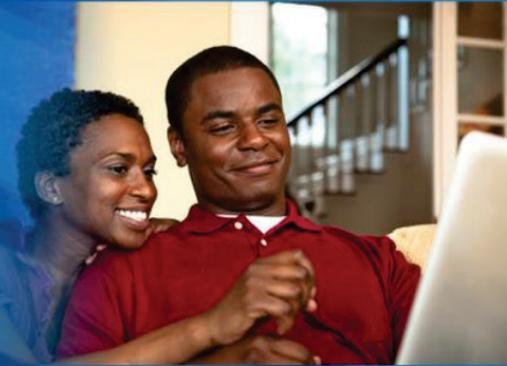


# Beacon Policy Brief

Building a Foundation of Electronic Data to Measure and Drive Improvement



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## Introduction

We simply have to do better.

Inadequate quality performance matched with the ever-increasing costs of US health care is proving to be an unsustainable reality. While we implement reforms in payment alignment and reorient the system toward patients, better use of health information technology (health IT), including electronic health records (EHRs), form a critical third leg to our improvement efforts.

Much has been written about how health IT, and EHRs in particular, can and will change provider workflow, better document care, improve information exchange, expand patient engagement, and increase the reliability of our systems of care. One emerging area that has received less attention so far is how EHRs themselves will better capture and report, in real-time, usable measures of care quality for providers.

Current performance measurement is stuck in a paradigm of disaggregation: providers perform (or not) key care tasks, and then await a separate distillation of that performance through administrative claims-based measures of processes and outcomes. These performance evaluations are often tied to reimbursement and public transparency initiatives. Invariably there is an unfortunate time lag and instinctual response among providers that these disaggregated billing processes cannot adequately capture the care that is, or is not, provided. Providers working on critical improvement efforts that require frequent feedback and adjustment have formerly been forced to use work-arounds or other inefficient mechanisms for performance tracking.

But that is all changing now, and the consequences of this shift are profound. The work of the Beacon Communities shows just how valuable these tasks can be, and this brief distills some of their critical early lessons along this challenging but ultimately rewarding journey. These communities are showing that capturing clinical performance through electronic quality measures embedded within the EHR has at least three major implications. First, providers are fundamentally able to shift their relationship with their EHR from a documentation and billing platform to one that can generate more timely measures of their actual clinical performance. This in turn allows the providers to better use workflows and tools like clinical decision support that more effectively capture the potential for EHRs to improve care. Second, the intrinsic nature of EHR-derived measures opens the possibility of generating more accurate measures of the care actually being provided. As this data brief documents, much work still needs to be done to achieve this goal through better standardized input of data and multiple validity checks. Ultimately though, generating performance measurement at the locus of care delivery and documentation will provide a more representative view of the care actually provided. Finally, by working with the EHR as an intrinsic measurement platform, providers can better use the EHR as a dashboard for tracking and improving patient health and experience in real-time.

The Beacon communities are illuminating the path forward in this promising but often uncharted territory. Read their stories, and I hope you will be inspired as I am to carry on this critical work of improving our health system.

//signed//

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## What's the Issue?

Improving care quality is a top priority for the U.S. healthcare system.<sup>1</sup> As articulated in the National Quality Strategy issued in 2011, health systems, payers, providers, and other stakeholders are engaged in a wide variety of quality improvement (QI) efforts. These efforts aim to make healthcare safer, more effective, patient-centered, timely, efficient, and equitable—the ultimate goals being improved patient outcomes and population health, as well as reduced costs. QI strategies often focus on redesigning care processes, reforming payment systems, and/or increasing patient engagement. All of these approaches require an underpinning of data, and are thus increasingly being supported by emerging health information technology (health IT) infrastructure.<sup>2</sup>

As the saying goes, “if you cannot measure it, you cannot improve it”; systematic and accurate quality measurement is a critical component of QI that can identify and target areas for improvement, and quantify changes over time. Today, quality measurement increasingly depends first and foremost on accurate, timely, and comprehensive clinical information. The introduction and steady increase in adoption of health IT promises to generate and improve access to this information, which when combined with relevant clinical knowledge available at the point of care, can be used to facilitate care decisions and drive improved patient outcomes. Health IT enables better, more consistent data capture that can be used to generate quality measure results. Quality measurement, in turn, enables internal and external benchmarking and reporting, which can be used to inform the decision-making of hospitals, providers, insurers, patients, accreditors, and policymakers to inform decision-making and to reward providers for delivering high-quality care.<sup>3</sup>

