Public Health and Health Care
Coming Together to Detect, Connect, and Control

Janet Wright, MD, FACC
Executive Director
Million Hearts®
Division for Heart Disease and Stroke Prevention, CDC
Center for Medicare and Medicaid Innovation
Blood Pressure 101

- Force of blood against the artery walls
- Measured using 2 numbers
  - Systolic: Pressure in the blood vessels when the heart contracts
  - Diastolic: Pressure in the blood vessels when the heart relaxes between beats
- Normally rises and falls throughout the day, but can damage organs if it stays high for a long time
<table>
<thead>
<tr>
<th>Blood pressure levels</th>
<th>Systolic</th>
<th>Diastolic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>&lt;120 mm Hg</td>
<td>&lt;80 mm Hg</td>
</tr>
<tr>
<td>At risk (prehypertension)</td>
<td>120–139 mm Hg</td>
<td>80–89 mm Hg</td>
</tr>
<tr>
<td>High</td>
<td>≥140 mm Hg</td>
<td>≥90 mm Hg</td>
</tr>
</tbody>
</table>
Blood Pressure Levels Vary by Race and Ethnicity

Percentage with high blood pressure

- African Americans
- Mexican Americans
- Whites
- All

Men
Women
Leading risk factor for cardiovascular disease and a significant cause of morbidity and mortality

- 348,000 American deaths in 2008 include hypertension as primary or contributing cause
- $47.5 billion annually in direct medical expenses

CDC. MMWR. 2012;61(35):703–9
Hypertension Status in the United States 2003–2010

67 million adults with hypertension

36 million adults with uncontrolled hypertension

- Controlled
- Uncontrolled, unaware
- Uncontrolled, aware but untreated
- Uncontrolled, aware and treated

CDC. MMWR. 2012;61(35):703–9
Most People With Uncontrolled Hypertension Are Insured and Are Receiving Regular Care

- **Usual source of care**: Yes: 31.4 million, No: 0.5 million
- **Health insurance**: Yes: 32.4 million, No: 0.6 million
- **Number of times received care in past year**: ≥2: 18.6 million, 1: 3.1 million, None: 0.1 million

CDC. MMWR. 2012;61(35):703–9
Why is Blood Pressure Control Challenging?

- Silent nature of hypertension
- Lifetime medications are daily and an additional cost
- Healthy lifestyle contributes to control, but takes effort and practice

- It is common, but rarely the sole focus of attention
- Accurate diagnosis requires a pattern of readings
- Health care systems are designed to react, not to reach out
- Resistant hypertension in about 10% cases

Persell SD. Hypertension. 2011;57:1076–80
Hypertension Leads to Cardiovascular Disease

- When your blood pressure is high:
  - You are 4x more likely to die from a stroke
  - You are 3x more likely to die from heart disease

- 69% of people who have a first heart attack...
- 77% of people who have a first stroke...
- 74% of people with chronic heart failure...

- Cardiovascular disease causes 1 of every 3 deaths

- Every year
  - >1.5 million heart attacks and strokes
  - 800,000 deaths
  - $312.6 billion in health care costs and lost productivity

Goal
Prevent 1 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 & Medicaid Services (CMS)
- Partners across federal and state agencies and private organizations

http://millionhearts.hhs.gov
**Million Hearts®**
Public Health and Health Care Coming Together

### Keeping Us Healthy
*Changing the Environment*

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>2017 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No Smoking</strong></td>
<td>21%</td>
<td>19%</td>
</tr>
<tr>
<td><strong>No Sodium</strong></td>
<td>~ 3.5 g/day</td>
<td>20% reduction</td>
</tr>
<tr>
<td><strong>No Trans Fat</strong></td>
<td>~ 1% of calories</td>
<td>50% reduction</td>
</tr>
</tbody>
</table>

### Excelling in the ABCS
*Optimizing Care*

- Prioritizing the ABCS
  - Appropriate aspirin therapy
  - Blood pressure control
  - Cholesterol management
  - Smoking cessation

- Health tools and technology
- Innovations in care delivery

http://millionhearts.hhs.gov
Potential Impact on Deaths Prevented with Full Implementation of the ABCS

- Smoking cessation
- Blood pressure control
- Cholesterol control
- Aspirin

Hypertension Control in the United States, Canada, and the UK

Percentage of people with hypertension who have their condition under control

Data for Canada: McAlister et al. CMAJ 2011;183(9): 1007–13
## Million Hearts® Goals ABCS

