Coordinated Performance Measurement For the Management of Adult Diabetes

A Consensus Statement from

The American Medical Association,
The Joint Commission on Accreditation of Healthcare Organizations, and
The National Committee for Quality Assurance

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The AMA/JCAHO/NCQA Collaboration on Performance Measurement

A Call for Coordination

The growing importance of performance measurement in health care is illustrated by the following recent trends:

1. The national call for better documentation of the quality of care delivered in the United States has intensified.
2. Public data indicate that gaps remain between the care people should receive and the care they do receive.
3. Variations in care persist across regions of the country despite the development and dissemination of clinical guidelines and public availability of performance information.
4. Medical costs continue to rise, despite multifaceted efforts to control them.
5. Financial risk and accountability for quality and cost continue to shift within various segments of the health industry.
6. Questions persist about the impact of changing incentives and varying delivery methods on the quality of care delivered to patients.

These trends have escalated demands for greater accountability and quality improvement efforts across the health care system. Increased investment in research to establish an evidence base for important elements of clinical practice has provided the foundation for clinical practice guidelines developed by physician specialty societies and other health care professional organizations. Evidence-based clinical practice guidelines encourage the adoption of clinical practices that are most likely to enhance health outcomes for patients and provide the basis for constructing valid performance measures. Performance measurement, in turn, has been shown to facilitate improvements in health care delivery locally, as well as nationally.

The demand for quality improvement and increased accountability has led numerous groups and organizations to develop and implement performance measures to evaluate and improve the quality of care received by patients and populations in particular care settings and under specific financing arrangements. This broad participation has led to the development of many more valuable performance measures than any single group or organization could develop independently. However, the lack of coordination among developers has also resulted in duplication and inefficiency, as multiple measures for the same aspect of care, for a given clinical condition, have emerged due to differences in the definition employed by each developer. For example, a number of different methods for measuring Cesarean section rates have been promulgated by state and federal agencies and various private sector organizations. Further, competing implementation strategies (e.g., required reporting periods, acceptable data sources, self-report versus external review) have increased the data collection burden for physicians, other health care providers, health care organizations, and health plans, as the same measurement information is requested on multiple occasions and in a variety of ways.

The Performance Measurement Coordinating Council (PMCC)

In response to the trends and duplicative initiatives described above, the American Medical Association (AMA), the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), and the National Committee for Quality Assurance (NCQA) formed the Performance Measurement Coordinating Council (PMCC) in 1998. The PMCC was established to identify standardized performance measures across the physician, health plan, and provider organization levels of the care delivery system. The Council was comprised of nineteen members,[1] drawn in equal proportion from the leadership and measure development bodies of the AMA, JCAHO, and NCQA ("the Sponsors"). Through coordination of efforts, it was (and remains) the intent of the Sponsors to minimize duplication in measure development activities, reduce the cost and administrative burden of measurement at all levels of the health care system and provide users of performance measures with a consistent and comprehensive view of health care quality.

[1] Please refer to Appendix I for a listing of the members of the PMCC, as of September 2000.

In September 2000, the Sponsors announced plans to streamline their collaborative work by phasing out the PMCC as a separate entity, empowering staff of the three organizations to work directly with one another to continue the production of coordinated measurement sets. Relationships and communications have since been enhanced among the Sponsors' senior executives, as well as their respective measure development bodies: the AMA's Physician Consortium for Performance Improvement, JCAHO's Advisory Council on Performance Measurement, and NCQA's Committee on Performance Measurement.

In addition to completing the work on adult diabetes, the Sponsors are (as of January 2001) proceeding with measure set development for cardiovascular care and pregnancy and neonatal care.

The Collaborative Measure Identification and Evaluation Process

The Sponsors began their collaborative work by establishing a common set of priorities among clinical conditions that are highly prevalent or for which mortality and morbidity are high, for which there is wide variation in care, and for which the delivery of care typically occurs across a variety of settings. In this context, the Sponsors consider conditions where the greatest opportunities exist for improvements in care processes and outcomes.

For a given condition, the measure identification process begins with the creation of an Expert Panel comprised of individuals who are nationally recognized experts in the specific topic area. The Expert Panels include physicians and other health care providers caring for patients with that condition, knowledgeable representatives of provider organizations and health plans, and experts in the development and implementation of performance measures. Where appropriate, organizations with experience in developing measures for the condition being addressed are also invited to participate.

An initial objective of the Expert Panel is to review existing, evidence-based clinical guidelines developed for the condition by medical societies and other professional groups. The Expert Panel also discusses the natural history and epidemiology of the condition and the clinical recommendations for interventions to manage the condition. This scientific review provides a foundation from which the Expert Panel can seek consensus on important aspects of care, i.e., tests, interventions, and other facets of care for which measurement is likely to stimulate improvement in the care of patients with a particular disease or condition. Based on the previous work of its Sponsors, the PMCC established a common set of desirable attributes of measures that are applied as aspects of care are being selected.[2] The selected aspects of care must then be translated into a core set of operationally defined measures that are applicable in a full range of relevant settings. The final measurement set includes performance measures that serve a variety of purposes from notification and internal quality improvement through external accountability, public comparison and public choice.

Through this collaborative process, the Sponsors seek to send consistent messages to physicians, provider organizations and health plans, as well as external users of performance data, about what is important to measure. The Sponsors intend to work cooperatively with others in the field to support efficient measure development and implementation.

Products of the Collaboration

The Sponsors will issue two products for each clinical condition for which they develop a common measurement set. The first product will be a *Consensus Statement* that includes:

- a synthesis of the guidelines and clinical recommendations on which the selection of the performance measures is based;
- a summary description of the recommended core measure set;
- the definition of each performance measure for a given purpose; and
- a table showing the required data elements and how they should be aggregated to construct the numerators and denominators for the recommended measures.

[2] See Appendix II for a description of the PMCC Desirable Attributes of Performance Measures.

The second product will be a set of *Technical Specifications for the Core AMA/JCAHO/NCQA Measures* that include:

- a sampling and data collection protocol to support, where possible, "single data collection"[3] for measures at the physician, provider organization and health plan level;
- a description of how the measurement set promotes judicious measurement and reduces the data collection burden across settings;
- detailed definitions for the data elements of the measures and specifications for creating the measures from these data elements;
- a description of the measures and their uses, by audience; and
- opportunities for further research to support future measure development.

The Sponsors will periodically issue updates to these products as new clinical evidence emerges and as new evidence-based measures become available.

Implementation and Further Development of Collaborative Products

Each of the Sponsors focuses on a different audience and therefore may utilize, or implement, different subsets of the coordinated measure sets. However, all three Sponsors have agreed on the following:

1. Whenever appropriate, the Sponsors will utilize measures from the coordinated measure sets.
2. The core, standardized measure sets will be based on established clinical practice guidelines endorsed by national clinical specialty societies and/or professional organizations. As the clinical guidelines and scientific literature are updated based on new evidence, the Sponsors will refine the coordinated measure sets to reflect the current state of knowledge in the treatment of that clinical condition.
3. The Expert Panels will consider existing performance measures, including those developed by organizations other than the Sponsors, to capitalize on previous work and encourage standardization. Because AMA/JCAHO/NCQA core measurement sets are intended to promote judicious measurement and, where possible, single data collection, this process will be selective.
4. The core measure sets will include measures recommended for external accountability and for quality assessment and improvement purposes. Wherever possible and appropriate, measures for both purposes will be designed for relevance and feasibility across the physician, health plan, and provider organization levels of the care delivery system. The Sponsors will clearly specify how the data may be used to construct the measures for the recommended purposes.
5. The Sponsors will define standardized data elements, or discrete pieces of data, to promote single data collection for multiple purposes when possible. Data elements are defined as pieces of information obtained from data sources such as medical records, administrative claims, surveys, encounter forms, etc. (e.g., total cholesterol test result and date of test).
6. Many of the measures included in the coordinated measure sets will have been piloted or tested in specific care settings, or at particular levels of the health care system, by other measure developers. It is the Sponsors' intent to draw on the experiences and recommendations of others in formulating the *Technical Specifications for the Core AMA/JCAHO/NCQA Measures*.
7. In the absence of prior pilot testing, the Sponsors will identify mechanisms that facilitate the evaluation and pilot testing of coordinated measure sets prior to their use in performance measurement activities. These pilot tests may reveal the need to redefine some data elements or to re-specify some measures to enable consistent measurement at different levels of the health care system.

