Changing Lives Through Prevention
Webinar Presented June 25, 2013
Providers can use several different technology platforms.

Practices submit collective clinical data to Forward Health Group for The Guideline Advantage.

Data are processed, analyzed and provided back to the practice via a practice portal.

Performance is measured, professionals can set measureable goals and chart improvements in performance.
As a part of quality improvement, clinical data must be aggregated into a data warehouse to facilitate analysis and reporting.

Data Extract (Basic Model requires secure upload by customer)

Key activities include:
- Data Alignment
- Denominator Calculation
- Numerator Calculations
- Attribution
- Benchmarking

Technically speaking... how does it work?
Program Models

**Basic Model**
- ✔ Common Measure Set & Reporting
  Measure Set, with clinic & provider views and one-click access to patient lists
- ✔ Patient Lists with filtering options and action list functionality
- ✔ Demographic Information & detail patient views
- ✔ Comparison, Benchmarking & Historical Trending by clinic and provider
- ✔ No Cost program implementation

**Premium Model**
- ✔ An Additional Measure Set available as defined by the customer
- ✔ Views & filtering options for Teams
- ✔ Customer Driven Functionality, including demographic information displays, incentive program tracking, & non-clinical custom groupings
- ✔ Complete data advisory service, including comprehensive consultations and guidance in identifying data sources, mapping, data cleansing and alignment
- ✔ Fixed implementation fee and annual licenses
Advantages to Practices & Physicians

On-demand access to quality improvement data using a web-based tool

Available physician-level reporting

Clinic and system aggregation

Tools for creating action lists

Alignment with key national initiatives

National and State Benchmarking
Practice Network opportunities including virtual workshops and national recognition
The Guideline Advantage’s Measures

<table>
<thead>
<tr>
<th>Diabetes Mellitus</th>
<th>Preventive Care Screening</th>
<th>Cancer</th>
<th>Cardiovascular</th>
</tr>
</thead>
<tbody>
<tr>
<td>• HbA1c Control</td>
<td>• BMI Screening &amp; Follow-up</td>
<td>• Colorectal Cancer Screening</td>
<td>• Ischemic Vascular Disease: Aspirin Use &amp; Lipid panel</td>
</tr>
<tr>
<td>• LDL Control</td>
<td>• Influenza Vaccination</td>
<td>• Mammography Screening</td>
<td>• Hypertension: Blood Pressure Control</td>
</tr>
<tr>
<td>• High Blood</td>
<td>• Tobacco Use and Counseling</td>
<td>• Cervical Cancer Screening</td>
<td>• CAD: Lipid-lowering Therapy</td>
</tr>
<tr>
<td>Pressure Control</td>
<td>• Blood Pressure Screening</td>
<td></td>
<td>• CAD: Antiplatelet Therapy</td>
</tr>
<tr>
<td>• Annual nephropathy screening (urine albumin)</td>
<td>• LDL Measurement</td>
<td></td>
<td>• CAD: Blood Pressure Control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• CAD: Tobacco Use</td>
</tr>
</tbody>
</table>
Alignment with National Programs

**Million Hearts Initiative**

The Guideline Advantage reports on the “ABCS” measures of interest to Million Hearts

http://millionhearts.hhs.gov/index.html

**Uniform Data System (UDS)**

The program reports all adult UDS measures of interest to Community Health Centers and Federally Qualified Health Centers
Leading practices for effective participation

- Use existing EHR platform; don’t interrupt work flow to collect data; offer vendor or neutral program model
- Provide tools and resources (Webinars, CME programs, etc.) to help develop a culture of quality improvement
- Provide feedback and consult with practices on how to disseminate information
- Encourage focus on 1-2 areas only
- Direct practices to resources to support improvement
- Recognize and link to incentives

These are just a few of the best practices shared by the program.
Vision & Goal

Vision

To improve the health of all patients through widespread application of primary and secondary prevention guidelines in the United States through data collection, analysis, feedback and quality improvement in the ambulatory setting.

Goal

To improve the long-term compliance with the ACS, ADA and AHA/ACC guidelines, which in turn supports our shared organizational mission to prevent chronic diseases and to improve the lives of those living with the nation’s most prevalent chronic diseases.

The Guideline Advantage is based on the success of nearly 10 years experience in inpatient quality improvement and over 2 millions lives touched.
Questions?

