

the magazine of Blood Pressure UK

ISSUE 52 > WINTER 2022

POSITIVE pressure

DOES BLOOD PRESSURE AFFECT MEMORY?

Professor of Ageing & Stroke Medicine, Dr John Potter, explains the link

UNDERSTANDING THE WHITE COAT EFFECT

How do you know if your blood pressure really is high after you leave the doctor's office?

CONGRATULATIONS COLIN AND KATE

Our marathon runners had a fantastic day and raised £2,500 in the process

THE GREAT DEBATE

Professor Gareth Beevers remembers the greatest debate in blood pressure history



**Blood Pressure
UK**

Helping you to lower your
blood pressure

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positive pressure is the magazine of UK charity, Blood Pressure UK. We aim to significantly improve the prevention, diagnosis and treatment of high blood pressure in order to prevent death and disability from stroke and heart disease. We are an independent registered charity and rely on donations and grants to carry out our work. All views expressed within the magazine are those of the authors and do not necessarily reflect those of Blood Pressure UK. The information in this magazine is designed to support and supplement your relationship with your doctor, not to replace it.

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Welcome

From Phil Pyatt, Chief Executive Officer

Welcome to the Winter 22 edition of *Positive Pressure*. As I write this, it feels like optimism for the future is currently in short supply with the rising cost of living, but as I look back over the last six months I realise there is still much to be optimistic about, not least the achievements Blood Pressure UK have made with the help of our members and partners.

I truly believe that as a small charity we punch above our weight in terms of reaching as many people as possible with information and guidance on the importance of knowing your numbers and how to reduce them. No more so than our flagship campaign Know Your Numbers! Week which takes place every September. This year really saw a growth in activity across the UK and I want to personally thank my team and all of our partners for the effort you made to make 2022 such a successful week.

Running a charity is a balancing act between fundraising and delivery, and for all of you that have donated or undertaken fundraising activities, thank you so much. A particular thank you goes to Colin and Kate from Swindon who ran this year's London Marathon for Blood Pressure UK, not only in an impressive sub 4-hour time but also raising over £2,500 in the process.

There is so much work going on within the hypertension community, and I hope you enjoy some of the articles that are featured including 'Blood pressure medicine works at any time of day', showing the importance of taking your medication regularly at whatever time of day works for you.

I hope you enjoy this winter issue and seeing all the great work that's taking place on hypertension. Thank you all once again. Together we will beat high blood pressure.

Out & about

A few things we've been up to lately



We hit the road

New for Know Your Numbers! Week 2022, Kinetik Wellbeing in part association with Blood Pressure UK brought free blood pressure checks to the high street with the blood pressure roadshow. A whopping 2,900 blood pressure checks were carried out in Leeds, Manchester, Liverpool, Birmingham and London. That's 2,900 more people who now Know Their Numbers!

Keeping up with the science

We promoted our resources to health professionals at the 2022 British and Irish Hypertension Society (BIHS) Annual Scientific Meeting at The Barbican, York this September. It was also a chance to catch up with the science. We were particularly interested in the posters on hypertension in specific cultures and communities as they examine areas in which social policy and quality of life affect hypertension. Take a look at the BUMP 1 trial on the next page.

We reach South Asian communities

Our Hypertension Nurse Specialist Nirmala Markandu gave free blood pressure checks and healthy living advice to two community groups in South London as part of Know Your Numbers! Week. She had queues to get a check and found several people in need of urgent blood pressure management.



Blood Pressure News

NEWS

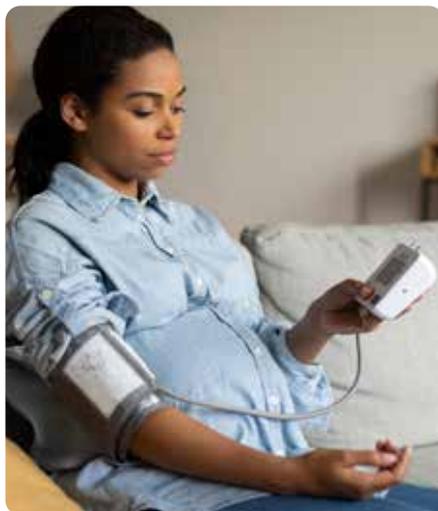
Exploring home monitoring during pregnancy

The BUMP 1 trial makes progress for health inequalities

High blood pressure affects people differently depending on their ethnic background. Home blood pressure monitoring has the potential to improve detection of high blood pressure during pregnancy, making it easier to manage blood pressure disorders that can appear during this time.

Researchers from the University of Oxford are looking into home monitoring for women from different ethnic groups and deprived backgrounds. They analysed data from the BUMP 1 trial to see how well women stuck to home monitoring during pregnancy and how their home

readings compared to clinic readings, and shared their findings at the British and Irish Hypertension Society 2022 Annual Scientific Meeting.



They found that ethnic background and level of deprivation made a difference to how often women took readings, and that readings taken in clinic were 6.1mmHg higher on average than readings taken at home. This means there's a need to lower the threshold for diagnosing high blood pressure when using home readings in order to receive the right management.

 Exploring how ethnic background and deprivation affect the usefulness of home monitoring during pregnancy is a big step forward for addressing health inequalities and tailoring support to individual women.