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Pre-initiative estimate</th>
<th>2017 Population-wide goal</th>
<th>2017 Clinical target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin when appropriate</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>

* 2007–2008  
# 2005–2008

Valderrama AL, et al. MMWR 2011;60(36):1248–81
Reduce sodium intake of the population
Enhance detection and diagnosis
Improve control of blood pressure in those under treatment
Facilitate self-management
Drive measurement and reporting
Clinical Quality Measures

- Million Hearts® pathway to high performance
  - Simple, uniform set of impactful measures
  - Embedded in workflow and linked to reward

Controlling High Blood Pressure: NQF 0018
Percentage of patients 18–85 years old who had a diagnosis of hypertension and whose blood pressure was <140/90 mmHg during the measurement year
National Quality Forum Measure

- **Embedded in numerous programs**
  - Accountable care organizations
  - Physician quality reporting system
  - Meaningful Use Stage 1 optional, Stage 2 recommended core
  - Comprehensive Primary Care Initiative
  - Healthcare Effectiveness Data and Information Set (HEDIS)
  - Health Resources and Service Agency, Uniform Data System
  - Medicaid Adult Core Quality Measures
Blood Pressure Control
What It Will Take

- **Focus: Make it a priority**
  - Leadership and organizational structure and capacity
  - Measure and report
  - Implement payment models that recognize and reward outcomes

- **Health information technology**
  - Processes and tools to identify the undiagnosed and uncontrolled
  - Registries, clinical decision support, reminders, patient portals
  - Widely available home and community blood pressure monitors
  - Timely, low-cost feedback loop of measurement and advice

- **Team-based care**
  - Standardized treatment protocol or algorithm
  - Collaborative approaches to improving adherence
  - Self-measured blood pressure monitoring with clinical support

EHR, Electronic health record
Million Hearts®
Power of Public Health-Health Care Collaboration

- **Data and measures**
  - NQF 18: Population health measure used broadly in clinical system

- **Services**
  - Blood pressure control: Identified clinical service with maximum health benefit
  - Team-based care: Innovation in care delivery

- **Drivers**
  - Tobacco, sodium and trans fat reduction: Environmental changes
  - Recognition program: Incentives
  - Purchasers, payors and providers: Strategic partnerships
Improved Detection of Hypertension Using Electronic Screening Algorithms and Quality Improvement Measures

Michael K Rakotz, MD
Former Vice Chair for Quality, Department of Family Medicine, NorthShore University HealthSystem
Director of Population and Virtual Health, Northwestern Memorial Physicians Group
NorthShore University Health System

- **Location:** Chicago Metropolitan Area
- **Components**
  - Medical group with >800 physicians
  - 4 hospitals with >900 beds
  - Research Institute
- **Employees:** >9,000
- **Research budget:** $76 million
- **Principal Teaching Affiliate:** The University of Chicago
Understanding the Problem of Undiagnosed Hypertension in the NorthShore HealthSystem

- How many undiagnosed untreated adult patients with hypertension existed in the NorthShore HealthSystem from June 2006–May 2010?
  - Adults with a primary care physician in the system
  - Elevated blood pressure on ≥3 visits
    - Systolic blood pressure ≥140 or diastolic blood pressure ≥90
  - No diagnosis in the electronic health records (EHR)
  - Not taking blood pressure medication

- Conducted as an electronic query within hours, using the Enterprise Data Warehouse

EHR, Electronic health record
Results of Initial Query

- 150,000 adults had at least 1 visit to a NorthShore primary care provider
  - 6,248 adults met criteria for having hypertension, but were undiagnosed and untreated according to their EHR
  - 3,177 additional patients were diagnosed with hypertension but were untreated
  - In total 9,425 untreated patients with hypertension were identified

- From the time of 3rd occurrence of elevated blood pressure, 17,000 missed opportunities during office visits to make a diagnosis of hypertension

EHR, Electronic health record
What Is The Problem Here, and Can We Fix It?