Three general types of measures are used for quality measurement: structural (i.e., infrastructure elements, such as the presence or absence of an electronic health record), process (i.e., whether a recommended service was delivered), and outcome measures (i.e., aspects of health, such as cholesterol levels).<sup>4</sup> Patient-reported measures, including patient experience and quality of life, are also gaining popularity and generating interest among different stakeholders, including consumers and payers. However, they still account for only a small fraction of all quality measures, and are not routinely linked to clinical quality measures.<sup>3</sup>

Identifying data sources, addressing data quality, and selecting and harmonizing performance measures are all foundational aspects of any health care QI initiative. The Beacon Community Program's 17 grantees have been pioneers in using health IT and data to drive better health and better care at lower cost. Their journey offers insights about how to harness increasingly available electronic data for measurement and improvement. This issue brief describes current challenges encountered when using electronic data for quality measurement and improvement, and shares promising strategies and tactics deployed by Beacon Communities.

## What's Happened So Far?

### Transition from Paper and Administrative Claims-Based Measures to Electronic Clinical Measures

Quality measurement has historically relied on administrative claims data, manual review of paper records, and patient surveys. While administrative data can be valuable for measuring processes and utilization, they lack the level of clinical detail necessary for robust measurement. Thus, there is growing interest in augmenting insurance claims data with clinical data, and the expanded use of electronic health records (EHRs) provides a rich source of these data.<sup>3</sup> At the same time, the field is moving toward the use of electronic measures (eMeasures), which include traditional paper-based measures that have been converted to electronic measures, as well as novel measures enabled by the electronic capture of more and more diverse data via health IT.<sup>5,6,7</sup> Developers of these latter measures are taking advantage of electronic data and health IT capabilities to build innovative measures that are better able to express patient care.

A recent AHRQ report includes a partial catalog of more than 80 private, Federal, State, and regional programs and initiatives (including the Beacon Community Program) that promote health IT-enabled quality measurement.<sup>3</sup>

As EHR adoption expands and systems grow more sophisticated, increasing standardized data capture and extraction can enable eMeasure calculation as an automatic byproduct of care delivery. However, the technology and methodologies needed to use electronic clinical data for quality measurement are still evolving.<sup>8</sup> Studies comparing the accuracy and completeness of manual versus electronic quality measure reporting have yielded promising yet mixed results, likely due to wide variation in the type, format, structure, and location of data within different EHRs, and also in EHR capabilities.<sup>5,6,7,9,10</sup>

## HITECH, Meaningful Use, and the Beacon Community Program

The 2010 Patient Protection and Affordable Care Act (ACA) called for the Department of Health and Human Services (HHS) to convene the National Priorities Partnership to develop the National Strategy for Quality Improvement in Healthcare (National Quality Strategy, NQS), comprising the three broad aims of improved care for individuals, better population health, and lower costs.<sup>11</sup> The ACA also authorized the Measure Applications Partnership (MAP) to advise HHS on the selection of NQS-aligned quality measures, and to align the efforts of public and private stakeholders involved in quality measurement.<sup>3,11,12</sup> The MAP was convened by the National Quality Forum (NQF), a non-profit organization that builds national consensus on QI priorities, develops EHR-based quality measures, and endorses more than 600 standard quality measures.

Enacted as part of the American Recovery and Reinvestment Act of 2009, the Health Information Technology for Economic and Clinical Health Act (HITECH) was designed to promote and expand the adoption and use of health IT. Among other aspects, HITECH supports health IT-enabled QI through the Medicare and Medicaid EHR Incentive Programs and the Beacon Community Program. The former provides incentive payments to eligible professionals<sup>i</sup> and hospitals that demonstrate meaningful use (MU) of certified EHR technology, as determined by a set of MU objectives and Standards & Certification criteria developed by the

Centers for Medicare and Medicaid Services (CMS) and the Office of the National Coordinator for Health IT (ONC), both part of the U.S. Department of Health and Human Services (HHS). To qualify, providers and hospitals must electronically report their progress toward MU objectives, including electronic clinical quality measures (eCQMs) that reflect national priorities (e.g., diseases with highest morbidity and mortality, disparities) and that align with other government reporting programs such as the Physician Quality Reporting System.<sup>11,12,13,14</sup>

