Beating High Blood Pressure: Scotland's Silent Killer

A report by the Cross-Party Group on Heart Disease and Stroke

This report has been compiled and funded by the British Heart Foundation, which provides co-secretariat for the Cross-Party Group on Heart Disease and Stroke.

CPG Heart Disease & Stroke

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Foreword

The Cross-Party Group (CPG) on Heart Disease and Stroke is formed of MSPs (Members of the Scottish Parliament), clinicians, third sector organisations and individuals with an interest in heart disease or stroke. The group meets regularly at the Scottish Parliament to discuss relevant issues.

The impact of cardiovascular disease in Scotland is significant. It accounts for more than a quarter of all deaths, while its estimated cost to the Scottish health service is £800 million each year. It can be expected that this will increase as the population ages.

High blood pressure is a leading modifiable risk factor for cardiovascular disease and related disability. Nearly one-third of adults in Scotland have high blood pressure and only around one-quarter of these people have their blood pressure controlled through treatment.

It is vital that we take action to better prevent, detect, treat, and support people to self-manage their high blood pressure to mitigate its significant impacts on the health of individuals and the population of Scotland.

This report brings together the voices of people living with high blood pressure, and clinicians and organisations with an interest in the condition, to highlight the key issues and offer solutions. We would like to thank all of those who took the time to contribute to the inquiry — whether that was through responding to the consultation, by sharing the consultation with their networks or taking part in one of the round table sessions in the Scottish Parliament.

In particular we would like to extend our gratitude to those people who were kind enough to share with us their personal experiences of living with high blood pressure.

We would also like to draw attention to the efforts invested in this project by members of the advisory panel for this inquiry. They dedicated significant time and provided invaluable advice, which was greatly appreciated.

Through the course of this inquiry we have heard of many different examples of excellent care and support, good practice and innovation for people living with high blood pressure. What is required now is a coordinated effort to better prevent, detect, optimise treatment, and encourage supported self-management of high blood pressure in Scotland.

Colin Smyth MSP and **Alexander Stewart MSP**
Co-conveners of the Cross-Party Group
on Heart Disease and Stroke

Advisory Panel

Patient representatives

Gwen Currie
Worked in the NHS and British Red Cross in Scotland for 20 years, now delivers coaching to people with long-term conditions and their carers and was a patient representative on House of Care steering group.

Chris Macnamee
Patient representative on the National Advisory Committee for Heart Disease, the Patient Data Panel BHF/CRUK, Lothian Heart Disease Strategy Programme Board, SIGN Guideline Development Group for Cardiac Disease Prevention and the steering committee for Mobile Health Monitoring.

Members of the Scottish Parliament

Colin Smyth MSP
Co-convener of the Cross-Party Group on Heart Disease and Stroke

Alexander Stewart MSP
Co-convener of the Cross-Party Group on Heart Disease and Stroke

Secretariat

Katherine Byrne
Chest, Heart & Stroke Scotland

Colin Oliver
Stroke Association

Kylie Strachan
British Heart Foundation Scotland

Jemima Traill
British Heart Foundation Scotland

Academic and clinical advisors

Professor Rustam Al-Shahi Salman
Professor of Clinical Neurology at the University of Edinburgh and Honorary Consultant Neurologist in NHS Lothian

Professor Jesse Dawson
Professor of Stroke Medicine and Consultant Physician, Queen Elizabeth University Hospital, Glasgow

Mrs Isla Drylie
Practice Nurse, NHS Fife

Mr Paul Forsyth
Lead Pharmacist, Clinical Cardiology (Primary Care) / Heart Failure Specialist, Pharmacy & Prescribing Support Unit, West Glasgow Ambulatory Care Hospital

Professor Anne Hendry
Clinical Lead for Integrated Care, Senior Associate at the International Foundation for Integrated Care

Professor Isla Mackenzie
Professor of Cardiovascular Medicine at the University of Dundee and Honorary Consultant Physician, Ninewells Hospital, Dundee

Professor Brian McKinstry
General Practitioner and Professor of Primary Care eHealth, University of Edinburgh

Professor Sandosh Padmanabhan
Professor of Cardiovascular Genomics and Therapeutics at the Institute of Cardiovascular and Medical Sciences, University of Glasgow

Professor Rhian Touyz
British Heart Foundation Chair of Cardiovascular Medicine, Director of the Institute of Cardiovascular & Medical Sciences, BHF Glasgow Cardiovascular Research Centre and Honorary Consultant at the Queen Elizabeth University Hospital

Professor David Webb
Christison Professor of Therapeutics and Clinical Pharmacology, and Head, Edinburgh Hypertension Excellence Centre, BHF Centre for Cardiovascular Science, University of Edinburgh

Recommendation

This inquiry strongly recommends that the Scottish Government recognises the impact of high blood pressure on the health of people in Scotland. Its prevention, detection, diagnosis, treatment and management should be regarded as a priority and included in the future work programme for cardiovascular disease in Scotland.

To achieve this, the inquiry has identified the need for a High Blood Pressure Task Force to work on the following;

– ENCOURAGE SCOTTISH GOVERNMENT TO TAKE AN EFFECTIVE APPROACH TO TACKLING COMMON MODIFIABLE DRIVERS OF POOR PUBLIC CARDIOVASCULAR HEALTH.

– INCREASE EARLY DETECTION OF HIGH BLOOD PRESSURE THROUGH COMMUNITY-BASED DETECTION PROGRAMMES WITH A FOCUS ON REACHING THOSE CURRENTLY UNDERSERVED BY EXISTING MODELS.

– MEASURE VARIATION IN PROVISION AND OUTCOMES RELEVANT TO HIGH BLOOD PRESSURE.

– EMBED MEDICATION ADHERENCE DISCUSSION, MONITORING AND OPTIMISATION AS PART OF THE ROUTINE WORK OF ALL HEALTH CARE PROFESSIONALS WITH A FOCUS ON HOW THE IMPLEMENTATION OF A NEW PRIMARY CARE PHARMACOTHERAPY SERVICE COULD SUPPORT THIS.

– ENCOURAGE THE ADOPTION AND SCALE OF SELF-MONITORING AND SELF-MANAGEMENT OF HIGH BLOOD PRESSURE SUPPORTED BY TECHNOLOGY.

– SCOPE THE FEASIBILITY AND COST EFFECTIVENESS OF THE WIDESPREAD PROVISION OF BP MONITORS TO PEOPLE WITH HIGH BP, AND DETERMINE THE MOST APPROPRIATE MECHANISM TO DELIVER THIS.

– DEVELOP BLOOD PRESSURE-SPECIFIC EDUCATION FOR PROFESSIONALS.