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Changing Lives Through Prevention

Adrian F. Hernandez, MD, MHS
Associate Professor of Medicine
Director of Outcomes Research Research
& Associate Director,
Duke Clinical Research Institute
Case Study 1

- Patient is 55 yo male from North Carolina
  - Hx of HTN, DM
- Admitted with NSTE MI
  - Acute Cath: LAD (IRA); PCI with DES
  - Uncomplicated hospital course
  - Discharged on asa, clopidogrel, beta-blocker, statin, ace-inhibitor, insulin.
- At discharge, told to set up appointment in a clinic in 4 weeks...yet “lost to follow up…”

3 months later; re-presented w shock, anterior STEMI
Expires
Quality issues?
Case Study 2

- Patient is 75 yo WF
  - Hx of HTN, CRI, HF, anemia
- Admitted with ant NSTE MI/HF
  - Cath: LAD (IRA); PCI with BMS
  - Post cath course c/b transient ARF, HF
  - Discharged on asa, clopidogrel, beta-blocker, statin, ace-inhibitor.
- At discharge, set up for 6 week follow-up in clinic

- 4 weeks later; readmitted with HF, BP 190/100, K=5.8
- Readmitted; meds adjusted, D/C
- Quality issues?
Transitions and Preventing Future Ones

Transition 1
Cardiology Acute Care

GUIDELINES

Transition 2
Ambulatory Care CV Rehabilitation 2º Prevention
ASA, if not contraindicated

ASA + Clopidogrel, for up to 1 year

β-blocker, if not contraindicated

Statin ↓ LDL <100 mg/dL, ideally <70

ACE/ARB: CHF, EF < 40%, DM, or HTN

Aldosterone blocker, if EF <40% and HF or DM and no renal or hyperkalemia


Optimal Secondary Prevention

ACTION Registry-GWTG DATA: July 1, 2007 – June 30, 2008

Bar chart showing the percentage of patients who received appropriate medications for secondary prevention:
- ASA: 99% (STEMI), 97% (NSTEMI)
- Beta Blockers: 98% (STEMI), 95% (NSTEMI)
- ACE-I or ARB: 88% (STEMI), 75% (NSTEMI)
- Statins: 93% (STEMI), 87% (NSTEMI)
- Clopidogrel: 91% (STEMI), 74% (NSTEMI)
Optimal Lifestyle Modification?

ACTION Registry-GWTG DATA: July 1, 2007 – June 30, 2008

<table>
<thead>
<tr>
<th>Intervention</th>
<th>STEMI</th>
<th>NSTEMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise Counseling</td>
<td>88%</td>
<td>79%</td>
</tr>
<tr>
<td>Dietary Modification</td>
<td>94%</td>
<td>89%</td>
</tr>
<tr>
<td>Cardiac Rehab Referral</td>
<td>97%</td>
<td>94%</td>
</tr>
<tr>
<td>Smoking Cessation</td>
<td>81%</td>
<td>70%</td>
</tr>
</tbody>
</table>

ACTION Registry-GWTG DATA: July 1, 2007 – June 30, 2008
Million Hearts™

Goal: Prevent 1 million heart attacks and strokes in 5 years

- National initiative co-led by CDC and CMS
- Partners across federal and state agencies and private organizations
- American Heart Association a major partner
Leading Causes of Death

• Cause 1 of every 3 deaths
• More than 2 million heart attacks and strokes each year
  – 800,000 deaths
  – Leading cause of preventable death in people <65
  – $444B in health care costs and lost productivity
  – Treatment costs are ~$1 for every $6 spent
• Greatest contributor to racial disparities in life expectancy
## Status of the ABCS

<table>
<thead>
<tr>
<th>Aspirin</th>
<th>People at increased risk of cardiovascular events who are taking aspirin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood pressure</td>
<td>People with hypertension who have adequately controlled blood pressure</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>People with high cholesterol who are effectively managed</td>
</tr>
<tr>
<td>Smoking</td>
<td>People trying to quit smoking who get help</td>
</tr>
</tbody>
</table>
Strategies

