Table 37. Intervention characteristics of included studies for Key Question 4a and 4b

| Author, Year  Quality | Device\* | Oscil Or Ausc | Auto Or Man | # of Measure-ments | Time Btwn Measure-ments | Method of BP Determination | Arm Position | Sitting | Resting Time (min) | Cuff Size (cm) | Interven-tionist (training) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Apostolides, 1982153  Fair | Mercury sphyg. | U | M | 3 | NR | Average of 2nd and 3rd reading | Right arm | ✓ | NR | "Appropriately sized" | NR (NR) |
| Arima, 2002154  Fair | Mercury sphyg. | U | M | 3 | NR | Mean of three measurements | NR | ✓ | 5 | Standard | NR (NR) |
| Bakx, 1987155  Fair | Mercury sphyg. | U | M | ≥ 3 | NR | NR | NR | NR | NR | 16 x 57 cm | NR (NR) |
| Boyko, 2008156  Fair | Mercury sphyg. or Dinamap | U; O | M; A | 3 | 1 minute | Mean of first 2 readings unless difference was >10 mm Hg in which the mean of the two closest of the 3 BP measurements used. Based on a comparison study of 469 participants using the sphygmomanometer and the Dinamap, an adjustment was made to all DBP readings recorded in the state that used the mercury device. | Arm not used during blood draw | ✓ | 5 | "Appropriate"; arm circumference was measured to select cuff size | NR (NR) |
| Brantsma, 2006157  Good | Dinamap XL Model 9300 | NR | A | 10 (first visit), 8 (second visit) [only 4 measures contributed to mean] | 1 minute | Mean of last 2 BP recordings of both visits (each screen is based on 2 visits) | Right |  | NR | NR | NR (NR) |
| Cacciolati, 2013158  Fair | Omron M6 | O | A | 18 (max) [6 measures per day for 3 days] | 3 in morning, 3 at night (2 minutes apart) over 3 consecutive days | Mean of all measurements; patients recorded measurements in logbook and measures considered successful when at least 12 measures out of 18 performed correctly (when values recorded in device matched logbook). | Left | NR | 5 | Adaptable sized | Self (Provided with booklet and had one individually supervised demonstration from trained lay interviewer) |
| Omron M6 Simple | O | A | 3 | 2 minutes | Mean of 3 | Left arm | ✓ | 5 | Adaptable sized | Lay interviewers (Trained) |
| Cheung, 2012159  Fair | Mercury sphyg. | U | M | 3 | 5 minutes | Mean of second and third readings | Right arm, forearm resting on desk | ✓ | ≥ 10 | Standard (12 to 14 cm) | Nurse (Trained) |
| Dernellis, 2005160  Fair | NR | U | NR | Unclear (1 measure at each of 3 visits or 2 measures at each of 3 visits) | 1 screen consisted of 3 visits, with 15 days between visits; time between measurements within a visit NR (if even applicable - unclear) | Average value of BP measurements over three occasions | Supported at heart level | ✓ | 5 | Encircled at least 80% of arm | NR (NR) |
| Everson, 2000161  Good | Hawksley RZ sphyg. | U | M | 6 | 5 min (first 3), 1 min (standing), 5 min (sitting) | Last 2 supine and last 2 seated measurements averaged | NR | ✓ | 1-15 | NR | Observer (Trained) |
| Fagot-Campagna, 1997162  Fair | NR | NR | NR | 1 | NA | 1 measurement, rounded to the nearest 10 mm Hg | Right arm | ✓ | 5 | NR | Team member (Trained) |
| Fitchett, 2009163  Fair | Mercury sphyg. | U | M | 2 | ≥ 2 minutes | Average of two BP measurements | Right arm | ✓ | 5 | Appropriate sized based on measurement of arm circumference | NR (NR) |