Free blood pressure tests in pharmacies could save 4,400 lives

New scheme is expected to save twice as many lives as predicted a year ago

Free blood pressure checks in pharmacies could save 4,400 lives over the next five years thanks to a deal with the NHS. Free checks for over 40s were introduced last October to help prevent heart attacks and strokes. Take-up has been even better than expected with over 8,400 pharmacies now signed up.

NHS England predicts that 5.5 million people will use the service which could lead to half a million people being diagnosed with high blood pressure, enabling them to get treatment if they need it.

The service forms part of the NHS long term plan to prevent more than 150,000 heart attacks,

strokes and dementia cases by picking up diseases in the early stages, before they have a chance to develop.

 The number of people being diagnosed with high

blood pressure fell during the pandemic as people couldn't see their GP. Free checks in pharmacies will help close the gap so that people can get the life-saving treatment they need.



Share your views to reduce future risks

What are the future risks for younger people with high blood pressure?

Professor Conroy aims to find out



There are a number of risk calculators designed to predict the risk of future illnesses such as heart attacks and strokes, but these are largely designed for use in older adults. Professor Simon Conroy, Professor of Geriatric Medicine at University College London, aims to find out if risk calculators can be made relevant for younger adults too.

He invites you to share your views to support his research at the National Institute for Health and Care Research exploring how different factors accumulated over a lifetime can affect health in later life. Rather than looking solely at risk factors linked to heart disease, such as smoking and diabetes, he wants to explore a much broader range of risk factors (this is known as a frailty index).

Professor Conroy says "We don't know if the frailty index would work in younger people, if younger adults will be interested in knowing their risks, nor what outcomes might be relevant. We are interested in hearing your views to help shape the research so that it's relevant and meaningful.

"We can arrange face-to-face or virtual discussions and can cover your expenses and offer a small honorarium for your time."

Email simon.conroy@ucl.ac.uk to find out more.

Drink water to forward research



Support Oxford Brookes' research simply by drinking potassium-rich water

The Oxford Brookes Centre for Nutrition and Health is recruiting for a study exploring whether drinking 1 Litre of potassium-rich water daily will lower blood pressure and if this has the potential to lower blood pressure at population level. Take part to support the research and earn £45 worth of Amazon vouchers as a bonus.

You can take part if you have mild to moderately raised blood pressure (with readings of 130-139mmHg for the top number and 80-89mmHg for the bottom number) you're aged 20-64 and not taking medicines.

You will be asked to:

- drink the test product (potassium-rich water) daily for 4 weeks
- attend 4 virtual sessions
- take your own blood pressure at home
- provide urine samples.

To register your interest, scan the QR code or contact Sarah Kefyalew at s.kefyalew@brookes.ac.uk



AIM HY to lower your blood pressure

Help find the best medicines for yourself and others

Clinical Pharmacology at Kings College London invite you to join their AIM HY study to find the best commonly-prescribed medicines to suit you, aiming to make blood pressure treatment more personalised in the future.

NHS **MRC** **Medical Research Council**

Are you aged 18–65 & taking blood pressure medication or about to start on a medicine for your blood pressure?

HIGH BLOOD PRESSURE???

Our research study is about choosing the best commonly prescribed medicines for you.

Personalised treatment!!!

Some medicines work better in some people than in others!!!

To find out more about better blood pressure treatment: www.aimhy.org



Blood pressure medicines work at any time of day

Medicines to lower blood pressure work equally well whether you take them in the morning or evening

The largest study of its kind has shown that you can take your blood pressure medicines when it suits you best. Over 20,000 people took part in the TIME (Treatment in Morning versus Evening) trial. Half took their medicines in the morning and half in the evening. After five years, there was no difference in the number of people who had a heart attack, stroke or died.

Before now, research suggested that blood pressure medicines work best if you take them at night. Night-time blood pressure is a better marker for the risk of heart attacks and strokes than blood pressure during the day, and it was thought that if you take your medicines before bed this would lower your night-time blood pressure more than taking them when you wake up. The TIME trial shows it

makes no meaningful difference.

Professor Williams, Trustee of Blood Pressure UK and member of the steering committee for the TIME trial said: *“There has been much controversy and uncertainty over a simple question affecting hundreds of millions of people world-wide; notably, is taking blood pressure tablets in the evening better than taking them in the morning, in terms of protecting patients with high blood pressure from heart disease and stroke?”*

“The TIME study is the definitive randomised controlled trial, and the answer is no. Patients should take their tablets when they are most likely to remember to take them; the timing does not matter.”



We advise taking your medicine when it suits you best so you can get into a routine you can stick to – just take them at the same time each day.

LETTERS When is lower not better?

Dear Blood Pressure UK,

I recently read an article, prompted by observations on beta blockers, that included interesting comments on the current recommendations for lower blood pressure targets. That is, the tight control of systolic blood pressure to 120mmHg.

For many older patients (I am 90), this means higher doses of medication with a higher risk of the discomforts of side effects. However, as the article cautions, the lower target can be detrimental in older patients (aged 65+).

