Evaluation of the Effectiveness of NHS Health Checks in Identifying Raised Blood Pressure and Subsequent Diagnosed Hypertension

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Introduction

Hypertension is one of the major risk factors for cardiovascular disease (CVD) that is included in the NHS Health Check risk assessment. It represents a huge burden on both health and healthcare resources and it is relatively common worldwide. Although it is generally treatable, the often asymptomatic nature means that a substantial proportion of people with hypertension are undiagnosed. NHS Health Checks therefore offer a valuable opportunity to address this burden, however the successful management of this risk factor is reliant upon identification of these individuals and there is currently some controversy over the effectiveness of Health checks in achieving this.

Aims

To evaluate whether NHS Health Checks in Hampshire are effectively identifying previously undiagnosed hypertension by looking at the detection of high blood pressure as a risk factor during Health Check, at subsequent hypertension diagnosis, and at the presence of other risk factors in individuals attending Health Check.

Methods

NHS Health Checks in Hampshire were fully implemented in 2011 with a fifth of the population invited each year to achieve the mandated coverage of the total eligible population over five years. Approximately 80,000 people are invited annually with attendance rates of approximately 30% across the first three years.

A retrospective cohort of patients from the Hampshire local authority attending a Health Check between 01/04/2011 and 23/04/2014 was created from primary care data extracted from General Practice databases across the county. This comprised data from READ codes of key performance indicators associated with Health Checks covering patient demographics, risk factor assessment, related biochemistry and subsequent diagnoses made within six months. Over this three years a total of 62,533 Health Checks were carried out. Due to the inconsistent invitation of individuals aged 71-74 during this time, only those aged 40-70 with complete blood pressure assessment were included, leaving 47,096 patients in the analysis. High blood pressure was defined as ≥140/90mmHg at Health Check, and a hypertension diagnosis was defined as the presence of a READ code for this diagnosis within six months of the Health Check.

Data were analysed using SPSS. Multivariable logistic regression adjusting for age and gender was conducted to identify risk factors associated with high blood pressure.

Results

Of the 47,096 patients included in the study, 53% were female and 47% were male, and there were a greater proportion of individuals from older age groups.

The mean systolic blood pressure was 130.1mmHg and the mean diastolic was 78.8 mmHg, and both showed an increase with age.

Overall, 24.5% of those attending Health Check had a high blood pressure. The proportion with high blood pressure was greater in males (30.5%) than females (19.3%), and increased in older age groups. Other risk factors associated with the prevalence of high blood pressure included high BMI, raised cholesterol, higher CVD risk, higher alcohol consumption, smoking and lower levels of physical activity even when adjusted for age and gender.

Of those with a high blood pressure, 941 (8.1%) received a diagnosis of hypertension within 6 months of the Health Check. This was equivalent to 1 in every 50, or 2% of people attending a Health Check in Hampshire at this time.

Fig 2: Bar chart showing proportion (%) of male and female patients with high blood pressure at Health Check
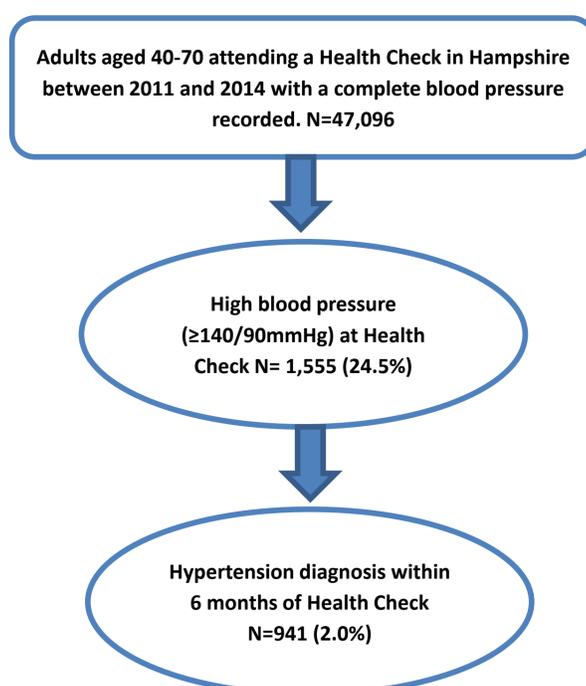

Fig 1: Diagram illustrating the proportion of patients attending Health Check in Hampshire with high blood pressure and subsequent hypertension diagnosis.
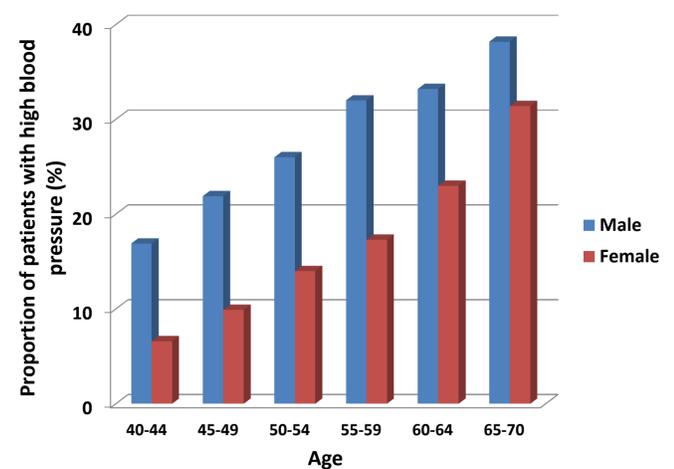
Conclusions

The prevalence of high blood pressure at Health Check suggests they may be a valuable tool for identifying previously undiagnosed disease.

The low rate of subsequent hypertension diagnosis leaves some question over their genuine benefit in detecting and facilitating control of this risk factor. There are a number of potential explanations for this low conversion rate of high blood pressure detection at Health Check to formal diagnosis of hypertension including inadequate follow-up after Health Check, few blood pressures being persistently elevated during follow-up (a regression to the mean), and an insufficient period of time to 'capture' all the diagnoses. Each of these has different but important implications for the way that Health Checks are conducted at a local level, and for the evidence base for the effectiveness of Health Checks nationally. Further research is needed to explore this.

There appears to be clustering of CVD risk factors in individuals with high blood pressure which suggests that Health Checks provide a valuable opportunity to identify people with high CVD risk who would benefit from intervention.