**CLINICAL PREVENTION**
Optimizing care

**COMMUNITY PREVENTION**
Changing the context

- No smoking
- Salt
- Trans Fat
Focus on the ABCS

- Simple, uniform set of measures
- Measures with a lifelong impact
- Data collected or extracted in the workflow of care
- Link performance to incentives
Clinical Prevention

- Fully deploy health information technology (HIT)
- Registries for population management
- Point-of-care tools for assessment of risk for CVD
- Timely and smart clinical decision support
- Reminders and other health-reinforcing messages
Clinical Prevention

• Innovate care delivery
• Embed ABCS and incentives in new models
  – Health homes, Accountable Care Organizations, bundled payments
  – Interventions that lead to healthy behaviors
• Mobilize a full complement of effective team members
  – Pharmacists, cardiac rehabilitation teams
  – Health coaches, lay workers, peer wellness specialists
## Getting to Goal

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Baseline</th>
<th>Target</th>
<th>Clinical target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin for those at high risk</td>
<td>47%</td>
<td>65%</td>
<td>70%</td>
</tr>
<tr>
<td>Blood pressure control</td>
<td>46%</td>
<td>65%</td>
<td>70%</td>
</tr>
<tr>
<td>Cholesterol management</td>
<td>33%</td>
<td>65%</td>
<td>70%</td>
</tr>
<tr>
<td>Smoking cessation</td>
<td>23%</td>
<td>65%</td>
<td>70%</td>
</tr>
</tbody>
</table>

Unpublished estimates from Prevention Impacts Simulation Model (PRISM).
BP Control in US

65 Million

- Not Controlled
  13.1 Million (71%)

- Not Aware
  24 Million (37%)

- Aware
  41 Million (63%)

  - Not Treated
    22.5 Million (54%)

  - Under Treatment
    18.5 Million (45%)

- Controlled
  5.4 Million (29%)

Why is BP Not Controlled? Issues

- Patient
  - Awareness
  - Behaviors
- Clinician
  - Awareness
  - Responsiveness
- Systems Issues
  - Access and coverage
  - Fragmented care delivery
Awareness Issues

• While most aware of hypertension…
  – In certain segments, awareness is very low: e.g., Hispanic women and men 70% and 54%
• Consequences also poorly conveyed…
  – Fewer than 8% of ESRD patients were ever told that HBP leads to renal failure
  – Patients with both HBP and diabetes are much more likely to monitor blood glucose than BP
While self-pay or free care generally have lower control rates…

Access is not the whole answer…
- 92% of patients with uncontrolled BP insured
- 86% have regular care (>4 visits per year)
Clinician Awareness?

- Lack of knowledge of guidelines
  - e.g., Less aggressive with older patients
- General overestimate their pts BP control
  - By up to 30% in most studies
- Failure to alter plan when targets not reached…
- Failure to assess compliance…. 
Provider-Level Variability in BP Control Rates

After adjusting for patient level factors variability still statistically significant p<0.005

Navar AM et al. Circ Outcomes.
• Patients fail to take prescribed meds.
  …During first year of treatment
  – Less than 50% had medications on hand
  – Fewer than 21% refilled the prescription
  – Less than 25% had sufficient compliance to achieve benefits
Background: Despite the importance of blood pressure (BP) control in secondary prevention, a significant number of patients fail to achieve and maintain BP control. This study examined the factors associated with BP control in coronary disease patients.

Results: Three SBP trajectory groups were identified: (1) patients with BP that remained controlled (i.e., SBP ≤ 140 mmHg) throughout the study period, (2) patients who experienced a transient increase in SBP, and (3) patients who had persistent SBP elevation. The factors associated with SBP trajectory were examined using multivariable regression analysis.

Of those not controlled...
1/3 of MDs didn’t intensify therapy despite persistent HBP
1/3 of patients’ were non-compliant with meds; yet
2/3rds of these had their BP meds intensified!