| Giubertoni, 2013164  Fair | NR | NR | NR | ≥ 3 (per ESH guideline) | 1-2 minutes (per ESH guideline) | NR; measurement method "in accordance to current guidelines" | Heart level | ✓ | NR | NR | NR (NR) |
| Juhaeri, 2002165  Good | Hawksley RZ sphyg. | U | M | 3 | NR | Average of second and third measurements | NR | ✓ | 5 | NR | Technician (Training with Korotkoff sound tapes and double stethoscope) |
| *Player, 2007294 (companion publication to Juhaeri, 2002)*  *Good* | *Hawksley RZ sphyg.* | *U* | *M* | *3* | *30 seconds* | *Average of second and third readings* | *Right arm, on table at heart level* | *✓* | *5* | *Determined by arm circumference* | *Technician (Certified and working knowledge of ARIC BP manual of procedures)* |
| Jung, 2014187 (21881)  Good | Mercury sphyg. | U | M | 2 | ≥ 5 minutes | Mean of 2 BP measurements | Right arm, at heart level | *✓* | ≥ 5 | Appropriate, based on mid-arm circumference | NR (NR) |
| Kim, 2006166  Good | Mercury sphyg. | U | M | 2 | 30 seconds | Average of all readings | NR | NR | 5 | Appropriate | Technician (Trained) |
| Kim, 2011167  Fair | Mercury sphyg. or automatic manometer | U | M | 1 | NR | NR | NR | NR | NR | NR | Nurse or technician (Trained) |
| Kivimaki, 2009168  Fair | Hawksley RZ sphyg. | U | M | 2 | 5 minutes | Mean of two measurements | NR | ✓ | 5 | NR | NR (NR) |
| Klein, 2006169  Good | Mercury sphyg. | U | M | 3 | NR | Average of second and third readings | NR | ✓ | NR | NR | NR (NR) |
| Kubo, 2013188 (22167)  Fair | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR (NR) |
| Lakoski, 2011170  Good | Dinamap Pro 100 | O | A | 3 | NR | Average of second and third readings | NR | ✓ | NR | NR | NR (NR) |
| *Muntner, 2010295 (companion publication to Lakoski, 2011)*  *Good* | *Dinamap Monitor Pro 100, GE Healthcare* | *O* | *A* | *3* | *2 minutes* | *Average of second and third readings* | *NR* | *✓* | *5* | *Appropriate sized* | *NR (NR)* |
| Lee, 2004a171  Good | A&D TM-2650A | O | A | 1 (2, if necessary) | NA (5 minutes if 2 measurements required) | 1st measurement used, unless SBP ≥ 160mmHg or DBP ≥ 95mmHg, BP was measured again using ordinary sphygmomanometer by experienced nurse after 5 minutes of rest, then 2 measurements averaged. | NR | ✓ | ≥ 5 | NR | Investigator, nurse (NR) |
| Lee, 2004b173  Fair | Mercury sphyg. | U | M | NR | NR | NR | NR | ✓ | ≥ 30 | NR | NR (NR) |
| *Lee, 2001292 (companion publication to Lee, 2004a)*  *Good* | *A&D TM-2650A* | *O* | *A* | *1 (2, if necessary)* | *NA (5 minutes if 2 measurements required)* | *NR* | *NR* | *✓* | *≥ 5* | *NR* | *Nurse (NR)* |
| Lee, 2011172  Fair | NR | NR | NR | 2 | NR | Average of 2 BP measurements | NR | ✓ | 5 | NR | Investigator (NR) |
| Levine, 2011174  Good | RZ sphyg. | U | M | 3 | 1 minute | Mean of last two measurements | Right arm | ✓ | 5 | Appropriately sized | NR (NR) |
| Matsuo, 2011175  Fair | Mercury sphyg. | U | M | 2 | NR | NR | Right arm | ✓ | 5 | Based on upper arm girth and lengths | Nurse (Trained) |
| Morikawa, 1999176  Good | Mercury sphyg. | U | M | NR | NR | NR | Right arm | ✓ | 5 | NR | NR (NR) |
| Nakanishi, 2003177  Good | Standard sphyg. | U | M | NR | NR | NR | Right | ✓ | 5 | NR | Technician (Properly trained for measuring BP for epidemiological surveys) |