The ONC and CMS are also engaged in multi-year efforts to translate existing measures from paper to electronic formats, and to develop several de novo eMeasures. One agreement focuses on developing, testing, and validating eCQMs for inclusion in the Medicare EHR Incentive Program, while the other aims to electronically specify, test, and validate the initial core measure set specified in the Children's Health Insurance Program Reauthorization Act (CHIPRA) and develop a smaller set of measures. Eventually, these

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<sup>i</sup> For the Medicare EHR incentive program, eligible professionals (EPs) include practice-based physicians, including the following five types of professionals: doctor of medicine or osteopathy, doctor of oral surgery or dental medicine, doctor of podiatric medicine, doctor of optometry, or chiropractor. For the Medicaid EHR incentive program, EPs also include: doctor of medicine or osteopathy, certified nurse-midwife, nurse practitioner, dentist, or physician assistant who furnishes services in a physician assistant-led Federally Qualified Health Center or Rural Health Clinic.

measures may be used in CHIPRA quality measurement programs, and potentially the Medicaid EHR Incentive Program as well.

Through these two agreements, ONC and CMS are developing novel eMeasures across a range of domains, including clinical care (e.g. cardiovascular disease, pediatric dental care), care coordination (e.g. closing the referral loop), and patient-reported outcomes (e.g. functional status assessment for hip and knee replacement and complex chronic conditions). These measures are designed to address and overcome common challenges to traditional quality measurement, capturing change over time (delta measures), incorporating patient feedback (patient-reported), closing the referral loop, and shifting focus to outcomes.

The 17 communities participating in the ONC's Beacon Community Cooperative Agreement Program are also leaders in the transition from paper and claims-based quality measurement to electronic clinical measurement. With a total of \$250 million to invest over three years, the 17 Beacon Communities aim to build and strengthen health IT infrastructure and exchange capabilities; reduce costs while improving quality and population health; and test innovative approaches to care delivery, performance measurement, and technology integration.<sup>15</sup> In designing their work, each Beacon Community identified several specific, measurable objectives to address their unique local needs and priorities. Beacon Community leaders selected quality, cost, and outcome measures to track performance toward these objectives, aligning them (where possible) with those endorsed by the National Quality Forum (NQF) and the MU clinical quality measures. The Beacon Communities have reported on these measures quarterly since spring 2011.<sup>16</sup>

As their quarterly reporting continues, the Beacon Communities are evolving their measurement strategies along with their health IT investments. For example, the Delta BLUES Beacon Community in Mississippi initially relied upon paper records for measurement, but transitioned to reporting based on data from provider EHRs. The Beacon Community of the Inland Northwest in Washington State initially produced measure results from provider EHRs, but transitioned to reporting from their newly-built clinical data repository.

Together, the 17 Beacon Communities are leaders in demonstrating the value of health IT for QI, using patient-specific EHR data and clinical decision support to inform care delivery, and measuring quality to accelerate and quantify progress toward their QI objectives.

## What Can Be Learned from the Beacon Communities' Experiences?

Over the course of the program, Beacon Communities have become increasingly adept in bringing together multiple sources of data and improving the validity of those data to reflect their progress and demonstrate the power of health IT to measure and improve care quality. The challenges the Beacon Communities have faced, and the novel approaches they developed to address them, can serve as a guide for other organizations who are seeking to use health IT to achieve their quality objectives.

### *Challenges and Solutions when Using Health IT and Data to Measure and Drive Improvement*

Challenges	Solutions	Beacon Community Examples
<b>Improving Data Validity</b>	<ul style="list-style-type: none"> <li>• Provide feedback and institute processes to address validity</li> <li>• Customize workflow to support standard data collection</li> </ul>	<ul style="list-style-type: none"> <li>• Western NY Beacon</li> <li>• Colorado Beacon</li> <li>• Bangor Beacon</li> </ul>
<b>Ensuring Relevance and Usability of Quality Measure Results</b>	<ul style="list-style-type: none"> <li>• Motivate through benchmarking</li> <li>• Make data actionable</li> </ul>	<ul style="list-style-type: none"> <li>• Rhode Island Beacon</li> <li>• Tulsa Beacon</li> </ul>
<b>Aligning Incentives and Increasing Buy-in</b>	<ul style="list-style-type: none"> <li>• Develop a culture of improvement</li> <li>• Align incentives with quality improvement</li> </ul>	<ul style="list-style-type: none"> <li>• Crescent City Beacon</li> <li>• Colorado Beacon</li> <li>• Central Indiana Beacon</li> </ul>
<b>Establishing a Framework for Community-wide Measurement</b>	<ul style="list-style-type: none"> <li>• Build trust and consensus around terminology, data capture, and measurement activities</li> </ul>	<ul style="list-style-type: none"> <li>• Rhode Island Beacon</li> <li>• Bangor Beacon</li> </ul>