Conclusions: These findings suggest that medication non-adherence can help explain why BP levels remained elevated despite intensification of antihypertensive medications. Successful BP control is seen with a combination of intensification and adherence, suggesting that therapy

Ho PM et al Arch Int Med 2008;168:259-60
Changing Many Lives

<table>
<thead>
<tr>
<th>Reduction in BP, mm Hg</th>
<th>% Reduction in Mortality Stroke</th>
<th>CHD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>-6</td>
<td>-4</td>
<td>-3</td>
</tr>
<tr>
<td>3</td>
<td>-8</td>
<td>-5</td>
<td>-4</td>
</tr>
<tr>
<td>5</td>
<td>-14</td>
<td>-9</td>
<td>-7</td>
</tr>
</tbody>
</table>
All-Cause Hospitalization Risk Declines with Adherence

![Graph showing the risk of hospitalization for hypertension and hypercholesterolemia across different medication adherence levels.](Image)
Total Costs Decrease with Medication Adherence

- Hypertension
- Hypercholesterolemia

Medication Adherence:
- 1%-19%
- 20%-39%
- 40%-59%
- 60%-79%
- 80%-100%

Total Cost:
- $0 to $2,000
- $2,000 to $4,000
- $4,000 to $6,000
- $6,000 to $8,000
- $8,000 to $10,000
- $10,000 to $12,000

Graph shows decreasing total costs as medication adherence increases from 1% to 100% for both hypertension and hypercholesterolemia.
New Frontiers in Prevention

• Consistent use of existing options
  – Initial and long-term

• Smoothing care transitions
  – preventing readmission

• Sustaining long-term goals
  – Improving long-term adherence
  – Reaching target goals
Current Quality of Cardiovascular Prevention for Million Hearts™

An Analysis of 147,038 Outpatients from The Guideline Advantage™

Zubin J. Eapen, MD, MHS; Li Liang, PhD; Vincent J. Bufalino, MD; Eric D. Peterson MD, MPH; Adrian F. Hernandez, MD, MHS

Duke Clinical Research Institute (Durham, NC) and Midwest Heart Specialists (Naperville, IN)
Background

• Million Hearts™ is a national initiative to prevent 1 million heart attacks and strokes over 5 years by improving cardiovascular prevention.

• The quality of outpatient cardiovascular prevention has not been fully described.
Mechanism for contributing data

Mapping document \rightarrow Site

Mapping document

Mapping document \rightarrow Site
Mechanism for contributing data

Continuity of care record

Site

Continuity of care record

Site

Continuity of care record

Site
Goals of Million Hearts

A • Aspirin for high-risk patients

B • Blood pressure control

C • Cholesterol management

S • Smoking cessation
Denominators

- Patients aged 18 and older with:
  - a diagnosis of ischemic vascular disease or acute myocardial infarction
Denominators

A

B

• Patients aged 18 through 85 years who:
  • have a diagnosis of hypertension
  • whose blood pressure was adequately controlled (<140/90 mmHg) during the most recent outpatient visit

C

S
Denominators

- Patients aged 18 through 75 years with:
  - a diagnosis of diabetes mellitus
  - whose most recent LDL-C level was less than 100 mg/dL during the 12 months prior to the most recent visit
Denominators

A

B

C

S

- Patients aged 18 years and older who:
  - were screened for tobacco use at least once during the 24 months prior to the most recent visit and
  - received a tobacco cessation intervention if identified as a tobacco user
## Baseline characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency (n = 147,038)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, median (25\textsuperscript{th}, 75\textsuperscript{th}) year</td>
<td>62 (49,73)</td>
</tr>
<tr>
<td>Female sex, %</td>
<td>49.6</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>73.4</td>
</tr>
<tr>
<td>Black or African American</td>
<td>5.4</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1.5</td>
</tr>
<tr>
<td>Asian</td>
<td>0.9</td>
</tr>
<tr>
<td>Other</td>
<td>5.4</td>
</tr>
<tr>
<td>Unable to determine</td>
<td>13.4</td>
</tr>
</tbody>
</table>
# Baseline characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency (n = 147,038)</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of, %</td>
<td></td>
</tr>
<tr>
<td>Chronic pulmonary disease</td>
<td>7,760 (5.3)</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>8,815 (6.0)</td>
</tr>
<tr>
<td>Heart failure</td>
<td>10,195 (6.9)</td>
</tr>
<tr>
<td>Hyperlipidemia</td>
<td>67,826 (46.1)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>65,212 (44.4)</td>
</tr>
<tr>
<td>Peripheral arterial disease</td>
<td>4,345 (3.0)</td>
</tr>
<tr>
<td>Coronary artery disease</td>
<td>22,717 (15.5)</td>
</tr>
<tr>
<td>Prior myocardial infarction</td>
<td>5,164 (3.5)</td>
</tr>
<tr>
<td>Long-term dialysis</td>
<td>412 (0.3)</td>
</tr>
<tr>
<td>Stroke or transient ischemic attack</td>
<td>3,073 (2.1)</td>
</tr>
<tr>
<td>Tobacco abuse</td>
<td>10,443 (7.1)</td>
</tr>
</tbody>
</table>
## Compliance with Million Hearts

