Welcome!

4th Annual Hypertension Summit 2019
Today's Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:30 – 1:30</td>
<td>Million Hearts® Evidence-Based Strategies and Tools for Hypertension Control</td>
<td>Hilary Wall, MPH</td>
</tr>
<tr>
<td>1:30 – 2:30</td>
<td>Self-measured Blood Pressure Monitoring: A Way Towards Better BP Control</td>
<td>Laken Barkowski, RN</td>
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<tr>
<td>2:30 – 3:00</td>
<td>Target: BP and Check. Change. Control. Cholesterol – American Heart Association</td>
<td>Lori Hall, MA</td>
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<tr>
<td>3:00 – 3:15</td>
<td>Break (Snacks provided by American Heart Association)</td>
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<tr>
<td>3:15 – 4:00</td>
<td>Cardiac Ready Communities - Community Spotlight</td>
<td>Jenny Iverson</td>
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<tr>
<td>4:00 – 5:00</td>
<td>Engaging Patients through Lifestyle Modification</td>
<td>Jennifer Haugen, RD, CSSD, LD Chad Spradlin, MBA, PES</td>
</tr>
<tr>
<td>5:00 – 5:30</td>
<td>Evaluation and Wrap Up</td>
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Million Hearts® Evidence-Based Strategies and Tools for Hypertension Control

Hilary K. Wall, MPH
Senior Health Scientist/Million Hearts Science Lead
Centers for Disease Control and Prevention

ND 2019 Hypertension Summit
March 21, 2019
Overview

• CVD burden
• Million Hearts® 2022
• Hypertension control resources
• Finding undiagnosed hypertensives
• Other resources of interest
Heart Disease and Stroke Burden

- More than **1.5 million** people in the U.S. suffer from heart attacks and strokes per year\(^1\)
- More than **800,000** deaths per year from cardiovascular disease (CVD)\(^1\)
- CVD costs the U.S. **hundreds of billions** of dollars per year\(^1\)
- CVD is the greatest contributor to racial disparities in life expectancy\(^2\)

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Heart Disease and Stroke Trends 1950-2015

Recent Patterns in Stroke Deaths

Alarming Mortality Rate Changes

County-level percent change in heart disease death rates, United States, Ages 35-64, 2010-2015

Percent change
-10 or less (4.2%)
-10 to <-2 (20.1%)
-2 to <0 (8.9%)
0 to <2 (7.9%)
2 to <10 (36.1%)
10 or more (22.8%)

ND Mortality Rate Changes

County-level percent change in heart disease death rates, North Dakota, Ages 35-64, 2010-2015

Percent change:
-10 or less (0.0%)
-10 to -2 (24.5%)
-2 to <0 (3.8%)
0 to <2 (11.3%)
2 to <10 (28.3%)
10 or more (32.1%)
Million Hearts® 2022

• **Aim:** Prevent 1 million—or more—heart attacks and strokes in the next 5 years

• National 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
### Million Hearts® 2022 Priorities

**Keeping People Healthy**
- Reduce Sodium Intake
- Decrease Tobacco Use
- Decrease Physical Inactivity

**Optimizing Care**
- Improve ABCS*
- Increase Use of Cardiac Rehab
- Engage Patients in Heart-healthy Behaviors

### Improving Outcomes for Priority Populations
- Blacks/African Americans with hypertension
- 35- to 64-year-olds
- People who have had a heart attack or stroke
- People with mental illness or substance use disorders who use tobacco

*Aspirin when appropriate, Blood pressure control, Cholesterol management, Smoking cessation
Clinical Quality Measures

<table>
<thead>
<tr>
<th>Domain</th>
<th>NQF #</th>
<th>CMS #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin when appropriate</td>
<td>0068</td>
<td>164</td>
</tr>
<tr>
<td>Blood pressure control</td>
<td>0018</td>
<td>165</td>
</tr>
<tr>
<td>Cholesterol management (statin use)</td>
<td>n/a</td>
<td>347</td>
</tr>
<tr>
<td>Smoking cessation (assessment and treatment)</td>
<td>0028</td>
<td>138</td>
</tr>
</tbody>
</table>

- Included in CMS Quality Payment Program/Merit-based Incentive Payment System (QPP/MIPS)
  - Cardiology
  - Internal Medicine
  - General/Family Medicine

https://millionhearts.hhs.gov/data-reports/cqm/measures.html
Preventing 1 Million Heart Attacks and Strokes

Middle-aged adults are being hard hit
Heart attacks and strokes can be catastrophic. Life-changing events that are all too common. Heart disease and stroke are preventable, yet they remain leading causes of death, disability, and healthcare spending in the U.S. Alarmingly, many of these events happen to adults ages 35-64—over 90,000 in 2015. Million Hearts® is a national initiative with a network of partners focused on preventing one million heart attacks, strokes, and other cardiovascular events by 2022. Coordinated actions by public health and healthcare professionals, communities, and healthcare systems can work together to reduce heart disease, improve care, and improve outcomes within priority populations.

Healthcare professionals and systems can
- Focus on the ABCS of heart health. Assess use appropriate, Blood pressure control, Cholesterol management, and Smoking cessation.
- Take a team approach—use technology, standard processes, and the skills of everyone in the healthcare system to find and treat those at risk for heart disease and stroke.
- Make sure people who have had a heart attack or stroke get the care they need to recover well and reduce their risk of another event.
- Promote physical activity and healthy eating among their patients and employees.

80% of premature heart disease and strokes are preventable.

16M
- About 16 million heart attacks, strokes, and other life-threatening events* could happen by 2022.

1 in 3
- 1 in 3 of these life-changing cardiovascular events happened in adults ages 35-64 years old in 2016.

PROBLEM:
Heart attacks and strokes are common and preventable.

Small changes in every state can have a big impact.

One million events could be prevented by 2022 if every state reduced these life-changing events by 8 percent.

In 2014, about 975,000 hospitalizations and 75,000 deaths from cardiovascular disease occurred among Americans, who are at highest risk for a heart attack or stroke.

In 2014, about 395,000 hospitalizations and 30,000 deaths from cardiovascular disease occurred among Americans, who are at lower risk for a heart attack or stroke.

* Studies, hospitalizations, and emergency room visits due to heart attack, stroke, and other cardiovascular events for the heart that could be prevented if Million Hearts® actions are taken.

Get to know Million Hearts®

Preventing 1 Million Heart Attacks and Strokes

Million Hearts® -preventable event rates among adults aged ≥18 years by state, 2016

Data Sources: Healthcare Cost and Utilization Project data (2016), National Vital Statistics mortality data (2016);
### Million Hearts® State Profile: North Dakota

#### 2016 Values*

<table>
<thead>
<tr>
<th>Treat-and-Release ED Visit Rate</th>
<th>Acute Hospitalizations</th>
<th>Mortality Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cost, In US$ (2016) billions</td>
<td>Mean cost (US$) per event</td>
</tr>
<tr>
<td>162.8</td>
<td>912.4</td>
<td>0.09</td>
</tr>
</tbody>
</table>

*Rates are per 100,000 population; standardized, by age, to the 2012 US Census population.

#### Estimated 2017–2021 Values Without Intervention

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>5.4</td>
<td>30.2</td>
<td>4.5</td>
<td>40.1</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Blood Pressure Control

Blood pressure control among adults aged ≥18 years with hypertension – NHANES 2015-2016

Key: * = p<0.05

Missed Opportunities

9.0 M not taking aspirin as recommended

40.1 M with uncontrolled HBP

39.1 M not using statins when indicated

54.1 M combustible tobacco users

+ 70.9 M who are physically inactive

213.1 M missed opportunities

55% of these opportunities are in adults aged 35–64 years

ND Self-reported HTN Awareness

Percentage of People Reporting High Blood Pressure in North Dakota

ND prevalence = 28.9%; 65.2% on meds - BRFSS 2015

U.S. prevalence = 29.8% - BRFSS 2015

Source: 2017 North Dakota Behavioral Risk Factor Surveillance System (BRFSS)
CDC Hypertension Control Champions

- Annual recognition program –
  [https://millionhearts.hhs.gov/partners-progress/champions/list.html](https://millionhearts.hhs.gov/partners-progress/champions/list.html)
- ≥ 70% on BP control
- 101 champions from 2012-2018
  - 34 states and D.C.
  - Treating 15 million US adults with HTN aged 18-85
- 2015 – Altru Health System, Grand Forks, North Dakota
- 2017 – Sanford Health Clinics, Bismarck, North Dakota
Hypertension Control Tools
Hypertension Control Change Package


Revised version coming in 2019
Change Package Format

- **Change Concept**
  - General notions that are useful in the development of more specific ideas for changes that lead to improvement

- **Change Idea**
  - Actionable, specific ideas for changing a process

- **Tools & Resources**
  - Can be adapted by or adopted in a health care setting

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**Million Hearts**
Use Practice Data To Drive Improvement

1. Determine HTN Control Metrics For The Practice
2. Regularly Provide A Dashboard With BP Goals, Metrics, And Performance

Change Concept
Change Ideas
Tools & Resources
Standardized Treatment Protocols

- [http://millionhearts.hhs.gov/resources/protocols.html](http://millionhearts.hhs.gov/resources/protocols.html)
  - Hypertension control
  - Cholesterol management
  - Tobacco assessment and treatment
- Key components, implementation guidance
- Evidence-based protocols examples
- Customizable template – HTN, Tob
- Help address disparate populations
Self-Measured Blood Pressure Monitoring (SMBP)

