Get With The Guidelines: Lessons for National Healthcare Improvement Programs

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Measuring and Improving the Quality of Cardiovascular Care

• Cardiovascular disease remains a major public health problem resulting in substantial morbidity, mortality, and health care expenditures

• A number of evidence-based, guideline-recommended, high value therapies are available to treat patients with established cardiovascular disease as well as prevent cardiovascular disease

• However, study after study shows the large gaps, variations, and disparities in the use of these evidence based therapies in eligible patients
More than half of all heart disease and stroke patients do not receive consistent guideline directed therapy...

While evidence-based guidelines for AMI, HF, and Stroke care have been developed along with improved diagnostic and treatment modalities, there are gaps, variations, and disparities in how these are applied.

Furthermore many hospitals may not have the systems, organization, staff, and culture to provide highly reliable care at all times.

Gaps, Variations, and Disparities in Care

HF Therapy at Hospital Discharge Risk-Treatment Mismatch

ACEI/ARB at Hospital Discharge For HFrEF Variation By Hospital

Race/Ethnic and Sex Based Disparities in ICD Use

Generation, Translation, Implementation

Funding Basic, Translational, and Clinical Research

Organizing Scientific Sessions and Meetings

AHA/ASA/ACC Guidelines and Statements

ACC/AHA Performance Measures

Implementation into Clinical Practice

Improved Clinical Outcomes

Traditional Scope and Role of AHA/ASA
What is Get With The Guidelines?
Bridging the Gap Between Knowledge and Clinical Practice

<table>
<thead>
<tr>
<th>AHA/ACC Guidelines</th>
<th>Systems</th>
<th>Clinical Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>I IIa IIb III A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Clinical trial evidence</td>
<td>• Implement evidence-based care</td>
<td>• Improve quality of care</td>
</tr>
<tr>
<td>• National guidelines</td>
<td>• Improve communications</td>
<td>• Improve outcomes</td>
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</tbody>
</table>

GWTG is an initiative of the AHA to improve care quality and guidelines adherence in patients hospitalized with cardiovascular disease.

GWTG is a multidimensional quality improvement system with clinical decision support, national goals, recognition, collaborative learning sessions, webinars, tools and resources, and best practices to assist hospital teams to improve care and outcomes.

A Patient Management Tool is used for point of care data collection and decision support, on-demand benchmarked reporting, communication and patient education.
Improved Communication With Healthcare Providers
Increased coordination between hospital and referring physicians

Higher Quality of Care
Consistent, comprehensive, proven treatment methods

Customized Education Information
Short and long-term prevention strategies are based on patient’s specific risk

Improved Communication With Healthcare Providers
Increased coordination between hospital and referring physicians

Up-to-date Prevention Strategies
New techniques are made available through easy-to-understand tools

Decreased risk of death or recurrent related health problems

“Patients have a 10-to-15 fold higher likelihood of adhering to recommended prevention therapy when it is started in the hospital.”

Focus on Quality

heart.org/quality
Core Principles of Get With The Guidelines

• Focus is on quality improvement
• Success is in translating guidelines into clinical practice in the hospital setting
• Capitalizing on the ‘teachable moment’ for both patient and family
• Data drives change- moving from simply collecting data to driving process and system improvements by measuring trends in compliance in real time
• National recognition opportunities celebrating success of improved compliance within one hospital, in a region, and across the country!
• Best Practice sharing within the network of hospitals
• Evaluation through analytics to highlight key insights as well as consider future efforts
Building the Quality Improvement System & Hospital Teams

- Physicians
- Nurses
- Pharmacists
- Hospital Administrators
- Directors of Cardiac Services, Quality Improvement and Case Management
- Cardiac Rehab Team
- EMS
Networking and Creating Cultures of Quality
AHA Get With The Guidelines
Web Based Patient Management Tool

Web-based data entry with real time data quality checks

Track performance over time and against benchmarks from similar hospitals or all hospitals