Introduction

30%

OF ADULTS IN SCOTLAND HAVE HIGH BLOOD PRESSURE

High blood pressure, also known as hypertension, is often referred to as the ‘silent killer’. Most people have no symptoms even though their blood pressure (BP) could be consistently above the recommended level, which can have serious consequences such as heart attack or stroke.

30% of adults in Scotland have high BP[1].

High BP becomes more common as people age and is estimated to affect nearly 60% of people aged over 75 years in Scotland[2]. Therefore high BP and its harmful consequences for the health of people in Scotland are likely to increase as the population lives longer.

High BP is a leading modifiable risk factor for cardiovascular disease and related disability. It is implicated in half of all strokes and heart attacks[3] and also increases the risk of heart failure, chronic kidney disease and dementia. High BP is common amongst people with diabetes and is of particular concern because people with diabetes are at high risk of developing cardiovascular disease. Adults with diabetes are 2–3 times more likely to develop cardiovascular disease, and are nearly twice as likely to die from heart disease or stroke as those without.

Cardiovascular diseases (including heart attacks and strokes) cause more than a quarter of all deaths in Scotland. These diseases cost the NHS £800 million and have a wider cost to society, which is estimated at £1.8 billion, each year in Scotland[4]. Alongside this, there is the personal cost to those affected, and to their families.

The achievement of healthy levels of BP is crucial to efforts to reduce cardiovascular disease in Scotland. This inquiry believes that this is best achieved through coordinated efforts to better prevent and detect high BP, optimise its treatment, and encourage supported self-management of the condition.

WHAT IS HIGH BLOOD PRESSURE?

Blood pressure (BP) is the pressure of blood in the arteries, which are vessels that carry blood from the heart around the body. A certain level of pressure in the arteries is needed to force blood around the body.

Every BP reading consists of two numbers or measurements. They are shown as one number on top of the other and measured in millimetres of mercury (mmHg). This is how it is displayed:

140/90 mmHg

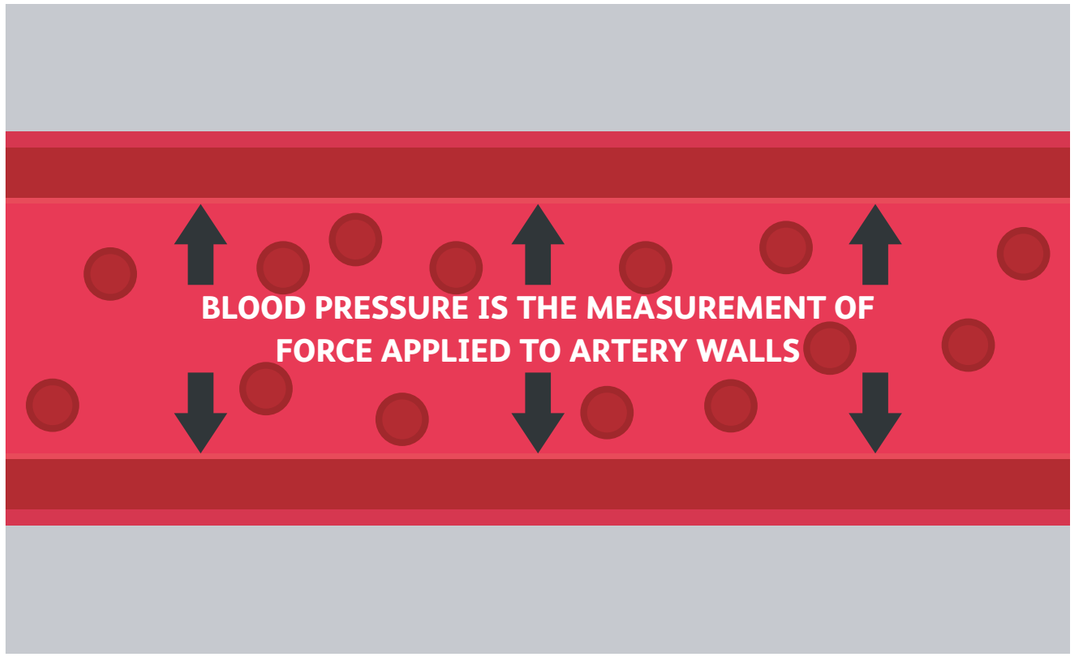
Systolic pressure — Diastolic pressure — Millimetres of mercury

The first (or top) number represents the systolic BP. This is the highest level that a person’s BP reaches when the heart contracts and pumps blood through the arteries.

The second (or bottom) number represents the diastolic BP. This is the lowest level that a person’s BP reaches as the heart relaxes between beats. BP can fluctuate throughout the day and in response to activity.

The risk of cardiovascular disease increases as blood pressure increases. Ideal blood pressure is considered to be between 90/60mmHg and 120/80mmHg. High BP (which might also be referred to as hypertension) is when a person’s BP is consistently higher than 140/90mmHg. For people with existing cardiovascular disease and/or diabetes or kidney disease the recommended level is below 135/85mmHg, and for people who have had a stroke the recommended level for systolic BP is below 130mmHg[5].

All people with high BP are strongly encouraged first to make all of the lifestyle changes that can lower their BP such as increasing physical activity, reducing salt intake and losing weight. People who continue to have high BP may also be prescribed medication to help control it.



POLICY CONTEXT

The Better Heart Disease and Stroke Care Action Plan[6] was published in 2009. Two separate Improvement Plans for heart disease and stroke followed. These outlined Scottish Government priorities and actions to deliver better prevention, treatment and care for people living with heart disease or stroke.

Neither improvement plan identified high BP as a priority area, although the Heart Disease Improvement Plan does identify the prevention of cardiovascular disease as its first priority.

To date there has been no coordinated effort in Scotland to tackle this critical risk factor for cardiovascular disease. It is important that this situation is redressed. To achieve this, this inquiry strongly recommends that the Scottish Government convenes a High Blood Pressure Task Force to address the key issues identified by this report.

CASE STUDY

CANADIAN HYPERTENSION EDUCATION PROGRAM

Canada had poor outcomes for high BP, and efforts to improve the situation had little impact until the late 1990s when various organisations including those representing primary care, government, The Heart and Stroke Foundation of Canada and other hypertension societies, came together to develop the Canadian Hypertension Education Program (CHEP).

CHEP includes recommendation, implementation and outcomes task forces. Annual updates to the recommendations are published; there is an evolving and extensive implementation programme and also an outcomes assessment and evaluation process[7].

Data from multiple sources indicate improvements in the diagnosis, management, and control of high BP in Canada related to the time frame beginning with the initiation of CHEP in 1999[8,9]. Furthermore, after the initiation of CHEP the decline in mortality rates for conditions related to high BP (heart failure, heart attack and stroke) was increased[10].