[3] "Single data collection," as used in this document, refers to the collection of measurement data at a single level of care (e.g., physician offices) for use in measurement and reporting at multiple levels and for multiple purposes. The Sponsors are actively pursuing opportunities to demonstrate the feasibility of single data collection.

Consensus Statement on Performance Measurement for the Management of Adult Diabetes

This is a Consensus Statement of the AMA, JCAHO, and NCQA regarding performance measurement for the management of adult diabetes. This Consensus Statement focuses on physician-level and plan-level performance measurement as it refers to outpatient care. The Sponsors are grateful to the Diabetes Expert Panel[4] for its dedication to working with us to reach agreement on the recommendations in this document.

The value of this Consensus Statement lies in three principal accomplishments:

- Assimilation and integration, into a common framework, of the efforts of those who have developed the clinical practice guidelines and performance measures on which this Consensus Statement is based;
- Translation of those efforts into a coherent measurement and reporting strategy to meet the needs of multiple users of clinical performance data at different levels of the health care system, whose purposes may differ, while minimizing the data collection and reporting burden on all data suppliers; and
- Declaration of commitment by the AMA, JCAHO, and NCQA to utilize the coordinated measurement set as they implement performance measures in support of their respective quality oversight and improvement activities.

The Sponsors do not claim to have broken new ground in defining the clinical approach to managing adult diabetes, nor in the design of new performance measures for diabetes. Rather, this and future Consensus Statements represent a pioneering effort to establish a model for collaboration in identifying measure sets that are integrated across health plan, provider organization, and physician levels.

Clinical Recommendations and Treatment Goals from Which Performance Measures are Derived

The measures recommended by the Sponsors in this Consensus Statement are based on the current state of knowledge regarding clinical recommendations and treatment goals for adult diabetes management. In the section devoted to each measure, the Sponsors have drawn heavily on the recommendations of the American Association of Clinical Endocrinologists (AACE) and the American Diabetes Association (ADA). These sections will be updated as new clinical information becomes available.

Aspects of Care Deemed Important and Feasible to Measure

In developing this consensus document, the Sponsors benefited from the pioneering and ongoing work of the Diabetes Quality Improvement Project (DQIP).[5] DQIP began under the sponsorship of a coalition that included the ADA, the Foundation for Accountability, the Health Care Financing Administration, and NCQA, and was later joined by the American Academy of Family Physicians, the American College of Physicians, and the Veterans Administration. Since the first set of DQIP performance measures was released in August 1998, DQIP has expanded representation on its panels and has collected a wealth of data on its measures through the Health Care Financing Administration's network of Quality Improvement Organizations (also known as PROs). Other organizations have adopted the DQIP measures, including the ADA.

The Sponsors and the DQIP Operations Work Group members agree that measures for external accountability for adult diabetes must be standardized across the nation. Therefore, the measures for external accountability that are currently recommended in this document are identical to the corresponding DQIP measures for accountability. There are, however, a few accountability and quality improvement measures that are unique to either the Sponsors' or the DQIP measurement set (e.g., the Sponsors' quality improvement measure for influenza immunization; the DQIP accountability measure for smoking cessation counseling). DQIP and the Sponsors are committed to pursuing a completely aligned measurement set for the management of adult diabetes.

[4] Please refer to Appendix III for a list of the members of the Diabetes Expert Panel.
[5] Please refer to Appendix IV for the list of measures in the DQIP measure set.

The complete DQIP Measurement Set 1.0 (accountability and quality improvement measures) is provided in Appendix IV.

Based on a thorough review of clinical recommendations and the feasibility of data collection, the following aspects of outpatient care are included in this Consensus Statement. *The AMA, JCAHO, and NCQA recognize that this measurement set does not address all the important aspects of care for diabetes management.* It is expected that this set will change and evolve over time; for example, measures relating to inpatient care will be added. Please refer to the references in the section devoted to each aspect of care for the full text of clinical recommendations.

Aspects of the Outpatient Care of Adult Patients with Diabetes for Which Performance Measurement is Warranted and Feasible	
• HbA1c management	• Foot examination
• Lipid management	• Influenza immunization
• Urine protein testing	• Blood pressure management
• Eye examination	• Office visits

Recommended Measures

For each aspect of the outpatient care of adult patients with diabetes for which the Sponsors believe performance measurement is warranted, one or more performance measures are recommended. These measures are described below in broad, conceptual terms. The guidelines and clinical recommendations on which the measures are based, as well as standardized data elements and detailed, operational measure definitions can be found on the pages indicated.

		PAGE REFERENCES	
Aspect of Care	**Recommended Measures**	**Guidelines & Recommendations**	**Measure Definition Tables**
HbA1c management	• Frequency of HbA1c testing* • Control of HbA1c level*	10	11
Lipid management	• Frequency of lipid testing* • Control of lipid levels*	12-13	15
Urine protein testing	• Testing for microalbuminuria*	16	17
Eye examination	• Frequency of screening examinations for diabetic retinopathy*	18	19
Foot examination	• Frequency of foot examinations*	20	21
Influenza immunization	• Influenza immunization status	22	23
Blood pressure management	• Frequency of blood pressure readings • Control of blood pressure level*	24	25
Office visits	• Frequency of office visits	26	27

* Topic covered by DQIP 1.0 accountability or quality improvement measurement set

The operational definitions provided for the recommended measures will vary depending on the unit of measurement (e.g., physicians, provider organizations or health plans), and may also vary according to the purpose of measurement (external accountability or quality assessment and improvement). While most of the measures recommended by the Sponsors for external accountability purposes will also be useful for internal quality assessment and improvement purposes, some of the measures recommended specifically for the latter purpose may not meet the necessary methodological criteria to serve as accountability measures at this time.

Population Identification and Sampling

Physician-level and plan-level performance measurement each involves different sampling requirements. The table below shows some of the criteria that will be used to define the target population for the coordinated measure set. The Sponsors recognize that organizations may implement different performance measures based on their audience and purpose. At present, the coordinated measure set for diabetes includes measures that may be implemented at the physician level and health plan level; implementation at the hospital level will become feasible as applicable measures are integrated into this set. Sample size requirements may influence the ability to produce reliable measures for comparison or other uses in the respective setting(s).

Diagnosis and Data Sources	Patients will be considered to meet the inclusion criteria if they: 1. Were dispensed insulin and/or oral hypoglycemics/antihypoglycemics during the measurement year (pharmacy or claims/encounters); *or* 2. Had a diagnosis of diabetes recorded in two face-to-face encounters with different dates of service in an ambulatory setting or non-acute inpatient setting or one face-to-face encounter in an acute inpatient or emergency room setting during the measurement year (claims/encounters).
Patient Age	Both physician-level and plan-level performance measurements focus on patients aged 18-75 years.
Exclusions	Both physician-level and plan-level performance measures exclude patients with gestational diabetes.
Anchor Dates and Allowable Gaps in Plan Coverage or Physician Affiliation	This information will continue to be available through single data collection, but may differ for plan-level and physician-level measures, so that some patients included in the plan-level denominator will not be included in the physician-level denominator and vice versa. However, both denominators will be drawn, when possible, from a single, consistent, target population sample.
Payer Type	The payer types included in physician-level performance measures will be inclusive of all eligible patients with coverage through Medicaid, Medicare, and commercial (including fee for service) plans. Plan-level performance measures, while inclusive of all payer types in the aggregate, will include for any individual plan only those payer types with which that plan has a contract.
Sample Size	Sample sizes will depend on the purpose of measurement. Measurement for the sole purpose of feedback and quality improvement does not dictate a specific sample size. Systematic samples, of defined size, are necessary when measuring for accountability and/or comparison and may be accommodated through the single data collection methodology.

