clinic-level variability with the lowest percentage of patients with blood pressure under 130/80 being 21% and the highest at 90%.

### Existing Measures at a National and Local Level

- NQF # 0076 CAD: optimally managed modifiable risk [This measure is very similar to Optimal Diabetes Care, has four of the same components: BP, LDL, Tobacco Non-use and daily aspirin] Steward(s): Minnesota Community Measurement.
- NQF # 0064 Diabetes Measure Pair: A Lipid management: low density lipoprotein cholesterol (LDL-C) <130, B Lipid management: LDL-C <100. Steward(s): NCQA.
- NQF # 0061 Diabetes: Blood Pressure Management [Process measure]. Steward(s): NCQA.
- NQF # 0063 Diabetes: Lipid profile [Process measure]. Steward(s): NCQA.
- NQF # 0059 Hemoglobin A1c management [Defines poor control as > 9.0] Steward(s): NCQA.
- NQF # 0057 Hemoglobin A1c testing [Process measure]. Steward(s): NCQA.

### Enhance the patient/provider relationship

Minnesota providers have embraced the challenge of improving diabetes care. Increases in rates since the measure’s launch in 2007 is encouraging. The results from this measure are posted on two consumer sites: [www.mnhealthscores.org](http://www.mnhealthscores.org) and [www.thed5.org](http://www.thed5.org) which include content on improving the relationship between provider and patient to achieve optimal diabetes care.

### Feasibility (resources, barriers, culture)

All data is submitted electronically via MNCM’s HIPAA secure Data Portal. Since the beginning of Direct Data Submission in 2007, the number of groups participating has nearly doubled with 38 submitting data in 2007 and 70 in 2009 representing a clinic increase from 197 in 2007 to 426 in 2009. While the time frames for submitted data through the DDS process vary from group to group, for clinics that are abstracting from charts, it generally takes less than eight hours to abstract information for a diabetes composite measure for 60 patients. Time spent can often be dependent on the quality and completeness of the record.
Objective: Review of guideline changes in recommendations for daily aspirin for diabetics. Expedited process for recommended technical changes to the aspirin component upon the request of Measurement and Reporting Committee (MARC) to align with current recommendations.

Issue: Changing recommendations for diabetic patients in terms of the risks and benefits of daily aspirin therapy. Historically, guidelines supported the belief that diabetic patients were at high risk for developing cardiovascular disease (CVD) and recommendations were to use daily aspirin therapy unless contraindicated as a primary prevention strategy. Currently the aspirin component of the composite is applied to all diabetics ages 41+.

Emerging evidence supports the continuation of daily use of aspirin unless contraindicated for diabetics with known CVD (secondary prevention of a cardiovascular event), however no longer supports its use in diabetic patients who may have not yet developed cardiovascular disease (primary prevention of a cardiovascular event).

Brief Guideline Summary:

American Diabetes Association - January 2010
Use aspirin therapy as a secondary prevention strategy in those diabetics with a history of CVD. Consider aspirin therapy as a primary prevention strategy in those diabetics at increased cardiovascular risk, generally men age > 50 and women age >60 who have at least one additional risk factor (family history of CVD, hypertension, smoking, dyslipidemia or albuminuria).

ICSI - May 2009; guidelines currently in revision
Use aspirin therapy as a secondary prevention strategy in those with diabetes with a history of CVD. Insufficient evidence to support aspirin use in the primary prevention of cardiovascular events with diabetes; although there is no evidence of significant harm.

American Heart Association - Currently working on a joint statement with the ADA and ACC, website reflects previous beliefs for primary prevention (diabetics are already at > 20% risk of developing CVD within 10 years and should be taking aspirin). AHA does support using aspirin for secondary prevention for all adults, as does the American College of Cardiology.

US Preventive Services Task Force - Addresses aspirin use for all adults. Recommendations for men ages 45 to 79 and women ages 55 to 79 for primary prevention of acute MI and stroke respectively when the benefits outweighs the potential harm of an increase of gastrointestinal hemorrhage.

Process:
MNCM staff review of guidelines and make initial recommendations for technical changes needed to be in compliance with January 2010 American Diabetes Association, in addition to the American Heart Association and ICSI Diabetes guidelines. The technical advisory group was convened virtually and communicated via email to review initial recommendations for changes and to provide expertise and feedback in changes to the aspirin component. The group included the original technical advisory group for the A1c component changes with additional experts upon MARC members request.