Key features include its potential impact on policy makers shaping public health legislation, and a very effective volunteer-led high BP knowledge translation program.

Taking such a coordinated approach has worked well for a number of conditions identified as priorities by the Heart Disease Improvement Plan. For example, successes have been achieved through the creation of a Heart Failure Hub, and Cardiac Rehab Champion.

This inquiry has ensured that the key areas to be addressed by the group align with many current strategies and policies including the 2020 Vision for Health and Social Care[11], the Health and Social Care Delivery Plan[12], Gaun Yersel: The Self Management Strategy for Long Term Conditions in Scotland[13], Realistic Medicine[14] and Scotland's Digital Health and Care Strategy[15]. The inquiry's recommendation that the Task Force should focus on improving early detection of high BP aligns with the 2020 Vision for Health and Social Care by enabling earlier effective intervention to improve health outcomes and reduce future demand.

In 2008, Gaun Yersel set out Scotland's commitment to a person-centred approach that empowers people to have greater choice and control in decisions about their care. The Scottish Chief Medical Officer's report, Realistic Medicine, affirms this approach. Its core aims include tackling unwarranted variation in care, innovating to improve, building a personalised approach to care and moving towards shared decision making. This inquiry recommends actions from a High Blood Pressure Task Force that align with these principles.

The Digital Health and Care Strategy recognises that spread and adoption at scale of proven digital technologies within services across Scotland is critical to its success. This inquiry highlights that there is strong evidence that there is low cost technology which is effective in supporting people to manage their high BP[16] and that scaling up adoption of these solutions would greatly benefit people living with high BP and be a critical step in implementing the Service Transformation domain of the Digital Health and Care Strategy.

Finally, because most of the treatment and management of high BP is carried out in primary care, The 2018 General Medical Services (GMS) Contract in Scotland[17] is of great relevance to the recommendations made by this inquiry. The GMS contract encourages the wider involvement of primary care professionals in patient care, setting the GP as the expert generalist and expanding on the role of nursing and pharmacy staff in the delivery of patient-centred care in a primary care setting for people with long-term conditions. To reflect this, the views of a wide range of health care professionals were sought during this inquiry. The recommendations to optimise medication adherence and create BP-specific education for professionals are aligned with the principles of this contract.

TASK FORCE RECOMMENDATION	POLICY/STRATEGY
Encourage Scottish Government to take an effective approach to tackling common modifiable drivers of poor public cardiovascular health.	A Healthier Future: Scotland's Diet & Healthy Weight Delivery Plan
	A More Active Scotland: Scotland's Physical Activity Delivery Plan
Increase early detection of high blood pressure through community-based detection programmes with a focus on reaching those currently underserved by existing models.	2020 Vision for Health and Social Care
	Health and Social Care Delivery Plan
Measure variation in provision and outcomes relevant to high blood pressure.	Realistic Medicine
Embed medication adherence discussion, monitoring and optimisation as part of the routine work of all health care professionals with a focus on how the implementation of a new primary care pharmacotherapy service could support this.	The 2018 General Medical Services Contract in Scotland
	Realistic Medicine
Encourage the adoption and scale of self-monitoring and self-management of high blood pressure supported by technology.	Scotland's Digital Health and Care Strategy
	Gaun Yersel: The Self Management Strategy for Long Term Conditions in Scotland
	Realistic Medicine
Scope the feasibility and cost effectiveness of the widespread provision of BP monitors to people with high BP, and determine the most appropriate mechanism to deliver this.	Scotland's Digital Health and Care Strategy
Develop blood pressure-specific education for professionals.	Everyone Matters: 2020 Workforce Vision

The Inquiry Process

The inquiry secretariat approached individuals with knowledge and expertise related to high BP and long-term conditions in order to form an advisory panel to guide the inquiry.

The advisory panel supported the development of a consultation tool to gather initial information. This took the form of two separate questionnaires: one for people living with high BP and another for clinicians and organisations with an interest in the condition.

The questions aimed to allow people to share their knowledge, so were largely qualitative in nature.

The consultation ran for 12 weeks and received 99 responses from people with a clinical or organisational interest and 79 from people living with high BP. The consultation responses were analysed in order to identify recurrent themes.

The final step in the inquiry process was the hosting of four round table discussions in the Scottish Parliament during September 2018. The first meeting invited people living with the condition to share their experience and views. Each of the further three meetings involved around 10 people with a clinical or organisational interest in high BP. The discussions at all of these meetings explored the key themes that had emerged from the consultation responses and helped to further develop the recommendations in this report.

The secretariat and the advisory panel then worked to pull together all the information gleaned from this process and drafted this report.

Section One:

Prevention of High Blood Pressure

> *I believe that we need to convince the general population of the real impact that high blood pressure can have on their lives. With that awareness, then people might be able to improve their own health.*
>
> **Alan** (*round table participant*)

BACKGROUND

Many respondents to the inquiry highlighted the need for public policy to address some of the lifestyle risk factors at a population level. Obesity, physical inactivity, poor diet and alcohol consumption are directly associated with high BP while smoking is a well-known cause of increased cardiovascular risk.

The rationale for policies to improve health across the population has received significant attention in recent years and much work is ongoing in this area in Scotland. In 2018, the Scottish Government published A Healthier Future: Scotland's Diet & Healthy Weight Delivery Plan which aims to improve the diet of the Scottish population and A More Active Scotland: Scotland's Physical Activity Delivery Plan which outlines the actions that the Scottish Government and a wide range of partner organisations will take to support and enable people in Scotland to be more physically active.

Other public health policy measures relevant to high BP and cardiovascular disease more broadly include a salt reduction strategy, in place since 2003 throughout the UK. This has included public awareness campaigns, food labelling and voluntary reformulation of processed food[18]. Furthermore, May 2018 saw the implementation of legislation passed by the Scottish Parliament to introduce minimum unit pricing for alcohol. The Scottish Parliament has also legislated on a number of tobacco restriction policies. These include the banning of tobacco advertising, the banning of smoking in enclosed public spaces, raising the age to buy tobacco from 16 to 18, banning tobacco displays in shops, and creating a register of tobacco retailers.

Due to the breadth of the topic of preventative public health policies, this inquiry will not make detailed recommendations in this area but will emphatically reiterate that approaches which tackle the societal issues behind many modifiable risk factors are essential. The feedback from respondents to the inquiry was that Scottish Government needs to take effective action in this area.

RECOMMENDATION

THIS INQUIRY RECOMMENDS THAT SCOTTISH GOVERNMENT SHOULD TAKE AN EFFECTIVE APPROACH TO TACKLING COMMON MODIFIABLE DRIVERS OF POOR PUBLIC CARDIOVASCULAR HEALTH.

