Hiding in Plain Sight: Finding Patients with Undiagnosed Hypertension

February 18, 2016

With Support From

- University at Albany School of Public Health
- New York State Department of Health
- New York State Association of County Health Officials (NYSACHO)

Conflict of Interest & Disclosure Statements

- The planners and presenters do not have any financial arrangements or affiliations with any commercial entities whose products, research or services may be discussed in these materials.
- No commercial funding has been accepted for this activity.

Evaluations & CE

Nursing Contact Hours, CME and CHES credits are available.

Please visit www.phlive.org to fill out your evaluation and complete the post-test.

Featured Speakers

- Hilary K. Wall, MPH, Senior Health Scientist, CDC Division for Heart Disease and Stroke Prevention
- Sandy Cafarchio, Executive Director, Health Center Network of New York State (HCCNY)
Objectives

At webcast conclusion, viewers will be able to:

- Identify the goal of the Million Hearts Initiative;
- Explain the health risk associated with undiagnosed hypertension; and
- Describe a four-step process health systems can undertake to identify patients with undiagnosed hypertension.

Heart Disease and Stroke

- Leading Killers - more than 1.5M heart attacks & strokes in US each year
- Cause 1 of every 3 deaths
  - 800,000 deaths
  - Leading cause of preventable death in people <65
- More than $300B in health care costs and lost productivity
- Greatest contributor to racial disparities in life expectancy

Million Hearts®

Goal: Prevent one million heart attacks and strokes by 2017

- US Department of Health and Human Services initiative
- Co-led by:
  - Centers for Disease Control and Prevention (CDC)
  - Centers for Medicare and Medicaid Services (CMS)
- Partners across federal and state agencies and private organizations

The Million Hearts “ABCS”

- Aspirin when appropriate
- Blood pressure control
- Cholesterol management
- Smoking cessation

Key Components of Million Hearts®

Keeping Us Healthy
Changing the environment

Focus on the ABCS
Health information technology
Innovations in care delivery

Keeping Us Healthy
Changing the environment

Focus on the ABCS
Health information technology
Innovations in care delivery
Hypertension (HTN) Prevalence

2013-2014 National Health And Nutrition Examination Survey (NHANES)
- 31.6% prevalence among US adults (2013-2014)
  - 40.3% among non-Hispanic blacks
  - 41.2% among adults 40-64
  - 69.6% among adults 65+
- 75M adults have hypertension

Uncontrolled HTN

34.6M US Adults
- Aware and treated
- Aware and untreated
- "Unaware"

2013-2014 National Health and Nutrition Examination Survey

"Unaware" - A Closer Look

2013-2014 National Health & Nutrition Examination Survey (NHANES)
- 80.9% have health insurance
- 82.7% report having a usual source of care
- 63.3% have received care two or more times in the past year

Measures of Controlling High Blood Pressure

<table>
<thead>
<tr>
<th>Measure</th>
<th>Measure Definition</th>
<th>ICD-10-CM</th>
</tr>
</thead>
<tbody>
<tr>
<td>NQF 0018</td>
<td>The percentage of patients 18-85 years of age who had a diagnosis of HTN and whose BP was adequately controlled (&lt;140/90) during the measurement year.</td>
<td>I10</td>
</tr>
<tr>
<td>PQRS 236</td>
<td></td>
<td>I10</td>
</tr>
<tr>
<td>CMS165v4</td>
<td></td>
<td>I10</td>
</tr>
<tr>
<td>ACO #28</td>
<td></td>
<td>I10</td>
</tr>
<tr>
<td>HTN-2</td>
<td></td>
<td>I10</td>
</tr>
</tbody>
</table>

NQF - National Quality Forum; PQRS - CMS Physician Quality Reporting System; CMS165v4 - from CMS Medicare EHR Incentive Program; ACO #2 - from CMS Accountable Care Organizations; HTN-2 - PQRS Group Practice Reporting Option

Assessing Hypertension Control

100 patients with diagnosed hypertension

70 patients with blood pressure < 140/90

(70/100)*100 = 70% control

Assessing Hypertension Control

150 patients with hypertension?