- Physicians miss opportunities to make the diagnosis of hypertension in patients with elevated blood pressure multiple times
- Can we eliminate undiagnosed hypertension at NorthShore?
Solving the Problem

- Design a quality improvement project that leads to
  - Better screening approach to identify patients at risk for hypertension
  - Increase accuracy/reliability of office blood pressure measurements
  - Better recognition of at-risk patients at point of care
  - Change culture around use of clinical decision support tools and quality improvement (administrators, staff, clinicians)
NorthShore Undiagnosed Hypertension Quality Improvement Project

- **Pilot: January 2011–June 2011**
- **Inclusion criteria**
  - Adults aged 18–79 years
    - Seen by a NorthShore Medical Group primary care physician listed in EHR in the past 24 months
    - All office blood pressure readings within 1 year of most recent office visit were used
- **Patients excluded if existing diagnosis of hypertension in EHR**
  - Past medical history
  - Problem list or encounter diagnosis

EHR, Electronic health record
Critical Components
Maximizing Benefit Using Health Information Technology

- Integrated Electronic Health Record (Epic)
- Dedicated informatics team
- Point of care alerts with non-disruptive workflows

An integrated EHR coupled with non-disruptive workflows and point of care alerts creates a population health management tool

EHR, Electronic health record
Using Electronic Algorithms to Detect Patients at Risk for Hypertension

- We queried the data in our EHR using 5 algorithms to identify patients who have elevated blood pressure and may have hypertension
- Algorithms based on accepted clinical practices, guidelines, and research literature (The NorthShore Hypertension Criteria)

EHR, Electronic health record
The NorthShore Hypertension Criteria

1. Patients whose 3 most recent encounters yielded a mean SBP ≥140 mm Hg or a mean DBP ≥90 mm Hg **and** reading at the most recent encounter **was** SBP ≥140 or DBP ≥90 mm Hg

2. Patients whose 3 most recent encounters yielded a mean SBP ≥140 mm Hg or a mean DBP ≥90 mm Hg **and** reading at the most recent encounter **was not** SBP ≥140 or DBP ≥90 mm Hg

3. Patients satisfying algorithm 1 or having a reading at the most recent encounter of SBP ≥180 or DBP ≥100 mm Hg

4. Patients who had 3 encounters with a SBP ≥140 or DBP ≥90 mm Hg within 12 months before their most recent encounter

5. Patients satisfying algorithm 4 or having an encounter with a SBP ≥180 or a DBP ≥100 mm Hg within 12 months before their most recent encounter

SBP, Systolic blood pressure
DBP, Diastolic blood pressure
Recalling Patients at Risk for Hypertension for a Diagnostic Visit

- Any patient satisfying at least 1 NorthShore Hypertension criteria
  - Placed on a notification list to come in for additional blood pressure measurements

- Primary care physician
  - Review patient list for accuracy and review chart to determine if outreach is appropriate

- Patient outreach (telephone calls, letters)
  - Notify patients they may be at risk for hypertension and schedule follow-up appointment
Why use a sequence of automated office blood pressures?

- Manual measurements of blood pressures in offices are unreliable
- Office blood pressures do not correlate well with daytime mean ambulatory blood pressures, which are more highly predictive of morbidity
- “White coat effect” is mitigated by AOBP machines
- A more accurate/reliable blood pressure measurement may reduce clinician hesitation in making a diagnosis or modifying treatment in a patient with hypertension
What Is an Automated Office Blood Pressure (AOBP) Visit?

- Standardized visit for more accurate diagnosis of hypertension in patients with multiple elevated blood pressures
- Appropriate sizing and placement of cuff
- Physicians and staff trained in use of AOBP
- Patient alone in room and properly positioned
- 6 readings taken at 1-minute intervals, 1st reading discarded, the remaining 5 readings averaged to give the AOBP mean (which better correlates to daytime mean ambulatory blood pressures)

AOBP, Automated office blood pressure
If Patients Do Not Come in for AOBP Testing…

- Electronic “best practice advisory” alerts were created to fire at the point of care for patients who satisfy any of the NorthShore Hypertension Criteria
- These clinical decision support alerts fire in real time during office visits with primary care providers for both clinical staff and physicians

AOBP, Automated office blood pressure
Alerting the Clinical Staff to Measure the Patient’s Blood Pressure Using the AOBP

AOBP, Automated office blood pressure
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Informing the Physician that a Patient is Flagged by the NorthShore Hypertension Criteria

Your patient was 'flagged' by a North Shore algorithm as being at a high risk for hypertension. An automated BP should be obtained today by the office staff. Please review it and add a relevant diagnosis to the patient's problem list (e.g. 'Hypertension' if you believe that they are hypertensive or 'Elevated blood pressure reading without diagnosis of hypertension' if you believe that they are not truly hypertensive and don't already have the diagnosis on the problem list).