Section Two:

Detection and Diagnosis of High Blood Pressure

> *Lots of people don't like going to the doctor. But if it was a drop-in centre where they would feel comfortable, they could go and have their blood pressure checked and whoever was taking it could give them the proper advice.*
>
> **Catherine** (*round table participant*)

BACKGROUND

Usually, high BP does not have any symptoms so people may not realise that they have the condition. Many respondents to the inquiry highlighted that early detection of high BP should be prioritised.

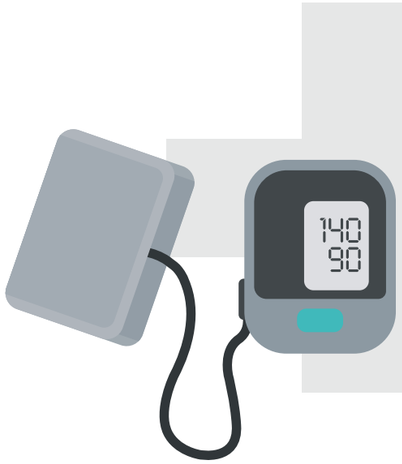
BP is measured using a device called a sphygmomanometer. Usually this is a digital monitor, connected to an inflatable cuff which is wrapped around the upper arm. The cuff inflates and deflates, while a sensor in the cuff detects a pulse and an algorithm determines the BP in millimetres of mercury (mmHg). These devices should be validated according to standardized conditions and protocols.

National guidelines specify that more than one reading needs to be taken to ensure accurate diagnosis. This helps to rule out that the initial reading was falsely high due to 'white coat effect', which is when a person's BP reading at a GP practice or hospital is increased perhaps due to the unnatural environment. People whose BP is only raised due to 'white coat effect' do not have the same level of risk as people whose BP is consistently raised. Equally, sometimes the first reading can be falsely low (which is called masked high blood pressure). An accurate diagnosis is important to appropriately guide therapy and management of the condition.

INQUIRY FINDINGS — THERE IS A NEED FOR BETTER USE OF COMMUNITY ASSETS TO INCREASE DETECTION

Most often, high BP is detected opportunistically in primary care or through outreach programmes by clinicians or health organisations in the community (two examples are the Stroke Association's Know Your Blood Pressure events and May Measurement Month, organised by the International Society of Hypertension).

A number of respondents to the inquiry highlighted the need not only to reach out to the whole population, but also to consider ways to reach out to people who were particularly high risk, or underserved by current models of detection. These included: men, those with poor health



1.2 MILLION

APPOINTMENTS WITH A GP OR PRACTICE NURSE IN SCOTLAND IN 2012/13 WERE FOR HIGH BLOOD PRESSURE

literacy, some black and minority ethnic (BME) communities who are at particularly high risk of high BP, those living in areas of socioeconomic deprivation and those for whom language could be a barrier.

A popular view amongst respondents to the inquiry was that measurement of BP in well-frequented community settings could improve detection rates and could be a useful way to reach out to people who were currently underserved by existing models.

"We need modern equipment in community settings."

"I think the concept of detecting blood pressure in the community is a really good one."

Some discussions throughout the inquiry focused on a study by Victor et al[19] in which pharmacists used barbershops as a way to check the BP of, and deliver follow up care to, non-Hispanic black men in Chicago (a group of people who are at high risk of high BP and are typically underserved by health care systems in the US). A Canadian initiative which integrates community-based cardiovascular health promotion and chronic disease management activities through partnerships with primary care providers, community pharmacists, community agencies and locally recruited adult peer health educator volunteers was also highlighted by respondents[20]. Another example given was Football Fans in Training[21] which supports people in making healthy lifestyle changes.

These examples all highlight that to reach those currently underserved by health care models, it is necessary to tap into relevant cultural aspects and take health messages into places where people feel comfortable.

Community models of BP testing could increase detection of high BP. Such models can either involve people measuring their own BP (self-testing), or might utilise trained non-clinicians to measure BP. Settings for such models include pharmacies, libraries, supermarkets or gyms, for example. Systematic review shows that community testing of BP by non-clinicians, including self-testing, is effective for detecting raised BP[22].

While detection of high BP is helpful, it is important to ensure that people then receive appropriate diagnosis, information and advice, and treatment if necessary. The systematic review mentioned above highlighted that the studies often did not consider whether people received appropriate treatment once high BP was detected.

"There needs to be a plan for what to do next after the first high reading is recorded."

In 2012/13, 1.2 million appointments with a GP or practice nurse in Scotland were for high BP[23].

Many respondents highlighted that any efforts to improve detection of high BP must be designed in ways that avoid adding to the pressures on primary care.

This discussion around the need to move away from the traditional health care model of GP visits for the detection and control of BP is a message that has been echoed elsewhere. For example, a recent editorial on high BP in the Journal of the American Medical Association made the case for innovative systems of health care delivery and pointed to the detection and delivery of care for high BP in unconventional settings as one such solution[24].

The British Heart Foundation is investing £1.5 million pounds in fifteen projects across the UK to test community-based approaches to blood pressure testing.

CASE STUDY

COMMUNITY DETECTION

As part of a collaborative study being undertaken with NHS Lothian and NHS Western Isles to scale up the detection and management of high BP using Home and Mobile Health Monitoring (HMHM), a test of change has been funded in NHS Lanarkshire by the British Heart Foundation and the national Technology Enabled Care (TEC) programme.

This has involved the development of a pathway for patients referred by a GP practice in East Kilbride to South Lanarkshire Leisure and Culture Physical Activity Prescription programme. This work has been facilitated by the Lanarkshire TEC team.

The key objective of the project is to detect new cases of high blood pressure. It utilises HMHM to diagnose new cases of moderate high BP and manage asymptomatic patients with a three month trial of lifestyle interventions.

The agreed pathway enables immediate referral of people who have symptoms, severe high BP or those whose high BP does not respond to lifestyle intervention, back to the GP practice for further assessment and clinical care.

The funding has provided validated training by NHS Lanarkshire practice development staff to key leisure centre staff and the provision of BP monitors. Training and support using the HMHM system has been provided by the TEC team. A competency framework for the leisure centre staff ensures consistency of BP monitoring and advice.

It is anticipated that the approach of offering lifestyle and activity advice tailored by the increased knowledge of BP readings will demonstrate improvements in the management of high BP.

The test of change will assess the feasibility of the processes and pathway for larger scale use.

