



**Department of Health & Human Services**  
Office of the National Coordinator for  
Health Information Technology

**The AHIC Quality Workgroup Vision Roadmap:**  
**A Path to Improved Quality Measurement and Reporting**  
**Through Increased Automation**

**November 12, 2008**

## **Introduction**

Health care costs continue to rise more rapidly than the rate of quality improvement, adding considerable urgency to efforts to improve the return on investment for health care. A consensus has been reached that payments should reward high-quality, high-value care rather than volume of care, and that belief has become a foundation of reform proposals. Transparency about health care quality and costs provides consumers with the necessary information and the incentives to choose health care providers and services based on value. Similarly, this information helps providers focus their efforts to improve quality. An essential requirement underlying this approach is the measurement of quality in an efficient and consistent manner while minimizing reporting burden. Health information technology (health IT) can support both ease of measurement and improvements in the quality of care. The work of the Quality Workgroup, in particular the Vision Roadmap, illustrates a path forward for quality measurement and health IT in meeting the goal of re-aligning health care around value.

## **The Quality Workgroup**

The American Health Information Community (AHIC) formed the Quality Workgroup (QWG) in 2006 and charged the workgroup with facilitating the use of interoperable health IT to improve quality measurement, reporting and improvement. In this context, “interoperable” refers to IT systems that are able to exchange and use information.

In January 2007, the Quality Workgroup presented to the AHIC a vision of an ideal future state for quality measurement and reporting. This vision promotes the goal of consistent delivery of high quality care across settings and over time. Based on testimony and research, the Quality Workgroup then developed a roadmap that suggests a path forward for achieving the future state of the vision by 2014 through increased automation of quality measurement and reporting through the use of interoperable health IT.

## **Summary of the Vision of the Quality Workgroup**

The AHIC Quality Workgroup envisions a future in which transparent reporting of quality performance results in better patient care. Transparent reporting means that the public is given access to quality data about clinicians and hospitals. Achieving this vision will require changes to how data about clinical care is captured to evaluate provider performance. It will radically shift the way health care information is shared among clinicians and providers, and in particular, how it is used by consumers.

Today, providers struggle with assembling a comprehensive view of a patient’s health care experience due to the way information is collected and stored. Often, information about a patient’s care exists on paper in particular health care settings (e.g., a hospital or provider’s office) yet is not shared outside of that setting. Clinicians have limited access to information that would help them effectively transition patients across settings and coordinate with other care providers when patients have multiple chronic conditions. Also, the average consumer needs better information to make more educated choices about which providers to see and which

treatments to undergo. Consumers desire information about the cost, quality and efficiency of care.

The Quality Workgroup expects that quality measurement and improvement activities will evolve from focusing on the health care setting to focusing more on the patient, regardless of the health care setting at which they seek care. This evolution will require new efforts to collect and combine data and analyze trends over time and across care settings, also known as “data aggregation.” The increased availability of aggregated, patient-centric yet secure data will enable assessment of quality over time to guide improvement for both individual patients and groups of patients. Providers are currently frustrated by the burden placed on them to manually collect data to support quality measurement. In the future, the burden placed on providers to meet reporting requirements will be reduced by ensuring that the data needed to assess care is automatically collected while administering care and that information systems allow for seamless transfer of information. Consumers will be empowered to take a more active role in their health care. Providing more information will afford consumers the opportunity to be informed when choosing clinicians or hospitals and when selecting treatments.

The following key themes emerged from the vision and are reflected in the vision roadmap:

- **Patient-centric quality measurement:** The patient’s needs should be at the center of any quality improvement efforts. Patient-centric quality measurement requires collecting and connecting data over time and across care settings to build a more complete view of the patient’s care than is currently possible.
- **Payment changes and reforms that accelerate the pace of quality improvement:** It is often said that “you get what you pay for.” Better-coordinated, higher-quality health care will require changes in how clinicians and hospitals are paid. Payment changes and reforms would also create incentives for the development of the health IT infrastructure needed for the secure exchange of health information across care settings.
- **Importance of data exchange and aggregation:** Patient-centric care requires the secure exchange of data between providers and across care settings. In order to measure the health of groups of patients over time, this data must be combined and analyzed, or aggregated.
- **Alignment with national priorities for quality of care:** Quality measurement and improvement will be most effective when it is aligned with emerging national priorities for improving the quality of care. Progress toward alignment of measurement systems with the priorities should be regularly assessed.
- **Proactive consideration of health IT in supporting quality measurement:** The role of health IT in supporting quality measurement should be proactively considered as quality measures are developed and implemented. Currently, quality measures are often developed in silos within care settings without consideration of the capabilities of information technology, resulting in delays and extra costs later on. A more proactive approach to aligning quality measurement and health information technology will increase efficiency, lower net costs, and facilitate better quality measures. For example, because quality

measures are generally based on evidence-based guidelines, coordination among quality measure developers and clinical guideline authors is essential.

