Identification and Subsequent Management of Hypertension at NHS Health Checks: A Retrospective Cohort Study Using the Hampshire Health Record

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Introduction

Hypertension is a major and potentially modifiable risk factor for cardiovascular disease (CVD) and there is a substantial burden of undiagnosed hypertension in the general population. Due to the usually asymptomatic nature of hypertension it tends to be identified by opportunistic testing in primary care. Health Checks may offer an important opportunity to increase detection beyond this, however review of local data in Hampshire has indicated that although nearly a quarter of people attending Health Check have a high blood pressure recorded only 8% of these receive a diagnosis of hypertension. Although this seems to be a rather small yield of hypertension diagnoses for the large numbers of patients with high blood pressure at Health Check, it is unknown how this compares to opportunistic detection.

Aims

This study uses routinely collected data to evaluate the extent to which Health Checks are contributing to the identification of hypertension, by comparing the detection of high blood pressure, and subsequent hypertension diagnosis and management in patients identified at Health Check and those identified opportunistically.

Methods

NHS Health Checks were fully implemented in Hampshire in 2011 with a fifth of the population invited each year. The first 3 years saw an uptake of around 30%. A retrospective cohort of people aged 40-74 in the Hampshire County Council and Portsmouth City Council local authorities who were eligible for a Health Check with a high blood pressure (≥140/90mmHg) recorded in their primary care records between 2011 and 2014 has been constructed from the Hampshire Health Record (HHR), a database combining anonymised routine data from around 1.4 million patients. Patients were categorised as either having had a Health Check (defined by a READ code for NHS Health Check) or being identified opportunistically. Those who had a Health Check were identified with high blood pressure either within 30 days or after 30 days of Health Check (having had a normal blood pressure nearer the Health Check). Those identified opportunistically were divided into those who had never been invited to Health Check and those who had been invited but did not attend. Comparisons of patient demographics, the presence of other risk factors, the proportion of those given a hypertension diagnosis, and the proportion given pharmacological treatment are made.

Results

Between 1st April 2011 and 31st March 2014 a total of 92,027 patients in Hampshire and Portsmouth City had a high blood pressure recorded. 26% of these were identified in people attending Health Checks and 74% were identified opportunistically.

The mean age of patients with high blood pressure at Health Check is slightly older than those identified opportunistically. The mean blood pressure at the point of identification was similar across all groups, as was the proportion of patients with a high blood pressure recording who go on to be given a diagnosis of hypertension (just over 10%), with the exception of a lower rate in patients who had a high blood pressure recorded over 30 days after Health Check. The rate of antihypertensive prescription in patients diagnosed with hypertension was also very similar with around 95% receiving pharmacological treatment within the study period.