Image: Measuring blood pressure, *image provided by BHF*

RECOMMENDATION

THIS INQUIRY HAS IDENTIFIED THAT EARLY DETECTION OF HIGH BP SHOULD BE A PRIORITY AREA FOR THE TASK FORCE. THE SPREAD AND ADOPTION OF COMMUNITY-BASED DETECTION PROGRAMMES, FOCUSED ON PEOPLE TYPICALLY UNDERSERVED BY EXISTING MODELS, AND WITH APPROPRIATE FOLLOW UP PATHWAYS IDENTIFIED, SHOULD BE ENCOURAGED.

INQUIRY FINDINGS — THERE IS VARIABILITY IN ACCESS TO HOME OR AMBULATORY MONITORING

More than one high BP reading is needed before a diagnosis of high BP can be made. Traditionally, this would involve numerous trips to the GP practice to have BP readings recorded.

In recent years, it has become more common for people to be offered BP monitoring devices that can be used outside of the GP practice (also referred to as 'out-of-office monitoring') to confirm a diagnosis of high BP. This is usually either ambulatory monitoring or home monitoring.

Ambulatory BP monitoring (ABPM) describes when a person's BP is measured over a 24-hour period using a small digital BP machine that is attached to a belt and connected to a cuff around the upper arm. The monitor takes regular and frequent measurements during the day and night.

In Scotland, some primary care practices offer this service, but often patients are referred by their GP to hospital clinics to access ABPM.

ABPM's strengths are that it can identify white coat and masked high blood pressure; it is useful for predicting whether people are likely to have a heart attack or stroke, and it gives measurements in real-life settings. ABPM allows for measurements to be taken through the night and this means that fluctuations in BP through the night (often referred to as dipping status) can be assessed.

This is an important consideration for those with suspected sleep apnoea, chronic kidney disease, diabetes, endocrine hypertension, or autonomic dysfunction. However, ABPM can be uncomfortable to wear for some people, the equipment is expensive and the process often requires referral to hospital services, which can limit its availability.

Some respondents to the inquiry highlighted variability in timely access to this type of monitoring as a particular issue.

"Our waiting time for ambulatory monitoring is about three months."

Home BP monitoring (HBPM) for diagnosis is when a person uses a validated BP monitor to record their own readings at home, over a defined period of time (usually 4–7 days) and reports the readings to the healthcare professional who will then make a diagnosis.

Home BP monitoring is fairly cheap and widely available, allows for measurement in a home setting, which may be more relaxed than in a health care setting, and importantly, helps to engage the person in the process of measuring their BP. However, there is potential for measurement error and no readings can be taken through the night. Even so, home BP monitoring is a better indicator of outcomes than BP measured in the GP practice or clinic and modern machines are easy to use and accurate[25].

Currently, NICE guidance advises the use of ABPM for diagnosis and that home BP monitoring should be offered as an alternative for those for whom ABPM is not suitable[26]. Practice varies across Scotland with regard to which will be offered as the first-line option for patients.

RECOMMENDATION

THIS INQUIRY BELIEVES THAT EVERY PATIENT SHOULD HAVE THE OPPORTUNITY FOR OUT-OF-OFFICE BP MONITORING TO GUIDE DIAGNOSIS IN A TIMELY MANNER. TO KNOW IF THIS IS ACHIEVED IT IS IMPORTANT TO UNDERSTAND THE CURRENT SITUATION. FOR THIS REASON, THIS INQUIRY BELIEVES IT IS IMPORTANT THAT THE PROVISION OF BOTH AMBULATORY AND HOME MONITORING ACROSS SCOTLAND IS MEASURED. FOLLOWING THIS, VARIABILITY IN PROVISION SHOULD BE EXPLORED FURTHER IN LINE WITH THE PRINCIPLES OF REALISTIC MEDICINE, THE AMBITIONS OF THE DIGITAL HEALTH AND CARE STRATEGY, AND TO DELIVER BETTER VALUE AS SET OUT IN THE HEALTH AND CARE DELIVERY PLAN.

Section Three:

Treatment and Management of High Blood Pressure

> *We have a repeat prescription set up. Is it possible to look at that and say 'we prescribed this person daily medication. Three months down the line they've not come back for a repeat. They're clearly not complying.' If somebody had said that to me I think it would have changed my adherence because I'd have realised that the GP thought it was more serious than maybe I was taking it.*
>
> **Gwynneth** (*round table participant*)

BACKGROUND

Only 27% of adults with high blood pressure in Scotland have their blood pressure treated and controlled to below 140/90mmHg[27]. In Canada, for example, this figure is 57%[28], showing that there is much room for improvement.

Lowering BP significantly reduces the risk of cardiovascular disease and death[29]. Optimally treating adults with diagnosed high blood pressure in Scotland could avoid nearly 300 strokes and 200 heart attacks each year[30].

High BP is largely managed in primary care. In 2012/13 1.2 million consultations with GP or practice nurses in Scotland were for high BP[31].

Secondary care specialist input complements primary care in using ABPM to diagnose high BP and provides care to people with secondary hypertension (high BP caused by another medical condition), resistant hypertension (high BP which is not responsive to treatment), complex co-morbid conditions or multiple drug intolerances.

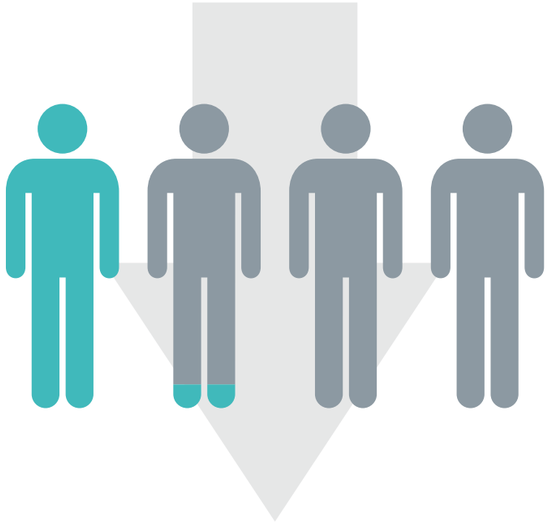
High BP is classified into three stages according to the level of the BP. Each of these stages determines the treatment that will be offered.

Stage 1 (140–159/90–99mmHg)
Stage 2 (160–179/100–109mmHg)
Stage 3 (≥180/110mmHg)

The treatment for people with stage 1 high BP is determined by their risk of heart disease and stroke, which includes a consideration of any other conditions they may have. People at low risk will be encouraged to make lifestyle changes to lower their BP and should have their BP and cardiovascular risk reassessed every one to five years, depending on clinical circumstances.

BP-lowering medication is recommended for people under 80 years old with stage 1 high BP who have pre-existing cardiovascular disease, or are at high cardiovascular risk, and for people of any age with stage 2 or 3 high BP[32,33].