• Strong evidence for SMBP plus additional clinical support
  • 1:1 counseling
  • Group classes
  • Web-based or telephonic support

• Good evidence for SMBP for confirming HTN diagnosis
  • USPSTF HTN screening recs
  • 2017 ACC/AHA HTN guideline

• Patient-Clinician Feedback Loop

  Self-measured blood pressure readings
  Lifestyle habits (e.g., smoking, diet, exercise)
  Medication side effects and adherence barriers
  Insights into variables affecting control of blood pressure
  
  Patient

  Adjustments to medication type and dose to achieve goal blood pressure
  Suggestions to achieve lifestyle changes
  Actions to sustain or improve adherence
  Advice about community resources to assist in controlling blood pressure

  Clinician
• Guidance for clinicians on:
  o Training patients to use monitors
  o Checking home machines for accuracy
  o Suggested protocol for home monitoring
  o Cuff loaner program

• Training videos

• https://millionhearts.hhs.gov/tools-protocols/smbp.html
Million Hearts® SMBP Forum

- **Meets quarterly** to facilitate the exchange of SMBP best practices, tools, and resources
- **Access materials via the SMBP Healthcare Community**
  - Go to [www.healthcarecommunities.org](http://www.healthcarecommunities.org) and log in to your account (free to register)
  - Search for ‘SMBP’ under the ‘Available Communities’ tab
  - Click “Join Community”
- **Questions:** [MillionHeartsSMBP@nachc.org](mailto:MillionHeartsSMBP@nachc.org)
Finding Undiagnosed Hypertensives

“Hiding in Plain Sight”
(HIPS)
Hypertension Prevalence (JNC 7)

• 32.1% prevalence among US adults
  o 40.5% among adults 45-64
  o 65.9% among adults 65+
  o 40.1% among non-Hispanic blacks

• 78M adults have hypertension

Uncontrolled HTN (JNC 7)

34.6M US Adults with uncontrolled HTN

- 16.1M Aware and treated
- 11.5M Aware and untreated
- 7.0M "Unaware"

Source: 2013-2014 National Health and Nutrition Examination Survey
“Unaware” – A Closer Look (JNC 7)

- 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

Source: 2011-2014 National Health and Nutrition Examination Survey
# Controlling High Blood Pressure Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Measure Definition</th>
<th>ICD-10-CM</th>
</tr>
</thead>
<tbody>
<tr>
<td>NQF 0018 CMS165</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 (Essential HTN)</td>
</tr>
</tbody>
</table>

NQF – National Quality Forum; CMS165 – numbering convention for the CMS e-specified measures
Assessing Hypertension Control

100 patients with diagnosed hypertension

70 patients with blood pressure < 140/90

\[(70/100) \times 100 = 70\% \text{ control}\]
150 patients with hypertension?

- 100 patients with diagnosed hypertension
- 50 patients with abnormal BP values
- 70 patients with blood pressure $< 140/90$

$\frac{70}{150} \times 100 = 47\%$ control
FINDING UNDIAGNOSED PATIENTS WITH HTN

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

Are patients with hypertension being missed?

- Calculate practice prevalence
  
  \[
  \frac{\text{# of adult patients with a diagnosis of HTN (e.g. ICD-10 I10)}}{\text{# of adult patients (18-85, not pregnant, no ESRD)}} \times 100
  \]

- Compare to 32.1%

  OR

- Use the Million Hearts Hypertension Prevalence Estimator Tool
  
  - https://nccd.cdc.gov/MillionHearts/Estimator/

Compare to local, state, or national prevalence data
Clinical Criteria for Undiagnosed Hypertension

- 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

- Population health management software solutions
- EHR registry functionality
- Embed automated algorithms into EHR
  - Requires informatics staff
- Customized reports from EHR vendor
Plan for Confirmation and Treatment

- 24-hour Ambulatory BP monitoring (ABPM)
- Self-measured BP monitoring (SMBP)
- Automated Office BP machines (AOBP)
- Confirmatory office measures

USPSTF recommendation for hypertension screening

Implement a plan for addressing the identified population
What to do with patients confirmed to not have hypertension?

- ICD-10-CM – R03.0 – Elevated blood-pressure reading, without diagnosis of hypertension
  - “This category is to be used to record an episode of elevated blood pressure in a patient in whom no formal diagnosis of hypertension has been made, or as an isolated incidental finding.”
  - [http://www.icd10data.com/ICD10CM/Codes/R00-R99/R00-R09/R03-/R03.0](http://www.icd10data.com/ICD10CM/Codes/R00-R99/R00-R09/R03-/R03.0)

Implement a plan for addressing the identified population.
Clinical Criteria – Sample Stepped Approach

More liberal criteria, lower PPV

2+ values ≥ 140/90

2+ values ≥ 150/90

1 value ≥ 160/100

1 value ≥ 180/110

More conservative criteria, higher PPV

More resources for HTN confirmation

Fewer resources for HTN confirmation

PPV = Positive Predictive Value
Data Exploration Case Studies

### Table 1. Number of At-Risk Patients Identified by Each Hypertension Screening Algorithm

<table>
<thead>
<tr>
<th>Algorithm</th>
<th>Number Identified</th>
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<tbody>
<tr>
<td>1. All patients whose 3 most recent encounters yielded a mean SBP &gt;140 mm Hg or a mean DBP &gt;90 mm. Encounters used were within 12 months before their most recent encounter</td>
<td>720</td>
</tr>
<tr>
<td>2. All patients who had 3 encounters with a SBP &gt;140 or DBP &gt;90 mm Hg within 12 months before their most recent encounter</td>
<td>968</td>
</tr>
<tr>
<td>3. Patients who had a single encounter with a SBP &gt;180 or a DBP &gt;100 mm Hg within 12 months before their most recent encounter</td>
<td>527</td>
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</table>

Unique patients identified by algorithms 1, 2, or 3: 1,586

SBP = systolic blood pressure; DBP = diastolic blood pressure.

Note: All data were obtained from outpatient encounters with a primary care physician or specialist.
• 250,000 adult patients (active 2006 - 2008)
• 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 with a HTN diagnosis
  o 92.6% diagnosed vs 15.8% undiagnosed, P < .001

• 11 primary care centers in West Virginia
• Chronic Disease Electronic Management System (CDEMS)
• Query found 14,893 patients with:
  o ICD-9-CM code 401
  o 2 or more blood pressure readings of 140/90 or higher (n = 1076)
  o A diagnosis of essential hypertension based on free-text entries (n = 898)
• 13.3% potentially hypertensive patients overall
  o Varied across the sites from 3.6% to 47.9%

• 14,970 patients (2008-2011)
• Clinical criteria:
  o Excluded patients with a diagnosis code or current antihypertensive Rx
  o ≥ 3 outpatient BPs from 3 separate dates, at least 30 days apart, within a 2-year period (≥140 or ≥ 90)
  o ≥ 2 elevated BPs (≥ 160 or ≥ 100), at least 30 days apart, but within a 2-year period
• After 4 years, 18–31-year-olds had a 33% slower rate of receiving a diagnosis compared to those 60+
• 100,000K patients from 10 FQHCs from 4 Health Center Controlled Networks – CA, KY, MO

• Clinical criteria:
  o ≥ 2 elevated BP (≥140 SBP or ≥ 90 DBP), past 12 months
  o 1 Stage 2 (≥ 160 SBP or ≥ 100 DBP), past 12 months

• Developed a change package of information on next steps and methods for scaling up

• http://mylearning.nachc.com/diweb/fs/file/id/229350
65.2% had a follow up visit; of these, 31.9% were dx w/HTN

Pearls from the Literature

• No one algorithm is a silver bullet
• Starting conservatively can generate numerous patients resulting in a high positive predictive value
• Undiagnosed vs. undocumented hypertension
• Much more likely to be on an antihypertensive with a HTN diagnosis
• HIPS issue can vary greatly across sites
• Could be a disparities issue, e.g. young adults
Potential Challenges

• Lack of interest or buy-in from clinic staff
  o Face validity check – HTN prevalence or patients \( \geq 180/110 \)

• Inadequate EHR functionality
  o Population health management software solutions

• HTN control rates will drop when potentially undiagnosed patients are identified
Data Exploration for Other Topics

78.1 M Adults Aged ≥21 Years Who Are On Or Eligible for Cholesterol-Lowering Treatment

- 13.9M Taking cholesterol-lowering medication (17.8%)
- 7.5M Making lifestyle modifications (9.6%)
- 29.0M Making lifestyle modifications and taking medication (37.1%)
- 27.7M Reported doing neither (35.5%)

**HIPS – Cholesterol Management**

- **Clinical ASCVD** (e.g. hx MI, stroke, TIA, PAD…)
  - On a statin?
    - YES
    - NO
  - On right intensity?
    - YES
    - NO

- **Severe Hypercholesterolemia** (LDL-C ≥190 mg/dL)
  - On a statin?
    - YES
    - NO
  - On right intensity?
    - YES
    - NO

- **Patients with diabetes, 40-75 years**
  - On a statin?
    - YES
    - NO
  - On right intensity?
    - YES
    - NO

**Family hx of premature ASCVD? = FH**

ASCVD = atherosclerotic cardiovascular disease; FH = familial hypercholesterolemia
Other Resources of Interest
Additional Resources

• Physical Inactivity – https://millionhearts.hhs.gov/tools-protocols/tools/physical-activity.html

• Cholesterol Management – https://millionhearts.hhs.gov/tools-protocols/tools/cholesterol-management.html

• Tobacco Use – https://millionhearts.hhs.gov/tools-protocols/tools/tobacco-use.html

• Particle Pollution – https://millionhearts.hhs.gov/tools-protocols/tools/particle-pollution.html

• Cardiac Rehabilitation – https://millionhearts.hhs.gov/tools-protocols/tools/cardiac-rehabilitation.html
• Subscribe to bimonthly e-Update from the Million Hearts® homepage
Questions?

