Effective Health Care

Self-Measured Blood Pressure Monitoring
Nomination Summary Document

Results of Topic Selection Process & Next Steps

- Self-measured blood pressure monitoring will go forward for refinement as a systematic review. The scope of this topic, including populations, interventions, comparators, and outcomes, will be further developed during the process of the review.

- When key questions have been drafted, they will be posted on the AHRQ Web site. To sign up for notification when this and other EPC Program topics are posted, please go to http://effectivehealthcare.ahrq.gov/getInvolved.cfm?involvetype=subscribe.

Topic Description

Nominator: Public payer

Nomination Summary: The nominator is interested in whether the use of self-measured blood pressure monitoring results in sustained outcomes in patients with hypertension, including reductions in blood pressure, coronary events, stroke, and mortality. The nominator questions whether any improved outcomes may be due to the use of the monitoring devices or from additional support provided to the patients. The nominator is also interested in whether outcomes differ by the type of device used (automated, semi-automated, or manual blood pressure cuff).

Population(s): Patients diagnosed with hypertension (defined BP $\geq$ 140/90)
Intervention(s): Self-measured blood pressure monitoring
Comparator(s): Usual Care
Outcome(s): Changes in blood pressure, morbidity (e.g., coronary events, stroke), mortality

Key Questions from Nominator:

1. Does the available evidence show that self-measured blood pressure monitoring results in sustained reductions of blood pressure to a degree that is clinically significant? If so, does the evidence show that this blood pressure reduction translates into reductions in coronary events, stroke, and mortality?
2. If there is evidence of improved outcomes, can the improvements be linked to the patient's use of the monitors, or are the improvements more directly related to the additional support provided to the patient, such as counseling regarding adherence to diet, exercise, and medication regimen? Or perhaps the study designs preclude identification of the specific factors that result in benefit.
3. If there is evidence of improved outcomes, does it matter whether the patient uses an automated, semi-automated, or manual blood pressure cuff? Any head-to-head studies on this?

Considerations

- The topic meets all EHC Program selection criteria. (For more information, see http://effectivehealthcare.ahrq.gov/index.cfm/submit-a-suggestion-for-research/how-are-research-topics-chosen/.)

- High blood pressure increases the risk of total mortality due to heart disease, stroke, chronic kidney disease, and heart failure. Blood pressure is recorded in the office or clinic setting in routine medical care. Devices for self-measured blood pressure (SMBP) provide an opportunity to record blood pressure at home, and numerous devices are on the market.

- SMBP has several potential uses. Repeated measurement can provide a more accurate estimate of blood pressure. It can also be used to adjust anti-hypertensive drug therapy and reduce clinic visits with patients. In addition, self measurement of blood pressure has been proposed as a means to improve adherence with treatment.

- This topic was initially thought to be best suited to move forward as an update to or expansion of the existing AHRQ report published in 2002 titled *Utility of Blood Pressure Monitoring Outside of the Clinic Setting*. Key Questions are listed below. Specifically, this nomination relates to an update of Key Question numbers 2 and 4.

    1. Comparison of clinic, ambulatory, and self-measured blood pressure (SMBP) readings.
        1a. What is the distribution of the blood pressure (BP) differences between clinic, ambulatory, and SMBP readings? If there are differences, are these differences reproducible?
        1b. What is the prevalence of white coat hypertension (WCH) as defined by SMBP? Is this pattern reproducible?
        1c. What is the prevalence of WCH as defined by ambulatory blood pressure (ABP) measurement? Is this pattern reproducible?
    2. **SMBP levels and WCH based on SMBP as related to clinical outcomes.**
        2a. Is SMBP more or less strongly associated with BP related target organ damage than clinic BP measurements?
        2b. Does SMBP predict subsequent clinical outcomes?
        2c. What is the incremental gain in prediction of clinical outcomes from use of self-measurement devices beyond prediction from clinic BP alone?
        2d. What is the effect of treatment guided by SMBP in comparison to treatment guided by clinic BP, in terms of:
            i. BP-related target organ damage
            ii. Symptoms
            iii. Use of anti-hypertensive drug therapy
            iv. BP control
    3. ABP levels and WCH based on ABP as related to clinical outcomes
        3a. Is ambulatory blood pressure more or less strongly associated with BP-related target organ damage than clinic BP measurements?
        3b. Does ambulatory blood pressure predict subsequent clinical outcomes?
        3c. What is the incremental gain in prediction of clinical outcomes from use of ambulatory devices beyond prediction from clinic BP alone?

3d. What is the effect of treatment guided by ABP in comparison to treatment guided by clinic BP, in terms of:

     i.   BP-related target organ damage
    ii. Symptoms
   iii. Use of anti-hypertensive drug therapy
   iv. BP control

4. **Does the evidence for the above questions vary according to a patient's age, gender, income level, race/ethnicity, and clinical subgroups (e.g., hypertensive/normotensive, diabetic, renal transplant status)?**

- During the refinement process, it became apparent the scope and direction of the nominator's questions were significantly different from the 2002 report and would not be adequately addressed by an update of the older report. Accordingly, the topic of self measured blood pressure was reclassified as a new systematic review.