| Okubo, 2004178  Fair | BP103 II | NR | A | 1 (up to 4, if necessary) | NR | One measurement, unless multiple measurement taken, then lowest BP reading used | NR | ✓ | 5 | NR | Nurse (NR) |
| Okubo, 2014189  Fair | Mercury sphyg. N-300 or U-300; automated device Q9920 or Q106 starting in 2004 | U, O | M, A | 1 (2, if BP elevated) | Second BP taken "after several deep breaths" if BP elevated | One measurement (unless 2 taken due to elevated BP, then lower of the two measurements) | Right arm | ✓ | * 5 | NR | Nurse (Trained) |
| Radi, 2004144  Fair | Omron 705 CP | O | A | 3 | 5, 6, 7 minutes | Mean of 3 measurements | NR | ✓ | 5, 6, 7 | Appropriate sized | Physician (NR) |
| Satoh, 2010179  Fair | Mercury sphyg. | U | M | 1 | NR | NR | NR | ✓ | 5 | NR | Nurse (Trained) |
| Schulz, 2005180  Fair | NR | NR | NR | 3 | 2 minutes | NR | Right | ✓ | NR | 12cm x 23cm | Technician (Trained) |
| Schulze, 2003296 (companion pulication to Schulz, 2005; women only)  Fair | BOSO Oscillomat | O | A | 3 | 2 minutes | Mean of second and third BP measurements | Elevated at heart level | ✓ | 15-30 | 14x37, 17x41 (for arm circumference > 40 cm) | Physician (NR) |
| Shook, 2012181  Fair | Mercury sphyg. | U | M | 2 | 1 minute | 2 readings separated by 1 minute were averaged, unless first two readings differed by >5 mmHg, in which case additional readings were obtained. | NR | ✓ | ≥ 5 | NR | Technician (Trained) |
| Sung, 2014186  Fair | Mercury sphyg. | U | M | 1 (3 if BP elevated) | 5 minutes (if additional measures taken due to BP elevation) | One measurement, unless BP ≥ 140/90 mm Hg, then average of two subsequent measurements | NR | ✓ | 5 | NR | Nurse (Trained) |
| Tozawa, 2002182  Fair | Standard sphyg. | U | M | 2 | NR | Lower of two BP measurements used | NR | ✓ | 15 | "Appropriate-size" | Nurse (Trained) |
| Vasan, 2001183  Good | Mercury sphyg. | U | M | 2 | NR | Mean of two readings | NR | ✓ | 5 | "Appropriate" | Physician (NR) |
| *Leitschuh, 1991202 (companion publication to Vasan, 2001)*  *Fair* | *Mercury sphyg.* | *U* | *M* | *2* | *NR* | *Averaged* | *Left arm* | *✓* | *NR* | *NR* | *Physician (NR)* |
| Volzke, 2013 191  Good | Omron HEM-705CP | O | A | 3 | 3 minutes | Mean of second and third readings | Right arm | ✓ | 5 | NR | NR (NR) |
| Yamada, 1991184  Good | Sphyg. | U | M | NR | NR | NR | NR | ✓ | 5 | According to WHO recommendations (1978) | Physician (NR) |
| Yambe, 2007185  Good | Mercury sphyg. | U | M | 2 | 5 minutes | Mean of two measurements | NR | ✓ | ≥ 5 | Conventional cuff | physician (NR) |
| Zambrana, 2014190  Fair | Mercury sphyg. | U | M | 2 | 30 seconds | Average of 2 measurements | Right arm | ✓ | 5 | "Appropriately sized" | Staff (Certified) |

\*All OBPM

**Abbreviations**: A = automated; ABP = ambulatory blood pressure; ABPM = ambulatory blood pressure monitoring; AM = ante meridiem; BP = blood pressure; btwn = between; cm = centimeter(s); DBP = diastolic blood pressure; HBPM = home blood pressure monitoring; hr = hour(s); M = manual; min = minute(s); mm Hg = millimeters of mercury; NR = not reported; OBPM = office blood pressure measurement; O = oscillatory; PM = post meridiem; q = every; SBP = systolic blood pressure; sphyg = sphygmamonometer; U = auscultatory