

Publication

Accuracy and 'range of uncertainty' of oscillometric blood pressure monitors around the upper arm and the wrist

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

ID 4507767

Author(s) Dieterle, Thomas; Battegay, Edouard; Bucheli, B.; Martina, Benedict**Author(s) at UniBasel** [Dieterle, Thomas](#) ;**Year** 1998**Title** Accuracy and 'range of uncertainty' of oscillometric blood pressure monitors around the upper arm and the wrist**Journal** Blood Pressure Monitoring**Volume** 3**Number** 6**Pages / Article-Number** 339-46**Mesh terms** Adolescent; Adult; Aged; Aged, 80 and over; Arm, physiopathology; Blood Pressure, physiology; Blood Pressure Determination, methods; Blood Pressure Monitoring, Ambulatory; Humans; Hypertension, physiopathology; Middle Aged; Wrist, physiopathology

Although they have been marketed widely, few data about the diagnostic accuracy of blood pressure monitors are available.; Repeated measurements of blood pressures in 85 patients were performed in random sequence with two oscillometric blood pressure monitors around the upper arm (Visomat OZ2) and the wrist (Omron R3) and with a standard sphygmomanometer. The oscillometric blood pressure monitors were validated according to protocols of the British Hypertension Society (BHS) and the American Association for the Advancement of Medical Instrumentation (AAMI). Subsequently, sensitivity and specificity of these monitors for the diagnosis of hypertension or exclusion of the possibility of its presence in a general medical outpatient population were calculated.; Sphygmomanometric readings exceeded oscillometric blood pressure measurements by 3.7+/-7.5/4.8+/-5.6 mmHg (systolic/diastolic) for the upper arm and 5.7+/-6.2/6.8+/-6.8 mmHg for the wrist. Deviations occurred in both directions and were higher for blood pressures in the hypertensive range. Oscillometric blood pressure measurements at the upper arm, but not at the wrist, satisfied validation criteria of BHS and AAMI protocols. Optimal sensitivity and specificity for the diagnosis of hypertension, defined as blood pressure >140/90 mmHg with a standard sphygmomanometer, was achieved with blood pressure limits of 133/82 mmHg for the Visomat OZ and 131/80 mmHg for the Omron R3.; Average sphygmomanometer values exceed oscillometrically measured blood pressure values but individual disagreements cannot be predicted. Measurements at the upper arm are more accurate than are those at the wrist according to the validation protocols of the BHS and AAMI. Additional appraisal of sensitivities and specificities and of a 'range of uncertainty' for the diagnosis of hypertension may allow better judgement of accuracy of individual oscillometric blood pressure measurements.

Publisher Lippincott Williams & Wilkins**ISSN/ISBN** 1359-5237 ; 1473-5725**edoc-URL** <https://edoc.unibas.ch/71075/>**Full Text on edoc** No;**PubMed ID** <http://www.ncbi.nlm.nih.gov/pubmed/10212375>**ISI-Number** MEDLINE:10212375**Document type (ISI)** Clinical TrialJournal ArticleRandomized Controlled TrialResearch Support, Non-