- **Support for use of data from multiple sources:** Collecting data from multiple existing sources (e.g., paper-based and electronic, administrative and clinical) is currently necessary, because not all data needed for quality measurement exists in any single source. For example, determining whether care was delivered at a fair cost will always require some financial or economic data integrated with clinical data. Electronic clinical data from electronic health records (EHRs) and other sources would be integrated as it becomes available.
- **Adoption of EHRs and other applications:** Adoption of EHRs and other health IT applications will facilitate data sharing, automation of population health analysis, and clinical decision support. Consumers and clinicians will realize more value from health information when critical information is widely portable, more easily aggregated at a patient level, and available at the point of care.
- **Support for evidence-based care and quality improvement through effective use of Clinical Decision Support (CDS):** CDS interventions support clinicians and patients in making decisions at key decision points in care delivery. Priorities for development of CDS tools should be shaped by national priorities for health care quality improvement. If quality measure development, CDS development, payment policy and evaluation efforts across various stakeholders can be better aligned, system level changes to achieve a high performance health care system will be more likely to succeed.

## Overview of the Quality Workgroup Vision Roadmap

The vision roadmap provides guidance for current and future quality improvement efforts of groups such as the AHIC, its successor, and various quality alliances. The vision roadmap builds upon the key themes from the vision and outlines key changes in ten areas, or components, that must occur over the next few years to realize the vision. These components are grouped into two categories: those that address policy issues and those that address infrastructure issues. Please see Figure 1 for the detailed vision roadmap diagram.

The policy components of the vision roadmap include:

- Incentives
- Legal Framework for Data Sharing
- Data Stewardship
- Data Exchange and Aggregation

The infrastructure components of the vision roadmap include:

- Clinical Decision Support (CDS)
- Measure Set Evolution
- Data Element Standardization
- Quality Data Set (QDS)
- Coding Improvements
- Patient and Provider Entity Record Matching

The Quality Workgroup considers three of these components to be particularly important for accelerating the pace of progress toward automated and patient-centric quality measurement and improvement: Incentives, Legal Framework for Data Sharing, and Measure Set Evolution. In its recommendations letter to the Secretary of the Department of Health and Human Services (HHS), dated April 22, 2008, the Quality Workgroup chose to focus on the infrastructure components as work in these areas can continue regardless of the political environment in the coming months, whereas the needed changes and reforms for the policy components are more dependent upon political forces. Consequently, the recommendations from the Quality Workgroup addressed the topics of Measure Set Evolution, Data Element Standardization, and the Quality Data Set. Clinical Decision Support remains important to the Quality Workgroup; another AHIC workgroup, the CDS Ad Hoc Planning Group, took up this topic in a recommendations letter to the Secretary also dated April 22, 2008, with input from the Quality Workgroup.

**Figure 1: Conceptual Roadmap for Achieving the Vision of the Quality Workgroup**

Future State Components	2008	2009	2010	2011	2012	2013
<b>Policy:</b>						
Incentives*	Small but increasing evidence base from existing P4P/VBP programs		Payment principles established	Consensus reached on paying for value	Payment changes and reforms created and tested	Payment changes and reforms implemented
Legal Framework for Data Sharing*	HISPC reports released (2007)		States agree on common framework			States harmonize regulations and statutes addressing privacy and security for data sharing
Data Stewardship	Broad agreement on need	Policies & procedures developed	Sample HIE agreements developed	Stewards identified	Stewards certified & compliance w/ rules established	
Data Exchange and Aggregation	Limited aggregation (primarily claims data)	Increased aggregation for P4P (increased use of clinical data)	Scalable data model exists	Established longitudinal aggregation (multi-source patient-centric data used including clinical and claims data)		
<b>Infrastructure:</b>						
Clinical Decision Support	CDS use is not standardized	Pilot studies of standardized CDS implemented	Best practices for patient-centric CDS established	Best practices for patient-centric CDS incorporated into certification criteria	EHRs w/CDS and other CDS tools certified	
Measure Set Evolution*	Setting-specific metrics used; NQF exploring episodic measures		Consensus-based patient-centric quality metrics identified and field tested		Single set of patient-centric quality metrics used	
Data Element Standardization	NQF HITEP identifies data element types	Standards identified for elements needed for quality measurement on an ongoing basis			Standards for quality measurement incorporated into EHR certification process	
Quality Data Set	Preliminary efforts by CMS (CARE tool) and NQF (HITEP)	Minimum QDS established for core measures	QDS expanded for additional measures (e.g., structural, outcome)	QDS includes data elements for longitudinal, patient-centric measures		
Coding Improvements	Classification systems (e.g., ICD-9) that facilitate billing are used for quality		Ongoing efforts to improve coding of diagnoses and clinical care, mapping across coding systems, and guidance		CMS regulates conversion to ICD-10	
Patient & Provider Record Matching	Multiple methods used; demos and pilots in place		Technical principles and best practices established	Accountability for matching methods established		

\* Potential Accelerant

## Vision Roadmap Policy Components

This set of components of the vision roadmap is comprised of several policy issues that will need to be addressed to achieve the future state of the Quality Workgroup's vision for automated quality measurement and reporting. The current, interim, and end states of each component are described, and the key players are identified.