<table>
<thead>
<tr>
<th>Clinical Quality Measure</th>
<th>Denominator</th>
<th>Numerator</th>
<th>Compliance Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antiplatelet use in IVD</td>
<td>28044</td>
<td>16777</td>
<td>59.8</td>
</tr>
<tr>
<td>Blood pressure control</td>
<td>57449</td>
<td>39927</td>
<td>69.5</td>
</tr>
<tr>
<td>Cholesterol control in diabetes</td>
<td>16296</td>
<td>12900</td>
<td>79.2</td>
</tr>
<tr>
<td>Smoking cessation</td>
<td>115737</td>
<td>86565</td>
<td>74.8</td>
</tr>
</tbody>
</table>
Site-level variation in compliance
## Factors associated with compliance

### Antiplatelet therapy for ischemic vascular disease

<table>
<thead>
<tr>
<th>Variable</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (per 10 years)</td>
<td>0.98 (0.98, 0.99)</td>
</tr>
<tr>
<td>Female gender (vs. male)</td>
<td>0.63 (0.59, 0.67)</td>
</tr>
<tr>
<td>Black race (vs. white)</td>
<td>0.78 (0.63, 0.95)</td>
</tr>
<tr>
<td>Other race (vs. white)</td>
<td>1.01 (1.01, 1.01)</td>
</tr>
<tr>
<td>Chronic pulmonary disease</td>
<td>0.94 (0.94, 0.94)</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>1.12 (0.92, 1.36)</td>
</tr>
<tr>
<td>Heart failure</td>
<td>0.83 (0.79, 0.87)</td>
</tr>
<tr>
<td>Dyslipidemia</td>
<td>1.69 (1.65, 1.74)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>1.00 (0.98, 1.01)</td>
</tr>
<tr>
<td>Peripheral arterial disease</td>
<td>1.18 (1.11, 1.26)</td>
</tr>
<tr>
<td>Dialysis</td>
<td>0.56 (0.43, 0.74)</td>
</tr>
<tr>
<td>Stroke/TIA</td>
<td>0.69 (0.55, 0.87)</td>
</tr>
<tr>
<td>Tobacco abuse</td>
<td>0.98 (0.88, 1.09)</td>
</tr>
<tr>
<td>Systolic blood pressure (per 10 mmHg)</td>
<td>1.04 (1.03, 1.05)</td>
</tr>
</tbody>
</table>
## Factors associated with compliance

*Blood pressure control*

<table>
<thead>
<tr>
<th>Variable</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (per 10 years)</td>
<td>1.00 (0.99, 1.00)</td>
</tr>
<tr>
<td>Female gender (vs. male)</td>
<td>0.93 (0.81, 1.06)</td>
</tr>
<tr>
<td>Black race (vs. white)</td>
<td>0.72 (0.67, 0.77)</td>
</tr>
<tr>
<td>Other race (vs. white)</td>
<td>0.96 (0.91, 1.01)</td>
</tr>
<tr>
<td>Chronic pulmonary disease</td>
<td>1.02 (0.99, 1.05)</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>0.93 (0.91, 0.94)</td>
</tr>
<tr>
<td>Heart failure</td>
<td>1.29 (1.21, 1.38)</td>
</tr>
<tr>
<td>Dyslipidemia</td>
<td>1.24 (1.15, 1.33)</td>
</tr>
<tr>
<td>Peripheral arterial disease</td>
<td>0.96 (0.92, 0.99)</td>
</tr>
<tr>
<td>Coronary artery disease</td>
<td>1.14 (1.09, 1.19)</td>
</tr>
<tr>
<td>Prior myocardial infarction</td>
<td>1.00 (0.96, 1.03)</td>
</tr>
<tr>
<td>Dialysis</td>
<td>1.00 (1.00, 1.00)</td>
</tr>
<tr>
<td>Stroke/TIA</td>
<td>0.99 (0.91, 1.08)</td>
</tr>
<tr>
<td>Tobacco abuse</td>
<td>0.96 (0.89, 1.03)</td>
</tr>
</tbody>
</table>
## Factors associated with compliance

