Evolution of “The Guideline Advantage”
Lessons Learned From the Front Lines of Outpatient Performance Measurement

Vincent Bufalino, MD; Mary Ann Bauman, MD; Jay H. Shubrook, DO; Alan J. Balch, PhD; Christopher Boone, MHA; Katy Venum, MPH; Sarah Bradley; Richard C. Wender, MD; Regan Minners; Donna Arnett, PhD; on behalf of the American Cancer Society, American Diabetes Association, and American Heart Association

Heart disease, cancer, stroke, and diabetes mellitus collectively account for >1.37 million US deaths each year. Compounding the tragedy is the knowledge that many of those deaths could be avoided through better application of clinical guidelines related to primary and secondary prevention or disease management. The combined control of blood pressure, lipids, and glucose has been shown to substantially reduce mortality and cardiovascular events. Screening for colon, cervical, breast, and lung cancer has been proven to reduce age-adjusted mortality from these diseases. In recognition of the common risk factors across these disease areas, the chief executive officers of the American Cancer Society, American Diabetes Association, and American Heart Association formed the Preventive Health Partnership in 2004. The 3 organizations have been working closely ever since to increase public awareness about healthy lifestyles, support policies that increase funding for and access to prevention programs and research, and increase the focus on prevention among healthcare providers.

The American Cancer Society, American Diabetes Association, and American Heart Association have long developed scientific statements and evidence-based guidelines that promote public health services and clinical interventions of known efficacy for improving patient outcomes. Thus, maximizing adherence to quality-of-care guidelines is a high priority for each organization, because this will save lives and improve quality of life. This common purpose has served as a focal point for much of the collaborative work undertaken by the 3 organizations, including The Guideline Advantage (TGA).

Launched in 2011, TGA is a jointly operated program designed to promote consistent use of evidence-based practice guidelines through existing healthcare technology in the outpatient setting. The ultimate goal of this undertaking is to improve patient care through quality improvement programs that provide feedback to clinicians and their practices on performance across various quality measures. The data gathered through TGA will provide a platform for longitudinal research on the impact of preventive care while also allowing practices to compare themselves to others across the country through benchmarking capabilities. The program’s research strategy is focused on identifying patient-, provider-, and practice-level factors associated with guideline adherence and assessing the effectiveness of quality improvement interventions in increasing guideline adherence. The program’s recognition component will publicly acknowledge achievements in providing consistent guidelines-based care. The present report reviews the origins and intent of TGA, explores recent changes in the health information technology landscape, and provides a set of key recommendations for outpatient performance measurement programs.
Get With the Guidelines
TGA evolved from the American Heart Association’s Get With The Guidelines (GWTG) program suite that provides 2000 hospitals with quality improvement tools to meet secondary prevention guidelines related to cardiovascular disease. GWTG facilitates the sharing of best practices across many hospitals via webinars and dissemination of point-of-care tools. Staff at participating hospitals manually enter patient data using an Internet-based tool. The data are then used to calculate performance measure scores. The program has produced >200 scientific publications that have demonstrated a number of positive results since its inception in 2001, including increased adherence to all stroke performance measures and standardized procedures for the treatment of myocardial infarction. Furthermore, hospitals participating in GWTG-Heart Failure have shown improved and equitable care for heart failure patients in all racial/ethnic groups.

Overview of TGA
In 2009, the American Heart Association adapted its inpatient program for the outpatient setting. Initially designed as an outpatient cardiovascular care quality measurement module, a decision was soon made to broaden the program’s scope by working with the American Cancer Society and American Diabetes Association. These 3 organizations share a common interest in promoting guideline adherence in the primary care setting, in which practices are usually concerned with multiple risk factors and chronic conditions. A steering committee made up of volunteers and staff from all 3 organizations was charged with remodeling the program to ensure the ongoing relevancy and accuracy of performance measures of the 3 major chronic disease areas. The steering committee is a multidisciplinary group of clinical and nonclinical professionals who provide long-term oversight to the program strategy.

A key objective was to design a program that had limited interference with the practice’s work flow. The initial selection of measures was based on review of nationally accepted ambulatory care measures that aligned most closely with each organization’s clinical guidelines. Instead of a manual data entry model, data were culled from practices’ electronic data systems and sent to the data warehouse for aggregation. Participating sites received quarterly practice-level reports that provided performance feedback and comparative benchmarking information based on the program’s measure set. Feedback reports were intended to help identify and focus on specific areas for improvement. The program included a recognition component to publicly acknowledge early program adopters and performance achievements by participating practices.