### Incentives

Current payment practices and business models do not promote investment in patient-centric quality improvement over time and across care settings. Payment changes and reforms would create incentives for organizations to support both national goals and regional priorities for quality improvement. Incentives would also encourage investment in the infrastructure needed to support longitudinal and patient-centric quality measurement. The Quality Workgroup views the Incentives component as a potential accelerant towards achieving the vision by 2014.

**Current State:** Incentives for quality measurement and improvement are provided primarily through bonuses defined in pay-for-performance (P4P) and Value-Based Purchasing (VBP) programs initiated by payers, employers, and/or health systems in both the public and private sectors. The President's 2006 Executive Order 13335 required federal agencies to move towards P4P and the Deficit Reduction Act of 2006 mandated that HHS Centers for Medicare and Medicaid Services (CMS) create a plan for hospital VBP. As a result, CMS is currently running P4P pilots and VBP demonstrations for Medicare.

**Interim State:** Over the next five years, payment reform pilots will continue and lessons learned will be identified. Consensus will be reached on payment and purchasing principles that are based on the lessons learned from the pilots. Payment changes and reforms will be initiated to support both national goals and regional priorities for quality improvement.

**End State:** By 2014, payment changes and reforms will be implemented nationwide. The improved health IT infrastructure and changes to the policy environment required for quality measurement and improvement over time and across care settings will be in place. The health IT infrastructure will be flexible enough to allow for analysis of inherent regional and practice-level variation in health care delivery.

Key players to enable movement toward the vision include: Congress, the President of the United States, HHS (CMS), payers, and purchasers.

### Legal Framework for Data Sharing

Privacy and security concerns must be addressed by state governments and other stakeholders so that data can be shared safely across care settings. The Quality

Workgroup views progress on a legal framework for data sharing as a potential accelerant towards achieving the QWG vision by 2014.

**Current State:** The majority of states have begun to develop the infrastructure for health IT and health information exchange, including viable frameworks for addressing emerging privacy and security needs. Many states recognize the need for accountability and transparency to protect the public's interest related to health information exchange. However, a lack of harmonized laws and regulations hinders the ability to share certain types of health information across states. Health Information Organizations (HIOs), are organizations that oversee and govern the exchange of health-related information among their members. They currently rely on contract law, contractual arrangements, organizational relationships, and transparent governance to enable secure data sharing.

**Interim State:** Over the next five years, state governments will work to develop a confidentiality, privacy, and security framework. The state governments will also identify best practices to ensure confidentiality, integrity, and availability of information. The state governments will work on the framework and best practices together and in conjunction with HHS, HIOs, consumer groups, and other relevant stakeholder groups. In the meantime, HIOs will continue to rely on contract law, contractual arrangements, and organizational relationships and transparent governance to enable secure data sharing.

**End State:** By 2014, a legislative and regulatory framework will be adopted and put into effect at the federal and state levels. Harmonized statutes and regulations for electronic health information exchange will also be adopted; in particular, this will facilitate exchange of information across state lines. The state governments will work in conjunction with HHS, HIOs, consumer groups, and other relevant stakeholder groups to harmonize legal frameworks for data sharing.

Key players to enable movement toward the vision include: States, local/regional HIOs, Congress, American Health Information Management Association (AHIMA), Health Information Security and Privacy Collaboration (HISPC), HHS, researchers, and consumers.

## **Data Stewardship**

Consensus on policies and procedures for data stewardship, or the managing and storing of aggregated patient data, is needed to enable exchange of comprehensive health information.

**Current State:** Several efforts toward advancing data stewardship are underway. For example, the Data Stewardship Request for Information (RFI) by the HHS Agency for Healthcare Research and Quality (AHRQ) established high-level agreement on the need for and the role of data stewards for health information exchange and aggregation. Another example is the piloting of the Nationwide Health Information Network (NHIN), a network of networks that will connect diverse entities that wish to exchange health



information. These pilots, called “trial implementations,” will include testing of data exchange for quality measurement and will set up common agreements for data exchange among participants. These efforts represent steps on the path toward the exchange and aggregation of data for quality measurement via trusted network services. De-identification, or the removal of a set of data elements capable of identifying an individual, is considered to be a critical enabler for consumers to be satisfied that data aggregation and exchange are secure. Today, many disparate policies and procedures for record de-identification exist. Data stewardship is one way to ensure a set of common practices are followed among stakeholders while also protecting patient privacy.