A number of medications are available to treat high BP. Often a combination of drugs may be required to achieve the desired target. The selection of the most appropriate



ONLY 27%

OF ADULTS WITH HIGH BLOOD PRESSURE IN SCOTLAND HAVE THEIR BLOOD PRESSURE TREATED AND CONTROLLED TO BELOW 140/90MMHG

drug(s) is based on the level of BP, the patient's ethnicity and the nature of any associated medical conditions or complications. There is strong evidence that BP-lowering drugs are beneficial for the prevention of major cardiovascular events (like heart attack or stroke)[34].

For people who are prescribed BP-lowering medication, it is important to ensure that their BP is controlled to target levels (less than 140/90mmHg for those with uncomplicated high BP, less than 135/85mmHg for people with established cardiovascular disease, diabetes, chronic renal disease or target organ damage, or less than 130mmHg for people after a stroke).

Target figures are a general guide and may be adapted in light of people's ability to tolerate the medication. This may be a consideration for frail, older people who are often prescribed multiple drugs for other conditions and are more likely to experience adverse effects of the treatment that may outweigh the potential benefits.

INQUIRY FINDINGS — POOR ADHERENCE TO MEDICATION IS A CHALLENGE IN MANAGING HIGH BLOOD PRESSURE

Medication adherence, which is sometimes referred to as medication compliance, is the process by which a person takes their medication as prescribed.

Many respondents to the consultation identified adherence to treatment as a real barrier to optimum BP control. The prevalence of poor adherence to medical treatment for high BP is reported to be as high as 25–47% in patients with apparent resistant high BP[35,36]. As poor adherence to BP-lowering medication is associated with poor BP control[37] and adverse cardiovascular outcomes[38] it is vital to address this.

Adherence is a multi-faceted issue and there may be many reasons why an individual discontinues medication. People may take treatment inconsistently due to cognitive problems, poor understanding of the treatment schedule, or simply forgetting to collect or take the prescribed drugs.

Other reasons for non-adherence include misunderstanding of the condition, perceived improvement in health, worsening of health, general disapproval of medication, competing priorities, and concern over side effects. As high BP is often asymptomatic, the fact that people do not feel unwell may negatively influence their medication adherence. People also might not understand that high BP is a life-long condition.

"I didn't start taking the tablets that I was prescribed. I was young, I felt healthy. I dropped off, my adherence was dreadful."

"I hated taking tablets, I didn't take any tablets for anything. I thought it was better to manage my health prospectively by living a healthy lifestyle, and I didn't feel ill."

Discussions at the round table meetings highlighted that there is no simple solution to this issue. Interventions to improve adherence include technological solutions that act as reminders or reinforcements, empowerment through self-monitoring of the condition and educational interventions that can improve knowledge of the condition and the importance of adherence.

Some respondents highlighted the importance of shared decision making, issues around the health literacy of the population in Scotland and finding available time to have detailed conversations with people about their medication.

"I think the level of understanding needs to be checked. We all know the big issues with health literacy of the population."

Much of this aligns with Making it Easier: a Health Literacy Action Plan for Scotland for 2017–2025[39] and this inquiry is positive about the potential impact that work in this area could have on medication adherence.

The lack of a formal mechanism for checking and measuring adherence was also raised by respondents. Non-adherence can be noted through dispensing records which show when people last picked up a prescription, or through urine testing for the presence of medicines in selected cases.

"We simply don't measure adherence. Not in any formalised way. Our computer programmes can populate these algorithms but we don't do it systematically so people fall off the radar. There's something to be said about whether we should be measuring this kind of stuff."

The GMS contract includes an agreement that every GP practice in Scotland will receive pharmacy and/or prescribing support, with an investment of £12 million in the GP Pharmacy Fund in 2017/18 to support that. From April 2018 there will be a three-year trajectory to establish a pharmacotherapy service which includes pharmacist and/or pharmacy technician support to the patients of every GP practice.

RECOMMENDATION

MEDICATION ADHERENCE MONITORING AND OPTIMISATION SHOULD BE EMBEDDED AS PART OF THE WORK OF ALL HEALTH CARE PROFESSIONALS. THIS INQUIRY RECOMMENDS THAT WAYS TO ACHIEVE THIS ARE EXPLORED BY THE HIGH BLOOD PRESSURE TASK FORCE.

IN PARTICULAR, THE DEVELOPMENT OF THE PRIMARY CARE PHARMACOTHERAPY SERVICE GIVES AN OPPORTUNITY TO REINFORCE A STRONG EMPHASIS ON THE IMPORTANCE OF EVALUATING AND OPTIMISING TREATMENT ADHERENCE AND IT IS RECOMMENDED THAT THE TASK FORCE CONSIDER HOW THIS CAN BE INCORPORATED WITHIN THAT SERVICE.

"If you're going to monitor your blood pressure you have to understand why you're doing it. Once you do it, it's empowering. And then you have the key to your own health there really."

INQUIRY FINDINGS — THERE IS POTENTIAL FOR WIDER IMPLEMENTATION OF SELF-MONITORING AND SELF-MANAGEMENT OF HIGH BLOOD PRESSURE, SUPPORTED BY TELEMONITORING

Throughout the inquiry, it was highlighted that self-monitoring of BP empowers people and engages them in managing their condition. Self-monitoring has become an increasingly common part of BP management and can increase self-efficacy for patients and increase adherence to lifestyle changes or medication.

Self-monitoring is an important factor in self-management of high BP. Self-management is a set of approaches that enables people living with long-term conditions to take control of and manage their own health. Its importance is widely recognised in Scotland's 2020 Vision and in all health and care strategies. The specific strategy guiding the principles of self-management is set out in Gaun Yersel.

Many people living with high BP who responded to the inquiry identified that they were positive about self-monitoring their condition using a BP monitor at home, indicating that this helped them feel more in control or was seen as taking responsibility for their own health. This corresponds with qualitative studies of self-monitoring which have identified that people generally find self-monitoring to be a positive experience which is empowering, reassuring and motivational[40].

"If you're going to monitor your blood pressure you have to understand why you're doing it. Once you do it, it's empowering. And then you have the key to your own health there really."

Concerns identified by people living with high BP who took part in the inquiry included the fact that they were unsure what to do when they recorded a high BP reading and had concerns about the accuracy of home BP monitoring and their ability to use the technology. Additional collaboration with health care professionals can help alleviate some of those concerns. Many respondents to the inquiry highlighted that that they felt reassured by being able to speak to someone about their BP.

Indeed, a recent meta-analysis shows that combining self-monitoring with increased collaboration between the person with high BP and a health care professional can result in decreases in BP where self-monitoring alone did not have the same impact[41].