It explained that older adults with higher blood pressure actually have *better* survival because lower blood pressure may be a marker for other health conditions. So, lowering blood pressure further may be harmful.

It seems to me that this is an important topic. What medical conditions should not be subject to ‘tight’ control and what would be an acceptable target in over 65s, for example?

With best Wishes

Derek

**GP with Cardiology background
Dr Eduard Shantsila looks at
those times when a lower blood
pressure target might not be the
best option**



Dear Derek,

Blood pressure-lowering medications are prescribed to a quarter of UK adults and three quarters of people over 75, so they're widely used. Once started, usually in middle age, they tend to be used lifelong as they reduce the risk of heart attacks and strokes and prolong lives.

A large 2016 study known as the SPRINT study showed that even very tight blood pressure control, with a target systolic blood pressure (the top number) of less than 120mmHg, brings health benefits to older people; it prevented so many strokes that the trial was stopped early.

The question is, does everyone benefit from strict blood pressure control, and, as people get older, when is lower blood pressure no longer better?

Older people who develop frail health are vulnerable to various health 'stressors' such as heart failure, diabetes, dementia, a life expectancy less than three years, weight loss, postural hypertension (low blood pressure when you stand up), and living in a nursing home. Frailty becomes more common with age, particularly in the over 80s, but older people with frailty have been scarcely included in studies of blood pressure-lowering drugs – which means we have less information about them.

It's important for the body to be able to control blood pressure so that it has a good blood supply and to allow for exercise. Many organs control blood pressure, including the heart, muscles, kidneys, nerves and hormones. Different conditions may

damage these organs in older people with frailty, causing their blood pressure to change from too high to too low, especially in response to blood pressure medications.

A sudden drop in blood pressure on standing up is common in older people. They may feel dizzy or fall if their blood pressure drops too much and this may knock their confidence in walking. Measuring standing blood pressure and prescribing medicines based on those readings may become more important than measuring blood pressure while sitting, to allow a better quality of life.

Blood pressure may also fall in older people with frail health due to weight loss, dehydration, and using many medications together (called polypharmacy). A study of UK GP records on older people with frailty showed that in people with blood pressures of 130-139mmHg, there were more deaths and no better risk of strokes compared to those with blood pressures of 150-159mmHg. Not many of the over 80s in the landmark SPRINT trial could have had frailty, so we do not know if the results would have been the same if people in this group had been included.

Several studies have raised concerns about lowering blood pressure too much. In the HYVET study, extreme lowering of diastolic blood pressure (the bottom number) was linked to higher risk of dementia, and beta-

blockers were linked to a two-fold higher risk of bone fractures, likely due to more falls. Some people might need a lower dose or to stop some blood pressure medications, if they have side effects, for example. In fact, in a trial called the OPTIMISE trial, stopping some medications, such as beta-blockers, had minimal impact on blood pressure. However, the long-term effects of reducing blood pressure treatment are not known.

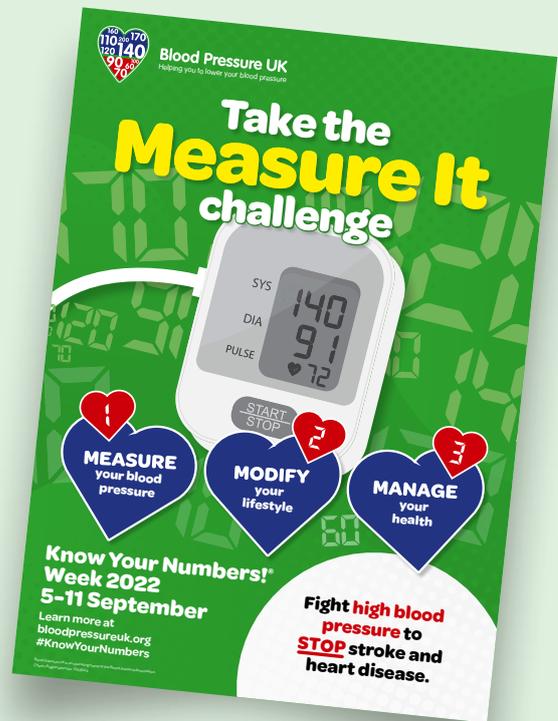
Studies show that most older people are willing to stop some of their medications if their doctor recommends it. Doctors rank antihypertensives first on the list of medicines for stopping. However, doctors may be unsure about the best decision due to a lack of evidence. In practice, GPs are sometimes reluctant to start antihypertensives in people with frailty and will take it on a case by case basis, but they tend to leave previously-started treatments unchanged, and less than half of GPs use a consistent approach to deprescribing.

Overall, there is a clear gap in knowledge about what the best blood pressure level is in older people with frailty, and more research is needed to find out what it is. If you are in overall good health, there should not be a problem with a lower blood pressure target, irrespective of age. If you have frailty, the right blood pressure target and dose and combination of medicines will come down to discussions between you and your doctor or pharmacist about your blood pressure, your overall health and how you're getting on with your medicines.

Dr Eduard Shantsila is Senior Clinical Lecturer in Primary Care in University of Liverpool and a GP in Liverpool. He has a special interest in blood pressure and is the former colleague and long-time associate of our Medical advisor, Professor Gareth Beevers.