**Interim State:** Over the next three years, policies and procedures will be determined and a governance model put in place to ensure compliance with these policies and procedures, enabling consistent and reliable quality measurement. Sample health information exchange agreements will be established and data stewards identified across the country. Movement toward consensus on policies and procedures for record de-identification will be established and implementation of these policies and procedures will begin.

**End State:** By 2012, a nationwide certification or accreditation process for data stewards will be established by AHRQ and maintained by an independent body. The certification or accreditation process will ensure compliance with data stewardship rules related to data exchange and aggregation. In addition, consensus on policies and procedures for record de-identification will be established and implemented, ensuring patient data is secure.

Key players to enable movement toward the vision include: HHS (AHRQ, Office of the National Coordinator for Health Information Technology [ONC], CMS and its quality improvement organizations [QIOs]), AQA/Hospital Quality Alliance (HQA), Healthcare Information Technology Standards Panel (HITSP), Certification Commission for Healthcare Information Technology (CCHIT), vendors, consumers, local/regional HIOs, integrated delivery networks, payers, and insurers.

## Data Exchange and Aggregation

The collection of patient-centered data, aggregated across providers and payers, is needed to support quality measurement over time and across care settings.

**Current State:** Exchange and aggregation are primarily driven by transactional needs (e.g., payment of services) and by local and regional pilots (e.g., Chartered Value Exchanges (CVEs), Better Quality Information to Improve Care for Medicare Beneficiaries (BQI) pilots, and the NHIN trial implementations). The State Alliance for e-Health (State Alliance), composed of governors, state legislators, attorney generals and state commissioners, has published a report describing the challenges faced by states in implementing health IT and data exchange. Data primarily consists of claims, which are already standardized and can easily be exchanged. Limited exchange and aggregation of quality data across organizations is occurring in part because interoperability standards and infrastructure for exchange of non-claims data are lacking.

**Interim State:** Over the next four years, increased data exchange and aggregation across organizations will occur. Data will come from a variety of sources, e.g., claims data, clinical data, lab data. An increase in P4P and programs will drive increased exchange and aggregation. Scalable data models will allow for aggregation of data at a national level to support payment initiatives such as P4P. Aggregated information will be available to report publicly as a result. In turn, the increased transparency of information about quality of care will enable consumers and other stakeholders to make more informed decisions about their care

**End State:** By 2013, established interoperability standards and the infrastructure needed to enable exchange will make it possible to collecting data on patients' health care experiences over time and across care settings. Data that is exchanged will be a mix of data from multiple sources, enabling a more patient-centric view. Some data will be obtained directly from EHRs and other health IT applications (e.g., lab or pharmacy data) through secure network services for exchange and aggregation.

Key players to enable movement toward the vision include: HHS (ONC), HITSP, CCHIT, HIOs, registry owners, National Quality Forum (NQF), Quality Alliance Steering Committee (QASC), consumers, and purchasers/employers.

## Vision Roadmap Infrastructure Components

This set of components of the vision roadmap is comprised of several technical barriers that will need to be overcome in order to achieve the future state of the Quality Workgroup's vision for automated quality measurement and reporting. The current, interim, and end states of each component are described, and the key players are identified.

### Clinical Decision Support

The use of Clinical Decision Support (CDS) capabilities within EHRs and related electronic clinical systems holds great potential to improve health care outcomes in the U.S. CDS provides clinicians, staff, patients and other individuals with information, intelligently filtered at appropriate times, to enhance health and health care. CDS encompasses, but is not limited to, computerized alerts and reminders to care providers and patients; methods to bring care into compliance with clinical guidelines; advice to promote more accurate and timely diagnoses; and other tools that enhance decision-making in clinical workflow.

**Current State:** CDS development is largely uncoordinated, resulting in significant variation in the efficiency and effectiveness of CDS used today. The development of CDS solutions is not aligned with national priorities for quality improvement and reporting. CDS adoption varies across care settings throughout the country, and certification of CDS functionality in EHRs is minimal.

**Interim State:** Over the next four years, CDS technologies will be represented in standard formats that facilitate information dissemination and are integrated in the care decision-making process. Demonstration projects will be implemented to study CDS development for both patients and providers and CDS deployment strategies (e.g., AHRQ CDS demonstrations). Best practices for establishing patient-centric CDS capabilities will be identified for use by providers and patients. The development of CDS solutions will move toward alignment with national priorities for quality improvement and reporting. CCHIT will incorporate best practices for patient-centric CDS interventions into its certification process, increasing the availability of certified CDS functionality for providers and patients.