70 patients with blood pressure < 140/90

(70/150)*100 = 47% control
Finding Undiagnosed Hypertensives: Hiding in Plain Sight

- 2014 JAMA article by Wall, Hannan, and Wright
- Includes Case Studies from:
  - NorthShore University HealthSystem, Evanston, IL
  - Geisinger Health, Pennsylvania
  - Palo Alto Medical Foundation, Palo Alto, CA
  - Eleven primary care centers in West Virginia

Steps for Finding Undiagnosed HTN

1. Compare to local, state, or national prevalence data
2. Establish clinical criteria for potential undiagnosed HTN
3. Search EHR data for patients that meet clinical criteria
4. Implement a plan for addressing the identified population

Calculate Hypertension Prevalence

- Calculate practice prevalence:
  \[
  \frac{\text{# of adult patients with diagnosis of HTN (e.g., ICD-10 I10)}}{\text{# of adult patients (18-85, not pregnant, no ESRD)}} \times 100
  \]
- Compare to 31.6% or use the Million Hearts Hypertension Prevalence Estimator Tool

Establish Clinical Criteria

- Use guidelines supported by the practice
- Consider:
  - Stages of hypertension
  - # of abnormal values
  - Time period
- Adults 18-85
- Standard exclusion criteria
  - Patients who have died

Use Electronic Health Record Data

- Electronic Health Record (EHR) registry functionality
- Population health management software
- Embed automated algorithms into EHR

Plan for Confirmation and Treatment

- 24-hour Ambulatory BP Monitoring (ABPM)
- Self-measured BP Monitoring (SMBP)
- Automated Office BP machines (AOBP)
- Confirmatory office measures
Clinical Criteria – Stepped Approach

- More liberal criteria, lower PPV
- More conservative criteria, higher PPV

More resources for HTN confirmation
- 2+ values ≥ 140/90
- 2+ values ≥ 150/90
- 1 value ≥ 160/100
- 1 value ≥ 180/100

Fewer resources for HTN confirmation

PPV = Positive Predictive Value

Cascade of Finding and Treating Undiagnosed Hypertensives

Health Center Network of NY

- Serving 22 FQHCs across 5 states
- Peer learning forums
  - Evidence-based education
  - Collaborative guidelines & measurements
  - Intervention strategies
- Analytics solutions & provider feedback

Health Systems Collaboration

NY - 10
NJ - 2
PA - 1
FL - 1
DC - 8*

NYS Health Systems Collaboration Total Network

Prevalence = 37%

National FQHC Prev: 23%

Step 1: Hypertension Prevalence

- Patients aged 18 to 85, no diagnosis of HTN, 12 month lookback
  - At least 2 medical visits
  - Two or more elevated BP readings (≥ 140 SBP or ≥ 90 DBP) at separate visits
- Recently revised: at least 1 medical visit, 2 elevated readings at separate visits in any department (medical, behavioral, etc.)

Hypertension Measure

- 22 FQHCs / 468,000 patients
  - 17 FQHCs
    - 216,000 patients (age 18-85)
  - 5 FQHC sites
    - 21,000 patients (age 18-85)
  - 3 FQHC sites
    - 9,000 patients (age 18-85)

Step 2: Defining the Criteria
Step 3: Seek the Hidden

- EHR workflow - clinically relevant BP entry
- Registry report
- Outcome measurement report

Potential Undiagnosed

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Most Recent</th>
<th>Low FQHC</th>
<th>High FQHC</th>
<th>Undiagnosed Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>NYS Health Systems Collaboratives</td>
<td>5 FQHCs</td>
<td>3.25%</td>
<td>2.5%</td>
<td>6.0%</td>
<td>432</td>
</tr>
<tr>
<td>13,000 adults w/o HTN</td>
<td>Oct 14</td>
<td>Dec 15</td>
<td>Oct 14</td>
<td>Dec 15</td>
<td>432</td>
</tr>
<tr>
<td>Total Network</td>
<td>17 FQHCs</td>
<td>3.8%</td>
<td>3.76%</td>
<td>13.5%</td>
<td>6,015</td>
</tr>
<tr>
<td>160,000 adults w/o HTN</td>
<td>Jun 14</td>
<td>Sep 15</td>
<td>Sep 15</td>
<td>Sep 15</td>
<td>6,015</td>
</tr>
</tbody>
</table>