One way in which this additional collaboration might be achieved is through telemonitoring. This is the supporting of remote self-monitoring using a validated BP monitor with electronic transmission of data to a health care professional. Many responses to the consultation highlighted this as an area of good practice.

"The system actually gives you a reminder. You're also taking two readings and the GP has contacted me to adjust the medication down on a regular basis so I know that somebody is actually monitoring that properly."

"Lanarkshire has had over 2000 patients now using this system and reporting an improved adherence and understanding of managing their high blood pressure."

One pilot project was highlighted throughout the inquiry.

CASE STUDY

SCALE-UP BP

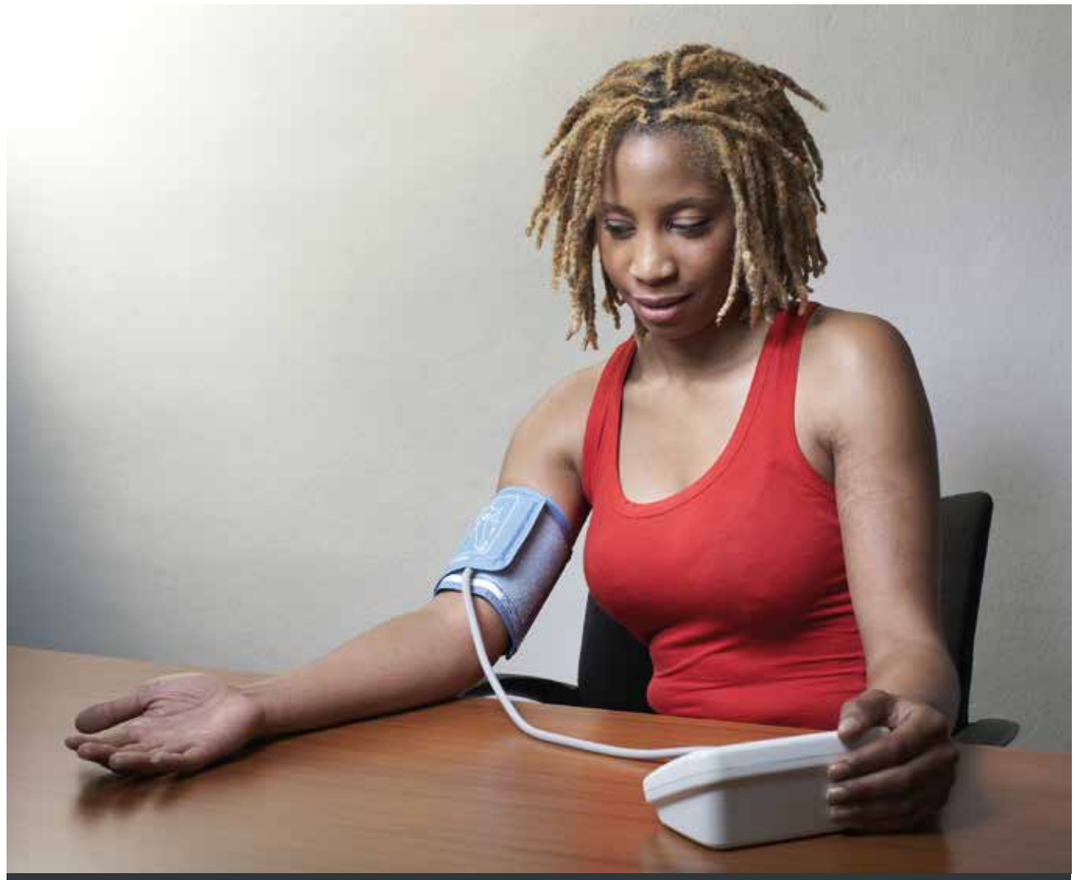


Image: Measuring blood pressure, *image provided by BHF*

Scale-Up BP is part of the Technology Enabled Care (TEC) programme funded by the Scottish Government.

Around 50 practices in Lothian have enrolled 2100 patients to Scale-Up BP, a project run by NHS Lothian.

Patients are given a validated BP machine and are prompted regularly to check their BP which they will be asked to text back through a text messaging system. The system informs them immediately if their BP is on target or to contact a doctor or nurse if their blood pressure is worryingly high.

Each month the GPs and nurses get a report of the BP readings which shows the pattern of results and gives a clear indication if a change in treatment needs to be considered. Advice can be given by telephone.

In addition patients are given advice on lifestyle and how to manage their BP.

"We talked about prescribing high blood pressure monitors. They cost about the same as a peak flow meter. If you could prescribe them, that would be a really exciting thing to start in Scotland."

The Digital Health and Care Strategy recognises that spread and adoption at scale of proven digital technologies within services across Scotland is critical to its success. Meanwhile, the TEC Delivery Plan recognises the importance of digitally enabled hypertension services and aims to drive these into sustainable business as usual by 2021.

This inquiry suggests that self-management of high BP supported by telemonitoring is an excellent example of where Technology Enabled Care can really add value to the person living with a long-term condition and that it would attest to the success of the Digital Health and Care Strategy if the adoption of this was achieved at scale, in a timely manner.

During the round table discussions it was highlighted that one consideration in scale and adoption of self-monitoring of BP was the need to determine the most feasible and cost-effective way of ensuring that everyone with high BP would have access to a validated BP monitor to use at home.

There was concern that the cost for people purchasing their own blood pressure monitors could be off-putting for some people and potentially increase health inequalities.

Some recommendations about how this might be achieved were discussed at the round table meetings and one suggestion was that the ability to prescribe BP monitors might be a way to facilitate this.

"We talked about prescribing high blood pressure monitors. They cost about the same as a peak flow meter. If you could prescribe them, that would be a really exciting thing to start in Scotland."

RECOMMENDATION

THIS INQUIRY RECOMMENDS THAT THE HIGH BLOOD PRESSURE TASK FORCE PRIORITISES THE AVAILABILITY AND ADOPTION AT SCALE OF SELF-MONITORING AND SELF-MANAGEMENT OF HIGH BLOOD PRESSURE SUPPORTED BY TELEMONITORING.

AS PART OF THIS WORK, IT IS RECOMMENDED THAT THE TASK FORCE SCOPES THE FEASIBILITY AND COST EFFECTIVENESS OF THE WIDESPREAD PROVISION OF BP MONITORS TO PEOPLE WITH HIGH BP, AND DETERMINES THE MOST APPROPRIATE MECHANISM TO DELIVER THIS.

INQUIRY FINDINGS — THERE IS SCOPE FOR SPECIFIC EDUCATION FOR PROFESSIONALS SUPPORTING PEOPLE WITH HIGH BLOOD PRESSURE

Throughout the inquiry, responses indicated that there are a number of important issues for professionals to consider when supporting someone with high BP. In particular, encouraging medication adherence, supporting lifestyle change, having conversations about risk and benefit of treatment with patients, and using technology to support self-monitoring and self-management of the condition were areas that were highlighted. It was suggested by some respondents that the opportunity for tailored, detailed, BP-specific education existed.