**End State:** By 2013, CDS technologies will have undergone continuous improvement through feedback based on experience and will be aligned with national priorities for quality improvement and reporting. EHRs and other health IT that incorporate CDS will be standardized and interoperable. These technologies will be part of a national certification or validation process, thereby increasing the ability to improve quality at the point of care.

Key players to enable movement toward the vision include: HHS (AHRQ, Centers for Disease Control and Prevention [CDC], National Institutes of Health [NIH], Indian Health Service [IHS]), American Medical Informatics Association [AMIA], Healthcare

Information and Management Systems Society [HIMSS]/Electronic Health Record Association [EHRA], health care providers, payers, CDS Developers, the Joint Commission, National Quality Forum's Health IT Expert Panel (HITEP), HITSP, CCHIT, and Integrating the Health Enterprise (IHE).

## Measure Set Evolution

Initiatives to develop and implement measures for quality improvement need to be coordinated across multiple public and private organizations so that consumers do not receive mixed messages about the quality of a clinician or hospital. Evolution of the measure set to cover more conditions and care settings will allow better and more patient-centric assessment of quality. The Quality Workgroup views achieving a comprehensive measure set as a potential accelerant towards achieving the vision by 2014.

**Current State:** Measures vary by setting, content, definition, and coding structures. Setting-specific measures are widely implemented by the Hospital Quality Alliance (HQA) and the AQA. The National Quality Forum has established a coordinated process for reaching consensus on national priorities and goals for measure development, as well as an episodic longitudinal measurement framework for acute and chronic conditions. NQF continues to work on harmonization of measure sets within and across care settings. CMS's CARE tool, currently in a demonstration phase, tests standardized data capture for care coordination and exchange between acute and post-acute care settings. The HHS Indian Health Service addresses quality measurement through its Resource and Patient Management System.

**Interim State:** Over the next three years, data for measurement will begin to be captured using accepted standards and to be easily extracted from existing EHRs and related health IT systems. CMS will recognize some or all of the national priority areas for measures where for which it can help inform measure development in coordination with other measure developers. Consensus-based patient-centric longitudinal quality metrics (including efficiency measures) will be field-tested for select high-priority conditions based on national goals.

**End State:** By 2012, a single set of harmonized patient-centric longitudinal quality metrics for key conditions based on national goals for public reporting and payment will be in use across the nation.

Key players to enable movement toward the vision include: Measure developers, NQF, purchasers, payers, consumers, and vendors.

## Data Element Standardization

There is limited standardization of data about care delivery captured at the point of care. EHRs are generally highly customized and vendors do not use the same naming conventions (taxonomies) for common tests and therapies. As a result, it is difficult to collect data needed for quality measurement and reporting over time and across care

settings. A clear strategy is needed to support the evolution toward a standard set of data that can be shared and aggregated for quality measurement and reporting.

**Current State:** Various efforts are underway to address the need for common data elements, taxonomies, and standards for data exchange. Groups such as the NQF's HITEP, HITSP and CCHIT have been formed to ensure that standards are created, harmonized and implemented in health IT applications. Meanwhile, the Quality Workgroup has been encouraging efforts to document measurement development and EHR implementation processes in order to improve how these two processes interface going forward. Increased integration of these processes will help ensure that those data elements needed for quality measurement can be uniformly embedded in electronic health records through the CCHIT certification process.

**Interim and End States:** Over the next four years, continuous efforts will be underway to define and standardize data required to facilitate quality measurement implemented through an established process with HITSP and CCHIT for EHRs and other health IT systems.

Key players to enable movement toward the vision include: HHS (ONC), HITSP, CCHIT, National Quality Forum (including HITEP), American Medical Association (AMA)-National Committee for Quality Assurance (NCQA) Collaborative, and measure developers.

## Quality Data Set

The Quality Data Set (QDS) refers to a minimum set of data elements or types of data elements that can be used as the basis for developing harmonized and machine-computable quality measures. More specifically, the QDS will serve as the basis for prioritizing data elements for inclusion in EHRs and other health IT systems, as it relates to quality measurement. The QDS will also be used for prioritizing the development of standards for interoperability, data export, and data storage and for prioritizing related certification criteria.

**Current State:** CMS has begun a post-acute care payment reform demonstration that includes the development of an instrument (the CARE tool) to ensure that a standard set of data is captured for every patient transferring from a hospital to a post-acute setting. At the same time, NQF's HITEP has prioritized another set of key data elements needed to automate creation of quality measures that are made available to the public through HQA and AQA. In addition, the Joint Commission is working to establish a minimum data set for exchange across care settings.