Core Measurement Set for the Management of Adult Diabetes

The *AMA/JCAHO/NCQA* ***Core Measurement Set for the Management of Adult Diabetes*** begins on the following page. For each aspect of care, the information provided includes:

- Importance for patient care (and treatment goals, where applicable)
- Clinical recommendations
- Core, standardized data elements
- Performance measures for different purposes that can be constructed from the core data elements
- Aggregation of data element values for each measure
- Rationale for each measure

Evident in the "Reported Measure" column of each measure definition table is an important distinction between the measures recommended for external accountability and those recommended for internal quality assessment and improvement: although the measures for different purposes are consistent in message, the measures for quality improvement often require additional reporting. This reporting may include per patient data and aggregation of test results in multiple ranges. For example:

- In measuring the frequency of HbA1c testing, knowing which patients did not receive an HbA1c test in a given measurement year (in addition to the total percent of patients receiving the test) may help in monitoring patients over time. Similarly, tracking patients' HbA1c levels across multiple ranges (i.e., <7.0, 7.0-7.9%, 8.0-8.9%, 9.0-9.9%, =>10.0%) may prove more useful in quality improvement efforts than solely the percent of patients with an HbA1c level >9.5%. The latter is useful, however, for external accountability purposes where sample sizes are adequate, as >9.5% unequivocally indicates a level that is not being adequately controlled.

HbA1c Management

Importance for Patient Care: The risk of potential complications of diabetes is reduced with percentage point decreases in glycosylated hemoglobin (HbAlc) values. (UKPDS[1], DCCT[1, 2])

Treatment Goals: One goal for glycemic control is an HbA1c of <7%. Because different assays can give varying glycated hemoglobin (GHb) values, it is important that laboratories only use assay methods that are certified as traceable to the Diabetes Control and Complications Trial (DCCT) HbA1c reference method. (ADA[1])

Notable are the results of the DCCT and the similarly designed but smaller Stockholm Diabetes Intervention Study. These studies showed unequivocally in type 1 diabetes that lowering blood glucose delayed the onset and slowed the progression of microvascular complications. Risk reductions for various outcomes ranged from 35 to 75%. Secondary analyses in these studies showed strong relationships between the risks of developing these complications and glycemic exposure over time. Moreover, there was no discernable glucose threshold, (i.e., there was a continuous reduction in complications as glycemic levels approached the normal range). (ADA[1])

The extensive prospective DCCT data do not support the conjecture that a glycemic threshold for the development of complications exists at an HbA1c of 8% or that an HbA1c goal of 8% is maximally beneficial. In the DCCT, as HbA1c was reduced below 8% there were continuing relative reductions in the risk of complications, whereas there was a slower rate of increase in the risk of hypoglycemia. Therefore, the DCCT continues to recommend implementation of intensive therapy with the goal of achieving normal glycemia as early as possible in as many IDDM patients as is safely possible. (DCCT [1,2])

The United Kingdom Prospective Diabetes Study (UKPDS) results establish that retinopathy, nephropathy, and possibly neuropathy are benefited by lowering blood glucose levels in type 2 diabetes with intensive therapy, which achieved a median HbA1c of 7.0% compared with conventional therapy with a median HbA1c of 7.9%. The overall microvascular complication rate was decreased by 25%. (UKPDS[1])

Epidemiological analysis of the UKPDS data showed a continuous relationship between the risk of microvascular complications and glycemia, such that for every percentage point decrease in HbA1c there was a 35% reduction in the risk of microvascular complications. (UKPDS[1])

Clinical Recommendations: The American Association of Clinical Endocrinologists and The American College of Endocrinology (AACE/ACE[1]) recommend a glycosylated hemoglobin be performed during an initial assessment and during follow-up assessments, which should occur at no longer than three-month intervals.

The American Diabetes Association (ADA[1]) recommends obtaining a glycosylated hemoglobin during an initial assessment and then routinely as part of continuing care. In the absence of well-controlled studies that suggest a definite testing protocol, expert opinion recommends glycosylated hemoglobin be obtained at least twice a year in patients who are meeting treatment goals and who have stable glycemic control and more frequently (quarterly assessment) in patients whose therapy was changed or who are not meeting glycemic goals.

Core, Standardized Data Elements for Performance Measurement: All test dates and results for HbA1c (HbA1c and glycated hemoglobin reported separately) per patient, per measurement year.

HbA1c Management: Performance Measures for Different Purposes That Can Be Constructed from the Core Data Elements

Core, Standardized Data Elements for Performance Measurement:
All test dates and results for HbA1c (HbA1c and glycated hemoglobin reported separately) per patient, per measurement year.

Data Element	Data Source	Data Element Values	**Purpose of Measure: External Accountability**			**Purpose of Measure: Internal Quality Assessment and Improvement**		
			Aggregation of Values	Reported Measure	Rationale	Aggregation of Values	Reported Measure	Rationale
Frequency of HbA1c Testing			For HbA1c test: # test dates > 0 # test dates = 0 for each patient	Percent of patients with one or more HbA1c tests (# test dates is >0) [1]	In the absence of information about test values or history of glucose control at least 1 test should be performed annually on all patients with diabetes	For HbA1c test: # test dates > 0 # test dates = 0 for each patient	Percent of patients with one or more HbA1c tests (# test dates is >0)	Allows the tracking of a patient's monitoring status against treatment goals
HbA1c Test Date(s)	Medical Record or Administrative Data	All dates that test was performed during the measurement year				# of test dates by patient	Frequency distribution by # tests done (0,1,2, 3 or more based on # test dates)	Shifts in the distribution provide a better measure of improvement over time
							# tests obtained per patient per year (# test dates by patient)	Supports follow-up efforts with individual patients
Control of HbA1c Level			Most recent HbA1c result is: > 9.5% <= 9.5%	Percent of patients whose most recent HbA1c level was > 9.5% [1]	Regardless of the patient's disease severity or co-morbid status, a value greater than 9.5% represents poor control	Most recent HbA1c result is: < 7.0% 7.0 – 7.9% 8.0 – 8.9% 9.0 – 9.9% => 10.0%	Frequency distribution of most recent HbA1c value by range: < 7.0% 7.0 – 7.9% 8.0 – 8.9% 9.0 – 9.9% => 10.0% [2]	Allows the tracking of a patient's HbA1c levels against treatment goals Shifts in the distribution of HbA1c levels provide a better measure of improvement over time
HbA1c Levels	Medical Record or Administrative Data	Actual test result values for each test performed in the measurement year				All result values by patient (unaggregated)	Distribution of HbA1c test values by patient	Supports follow-up efforts with individual patients

[1] **Identical to DQIP accountability measure**. [2] **Identical to DQIP quality improvement measure**.

