

Clark CE, Taylor RS, Shore AC, Ukoumunne OC, Campbell JL. Association of a difference in systolic blood pressure between arms with vascular disease and mortality: a systematic review and meta-analysis. *Lancet*. 2012; **379**:905-914.

### **Summary**

This study is a systematic review and meta-analysis meaning that it attempts to summarise all existing published research on the topic and combine the results to give a conclusive answer. In this case the team searched several databases of papers in medical journals and, out of 850 records that were checked, found 28 studies which met their pre-specified criteria- showing differences in blood pressure between arms as well as vascular disease and/or mortality. For 20 of the studies, it was possible to combine the data to give pooled results.

Studies could only be pooled if they had enough similarity in measurement methods, patient populations and outcomes. For example nine cohort studies which used non-invasive blood pressure measurement methods were pooled to produce the finding that an inter-arm difference of 15mm Hg or more was associated with peripheral vascular disease. The combined risk ratio (RR) was 2.5 with a 95% confidence interval (95% CI) of 1.6- 3.8. Combining data from four cohort studies also found that this difference of 15mm Hg or more was associated with increased cardiovascular mortality (Hazard ratio 1.7, 95% CI 1.1 to 2.5) and all-cause mortality (Hazard ratio 1.6, 95% CI 1.1 to 2.3).

The study concluded that differences in blood pressure between arms of 10 or 15mm HG or more could be a good way of identifying patients who need further assessment and who may be at greater risk of vascular disease and death.

### **Key researcher**

Chris Clark, the first author of this study is a Senior Clinical Lecturer at the University of Exeter Medical School and is also a managing partner at the Mid Devon Medical Practice. He has been researching inter-arm blood pressure differences since around 1998 when he received a small bursary to study this. A clip of him talking about his research can be found here, in the research section: [https://medicine.exeter.ac.uk/people/profile/index.php?web\\_id=Christopher\\_Clark](https://medicine.exeter.ac.uk/people/profile/index.php?web_id=Christopher_Clark)

### **Weblinks**

Link to the full text of the paper: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(11\)61710-8/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(11)61710-8/fulltext)

This paper was reported in the press including this article on the BBC website: <https://www.bbc.co.uk/news/health-16739682>

### **Picture**

Chris Clark measuring blood pressure



**Impact**

This paper was reported in the national press and won the stroke category of the Royal College of General Practitioners Paper of the year competition. The team has gone on to publish further studies on this topic. However, NICE guidelines on blood pressure measurement in general practice have not changed since 2011 and most GPs and practice nurses do not measure blood pressure in both