Personalized patient education materials
GWTG-CAD: Performance Measures

Baseline = Admissions Jan2002 – Dec2002
Current = Admissions Jan2008-Dec2008

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Baseline</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASA within 24 Hours</td>
<td>82.1%</td>
<td>91.3%</td>
</tr>
<tr>
<td>ASA at Discharge</td>
<td>83.3%</td>
<td>94.4%</td>
</tr>
<tr>
<td>Beta Blockers at Discharge</td>
<td>77.9%</td>
<td>93.8%</td>
</tr>
<tr>
<td>ACEI or ARB at D/C for LVSD</td>
<td>68.8%</td>
<td>91.5%</td>
</tr>
<tr>
<td>Lipid Lowering Therapy at D/C for LDL &gt; 100</td>
<td>72.1%</td>
<td>92.1%</td>
</tr>
<tr>
<td>Smoking Cessation Counseling</td>
<td>62.6%</td>
<td>98.2%</td>
</tr>
<tr>
<td>Composite Performance Measure</td>
<td>76.9%</td>
<td>93.0%</td>
</tr>
<tr>
<td>100% Compliance Measure</td>
<td>56.1%</td>
<td>85.9%</td>
</tr>
</tbody>
</table>
GWTG-HF: Performance Measures

### LV Function Measurement

<table>
<thead>
<tr>
<th>Measure</th>
<th>Baseline</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACEI or ARB at D/C for LVSD</td>
<td>90.1%</td>
<td>98.8%</td>
</tr>
<tr>
<td>Evidence-Based Beta Blocker at D/C for LVSD</td>
<td>81.2%</td>
<td>95.3%</td>
</tr>
<tr>
<td>Beta Blocker at Discharge</td>
<td>61.0%</td>
<td>91.7%</td>
</tr>
<tr>
<td>Post Discharge Appointment for HF patients</td>
<td>87.3%</td>
<td>97.8%</td>
</tr>
<tr>
<td>Discharge Instructions</td>
<td>39.3%</td>
<td>69.8%</td>
</tr>
<tr>
<td>Composite Performance Measure</td>
<td>69.7%</td>
<td>95.9%</td>
</tr>
<tr>
<td>100% Compliance Measure</td>
<td>80.3%</td>
<td>96.9%</td>
</tr>
</tbody>
</table>

### Achievement Measure

*Modified to include Beta Blocker at Discharge and Discharge Instructions rather than Evidence-Based Beta Blocker at D/C and Post Discharge Appointment.*

**Baseline** = Admissions Jan2005 – Dec2005
**Current** = Overall

- April 2015
### GWTG-Stroke Performance Measures

<table>
<thead>
<tr>
<th>Achievement Measure</th>
<th>Baseline</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>tPA &lt; 3hr with Arrival &lt; 2hr after Onset</td>
<td>31.2%</td>
<td>86.4%</td>
</tr>
<tr>
<td>Early Antithrombotic</td>
<td>90.9%</td>
<td>97.2%</td>
</tr>
<tr>
<td>VTE Prophylaxis</td>
<td>72.2%</td>
<td>98.7%</td>
</tr>
<tr>
<td>Antithrombotic Tx at Discharge</td>
<td>93.7%</td>
<td>98.0%</td>
</tr>
<tr>
<td>Anticoag. Tx at Discharge for Afib</td>
<td>65.9%</td>
<td>94.8%</td>
</tr>
<tr>
<td>Lipid Lowering Therapy at D/C for LDL &gt; 100</td>
<td>40.1%</td>
<td>96.9%</td>
</tr>
<tr>
<td>Smoking Cessation Counseling</td>
<td>46.5%</td>
<td>96.5%</td>
</tr>
<tr>
<td>Composite Performance Measure</td>
<td>72.1%</td>
<td>96.9%</td>
</tr>
<tr>
<td>100% Compliance Measure</td>
<td>42.1%</td>
<td>93.2%</td>
</tr>
</tbody>
</table>

#### Compliance

- **Baseline:** 31.2% to 40.1%
- **Current:** 86.4% to 98.7%
Incremental and Sustained Impact on Care Quality

GWTG-STROKE: ACHIEVEMENT MEASURES

Composite Performance Measure


100% Compliance Measure

April 2016
Population Impact

78% of US population within reach of a GWTG Hospital

48% of all US hospital use one or more of our quality programs.
There are more than 8 million patient records and 6 million patients within AHA quality databases.
GWTG Program Highlights