Hilary Wall – hwall@cdc.gov
Self-measured Blood Pressure (SMBP) Monitoring: A Way Towards Better BP Control

Laken Barkowski, RN, BSN, MSHS
Senior Program Manager of Health Systems Improvement, American Medical Association

March 21, 2019
Disclosures

• None
Objectives

• Describe the M.A.P. BP Improvement Program

• Explain the importance of measuring blood pressure (BP) accurately and the evidence for using SMBP

• Describe approaches to implementing a SMBP program

• Propose tools and resources care teams can use for effective implementation and use of SMBP
M.A.P. BP Improvement Program
Factors Impacting Blood Pressure Control

Patient factors
- Non-adherence to treatment
- Socioeconomic determinants of health

Physician factors
- Time
- Knowledge of evidence (willingness to use)

System factors
- Quality/Performance reporting
- Work flow efficiency
- Leadership (buy-in)
The 2015 M.A.P. checklists for improving BP control

**Measure accurately**

**Screening checklist**
- When screening patients for high blood pressure:
  - Use a validated, automated device to measure BP.1,2
  - Use the correct cuff size on a bare arm.3,9
  - Ensure patient is positioned correctly.3,10

**Confirmatory checklist**
- If screening blood pressure is $\geq 140/90$ mm Hg, obtain a confirmatory measurement:
  - Repeat screening steps above
  - Ensure patient has an empty bladder.11,12
  - Ensure patient has rested quietly for at least five minutes.11,12
  - Obtain the average of at least three BP measurements.11,12

**Evidence-based tips for correct positioning**
- Ensure patient is seated comfortably with:
  - Back supported
  - Arms supported
  - Cuff at heart level
  - Legs uncrossed
  - Feet flat on the ground or supported by a foot stool
  - No one talking during the measurement

**Act rapidly**

If a patient has blood pressure $\geq 140/90$ mm Hg confirmed:
- Use evidence-based protocol to guide treatment.26
- Re-assess patient every 2-4 weeks until BP is controlled.27
- Whenever possible, prescribe single-pill combination therapy.30

**Evidence-based protocols typically include**
- Thiazide diuretics
- Dihydropyridine calcium channel blockers
- ACE inhibitors (ACEI) or ARB
- Angiotensin receptor blockers (ARB)

**Partner with patients, families and communities**

- To empower patients to control their blood pressure:
  - Engage patients using evidence-based communication strategies.27,29
  - Help patients accurately self-measure.30,31
  - Direct patients and families to resources that support medication adherence and healthy lifestyles

**Evidence-based communication strategies include**
- Engage in open-ended questions about adherence, including recent medication use
- Explore reasons for possible non-adherence or a single pill combination
- Ask patient if they are using a digital BP device and how it’s working
- Encourage patients to learn about the BP medication they’re taking and their role in managing it
- See a doctor at least once a year

**Evidence-based tips for patient self-measurement of BP**
- Instruct patient to measure BP accurately using a validated, automated device and correct positioning for measurement
- Ask patient to record 2-3 morning BP measurements and 2-3 evening BP measurements for at least 4 consecutive days between office visits
- Develop a systematic approach to ensure patients can act rapidly to address elevated BP readings between office visits
- Counsel patients that self-measured BP $\geq 130/80$ mm Hg is considered elevated

**Evidence-based lifestyle changes to lower BP include**
- Following the DASH diet, which is rich in fruits, vegetables and whole grains, low-fat dairy, poultry, fish and plant-based oils; and limits sodium, sweets, sugary drinks, red meat and saturated fats
- Engaging in moderate physical activity, such as brisk walking, for 40 minutes a day at least four days a week
- Maintaining a healthy body mass index (BMI)
- Limiting alcohol to $\leq 1$ drink/day in men, $\leq 1$ drink/day in women

These checklists are not intended to be comprehensive. Additions and modifications to fit local practice are encouraged.
1. Proper patient preparation, validated device usage and correct measurement technique
2. Proper documentation of measurements
3. Feedback and metrics to drive improvement

**EVIDENCE-BASED STRATEGIES AND ACTION STEPS**

**AVAILABLE RESOURCES**
- Fact sheet
- Podcast
- Positioning poster
- Measurement proficiency tool
- Instructional decal for BP monitors
- Instructional videos

**OUTCOMES**
- BP control: % adults with Hypertension who have BP controlled (NQF 0018)
- $\Delta$ in SBP
- $\Delta$ in DBP

**MEASURES**
- Terminal digit preference
- Confirmatory metric
M.A.P. BP Improvement Program: Act Rapidly

EVIDENCE-BASED STRATEGIES AND ACTION STEPS

1. Standardized treatment protocols to diagnose and treat high BP
2. Frequent follow up visits to reduce therapeutic inertia
3. Single-pill combination therapy to treat high BPs whenever possible
4. Patient outreach
5. Feedback and metrics to drive improvement

AVAILABLE RESOURCES

- Treatment / Management Protocols
- Clinical Inertia Chart Review

OUTCOMES

BP control: % adults with Hypertension who have BP controlled (NQF 0018)

Δ in SBP
Δ in DBP

METRICS

Therapeutic Inertia Index
M.A.P. BP Improvement Program: Partner with Patients

EVIDENCE-BASED STRATEGIES AND ACTION STEPS

1. Patient self-monitoring of blood pressure
2. Counseling on non-pharmacologic lifestyle interventions
3. Collaborative communication strategies
4. Strategies to improve medication adherence
5. Feedback and metrics to drive improvement

AVAILABLE RESOURCES

- SMBP Online Program
- SMBP Instructional Video
- Infographics
- Patient Education Materials

OUTCOMES

- BP control: % adults with Hypertension who have BP controlled (NQF 0018)
- Δ in SBP
- Δ in DBP

METRICS

Δ in BP after Therapeutic Intensification (Proxy for medication adherence)
M.A.P. Framework for BP Control

The three pillars of the program are ALL needed- each addresses a major barrier to cardiovascular disease prevention

Evidence of Effectiveness of BP Improvement Program

Results Summary:

Between baseline and the last study visit, BP control to <140/<90 mm Hg increased from 61.2% to 89.9% (P < .0001).

MAP rapidly and significantly improved hypertension control in medically underserved patients, largely as a result of measuring BP Accurately and partnering with patients.
The Importance of BP Measuring Accurately
Measure Accurately to Obtain Accurate, Representative Blood Pressures

• BP variability exists in everyone and contributes to uncertainty about whether any single BP is representative of a patient’s true BP

• Uncertainty about BP is the leading reason clinicians fail to initiate and escalate therapy to patients with uncontrolled high BP

• Conventional or routine office BP measurement correlate poorly with a patient’s true BP and future cardiovascular events

• Poorly performed BP measurements (which are very common) result in inaccurate BP readings, contributing to uncertainty and potential harm to patients over time

How does this affect clinicians in practice?

# Measuring BP Accurately

<table>
<thead>
<tr>
<th>Observer Factors</th>
<th>Patient Factors</th>
<th>System Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wrong cuff size</td>
<td>Full bladder</td>
<td>Location of monitor/device</td>
</tr>
<tr>
<td>Cuff placed over clothing</td>
<td>Stimulants</td>
<td>Noise</td>
</tr>
<tr>
<td>Improper positioning</td>
<td>Recent exercise</td>
<td>Work Flows</td>
</tr>
<tr>
<td>No rest</td>
<td>Recent meal</td>
<td></td>
</tr>
<tr>
<td>Terminal digit preference</td>
<td>Talking, texting, reading</td>
<td></td>
</tr>
<tr>
<td>Talking to patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Too rapid cuff deflation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Measuring BP Accurately

7 SIMPLE TIPS TO GET AN ACCURATE BLOOD PRESSURE READING

- Use correct cuff size
  - Cuff too small adds 2-10 mm Hg

- Don’t have a conversation
  - Talking or active listening adds 10 mm Hg

- Put cuff on bare arm
  - Cuff over clothing adds 5-50 mm Hg

- Support arm at heart level
  - Unsupported arm adds 10 mm Hg

- Keep legs uncrossed
  - Crossed legs add 2-8 mm Hg

- Support back/feet
  - Unsupported back and feet adds 6.5 mm Hg

- Empty bladder first
  - Full bladder adds 10 mm Hg

The video monitoring awareness arm result in inaccurate blood pressure measurement. Figures shown are estimates of how factors can contribute to potentially inaccurate blood pressure readings.