Changes in the Health Information Technology Landscape
During the time frame in which TGA was developed and initially subjected to pilot testing from 2009 to 2011, the primary care market evolved rapidly in response to the government funding of health information technology provided in the American Recovery and Reinvestment Act. Incentives for “meaningful use” of electronic health records (EHRs) were authorized under the Health Information Technology for Economic and Clinical Health (HITECH) Act, a part of the American Recovery and Reinvestment Act.*

The HITECH Act not only provides incentives to practices for the adoption and use of EHRs but also requires that they show significant improvement in healthcare processes and outcomes through the use of EHRs. Although “significant improvement” has yet to be defined in either stage 1 or stage 2 of the meaningful use final rules, the concept offers important opportunities for quality improvement programs to help clinicians improve performance in advance of a definition. The incentive program outlined in the HITECH Act has supported rapid and significant adoption of EHRs. When TGA was being developed in 2008, a national physician survey found that only 17% of physicians were using any form of EHR. Presently, >85% of practices with ≥11 physicians and >60% in groups of 2 to 11 physicians have electronic records. In 2011, a report from the Office of Inspector General at the US Department of Health and Human Services found 57% of physicians participating in Medicare used an EHR system. A recent report by the Centers for Disease Control and Prevention’s National Center for Health Statistics found that 72% of all office-based physicians used EHR or electronic medical record systems in 2012.

Despite the rapid increase in the adoption of EHRs, research has shown mixed results for EHR effects on quality improvement. EHRs are largely transactional platforms designed to capture patient data at the time of care, with alerts and reminders triggered around the visit. Although they can serve as rich data sources for billing and documentation needs, they often are not designed for data aggregation and analysis at the patient or population level needed for clinical management. To maximize the potential for EHR data to impact primary and secondary prevention and disease management, particularly for quality improvement and reporting programs, the data should be used to identify groups of patients who truly need care and to monitor changes in response to improvement activities.

Thus, there has been a move to integrate quality improvement programs and population management platforms in server- or cloud-based models to improve the value of EHR data. Such efforts typically offer an enhanced ability to provide information regarding groups of patients with user-friendly data visualization and enable performance benchmarking within the practice.

The Physician Quality Reporting System (PQRS)† and Meaningful Use incentives are based on practices’ ability to report data monitoring and quality reporting to government agencies. Yet, convincing practices to change their daily work flow for the potential future allure of improving their quality of care has been challenging. In addition, physicians are busy

*For more information, see the Office of the National Coordinator for Health Information Technology: HITECH ACT. http://healthit.hhs.gov/portal/server.pt/community/healthit_hhs.gov__learn_about_hitech/1233.
†The 2006 Tax Relief and Health Care Act required the establishment of a physician quality reporting system, incentivizing payment to healthcare professionals who report quality measure data on Medicare patients. The Centers for Medicare & Medicaid Services created the Physician Quality Reporting System (PQRS), which promotes reporting of quality data by combining incentive payments and payment adjustments. (The program was renamed from the Physician Quality Reporting Initiative in 2011.)
The Evolution of TGA

Although the program captured hundreds of thousands of records within a few months of its 2011 launch, TGA was not growing as quickly as needed to serve as a robust clinical registry for performance benchmarking. Moreover, the variation in the quantity and quality of data being submitted was significant. Without the capacity to analyze data down to the physician and patient level, providers were neither able to validate the data nor identify quality gaps in their own patient population.

Early in 2012, the program’s volunteer steering committee adopted a new strategic plan that highlighted the need for a more functional data aggregation and analytics platform. Additionally, the plan called for better alignment with primary care practices and a strong emphasis on federally qualified health centers. This latter approach was intended to complement existing health equity initiatives across each organization by positioning the program for use as a quality improvement tool for practices that serve some of the United States’ most vulnerable populations. Based on the experiences with the initial program design, combined with feedback from steering committee members, a set of key features or capabilities were identified for any outpatient performance measurement effort designed to drive changes at the practice level. Many of these characteristics align with recommendations published in 2012 as part of a report commissioned by the Agency for Healthcare Research and Quality regarding the design, dissemination, and use of private feedback reports on physician performance.1

1. The clinical data must be entered in the EHR as discrete data, including clinical events that happened in the past, such as a colonoscopy performed years earlier. This capability requires links with laboratories and imaging facilities, as well as data entry from the clinical interactions.

