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Item Type	Presentation;Presentation
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Download date	2026-06-18 08:00:47
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Link to Item	https://hdl.handle.net/20.500.14849/1719

Utilization of a Pamphlet for Properly Measuring At-Home Blood Pressures

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October – November 2024

Problem Identification

Connecticut Specific Statistics¹

~30.9% of adults have been told they have high blood pressure, yet only 72.3% of them are currently taking antihypertensives.

~22.8% of adults have been recommended by a healthcare provider to check blood pressures at home.

~22.8% of adults regularly check their blood pressure outside of a doctor's office or at home.

AHEC Focus Area: Medical Practice Transformation



Home-measured blood pressures are more useful for trending blood pressures over time as well as identifying white-coat hypertension or masked hypertension.²



Home-measured blood pressures have been shown to be prognostically superior to in-office measurements in predicting cardiovascular events and even mortality.²



One study found that only 3% of patient's could measure their blood pressure properly according to guidelines, with 60% of patients making 3+ errors.³

Public Health Costs

Nationally, healthcare costs associated with hypertension are about **\$131 Billion** annually, with patients spending nearly \$2000 more on yearly healthcare expenditures.⁴

Hypertension related encounters are the leading causes of ED visits and hospitalizations in both Fairfield County and the entire state of CT.⁵

The Connecticut Office of Health Strategy's 2021 healthcare spending report found that average annual cost per patient with hypertension was **\$13,739**, compared to the overall average of **\$6,151**.⁶

One study found that in the initial 6-months, home blood pressure monitoring was \$247 more expensive, when compared to standard treatment, due to device costs and more frequent follow-ups.⁷ However, a similar paper found that over a 20-year period, home blood pressure monitoring would likely **reduce** healthcare costs by an estimated **~\$8000** per person, attributing savings to the reduced burden of myocardial infarctions and strokes on the healthcare system.⁸

Community Perspectives

“If taught how to check it [at-home blood pressures], most [patients] are pretty good about checking it at home the right way...Typically I’ll trust their home readings more [than in-office readings] if we know their cuff is good [validated] and they’re measuring it appropriately, then it takes out that anxiety factor of having to come to the doctor.”

Cynthia Groves, M.D.
Primary Care New Canaan

“That [educational pamphlet] will definitely help because a lot of the people that do bring in their machines, they don’t know how to set up the band correctly on their arm and how it should be positioned. They don’t know that they’re supposed to have their feet flat on the ground, so a lot of them like to cross their legs.”

Francisco Rosario, Medical Assistant
Primary Care New Canaan

Intervention & Methodology

1

Putting consideration on accuracy, simplicity, and readability, we identified an educational pamphlet from the AMA-MAP Hypertension program on taking home blood pressures.

2

A total of 6 patients with known hypertension were provided with a physical copy of the educational pamphlet and asked to read it.

3

Patients were then asked to complete a short survey about their perceptions of the intervention.

How to measure your blood pressure at home

Follow these steps to get an accurate blood pressure measurement:

1. Prepare

- Avoid these things for 30 minutes:
 - Eating
 - Smoking
 - Exercise
 - Caffeine, such as coffee and some teas and sodas
- Measure your blood pressure before taking your morning medicine
- Use the bathroom to empty your bladder, if needed
- Find a quiet space to sit with no distractions

2. Position

- Sit in a chair that supports your back
- Sit next to a flat surface, like a desk or table
- Put the cuff above your elbow on your upper arm, on your skin and not over clothing
- Rest your arm on the flat surface at mid-chest or heart level with your palm up
- Keep both feet flat on the floor with your legs uncrossed



3. Measure

- Rest quietly for 5 minutes in your seated position
- Keep your arm and body relaxed
- Sit quietly without:
 - Talking or conversations
 - TV, phone, or other electronic devices
- Take 2 measurements, waiting 1 minute in between. Do this twice a day, once in the morning and once at night, for 7 days.
- Write down each of your measurements as instructed by your doctor or care team
- Share your measurements with your doctor or care team as instructed



Note: If you are using a wrist cuff, talk to your doctor or care team about how to position your arm.

This resource is part of AMA MAP™ Hypertension Quality Improvement Program. Using a single or subset tool or resource does not constitute implementing the program. This content is provided only for informational purposes and should not be used in place of an actual doctor's visit.

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AMA MAP™
Hypertension

Image 1 – How to measure your blood pressure at home⁹

Results

On a scale from 1 (None) to 5 (Most), indicate your level of agreement with each statement

	1	2	3	4	5
I have received a similar handout before.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I learned something new from this pamphlet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I will make changes to the way I take my blood pressure.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Mean Scores from 6 respondents

Statement 1: 1.16

Statement 2: 4.67

Statement 3: 3.67

Effectiveness

Based on the results of the survey, it is apparent that many patients had never been given an educational pamphlet on blood pressure before.

While the survey did indicate strong overall agreement that the patients learned something new, there was not as strong agreement that the pamphlet would change the way they take their blood pressures at home.

Limitations

- Some patients with hypertension do not own a blood pressure monitor.
- The pamphlet does not provide any recommendations on specific blood pressure monitors.
- The pamphlet also does not provide education on the importance of monitoring blood pressure.
- Some patients may have personal situations that make taking their blood pressure difficult, such as an inability to place the cuff on themselves.

Compliance

- A future pamphlet could also include education on **why** checking blood pressure is important, such as the risks of hypertension, to try to increase overall treatment compliance. It could also include a chart with blood pressure reading cutoffs, so patients can see where they range from hypotensive to hypertensive crisis.
- It would also be helpful to identify some of the specific reasons that a patient might not be taking their blood pressure regularly or incorrectly.
- This could also investigate which specific steps in taking blood pressures most patients are having difficulty performing.

Blood Pressure Monitors

- The pamphlet could be improved upon by including a QR code, linking to [ValidateBP.org](https://www.validatebp.org), the official AMA blood pressure monitor validation resource. This way patients can verify that their monitors are validated, as well as providing new patients with a list of options to choose from.
- It would be important to know which blood pressure monitors our patients own, and if they are validated. Additionally, do the local stores and pharmacies sell validated monitors?

Future Interventions

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Interview Consent Forms

Thank you for agreeing to be interviewed for this Community Health Improvement Project. This quality improvement project is a requirement for the Family Medicine Clerkship course at the Larner College of Medicine. It will be stored on the University of Vermont's ScholarWorks website and will be searchable using Google Scholars. Your name will be attached to your interview, and you may be cited directly or indirectly in subsequent unpublished or published work.