435 previously undiagnosed and untreated patients were diagnosed with hypertension related to use of alerts and confirmatory AOBP readings

For patients meeting any NorthShore Hypertension Criteria triggering recall to the office, 97%–98% now have a diagnosis in the electronic medical record

Most of these newly diagnosed patients with hypertension have significant blood pressure elevations

As a result, lifestyle modifications are recommended, and 94% of these patients are prescribed medication

AOBP, Automated office blood pressure
Lessons Learned

- Screening for patients with undiagnosed hypertension using EHR data, combined with electronic alerts at the point of care is effective and can permanently eliminate the problem of undiagnosed hypertension patients “hiding in plain sight”

- Physician behavior can be impacted through:
  - Identification of a clinical problem
  - Clinical decision support tools
  - Nondisruptive workflows

EHR, Electronic health record
EHRs and electronic screening can identify silent but clinically important conditions efficiently

- Hypertension, electrolyte abnormalities, diabetes, chronic kidney disease, hepatitis, hyperlipidemia, and hematologic abnormalities

72% of office-based physicians in the United States use EHR systems

- System like the NorthShore Hypertension Criteria and Alerts can be incorporated across all organizations using EHR
What a Large Health System Can Do to Improve Hypertension Control

Peter Basch, MD, FACP
Medical Director, MedStar Million Hearts®
Medical Director, Ambulatory EHR and Health IT Policy
MedStar Health, Columbia, MD
Components
- 1 research institute
- 10 hospitals
- 150 ambulatory sites

Staff
- 5,600 physicians
  - 1,500 employed
- 30,000 associates
  - 7,000 nurses
  - 1,100 physicians in residency programs

MedStar Health in 2012
- 160,000 admissions
- 200,000 home health visits
- 580,000 ED visits
- ~1.5 million outpatient visits
  - ~0.5 million to primary care providers

ED, Emergency department
MedStar Health’s Primary Care Network

- In 2012: 126,000 unique patients seen
- 42 primary care locations
- 162 primary care providers
  - All using common guidelines for preventive and chronic care screening and management
  - All using the same EHR

EHR, Electronic health record
In 2012 MedStar Health Became the First Health System to Partner with Million Hearts®

- **Aspirin** consistently recommended for those where benefits outweigh risks
- **Blood pressure screening and treatment to goal**
- **Cholesterol screening and treatment to goal**
- **Smoking**: Determine status for current smokers, aggressively counsel/treat towards quitting

http://millionhearts.hhs.gov/aboutds/prevention.html
Most People With Uncontrolled Hypertension Are Insured and Are Receiving Regular Care

<table>
<thead>
<tr>
<th>Usual source of care</th>
<th>Health insurance</th>
<th>Number of times received care in past year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>≥2</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>None</td>
</tr>
</tbody>
</table>

Millions

CDC. MWR. 2012;61(35):703–9
Most People with Uncontrolled Hypertension Were Aware of their Condition

Awareness and treatment among adults with uncontrolled hypertension (millions)

- 14M: Unaware
- 16M: Aware and treated
- 6M: Aware and untreated

CDC. MMWR 2012;61(35):703–9
Blood Pressure Goals
One Size Does Not Fit All

- Current JNC and other relevant specialty society recommended blood pressure goals
  (Endorsed by MedStar Health primary care providers)
  - Hypertension <140/90
  - Diabetes <130/80
  - Chronic kidney disease <130/80
  - Proteinuria (>1 gm/day) <125/75
  - Stroke <120/80

JNC, Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure
http://stroke.ahajournals.org/content/early/2010/10/21/STR.0b013e3181f7d043.full.pdf
Of the 54,000 patients seen in 2012 with hypertension, diabetes, chronic kidney disease, proteinuria >1gm/day, or stroke

- 62.9% had hypertension alone; no relevant co-morbidities
  - Blood pressure goal is <140/90
- 34% also had diabetes or kidney disease
  - Blood pressure goal is <130/80
- ~2% also had stroke
  - Blood pressure goal is <120/80
- ~1% also had proteinuria
  - Blood pressure goal is <125/75
## MedStar Health Baseline: Screening and Individualized Goal Setting