## Challenge: Improving Data Validity

Data validity refers to the level of completeness (i.e., the amount of missing data for a data element), accuracy (i.e., the extent to which the data reflects the underlying state or process of interest), and granularity (i.e., clinical specificity). Valid data captured from EHRs and other health IT tools allow for accurate summary and measurement of care processes and patient outcomes; however, ensuring the validity of EHR data is a significant challenge.<sup>5</sup>

One common issue is that data elements are often entered inconsistently in multiple locations or in different formats within the same EHR or across EHR systems. For example, smoking status may be entered numerically (e.g., cigarettes per day), in a structured format (e.g., check box indicating “tobacco user”), or an unstructured field (i.e., free text).<sup>3</sup> Calculating quality measures using incomplete, inaccurate, or inconsistent data can lead to miscalculated denominators (e.g., patients eligible for a measure) and numerators (e.g., those eligible who received recommended care), and reduce the overall validity of the measure results.

The lack of standardization in measure definitions, data elements, and data collection practices also negatively affects data validity. A recent study found wide variation in the sensitivity (46-98 percent) and specificity (62-97 percent) of electronic quality measure reporting as compared to measures calculated via manual review, which the authors attributed to the difficulty of automatically extracting data documented in free-text fields and to inconsistent measure interpretation.<sup>9,10</sup> To calculate valid measures of care quality and outcomes, clinical data must be entered in the same format and location in an EHR in order to be properly extracted and analyzed. Increasing standardization in documentation practices, notations, measure definitions, and inclusion and exclusion criteria will improve the validity of electronic quality measurement, as will the use of natural language processing to extract standardized data from free text fields.<sup>17</sup>

Clinical workflow must also be optimized to both capture data and to use available information to deliver high-quality care. Providers tend to use EHRs in ways that complement the flow of care; for example, they are less likely to complete data fields when multiple clicks are necessary to navigate through the EHR to access relevant data fields.<sup>18, 19</sup> The extent to which EHR data entry conforms easily to provider workflow affects the validity of the data and related quality measures. Unfortunately, EHR features

**Data Timeliness and Currency.** Data validity is also affected by its timeliness and currency. Providers may update EHRs in real-time, avoiding the lag typical with claims data.<sup>1</sup> However, EHRs require active maintenance to ensure that clinical information is current. Information subject to frequent change (e.g., medications used) is particularly vulnerable to temporal inaccuracy; for example, studies have estimated that 13 to 29 percent of EHR medication lists retain discontinued medications.<sup>5</sup> Using timestamps, updating EHRs with greater frequency, and allowing patients to update their records may help keep clinical EHR data up to date, but this remains a challenge.

that contribute to ease of use (e.g., free text entry) tend to make data standardization and automated extraction more difficult.<sup>8,20</sup>

When developing or selecting measures, minimizing the number of data elements needed to calculate the measure—and taking into account whether the data elements can be easily and routinely captured at the point of care—can improve data collection and reduce the burden of quality measurement for providers.<sup>6,8,17</sup> Additionally, designing EHR workflows that support standard data collection while conforming to the flow of patient care, as well as providing feedback on the quality and consistency of data entry, can improve data validity.<sup>6,17</sup>

### ***Solution: Provide Feedback and Institute Processes to Address Validity.***

- To highlight data validity issues to be addressed, the **Western New York Beacon Community** provides each of its practices with quarterly feedback reports containing a series of graphs that summarize the proportion of missing and invalid data in the clinical registry. Practice enhancement associates use this information to work together with health information exchange (HIE) and EHR vendor staff to improve data quality. These validated data also allow practices to employ clinical decision support tools, which can alert providers to opportunities to provide evidence-based care.
- Similarly, the **Colorado Beacon Consortium** has adopted a validation process to ensure data accuracy before calculating quality measures for reporting and improvement purposes. The process has three steps:
  1. Verify that the EHR can routinely and systematically produce a consistent output for a measure or set of measures;
  2. Review outputs with clinicians and assess their comfort with the output as a good representation of their work (e.g., is there a consistent workflow in place to assure that data elements are consistently entered in the correct field?); and
  3. Validate the output by comparing it to the input via a review of the EHR.