Measure Modify Manage

Know Your Numbers! Week takes on high blood pressure in 2022



We took on high blood pressure with home monitoring this September, with headlines in the papers, interviews on the airwaves and blood pressure checks on the high street. High blood pressure usually has no symptoms, which is why every year we encourage all UK adults to Know Their Numbers!

The theme was Measure. Modify. Manage:

Measure your blood pressure

Home monitoring is an easy and reliable way to Know Your Numbers! without a trip to the GP.

Modify your lifestyle

Eating less salt is one of the simplest ways to lower your blood pressure and cutting out just one gram a day on average would mean 6,000 fewer deaths from strokes and heart attacks each year in the UK.

Manage your health

Keeping an eye on your numbers, making changes to your lifestyle and taking blood pressure medicines if you need to will help you stay healthy for life.

New for 2022: The blood pressure road show!

For the first time, Know Your Numbers! week brought free blood pressure checks to the high street with the blood pressure roadshow, organised by Kinetik Wellbeing in part association with Blood Pressure UK. A whopping 2,900 blood pressure checks were carried out in Leeds, Manchester, Liverpool, Birmingham and London. That's 2,900 more people that now Know Their Numbers!, and many felt grateful to have somewhere to get a check while it's harder to see the GP.

Acting local

Local councils, NHS Integrated Care Systems, hospitals, libraries and universities spread the word online while some hospitals and councils organised stands offering free blood pressure checks in person.

A blood pressure stand attracted passersby on Orpington High Street.



Twitter was busy this year

NHS London, NHS England and NHS UK all got busy on twitter, with further support from health professionals, charities, public figures and health bodies across the UK, including London Ambulance Service, St John Ambulance, Yorkshire Ambulance and The Stroke Association.



KNOW YOUR NUMBERS! WEEK ❤️

Over half of Brits don't Know Their Numbers!

Our recent opinion poll showed that whilst nearly half (45%) of UK adults have had their blood pressure checked in the last year, over half (56%) don't Know Their Numbers! and 34% think knowing their numbers is not important.

Hemini Bharadia, Marketing Manager at Blood Pressure UK explains: "Home blood pressure monitoring is an effective and inexpensive way to manage your blood pressure and the evidence behind it continues to get stronger. It takes the pressure off the NHS and it really can save lives."



The press got behind the campaign

We made headlines with coverage in the Independent, the Daily Express and 130 regional news stories. Our Chairman Professor Graham MacGregor gave interviews for London Live TV and BBC Radio in Leeds, Manchester, Merseyside, West Midlands and Sheffield.

Councillor Rachel Massey had her blood pressure checked at Rochdale Borough Council's stand.



London



Parish Nursing UK organised blood pressure checks for farmers in Warwickshire leading to new diagnoses and treatment.

“So much interest and so many questions”

Our Hypertension Nurse Specialist, Nirmala Markandu, offered one-to-one support for two community groups in New Maldon, South London: the Healthy Mind Community Development programme and Elders Empowering Programme. Both are attended by South Asian communities, who are at higher risk of raised blood pressure but are often harder to reach.

The groups meet weekly for exercise and activities and mingle

over coffee and lunch. Nirmala had queues for blood pressure checks and found several people with blood pressure so high it needed urgent treatment. She was also available to talk about associated illnesses – many people also had diabetes or prediabetes.

Nirmala was able to address a lot of unanswered questions: *“After spending two hours with them I really felt like I was running a hypertension clinic in hospital again – so much interest and so many questions. The leaflets were a hit and there’s talk of a follow up session in the new year.”*

Both groups are now interested in

running more events and Kingston Council have expressed an interest in involving more community groups in blood pressure awareness.

We’ve updated our South Asian leaflet

If you’re of South Asian origin, this leaflet will help you keep your heart and body healthy, with diet and health information that’s tailored for your culture. You can order the English version and download translated copies in Bengali, Gujarati, Hindi, Punjabi and Urdu from www.bloodpressureuk.org/resources



NHS South East went above and beyond

NHS England South East has worked closely with us this year to support Know Your Numbers!, giving extra regional support through its Cardio Vascular programme.

They used the theme of Measure. Modify. Manage. as the basis of a social media campaign using paid adverts in Facebook and Google as an extra push to reach people at risk in the South East.

This follows their successful #livingwithhypertension campaign in the Spring, encouraging people to get their blood pressure checked in a brilliant series of light hearted but informative videos from health

professionals. They received over 55,000 extra visits to their campaign page with nearly 200,000 views from new viewers. They featured clinicians from different ethnic backgrounds to convey that high blood pressure disproportionately affects some communities more than others, and included specific messages for ethnic minority audiences and underserved groups.

Dr Mohit Sharma, Consultant in public health who leads on cardiovascular disease prevention for NHS England South East told us: *“High Blood pressure is one of the most common health conditions in the UK, yet most people don’t even know they may have it, and the first sign could be a heart attack or*

stroke. It is a priority for us to regain the successes in diagnosing those at risk from hypertension that we achieved in the South East before the pandemic.”

Read more about tackling high blood pressure in the UK from Dr Mohit Sharma on the next page.