<table>
<thead>
<tr>
<th>Our Endorsed Guidelines</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>USPSTF blood pressure screening protocol</td>
<td>Exceeded guidelines</td>
</tr>
<tr>
<td>➢ Blood pressure taken at least once every 2 years</td>
<td>Blood pressure measured for most adult patients at every visit</td>
</tr>
<tr>
<td>Individualized blood pressure goals per JNC and other guidelines</td>
<td>No blood pressure goals in EHR</td>
</tr>
<tr>
<td>➢ Based on presence of additional diagnoses (such as diabetes, chronic kidney disease)</td>
<td>➢ Providers not aware</td>
</tr>
<tr>
<td></td>
<td>➢ Patients not aware</td>
</tr>
<tr>
<td></td>
<td>➢ Absence of individualized blood pressure goal means we cannot determine if blood pressure is at goal</td>
</tr>
</tbody>
</table>

USPSTF, US Preventive Services Task Force  
JNC, Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure  
EHR, Electronic health record
Making the EHR a Virtual Member of the Care Team

Automate BP Goal Setting and Increase Awareness of Provider and Patient when Blood Pressure Is not at Goal

- Embed USPSTF screening guidelines and entity endorsed blood pressure goals into EHR as actionable and patient-specific guidance

- Prompting providers
  - ONLY when necessary
    - If blood pressure not measured
    - Automate goal setting: When new diagnoses suggest blood pressure goal should be changed
  - ALWAYS when blood pressure is not at goal
    - Engage providers in decision making
    - Allow easy access to data on credible reasons why blood pressure may not be at goal for any particular visit

- ALWAYS make patients aware of their blood pressure goal and whether or not they are at goal

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EHR, Electronic health record
BP, Blood pressure
USPSTF, United States Preventive Services Task Force
What Patients See

You have the power.

When it comes to your health, there's no one more powerful than you.

Join MedStar Health, the largest healthcare provider in Maryland and the Washington, D.C., region, as we partner with Million Hearts™, a nationwide campaign to prevent one million heart attacks and strokes in five years.

You pledge to take control of your heart health, and we pledge to educate and motivate you by providing the latest information on heart disease prevention and care—for FREE. We will also offer low-cost screenings to help keep your blood pressure and cholesterol levels under control.

Visit medstarhealth.org/millionhearts to join the fight.

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Washington Primary Care Physicians
650 Pennsylvania Ave., S.E. Suite 100 Washington, DC 20003
Phone: (202) 546-4504 Fax: (866) 639-4761

Patient Information - MedStar Million Hearts

For:

MedStar Health

MedStar Million Hearts™ — What You Can Do to Reduce Your Risk of Heart Attack and Stroke

Heart disease and stroke are unfortunately all too common in the United States, with over 1.5 million people suffering a heart attack or stroke each year. It is widely believed that more consistent attention to 4 items, known as the “ABCs” can reduce the number of new heart attacks and strokes by 1 million over 5 years. Here is your personal “ABCs” report.

ABCs Report — prepared for [Name] on September 30, 2012

Aspirin may reduce the risk of heart attack and stroke. If your provider has recommended you take Aspirin, please take the Aspirin as directed (see your current medication list for the exact dose and directions). Please let your provider know if you develop any abnormal bleeding or stomach pain, or if you think you are having side effects to aspirin.

Blood Pressure

Having a normal blood pressure may reduce your risk of heart attack and stroke. Your most recent blood pressure was [value] on [date]. Your blood pressure goal is LESS than 140/90. Your blood pressure is where it should be. To keep it that way, please continue a healthy diet, regular exercise, and if on medication, medication as directed.

Cholesterol

Having normal cholesterol may reduce your risk of heart attack and stroke. Your most recent HDL or good cholesterol was [value] on [date], and your most recent LDL or bad cholesterol was [value] on [date]. Your cholesterol goals are: HDL (good cholesterol) GREATER than 40 and LDL (bad cholesterol) LESS THAN 100. Your cholesterol is where it should be.

