Table D-2. Description of study interventions: Key Question 1

| **Author Year**  **PMID** | **Interventions** | **Additional support** | **Monitor Brand (Type)** | **BP Measurement Frequency** | **BP Transmission** | **Target BP, mmHg** | **Clinic or Study Visit Frequency** | **Medication Titration** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Artinian 200140  11343005 | SMBP + Counsel | Telecounseling[[1]](#endnote-1) | BPLink UA 767PC  (Automated) | 3x/wk | Electronic transmission | nd | Community center 3x/wk | Physician |
| Usual care |  |  |  |  |
| Artinian 200740  17846552 | SMBP + Counsel | Telecounseling[[2]](#endnote-2) | LifeLink Monitoring | 3x/wk | Electronic transmission | <135/85 | nd | Physician |
| Enhanced usual care |  |  |  |  |
| Bailey 199942  10100064 | SMBP |  | Omron HEM 706  (nd) | 2x/d | nd | nd | 0, 8 wk | Physician |
| Usual Care |  |  |  |  |
| Binstock 198843  3415798 | SMBP + Contract + Rx monitor + Education | Compliance contracts[[3]](#endnote-3)+  Calendar pill packs + Education[[4]](#endnote-4) | nd | nd | nd | nd | 0, 12 mo | nd |
| SMBP + Education | Educationd |
| Education | Educationd |  |  |  |
| Bosworth 200944  19920269 | SMBP + Counsel | Telecounseling[[5]](#endnote-5) | Omron HEM-773AC[[6]](#endnote-6)  (Automated) | 3x/wk | Mailed every 2 mo | Clinic<140/90  (<130/80 DM) | 0, 6, 12,  18, 24 mo | Physician |
| SMBP |  |
| Counsel | Telecounselinge |  |  |  |
| Usual care |  |  |  |  |
| Bosworth  201145  21747013 | SMBP + Medication management + Behavioral management | Medication managementg1 + Behavioral managementh1 | A&D Medical Digital Blood Pressure  (UA-767PC) | Every 2 d | Electronic transmission | Clinic<140/90  (<130/80 DM) | 0, 6, 12, 18 mo | Physician |
| SMBP + Medication management | Medication management g1 |
| SMBP + Behavioral management | Behavioral management h1 |
| Usual care |  |  |  |  |
| Broege 200147  11518836 | SMBP |  | Omron HEM-702  (Semi-automated) | Every 2 d | Study nurse phoned every 2 wk | Home<150/90 | Every mo for 3 mo[[7]](#endnote-7) | Physician |
| Nurse BP |  |  | Every 2 wk |  | Clinic<150/90 | Every 2 wk |
| Carnahan 197548  1130437 | SMBP |  | Ultrasphyg, Lumiscope company  (Semi-automated) | 2x/d |  | Clinic DBP<90 | Every mo | Nurse |
| Usual care |  |  |  |  |
| Dalfo i Baque 200551  15802109 | SMBP |  | Omron HME-705CP  (Automated) | 2 x 15‑day periods: wk 6‑8 and 14‑16 | Brought to office | Clinic<140/90 (<130/85 DM) | 0, 8, 16, 24 wk | nd |
| Usual Care |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| DeJesus 200953  19756162 | SMBP + 1 Class | 1 Class education[[8]](#endnote-8) | Life Source UA-767 Plus  (Automated) | nd | Patient recorded | Clinic<130/80 | 0, 6 mo | nd |
| 1 Class | 1 Class  educationh |  |  |  |
| Usual Care |  |  |  |  |
| Earp 198255 7114339 | SMBP[[9]](#endnote-9) + Counsel | In-home counseling[[10]](#endnote-10) | nd | 1/d or several times/wk | Brought to office | Clinic DBP<95 | 0, 12, 24 mo | nd |
| Counsel | In-home counselingj |  |  |  |
| Usual Care |  |  |  |  |
| Fitzgerald, 198556  4044205 | SMBP |  | 50% patients used manual mercury and 50% used manual aneroid | 2x/d | Brought to office | nd | Every 3 wk | nd |
| Clinic BP |  |  |  |  | nd |
| Freidman 199657  8722429 | SMBP + Telecounseling | Telecounseling[[11]](#endnote-11) | Omron Health Care  (Automated) | 1x/wk | Phone-linked computer system | nd | 0, 6 mo | Physician |
| Usual Care |  |  |  |  |
| Fuchs 201058  NA | SMBP |  | nd  (Automated) | nd | nd | Clinic<130/80 | 0, 4, 8 wk | nd |
| Usual care |  |  |  |  |
| Godwin 201059  20032170 | SMBP |  | A&D UA-767  (Automated) | Minimum 1/wk | Brought to office | Clinic<140/90 | 0, 6, 12 mo | Physician |