Lipid Management

Importance for Patient Care: Persons with diabetes are at increased risk for coronary heart disease (CHD). Lowering serum cholesterol levels can reduce the risk for CHD events. (ADA[2])

Treatment Goals:

Total Cholesterol: In individuals free of coronary heart disease (CHD), total cholesterol levels below 200 mg/dL are classified as "desirable blood cholesterol," those 200 to 239 mg/dL as "borderline-high blood cholesterol," and those 240 mg/dL and above as "high blood cholesterol." The 240 mg/dL cutpoint for total serum cholesterol is a level at which CHD risk is roughly double that at 200 mg/dL and rising steeply. (NCEP[1])

For most patients, serum total cholesterol levels of 240 and 200 mg/dL correspond roughly to LDL-cholesterol levels of 160 and 130 mg/dL. (NCEP[1])

LDL Cholesterol: Because available data show that intervention benefits these patients, and because of the high CHD risk and mortality in this population, the AACE/ACE advocate aggressive intervention for all patients with diabetes and dyslipidemia, whether or not they have established CHD. The goals of therapy for all patients with diabetes should reflect the strictest goals outlined for patients with established CHD. For LDL-cholesterol, the goal is <100 mg/dL. (AACE/ACE[2])

The primary goal of therapy for adult patients with diabetes is to lower LDL cholesterol to ≤100 mg/dL (2.60 mmol/l). The secondary goal of therapy is to raise HDL cholesterol to >45 mg/dl (>1.15 mmol/l) in men and >55 mg/ml (>1.40 mmol/l in women. (ADA[2])

Category of risk based on lipoprotein levels in adults with diabetes

Risk	LDL cholesterol	HDL cholesterol*	Triglyceride
High	≥130	<35	≥400
Borderline	100-129	35-45	200-399
Low	<100	>45	<200

Data are given in milligrams per deciliter. *For women, HDL cholesterol values should be increased by 10 mg/dL. (ADA[2])

For the patient without CHD or other atherosclerotic disease, the target goals for LDL-cholesterol lowering depend on the risk status of the patient and include the following: 1) < 160 mg/dL if fewer than two other risk factors are present, 2) < 130 mg/dL in patients who have two (or more) CHD risk factors. (NCEP[1])

For the patient with CHD or other clinical atherosclerotic disease, the target goal for LDL-cholesterol reduction is 100 mg/dL or lower. (NCEP[1])

In the algorithm for primary prevention in high-risk patients, diabetes is counted as a CHD risk factor, and treatment of LDL-cholesterol can proceed accordingly. Some investigators, however, view diabetes as a special case and would treat diabetic patients more aggressively than patients with other risk factors. For example, it has been proposed that the target level for LDL-cholesterol reduction in all diabetic patients be less than 130 mg/dL. This includes diabetic women since they too have a high CHD risk equal to that of diabetic men. Since diabetic

patients are at very high risk for CHD, it has been furthered suggested by some workers that LDL-cholesterol levels be reduced to less than 100 mg/dL, the goal for LDL lowering recommended for patients with established CHD. This may be particularly advisable in diabetic patients who have other CHD risk factors. However, all recommendations about more aggressive lowering of LDL-cholesterol in diabetic patients must be tempered by the fact that no clinical trials have been carried out to demonstrate efficacy for reducing CHD risk. (NCEP[1])

Triglycerides: People with diabetes who have triglyceride levels ≥1,000 mg/dL (≥11.3 mmol/l) are at risk of pancreatitis and other manifestations of the hyperchylomicronemic syndrome. These individuals need special, immediate attention to lower triglyceride levels to <400 mg/dL (<4.50 mmol/l). Further reduction to Adult Treatment Panel II goals of <200 mg/dL (<2.30 mmol/l) may be beneficial. (ADA[2])

Triglyceride levels are classified as normal (<200 mg/dL), borderline-high (200 – 400 mg/dL), high (400 – 1,000 mg/dL), and very high (>1,000 mg/dL). (NCEP[1])

Changes in life habits are the principal therapy for dyslipidemias in which elevated triglycerides are a component. (NCEP[1])

Lipid-lowering drug therapy in patients with primary borderline-high triglyceride levels (200 – 400 mg/dL) may be considered under the following circumstances: (a) established CHD; (b) family history of premature CHD; (c) concomitant high blood cholesterol (greater than 240 mg/dL) and low HDL-cholesterol levels; and (d) genetic forms of hypertriglyceridemia associated with increased risk for CHD (e.g., familial dysbetalipoproteinemia and familial combined hyperlipidemia). The presence of multiple other risk factors is another possible indication. The aims of lipid-lowering drug therapy are threefold: (a) to reduce LDL-cholesterol levels; (b) to raise HDL-cholesterol levels; and (c) to reduce levels of potentially atherogenic VLDL particles and their remnants. (NCEP[1])

Treatment routines for high serum triglycerides (400 – 1,000 mg/dL) generally are those outlined for borderline-high triglycerides, although emphasis should be given to controlling secondary causes. Some authorities believe that patients with high serum triglycerides should be treated with triglyceride-lowering drugs because of the potential risk of developing very high triglyceride levels and acute pancreatitis. Certainly this approach should be adopted if a patient with high triglyceride levels has a history of acute pancreatitis. (NCEP[1])

Patients with triglyceride levels in excess of 1,000 mg/dL are at increased risk of pancreatitis and other consequences of the chylomicronemia syndrome. The latter is most likely when triglycerides exceed 2,000 mg/dL. Very high triglycerides usually result from the coexistence of a genetic form of hypertriglyceridemia with another cause of elevated triglycerides (diabetes mellitus, alcohol, drugs, or obesity). Because of the risk of pancreatitis and other consequences of the chylomicronemia syndrome, vigorous attempts should be made to lower plasma triglyceride levels in such individuals. For most patients with very high triglyceride levels, therapy can be considered successful if it reduces serum triglycerides to below 500 mg/dL. Rarely is it possible to normalize triglycerides in these patients. (NCEP[1])

Clinical Recommendations: The AACE/ACE recommend a fasting lipid profile be obtained during an initial assessment, each follow-up assessment, and annually as part of the cardiac-cerebrovascular-peripheral vascular module.

The ADA recommends a fasting lipid profile be obtained as part of an initial assessment. Adult patients with diabetes should be tested annually for lipid disorders with fasting serum cholesterol, triglycerides, HDL cholesterol, and calculated LDL cholesterol measurements. If values fall in lower-risk levels, assessments may be repeated every two years.

Core, Standardized Data Elements for Performance Measurement: Most recent test dates and results for total cholesterol, LDL, HDL, and triglycerides per patient, per measurement year.

Lipid Management: Performance Measures for Different Purposes That Can Be Constructed from the Core Data Elements

Core, Standardized Data Elements for Performance Measurement:
Most recent test dates and results for total cholesterol, LDL, HDL, and triglycerides per patient, per measurement year.