**Interim State:** Over the next four years, a minimum data set for quality measurement and improvement (quality data set) will be established on the basis of current programmatic priorities and measures (e.g., HQA and AQA measures, CMS CARE tool metrics, and IHS metrics). The QDS will begin to incrementally facilitate information exchange and quality measurement and improvement across care settings and over time.

**End State:** By 2013, the QDS will expand to include elements used in longitudinal, patient-centric measures, fully facilitating information exchange and quality measurement and improvement across care settings and over time.

Key players to enable movement toward the vision include: Measure developers, HHS (CMS, IHS), NQF's HITEP, IHE, and the Joint Commission.

## Coding Improvements

Classification systems (e.g., ICD-9) designed to facilitate healthcare billing and other administrative activities are also used for reporting quality measures. Therefore, the accurate and complete coding of clinical data is critical for accurate quality measurement and reporting.

**Current State:** Continuous, ongoing efforts are underway to improve uniform coding of diagnosis, procedures, and billing codes. Coded data are especially important to evaluating quality because diagnosis and procedure codes are integral to determining inclusion and exclusion criteria for quality measures. Because coding is used for administrative purposes such as billing, clinical conditions that do not impact payment are not coded uniformly. At the same time, there are incentives to code diagnoses and procedures in a way that maximizes legal reimbursement. As a result of limited payment categories for ambulatory care, ambulatory practices have invested much less on coding training for staff. Staff across care settings, but especially at physician offices and small clinics, would benefit from more training in coding.

**Interim and End States:** Over the next four years, ongoing efforts will continue to standardize coding for diagnosis, procedure and billing codes. Standardized mapping will be developed across coding systems so that they can be consistently used in conjunction with one another. A major driver will be the CMS regulations that call for conversion to the ICD-10 code set by late 2011. Standardized guidance for coding for quality reporting purposes will also be developed. More training in coding will be made available and encouraged for staff across care settings to support longitudinal care and quality reporting. Coding will become more automated within EHRs and require less manual data entry as a result.

Key players to enable movement toward the vision include: Standards Development Organizations (SDOs), health care providers and provider organizations, health information management professionals, AHIMA, and measure developers.

## Patient and Provider Entity Record Matching

The ability to match patient records is integral to enabling health information exchange. At the same time, matching providers across data sets is required for physician-level quality measures. Even within a care setting, matching and aggregating data records about patients from multiple data sources can be problematic. In the absence of unique

identifiers, various matching algorithms have evolved to support analysis. The development of uniform matching algorithms and a set of principles for matching would improve quality reporting.

**Current State:** Multiple methods are used for matching data records about patients and for matching provider entities across sites of care for quality measurement and improvement purposes.

**Interim State:** Within two years, core technical principles and best practices will be established for both patient and provider entity matching.

**End State:** By 2012, a system for ensuring accountability for patient and provider entity matching methods will be established and in use.

Key players to enable movement toward the vision include: local and regional HIOs, integrated delivery networks, evaluators, and the BQI sites.

## Glossary

### Acronyms:

AHIC.....	American Health Information Community
AHIMA.....	American Health Information Management Association
AHRQ.....	HHS Agency for Healthcare Research and Quality
AMIA.....	American Medical Informatics Association
BQI.....	Better Quality Information to Improve Care for Medicare Beneficiaries
CCHIT.....	Certification Commission for Healthcare Information Technology
CDC.....	HHS Centers for Disease Control and Prevention
CDS.....	Clinical Decision Support
CMS.....	HHS Centers for Medicare and Medicaid Services
CVE.....	Chartered Value Exchange
DURSA.....	Data Use and Reciprocal Support Agreement
EHR.....	Electronic Health Record
EHRA.....	HIMSS Electronic Health Record Association
Health IT.....	Health Information Technology
HHS.....	Department of Health and Human Services
HIE.....	Health Information Exchange
HIMSS.....	Healthcare Information and Management Systems Society
HIO.....	Health Information Organization
HISPC.....	Health Information Security and Privacy Collaboration
HITEP.....	National Quality Forum's Health Information Technology Expert Panel
HITSP.....	Healthcare Information Technology Standards Panel
HQA.....	Hospital Quality Alliance
IHE.....	Integrating the Healthcare Enterprise
IOM.....	Institute of Medicine
NHIN.....	Nationwide Health Information Network
NIH.....	HHS National Institutes of Health
NQF.....	National Quality Forum
ONC.....	HHS Office of the National Coordinator for Health Information Technology
P4P.....	Pay-For-Performance
QASC.....	Quality Alliance Steering Committee
QDS.....	Quality Data Set
QIO.....	Quality Improvement Organization
QWG.....	AHIC Quality Workgroup
RFI.....	Request for Information
SDO.....	Standards Development Organization
VBP.....	Value-Based Purchasing