| Usual Care |  |  |  |  |
| Gran 199160  1891656 | SMBP + Lifestyle interventions | Lifestyle interventions[[12]](#endnote-12) | Tensomat, Ortho Konsult AB  (nd) | 14x/mo | nd | Clinic DBP≤90 | 0, 12, 24 mo | Physician |
| Usual Care |  |  |  |  |
| Green 200861  18577730 | SMBP + Counsel  + Web training | Pharmacist counseling + Web training[[13]](#endnote-13) | Omron HEM-705CP  (Automated) | ≥2x/wk | Emailed to physician | Home<135/85 | 0, 12 mo | Pharmacist and Physician |
| SMBP + Web training | Web trainingm | Physician |
| Usual Care |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Halme 200562  16280273 | SMBP |  | Omron M4  (Automated) | 2x/d, for 7d at 0, 2, 4, 6 mo | Brought to office | Clinic<140/85  Home<135/80 | 0, 6 mo | Physician |
| Usual care |  |  |  |  |
| Haynes 197663  73694 | SMBP + Encouragement | Encouragement[[14]](#endnote-14) | Nelkin 204M and separate stethoscope  (Manual) | 1/d | Brought to office | Clinic DBP<90 | 0, 6 mo | Physician |
| Usual Care |  |  |  |  |
| Johnson 197864  369673 | SMBP +  Home visit BP | Home visitor BP measurement[[15]](#endnote-15) | Blood pressure kit by Taylor Sybron  (nd) | 1/d | Brought to office | nd | 0, 6 mo | Physician |
| SMBP |  |
| Home visit BP | Home visitor BP measuremento |  |  |  |
| Usual Care |  |  |  |  |
| Madsen 200867  18568696  Madsen 200890  18815937 | SMBP |  | Omron 705 IT  (Automated) | 3x/wkfor first 3 mo and 1/wk during last 3 mo | Recording on PDA and transmitted to central server | Home<130/85 (<125/75 DM) | 0, 6 mo | Physician |
| Usual care |  |  |  |  | Clinic<140/90 (<130/80 DM) |
| Marquez-Contreras 200668  16331115 | SMBP |  | Omron M4  (Automated) | 3x/wk | Patient recorded on a card | Clinic<140/90 | 4 visits | Physician |
| Usual Care |  |  |  |  |
| Marquez-Contreras 200969  19482378 | SMBP + Education + Rx monitor | Educational materials[[16]](#endnote-16) + Medication monitoring[[17]](#endnote-17) | Omron  (nd) | 3x/wk | Brought to office | Clinic<140/90 (<130/80 DM) | 0, 3, 6 mo | Physician |
| SMBP + Rx monitor | Medication monitoringq | Special card |
| SMBP + Education | Educational materialsp | Special card |
| Usual Care |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| McManus 201070  19220913  McManus 201066  20619448 | SMBP + Alert+ Self-titration | Provider alert + Self titration | Omron 705IT  (Automated) | 1/d 1st wk of each mo | Electronic transmission | Home<130/85  (<130/75 DM, CKD) | Clinic visit if extreme BP, or after 2 Rx changes by patient | Patient, according to predetermined medication titration plan[[18]](#endnote-18) |
| Usual care |  |  |  |  | Clinic <140/90 | Minimum annual visit | Physician |
| Mehos 200071  11079287 | SMBP[[19]](#endnote-19) |  | UA-702  (Manual) | 1/d | Brought to office  (Predated diary) | Clinic<140/90 | 0, 6 mo | Physician  Pharmacist made recommendation if mean monthly BP-values ≥140/90 |
| Usual care |  |  |  |  | Physician |
| Midanik 199172  1899945 | SMBP |  | Tycos Self-Check digital device  (Automated) | 2x/wk | Mailed every 4 wk | nd | 0, 12 mo | Physician |
| Usual care |  |  |  |  |
| Muhlhauser 199373  8467308 | SMBP + Education | Education[[20]](#endnote-20) | nd | 2x/d for 1st week, less frequent when BP at target | Brought to office | nd | 0, 18 mo | Physician |
| Usual Care |  |  |  |  | 0, 19 mo |
| Parati 200975  19145785 | SMBP + Reminder | Reminder[[21]](#endnote-21) | Tensiophone device, Tenisiomed Budapest  (Automated) | nd | Electronic transmission | Home<135/85 | 0, 2, 4, 12, 24 wk | Physician |
| Usual Care |  |  |  |  | Clinic<140/90 |