Smoking

Not smoking is one of the most important ways to reduce your risk of heart attack and stroke, as well as reduce your risk for many other conditions, such as cancer. Our records show your smoking status as: never smoker on [date]. Thank you for not smoking.
What Nobody Sees: In the Background “Smart” Form with Embedded Algorithms
What Our Primary Care Providers See

*** BLOOD PRESSURE NOT AT GOAL ***
RECOMMENDED BP GOALS
No Concurrent Conditions < 140/90
If Diabetes or CKD < 130/80
If Cerebrovascular Disease < 120/80
If Proteinuria > 1GM/day < 125/75

Last BP: 142/92 (04/29/2013)  BP Goal < 140/90

- [ ] Order Blood Pressure Management Diagnostics/Evaluation/Consultation
- [ ] SBP Goal <140 NOT MET: Patient informed and treatment adjusted to reach goal
- [ ] DBP Goal <90 NOT MET: Patient informed and treatment adjusted to reach goal
- [ ] Review or Update Blood Pressure Medications
- [ ] Recent treatment adjustments made: continue to monitor
- [ ] Unable to reach BP Goals due to medical condition/side effects
- [ ] Unable to reach BP Goals due to compliance issues
- [ ] BP NOT at Goal TODAY due to limited-term condition-pain/stress/missed dose: Monitor and follow-up
- [ ] BP NOT at Goal: Patient informed and referred back to responsible provider for adjustments
- [ ] Review of home BP monitoring shows BPs at goal: Enter value in Working BP field of VS-4 Form

(C) 2013

[View All Protocols]
# Early Reports for Blood Pressure Control
January, February 2013

<table>
<thead>
<tr>
<th># of Patients</th>
<th>% with BP</th>
<th>BP &lt;140/90</th>
<th>% with BP goal defined</th>
<th>BP at goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,745</td>
<td>99.5</td>
<td>71.4</td>
<td>92.7</td>
<td>64.9</td>
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<tr>
<td>1,145</td>
<td>94.8</td>
<td>71.7</td>
<td>88.0</td>
<td>59.6</td>
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<td>4,300</td>
<td>98.2</td>
<td>80.2</td>
<td>76.9</td>
<td>75.9</td>
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<td>2,610</td>
<td>99.7</td>
<td>75.5</td>
<td>97.6</td>
<td>63.6</td>
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<td>25,102</td>
<td>99.2</td>
<td>80.9</td>
<td>91.9</td>
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<td>288</td>
<td>85.4</td>
<td>83.7</td>
<td>81.6</td>
<td>79.9</td>
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<td>2,896</td>
<td>97.3</td>
<td>71.8</td>
<td>89.8</td>
<td>60.1</td>
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<tr>
<td>2,189</td>
<td>96.9</td>
<td>66.9</td>
<td>46.3</td>
<td>54.7</td>
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<tr>
<td><strong>41,275</strong></td>
<td><strong>98.0</strong></td>
<td><strong>78.2</strong></td>
<td><strong>88.5</strong></td>
<td><strong>70.8</strong></td>
</tr>
</tbody>
</table>

BP, Blood pressure
Summary

- **MedStar Health is a large health system managing >50,000 patients with hypertension**
  - Almost 40% of these patients have a blood pressure goal that is <140/90

- **Before the Million Hearts® partnership**
  - No setting of patient-specific blood pressure goals
  - No communication of goals and at-goal status to the patients

- **Focus on hypertension control: Results**
  - Leveraged EHR and Meaningful Use implementation and embed a highly useable yet sophisticated system to consistently
    - Create evidence-based goals
    - Show when a patient’s status was not at goal
    - Communicate this information to the patients
While our clinicians are struggling like many to find Meaningful Use “meaningful” – they are fully committed to our Million Hearts® program, even though it adds complexity and time to their day.
Public-Private Partnership on Hypertension
A Health Priority for Philadelphia

Claudia Siegel, MA, MPA
Director, Office of Health Information and Improvement
Philadelphia Department of Public Health
Age-adjusted Cardiovascular Disease Mortality, United States and Philadelphia, 2000–2010

Philadelphia

United States

Rate per 100,000 Population

Philadelphia Department of Public Health Vital Statistics and CDC
Hypertension in Philadelphia Adults, 2000–2012

Philadelphia’s Challenge

- Health care environment dominated by larger players, intense competition, and fragmented health information sources

- Multiple players and factors in the mix
  - 5 academic health centers, each with its own health system, clinics, hospitals, and EHR systems
  - Several large insurers dominate the market
  - Medicaid population under managed care and split among 4 companies that provide services under contract with the state Department of Public Welfare
  - Uninsured, many of whom find care at the city’s >30 federally qualified health centers