References:

AMA
AMERICAN MEDICAL ASSOCIATION

TARGET: BP
American Heart Association
White Coat and Masked Hypertension

Almost all patients will experience some degree of alerting response

- **White coat hypertension**: Office BP is high in a patient whose out of office BP normal

But some will experience none at all…

- **Masked hypertension**: Office BP normal in a patient whose out of office BP high
The Case for SMBP
The Case for SMBP

Accurate, representative BP readings are needed to make sound medical decisions. SMBP readings are more likely to represent a patient’s true BP than a single office blood pressure reading.
What is SMBP?

- Patient self-measurement of their blood pressure outside of the clinical setting
- Patients receive training on how to properly self-measure from their clinical team
- Patients share these BP readings with their healthcare team
Why Use SMBP?

• Measurements are taken in the patient’s usual environment

• Provides multiple BPs over a longer period of time (more representative of patient’s true BP)

• Eliminates white coat effect

• Can identify patient’s with masked hypertension
SMBP improves BP control

• There is **sufficient** evidence of the effectiveness for SMBP to improve BP when used alone (training provided for proper use and communication)

• There is **strong** evidence for the effectiveness of SMBP to improve BP when combined with additional support (i.e., patient counseling, education, or web-based support)

Benefits of SMBP

SMBP is more predictive of cardiovascular outcomes than traditional office BPs

1. Target organ damage

2. Risk of future cardiovascular events

1. Mortality

Benefits of SMBP

SMBP can increase precision in the diagnosis of hypertension

1. Confirming elevated office readings

2. Differentiates between white coat and sustained HTN

3. Helps to identify patients with masked HTN

Benefits of SMBP

SMBP can be used to assess BP control

1. Provides a reliable estimate of effectiveness of antihypertensive treatment

2. Assesses control at different times across a 24 hour period

3. Allows for better treatment decisions to be made in a timely fashion


Benefits of SMBP

SMBP improves adherence to therapy

1. Empowers patient to be more involved to self-manage
2. Improves medication adherence with clinical support


Implementing a SMBP Program
Implementing a SMBP program

1. Considerations before initiating a SMBP program
2. Building a SMBP program
3. Which patients benefit from SMBP
4. Training patients to properly self-measure
5. Interpreting SMBP readings
Considerations Before Initiating a SMBP Program
Considerations Before Initiating a SMBP Program

- Identify at least one provider and one care team member to serve as champions, these individuals will learn about SMBP and train others.
- If possible, budget for 2-3 SMBP loaner devices (approximately $75) per physician.
- Plan time for:
  - Training staff on SMBP (1 hour)
  - Training patients on SMBP (5-6 minutes per patient)
  - Ensuring device accuracy, if the patient is using their own device (approximately 5 minutes)
  - Averaging and documenting patient’s SMBP readings (5 minutes)
  - Preparing the device for the next patient, if implementing a loaner program (5 minutes)
Considerations Before Initiating an SMBP Program

Design processes to include:
• How will patients be identified as candidates for SMBP?
• Who will train the patients on proper self-measurement?
• How will you get the readings (and the device, if using a loaner program) back from the patient? Is an appointment required? With who?
• Who will be responsible for averaging, documenting and notifying the healthcare provider of the SMBP average?
• How will follow-up occur?

For organizations developing a loaner program:
• Who will be responsible for disinfecting the returned loaner devices?
• Where will the loaner devices be stored? (clean and dirty storage needed)
Building a SMBP Program
Loaner vs patient owned devices

- Patients with HTN should be encouraged to purchase their own SMBP device
- If possible, patients without a confirmed diagnosis of hypertension or who cannot afford their own device should be offered a loaner device
Recommending devices for purchase

- Recommend/choose a validated, automated upper arm BP device (preferably with memory and averaging)
  - Do not recommend/use a wrist cuff (unless brachial readings impossible)
  - Finger devices should never be used
Building a SMBP program

Appropriate fitting cuff is essential

- Train staff to measure patient’s arm to ensure accurate cuff size is purchased/used
- While the patient is standing, measure from the acromion process of the scapula to the olecranon process at the elbow
- Note the midpoint and measure the circumference of the arm at the midpoint

Targetbp.org
Photo courtesy of National Health and Nutrition Examination Survey (NHANES) Physician Examination Manual September 2011
Checking a home BP device for accuracy in a patient

Even a device that has passed an accepted validation test may not provide accurate readings in every patient – and may not be properly sized

• Every SMBP device must be tested in the office for accuracy in the individual using it

• The device is brought in and multiple readings are taken using the office standard method of testing and alternated with the patient self-measuring on their device. The readings are then compared. If the difference between devices is >10 mmHg the device should be replaced.

• Accuracy checks should be done after purchase and then annually
Self-measured blood pressure
Device accuracy test

A patient’s self-measured blood pressure (SBP) monitoring device should be tested before it is used as part of an SMBP program. Also test the device annually or any time blood pressure readings are questionable.

**Step 1**
Complete the table below. Care teams should take five blood pressure readings using a combination of the patient’s SMBP device and the office’s method of blood pressure measurement.

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Device</th>
<th>Systolic blood pressure (SBP)</th>
<th>SMBP Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Patient’s</td>
<td>133</td>
<td>133</td>
</tr>
<tr>
<td>B</td>
<td>Patient’s</td>
<td>132</td>
<td>132</td>
</tr>
<tr>
<td>C</td>
<td>Office’s</td>
<td>141</td>
<td>141</td>
</tr>
<tr>
<td>D</td>
<td>Patient’s</td>
<td>134</td>
<td>134</td>
</tr>
<tr>
<td>E</td>
<td>Office’s</td>
<td>139</td>
<td>139</td>
</tr>
</tbody>
</table>

**Step 2**
Part 1: Average measurements B and D.
Part 2: Compare average of B and D to measurement C.
Part 3: If the difference is...
  - Less than 5 mm Hg, this device can be used for SMBP.
  - Between 6 and 10 mm Hg, proceed to Step 3.
  - Greater than 10 mm Hg, replace the device before proceeding with your SMBP program.

**Example**
Part 1: (132 + 134) / 2 = 133
Part 2: 133 - 141 = -8 (Note: If the difference is a negative number, ignore the negative sign).
Part 3: Difference is 8, which is between 6 and 10 mm Hg, so proceed to Step 3.

**Step 3**
Part 1: Average measurements C and E.
Part 2: Compare average of C and E to measurement D.
Part 3: If the difference is...
  - Less than or equal to 10 mm Hg, this device can be used for SMBP.
  - Greater than 10 mm Hg, replace the device before proceeding with your SMBP program.

**Example**
Part 1: (134 + 139) / 2 = 136.5
Part 2: 136.5 - 141 = -4.5 (Note: If the difference is a negative number, ignore the negative sign).
Part 3: Difference is 4.5, which is less than or equal to 10 mm Hg, so proceed with SMBP program.

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Patients that Benefit from SMBP
Which Patients Benefit From SMBP?

• **Patients without a diagnosis of HTN:**
  • Patients with high office BPs who are suspected of having HTN (to make Dx)
  • Suspected white coat hypertension
  • Suspected masked hypertension

• **Patients with a diagnosis of HTN**
  • Any patient- increase engagement, adherence to treatment or improve BP control
  • To assess treatment effect on BP control
  • Difficult to control BPs to determine if treatment resistant HTN is present
Training Patients to Properly Self-measure
Training Patients to Properly Self-measure

- Find out what they know about SMBP and if they have any concerns about it
- Provide general information about hypertension
- Tell them how often and when to measure
  - Two sets of measurements twice a day
  - One set in the morning and one in the evening, preferably before taking antihypertensive medications
  - Each set consists of two measurements performed one minute apart
  - This should be done for seven consecutive days (minimum of three days or 12 readings)
Training Patients to Properly Self-measure

• Teach them how to **prepare** themselves for the measurement
  – Avoid caffeine, exercise and smoking for 30 minutes before the measurement
  – Empty bladder, if needed, then rest for 5 minutes sitting comfortably
• Show them how to use the device and properly put the BP cuff on their designated BP arm
• Tell them how to **position** themselves during the measurement
  – Sit with back supported, legs uncrossed and feet flat on the floor
  – Rest arm on a firm, flat surface with the cuff at the level of the heart with palm facing up
  – No talking, reading, texting or watching TV during the measurement
Training Patients to Properly Self-measure

- Show them how to document their BP immediately after each reading
- Provide instructions on what to do if their BP is too high, too low or if they are experiencing associated symptoms
- Tell them how to communicate their results back to the practice after the week is complete
- Use teach back and return demonstration to ensure patient understanding
Patient Training Tools

How to measure your blood pressure at home

1. PREPARE
   - Avoid caffeine, nicotine and other stimulants 30 minutes before you measure your blood pressure.
   - Wait at least 30 minutes after a meal.
   - If you’re on blood pressure medication, measure your BP before you take your medication.
   - Empty your bladder beforehand.
   - Find a quiet space where you can sit comfortably without distraction.

2. POSITION
   - Sit with legs uncrossed.
   - Keep feet flat on the floor.
   - Keep arm(s) supported, elbow(s) at heart level.
   - Put cuff on arm(s) above elbow at mid-arm.

