

# Best Practices for Patient Self-Measured Blood Pressure Monitoring



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## Authors

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Intrepid Ascent is a California-based consulting firm that guides healthcare organizations through the adoption and use of information technology to reach their clinical and business goals.

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Self-measured blood pressure monitoring (SMBP) is defined as the regular measurement of blood pressure by the patient outside the clinical setting, either at home or elsewhere. SMBP is being promoted by national health organizations as a key strategy to improve blood pressure control and medication adherence among patients with hypertension (HTN).<sup>1</sup> An Agency for Healthcare Research and Quality (AHRQ) review of the literature shows that SMBP, paired with additional support, is more effective in lowering blood pressure among patients with HTN than usual care. Additional support strategies for SMBP are defined as regular one-on-one counseling, web-based or telephonic support, and educational classes.<sup>2</sup>

Besides a patient's home, there are multiple settings where blood pressure can be measured, such as a senior center, pharmacy, church, workplace, or fire station. Although more research is needed to determine the optimal timing and frequency of measurements, experts, including the American Heart Association (AHA), recommend that patients using SMBP take three successive readings (at one-minute intervals) at least twice a day, once in the morning and once in the evening.<sup>3</sup>

There are three important elements to consider for successful support of SMBP<sup>4</sup>:

- Delivery of intervention by trained health care providers (e.g., pharmacists, nurse practitioners, physician assistants, health educators);
- Regular patient communication of SMBP readings to providers; and,
- A patient/provider “feedback loop” in which provider support and advice are customized based on patients’ reported information (see Figure 2 below).



Source: Million Hearts®

The patient/provider “feedback loop” is a critical component to the success of a SMBP program. Patient reported data should be used “during and between patient visits to titrate medication and provide

<sup>1</sup> [https://millionhearts.hhs.gov/Docs/MH\\_SMBP.pdf](https://millionhearts.hhs.gov/Docs/MH_SMBP.pdf)

<sup>2</sup> [http://www.effectivehealthcare.ahrq.gov/ehc/products/193/893/CER45\\_SMBP\\_20120131.pdf](http://www.effectivehealthcare.ahrq.gov/ehc/products/193/893/CER45_SMBP_20120131.pdf)

<sup>3</sup> [http://www.heart.org/idc/groups/heart-public/@wcm/@hcm/documents/downloadable/ucm\\_445846.pdf](http://www.heart.org/idc/groups/heart-public/@wcm/@hcm/documents/downloadable/ucm_445846.pdf)

<sup>4</sup> [https://millionhearts.hhs.gov/Docs/MH\\_SMBP.pdf](https://millionhearts.hhs.gov/Docs/MH_SMBP.pdf)



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advice on lifestyle modifications if necessary”.<sup>5</sup> Follow up procedures may need to be adjusted to accommodate between-visit interventions, such as virtual consultations. Timely advice and medication adjustments are the major benefit of the patient/provider “feedback loop” and communication with patients is the main driver of success. As AHRQ found in its review, the best health results are attained when SMBP is paired with ‘additional support’. The three specific areas of additional support strategies (one-on-one counseling, web-based or telephonic support, and patient education) are further discussed below.<sup>6</sup>

1. One-on-one counseling: examples include regular telephone calls from nurses to manage blood pressure-lowering medication and in-person counseling sessions with trained community pharmacists.
2. Web-based or telephonic support: examples include an interactive computer-based telephone feedback system and secure patient website training plus pharmacist care management delivered through Web communications, both in response to patient-reported blood pressure readings.
3. Patient Education: examples include telephone-based education delivered by nurses when patients report poor blood pressure readings, as a means of promoting blood pressure-lowering behavior change by the patient; another may be small-group classes on SMBP technique and lifestyle changes that help lower blood pressure, taught by physician assistants.

The following are suggested steps for clinicians as their organizations implement a comprehensive SMBP program. Additional detail can be found here: [Action Steps for Clinicians \(pdf\)](#)

- Preparing care teams to engage patients in SMBP.
- Selecting and incorporating clinical support systems for SMBP.
- Empowering patients to use SMBP.
- Encouraging coverage for SMBP plus additional clinical support.
- Determining if your EHR vendor supports the incorporation of patient generated results for blood pressure into the clinical record.<sup>7</sup>