Beating blood pressure in the South East

Dr Mohit Sharma is Consultant in Healthcare Public Health, NHS England South East. He leads on cardiovascular disease prevention in the South East of England. Here, he explains why awareness among both health professionals and communities is key to tackling high blood pressure post-pandemic.

Why is high blood pressure such an important condition to tackle?

Cardiovascular diseases such as heart disease and stroke account for a substantial proportion of the burden of ill health across society, and the biggest risk for cardiovascular disease is high blood pressure. They also make a large contribution to the inequality of health outcomes. This can be measured in difference in life expectancy, which is lower for those living in greater deprivation.

Cardiovascular disease accounts for the largest proportion of the difference in life expectancy between the least and most deprived people in England, at 22.9% for males and 19.3% for females. Over the course of the pandemic, there was an inequality in mortality from Covid-19 for those from minority ethnic communities and this was largely driven by cardiovascular causes.

The NHS recognises the importance of cardiovascular disease and high blood pressure, and the national ambition is to diagnose 80% of those with high blood pressure and optimally treat 80% of those diagnosed.

What are your plans for the South East?

In England, we estimate that 65.7% of those with high blood pressure have a diagnosis, which means over 1.8 million people still need to be diagnosed to reach the 80% target. In the South East, we have produced data packs for health professionals to help them find and optimally treat those with high blood pressure.

There is intense focus on this key priority and a substantial part of the fall in those receiving optimal blood pressure treatment has been recovered.

During the pandemic, there was a reversal in the progress made in achieving optimal treatment (receiving the most effective treatment to achieve a normal blood pressure). In the South East in 2020/21, 45.5% of those with high blood pressure were optimally treated, down from 68.8% the year before. This has improved in the last year to 56.7%, but clearly much work needs to be done. This is before accounting for those who remain undiagnosed.

How can high blood pressure affect people if it's not diagnosed and treated?

High blood pressure is often detected during a visit to the doctor for something unrelated, as it can be entirely without symptoms. When detected it needs to be treated to achieve a blood pressure in the normal range. Undetected and untreated, it may only be diagnosed after a catastrophic event such as a heart attack or stroke.



Is it true that high blood pressure mainly affects older people?

The risk of having high blood pressure increases with age, but those who develop it at a younger age, in their 40s, also need treatment to avoid illness. Indeed, younger people living with untreated high blood pressure risk suffering from ill health earlier.

What is being done to address high blood pressure?

Cardiovascular disease, and high blood pressure, has been recognised as a key priority nationally. This was emphasised in the 2019 NHS Long Term Plan and the national ambitions. In response to the drop in blood pressure management during the pandemic, there is intense focus on this key priority and a substantial part of the fall in those receiving optimal blood pressure treatment has been recovered.

In terms of diagnosis, the NHS is working hard to identify those who come into contact with healthcare services, but those with no symptoms and otherwise well, may not be seen and this is why awareness is very important. We support Blood Pressure UK's Know Your Numbers! campaign to raise awareness and encourage everyone to check their blood pressure at home, in pharmacies, or in GP surgeries.

A 'real experience you don't get anywhere else'

Congratulations to Colin and Kate who ran the London Marathon for Blood Pressure UK

Colin and Kate from Swindon finished the London Marathon in an impressive sub 4-hours on Sunday 2 October, raising over £2,500 for Blood Pressure UK. Colin was our official charity runner while Kate earned a 'good for age' place and donated her funds to us as well.

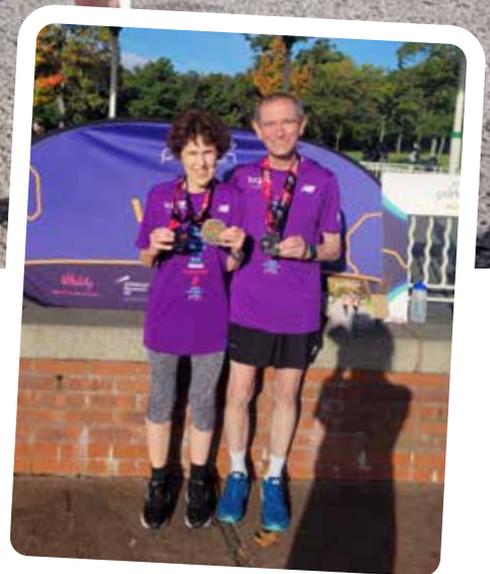
The pair are well known among friends for their 30 mile plus walks and running challenges. They have both just turned 60 and are as active now as they were in their 30s. We caught up with Colin after the marathon about why it was such a fantastic experience.

How was the big day?

It went really well. The weather was perfect and it was fantastic running past London's landmarks with runners from all over the world – there were fancy dress gorillas, Wonder Women, a tree, and six runners dressed as fruit in hand-made fruit basket!

What was the atmosphere like?

The crowd were incredible. They really give you a lift. We had friends at miles 9 and 20 who told me Kate was just ahead and that really helped. After mile 20, that's when it starts to get difficult and you rely on those long training runs. You finish the last mile going past Big Ben and up Birdcage Walk and you know the



Above: Colin and Kate with their medals and finishers' t-shirts at their local Parkrun after the marathon.