3. MEASURE
   - Rest for 5 minutes while in position before starting.
   - Take two or three measurements, one minute apart.
   - Keep your body relaxed and in position during measurements.
   - Sit quietly with no distractions during measurements—avoid conversations, TV, phones and other devices.
   - Record your measurements when finished.

What is SMBP?

Self-measured blood pressure (SMBP) is when you measure your blood pressure outside of the doctor’s office or other health care settings.
Self-measured blood pressure: Seven-day recording log

Instructions: Complete the information below each time you take a measurement. It is best to take two measurements in the morning and two measurements in the evening for a week. If you miss any blood pressure measurements, leave that section blank and continue for the next time.

Blood pressure arm: Left or right (circle one)

Day 1
Morning
1
2
Notes

Day 2
Morning
1
2
Notes

Day 3
Morning
1
2
Notes

Day 4
Morning
1
2
Notes

Day 5
Morning
1
2
Notes

Day 6
Morning
1
2
Notes

Day 7
Morning
1
2
Notes

Self-measured blood pressure
Patient training checklist

Instructions: To ensure all necessary steps and components are covered, use this checklist when training your patients on how to perform self-measured blood pressure (SMBP).

☐ Gather supplies
  ☐ Tensimeter
  ☐ What is SMBP? (PDF)
  ☐ SMBP Graphic (PDF in English or Spanish)
  ☐ SMBP recording log (PDF)
  ☐ SMBP device accuracy test (PDF)

☐ Provide background information on SMBP to patient (if not explained by provider)
  ☐ Explain how SMBP allows the provider to get a more accurate and complete picture of the patient's blood pressure outside of the office (more readings, over a longer period of time, in the patient's normal environment)
  ☐ Hand out the "What is SMBP" document.

☐ Determine SMBP cuff size
  ☐ Use tape measure to measure the circumference of patient's mid-upper arm in centimeters (see adjacent image)

☐ Check patient's SMBP device accuracy
  ☐ Use the SMBP device accuracy test.

☐ Recheck patient's blood pressure arm (if not already identified)
  ☐ Measure patient's blood pressure in each arm and use arm with higher reading for all future readings

☐ Teach patient how to properly prepare for self-measurement
  ☐ Avoid caffeine, tobacco and exercise for at least 30 minutes before measurement
  ☐ Empty bladder if full
  ☐ Take BP measurements before blood pressure medications
  ☐ Show SMBP training video and hand out the SMBP infographic.
Obtaining and Interpreting Results
Have patients provide you with all the readings they took over the week. This can be done via:

- Telephone
- Secure fax
- Online through secure patient portal or telemedicine website
- Bring device to the office for staff to review measurements or download if measurement storage is available
- Follow-up office visit
Average, Document and Relay Readings

- Average readings into a single systolic and single diastolic BP

SMBP Average Calculator

- Document average

- Relay readings to provider for interpretation
Interpreting SMBP Results

<table>
<thead>
<tr>
<th>In-office BP average</th>
<th>SMBP average</th>
<th>Classification</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 120/80</td>
<td>Less than 120/80</td>
<td>Normal blood pressure</td>
<td>Recheck BP in office in one year</td>
</tr>
<tr>
<td>120–139/80–89</td>
<td>120–134/80–84</td>
<td>Elevated BP/Prehypertension</td>
<td>Healthy lifestyle changes and recheck SMBP every 3–6 months</td>
</tr>
<tr>
<td>Less than 140/90</td>
<td>Greater than or equal to 135/85</td>
<td>Masked hypertension</td>
<td>Manage as sustained hypertension due to increased cardiovascular risk or consider 24-hour ambulatory BP monitoring (ABPM)</td>
</tr>
<tr>
<td>Greater than or equal to 140/90</td>
<td>Less than 135/85</td>
<td>White coat hypertension</td>
<td>Recheck SMBP every six months</td>
</tr>
<tr>
<td>Greater than or equal to 140/90</td>
<td>120–134/80–84</td>
<td>White coat hypertension and Elevated BP/prehypertension</td>
<td>Healthy lifestyle changes and recheck SMBP every 3–6 months</td>
</tr>
<tr>
<td>Greater than or equal to 140/90</td>
<td>Greater than or equal to 140/90</td>
<td>Sustained hypertension</td>
<td>Manage per hypertension guideline recommendations or treatment protocol used at your organization</td>
</tr>
</tbody>
</table>

Based on JNC-7 definitions
## Interpreting SMBP Results

<table>
<thead>
<tr>
<th>In-office BP average</th>
<th>SMBP average</th>
<th>Classification</th>
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<tbody>
<tr>
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</tr>
<tr>
<td>120–129/less than 80</td>
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<td>Less than 130/80</td>
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<td>Recheck SMBP every six months</td>
</tr>
<tr>
<td>Greater than or equal to 130/80</td>
<td>120–129/less than 80</td>
<td>White coat hypertension and elevated BP</td>
<td>Healthy lifestyle changes and recheck SMBP every 3–6 months</td>
</tr>
<tr>
<td>Greater than or equal to 130/80</td>
<td>Greater than or equal to 130/80</td>
<td>Sustained hypertension</td>
<td>Manage per current hypertension guideline recommendations</td>
</tr>
</tbody>
</table>

Based on 2017 ACC/AHA definitions
Providing Clinical Support
Key Elements of Clinical Support

When added to SMBP, additional clinical support strengthens its utility and effectiveness

1. Delivery of the additional support must involve a trained clinician (e.g., physician, NP, PA, RN, MA, pharmacist or other health educator)

2. Regular communication of SMBP data to care team

3. A feedback loop between patient and care team in which support and advice are customized based on the patient’s reported information

Examples of Clinical Support

One-on-one counseling
- Telephone calls from RNs or pharmacists to manage medications
- Counseling sessions in person with pharmacists

Web-based or telephone support based on patient-reported SMBP readings
- Computer telephone-based feedback system
- Secure patient website training plus pharmacist care management via web communication
- Access to web-based tools for med refill requests, text and e-mail reminders to measure BP or for appointments, secure messaging with clinician or staff

Patient Education
- RNs providing telephone-based education on lifestyle changes to lower BP
- Small group classes on SMBP technique and lifestyle changes in the clinical or community setting

Common Questions
Recommend:
  – a validated*, fully automatic upper arm cuff
  – a device with memory whenever possible
  – device that meets patient specific needs-large display

Do not recommend:
  – a finger or wrist cuff - except in cases where arm circumference >52 cm (then recommend wrist cuff )

Remember:
  • Appropriate sized cuffs must used for BP measurements to be accurate. Always measure the patient’s arm before recommending any device.

*Validated does not mean that a device will be accurate for every patient. Make sure your patients bring in devices to be tested for accuracy
Do Insurance Companies Pay for Devices?

• Some do – many do not

• In some States Medicaid pays for devices and some private payers reimburse

• Have the patient call their insurer to find out
What if a Patient Cannot Afford a Device?

- Consider a loaner program if appropriate

- Contact a manufacture for discounts online or coupons

- 80% of devices in the US are purchased at retail pharmacies – check for coupons

- Many validated upper arm devices can be found for under $40

- Avoid extra memory, Bluetooth and other bells and whistles which can be costly
How Reliable Are Patient’s Recordings of Their SMBP?

• According to peer reviewed literature – patients falsify their readings up to 21-33% of the time in some studies*

• It is better to use memory, whenever possible, for this reason

• When in doubt, consider 24 hour ABPM

*Diabetes Care 2014;37:e24–e25 | DOI: 10.2337/dc13-1821
Do SMBP Readings Count Towards Performance Measures?

- Up until this year, self-measured BPs have been excluded from quality measures. The 2019 HEDIS measure for controlling BP does allow for them if they have been electronically stored and transmitted to the provider.
- Because SMBPs are not currently accepted in quality measures, high office BPs in patients who are controlled at home will not count as controlled if the office BP is above goal.
- This may create a disincentive to use SMBP, in spite of the fact that it is better for patient care.
- The AMA, AHA, CDC, Million Hearts and several organizations are working to solve this problem.
What is the Best Protocol to Use to Measure?

- There is no one protocol that is the standard—there are many guidelines.

- Overall, these guidelines agree that the mean of two BPs in the AM and PM for 1 week is preferred.

- A minimum of three days is acceptable if you obtain 12 measurements.
Final Reminder

Prior to initiating SMBP, always make sure

1) The SMBP cuff is sized correctly and the device reads accurately in the INDIVIDUAL prior to relying on the SMBP measurements to make clinical decisions

2) Patients are trained on how to properly self-measure

3) There is a clearly defined individualized plan between the patient and the clinical team

4) Patients must know exactly what to do if their BP is
   - Too high, too low, or if they are having warning symptoms

4) A shared care plan can be used to help patients know
   - When and how often to communicate with or return to the office for follow-up
   - How to communicate BPs back to the care team
SMBP Training Video

https://targetbp.org/tools_downloads/self-measured-blood-pressure-video/
Questions?
Contact

Laken Barkowski, RN, BSN, MSHS
laken.barkowski@ama-assn.org
Outpatient Initiatives to help you and your patients:

**Target: BP**

and

**Check. Change. Control.- Cholesterol**

North Dakota Hypertension Summit
March 21, 2019
PRESENTERS AND AGENDA

• Mindy Cook, RN, BSN - Sr. Director, Quality & Systems Improvement
• Lori Hall, MA – VP, Community Impact & Rural Health

• Why Focus on Hypertension and High Cholesterol?
• Target: BP and Check. Change. Control.-Cholesterol — What are they?
• Getting to Improvement – The M.A.P. Process
• Registration and Data Submission
• Recognition
• Tools and Resources
Notably, the guidelines eliminate the diagnosis of pre-hypertension and identifies anything greater than 130 or 80 as Stage 1 hypertension.