Data Element	Data Source	Data Element Values	**Purpose of Measure: External Accountability**			**Purpose of Measure: Internal Quality Assessment and Improvement**		
			Aggregation of Values	Reported Measure	Rationale	Aggregation of Values	Reported Measure	Rationale
Frequency of Lipid Testing			For LDL-Cholesterol, the # test dates > 0 # test dates = 0 for each patient	Percent of patients with at least 1 LDL Cholesterol test (# test dates is >0) [1]	In the absence of information about test values or history of lipid control at least 1 test should be performed annually on all patients with diabetes	For lipid profile, the # profile dates > 0 # profile dates = 0 OR For ALL component tests, the # test dates > 0 # test dates = 0 All test dates by patient	Percent of patients with at least 1 lipid profile (or ALL component tests) during the measurement year Frequency distribution of # of profiles done (0,1,2, 3 or more, based on # profile dates) # lipid profiles obtained per patient per year (# profile dates by patient)	Allows tracking of a patient's monitoring status against treatment goals Shifts in the distribution provide a better measure of improvement over time Supports follow-up efforts with individual patients
Test Dates for: Total Cholesterol, HDL Cholesterol, LDL Cholesterol, Triglycerides	Medical Record or Administrative Data	All dates that each lipid profile* or individual component test was performed during the measurement year *A lipid profile must include all of the tests listed in column 1						
Control of Lipid Levels			Most recent LDL-Cholesterol result is: <130 mg/dL =>130 mg/dL	Percent of patients whose most recent LDL-C level was <130 mg/dL[1]	Regardless of the patient's disease severity or co-morbid status, a value greater than 130 mg/dL represents poor control.	Total Cholesterol: =>240 mg/dL 200-239 mg/dL <200 mg/dL HDL Cholesterol: <35 mg/dL 35-45 mg/dL >45 mg/dL LDL Cholesterol: =>130 mg/dL 100-129 mg/dL <100 mg/dL Triglycerides level: =>400 mg/dL 200-399 mg/dL <200 mg/dL All test values by patient (unaggregated)	Distribution of test results: Total Cholesterol =>240 mg/dL 200-239 mg/dL <200 mg/dL HDL Cholesterol <35 mg/dL 35-45 mg/dL >45 mg/dL LDL Cholesterol =>130 mg/dL 100-129 mg/dL <100 mg/dL [2] Triglycerides =>400 mg/dL 200-399 mg/dL <200 mg/dL Distribution of levels for each test by patient	Allows the tracking of a patient's levels against treatment goals Shifts in the distribution of lipid levels provide a better measure of improvement over time Supports follow-up efforts with individual patients
Lipid levels: Total Cholesterol, HDL Cholesterol, LDL Cholesterol, Triglycerides	Medical Record or Administrative Data	Actual test result values for each test performed in the measurement year						

[1] **Identical to DQIP accountability measure**. [2] **Similar to DQIP quality improvement measure**.

Urine Protein Testing

Importance for Patient Care: Diabetes is the leading cause of end-stage renal disease (ESRD). (USRDS[1]) In the United States, diabetic nephropathy accounts for about one-third of all cases of ESRD. The earliest clinical evidence of nephropathy is the appearance of low, but abnormal levels of albumin (protein) in the urine, referred to as microalbuminuria. Early detection and treatment may prevent or slow the progression of diabetic nephropathy. (ADA[3])

Clinical Recommendations: The AACE/ACE recommends that the initial assessment should include a urinalysis, test for microalbuminuria and creatinine clearance. The renal complication module should be performed annually and includes a test for microalbuminuria and creatinine clearance.

The ADA recommends a routine urinalysis be performed at diagnosis in patients with type 2 diabetes. If the urinalysis is positive for protein, a quantitative measure is frequently helpful in the development of a treatment plan. If the urinalysis is negative for protein, a test for the presence of microalbumin is necessary. Microalbuminuria rarely occurs with short duration of Type 1 diabetes or before puberty; therefore, screening in individuals with type 1 diabetes should begin with puberty and after 5 years' disease duration. However, some evidence suggests that the prepubertal duration of diabetes may be important in the development of microvascular complications; therefore, clinical judgment should be exercised when individualizing these recommendations. Because of the difficulty in precise dating of the onset of type 2 diabetes, such screening should begin at the time of diagnosis. After the initial screening and in the absence of previously demonstrated microalbuminuria, a test for the presence of microalbumin should be performed annually.

Core, Standardized Data Elements for Performance Measurement: The date of the most recent test for microalbuminuria or the date of a urine dipstick completed that was positive for protein per patient, per measurement year; diagnoses or procedures that represent evidence of nephropathy; and whether or not patient is taking insulin. Exclusions include patients with ESRD and patients known to have overt proteinuria.

Urine Protein Testing: Performance Measures for Different Purposes That Can Be Constructed from the Core Data Elements

Core, Standardized Data Elements for Performance Measurement:
Date of the most recent test for microalbuminuria or date of a urine dipstick that was positive for protein per patient, per measurement year; presence of diagnoses or procedures that represent evidence of nephropathy; and whether or not patient is taking insulin. Exclusions include patients with ESRD and patients known to have overt proteinuria.

Data Element	Data Source	Data Element Values	**Purpose of Measure: External Accountability**			**Purpose of Measure: Internal Quality Assessment and Improvement**		
			Aggregation of Values	Reported Measure	Rationale	Aggregation of Values	Reported Measure	Rationale
Microalbumin Test Dates Microalbumin Results	Medical Record or Administrative Data	Dates test was performed in measurement year and the prior year Presence or absence of albumin for each test date	For microalbumin test in the *measurement year*: # test dates >0 # test dates =0 OR in the *prior year*: # test dates >0 # test dates =0 AND whether or not the patient meets each of three criteria for low risk[3]	The percent of patients with at least one test for microalbumin during the measurement year or, if two of the three criteria for low risk[3] are met, during the prior year; or who had evidence of medical attention for existing nephropathy [1]	In the absence of information about test values, risk status, or history of nephropathy, at least 1 test should be performed annually on all patients with diabetes	For microalbumin test in the measurement year: # test dates >0 # test dates =0	Percent of patients who had any test for micro-albuminuria in the measurement year	Allows the tracking of a patient's monitoring status against treatment goals
Urinalysis[2] Test Dates		Dates for all urinalysis tests during the measurement year				For urinalysis test in the measurement year: # test dates >0 # test dates =0	Percent of patients with no urinalysis (count=0) OR	
Urinalysis[2] Results		Amount of protein found (Negative, Trace, Positive) for all test components	Urinalysis results where protein was Positive is >0 =0			Urinalysis results where protein was Negative or Trace is >0, =0 Number of test dates per patient for microalbumin and urinalysis tests performed during the measurement year	with negative or trace urine protein, who had >0 tests for microalbumin Number of urine assessments and Yes (# test dates>0) OR No (# test dates=0) whether micro-albumin test was performed, by patient	Supports follow-up efforts with individual patients
Evidence of Nephropathy		An allowable diagnosis code or description or an eligible treatment code or description	# of allowable diagnoses or treatments that serve as evidence of nephropathy is >0, =0					
On Insulin		Yes/No						

[1] **Identical to DQIP accountability measure**. [2]Urinalysis test must include glucose, ketones, protein and sediment; result is for protein [3]Not taking insulin; HbA1c <8%; no evidence of albumin in prior year

Eye Examination

Importance for Patient Care: Retinopathy poses a serious threat to vision. The prevalence of retinopathy is strongly related to the duration of diabetes. Treatment modalities exist that can prevent or delay diabetic retinopathy. (ADA[4])

Clinical Recommendations: The AACE/ACE, American Academy of Ophthalmology (AAO[1]), and ADA recommend a dilated eye examination be performed on patients with diabetes during an initial assessment and at least annually thereafter.

The AACE/ACE recommend that the annual eye examination be performed as part of a retinal module. The module includes test of visual acuity (Snellen chart); funduscopic examination and intraocular pressure (IOP) test.

The AACE/ACE recommend that diabetic patients should be under the care of an ophthalmologist experienced in the management of diabetic retinopathy. AACE/ACE further believes that a dilated eye exam should only be done by an MD/DO.

The ADA recommendation includes an annual comprehensive dilated eye and visual examination by an ophthalmologist or optometrist who is knowledgeable and experienced in the management of diabetic retinopathy for: all patients aged 10 years and older who have had diabetes for three to five years; all patients diagnosed after age 30; and any patient with visual symptoms and/or abnormalities. However, some evidence suggests that the prepubertal duration of diabetes may be important in the development of microvascular complications; therefore, clinical judgment should be exercised when individualizing these recommendations.

In addition, poorly controlled patients or those undergoing the initiation and stabilization of treatment may need to be seen by a physician on a quarterly basis. In such cases, the quarterly visit should include a funduscopy and appropriate referral if retinopathy is detected.