- 2,250 Hospitals Participating
- 156 International Hospitals
- 1,900 Achievement Award Hospitals
- 25,000 Participants
- Over 450 Publications
- 3 Stroke Offerings
- 1 CVD Offering
<table>
<thead>
<tr>
<th>Year Initiated</th>
<th># Hospitals</th>
<th>Total Patients Entered</th>
<th>Total Patient Records Entered</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTION-Registry-GWTG**</td>
<td>2008</td>
<td>1,087</td>
<td>N/A</td>
</tr>
<tr>
<td>GWTG-HF</td>
<td>2005</td>
<td>637</td>
<td>1,791,617</td>
</tr>
<tr>
<td>GWTG-Stroke</td>
<td>2003</td>
<td>1,950</td>
<td>4,263,327</td>
</tr>
<tr>
<td>GWTG-Resuscitation</td>
<td>2000</td>
<td>368</td>
<td>n/a</td>
</tr>
<tr>
<td>GWTG-Afib</td>
<td>2013</td>
<td>102</td>
<td>27,328</td>
</tr>
<tr>
<td>The Guideline Advantage</td>
<td>2012</td>
<td>280 HCPs</td>
<td>606,466</td>
</tr>
<tr>
<td>Totals</td>
<td>4,144</td>
<td>6,082,272</td>
<td>8,875,837</td>
</tr>
</tbody>
</table>

GWTG-CAD*: Program completed transition to ACTION-Registry GWTG 12/31/09

ACTION-Registry-GWTG**: Total Patient Records count is received from ACC on a biannual basis. The number is based on count received in November 2016
Get With The Guidelines Works!

Hospitals Participating in GWTG Provide Higher Quality Care with Better Clinical Outcomes than Other Hospitals
### Get With The Guidelines-Heart Failure Participation, Quality of Care and Clinical Outcomes

<table>
<thead>
<tr>
<th>Measure</th>
<th>GWTG-HF Hospitals (n=355)</th>
<th>Non-GWTG Hospitals (n=3909)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LVEF documented</td>
<td>92.8%</td>
<td>83.0%</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>ACEI/ARB in LVSD</td>
<td>85.6%</td>
<td>81.4%</td>
<td>0.001</td>
</tr>
<tr>
<td>Discharge Instructions</td>
<td>67.7%</td>
<td>55.3%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Smoking Cessation Counseling</td>
<td>85.7%</td>
<td>81.3%</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Risk-adjusted 30-day mortality for HF was lower in Get With The Guidelines PAA hospitals compared to non-Get With The Guidelines hospitals.
Hospital performance recognition with the Get With The Guidelines Program and mortality for acute myocardial infarction and heart failure

Paul A. Heidenreich, MD, MS, a William R. Lewis, MD, b Kenneth A. LaBresh, MD, c Lee H. Schwamm, MD, d and Gregg C. Fonarow, MD e Palo Alto, CA; Cleveland, OH; Boston, MA; and Los Angeles, CA

Background  Many hospitals enrolled in the American Heart Association’s Get With The Guidelines (GWTG) Program achieve high levels of recommended care for heart failure, acute myocardial infarction (MI) and stroke. However, it is unclear if outcomes are better in those hospitals recognized by the GWTG program for their processes of care.

Methods  We compared hospitals enrolled in GWTG and receiving achievement awards for high levels of recommended processes of care with other hospitals using data on risk-adjusted 30-day survival for heart failure and acute MI reported by the Center for Medicare and Medicaid Services.

Results  Among the 3,909 hospitals with 30-day data reported by Center for Medicare and Medicaid Services 3,55 (9%) received GWTG achievement awards. Risk-adjusted mortality for hospitals receiving awards was lower for both heart failure (11.0% vs 11.2%, P = .0005) and acute MI (16.1% vs 16.5%, P < .0001) compared to those not receiving awards. After additional adjustment for hospital characteristics and noncardiac performance measures, the reduction in mortality remained significantly lower for GWTG award hospitals for acute myocardial infarction (–0.19%, 95% CI –0.33 to –0.05), but not for heart failure (–0.11%, 95% CI –0.25 to 0.02). Additional adjustment for cardiac processes of care reduced the benefit of award hospitals by 28% for heart failure mortality and 43% for acute MI mortality.