2. These discrete EHR data points must seamlessly populate the quality-reporting tool in a way that does not require additional data entry requirements. Clinicians must be able to use their usual methods of entering and recording clinical data through their EHR.

3. Performance measurement and benchmarking should expand beyond the individual practitioner to allow benchmarking on specific quality measures between practitioners across the entire clinical practice or network of practices, as well as against regional or national norms. Because many physicians are motivated by comparative information, expansion of the scope and scale of peer comparisons helps to change physician behavior.1

4. Performance measurement tools should enable practice-level population management by identifying patients who are not up-to-date or at goal for specific measures and generating care-gap lists for all quality measures.17,18

5. The performance measurement tool must be accessible at the point of care and use intuitive graphic displays to tell a clear story about the status of the individual patient relative to quality goals.18 This permits the use of clinical alerts to prompt action.18

6. Regular data updates, on at least a monthly or quarterly basis, are needed to support the ability to track performance measures over time with monitoring tools such as run charts.18

Using these criteria as a guide, a new technology vendor, Forward Health Group (Madison, WI), was selected for the revised program model. This model provides a software platform that is compatible with most EHR vendors that support patient-population and quality-measures data analytics, including Epic (Verona, WI), eClinicalWorks (Westborough, MA), and Next-Gen (Horsham, PA). The platform turns fragmented clinical and administrative healthcare data into actionable information that can be used to drive population health improvement.

Moreover, the platform can display data at the aggregate or individual level and has extensive drill-down capabilities for clinicians via a Web-based portal. This functionality enables clinic staff to identify the patients who constitute the numerator and denominator lists for a particular measure, which allows for continuous data validation and stewardship. Physicians can also review and correct erroneous patient-level data, a critical feature because it not only provides a feedback mechanism for addressing data quality but can also generate clinician trust in the reporting. The program’s quality measures were modified in 2012 to align with the Uniform Data System managed by the Health Resources and Services Administration’s Health Center Program and the Million Hearts initiative managed by the US Department of Health and Human Services. In addition, the program now offers 2 quality reporting measure sets: a reporting measure set and a TGA common measure set. The former will be calculated on the basis, are needed to support the ability to track performance measures over time with monitoring tools such as run charts.18

The Table contains the reporting measure set supported by the program and its alignment with national initiatives, including the Uniform Data System, PQRS, and Million Hearts. TGA captures many of the meaningful use stage 1 core clinical quality measures directly related to conditions and risk factors of interest to the American Cancer Society, American Diabetes Association, and American Heart Association. The program will maintain alignment with future meaningful use requirements and other federal mandates for quality improvement. The program has a yearly measure review and update process to ensure measure sets remain relevant and reflect the most current science. As new guidelines and measures are released, they will be reviewed for inclusion in the program as they become widely adopted nationally.
Future Strategies for Optimizing Quality

As of January 2014, the new program includes >56 clinic delivery sites with >370000 patients and >4 million medical records and continues to expand. The GE Foundation recently awarded a 2-year grant to TGA to fund program implementation in federally qualified health centers and improve the quality of care and health outcomes for the most vulnerable populations. The inclusion of federally qualified health centers offers a unique opportunity to better understand health disparities in the risk factors that affect the major causes of chronic diseases in the United States, namely, cancer, diabetes mellitus, and heart disease.

Other key program elements will be developed for online use as the program evolves over time. The program is being designed to serve as a future platform for participating groups to collaborate and share best practices that result in the most significant improvements. According to a recent report commissioned by the Agency for Healthcare Research and Quality, “The most successful interventions for changing practitioner behavior appear to involve interactive approaches allowing clinicians to meet and discuss improvement opportunities and challenges with their peers.”¹⁸ TGA Webcasts and other educational resources continue to provide a means of information sharing.