Workgroup included:
Beth Averbeck, MD HeathPartners
John Fredrick, MD Preferred One
Linda Walling, MD, HealthEast
Mark Nyman, MD Mayo Clinic
Victor Montori, MD Mayo Clinic
Collette Pitzen, MN Community Measurement
Barry Bershow, MD, Fairview Health Services
Rich Bergenstal, MD International Diabetes Center Park Nicollet
Gene Ollila, MD Allina Medical Clinic
JoAnn Sperl-Hillen, MD HealthPartners
Kari Retzer, ICSI Facilitator for Diabetes Guideline
Diane Mayberry, MN Community Measurement
1. Guidelines were reviewed, summarized and distributed to the group. Additionally, an initial draft of numerator logic according to ADA guidelines distributed for feedback. The initial draft did require the capture of two additional data elements.

2. Groups provided excellent feedback about the feasibility and clinical usefulness of the proposed initial strategy, keeping in mind the new recommendations and potential of data burden for the group. A few members suggested eliminating the component all together. A second numerator logic was distributed based on suggestions from the group that continued to use criteria based on finding patients suitable for primary prevention based on risk factors that could be collected from existing data. Concerns expressed in terms of data burden and complexity to capture those who would benefit from primary prevention. Eventually three strategies were disseminated for feedback.

3. Some felt that the diabetic population would be captured in the Optimal Vascular Care if indeed a diabetic did have cardiovascular disease. Theoretically this seems logical, but from a measurement perspective, the visit criteria of having 2 visits in the last two years with IVD codes limits the population and many diabetics would not be included in the denominator.

4. Many provided feedback that it would be advisable to keep the aspirin component, but have it only apply to those patients with known cardiovascular disease. This would be consistent with all current recommendations and would be a conservative approach in terms of patient safety, similar to the A1c discussions last year where we could not in an electronic fashion collect all elements to determine appropriate goals of < 7.0 and < 8.0 and moved to < 8.0 for all diabetic patients.

**Recommendation for Discussion**

Change the aspirin numerator logic of the component as follows:

For only those diabetic patients with known cardiovascular disease, the numerator will be calculated for daily aspirin use (aspirin, anti-platelets or valid contraindication). All other patients will be considered automatically numerator compliant. See logic flow chart on the next page.

- In accordance with all current guidelines
- Based on current data submitted; no additional data burden
- Would allow for comparability of the composite measure over time
- Decision today would allow current NQF submission to go forward with this modification. Deadline to modify the composite is April 14th for continued consideration and NQF was most interested in having us modify the aspirin component according to AHA, ACC, and ADA guidelines.
- Would apply for reporting in 2011 for 2010 dates of service
- Given groups are in the measurement year now, need to communicate out to them as soon as possible. The proposal does not require additional data elements for submission but please note that the above logic is applied to all diabetics with CVD and this would mean no age criteria as in previous submissions (age 41+). Groups with EMR may need to modify their program query in terms of aspirin and age.
Aspirin Numerator Logic
Secondary Prevention Only;
Existing Cardiovascular/Ischemic Vascular Disease

Please Note:
The presence of IVD (a field) is part of the current submission file and has been for several years. No additional data collection burden.

Does the diabetic patient have IVD?
IVD field = 1 (Yes)

Yes

No

Exclude from Numerator; automatically passes the aspirin component

Apply Aspirin/Anti-platelet or Contra-indication Criteria Regardless of Age

Ischemic Vascular Disease ICD-9 Codes
410 – 410.92 Acute Myocardial Infarction (AMI)
411 – 411.89 Post Myocardial Infarction Syndrome
412 Old AMI
413 – 413.9 Angina Pectoris
414.0 – 414.07 Coronary Artherosclerosis
414.2 Chronic Total Occlusion of Coronary Artery
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433 – 433.91 Occlusion and stenosis of pre-cerebral arteries
434 – 434.91 Occlusion of cerebral arteries
440.1 Atherosclerosis of renal artery
440.2 – 440.29 Atherosclerosis of native arteries of the extremities, unspecified
440.4 Chronic Total Occlusion of Artery of the Extremities
444 – 444.9 Arterial embolism and thrombosis
445 - 445.8 Atheroembolism

MN Community Measurement April 2010