
**Abstract**

BACKGROUND: The age-specific relevance of blood pressure to cause-specific mortality is best assessed by collaborative meta-analysis of individual participant data from the separate prospective studies.

METHODS: Information was obtained on each of one million adults with no previous vascular disease recorded at baseline in 61 prospective observational studies of blood pressure and mortality. During 12.7 million person-years at risk, there were about 56000 vascular deaths (12000 stroke, 34000 ischaemic heart disease [IHD], 10000 other vascular) and 66000 other deaths at ages 40-89 years. Meta-analyses, involving "time-dependent" correction for regression dilution, related mortality during each decade of age at death to the estimated usual blood pressure at the start of that decade.

FINDINGS: Within each decade of age at death, the proportional difference in the risk of vascular death associated with a given absolute difference in usual blood pressure is about the same down to at least 115 mm Hg usual systolic blood pressure (SBP) and 75 mm Hg usual diastolic blood pressure (DBP), below which there is little evidence. At ages 40-69 years, each difference of 20 mm Hg usual SBP (or, approximately equivalently, 10 mm Hg usual DBP) is associated with more than a twofold difference in the stroke death rate, and with twofold differences in the death rates from IHD and from other vascular causes. All of these proportional differences in vascular mortality are about half as extreme at ages 80-89 years as at ages 40-49 years, but the annual absolute differences in risk are greater in old age. The age-specific associations are similar for men and women, and for cerebral haemorrhage and cerebral ischaemia. For predicting vascular mortality from a single blood pressure measurement, the average of SBP and DBP is slightly more informative than either alone, and pulse pressure is much less informative.

INTERPRETATION: Throughout middle and old age, usual blood pressure is strongly and directly related to vascular (and overall) mortality, without any evidence of a threshold down to at least 115/75 mm Hg.