| Park 200976  19643661 | SMBP + Web+ Counsel | Personalized Web site + Nurse counseling[[22]](#endnote-22) | nd | nd | Electronic transmission | nd | 0, 8 wk | Physician |
| Usual Care |  |  |  |  |
| Pierce 198477  6377291 | SMBP + Education | Education[[23]](#endnote-23) | Aneroid sphygmomanometer  (Manual) | 1x/d | Brought to office | nd | 0, 6 mo | Physician |
| SMBP |  |
| Education | Educationw |  |  |  |
| Rinfret 200978  20031834 | SMBP + Alert + Rx monitor | Provider alert + Medication monitoring[[24]](#endnote-24) | Omron HEM-711AC  (Automated) | nd | Electronic transmission  1x/wk | Clinic<140/90 | 0, 12 mo | Physician |
| Usual Care |  |  |  |  |
| Rogers 200179  113888152 | SMBP |  | Welch Allyn Model 52500  (Automated) | 3x/wk for minimum 8wk | Electronic transmission  1x/wk | nd | nd | Physician |
| Usual Care |  |  |  |  |
| Rudd 200480  15485755 | SMBP + Counsel | Telecounseling[[25]](#endnote-25) | UA 751; A&D  (Semi-automated) | 2x/d | Mailed printed report every 2wk | Home<130/85 | 0, 3 mo | Nurse, per protocol |
| Usual Care |  |  |  |  | nd | Physician |
| Sawicki 199581  8557972 | SMBP + Education +  Self-titration | Education[[26]](#endnote-26)+ Self- titration | Aneroid manometers  (Manual) | At least 2x/d | nd | Home<140/90 | nd | Patient, per protocol |
| Usual Care |  |  | nd |  | nd | nd | Physician |
| Shea 200682  16221935  Shea 200792  18528511  Shea 200993  19390093 | SMBP + Web+ Counsel | Personalized Web site + Videoconference counseling[[27]](#endnote-27) | UA-767  (Automated) | nd | Transmitted electronically | nd | 0, 12 mo | Physician |
| Usual Care |  |  |  |  |
| Soghikian 199283  1518317 | SMBP |  | Tycos Self Check Model 7052-08  (Manual) | 2x/wk | Mailed every 4 wk. Computer reports generated for physician | nd | 0, 12 mo | Physician |
| Usual Care |  |  |  |  |
| Stahl 198485 6742256 | SMBP |  | nd (mercury sphygmomanometer | nd | Brought to office | Clinic DBP≤95 | Every 2-4 wk until BP controlled, then every 2 mo | Nurse practitioner |
| Usual Care |  |  |  |  |
| Van Onzenoort 201086  19952780 | SMBP |  | Omron HEM-705 CP  (Automated) | 1x/d for 1 wk prior to clinic visit | Patient recorded | Home 120‑139/80‑89 | 7x/1y | Stepwise titration by physician at the coordination center |
| Usual Care |  |  |  |  | Clinic 120‑139/80‑89 | 7x/1 y | Physician |
| Varis 201087  20367560 | SMBP |  | Omron 1c  (Automated) | 3x/wk | Patient recorded in a diary | 135/85 | nd | Titration by physician |
| Usual care |  |  |  |  | Clinic 140/90 | 10x/1 y | Titration by physician |
| Verberk 200720  17938383 | SMBP |  | Omron HEM-705 CP  (Automated) | 6x/d for 7dprior to clinic visit | nd | Home 120‑140/80‑90 | 8x/1 y | Titration by physician at the coordination center |
| Usual Care |  |  |  |  | Clinic 120‑140/80‑90 | 10x/1 y | Physician |
| Zarnke 199788  9008249 | SMBP |  | Marsall 85 oscillometric, Omron  (Semiautomated) | 2x/d | Patient recorded in a diary | nd | 0, 8 wk | Patient per protocol[[28]](#endnote-28)  Physician |
| Usual Care |  |  |  |  |  |  | Physician |
| Zillich 200589  16423096 | SMBP + Counsel | Pharmacist counseling[[29]](#endnote-29) | Omron HEM-737A  (Automated) | 2x/d for 4 wk, then 2-4 wk break, and then another 4 wk | Brought to office (log book) | Home<140/90 (<130/80DM, CKD) | 0, 1, 3 mo | Recommendations given by pharmacist  Physician |
| Pharmacist BP | Pharmacist BP measurement[[30]](#endnote-30) | BP measured in the pharmacy | 4x in 3 mo | Brought to office (log book) |

BP = blood pressure; CKD = chronic kidney disease; DBP = diastolic blood pressure; DM = diabetes mellitus; nd = no data; SMBP = self-measured blood pressure.