### Cholesterol control in diabetes

<table>
<thead>
<tr>
<th>Variable</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (per 10 years)</td>
<td>1.01 (1.00, 1.03)</td>
</tr>
<tr>
<td>Female gender (vs. male)</td>
<td>0.71 (0.65, 0.76)</td>
</tr>
<tr>
<td>Black race (vs. white)</td>
<td>0.63 (0.47, 0.85)</td>
</tr>
<tr>
<td>Other race (vs. white)</td>
<td>0.87 (0.67, 1.14)</td>
</tr>
<tr>
<td>Chronic pulmonary disease</td>
<td>1.03 (0.92, 1.16)</td>
</tr>
<tr>
<td>Heart failure</td>
<td>0.92 (0.65, 1.30)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>0.93 (0.86, 1.01)</td>
</tr>
<tr>
<td>Peripheral arterial disease</td>
<td>1.15 (1.02, 1.29)</td>
</tr>
<tr>
<td>Coronary artery disease</td>
<td>1.30 (1.17, 1.45)</td>
</tr>
<tr>
<td>Prior myocardial infarction</td>
<td>0.91 (0.86, 0.96)</td>
</tr>
<tr>
<td>Dialysis</td>
<td>2.60 (1.95, 3.47)</td>
</tr>
<tr>
<td>Stroke/TIA</td>
<td>0.92 (0.78, 1.08)</td>
</tr>
<tr>
<td>Tobacco abuse</td>
<td>0.80 (0.75, 0.85)</td>
</tr>
<tr>
<td>Systolic BP (per 10 mmHg)</td>
<td>0.96 (0.92, 1.00)</td>
</tr>
</tbody>
</table>
## Factors associated with compliance

**Smoking cessation**

<table>
<thead>
<tr>
<th>Variable</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (per 10 years)</td>
<td>1.01 (1.00, 1.02)</td>
</tr>
<tr>
<td>Female gender (vs. male)</td>
<td>1.08 (1.03, 1.12)</td>
</tr>
<tr>
<td>Black race (vs. white)</td>
<td>1.24 (1.18, 1.30)</td>
</tr>
<tr>
<td>Other race (vs. white)</td>
<td>0.88 (0.72, 1.07)</td>
</tr>
<tr>
<td>Chronic pulmonary disease</td>
<td>0.81 (0.75, 0.86)</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>1.21 (1.10, 1.34)</td>
</tr>
<tr>
<td>Heart failure</td>
<td>1.23 (1.07, 1.40)</td>
</tr>
<tr>
<td>Dyslipidemia</td>
<td>1.41 (1.19, 1.65)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>1.21 (1.06, 1.39)</td>
</tr>
<tr>
<td>Peripheral arterial disease</td>
<td>1.06 (0.96, 1.18)</td>
</tr>
<tr>
<td>Coronary artery disease</td>
<td>0.92 (0.90, 0.95)</td>
</tr>
<tr>
<td>Prior myocardial infarction</td>
<td>1.06 (1.01, 1.11)</td>
</tr>
<tr>
<td>Dialysis</td>
<td>0.85 (0.77, 0.93)</td>
</tr>
<tr>
<td>Stroke/TIA</td>
<td>1.02 (0.98, 1.06)</td>
</tr>
<tr>
<td>Systolic BP (per 10 mmHg)</td>
<td>0.96 (0.95, 0.97)</td>
</tr>
</tbody>
</table>
Limitations

• Quality of care may be different among practices motivated to participate in this quality improvement initiative.

• A significant proportion of the failure to prescribe may be due to undocumented and confounding physician impressions.

• Currently, there are significant challenges in standardizing EHR data for national quality improvement initiatives.
Conclusions

• Evaluating quality of ambulatory care across multiple practices is possible via The Guideline Advantage™, a national quality improvement program.

• Compliance with clinical quality measures for the Million Hearts™ initiative varies widely across outpatient practices.

• There are gender and racial disparities in the quality of outpatient care.

• Our findings identify multiple opportunities to improve the quality of outpatient care for cardiovascular prevention.
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