In the Colorado Beacon catchment area, this process is repeated whenever any significant change is made to the clinical work flow, the EHR system, or the measure definition.

### ***Solution: Customize Workflow to Support Standard Data Collection.***

- In the **Bangor Beacon Community**, where the existing EHR was not well tailored to the needs of care managers, the care managers collaborated with the IT department to develop new forms specific for their needs. These new forms allow for clearer, more concise documentation, and provide clinicians with a snapshot of their patients' status. Care managers also used a centralized disease registry, which provided disease-specific dashboards for their patient panel and quarterly progress reports to compare progress across the whole primary care practice.

## Challenge: Ensuring Relevance and Usability of Quality Measure Results.

The ultimate goal of implementing health IT, enhancing data capture and workflow, and extracting data to calculate quality measures is to use the results to stimulate improvements in care. To do so, quality measure results must be translated and communicated to stakeholders (e.g., providers, payers, accreditors) in ways that are clear, transparent, relevant, informative, and supportive of decision-making.<sup>8,18,21</sup> As highlighted above, stakeholders must have confidence in the validity of quality measures results in order to act upon them. A stepwise approach to implementing a performance measurement and reporting strategy—beginning with private feedback to providers,<sup>22</sup> followed by public reporting, and eventually payment—may help build confidence in measure validity, enhance accountability for performance on measures, and ultimately drive QI.<sup>177</sup>

## Solution: Motivate through Benchmarking.

- Building on their work to harmonize measure specifications, the **Rhode Island Beacon Community** established a comparative data methodology to engage Beacon providers and QI teams in discussions around their clinical outcomes and performance. Displaying practice-level performance relative to that of others in the community provides a strong foundation for improvement. The Rhode Island Beacon's comparative performance reporting process involves the following components:
  - Calculation of community-level and practice-level results;
  - Ranking and display of performance levels for each clinical quality measure and a five-measure composite score using randomly-blinded practice, site and provider identities;
  - Use of simple, color-coded performance charts, indicating placement relative to targets as below (red), near (yellow), or above (green);
  - Recognition for making comparative improvements even if below target values; and
  - Dissemination of comparative results to all parties in a convenient and efficient forum.

The Rhode Island Beacon has also made this work transparent. All Beacon practices can access these data through a collaborative portal, and they each receive posters summarizing community-wide data, individual practice data, and comparative data. Practices may display these posters to their care teams and in their patient waiting rooms. By promoting transparency in this way, they aim to more actively engage patients in the metrics associated with their conditions and the measurable outcomes of their treatment. Practice leaders also use these comparative data to foster dialogue between providers and QI directors. Making comparative data available has helped some providers to realize that they are not all performing as well as they thought relative to peers within and outside their practice. They now have evidence that there is room for improvement.

### ***Solution: Make Data Actionable.***

- The **Greater Tulsa Beacon Community** is also using and expanding their health IT infrastructure to deepen the analytic capacity at the practice level, which can provide high-value patient-level information as well as allow for more effective management of patient panels. In the Greater Tulsa Beacon a coalition of more than 150 providers in the MyHealth Access Network has implemented the an advanced health analytics system with data integration and analysis capabilities and a comprehensive data warehouse for calculating and reporting outcome measures. Staff on the business intelligence and epidemiology teams use the analytics system to import and aggregate data from disparate sources (e.g., HIE, EHR, claims, referral systems) and address issues of data standardization and completeness to ensure high-quality data are available for analysis. Through an accessible, interactive Web-based interface, users can view data in standard reports and at-a-glance dashboards, run custom calculations to quickly understand trends and anomalies, and easily identify patients in need of intervention. These analytics are being used throughout the community to drive QI initiatives.