1. Weekly phone counseling by trained nurse on lifestyle modification and medication adherence. [↑](#endnote-ref-1)
2. Weekly phone counseling by trained nurse on lifestyle modification and medication adherence. [↑](#endnote-ref-2)
3. Each patient identified a specific behavior related to hypertension, recorded it for a defined period of time and established his or her own rewards for compliance and signed a contract. [↑](#endnote-ref-3)
4. Bimonthly educational program by clinical nurse on hypertension and Rx options. [↑](#endnote-ref-4)
5. Bimonthly phone counseling by nurse on improving adherence to diet, weight loss and lifestyle modification.The nurse also discussed patient’s perceived risk for hypertension, social support, relationships with health care providers and side effects of medication. [↑](#endnote-ref-5)
6. Omron HEM-637 wrist monitor, if arm circumference >17 inches and wrist circumference <8.5 inches. [↑](#endnote-ref-6)
7. 1 Out of range BPs triggered nurse recommendation for medication change based on a decision support software; these were reviewed with and prescribed by study physician. Follow-up by nurse after 3 weeks via telephone to get reports of adverse effects and address patient questions.

   h1 Behavioral management delivered via telephone by a nurse, with 11 tailored health behavior modules focused on improving hypertension self-management. Verbal information as well as handouts.

   Clinic BP not used to make medication decisions. [↑](#endnote-ref-7)
8. One-time class by DM educator focusing on hypertension in diabetes. [↑](#endnote-ref-8)
9. Significant other BP monitoring: 50% chose spouse, 25% son or daughter, 7% chose nonrelative as “significant other.” [↑](#endnote-ref-9)
10. In home counseling was done by nurse or pharmacist (5-6 visits). [↑](#endnote-ref-10)
11. Phone-linked computer counseling once/wk (~4 min) with BP input by patient. BP data transmitted to patient’ physicians with clinically significant information highlighted. [↑](#endnote-ref-11)
12. Patient had to choose ≥1 of 14 lifestyle intervention for BP reduction (e.g.: exercise, weight reduction, low sodium diet, low-fat diet, smoking cessation, alcohol restriction, improved sleep, noise reduction, reducing stress causes) including SMBP. 87% chose SMBP at baseline, 85% after 1 y, and 80% after 24 mo. Every 6mo information session on study results and more info on various nondrug approach. [↑](#endnote-ref-12)
13. Web services for medication refill, appointments, view portions of their medical record and secure messaging to contact health care team members. [↑](#endnote-ref-13)
14. Every 2 wk in-person review of BP-values of medication compliance by a high school graduate and encouragement for better BP control. [↑](#endnote-ref-14)
15. Home visits every 1 mo to check BP. [↑](#endnote-ref-15)
16. Patient education kit (leaflets) on general aspects of hypertension and compliance promotion. [↑](#endnote-ref-16)
17. Card for BP measurements recording and medication reminder. [↑](#endnote-ref-17)
18. After two consecutive months of readings above target (≥4 above-target readings in 2 consecutive months), patients self titrated medication in accordance with 2 step titration schedule prescribed in advance by physician. After each set of two changes had been implemented, patients returned to their family doctor for a future titration schedule if blood pressure remained above target. Monthly summaries of each patients’ readings were sent to their family doctor. [↑](#endnote-ref-18)
19. Clinical pharmacist contacted each patient monthly by phone to evaluate BP response. If mean monthly > target, physicians were informed and treatment adjusted as needed. [↑](#endnote-ref-19)
20. Four consecutive weekly class taught by physician assistants; education on hypertension and nondrug treatment. [↑](#endnote-ref-20)
21. Auto-electronic BP (phone) load with electronic reminders. If extreme BP-values a nurse called the patient. [↑](#endnote-ref-21)
22. Medication and lifestyle modification info during visit by nurse and Internet monitoring weekly (patient input BP data, education on diet, medications, exercise, etc) [↑](#endnote-ref-22)
23. Four educational meetings on nonpharmacological approach to lower BP. [↑](#endnote-ref-23)
24. Phone transmission of patient’s recorded home BP and of monthly pharmacy refill data to physician and study nurse. Nurse contacted subjects if poor BP control after 4wk or nonadherence. [↑](#endnote-ref-24)
25. Patient mails BP report every 2 wk to nurse. Nurse follows by phone 4x (~10 min each call) with counseling on drug adherence and side effect. [↑](#endnote-ref-25)
26. Four teaching sessions about hypertension, self-monitoring, nonpharmacological measures taught by a paramedic. Patients were instructed to titrate medications until normotensive. [↑](#endnote-ref-26)
27. Auto-electronic BP upload. Nurse videoconferencing via Web (no prespecified usage requirement) after reviewing BP and glucose data. [↑](#endnote-ref-27)
28. Self-titration based on medication-specific algorithms. Thresholds for medication change of 160/95 mmHg x 2 wk or >110/70 mmHg x 1 wk. [↑](#endnote-ref-28)
29. Four patient-pharmacist meetings over 3 mo for SMBP training and hypertension education. Pharmacists made recommendations to physicians about medication; treatment plans developed with physicians and implemented by pharmacist. [↑](#endnote-ref-29)
30. Four patient-pharmacist meetings over 3 mo: BP measured and patient was told if BP over the target and asked to contact physician. BP measurements faxed to physician. [↑](#endnote-ref-30)