Top: Colin passing Big Ben.

finish is not too far off. It's a great experience. It's fantastic.

Did you get the time you wanted?

Yes, Kate and I both finished in sub 4-hours which is really satisfying. We had different start times but finished within minutes of each other and met up at the end.

How are your legs?

They're actually fine at the moment. A little stiff but otherwise ok. Maybe I didn't run fast enough!

How did you prepare?

I do Parkrun every week and built up the long runs from August. I'm not a natural runner so the big runs are big challenges. I did 8, 11 and 15-mile runs, then one a bit longer. In the last week before the race I didn't run at all, as you need to rest.

It's alright once you get going, the hardest part is putting your shoes on.

What draws you to these extreme challenges if you're not a natural?

I enjoy them! We're out in the fresh air, it's a challenge, it's great fun. They can be quite difficult and once you've completed them, you look back and realise it's quite an achievement.

I enjoy the running, keeping fit and being out in the open. It gives you time to look around and take in the surroundings.

Do you have any training tips?

Don't do too much too soon as you can get injured and that takes all the fun out of it. Start off slowly then build up. Do something regularly such as Parkrun and Couch to 5K, and when you're more comfortable there are plenty of clubs that put on races.

The wonderful thing about running is it's non-restrictive. You can be any age, any gender. It's completely universal.

What do you eat to support your training?

I eat plenty of fruit and veg. I don't eat much meat and I try to stay away from the biscuits, which is hard – there's so much nice food around! I look at the packets and keep away from salt and saturated fat. Lots of restaurants have information on calories now which is really helpful.

Why did you choose to run for Blood Pressure UK?

I was diagnosed with high blood pressure by chance in my 30s and I've been on medicines ever since. I was lucky to get a diagnosis because I might have gone many more years without knowing. I



Kate running through Canary Wharf

“The wonderful thing about running is it's non-restrictive. You can be any age, any gender. It's completely universal.”

think everyone should know their blood pressure like they know their height and weight.

How did the fundraising go?

It went really well. I was an electrical engineer and the company do a matched-funding scheme – before I retired we raised £1,500. Our friends have been very generous too.

Will you do another marathon?

Yes. It's actually really enjoyable. It's a real experience that you don't get anywhere else. The runners are really friendly. The organisers are incredible. You've got to put a bit of work in but you can look back and say, I really enjoyed that.

What's the next adventure?

Probably a long walk somewhere over a few day's holiday. There's a 31-mile walk along the South Coast called the 1066 Country Walk. It runs from Pevensey to

Rye and goes through the site of the Battle of Hastings, where William the Conqueror fought.

Is there anything you'd like to add?

It's really rewarding to do something like this. You've got yourself fitter and healthier and you feel better for it. I would encourage people to take on challenges. Plan it out. Don't get injured. Build up slowly.

Thank you to Blood Pressure UK. It was because of you I had this opportunity and it's been fantastic. Really special. And thank you also to all the people who sponsored us for the race. The donations are going to a worthy charity who are making great strides in promoting good health awareness for the nation.



A huge thank you to Colin and Kate for the sheer effort you have put in to training for the big day, raising funds for Blood Pressure UK, looking after your own health and inspiring others to do the same.

The great debate

By Professor Gareth Beevers

In the 1950s and 60s a debate took place between two distinguished professors of medicine, on the “nature of hypertension” and its inheritance. In this review, Professor Gareth Beevers briefly takes us through the argument between Sir Robert Platt and Sir George Pickering and discusses its implications in the light of current knowledge.

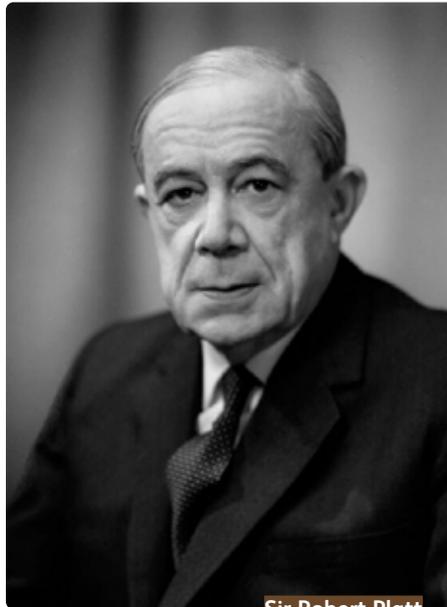
The context

In the 1940s, remarkably little was known about raised blood pressure. Most doctors knew that it caused strokes and heart attacks and that blood pressure varied from moment to moment, but no one knew what the criteria were for the diagnosis of hypertension (high blood pressure). Also, blood pressure measurement was often highly inaccurate.

The death of the US President Roosevelt in 1945 from a massive brain haemorrhage, due to very high blood pressure, came as a shock and drew attention to the general state of ignorance about blood pressure. As a result, a large population survey of blood pressure was established in Framingham, Massachusetts, in 1951 but it would be some years before the results became available. In the meantime, various experts expressed their views but there was no consensus. Was hypertension inherited? Was there a dividing line between normal and high blood pressure? If so, where was it? Into this chaos stepped these two great men.