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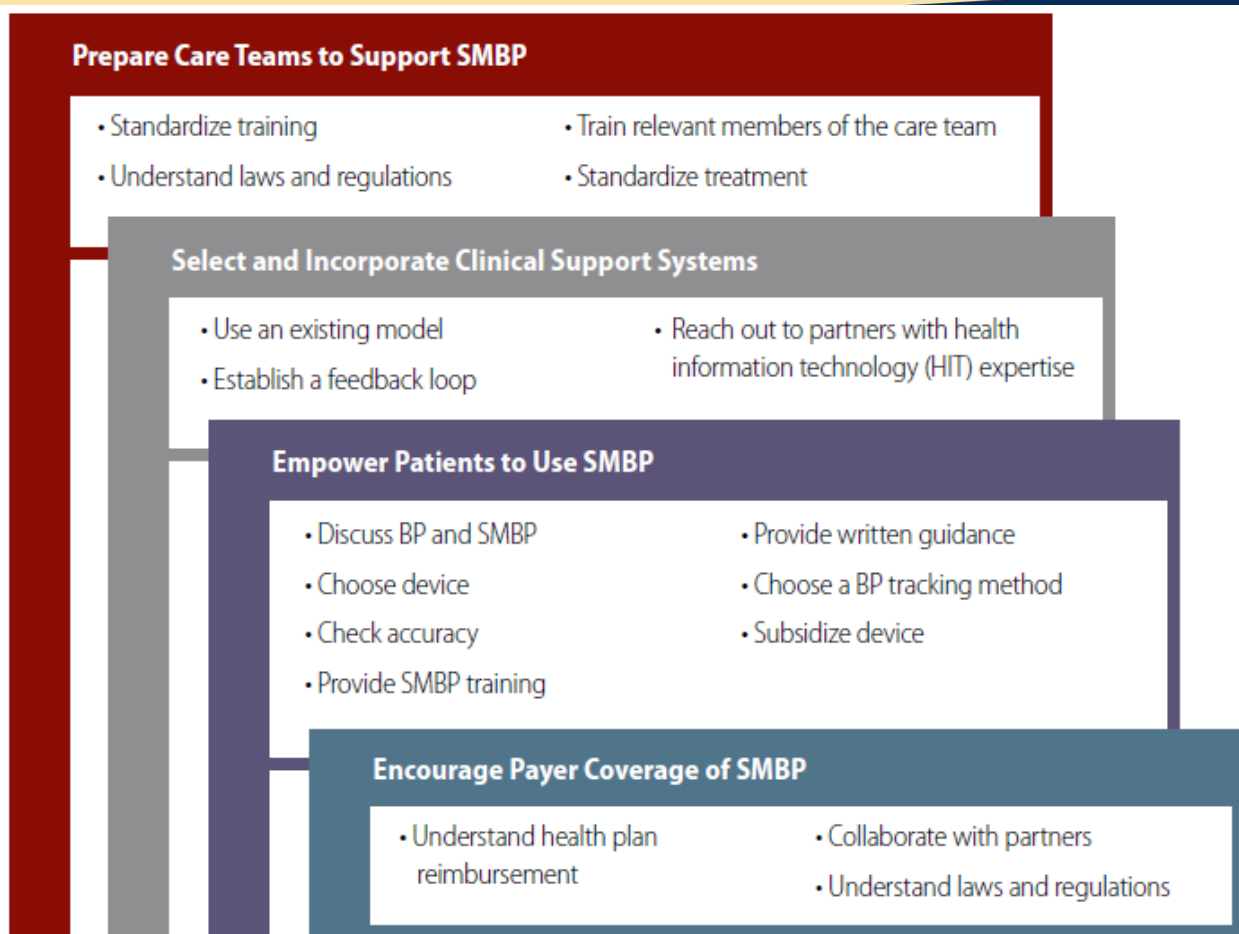
<sup>5</sup> [https://www.healthit.gov/sites/default/files/final\\_smbp\\_sect\\_508\\_tested\\_no\\_watermark.pdf](https://www.healthit.gov/sites/default/files/final_smbp_sect_508_tested_no_watermark.pdf)

<sup>6</sup> [http://millionhearts.hhs.gov/Docs/MH\\_SMBP.pdf](http://millionhearts.hhs.gov/Docs/MH_SMBP.pdf)

<sup>7</sup> [https://www.healthit.gov/sites/default/files/final\\_smbp\\_sect\\_508\\_tested\\_no\\_watermark.pdf](https://www.healthit.gov/sites/default/files/final_smbp_sect_508_tested_no_watermark.pdf)



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Source: Million Hearts®

Public health practitioners can play an integral role in garnering support and changing systems to assist in the widespread implementation of SMBP and building support programs around the intervention. Below are several suggested action steps that public health departments may take<sup>8</sup>:

- Explore the environment—understand how state and local laws and regulations relating to scope of practice and licensing of telehealth<sup>9</sup> providers affect payment for SMBP support programs.
- Work with payers and purchasers—work with state associations of private insurance, groups of self-insured employers, the state Medicaid office, and the state insurance commissioner to encourage coverage of SMBP and additional support.
- Work with healthcare providers—encouraging provider groups to offer “train-the-trainer” opportunities to educate team members on how patients should be taught to self-monitor their blood pressure.

<sup>8</sup> [http://millionhearts.hhs.gov/Docs/MH\\_SMBP.pdf](http://millionhearts.hhs.gov/Docs/MH_SMBP.pdf)

<sup>9</sup> Telehealth (or Telemonitoring) is the use of telecommunications and information technology to provide access to health assessment, diagnosis, intervention, consultation, supervision and information across distance.  
<https://www.medicaid.gov/medicaid/benefits/telemed/index.html>



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- Help spread the word to the public—encourage health advocacy organizations, community- and faith-based organizations, and patient advocacy groups to share resources to educate the public about the importance of SMBP plus additional support in controlling high blood pressure and to incorporate these messages into broader efforts related to HTN.
- Monitor and assess progress—evaluate efforts to expand use of SMBP plus additional support.

To maximize the benefits of SMBP patients must also be encouraged to practice self-management of their disease. Influencing a patient's day-to-day decisions about how to respond to new symptoms, what and how much to eat, whether and how to take their medication, or whether to exercise can affect clinical outcomes.<sup>10</sup> Having care team members to assist with goal setting for patients and collaboratively develop written action plans may also be effective at facilitating patient self-management and can lead to improved blood pressure control.<sup>11</sup> Finally, directing patients towards community resources that provide exercise classes, nutritional counseling, and smoking cessation guidance can make a big impact on health outcomes.<sup>12</sup>

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<sup>10</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3763915/>

<sup>11</sup> <http://www.pcori.org/assets/2013/12/PCORI-Hypertension-Workgroup-Topic-Briefs-120413.pdf>

<sup>12</sup> [https://www.healthit.gov/sites/default/files/final\\_smbp\\_sect\\_508\\_tested\\_no\\_watermark.pdf](https://www.healthit.gov/sites/default/files/final_smbp_sect_508_tested_no_watermark.pdf)