The AAO recommends that diabetic patients should be under the care of an ophthalmologist experienced in the management of diabetic retinopathy. Ophthalmologists with specialized knowledge and experience in managing the disease are best able to detect and treat serious disease.

Core, Standardized Data Elements for Performance Measurement: The dates and types of eye exams per patient, per measurement year. Specialty of clinician performing each eye exam.

Eye Examination: Performance Measures for Different Purposes That Can Be Constructed from the Core Data Elements

Core, Standardized Data Elements for Performance Measurement:
Dates and types of eye exams per patient, per measurement year. Specialty of clinician performing each eye exam.

Data Element	Data Source	Data Element Values	**Purpose of Measure: External Accountability**			**Purpose of Measure: Internal Quality Assessment and Improvement**		
			Aggregation of Values	Reported Measure	Rationale	Aggregation of Values	Reported Measure	Rationale
Eye Exam Dates	Medical Record or Administrative Data	Dates of all eye exams in measurement year and the prior year by type	For dilated eye exams or evaluation of retinal photographs where clinician specialty = ophthalmology or optometry, # exam dates >0, # exam dates =0 for each patient	Percent of enrolled members who received a dilated eye exam or evaluation of retinal photographs by an optometrist or ophthalmologist during the reporting year, or during the prior year, if patient is at low risk* of retinopathy [1]	In the absence of information about prior exam results or history of retinopathy, an eye exam should be performed annually on all patients with diabetes	For all eye exam types, the # exam dates >0 # exam dates =0 For each eye exam type, the # exam dates >0 # exam dates =0	Percentage of patients receiving a dilated eye exam during measurement year Percentage of patients receiving other eye exam (funduscopic photo with interpretation or other) by type of exam	Allows the tracking of a patient's screening status against treatment goals
Eye Exam Results		Presence or absence of retinopathy for each exam	# of exams in prior year where retinopathy was present: >0 =0					
Eye Exam Types		Type of exam performed	Number of eligible exams based on procedure code is: >0 =0	*Low risk is defined as two of the following criteria are met: the patient is not taking insulin; has a HbA1c <8%; or has no evidence of retinopathy in the prior year.		Number of eye exam dates by type, by patient	Eye exam type(s) during the measurement year by patient	Supports follow-up efforts with individual patients
Specialty of clinician performing each Eye Exam		Ophthalmology, Optometry or Other	Eligible exam done by Ophthalmologist or optometrist is: >0 =0					

[1] **Identical to DQIP accountability measure.**

Foot Examination

Importance for Patient Care: Persons with diabetes are at increased risk for foot ulcers and amputations. Annual, thorough foot examinations and management of risk factors can prevent or delay adverse outcomes. (ADA[5])

Clinical Recommendations: Both the AACE/ACE and ADA recommend a foot examination (visual inspection, sensory exam, and pulse exam) be performed during an initial assessment. The AACE/ACE recommends a foot examination be a part of every follow-up assessment visit, which should occur quarterly. The ADA recommends that all individuals with diabetes should receive an annual foot examination to identify high-risk foot conditions. This examination should include assessment of protective sensation, foot structure and biomechanics, vascular status, and skin integrity. The ADA recommends that people with one or more high-risk foot conditions should be evaluated more frequently for the development of additional risk factors. People with neuropathy should have a visual inspection of their feet at every contact with a health care professional.

Core, Standardized Data Elements for Performance Measurement: Dates of all foot exams per patient, per measurement year.

Foot Examination: Performance Measures for Different Purposes That Can Be Constructed from the Core Data Elements

Core, Standardized Data Elements for Performance Measurement:
Dates of all foot exams per patient, per measurement year.

Data Element	Data Source	Data Element Values	**Purpose of Measure: External Accountability**			**Purpose of Measure: Internal Quality Assessment and Improvement**		
			Aggregation of Values	Reported Measure	Rationale	Aggregation of Values	Reported Measure	Rationale
Foot Exam Dates	Medical Record or Patient Survey	Dates of all foot exams performed during the measurement year	For qualifying foot exams: # exam dates >0 # exam dates =0 for each patient during the measurement year	Percent of eligible patients receiving at least one foot exam in the measurement year (# exam dates >0) [1]	In the absence of information about self exams, prior professional exam results or history of circulatory status, at least 1 exam should be performed annually on all patients with diabetes	For qualifying foot exams:* # exam dates >0 # exam dates =0 Count of # of foot exam* dates by patient * includes visual inspection, sensory exam and pulse exam	Percent of eligible patients receiving at least one foot exam in the measurement year [2] Number of foot exams by patient in the measurement year	Allows the tracking of a patient's monitoring status against treatment goals Supports follow-up efforts with individual patients

[1] **Identical to DQIP accountability measure**. [2] **Identical to DQIP quality improvement measure**.

Influenza Immunization

Importance for Patient Care: Patients with diabetes are considered to be at increased risk for complications of influenza. (ADA[6])

Clinical Recommendations: Recommendations of the Advisory Committee on Immunization Practices (ACIP[1]) state that immunization for influenza is strongly recommended for any person 6 months of age or older who, because of age or underlying medical condition, is at increased risk for complications of influenza.

The ADA recommends an influenza vaccine for patients with diabetes, aged $\geq$6 months, beginning each September.

Core, Standardized Data Elements for Performance Measurement: Dates of influenza immunization per patient, per measurement year. Exclusions include patients allergic to eggs.

Influenza Immunization: Performance Measures for Different Purposes That Can Be Constructed from the Core Data Elements

Core, Standardized Data Elements for Performance Measurement:
Date of influenza immunization or refusal per patient, per measurement year. Exclusions include patients allergic to eggs.

Data Element	Data Source	Data Element Values	**Purpose of Measure: External Accountability**			**Purpose of Measure: Internal Quality Assessment and Improvement**		
			Aggregation of Values	Reported Measure	Rationale	Aggregation of Values	Reported Measure	Rationale
Immunization Status	Medical Record or Patient Survey	Immunized, Refused immunization or Unknown	Not applicable	None	Concerns over the completeness of medical record data regarding influenza immunization make this an unreliable measure for external accountability purposes	For influenza immunization given during the recommended calendar period: # immunization dates >0 # immunization dates =0	Percent of patients who received an influenza immunization during the recommended calendar period.	Allows the tracking of a patient's immunization status against treatment goals
Immunization Administration Date(s)	Medical Record or Patient Survey	Date(s) immunization given during the measurement period				For influenza immunization given during the measurement period: # immunization dates >0 # immunization dates =0	Percent of eligible patients who received an immunization or refused immunization during the measurement period	Helps to differentiate patient compliance issues
Immunization Refusal Date(s)		Date(s) immunization refused during the measurement period				For influenza immunization refused during the measurement period: # refusal dates >0 # refusal dates =0		
						Most recent immunization date and status by patient	Immunization status by patient	Supports follow-up efforts with individual patients
Allergy to Eggs		Yes/No						

Blood Pressure Management

Importance for Patient Care: Intensive control of blood pressure in patients with diabetes may reduce diabetes complications, diabetes-related deaths, strokes, heart failure, and microvascular complications. (UKPDS[2])

Treatment Goals: The primary goal of therapy for adults should be to decrease blood pressure to <130/85 mmHg. (ADA[1])

Treatment goal for patients with diabetes mellitus: Antihypertensive drug therapy should be initiated along with lifestyle modifications, especially weight loss, to reduce arterial blood pressure to below 130/85 mmHg. (JNC VI[1])

Treatment goal for patients with proteinuria: Blood pressure should be controlled to 130/85 mmHg – or lower (125/75 mmHg) in patients with proteinuria in excess of 1 gram per 24 hours – with whatever antihypertensive therapy is necessary. (JNC VI[1])

Clinical Recommendations: The AACE/ACE recommends a blood pressure determination during the initial evaluation, including orthostatic evaluation, be included in the initial and every interim physical examination.