A larger proportion of those identified at Health Check had high cholesterol, but fewer were obese or current smokers.
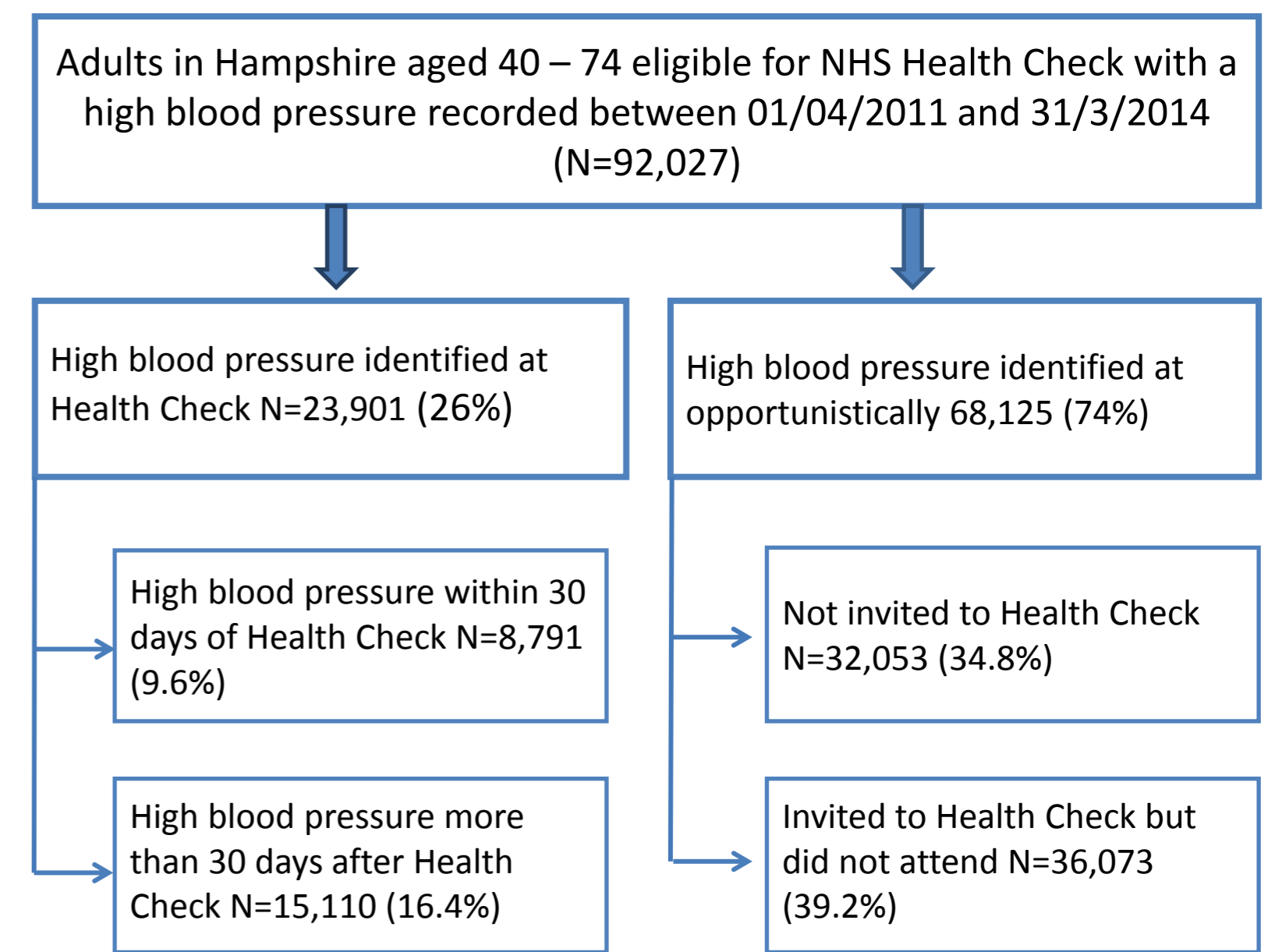

Fig 1: Flow chart showing participant groups within study

Conclusions

Health Checks in Hampshire and Portsmouth City are contributing to the detection of high blood pressure and treated hypertension, and there does not appear to be any difference in the rate of subsequent hypertension diagnosis and treatment following identification of high blood pressure. There is some exception in those who are identified over 30 days after Health Check, and the data show some gender differences that need further exploration.

The CVD risk profile looks more adverse in those identified opportunistically and this may be related to the reasons why they presented to primary care and had their blood pressure measured.

Further analysis of the data is currently underway to look at follow-up care and the pattern of blood pressure measurements between identification of high blood pressure and hypertension diagnosis, and subsequent blood pressure control after diagnosis.

	Identified at Health Check		Identified Opportunistically	
	Identified within 30 days of Health Check	Identified >30 days after Health Check	Not invited to Health Check	Invited to Health Check but did not attend
Mean Age	60.9 (SD 8.9)	58.7 (SD 8.3)	56.4 (SD 8.4)	56.9 (SD 8.8)
Gender	41.5% female	56.3% female	50.0% female	49.3% female
	58.5% male	43.7% male	50.0% male	50.7% male
Mean systolic BP	148.2 (SD 13.3)	146.3 (SD 11.6)	148.6 (SD 13.9)	14 8.5 (SD14.0)
Mean diastolic BP	87.6 (SD 9.4)	86.5 (8.8)	88.6 (SD 9.9)	88.4 (SD 9.8)
High cholesterol (≥5 mmol/l)	76.60%	72.60%	72.00%	72.20%
Obese (BMI ≥30)	27.40%	28.50%	34.70%	34.70%
Current smoker	13.70%	11.70%	21.00%	20.40%
Hypertension diagnosis	11.10%	3.80%	12.80%	11.30%

Table 1: Key results of comparisons between patients identified with high blood pressure at Health Check and opportunistically. BP=Blood Pressure, BMI=body mass index, SD=Standard Deviation

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