Step 4: Implementing a Plan

- Performance Improvement Teams
  - Collaboration with state/local health departments
  - Small tests of change
  - Plan for spread across health centers
- Procedures for patient outreach using registry
- Protocols for office visits:
  - Steps to take if BP is elevated, follow-up criteria
  - When and how to diagnose and treat HTN

Undiagnosed Follow-Up

Small cohort study, March - July 2014, MH Project
- # potentially undiagnosed patients = 202
- # of those returning for medical visit = 116 (57%)
- # of returning patients diagnosed with HTN = 15 (13%)

Applying to Network statistics:
- 3,420 patients could be evaluated for elevated BP
- 445 of them may be diagnosed and begin treatment

Controlling Hypertension

49,000 HTN patients
34% uncontrolled HTN
9% Stage II HTN
IMPROVING! +3% June 2014 to Sept 2015
NorthShore University HealthSystem

Undiagnosed HTN Project
- Embedded several algorithms into their EHR
- Used an Automated Office Blood Pressure (AOBP) machine to verify HTN status
- Verified undiagnosed hypertension, NOT undocumented hypertension

NorthShore Clinical Criteria

<table>
<thead>
<tr>
<th>Algorithm</th>
<th># ID’d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients whose 3 most recent encounters yielded mean SBP &gt;140 or mean DBP &gt;90 (within 12 months before most recent encounter)</td>
<td>720</td>
</tr>
<tr>
<td>Patients who had 3 encounters with SBP &gt;140 or DBP &gt;90 (within 12 months before most recent encounter)</td>
<td>968</td>
</tr>
<tr>
<td>Patients who had single encounter with SBP &gt;180 or a DBP &gt;100 (within 12 months before most recent encounter)</td>
<td>527</td>
</tr>
<tr>
<td>Unique patients identified by algorithms 1, 2 or 3</td>
<td>1,586</td>
</tr>
</tbody>
</table>

NorthShore University HealthSystem

Palo Alto Medical Foundation

- 250,000 adult patients
- For patients with ≥2 BP readings of 140/90 or higher, an antihypertensive medication prescription, or both
  - 37.1% did not have an ICD-9-CM code
- HTN prevalence went from 18.0% (ICD code only) to 28.7%
- Much more likely to be on an antihypertensive
  - 92.6% diagnosed vs 15.8% undiagnosed, P < .001

University of Wisconsin

Clinical criteria (14,970 patients)
- Excluded patients with a diagnosis code or current antihypertensive Rx
- ≥3 outpatient BPs from 3 separate dates, at least 30 days apart, within a 2-year period (≥140 or ≥90)
- ≥2 elevated BPs (≥160 or ≥100), at least 30 days apart, but within a 2-year period

National Association of Community Health Centers

- 100K patients from 10 FQHCs
- Clinical criteria:
  - ≥2 elevated BP (≥140 SBP or ≥90 DBP), past 12 months
  - 1 Stage 2 (≥160 SBP or ≥100 DBP), past 12 months
- Of those identified and brought back in: ~20% ultimately diagnosed
- Technical package:
  http://mylearning.nachc.com/diweb/fs/file/id/229350

Other Considerations

- Clinical quality improvement vs. public health surveillance
- Subgroup analyses
  - Age
  - Sex
  - Race/ethnicity
  - Insurance Status
  - Zip Code
  - Co-morbidities
Cholesterol Management

- Hypertension Prevalence Estimator Tool: for estimating expected hypertension prevalence
- Whiteboard Animation: Creative depiction of the “hiding in plain sight” phenomenon
- CDC Fireside Chat February 23, 3:00 – 4:00 p.m. EST
  millionhearts.hhs.gov/

New Resources

- Evaluations & Continuing Education: Nursing Contact Hours, CME Social Work and CHES credits are available. Please visit www.phlive.org to fill out your evaluation and complete the post-test.
- Conflict of Interest Disclosure Statement: The planners do not have any financial arrangements or affiliations with any commercial entities whose products, research or services may be discussed in these materials. Dr. Salgado is a consultant for , and serves on the Speakers Bureau for , TEVA Pharmaceuticals and Allegan, Inc.