### Definition of Concepts:

Care Setting                      The department or location that serves as the direct point of care (i.e., primary care practice, nursing home, hospital, or long term care facility) where individuals are evaluated, diseases or disorder prevented, diagnosed, and treated. (Source: Adapted from <https://leapfrog.medstat.com/pdf/Glossary.pdf>)

Clinical Decision Support (CDS)



Any system designed to improve clinical decision-making related to diagnostic or therapeutic processes of care. CDS thus addresses activities ranging from the selection of drugs or diagnostic tests to the detailed support for optimal drug dosing and support for resolving diagnostic dilemmas. The distinction between decision support and simple reminders can be unclear, but usually reminder systems are included as decision support if they involve patient-specific information. (Source: AHRQ, <http://psnet.ahrq.gov/glossary.aspx> and AMIA, <http://www.amia.org/inside/initiatives/cds/cdswhitepaperforhhs-final2005-03-08.pdf>)

Data Aggregation	Aggregation is the combination of related categories, usually within a common branch of a hierarchy, to provide information at a broader level to that at which detailed observations are taken. (Source: OECD, “United Nations Glossary of Classification Terms,” <a href="http://stats.oecd.org/glossary/detail.asp?ID=68">http://stats.oecd.org/glossary/detail.asp?ID=68</a> , last updated on July 26, 2007) Data aggregation is the process of collecting and consolidating data from multiple sources into one location or database. (Source: Adapted from Oracle® Business Intelligence Concepts Guide, <a href="http://download.oracle.com/docs/html/B13970_01/glossary.htm">http://download.oracle.com/docs/html/B13970_01/glossary.htm</a> )
Data Element	A basic unit of information built on standard structures having a unique meaning and distinct units or values. In electronic recordkeeping, a combination of characters or bytes referring to one separate item of information, such as name, address, or age. (Source: Alliance for Telecommunications Industry Solutions, <a href="http://www.atis.org/glossary/definition.aspx?id=6916">http://www.atis.org/glossary/definition.aspx?id=6916</a> )
Data Stewardship	Data stewardship encompasses the responsibilities and accountabilities associated with managing, collecting, viewing, storing, sharing, disclosing, or otherwise making use of personal health information. Principles of data stewardship apply to all the personnel, systems and processes engaging in health information storage and exchange within and across organizations. (Source: AMIA, <i>Toward a National Framework on Secondary Use of Health Data</i> , presentation to the AHIC Consumer Empowerment Workgroup on July 11, 2007)
Data Use Agreement	A data use agreement is a written agreement between one entity and another who is requesting a disclosure of protected health information (PHI) contained in a limited data set. (Source: <a href="http://www.hhs.gov/ocr/hipaa/guidelines/research.pdf">http://www.hhs.gov/ocr/hipaa/guidelines/research.pdf</a> )
De-identified Data	Data that does not identify an individual and cannot be used to identify an individual. (Source: HIPAA Privacy Rule, 67 FR 53232, August 14, 2002)
Electronic Health Record (EHR)	An electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be created, managed, and consulted by authorized clinicians and staff across more than one health care organization. (Source: NAHIT, <a href="http://www.nahit.org/pandc/press/pr5_20_2008_1_33_49.asp">http://www.nahit.org/pandc/press/pr5_20_2008_1_33_49.asp</a> )
Episode of Care	An interval of care by a healthcare facility or provider for a specific medical problem or condition. It may be continuous or it may consist of a series of intervals marked by one or more brief separations from care, and can also identify the sequence of care (e.g., emergency, inpatient, outpatient), thus serving as one measure of healthcare provided. An episode of care is distinct from an episode of disease or illness. (Source: Detailed Quality Use Case; <a href="http://www.hhs.gov/healthit/documents/UseCaseQuality.pdf">http://www.hhs.gov/healthit/documents/UseCaseQuality.pdf</a> )