The ADA recommends a blood pressure determination during the initial evaluation (with orthostatic measurements when indicated) and comparison to age-related norms. The routine follow-up examinations should include blood pressure measurement.

The JNCVI recommends that to detect evidence of autonomic dysfunction and orthostatic hypertension, blood pressure should be measured in the supine, sitting, and standing positions in all patients with diabetes mellitus; automated ambulatory blood pressure monitoring may be especially helpful. Antihypertensive drug therapy should be initiated along with lifestyle modifications, especially weight loss, to reduce arterial blood pressure to below 130/85 mm Hg. For patients with renal insufficiency or proteinuria, further reduction of blood pressure to 120/75 mm Hg is recommended.

Core, Standardized Data Elements for Performance Measurement: Date and result of most recent blood pressure reading per patient, per measurement year.

Blood Pressure Management: Performance Measures for Different Purposes That Can Be Constructed from the Core Data Elements

Core, Standardized Data Elements for Performance Measurement:
Date and result of most recent blood pressure reading per patient, per measurement year.

Data Element	Data Source	Data Element Values	Purpose of Measure: External Accountability			Purpose of Measure: Internal Quality Assessment and Improvement		
			Aggregation of Values	Reported Measure	Rationale	Aggregation of Values	Reported Measure	Rationale
Frequency of Blood Pressure Readings			Not applicable	None	No clear consensus on frequency of readings or relative impacts of B/P monitoring in different care settings (e.g., home) using different reporting modalities (e.g., phone, email)	# office visits in time period by patient # office visits where blood pressure measurement = Yes by patient # patients for whom the # office visits where blood pressure = Yes is equal to the # of office visits	Percent of patients who had a blood pressure reading at each visit Percent of visits that included a blood pressure reading by patient	Allows the tracking of a patient's B/P monitoring status against treatment goals Shifts in the percent of visits with a B/P reading provide a better measure of improvement over time Supports follow-up efforts with individual patients
Presence of Blood Pressure Readings	Medical Record	Yes/No for each office visit date in measurement year regarding whether B/P was measured						
Control of Blood Pressure Level			Most recent systolic blood pressure reading is: >=140 mm/Hg <140 mm/Hg by patient Most recent diastolic blood pressure reading is: >=90 mm/Hg <90 mm/Hg by patient	Percent of patients whose most recent blood pressure reading in the measurement year was in control (defined as <140/90 mm/Hg) [1]	While tighter control may be recommended for some patients, in the absence of data on patients' comorbidities and medication patterns, a maximum level of <140/90 mm/Hg is reasonable for all patients	Most recent systolic blood pressure reading: >=140 mm/Hg <140 and >=130 mm/Hg <130 and >=120 mm/Hg <120 mm/Hg Most recent diastolic blood pressure reading: >=90 mm/Hg <90 and >=85 mm/Hg <85 and >=75 mm/Hg <75 mm/Hg Actual systolic and diastolic levels for most recent blood pressure reading	Percent of patients whose most recent blood pressure reading was within each of the following ranges: <140/90 mm/Hg <130/85 mm/Hg <120/75 mm/Hg [2] Most recent systolic and diastolic blood pressure reading by patient	Allows the tracking of a patient's B/P levels against treatment goals Shifts in the distribution of B/P readings provide a better measure of improvement over time Supports follow-up efforts with individual patients
Most recent Blood Pressure Level	Medical Record	The systolic and diastolic blood pressure readings taken at the latest office visit in the measurement year at which the patient's blood pressure was measured						

[1] **Identical to DQIP accountability measure**.

[2] **Similar to DQIP quality improvement measure**.

Office Visits

Importance for Patient Care: Regular physician office visits for persons with diabetes are important to promote patient self-management, evaluate whether treatment goals are being met, and prevent or manage complications.

Clinical Recommendations: Both the AACE/ACE and ADA recommend that regular physician office visits should be scheduled for all patients with diabetes.

The AACE/ACE has a set of four complication modules to be completed each year. They recommend that interim visits occur quarterly and that one module should be completed during each visit.

The ADA states that the frequency of patient visits depends on the following: type of diabetes; blood glucose goals and the degree to which they are achieved; changes in the treatment regimen; presence of complications of diabetes or other medical conditions.

Core, Standardized Data Elements for Performance Measurement: Dates of all office visits per patient, per measurement year.

Office Visits: Performance Measures for Different Purposes That Can Be Constructed from the Core Data Elements

Core, Standardized Data Elements for Performance Measurement:
Dates of all office visits per patient, per measurement year.

Data Element	Data Source	Data Element Values	**Purpose of Measure: External Accountability**			**Purpose of Measure: Internal Quality Assessment and Improvement**		
			Aggregation of Values	Reported Measure	Rationale	Aggregation of Values	Reported Measure	Rationale
Office Visit Dates	Medical Record or Administrative Data	Dates of all office visits during the measurement year	Not applicable	None	No clear consensus on office visit frequency or relative health impacts of follow-up in different settings (e.g., home) or using different modalities (e.g., home testing and reporting via telephone or email).	Number of patients where number of office visit dates: >=2 <2 Count of number of office visit dates by patient	Percent of patients who had two or more office visits during the measurement year Number of visits by patient during the measurement year	Allows tracking of opportunities for monitoring and/or follow-up Supports follow-up with individual patients

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Appendix I
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Appendix II

April 19, 1999

Performance Measurement Coordinating Council
Desirable Attributes of Performance Measures

A Consensus Document from

The American Medical Association,
The Joint Commission on Accreditation of Healthcare Organizations, and
The National Committee for Quality Assurance

The American Medical Association (AMA), the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), and the National Committee for Quality Assurance (NCQA) are committed to coordinating performance measurement activities across the entire health care system. Toward that end, we have adopted the following list of desirable attributes of performance measures. The list represents a consolidation of attributes originally developed separately by each organization and input from members of the Performance Measurement Coordinating Council (PMCC).

Performance measurement is the quantitative assessment of health care processes and outcomes for which an individual physician or other practitioner, health care organization, or health care system may be accountable. A performance measure, or indicator, is a quantitative expression that describes whether, or how often, a process of care or outcome of care occurs. Attributes of performance measures are characteristics that define appropriate and useful measures. By uniformly adopting these attributes, AMA, JCAHO, and NCQA are promoting consistency in performance measurement and setting the stage for further collaboration.

It is important to recognize that selecting appropriate measures is somewhat dependent on the purpose of the performance measurement activity. Therefore, the definitions attached distinguish when an attribute is more critical for one purpose of measurement than another.

For example, the NCQA Health Plan Employer Data and Information Set (HEDIS®) is a set of standardized performance measures designed to enable purchasers and consumers to reliably compare the performance of managed health care plans. Because the measures are designed to distinguish between health plans, and because the processes and outcomes of care can be affected by confounding factors over which plans may have very little control, attributes relating to risk adjustment or risk stratification are especially important.

Conversely, AMA measurement sets are designed for professional accountability and quality improvement. Physicians will receive cross-sectional comparative analyses and longitudinal analyses to help them improve their practices and their patients' outcomes. The focus on professional accountability and quality improvement enables these data to be useful without full risk adjustment for differences among patients and other factors beyond physicians' control. Because of the inability to fully risk adjust and limitations from the relatively small numbers of patients with a particular condition seen by an individual physician, these data are not usually appropriate for others to use to evaluate physicians.