Conclusions  Hospitals receiving achievement awards from the GWTG program have modestly lower risk adjusted mortality for acute MI and to a lesser extent, heart failure, explained in part by better process of care. (Am Heart J 2009;158:546-53.)
Impact of GWTG-HF in Teaching and Non-Teaching Hospitals

Guideline-Appropriate Care and In-Hospital Outcomes in Patients With Heart Failure in Teaching and Nonteaching Hospitals

Findings From Get With The Guidelines–Heart Failure

Dhavalkumar B. Patel, MD, MPH; Rachit M. Shah, MD; Deepak L. Bhatt, MD, MPH; Li Liang, PhD; Phillip J. Schulte, PhD; Adam D. DeVore, MD; Adrián F. Hernandez, MD, MPH; Paul A. Heidenreich, MD, Clyde W. Yancy, MD; Gregg C. Fonarow, MD

Background—Despite increasing awareness regarding evidence-based guidelines, considerable gaps exist for heart failure (HF) quality of care at teaching hospitals (TH) and nonteaching hospitals (NTH). We analyzed data from Get With The Guidelines (GWTG)-HF to compare the rates and trends of guideline-recommended care at TH and NTH for patients with HF.

Method and Results—Baseline patient characteristics, performance measures, and in-hospital outcomes were compared between 197,187 HF patients admitted to TH and 106,924 patients admitted to NTH between 2005 and 2014. Patients treated in TH were younger and were more likely to be black and uninsured. Defect-free care (defined as 100% compliance with performance measures) was similar in both groups of hospitals (crude rates: 88% at TH versus 86% at NTH, adjusted odds ratio 0.99, 95% confidence interval 0.73–1.34) as were individual performance measures: discharge instruction, documentation of ejection fraction, use of angiotensin-converting enzyme inhibitors/angiotensin receptor antagonists, use of β-blocker, and smoking cessation counseling. During the study period, there was improvement in adherence with performance measures over time, with no significant difference at TH (adjusted odds ratio 1.20, 95% confidence interval 1.11–1.30; P=0.01) and NTH (adjusted odds ratio 1.09, 95% confidence interval 1.02–1.17; P=0.01; interaction P value 0.07).

Conclusions—Data from the GWTG-HF program suggest that there was improving and comparable adherence to HF performance measures and use of guideline-recommended therapies irrespective of hospital teaching status. (Circ Cardiovasc Qual Outcomes. 2016;9:757-766. DOI: 10.1161/CIRCOUTCOMES.115.002542.)

- Hospitals in the GWTG HF program improved care to similar degree at teaching and non-teaching hospitals over the 10 year study period.
- Defect-free care -- defined as 100% compliance with performance measures -- was similar for both hospital types. 88% at Teaching and 86% at Non-Teaching Hospitals.
- Adherence with guideline-recommended care has been shown to have a major impact on in-hospital and long-term clinical outcomes in heart failure patients, including survival, quality of life, and readmission.
GWTG Narrows or Eliminates Disparities in Care

Elimination of Race-Ethnic Disparities in Defect Free Care in Coronary Artery Disease

- Overall, defect-free care was: 80.9% for Caucasians
- 79.5% for Hispanics
- 77.7% for African Americans

Overall OR: 1.08 (1.05-1.10)
African American vs. Caucasian OR: 0.88 (0.79-1.21)
Hispanic vs. Caucasian OR: 1.19 (0.93-1.53)

Elimination of Race-Ethnic Disparities in Multiple Measures of Heart Failure Care

- P < .0001
- P = .0002
- P = .3911


Thomas K et al. Am Heart J. 2011;161:746-54.
## Impact of Evidence-Based HF Therapy Use at Hospital Discharge on Treatment Rates During Follow-Up