103 million people have HBP – almost 50%

Heart disease and stroke risk is doubled at 130/80 compared to blood pressure below 120/80.

Prevalence of HBP

Heart Disease and Stroke Statistics—2017 Update: Chapter 9

TARGET: BP

American Heart Association
Life is Worthy

AMA Resources
Innovate Health University
ND GWTG Stroke Patient Risk Factors

- Hypertension
- Dyslipidemia
ND GWTG Stroke - Antihypertensive
Rate of prescription of different types of anti-hypertensive medications at discharge for ischemic stroke or TIA patients

Antihypertensive

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Percent of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE/ARB</td>
<td>59.4%</td>
</tr>
<tr>
<td>Beta-blockers</td>
<td></td>
</tr>
<tr>
<td>Calcium Channel Blockers</td>
<td></td>
</tr>
<tr>
<td>Diuretics</td>
<td></td>
</tr>
<tr>
<td>Other anti-hypertensive med.</td>
<td></td>
</tr>
</tbody>
</table>

All ND Hospitals - 01/01/2014 - 12/31/2018
Of adults with hypertension: 46% are uncontrolled

Most adults with uncontrolled HTN have health insurance and a usual source of care

Source: CDC, AHA
What is Target: BP?

**A call to action** motivating health systems, clinics, and providers to prioritize blood pressure control

**Recognition** for healthcare providers who attain high levels of blood pressure control in their patient populations

A source for **tools and assets** for healthcare providers to use in practice, including the AHA/ACC/CDC Hypertension Treatment Algorithm and the AMA’s M.A.P. Checklist

http://targetbp.org/
Who is our Target Audience?

• Primary Care System – Focus on underserved patients
  - Federally Qualified Health Centers (FQHCs)
  - Practice/Clinic with mission to serve publicly insured, underinsured, or uninsured (Community Health Centers)
  - Private Clinical System (non-FQHC)

• Government Agency or Organization providing care to patients
Why should a clinic participate?

- **Systems** are needed to drive control rates
- Helps clinics meet required performance metrics
- Alignment with AHA and AMA, nationally-recognized leaders
- **Free** tools and resources
- **Free** webinars and CME/CEU opportunities
- **Recognition** from the AHA
- **Improved health and care of patients!**

http://targetbp.org/
GETTING TO IMPROVEMENT
THE M.A.P. PROCESS
The M.A.P. framework

- **Measure blood pressure accurately**
- **Act rapidly to manage uncontrolled hypertension**
- **Partner with patients, families and communities to promote self-management**

**Actionable data**  **Evidence-based tools**  **Team-based Care**
Whelton PK, et al.
2017 High Blood Pressure Clinical Practice Guideline


A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines

WRITING COMMITTEE MEMBERS
Paul K. Whelton, MB, MD, MSc, FAHA, Chair
Robert M. Carey, MD, FAHA, Vice Chair
TOOLS & RESOURCES
RESOURCES—WEBSITE – WWW.TARGETBP.ORG

Patient education tools
Provider education tools
Webinars – CME/CEU courses
E-newsletter

TOOLS & DOWNLOADS

These tools and resources are designed to help your practice improve blood pressure control for all of your patients. Resources include interactive tools, fact sheets, podcasts, webinars, and videos, along with handouts you can give your patients.
RESOURCES – PROVIDER

Self-measured blood pressure
Patient training checklist

Instructions: To ensure all necessary steps and components are covered, use this checklist when training your patients on how to perform self-measured blood pressure (SMBP).

☐ Gather supplies
☐ Tape measure
☐ What is SMBP? (PDF)
☐ SMBP Infographic (PDF) in English or Spanish
☐ SMBP recording log (PDF)
☐ SMBP device accuracy test (PDF)

☐ Provide background information on SMBP to the patient (if not explained by provider)
☐ Explain how SMBP allows the provider to get a more accurate and complete picture of the patient's blood pressure outside of the office (more readings, over a longer period of time, in the patient's normal environment).
☐ Hand out the “What is SMBP?” document.

☐ Determine SMBP cuff size
☐ Use tape measure to measure the circumference of the patient's mid-upper arm in centimeters

Locate mid-upper arm
Using a measuring tape, place one end on the bone prominence of the ulnar bone at the elbow and the other end on the bone prominence of the shoulder.}

Blood pressure measurement:
Measure accurately

Screening for high blood pressure
• Use a validated, automated device to measure BP
• Use the correct cuff size on a bare arm
• Ensure the patient is positioned correctly

If initial blood pressure is elevated, obtain a confirmatory measurement
• Repeat above steps
• Ensure the patient has an empty bladder

Web Link: /tools-downloads/bp-treatment-algorithm-tool/
RESOURCES—WEBINARS

Target: BP™ success stories
Florida’s Health Choice Network and Texas’ Lone Star Circle of Care

Noon–1 p.m. Central time Thursday, Sept. 27

Webinar for Target: BP™ organizations Register today!

- Lifestyle Interventions for the Prevention and Treatment of Hypertension (CME/CE)
- Importance of Measuring Blood Pressure Accurately (CME/CE)
- Importance of Treating Your Patients’ HBP (CME/CE)
- Using Self-Measured BP Monitoring to Diagnose and Manage HBP (CME/CE)
High blood pressure is often the first domino in a chain or "domino effect" leading to devastating consequences, like:

- **STROKE**: HBP can cause blood vessels in the brain to burst or clog more easily.
- **VISION LOSS**: HBP can stain the vessels in the eyes.
- **HEART FAILURE**: HBP can cause the heart to enlarge and fail to supply blood to the body.
- **HEART ATTACK**: HBP damages arteries that can become blocked.

**How Do I Manage My Medicines?**

Taking medicine may be new to you, and there may be a lot to remember. For example, why are you taking it? What time should you take it? How often do you take it, and how many pills do you take?

It’s very important to take medicine the right way — just as your doctor tells you.
REGISTRATION AND DATA SUBMISSION
REGISTRATION

JOIN TARGET: BP

REGISTER AT:

WWW.TARGETBP.ORG

Commit to reducing the number of Americans with uncontrolled blood pressure.

Register
REGISTRATION – INFO NEEDED

ORGANIZATION’S CONTACT INFORMATION

ORGANIZATION’S TOTAL ADULT (18-85 YEARS) PATIENT POPULATION

% PATIENTS THAT ARE A RACE/ETHNICITY OTHER THAN WHITE AND/OR IDENTIFY AS HISPANIC OR LATINO ETHNICITY (ESTIMATE OK)

TOTAL NUMBER OF CLINIC LOCATIONS IN HEALTH SYSTEM (NOTE: MAY REGISTER EACH HEALTH CENTER LOCATION INDIVIDUALLY OR AS A SYSTEM OVERALL)

ORGANIZATION’S CHARACTERISTICS, SUCH AS MULTI-SPECIALTY, FEDERALLY QUALIFIED HEALTH CENTER, ETC.

PREVIEW REGISTRATION FORM
DATA SUBMISSION – FEB. 2-MAY 31!

DATA NEEDED:
ADULT PATIENT POPULATION (PROVIDED AT REGISTRATION)
TOTAL ADULT PATIENTS WITH HYPERTENSION
HYPERTENSIVE PATIENTS WITH HBP UNDER CONTROL

PREVALENCE ESTIMATOR:
ADULT PATIENT POPULATION BY AGE, SEX, AND ETHNICITY

Data Submission

The data submission process should be as seamless as possible. Evaluation data include:

- Total adult patient population
- Total adult patient population by age, sex and ethnicity
- Total number of adult patients with hypertension
- Total number of adult patients with controlled hypertension

Organizations will submit 2018 data in early 2019. Participants will be notified of recognition status in Fall 2019.
Data Collection Worksheet
Use this sheet to collect data to submit to the Target: BP recognition program.

Target: BP™ Recognition Program
Data Collection Requirements

The following data are needed for each healthcare organization seeking recognition by the Target: BP Recognition Program. This worksheet can be used to prepare for the formal data submission process, that begins in early 2019.

Instructions

Enter your healthcare organization’s adult (age 18-85) patient data for the previous calendar year. In accordance with the hypertension quality measure, only include patients whose hypertension diagnosis was recorded on or prior to 6/30/18 and had at least one office visit in 2018.

Note: Use only numbers when entering into the Target: BP Recognition website. (No commas or decimals.) These data are based on MIF: 40/210, DOB 5526 or 400 KO2A, Controlling High Blood Pressure. The measures have yet to incorporate the November 2017 BP Guideline update threshold and continue to define high blood pressure as >140/90
The AHA and AMA will continue to track these quality measures to ensure Target: BP Recognition data align with them.

What is the total adult (18-85 years) patient population size for the healthcare organization?
Enter the total number of patients in your healthcare organization, age 18-85 who had at least one office visit in 2018.