Research is another key area of future growth for the program. The GWTG program has generated >200 scientific papers analyzing the data submitted by participating inpatient hospitals.‡ Collectively, these papers have not only shown the utility of adherence to guidelines for outcomes improvement in patients with myocardial infarction, heart failure, and stroke, but they also have demonstrated that adherence to guidelines can substantially reduce (and even eliminate) health disparities. Similarly, TGA will serve as a vehicle for original research that identifies and shares interventions that improve quality in the outpatient setting.

Garnering public awareness and recognition for participating practices is a vital strategy for the program. The program already provides recognition to practices simply for participating. Similar to the recognition offered by GWTG, TGA eventually will recognize groups publicly that have achieved different levels of quality excellence (eg, GWTG recognizes hospitals at the gold, silver, and bronze levels). Aside from the credibility that would come with public recognition from 3 nationally recognized nonprofit organizations, these designations should help practices in their contract negotiations with third-party payers. Finally, as transparency becomes the norm in quality improvement efforts, more and more payers, government entities, and health systems are embracing public reporting of quality results. TGA is positioned to participate in efforts to publicly report quality efforts but will do so only when participating practices are ready and provide assent.

Public reporting will gradually become a powerful tool to motivate quality improvement, as well as a public expectation. TGA has the potential to become a clearinghouse through which quality information will be submitted to insurers. This could result in significant time savings for the clinician and vast improvements in data accuracy for payers.

In conclusion, maximizing adherence to quality-of-care guidelines is a high priority for the prevention and optimal clinical management of cancer, coronary artery disease, diabetes mellitus, and related complications. The nation is rapidly

---

<table>
<thead>
<tr>
<th>TGA Measure Description</th>
<th>NQF-Endorsed Measure Number</th>
<th>PQRS Measure Number</th>
<th>Meaningful Use Stage 2 for Eligible Professionals</th>
<th>Million Hearts</th>
<th>UDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension: controlling high blood pressure</td>
<td>0018</td>
<td>236</td>
<td>Recommended adult core</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ischemic vascular disease: use of aspirin or another antithrombotic</td>
<td>0068</td>
<td>204</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ischemic vascular disease: complete lipid panel and LDL-C control</td>
<td>0075</td>
<td>241</td>
<td>X</td>
<td>X</td>
<td>N/A</td>
</tr>
<tr>
<td>Coronary artery disease: drug therapy for lowering LDL-C</td>
<td>0074</td>
<td>197</td>
<td>N/A</td>
<td>N/A</td>
<td>X</td>
</tr>
<tr>
<td>Screening mammography</td>
<td>0031</td>
<td>112</td>
<td>X</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Colorectal cancer screening</td>
<td>0034</td>
<td>113</td>
<td>X</td>
<td>N/A</td>
<td>X</td>
</tr>
<tr>
<td>Cervical cancer screening</td>
<td>0032</td>
<td>309</td>
<td>X</td>
<td>N/A</td>
<td>X</td>
</tr>
<tr>
<td>HbA₁c poor control in diabetes mellitus</td>
<td>0059</td>
<td>1</td>
<td>X</td>
<td>N/A</td>
<td>X</td>
</tr>
<tr>
<td>Diabetes mellitus: HbA₁c control (&lt;8%)</td>
<td>0575</td>
<td>313</td>
<td>N/A</td>
<td>N/A</td>
<td>X</td>
</tr>
<tr>
<td>LDL-C control in diabetes mellitus</td>
<td>0064</td>
<td>2</td>
<td>X</td>
<td>N/A</td>
<td>X</td>
</tr>
<tr>
<td>Asthma: pharmacological therapy</td>
<td>0047</td>
<td>53</td>
<td>N/A</td>
<td>N/A</td>
<td>X</td>
</tr>
<tr>
<td>Body mass index screening and follow-up</td>
<td>0421</td>
<td>128</td>
<td>Recommended adult core</td>
<td>N/A</td>
<td>X</td>
</tr>
<tr>
<td>Tobacco use: screening and cessation intervention</td>
<td>0028</td>
<td>226</td>
<td>Recommended adult core</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Cholesterol: fasting LDL test performed and risk-stratified fasting LDL</td>
<td>0018</td>
<td>316</td>
<td>N/A</td>
<td>X</td>
<td>N/A</td>
</tr>
<tr>
<td>Screening for high blood pressure</td>
<td>N/A</td>
<td>317</td>
<td>N/A</td>
<td>X</td>
<td>N/A</td>
</tr>
</tbody>
</table>

¹⁸HbA₁c indicates hemoglobin A₁c; LDL, low-density lipoprotein; LDL-C, low-density lipoprotein cholesterol; N/A, not available; NQF, National Quality Forum; PQRS, Physician Quality Reporting System; TGA, The Guideline Advantage; and UDS, Uniform Data System.