EHR, Electronic health record
Addressing the Challenge

- 2010: PDPH awarded a CDC cooperative agreement
- One key goal: Improve public health data infrastructure
- Strategy: Gather, house, analyze and share more and better data related to three areas: Hypertension, cancer screening, and adult immunization
- Office of Health Information and Improvement within the Health Commissioner’s Office established to implement the project
  - Build the relationships
  - Secure the physical and data-related resources
Office of Health Information and Improvement has 2 Working Groups with broad representation

- State Department of Health
- State Department of Public Welfare
- Several Philadelphia Academic Health Systems including
  - 2 academic medical practices
  - 1 major policy institute representative
- Private physician community
- Community Health Promotion not-for-profit
- Large Community Health Services not-for-profit
- Federation of Philadelphia federally qualified health centers
- Regional Hospital Association
- National Association of Public Health Statistics and Information Systems
Developing Project Fundamentals Together

- **Collaborative approach**
  - Important to articulate and discuss the respective approaches of public health and clinical services to the problem of hypertension

- **Mutual understanding needed on chief points**
  - More and better data are needed, not just vital statistics
  - If all agree that hypertension is a problem that could be handled more effectively
    - Gather city-wide data related to prevalence and control
    - Share the information
    - Construct interventions and develop policies that complement an ongoing PDPH initiative
Get Healthy Philly

- Partnership effort with multiple sectors
- Turned >600 corner stores into healthy corner stores with fresh fruits and vegetables
- Increased the number of farmers markets with supplements for food stamps ("Philly Food Bucks") that allow the purchaser to get even more healthy food at no additional cost
- Expanded the mileage of the city’s walking and biking paths
- Helps consumers who smoke to access resources that will help them to quit

http://www.phila.gov/health/Commissioner/CPPW.html
Philadelphia Rates of Premature Mortality due to Major Cardiovascular Disease
By Poverty Rate and Zip Code, 2005–2007

Sources of data include the PA Department of Health for 2005-2007 death records and the American Community Survey for the 2010 poverty rate. The y-axis in all cases is the direct age-adjusted mortality rate in 18-64 year-olds per 100,000 population. Charts depict zip codes with ≥ 20 deaths in the age group. The "X" markings denote the focus zip codes. Citywide data have been shown for comparison purposes.
Data Request to Partners

- **De-identified aggregated data**
  - Total population (age, sex, race/ethnicity and insurance type)
  - People with hypertension (ICD-9 codes)
  - People with hypertension under control (<140/80)

- **Excellent response from partners**
  - Some gaps in data on control of hypertension
  - Complete data on age-related correlation for prevalence
  - Continuing to gather data to fill out the prevalence picture
Initial Results
Success with Gaps

- **Insurer data: 585,922 of adults ≥18 years old (~50%)**
  - Overall population
    - 24.2%: Hypertension prevalence
    - Blood pressure controlled: 35.4–62.5% (including Medicare)
  - Medicare population alone
    - 79.5%: Hypertension prevalence
    - Blood pressure controlled: 62.5%

- **Provider data: 355,057 adults ≥18 years old (~30%)**
  - 17.1%: Hypertension prevalence
  - Blood pressure controlled: 42.1–65.7%

- **For target ZIP codes, ZIP code-level information from some insurers and providers was available**
Hypertension in Philadelphia, 2011

Hypertension prevalence and average age of participants by respondent, city-wide data, all race/ethnicities, ≥18 years old, both sexes

Data have not been age-adjusted
Next Steps

- Refine the picture
  - Analysis of incidence of hypertension is ongoing using hospital discharge data (Pennsylvania Health Care Cost Containment Council database)

- Continue with data collection
  - Solicit updated data from partners
  - Mine additional datasets
    - United States Renal Data System
    - Medicaid database: Emphasis on vulnerable populations

- Bring additional partners to the table
- Shared perspectives ➔ collaborative action plan
Summary

Hypertension in the United States

Leading risk factor for cardiovascular disease and a significant cause of morbidity and mortality

- 348,000 deaths in 2008 include hypertension as primary or contributing cause
- $47.5 billion annually in direct medical expenses

Each year cardiovascular disease causes 1 of every 3 deaths

- >1.5 million heart attacks and strokes and 800,000 deaths
- $312.6 billion in health care costs and lost productivity
Public Health and Health Care
Getting the Collaboration Right

Lessons learned
- Share the data
- Set a common goal
- Monitor progress
- Celebrate success

Optimal cardiovascular health

Focus
Team-based care
Health IT
Public health
Health care
Way Forward

Leave no one uninformed
Leave no one undetected
Leave no one unprotected