What is your total adult (18-85 years) patient population that has been diagnosed with hypertension?
Hypertension is diagnosed if a patient has multiple visits with blood pressure > 140/90, includes patients with a diagnosis on or prior to 6/30/18 with at least one office visit in 2018. Include any patients with end-stage renal disease, dialysis, renal transplant or pregnancy.

Of those who have been diagnosed with hypertension, what is the number of adult (18-85 years) patients under control, <140/90?
Enter the number of adult patients in your healthcare organization who have hypertension and whose blood pressure is <140/90.
January 2019: New TBP/CCCC portal will open

February 2019: Portal will open for data submission

May 31, 2019: Deadline to submit data for 2019 recognition

Awards will be announced in early FY20

Existing organization accounts will be created automatically
NQF Measure #18 defines HTN as $\geq 140/90$
RECOGNITION RESOURCES

In addition, we’re pleased to offer easy-to-use digital recognition resources to help you share your commitment to lowering HBP in your community and showcase your involvement with Target BP. Simply click the button below and the download will begin immediately.

Your download includes:

Recognition Resources
Check. Change. Control. Cholesterol
WHY IS CHOLESTEROL MANAGEMENT IMPORTANT?

• HIGH CHOLESTEROL IS A MAJOR RISK FACTOR FOR HEART DISEASE AND STROKE
• NEARLY 1 IN 3 AMERICAN ADULTS HAVE HIGH LDL (“BAD”) CHOLESTEROL
• 40% OF AMERICANS HAVE HIGH CHOLESTEROL (OVER 200 MG/DL) – OVER 94 MILLION PEOPLE
ND GWTG Stroke – Medical History of LDL > 100

Percent of Ischemic stroke or TIA patients with LDL >= 100 or on cholesterol-reducer prior to admission, who are discharged on cholesterol reducing drugs.
ND GWTG Stroke - Statin Prescribed at Discharge
Percent of Ischemic stroke or TIA who are discharged on Statin Medication.
Updated Cholesterol Guidelines
November 2018:

- Emphasis on lifetime risk - high cholesterol at any age can increase risk

- Healthy lifestyle remains critical component to prevent and treat high cholesterol

- More personalized risk assessments and tailored treatment options for high LDL

- For adults age 20 and older, without cardiovascular disease and not on lipid lowering therapy, either a fasting or non-fasting lipid profile is effective
What’s new?

• In some cases, a **coronary artery calcium (CAC) test** can help health care providers decide whether to start statin therapy when a person’s risk may not be clear.

• If a person has problems taking a statin or if a statin alone isn’t sufficiently lowering LDL cholesterol, there are some **additional drug options**.

• Importance of **patient/provider discussion** to make a lifestyle and medication treatment plan that the individual can follow to reduce risk.
What did not change?

The 2018 guidelines did not make any major changes to, and continue to support, the AHA’s current healthy lifestyle recommendations.
Check. Change. Control. Cholesterol

What is it?
Cholesterol ™

- Improve awareness, detection and management of high cholesterol

- Educate and empower consumers and patients

- Provide healthcare providers with evidence-based information, tools, and recognition
Web site:

www.heart.org/changecholesterol
For Patients & Consumers

- My Cholesterol Guide
- Check. Change. Control. Calculator
- Cholesterol Animation Library
- Downloadable Sheets
- Cholesterol Podcasts
- Cholesterol Videos
- All of the above and more at www.heart.org/cholesterol
For Professionals

- Healthcare Provider Toolkit
- Risk Calculator
- Guidelines on the Go App
- Podcasts
- CME/CE courses
- All of the above and more at Professional Heart Daily

www.professional.heart.org/cholesterol
Registration and Data Submission
C CCC Recognition Program

National and local recognition for practices and health systems that:

- Register with the program
- Commit to using an ASCVD risk calculator
- Submit adult patient data
- Reach defined recognition levels

Atherosclerotic Cardiovascular Disease (ASCVD) includes several conditions that are caused by the buildup of plaque that narrows blood vessels and can cause cardiovascular diseases.
REGISTRATION REQUIREMENTS

TO REGISTER, ORGANIZATIONS NEED:

• The total adult (21-75 years) patient population count
• The total number of clinical providers in the organization
• Percentage of patients that identify as:
  • Race other than White and/or
  • Ethnicity: Hispanic or Latino
• The total number of clinical locations in their health system
• Organization’s Electronic Health Record (EHR) system

http://www.heart.org/changecholesterol
2019 RECOGNITION LEVELS

No changes have been made to the recognition levels.

- COMMIT TO INCORPORATE ASCVD RISK CALCULATOR INTO PRACTICE
- SUBMIT MIPS 438 CHOLESTEROL MANAGEMENT DATA AND ACHIEVE 70% OR GREATER STATIN THERAPY USE WITHIN THE ADULT PATIENT POPULATIONS
REGISTRATION AND DATA SUBMISSION TIMELINE

Enrollment is open

February 2019:
New portal open for data submission and
commitment to use ASCVD risk calculator

May 31, 2019:
Deadline to submit data for recognition

Awards will be announced in early FY20
QUESTIONS?

PLEASE COMPLETE THE INTEREST QUESTIONNAIRE IN YOUR FOLDER.

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THANK YOU!!
2019 Hypertension Summit

BREAK TIME!
Snacks, Networking and Self-Care

NORTH Dakota Health

American Heart Association | American Stroke Association
CARDIAC READY COMMUNITY PROGRAM
I have no financial disclosures
I have no conflicts of interest
OBJECTIVES

Understand how the Cardiac Ready Community program started and the main goals of the program

Understand what it means to become a Cardiac Ready Community

Know the steps your community can take to become designated as a Cardiac Ready Community
CARDIAC READY COMMUNITY GOAL

- **Designed:** to promote survival from a cardiac event, such as sudden cardiac arrest (SCA) which occurs outside of the hospital setting
- **Goal:** prepare community to respond and assist appropriately when an individual has a cardiac event
- **Community will be able to:**
  - Recognize a cardiac emergency
  - How/when to dial 9-1-1
  - Begin CPR
  - Have public access to Automated External Defibrillators (AEDs)
WHY IS THIS IMPORTANT?

- Heart disease is currently the leading cause of death in North Dakota and the United States
- OHCA survival less than 11%
- Bismarck/Mandan: OHCA occurs-
  - 72% Home
  - 17% Healthcare Facility
  - 11% Public location
WHY THIS IS IMPORTANT

- Time is muscle!
- For every minute without life-saving CPR and defibrillation, chances of survival decrease 7-10%
THIS PROGRAM WILL HELP TO INCREASE PUBLIC AWARENESS

WAYS TO AVOID A HEART ATTACK

- Diet Control
- Routine Exercise
- Manage Diabetes
- Avoid Smoking And Alcohol
- Keep Check Cholesterol Levels
- Control Hypertension

Slightly more than half of Americans (54%) say they know how to perform CPR.

CARDIAC ARREST VS HEART ATTACK
HANDS ONLY CPR & AED USE

Triples Survival Chances

Communities have to be willing to respond

Education key
Criteria supports the AHA Chain of Survival:

- Immediate recognition of cardiac arrest and activation of the emergency response system
- Early CPR with an emphasis on high quality chest compressions
- Rapid defibrillation
- Effective basic life support with advanced life support intercept
- Integrated post-cardiac arrest care

**CHAIN OF SURVIVAL**

- Recognize cardiac arrest or heart attack
- Perform early CPR
- Rapid use of an AED
- Advanced emergency care
- Coordinated hospital care
CRITERIA

- Community Leadership
  - Various lead stakeholders i.e. city officials, clinic personnel, EMS personnel, school board members etc.
  - Goal is complete community involvement! All aspects of the community have to work together to prepare community members to respond.
  - Each life lost has an impact on the whole community – families, friends, social groups, jobs – we are all interconnected.
On Going Community Awareness Campaign

- Educate community with flyers, newspapers, verbal education, social media pages etc.
- Get creative!
COMMUNITY BLOOD PRESSURE CHECKS

- Blood pressure screenings can be held during community events, health fairs, clinic visits etc.
- Educate on their numbers and refer hypertensive patients
- Keep track of how many community members have been screened!

NORMAL BLOOD PRESSURE
*Recommendations: Healthy lifestyle choices and yearly checks.

ELEVATED BLOOD PRESSURE
*Recommendations: Healthy lifestyle changes, reassessed in 3-6 months.

HIGH BLOOD PRESSURE / STAGE 1
*Recommendations: 10-year heart disease and stroke risk assessment. If less than 10% risk, lifestyle changes, reassessed in 3-6 months. If higher, lifestyle changes and medication with monthly follow-ups until BP controlled.

HIGH BLOOD PRESSURE / STAGE 2
*Recommendations: Lifestyle changes and 2 different classes of medicine, with monthly follow-ups until BP is controlled.
CPR/AED TRAINING

- Hands only CPR training done by certified CPR instructor
- Can be done during community events (half time of sporting events), high schools, shopping malls
- Keep track of how many community members are CPR and AED trained
PUBLIC ACCESS AED

- Can take the longest in order to fund for AEDs
- Educate community on what AEDs do, how to use them and where they are located
- Place in public places and high traffic areas
- Bismarck/Mandan and Fargo – PulsePoint
  - Over 200 AEDs registered in the community
10 communities are designated as Cardiac Ready Communities

25 communities are working towards becoming designated
Once a community has met the minimum set of criteria, they apply for designation.

