

**NIHR Collaboration for Leadership in Applied  
Health Research and Care South West Peninsula (PenCLAHRC)**

**Case Study Example of the Value of NIHR CLAHRC Funding**

**1<sup>st</sup> April 2015 – 31<sup>st</sup> March 2016**

**MANAGING BLOOD PRESSURE**

Dr Chris Clark, a CLAHRC clinical researcher and general practitioner, has developed, through the pilot CLAHRC and into the present contract, a series of studies informing the management of blood pressure problems in primary care. Dr Clark recognised the potential for inter-arm difference (IAD) in blood pressure to signal risk of poor outcome in cardiovascular disease. The team led by Dr Clark published on the risk of stroke and cardiovascular disease associated with IAD in 2012 (see below) and has gone on to set up collaborations to enable more reviews of existing studies based on the individual patient data collected in those studies. This approach allows a much finer examination of the evidence but is often thwarted by the challenge of obtaining data. The current NIHR climate around data sharing is assisting this venture.

Dr Clark's work has already been incorporated into two sets of influential European Guidelines for the management of high blood pressure and led to his appointment as an NIHR Clinical Lecturer, linking CLAHRC to another element of NIHR.

Dr Clark and colleagues have moved on from IAD to consider other aspects of care related to blood pressure in general practice. The second strand of work in this area is examining the role of different professionals in managing blood pressure problems and what effect that has on "white coat hypertension". This is the finding that some people's blood pressure increases when it is measured by doctors. Dr Clark's team is researching whether this effect is also seen when blood pressure is managed by nurses or pharmacists, and has shown that blood pressures are lower when recorded by nurses. Changing the approach to blood pressure measurement based on these findings will reduce the potential for harm to patients and save NHS resources. The underlying issue of exploring the impact of changing roles in the delivery of NHS care is shared by other projects within our CLAHRC and demonstrates the innovation and flexibility necessary to address current demands on the health service.

Finally, Clark's work has more recently moved to include prediction of postural hypotension. This common condition is often associated with people taking multiple drugs (polypharmacy – an area of related CLAHRC activity) and contributes to frailty in elderly people, leads to falls with attendant risks of fractures, particularly of the wrist and hips. Evaluation of the tool developed by Clark's team to predict postural hypotension is underway and will increase our ability in primary care to identify and manage this condition in a more timely and sensitive manner, preventing its dangerous consequences.

This workstream, which includes a review of literature and a cohort study, has led to a range of high impact publications (see below). We expect the work to continue throughout the rest of this CLAHRC and to lead to the development of new approaches to managing hypertension.

- 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 (9819): 905-914 (Winner – RCGP Research Paper of the Year 2012)
- Clark CE, Taylor RS, Shore AC, Campbell JL. The difference in blood pressure readings between arms and survival: primary care cohort study. *BMJ* 2012; 344:e1327
- Clark CE, Steele AM, Taylor RS, Shore AC, Ukoumunne OC, Campbell JL. Interarm blood pressure difference in people with diabetes: measurement and vascular and mortality implications: a cohort study. *Diabetes Care* 2014; 37(6):1613-20.
- Clark CE, Horvath IA, Taylor RS, Campbell JL. Doctors record higher blood pressures than nurses: systematic review and meta-analysis. *BJGP* 2014; 64 (621) e223-e232

### **CONTRIBUTION OF NIHR CLAHRC**

Chris Clark is supported by matched commitment from the University of Exeter. His group of researchers includes methodologists directly supported by the CLAHRC (e.g. Ukoumunne) and a collaboration of interested researchers locally, regionally (including Oxford) and internationally (e.g. Quebec) is supported administratively through CLAHRC resources.

### **WHAT HAPPENED NEXT?**

The work on risks associated with IAD (“Interpress”) will be explored further through IPD meta-analysis, supported by an NIHR Grant (RfPB, starts April 2016).

The work on the organisation of blood pressure care involving different professionals is the subject of current funding bids.

The team is working closely with local commissioners and public health to examine variations in blood pressure care and influence commissioning for improved quality of care.