"I think even some of the colleagues that I have maybe aren't so familiar with high blood pressure, and need a little bit of help and support in what the current treatments are, what the options are for people with high blood pressure."

SIGN guidelines recommend that all individuals with a persistent clinic BP ≥140/90mmHg or a family history of high BP should receive lifestyle advice[42]. However, clinical respondents to the inquiry identified that providing proper support for lifestyle change can be challenging due to time restrictions, lack of signposting opportunities and highlighted that skills in supporting health behavioural change were helpful in encouraging patients to make changes.

"Education and training for health care professionals is required — negotiating behavioural change."

"From an educationalist perspective, I think we have to do some work to allow people to understand what that means."

Ensuring that there are opportunities to enhance knowledge on high BP is in line with Everyone Matters: 2020 Workforce Vision which has an aim of ensuring that all staff have the skills needed to deliver safe, effective, person-centred care[43]. It is also of importance in light of the GMS contract which will see a wider range of health care professionals assume responsibility for the management of long-term conditions. To fully support people with high BP, professionals need to be able to easily access relevant, detailed information and training.

"I did a small scoping exercise in one part of Scotland where experienced nurses said to me that high blood pressure is always a part within a cardiovascular disease course but they felt that they could benefit from more detailed information. The content they would want was everything through from detection to management to supporting people with resistant hypertension, and updating skills in negotiating behavioural change."

While practice nurses were mentioned directly throughout the inquiry in discussions around the potential for high BP-specific education or training, pharmacists and other health and social care professionals have an important and expanding role in supporting people with long-term conditions so they should be considered and consulted in the development of any educational material.

RECOMMENDATION

WHILST A NUMBER OF EDUCATIONAL RESOURCES WHICH COVER HIGH BLOOD PRESSURE EXIST, THIS INQUIRY BELIEVES THERE IS SCOPE FOR A DETAILED, SPECIFIC MODULE ON THE CONDITION WHICH IS AVAILABLE TO ALL RELEVANT PROFESSIONALS.

THE HIGH BLOOD PRESSURE TASK FORCE SHOULD SUPPORT SCOTTISH GOVERNMENT AND EDUCATION AND TRAINING BODIES IN THE DEVELOPMENT AND DELIVERY OF SUCH A RESOURCE, IN PARTNERSHIP WITH RELEVANT PROFESSIONALS AND DELIVERY ORGANISATIONS.

Glossary

A

Arteries — muscular-walled vessels that form part of the circulation system by which blood (mainly that which has been oxygenated) is moved from the heart to all parts of the body.
Autonomic dysfunction — when the autonomic nervous system (ANS) is not working correctly. It develops when the nerves of the ANS are damaged.

C

Cardiac rehab — a structured programme of exercise and information sessions for people who are recovering from a heart event or diagnosis.
Cardiovascular disease — includes all the diseases of the heart and circulation.
Cardiovascular risk — the risk of an individual suffering from a cardiovascular event.
Chronic kidney disease — a disease where the kidneys don't function as well as they should.
Cognitive behavioural therapy — a type of talking treatment which focuses on how thoughts, beliefs and attitudes affect feelings and behaviour, and teaches coping skills.
Co-morbid conditions — the presence of one or more additional diseases or disorders co-occurring with a primary disease or disorder.
Competency framework — a competency framework defines the knowledge, skills, and attributes needed for people within an organisation.

D

Dementia — an umbrella term for a group of conditions that affect how well the brain can function.
Diabetes — a condition where the level of glucose (sugar) in the blood is too high.
Diastolic blood pressure — the measurement of pressure in the blood vessels when the heart rests between beats.
Dipping status — the pattern of blood pressure dropping during the night. The normal pattern is a decrease in blood pressure of around 10%–20% during the night, which coincides with the hours of sleep, and is commonly referred to as dipping.

E

Endocrine hypertension — a subset of hypertension caused by hormone imbalance, most frequently involving the pituitary or adrenal gland.

H

Health inequalities — the unjust and avoidable differences in people's health across the population and between specific population groups.
Health literacy — the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.
Heart attack — when there is a sudden loss of blood flow to a part of the heart muscle.
Heart failure — when the heart muscle is damaged and the heart becomes less effective at pumping blood around the body.

M

Masked high blood pressure — a normal blood pressure in the clinical setting but an elevated blood pressure out of the clinic.
Meta-analysis — a quantitative, formal, epidemiological study design used to systematically assess the results of previous research to derive conclusions about that body of research.
Modifiable risk factor — something that increases an individual's risk of developing a disease or condition, which can be changed through intervention.

N

NICE — National Institute for Health and Care Excellence.

O

Obesity — a medical condition that occurs when a person carries excess body weight or body fat that might affect their health.

P

Peak flow meter — an instrument that measures how fast a person can breathe out. Used to monitor lung conditions.
Pharmacotherapy — therapy using pharmaceutical drugs.
Prevalence — a statistical concept referring to the number of cases of a disease that are present in a particular population at a given time.
Primary care — health care provided in the community. It is usually the first point of contact for patients and involves providing care for common illnesses and long-term conditions.

Q

Qualitative studies — studies that use a scientific method of observation to gather non-numerical data. Qualitative research refers to the meanings, concepts, definitions, characteristics, metaphors, symbols, and description of things and not to their counts or measures.

R

Resistant high blood pressure — high blood pressure that does not respond well to medical treatment.

S

Secondary care — medical care provided by a specialist, usually upon referral by primary care.
Secondary high blood pressure — high blood pressure that is caused by another medical condition or occurs during pregnancy.
Sleep apnoea — a condition where the walls of the throat relax and narrow during sleep, interrupting normal breathing.
Socioeconomic deprivation — lack of material benefits considered to be basic necessities in a society.
Sphygmomanometer — an instrument for measuring blood pressure.
Stroke — a stroke is a brain attack which happens when the blood supply to part of the brain is cut off.
Systematic review — a type of literature review that uses systematic methods to collect secondary data, critically appraise research studies, and synthesize studies.
Systolic blood pressure — the measurement of pressure in the blood vessels when the heart contracts.

T

Telemonitoring — the use of information technology to monitor and support patients at a distance.
Test of change — a method, used for action-oriented learning. The change is planned, tried, observed and learning is acted upon.

W

White coat hypertension — also known as white coat syndrome. This is a condition where a patient's blood pressure is higher when taken in a medical setting than it is in other settings, such as at home. This results in a higher than normal blood pressure reading during their clinic visits.

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