Once approved through the ND Department of Health, they are given a 3 year Cardiac Ready Community designation.

Highway sign provided to each community designated to display.
AED GRANT UPDATE

- With a Grant received by the American Heart Association, the Division of Emergency Medical Systems was able to purchase a number of AEDs.
- All communities participating in the Cardiac Ready Community program were eligible to apply for the AEDs. These will be distributed in the near future.
- Could be the last step for several communities to become designated.
- **Cardiac Ready Campus**
  - Currently working on creating criteria for Cardiac Ready Campus
  - May help lead to Cardiac Ready Community
  - UND already working on designation
  - Will have more information as it becomes available
- Looking into incorporating other initiatives such as Stop the Bleed
EDUCATION

- **EMS Rendezvous**
  - April 11-13, 2019
  - Bismarck, ND

- **State Stroke and Cardiac Conference**
  - October 29-30, 2019
  - Bismarck, ND

- **State Trauma Conference**
  - September 25-26, 2019
  - Bismarck, ND
QUESTIONS?

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Engaging Patients Through Lifestyle Change Modification

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*Integrative Medicine Supervisor*

Chad Spradlin, MBA, PES
*Health and Wellness Coach - Integrative Medicine*
No Disclosures
Learning Objectives

1. Participants will be able to link leading causes of death to lifestyle behaviors.
2. Participants will be able to define the 6 stages of change.
3. Participants will learn coaching strategies to help motivate patients to make lifestyle change.
4. Participants will be able to identify partners in their community and/or health system to support patients lifestyle change goals.
Top 2 Leading Causes of Death in the United States

1. Heart Disease

Healthy People 2020 Identifies the leading (controllable) risk factors for heart disease and stroke are:
- High blood pressure
- High cholesterol
- Cigarette smoking
- Diabetes
- Unhealthy diet and physical inactivity
- Overweight and obesity

2. Cancer - 25% of all deaths in US

76% of lung cancer deaths are related to combination of low f/v intake, physical inactivity, tobacco use, exposure to environmental smoke, air pollution
Why Lifestyle Change?

According to the CDC, about 20% to about 40% of deaths from each of these causes (top 5) could be prevented through lifestyle changes such as avoiding tobacco, increasing physical activity and healthier eating.

The report, published in the May 2, 2014 issue of Morbidity and Mortality Weekly Report, compared the death rates from these causes in all 50 states from 2008-2010.

The analysis showed if all states had the lowest death rate for each cause, it would be possible to prevent:

- 21% of early cancer deaths, prolonging about 84,500 lives
- 34% of early heart disease deaths, prolonging about 92,000 lives
- 39% of early chronic lower respiratory disease deaths, prolonging about 29,000 lives
- 33% of early stroke deaths, prolonging about 17,000 lives
- 39% of unintentional injury deaths, prolonging about 37,000 lives

Weight loss (as result of lifestyle changes) of 5-10 % produced improvements in cardiovascular risk factors, but greater weight losses were associated with even greater improvement. –NHLIB
How can we engage our patients in lifestyle modifications to help prevent and control disease?
How well do you know your patient?

- Demographics
- Food security
  - Fitness center
  - Grocery store/food bank
  - Clinic
  - Technology
  - Health insurance
- Resources and access to resources
- Support system (family, friends)
Stages of Change

- Pre-contemplation - No intention
- Contemplation - Change on horizon, 6 months
- Preparation - Getting ready – next 30 days
- Action - Consistently changed, within 6 months
- Maintenance - Staying there more than 6 months
- Relapse – Recycling
Meet at patients place of readiness

What are your thoughts about?
Let's Role play

Partner up, one of you share something about yourself that you:

• Want to change
• Need to change
• Should change
• Have been thinking about changing
What change are they considering?

• Explain why they should make this change

• Give at least three specific benefits that would result from making the change

• Tell them how they could make the change

• Emphasize how important it is to change

• Persuade them to make the change

• If you meet resistance, repeat the above
Feedback

- What was the experience like?
- What did you like?
- What did you not like?
- What did you notice?
- Did you feel encouraged to make the change?
“People tend to resist that which is forced upon them”

“People tend to support what which they helped create”

- Vince Pfaff
Motivational Interviewing

a directive, client-centered counseling style for eliciting behavior change by helping clients to explore and resolve ambivalence.
What makes MI Successful

**Relational aspect**
- Ambivalence is resolved through empathy and a spirit that instills capability

**Technical aspect**
- Ambivalence is resolved through the selective reinforcement of a client’s thoughts and commitment for change

http://www.youtube.com/watch?v=cDDWvj_q-o8
Partnership

Acceptance

Compassion

Evocation
Share something about yourself that you:

- Want to change
- Need to change
- Should change
- Have been thinking about changing But haven’t changed yet

In other words, share something that you’re feeling ambivalent about.
Listener

• Listen carefully with a goal of understanding
• Give no advice
• Ask these open questions and listen with interest
  • Why would you want to make this change?
  • How might you go about it, in order to succeed?
  • What are the three best reasons to do it?
• Give a short summary/reflection of the speaker’s motivations for change
• Then ask: “So what do you think you’ll do?” and just listen
Feedback

• What was the experience like?

• What did you like?

• What did you not like?

• What did you notice?

• Did you feel encouraged to make the change?
Process of MI

• Engage- Establish a connection, explore strengths and values
• Focusing- Develop a direction that the client chooses
• Evoking- Eliciting patients motivations for change
• Planning- Formulating a specific plan of action, only when the patient is ready
Yes, but...

Lifestyle Change is Hard.

Addressing patient one liners.

It’s winter and fruits and vegetables aren’t good in ND
It have knee problems (or insert other) and can’t exercise.
I don’t like to sweat.
My husband is the cook and I have to eat what he makes.
Eating healthy is expensive.
I already know what to do...(exercise, diet)..but just don’t do it.
What do patients ask for?

- Accountability
- Why’s behind change (you are the expert)
- Ideas (meal plan, how to begin with exercise)
- Help to identify realistic short term, medium term and long term goals
Addressing and eliminating barriers

Identify potential barriers
- Cost
  - Grants/Scholarships
  - Food security
  - Community based programs (high reach low cost)

Demographic Location
- Leverage technology
- What is available
  - School/armory to walk
  - At home Exercise equipment
  - Garden produce

Know your partners/resources and when to refer out
Betty referred to weight management clinic by cardiology for weight loss prior to procedure. Goal to lose 50lbs.

Stats: BMI =62.65, A Fib needing ablation procedure.

Barriers = Limited finances due to medical bills, lives in rural area, limited exercise tolerance

Currently on a low carb diet because family member was on it and seeing success. Reports feeling tired and joint pain.

Plan: Start with dietitian – met initially. Decided to journal her food, “move more” and increase F/V intake. Focus on what she can do versus what she cannot.
...3 months later

Betty has lost 37 lbs on way to 50 lbs goal! Current BMI 57.54.

Patient reports not taking naps during the day due to more energy

Joint pain is resolved

Following a balanced calorie controlled plan

Follow up for accountability every 2 weeks where strategies for behavior change are reviewed
Bob is in his 70’s. Lives alone. Vision impairment but active. Main goal is to lower glucose to prevent diabetes. Weight loss goal of 20 lbs.

Enters our clinic for biometric screenings (glucose primarily). Knows that he was able to reduce sugars and cholesterol when he lost weight in the past.

Stats: weight 211.5 lbs; glucose 121.

Barriers = dislikes cooking, financial concerns.

Met with Health and Wellness Coach for baseline biometric screening. Met with a Registered Dietitian to discuss current eating patterns and identify where change is needed – fast food, excessive energy intake, and lack of fruits and vegetables. Exercising >60 minutes per day.

Plan: continue exercise routine. RD helps to identify how to cut calories and increase fruits and vegetables in easy ways.
6 months later

Biometric screenings complete
  Glucose 121 to 104
  Weight from 211.5 lbs to goal weight of 179.8 lbs

Continues to exercise daily (1 hour or more) and has incorporate frozen vegetables into his meals and assisted to make healthy easy meals at home from work with RD
Partner up for Patient Centered Care

Health care team (registered dietitian, diabetes educator, physical therapist, occupational therapist, social worker, disease manager, health coach, PCP)

YMCA and other fitness centers and community centers
Food pantries
Public Health Department programs and services
Insurance companies/Accountable Care Organizations (ACO)
Diabetes Prevention Programs
Counselors/Psychology
Conclusion

Meet your patients at their stage of change
Recognize barriers versus excuses
Focus on the positives and what they can do versus what they cannot
Partner up within your community and health system for your patients best chance of success
Small changes make big differences
Resources

2018, MAYO CLINIC, ONSITE TRAINING, MOTIVATIONAL INTERVIEWING

HEALTHY PEOPLE 2020

“EFFECTS ON CARDIOVASCULAR RISK FACTORS OF WEIGHT LOSSES LIMITED TO 5-10%.”
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4987606/


Thank you for attending the 2019 Hypertension Summit!

Please complete: Evaluation Form

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