**60- to 90-Day Postdischarge Follow-Up**

<table>
<thead>
<tr>
<th>Therapy Use at Discharge</th>
<th>Eligible Patients Treated at Follow-Up (%)</th>
<th>OR (95% CI)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>β-Blocker at Discharge</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td>93.1</td>
<td>30.6 (22.53-41.57)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>NO</td>
<td>30.4</td>
<td>(94/309)</td>
<td></td>
</tr>
<tr>
<td><strong>ACEI/ARB at Discharge</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td>71.4</td>
<td>10.22 (7.79-13.41)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>NO</td>
<td>19.6</td>
<td>(75/382)</td>
<td></td>
</tr>
</tbody>
</table>

Impact of an Expanded Hospital Recognition Program for Stroke Quality of Care

Paul A. Heidenreich, MD, MS; Xin Zhao, MS; Adrian F. Hernandez, MD, MHS; Lee H. Schwamm, MD; Eric Smith, MD, MPH; Mat Reeves, PhD; Eric D. Peterson, MD, MPH; Gregg C. Fonarow, MD

Background—In 2009, the Get With The Guidelines-Stroke (GWTG-Stroke) program offered additional recognition if hospitals performed well on certain stroke quality measures. We sought to determine whether quality of care for all hospitals participating in GWTG-Stroke improved with this expanded recognition program.

Methods and Results—We examined hospital-level performance on 6 quality of care (process) measures and 1 defect-free composite quality measure for stroke following expansion of the existing performance measure recognition program. Compliance with all measures improved following launch of the expanded program, and this rate increased significantly for all 9 measures. When evaluated as the relative rate of increase in use over time, process improvement slowed significantly (P<0.05) following launch of the program for 2 measures, and accelerated significantly for 1 measure. However, when evaluated as a gap in care, the decrease in the quality gap was greater following launch of the program for 5 of 6 (83%) measures. There was no evidence that other processes of stroke care suffered as the result of the increase in measures and expanded recognition program.

Conclusions—While care for stroke continues to improve in this country, expanded hospital process performance recognition had mixed results in accelerating this improvement. However, the quality gap continues to shrink among those participating in provider performance programs. (/Am Heart Assoc. 2017;65:e004278. DOI: 10.1161/JAHA.116.004278.)

Key Words: awards • health care quality assessment • health care quality indicators • hospital performance • performance measure • stroke
In-Hospital Mortality and Guideline Adherence

Hospitals Adopting GWTG-Stroke Improve In-Hospital and One-Year Outcomes of Stroke Patients

Association of Get With The Guidelines-Stroke Program Participation and Clinical Outcomes for Medicare Beneficiaries With Ischemic Stroke

Sarah Song, MD, MPH; Gregg C. Fonarow, MD; DaWai M. Olson, PhD, RN; Li Liang, PhD; Phillip J. Schulte, PhD; Adrian F. Hernandez, MD, MS; Eric D. Peterson, MD, MPH; Mathew J. Reeves, PhD; Eric E. Smith, MD, MPH; Lee H. Schwamm, MD; Jeffrey L. Saver, MD

Background and Purpose—Get With The Guidelines (GWTG)-Stroke is a national, hospital-based quality improvement program developed by the American Heart Association. Although studies have suggested improved processes of care in GWTG-Stroke-participating hospitals, it is not known whether this improved care translates into improved clinical outcomes compared with nonparticipating hospitals.

Methods—From all acute care US hospitals caring for Medicare beneficiaries with acute stroke between April 2003 and December 2008, we matched hospitals that joined the GWTG-Stroke program with similar hospitals that did not. Using a difference-in-differences design, we analyzed whether hospital participation in GWTG-Stroke was associated with a greater improvement in clinical outcomes compared with the underlying secular change.

Results—The matching algorithm identified 366 GWTG-Stroke-adopting hospitals that cared for 88,384 acute ischemic stroke admissions and 366 non-GWTG-Stroke hospitals that cared for 85,401 acute ischemic stroke admissions. Compared with the Pre period (18–6 months before program implementation), in the Early period (0–6 months after program implementation), GWTG-Stroke hospitals had accelerated increases in discharge to home and reduced mortality at 30 days and 1 year. In the Sustained period (6–18 months after program implementation), the accelerated reduction in mortality at 1 year was sustained, with a trend toward sustained accelerated increase in discharge home.