The personalities

Sir Robert Platt was respected as a clinician and was later elected President of the Royal College of Physicians. He was much admired for his knowledge of



Sir Robert Platt

all branches of medicine and his main clinical specialities were kidney disease and hypertension. He was a meticulous documenter of his patients and their family histories of hypertension and it was this which led to his view of the genetic inheritance of blood pressure.

Sir George Pickering was professor of medicine at St Mary's Hospital, London and later at Oxford. He had a strong grounding in biological science as well as medicine. He was partly responsible for the rediscovery of the role of the enzyme renin in the control of blood pressure. He had a large department at St Mary's with specialists in the



Sir George Pickering

epidemiology and biochemistry of hypertension.

The one characteristic these giants of medicine had in common was their love of controversy and it was this which led to the great debate.

Platt's view

It all started in 1947 when Platt published a study based on 193 patients with hypertension. He found that in the 122 patients with hypertension with no underlying cause (known as essential hypertension), 75%, the great majority, had a positive or probable family history of

hypertension. By contrast, only 30% of the 71 patients with hypertension due to other causes such as kidney disease had high blood pressure in their family.

Platt suggested that many or even most people with hypertension must belong to a sub-group of the population with a hereditary or "Mendelian dominant" form of the disease. If Platt was right, then a population distribution curve would reveal a large sub-group with a double hump in a bimodal or biphasic curve, as in Figure 1.

Pickering's view

In order to study this issue further, Pickering knew that what was needed was a survey of blood pressure and family history in a sample of the general population, but no such studies were

There was no magic number where normotension ends and hypertension begins.

available; the Framingham study was still in its infancy. He chose, therefore, to examine the blood pressure of out-patients at St Mary's Hospital attending for diseases known not to be associated with hypertension. This was mainly from

the dermatology clinic. The results were published in a series of papers in 1954 and 1955, eight years after Platt's original paper.

The first finding was that blood pressure in the population was distributed in a smooth unimodal or "bell-shaped" curve with some skew towards higher levels (Figure 2). There was absolutely no evidence of a subgroup with high blood pressure which might be genetically inherited. Pickering did not deny that hypertension ran in families and that genetic factors could explain this. But clearly there was no single gene with "dominant" inheritance. Rather, it was "polygenetic", i.e. multiple genes were involved.

Secondly, there was no clear

Figure 1: Platt's view

The distribution of blood pressure in the general population as proposed by Sir Robert Platt. The curve has a double hump, meaning it is "bimodal". The second hump represents people with genetically inherited hypertension.

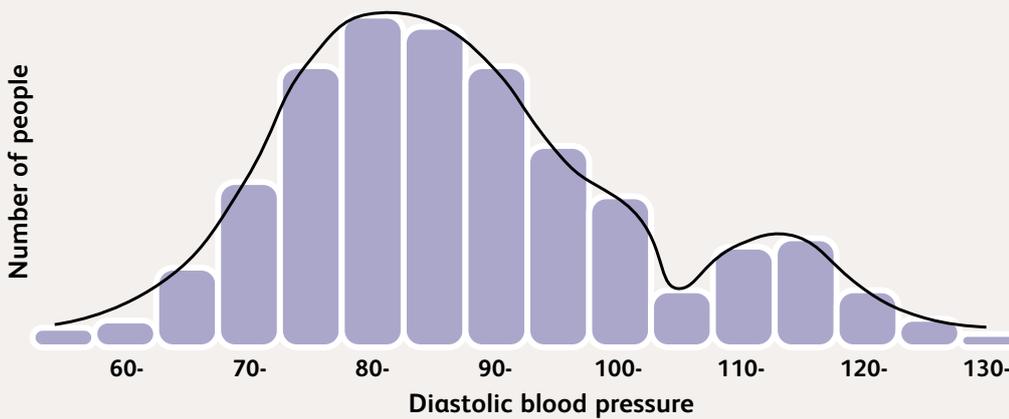
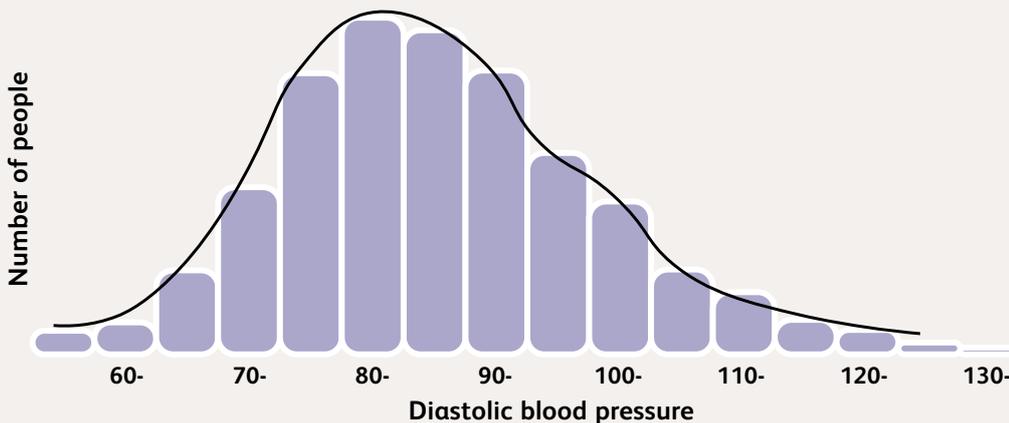


Figure 2: Pickering's view

The distribution of blood pressure in the general population as found by Sir George Pickering. It demonstrates a "unimodal" nearly "bell-shaped" curve with no clear-cut division between normotension and hypertension.



distinction between those with “normal” as opposed to “abnormal” blood pressure. Later when data came in from the Framingham project, it was clear that the risk of heart attacks and strokes was directly and continuously related to the height of the blood pressure from below average to average and to high.