Harmonization	A process for making identical or minimizing the differences between standards or related measures of similar scope. (Source: <a href="http://www.ahrq.gov/qual/performance5/perfm5b.htm#Reporting">http://www.ahrq.gov/qual/performance5/perfm5b.htm#Reporting</a> )
Health Information Exchange (HIE)	The electronic movement of health-related information among organizations according to nationally recognized standards. (Source: NAHIT, <a href="http://www.nahit.org/pandc/press/pr5_20_2008_1_33_49.asp">http://www.nahit.org/pandc/press/pr5_20_2008_1_33_49.asp</a> )
Health Information Organization (HIO)	An organization that oversees and governs the exchange of health-related information among organizations according to nationally recognized standards. (Source: NAHIT, <a href="http://www.nahit.org/pandc/press/pr5_20_2008_1_33_49.asp">http://www.nahit.org/pandc/press/pr5_20_2008_1_33_49.asp</a> )
Health Information Technology (Health IT)	Health information technology (Health IT) allows comprehensive management of medical information and its secure exchange between health care consumers and providers. (Source: ONC, <a href="http://www.hhs.gov/healthit/">http://www.hhs.gov/healthit/</a> )
HIPAA	Health Insurance Portability and Accountability Act (HIPAA) of 1996, Public Law 104-191, included “Administrative Simplification” provisions that required Health and Human Services (HHS) to adopt national standards for electronic health care transactions. (Source: <a href="http://aspe.hhs.gov/admsimp/pl104191.htm">http://aspe.hhs.gov/admsimp/pl104191.htm</a> )
Interoperable	Able to communicate and exchange data accurately, effectively, securely, and consistently with different information technology systems, software applications, and networks in various settings, and exchange data such that clinical or operational purpose and meaning of the data are preserved and unaltered. (Source: Executive Order 13410, <a href="http://www.whitehouse.gov/news/releases/2006/08/20060822-2.html">http://www.whitehouse.gov/news/releases/2006/08/20060822-2.html</a> )
Longitudinal	Concerned with the development of persons or groups over time (Source: <i>American Heritage Dictionary</i> , 4th edition, © 2006); often applied in the field of quality measurement to refer to measurements of health care provided to individual patients and populations, taken over time and across care settings.
Measure Developer	Measure developers refer to those organizations that are developing quality measures for use across the country. Measure developers that have developed commonly used measures include, but are not limited to, organizations such as CMS, Joint Commission, AQA, HQA, and AHRQ. (Source: Adapted from Testimony and Interviews for the Quality Workgroup).
Nationwide Health Information Network (NHIN)	The Nationwide Health Information Network (NHIN) is being developed to provide a secure, nationwide, interoperable health information infrastructure that will connect providers, consumers, and others involved in supporting health and healthcare. This critical part of the national health IT agenda will enable health information to follow the consumer, be available for clinical decision making, and support appropriate use of healthcare information beyond direct patient care so as to improve health. (Source: HHS Office of the National Coordinator for Health IT, <a href="http://www.hhs.gov/healthit/healthnetwork/background/">http://www.hhs.gov/healthit/healthnetwork/background/</a> )
Patient Record Matching	The process of cross-linking the multiple patient identifiers in a community from a variety of patient identifier sources and creating a master patient identifier with

a key for cross-referencing the various community identifiers. (Source: <http://toolkit.ehealthinitiative.org/glossary/>) A deliberate process used to link a patient's electronic records across disparate health information systems. (Source: [http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1\\_028980.hcsp?dDocName=bok1\\_028980](http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1_028980.hcsp?dDocName=bok1_028980))

Personal Health Record (PHR)

An electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be drawn from multiple sources while being managed, shared, and controlled by the individual. (Source: NAHIT, [http://www.nahit.org/pandc/press/pr5\\_20\\_2008\\_1\\_33\\_49.asp](http://www.nahit.org/pandc/press/pr5_20_2008_1_33_49.asp))

Quality

The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge. (Source: The Institute of Medicine, *Performance Measurement: Accelerating Improvement*, 2005)

Value Exchanges

An organization selected to facilitate the collection of provider level measurement across the six IOM aims, and to use these measures for public reporting, improvement, collaboration, promotion of interoperable HIT, supporting knowledge transfer, and conducting evaluations. (Source: AQA, <http://www.aqaalliance.org/Files/QASCExpWkgpRecChartTerms02-22-07FINAL.pdf>)

## Appendix A

### Charges to the Quality Workgroup

The American Health Information Community formed the Quality Workgroup (QWG) in 2006 and gave it the following broad and specific charges:

**Broad Charge to the Workgroup:** Make recommendations to the American Health Information Community so that breakthroughs in health information technology (health IT) can provide the data needed for the development of quality measures that are useful to patients and others in the health care industry, automate the measurement and reporting of a comprehensive current and future set of quality measures, and accelerate the use of clinical decision support that can improve performance on those quality measures. Also, make recommendations for how performance measures should align with the capabilities and limitations of health IT.

**Specific Charge to the Workgroup:** Make recommendations to the American Health Information Community that specify how certified health information technology should support the capture, aggregation, and reporting of data for a core set of ambulatory and inpatient quality measures.

In other words, the Quality Workgroup should assess the current state of how health IT gathers data to measure quality of care and make suggestions about how to increase the use of health IT in this process. A recommendations letter presented to the Community in April 2008 addressed the broad charge. A recommendations letter presented to the Community in March 2007 addressed the specific charge.