Conclusions—Hospital adoption of the GWTG-Stroke program was associated with improved functional outcomes at discharge and reduced postdischarge mortality. (Stroke. 2016;47:1294-1302. DOI: 10.1161/STROKEAHA.115.011874.)
Population Level Impact: Declines in AMI, HF, and Ischemic Stroke Mortality

30-Day Mortality Rates for AMI, HF, and Ischemic Stroke Medicare Fee-for-Service Beneficiaries: 1999-2011

- AMI: -29.4%
- Heart Failure: -16.4%
- Ischemic Stroke: -4.7%

3,267,884 hospitalizations for myocardial infarction; 5,895,686 for heart failure; 3,726,488 for ischemic stroke

Krumholz H et al Circulation 2014  DOI: 10.1161/CIRCULATIONAHA.113.007787
Age Adjusted Heart Disease & Stroke Deaths per 100,000
2007-2015 Actual vs. 20% Impact Goal Scenario


Substantial Opportunity to Improve Timeliness of IV tPA in Ischemic Stroke Identified in GWTG-Stroke

Because of the importance of rapid treatment, AHA/ASA guidelines recommend a door-to-needle (DTN) time of ≤60 minutes for IV tPA.

Despite evidence, guideline recommendations, the existence of the Brain Attack Coalition, and Primary Stroke Center certification <30% of ideal candidates received IV tPA within 60 minutes.

Target: Stroke Initiative

Target: Stroke 10 Key Best Practice Strategies

1. Hospital pre-notification by Emergency Medical Services
2. Rapid triage protocol and stroke team notification
3. Single call/paging activation system for entire stroke team
4. Use of a stroke toolkit containing clinical decision support, stroke-specific order sets, guidelines, hospital-specific algorithms, critical pathways, NIH Stroke Scale and other stroke tools
5. Rapid acquisition and interpretation of brain imaging
6. Rapid Laboratory Testing (including point-of-care testing) if indicated
7. Pre-mixing tPA medication ahead of time for high likelihood candidates
8. Rapid access to intravenous tPA in the ED/brain imaging area
9. Team-based approach
10. Rapid data feedback to stroke team on each patient’s DTN time and other performance data

Customizable Implementation Tools

- Patient time-trackers
- Guideline based algorithms
- tPA checklist
- Standardized order sets
- Dosing charts
- Clinical pathways
- Evidence-based protocols
- EMS tools
- Patient educational materials
- Other tools

Target: Stroke tools: www.targetstroke.org
Clinical tools library: heart.org/strokeclinicaltools.

• The timeliness of tPA administration improved substantially in GWTG-Stroke hospitals after initiation of the multidimensional AHA/ASA Target: Stroke quality initiative.

• The proportion of patients with DTN times ≤60 minutes increased from 29.6% to 53.3%. There was also a more than 4-fold increase in the annual rate of improvement in patients with DTN time ≤60 minutes.

• This improvement was accompanied by lower in-hospital mortality, symptomatic intracranial hemorrhage, and overall tPA complications with more patients able to be discharged to home.

Target: Stroke Primary Results
Quality Research Publications

Years through 4/20/17
Total Pubs by Program:
* GWTG HF: 89
* GWTG Stroke: 100
* GWTG CAD: 56
* GWTG Resuscitation: 102
* Action-Registry GWTG: 86
* Mission: Lifeline: 13
* TQA: 2
* GWTG AFib: 2

Note: "Due to the transition over to ACTION Registry-GWTG, GWTG - CAD closed effective December 31, 2009 with final data entry completed on March 31, 2010."

* Pubs for more than module are counted in both module
* Pubs counted in year they went online or print

GWGTG Heart Failure
GWGTG Stroke
GWGTG CAD
GWGTG Resuscitation
ACTION-GWTG
Mission: Lifeline
The Guideline Advantage
GWGTG AFib

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Registry Data Linked to Medicare Data for Clinical and Comparative Effectiveness

**Linking inpatient clinical registry data to Medicare claims data using indirect identifiers**

Bradley G. Hammill, MS, Adrian F. Hernandez, MD, MHS, Eric D. Peterson, MD, MPH, Gregg C. Fonarow, MD, Kevin A. Schulman, MD, and Lesley H. Curtis, PhD

**Background**

Inpatient clinical registries generally have limited ability to provide a longitudinal perspective on care beyond the acute episode. We present a method to link hospitalization records from registries with Medicare inpatient claims data, without using direct identifiers, to create a unique data source that pairs rich clinical data with long-term outcome data.