‡For a complete list of GWTG scientific publications and program results, please visit http://www.heart.org/HEARTORG/HealthcareResearch/GetWithTheGuidelinesHFStrokeResus/Get-With-The-Guidelines-Scientific-Publications-and-Program-Results_UCM_306758_Article.jsp.
moving in the direction of technology platforms that support
data aggregation and analytics tied to quality improvement
at the patient-population level while facilitating various pay-
ment models (eg, accountable care organizations, pay for per-
formance). The lessons learned from the implementation and
evolution of TGA can inform this growing field in meaningful
and immediate ways. Additionally, there is a broader need to
support the development of clinician competencies in quality
improvement, clinical informatics, and population manage-
ment. Enhancement of the ability of providers and research-
ers to leverage the wealth of data now being collected in the
outpatient setting for quality improvement and population
management will ultimately improve the health of patients
across the country.

Disclosures

Writing Group Disclosures

<table>
<thead>
<tr>
<th>Writing Group Member</th>
<th>Employment</th>
<th>Research Grant</th>
<th>Other Research Support</th>
<th>Speakers’ Bureau/Honoraria</th>
<th>Expert Witness</th>
<th>Ownership Interest</th>
<th>Consultant/Advisory Board</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vincent Bufalino</td>
<td>Advocate Health</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Donna Arnett</td>
<td>University of Alabama at Birmingham</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Alan J. Balch</td>
<td>Patient Advocate Foundation (formerly American Cancer Society)</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Mary Ann Bauman</td>
<td>Integris Health</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>Editorial Board, Medical Economics*</td>
</tr>
<tr>
<td>Christopher Boone</td>
<td>Avalere Health, LLC (formerly, American Heart Association)</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Sarah Bradley</td>
<td>American Diabetes Association</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Regan Minners</td>
<td>American Diabetes Association</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Jay H. Shubrook</td>
<td>Ohio University Sanofi-Aventis INSPIRE Diabetes, PI*</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Katy Vennum</td>
<td>American Heart Association</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Richard C. Wender</td>
<td>American Cancer Society and Thomas Jefferson University</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

*Modest.

Reviewer Disclosures

<table>
<thead>
<tr>
<th>Reviewer</th>
<th>Employment</th>
<th>Research Grant</th>
<th>Other Research Support</th>
<th>Speakers’ Bureau/Honoraria</th>
<th>Expert Witness</th>
<th>Ownership Interest</th>
<th>Consultant/Advisory Board</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eric Smith</td>
<td>University of Calgary</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>Unpaid physician volunteer on GWTG Steering and Executive Committees*</td>
</tr>
<tr>
<td>Richard Snow</td>
<td>OhioHealth</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

*Modest.
References


Key Words: AHA Scientific Statements ■ cancer ■ cardiovascular diseases ■ diabetes mellitus ■ disease management ■ prevention ■ quality of health care ■ registries ■ stroke
Evolution of "The Guideline Advantage": Lessons Learned From the Front Lines of Outpatient Performance Measurement

Vincent Bufalino, Mary Ann Bauman, Jay H. Shubrook, Alan J. Balch, Christopher Boone, Katy Vennum, Sarah Bradley, Richard C. Wender, Regan Minners and Donna Arnett on behalf of the American Cancer Society, American Diabetes Association, and American Heart Association

Circ Cardiovasc Qual Outcomes. 2014;7:493-498; originally published online April 30, 2014; doi: 10.1161/HCQ.0000000000000003

Circulation: Cardiovascular Quality and Outcomes is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2014 American Heart Association, Inc. All rights reserved.
Print ISSN: 1941-7705. Online ISSN: 1941-7713

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://circoutcomes.ahajournals.org/content/7/3/493

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in Circulation: Cardiovascular Quality and Outcomes can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Circulation: Cardiovascular Quality and Outcomes is online at:
http://circoutcomes.ahajournals.org//subscriptions/