For example, a University of Oklahoma School of Community Medicine in a free clinic that serves uninsured patients with chronic illness, a diverse team of students under faculty supervision uses the analytics system to manage a patient panel with many diabetic patients. The students use the system to calculate the patient panel average for vital statistics (e.g., HbA1c, blood pressure, cholesterol levels), build custom reports to track this information over time, and see their individual performance, practice group performance, and clinic care metrics. The ability to manage patients at a panel level drives students to ask engaging questions about the data, and allows for immediate identification of areas for improvement.

### **Challenge: Aligning Incentives and Increasing Buy-in.**

Another challenge to quality measurement and improvement lies in promoting and providing incentives for providers to buy-in to capturing and reporting measures of interest.<sup>1</sup> Some providers view quality measures and clinical guidelines as overly simplistic “cookbook” medicine that does not capture the complex decision-making involved in care delivery.<sup>1,5,21</sup> Early champions of quality measurement have also cautioned that providers can feel demoralized or demotivated if measures do not assess aspects of care that they can impact directly. Using measures that assess aspects of care that are evidence-based, standardized, feasible to collect, attributable to individual providers, and risk-adjusted may reinforce provider motivation and promote buy-in to quality measurement and improvement activities.<sup>1,21</sup> Furthermore, the predominant fee-for-service payment structure does not compensate effort spent on reading, interpreting, or acting upon quality reports. Emerging payment system reforms that reward providers for care quality and outcomes rather than for services rendered will provide incentives for providers to engage in quality measurement and improvement activities.<sup>1</sup>

### ***Solution: Develop a Culture of Improvement.***

- To maximize buy in and mitigate concerns, the ***Crescent City Beacon Community*** (CCBC) is striving to create a culture of improvement around quality measurement and reporting via data workshops that are co-facilitated by CCBC team members, EHR vendors, and clinic data managers. CCBC has engaged these stakeholders in a learning forum to communicate, ask questions, and share concerns and best practices for clinic-level quality measurement. The data workshops have helped build confidence in the data and develop a culture of continuous learning and improvement around data quality and reporting, as demonstrated by participation levels, session comments, and the number of data report re-submissions each quarter.

“It says a lot about the desire here to continuously improve and ‘self-correct’ when a site [...] discover[s] an issue that was affecting their numbers and [...] resubmit[s] data retrospectively to update all of their previous reports,” notes Chatrian Kanger, CCBC Evaluation Manager. This attention to data quality led to an average of two resubmissions per site per reporting period during the first year of CCBC, though resubmissions and reporting errors have diminished over time.

CCBC is currently validating data from its community-wide HIE to prepare for the next phase of measurement. Drawing upon insights from their data standardization efforts, CCBC will develop and test the capacity to extract quality measures from the HIE. With input from partner organizations, CCBC identified priority areas for analytics, selecting quality measures that align with MU and other local and national QI programs. CCBC is also keeping apprised of evolving best practices in implementing eMeasures through the NQF’s eMeasure Learning Collaborative and close partnerships with community EHR and health IT vendors.

- Also, the ***Colorado Beacon Consortium*** convenes quarterly Community Learning Collaboratives where local providers focus on the use of performance data for QI and share insights on making their systems more efficient and patient-centered. Participating practices send interdisciplinary teams to day-long sessions where they share data and information and learn from one another.

### ***Solution: Align Incentives with Quality Improvement.***

- The ***Central Indiana Beacon Community’s*** Quality Health First (QHF) program, Indiana’s largest clinical quality incentive program, is a unique collaboration of provider groups, health plans, and employers managed and operated by the Indiana Health Information Exchange. The program provides value-based reimbursement for primary care practices, a pay-for-performance program, and physician and provider group-level quality reporting. Multiple stakeholders were involved in deciding which quality measures to adopt, giving priority to standardized quality measures of national and regional importance (e.g., asthma, pediatric health, diabetes, cardiovascular health, and women’s health) that are based on robust clinical evidence. The measures are calculated using claims and clinical data, the latter of which promotes provider

buy-in. To support providers' clinical decision-making and enhance care, the program provides alerts and messages to provider groups related to the selected quality measures for specific patients. QHF also produces summary reports with actionable data to enable population health management among provider groups, payers, and employers. As of January 2013, 114 participating provider groups—comprising 587 practice sites, 2252 primary care providers, and 1,469,006 patients—have received millions of dollars of clinical quality incentive payments through the QHF program.