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### Clinical Registry Data

- Wealth of data on clinical characteristics, symptoms, comorbid conditions, vital signs, laboratories, treatments, short term outcomes
- Limited or absent longitudinal outcome data
- Often no unique identifiers

### Medicare Claims Data

- Minimal clinical data
- Detailed data on hospitalizations, procedures, outpatient visits, health care utilization, costs, and deaths (and some data on medications from Part D)
- Identified
Registry Data for Clinical and Comparative Effectiveness Research

Clinical Effectiveness of Implantable Cardioverter-Defibrillators Among Medicare Beneficiaries with Heart Failure
Adrian F. Hernandez, MD, MHSc, Gregg C. Fonarow, MD, Bradley G. Hammill, MS, Paul C. Makaroun, MD, MSCI, Nael A. Abi-Samra, MD, Stephen J. Daniels, MD, PhD, and Kevin A. Shannon, MD, PhD. Boston, MA: The Harvard-MIT Division of Health Sciences and Technology; and Partners HealthCare, Boston, MA.

Background: The clinical effectiveness of implantable cardioverter-defibrillators (ICDs) in older patients with heart failure has not been established, and similar safety and outcome information is lacking in previous studies.

Methods: We identified patients with heart failure who were aged 65 years or older and were eligible for an ICD, but who had not received an ICD, from linked Medicare administrative and ICD claims databases from 2000 to 2006. We matched each patient to 5 comparison patients from the Medicare人群 on the basis of age, sex, race, and year of death.

Results: There were 277,665 patients with heart failure eligible for an ICD, 19% of whom received an ICD. Compared with comparison patients, patients who received an ICD were younger, in better functional status, and more likely to be on angiotensin-converting enzyme inhibitors. The 1-year event rates for rate control and rhythm control were similar, but the 3-year event rates were higher in ICD patients. The proportion of patients with ICDs who died of cardiac causes within 3 years was 21%, compared with 16% in the comparison group (hazard ratio, 1.23; 95% confidence interval, 1.19 to 1.27).

Conclusion: Implantable cardioverter-defibrillators may be beneficial for some patients with heart failure, particularly those who are younger and in better functional status.

November 2010; 115(9):1699–1705.
Key Elements to Quality Improvement

1. Access to current and accurate data on treatment and outcomes
2. Physician champion, support among clinicians
3. Have stated goals
4. Administrative support
5. Use of pre-printed orders, care maps
6. Use of data to provide feedback

Bradley JAMA 2001;285:2604-2611
What’s Next for AHA Quality Improvement?
On the domestic front advance the effort of transforming guidelines into practice through the Guidelines Transformation and Optimization (GTO) program. Accelerating the guidelines development process as well as optimizing the guidelines implementation process.

Internationally create a ‘Global Collaboratory’ with the AHA as the convener of those engaged in QI projects around the world coming together to share their experience for ongoing learning and program growth.
• AHA has aligned its international mission with the World Health Organization 25X25 Campaign

• 193 countries preparing their country plans to describe and implement strategies to meet this goal
  
  - Mortality from CV disease often noted as one of the top 3 causes of premature death

• Quality Improvement programs align with the efforts through increased application of guidelines based care
  
  - leading to increased delivery of acute care therapies for time sensitive diagnosis
  
  - leading to compliance with secondary prevention therapies at time of discharge
Role of Registries in Knowledge Generation and Learning Health Systems

Adapted from Califf RM, Peterson ED et al. JACC 2002;40:1895-901
Conclusions

• A large treatment gap between guidelines and practice exists for cardiovascular disease and as a result large number of patients are having recurrent fatal and non-fatal events that could have been prevented

• Performance improvement programs like GWTG can significantly increase the utilization of evidence-based, guideline recommended therapies and as a result reduce death and disability due to cardiovascular disease

• There are opportunities for collaboration between professional societies to further advance quality improvement globally
Thank You