The Joint Commission, through the ORYX initiative, is incorporating sets of standardized measures into its accreditation process to generate both cross-sectional comparisons and longitudinal analysis. Cross sectional comparisons are utilized for external and internal accountability, and for establishing benchmarks of excellence, while longitudinal analyses monitor and support ongoing quality improvement efforts within the individual health care organizations. Consequently, all the attributes will be stringently applied to measures intended for use by the Joint Commission.

The three organizations will apply these attributes to identify appropriate performance measures which, when combined with good data, will provide valuable information to drive improvement in health care services and to better inform consumer decision-making.

Performance Measurement Coordinating Council
Desirable Attributes of Performance Measures

Attribute	Definition
1. Importance of Topic Area Addressed by the Measure	
1A. High priority for maximizing the health of persons or populations	The measure addresses a process or outcome that is strategically important in maximizing the health of persons or populations. It addresses an important medical condition as defined by high prevalence, incidence, mortality, morbidity, or disability.
1B. Financially Important	The measure addresses a clinical condition or area of health care that requires high expenditures on in-patient or outpatient care. A condition may be financially important if it either has high per-person costs or if it affects a large number of people.
1C. Demonstrated Variation in Care and/or Potential for Improvement	The measure addresses an aspect of health care for which there is a reasonable expectation of wide variation in care and/or potential for improvement. If the purpose of the measure is internal quality improvement and professional accountability, then wide variation in care across physicians or hospitals is not necessary.
2. Usefulness in Improving Patient Outcomes	
2A. Based on Established Clinical Recommendations	For process measures, there is good evidence that the process improves health outcomes. For outcome measures, there is good evidence that there are processes or actions that providers can take to improve the outcome.
2B. Potentially Actionable by User	The measure addresses an area of health care that potentially is under the control of the physician, health care organization or health care system that it assesses.
2C. Meaningful and Interpretable to User	The results of the measure are reportable in a manner interpretable and meaningful to the intended user. For example, physicians must be able to use the information generated by the measure to improve patient care. Health care organizations must find the information useful for decision-making purposes. When measures are used to compare health care systems, users should be able to understand the clinical and economic significance of differences in how well systems perform on the measure.

Attribute	Definition
3. Measure Design	
3A. Well-Defined Specifications	The following aspects of the measure are to be well defined: numerator, denominator, sampling methodology, data sources, allowable values, methods of measurement, and method of reporting.
3B. Documented Reliability	The measure will produce the same results when repeated in the same population and setting (low random error). Tests of reliability include (a) test-retest (reproducibility): test-retest reliability is evaluated by repeating administration of the measure in a short time frame and calculating agreement among the repetitions; (b) inter-rater: agreement between raters is measured and reported using the kappa statistic; (c) data accuracy: data are audited for accuracy; and (d) internal consistency for multi-item measures: analyses are performed to ensure that items are internally consistent.
3C. Documented Validity	The measure has face validity—it should appear to a knowledgeable observer to measure what is intended. The measure also should correlate well with other measures or the same aspects of care (construct validity) and capture meaningful aspects of this care (content validity).
3D. Allowance for Risk	The degree to which data collected on the measure is risk adjusted or risk stratified depends on the purpose of the measure. If the purpose of the measure is for internal continuous quality improvement and professional accountability, then requirements for risk adjustment or risk stratification are not stringent. If the purpose of the measure is comparison and accountability, then either the measure should not be appreciably affected by any variables that are beyond the user's control (covariates), or to the extent possible, any extraneous factors should be known and measurable. If case-mix and/or risk adjustment is required, there should be well-described methods for either controlling through risk stratification or for using validated models for calculating an adjusted result that corrects for the effects of covariates. (In some cases, risk stratification may be preferable to risk adjustment because it will identify quality issues of importance to different subgroups.)

Attribute	Definition
3E. Proven Feasibility	The data required for the measure can be obtained by physicians, health care organizations or health care systems with reasonable effort and within the period allowed for data collection. The cost of data collection and reporting is justified by the potential improvements in care and outcomes that result from the act of measurement. The measure should not be susceptible to cultural or other barriers that might make data collection infeasible
3F. Confidentiality	The collection of data for the measures should not violate any accepted standards of confidentiality.
3G. Public Availability	The measure specifications are publicly available.

Appendix III

Diabetes Expert Panel
Jointly Convened by the AMA, JCAHO, and NCQA

Chair:

George J. Isham, MD
Medical Director, Chief Health Officer
HealthPartners

Panel Members:

Rhoda Cobin, MD, FACE
Associate Clinical Professor of Medicine
The Mount Sinai School of Medicine
Vice President of AACE

Terry W. Crowson, MD
HealthPartners

Barbara Fleming, MD, PhD
Clinical Advisor
Office of Clinical Standards and Quality
Health Care Financing Administration

Theodore Ganiats, MD
Professor of Medicine
UCSD School of Medicine

Sheldon Greenfield, MD
New England Medical Center

William Haley, MD
Renal Physicians Association
The Mayo Clinic, Division of Nephrology

Richard Hellman, MD, FACP, FACE
North Kansas City, MO

Richard Kahn, PhD
Chief Scientist and Medical Officer
American Diabetes Association

Flora C. Lum, MD
Director, Quality and Clinical Care Department
American Academy of Ophthalmology

Mark Molitch, MD
Professor of Endocrinology
Northwestern University

Robert Rizza, MD
Chair, Division of Endocrinology, Metabolism and Nutrition
Mayo Clinic

James Rosenzweig, MD
Member, Clinical Initiatives Committee
Joslin Diabetes Center, Department of Internal Medicine

Additional Attendees:

David M. Eddy, MD, PhD
Senior Advisor
Kaiser Permanente Southern California

Becky Kresowik
Vice President
Iowa Foundation for Medical Care

Tim Kresowik, MD
Principal Clinical Coordinator
Iowa Foundation for Medical Care

R. Heather Palmer, MB, BCh, SM
Professor of Health Policy and Management
Harvard School of Public Health

Staff:

Carolyn Cocotas
Executive Director, PMCC

Karen Kmetik, PhD
Program Director
Clinical Performance Evaluation
American Medical Association

Richard Koss
Associate Director
Department of Research and Evaluation
Joint Commission on Accreditation of Healthcare Organizations

Sharon Sprenger
Associate Director
Department of Research and Evaluation
Joint Commission on Accreditation of Healthcare Organizations

Dorothy Tucker
Senior Health Care Analyst
Research and Measure Development
National Committee for Quality Assurance

Appendix IV

Diabetes Quality Improvement Project (DQIP) Measurement Set 1.0

Source: Medical record and/or electronic information systems

Accountability Set

Hemoglobin A1c tested (annually)
Poor hemoglobin A1c control (HbA1c>9.5%)
Eye exam performed (high risk annually, low risk biennially)
Lipid profile performed (annually)
Lipids controlled (LDL<130 mg/dL)
Monitoring for diabetic nephropathy (high risk annually, low risk biennially)
Blood pressure controlled (<140/90)

Quality Improvement Set

Foot exam performed (annually)
Distribution of values for hemoglobin A1c (<7.0%, 7.0-7.9%, 8.0-8.9%, 9.0-9.9%, => 10.0% or undocumented)
Distribution of values for low density lipoprotein (LDL) cholesterol (<100, 100-129, 130-159, =>160 mg/dL or undocumented)
Distribution of values for blood pressure (<140, 141-159, 160-179, 180-209, =>210 mm Hg systolic; <90, 90-99, 100-109, 110-119, =>120 mm Hg diastolic, or no value documented)

Source: DQIP Survey

Accountability Set

Provision of foot exam (annually)
Smoking cessation counseling (annually)

Quality Improvement Set

Diabetes self-management and nutrition education
Interpersonal care