### **Challenge: Establishing a Framework for Community-wide Measurement.**

Achieving common data and documentation standards within an organization remains challenging for most providers; doing so across organizations requires even greater coordination and diligence. In addition to technical and infrastructure barriers, stakeholders often have different priorities for the use of quality measures, as well as concerns about data privacy and security. These differing priorities and concerns affect their willingness to share data and build the necessary policy and technical infrastructure to enable quality measurement and reporting outside traditional organizational boundaries.<sup>6</sup>

### **Solution: Build Trust and Consensus around Terminology, Data Capture, and Measurement Activities.**

As pioneers in the adoption and meaningful use of health IT, many Beacon Communities are focused on building trust and consensus as they forge ahead with efforts to standardize data and consistently report measures across healthcare organizations.

- Early in their work, the **Rhode Island Beacon Community** fostered a successful collaboration among practices involved in three different Patient-Centered Medical Home (PCMH) programs to establish consistent measure definitions and a set of common process and outcome measures for diabetes, depression screening, and tobacco cessation intervention.
- The **Bangor Beacon Community** Performance Improvement Project is an example of an effective collaboration among nine primary care practices from three unaffiliated healthcare organizations, comprising 65 percent of the region's primary care providers. With a common goal of improving care quality and tracking progress using key quality measures, this unlikely group of collaborators built a foundation of trust that has produced real improvements. By consensus, the collaborative approved quality measure data definitions, revised operational terms, identified regional target goals, and created common EHR patient encounter forms and workflow processes. A data registry reporting tool gathers clinical data abstracted directly from the EHRs, and all reports are shared and discussed in an open forum; they are then used to develop a 90-Day Action Plan for each practice.

On the path to developing consensus, the Bangor Beacon collaborative encountered numerous issues related to technology, workflow, and governance. In doing this work, participants identified several key lessons and promising practices. First and foremost,

they acknowledged the importance of building trust, maintaining good relations across organizations, and making decisions by consensus. Second, establishing a third-party centralized disease registry fostered a simplified, less competitive environment for negotiating data sharing agreements. Third, the multi-stakeholder collaborative benefited from regular meetings to openly discuss and review data, resolve issues, and monitor progress. Finally, designating internal team members and a centralized group to audit the data, identify errors, and maintain report integrity was deemed essential; this enhanced trust in the quality reports as well as engagement among providers.

## What is the Path Forward?

Quality measurement is a critical component of a learning healthcare system. Stakeholders at the national, regional, and local levels have undertaken significant efforts to measure the quality of healthcare in the United States, and have made progress in developing standardized measures, improving data quality, and using health IT to collect and analyze clinical data.

At present, limited use of standardized data documentation practices and health IT capabilities not only hampers data validity, but also hinders the aggregation and comparison of quality data from multiple providers and sites of care.<sup>3</sup> The ONC is making significant investments to accelerate progress on these fronts. By promoting greater standardization and testing of clinical quality measures incorporated into certified EHR systems, the ONC is advancing progress toward enabling automated data extraction and performance measurement.<sup>8,23</sup>

Measuring the quality of care is necessary but not sufficient to drive improvement; mechanisms for learning from and acting upon these data are also required. EHRs and other health IT tools can drive improvement in cost, quality, and population health by serving both as sources of clinical data and as tools for efficient, real-time data aggregation, analysis, and use in clinical practice. Programs that layer quality-based provider incentives, action plan development, educational outreach, care coordination, and other strategies in response to quality measurement may also be effective.<sup>1</sup> As the Beacon Communities demonstrate, there are many ways to address and improve data capture, validity, analysis, and reporting within the context of regional goals and national programs and standards. The lessons from the Beacon Community program demonstrate the progress that has been made in using electronic data to support quality measurement and improvement, but also that hurdles remain, namely enhancing health IT tools, standardizing data elements and measure specifications, building trust amongst stakeholders, and translating quality measure performance into actionable steps to drive improvement.

### Standards & Interoperability (S&I) Framework:

By hosting the S&I Framework, the ONC is facilitating the functional exchange of health information nationwide. Through Query Health, an initiative of the S&I Framework, the ONC is leading a public-private collaboration seeking to build a national network for distributed, population-level health queries across multiple platforms. Additionally, clinical decision support tools deployed at the point of care, such as alerts and reminders embedded within the EHR and risk stratification tools, ensure quality measurement leads to quality improvement in a consistent and highly usable manner.<sup>23</sup>

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