So, there was no magic number where normotension ends and hypertension begins. Pickering poured scorn and derision on the many and various dividing-lines between “normotension” and “hypertension” proposed by so-called experts.

The epidemiologist Prof Geoffrey Rose later wrote *“I was his medical registrar at the time, and I well remember the widespread bafflement which greeted the famous professor of medicine when he asserted that hypertension, in which he was a world expert, did not exist as a distinguishable entity.”*

Platt V Pickering

Over the following 10 years, the debate raged in eight papers from Platt and 16 from Pickering. They debated face-to-face once at a conference in Chicago in 1964. Goodness knows what the Americans made of it! Near the end, the debate became a source of irritation or mirth. One wag wrote:

*“While Pickering is bickering
And Platt is platting,
Hypertension remains a burning.”*

Critique

From the perspective of the 21st century, the whole debate does seem a bit silly and open to criticism because the data from both protagonists are riddled with sources of error. Blood pressure measurement in those days had problems of inaccurate equipment and observer error (errors made by the health professional) with readings obtained with a stethoscope and mercury manometer.

Similarly, a family history of hypertension is open to error. People with hypertension will be more aware if it runs in their family than people with no hypertension. The tendency of diseases to run in families may be genetic but it is equally likely to be due to similarities in lifestyle, diet, body

“Hypertension should be defined in terms of a blood pressure level above which investigation and treatment do more good than harm.”

weight, alcohol intake, smoking and socio-economic factors. Neither protagonist used any form of statistical analysis, although few tests were available at the time.

Now, with the human genome project, we know that there is no single gene for hypertension. But we also know that as many as 30 genetic variants are associated with hypertension but are not causal. Pickering said from the start that the inheritance of hypertension was “polygenic” and certainly not “monogenic” as Platt claimed.

The solution

With characteristic clarity, Prof Geoffrey Rose provided us with a working definition of hypertension in 1971. *“In an operational sense, hypertension should be defined in terms of a blood pressure level above which investigation and treatment do more good than harm.”* If we are to use this pragmatic definition, we must scrutinise the many large long-term trials comparing drug treatment with no treatment (or placebo).

We have the National Institute of Health and Care Excellence (NICE) and the British Hypertension Society who regularly assess the available information on the benefits of blood pressure reduction and update their guidelines.

Relevance today

There was more to the great debate than the two opponents realised at the time. In reality, they were debating the nature of disease in general and not just hypertension. Almost all human characteristics are distributed in the population in a bell-shaped curve as in figure 2. These include cholesterol,

glucose tolerance/diabetes, body-mass-index/obesity, lung function, psychiatric conditions and, as with all such human characteristics, there is no clear-cut dividing line between normal and abnormal.

As with almost all diseases that develop in adulthood, it’s not “do you or do you not have disease”, rather it is “how much of this disease have you got?” So, a person may, say, be a bit chesty after a bad cold in February but this does not mean he or she should be labelled as having chronic obstructive pulmonary disease. Another person may be entirely well but a screening test may reveal a borderline elevation of serum cholesterol. It would be worth rechecking in a few months but it would be inappropriate to diagnose hypercholesterolaemia. All dividing lines between health and disease are arbitrary: the product of a committee which hopefully is aware of the benefits and harms of treatment. Pickering’s view is generally accepted nowadays but at the time it was revolutionary.

An entertaining diversion occurred when Platt accused Pickering of “super-Snarkism” when constantly repeating his views. He was referring to *The Hunting of the Snark*, a nonsense poem by Lewis Carroll. One line reads *“I have said it thrice; what I tell you three times is true”*. This led to a letter from the Snark Club, Cambridge, by a gentleman who signed himself as The Bellman. *“It was I who wrote this, not the Snark”*. So, as the former Dean of Medicine from the University of Birmingham, Douglas Hubble, wrote:

*Peace be to Pickering, silence on Platt,
Truce to their bickering, leave it at
that.
Candles are flickering, Platt’s in the
dark,
“Goodnight, dear Pickering; wrong
about Snark”.*

Professor Gareth Beevers is Medical Advisor and former Trustee for Blood Pressure UK. He is Emeritus Professor of Medicine, University of Birmingham and retired consultant physician, City Hospital, Birmingham.

White Coat Hypertension

What is it, how do we diagnose it, and do we need to treat it?



Dr Tehreem F. Butt is Consultant in Acute Medicine & Clinical Pharmacology/ Hypertension at Broomfield Hospital, Essex. Here she explains everything you need to know about the ‘white coat effect’ and how to know if your blood pressure really is high after you leave the doctor’s office.



Thomas Pickering, an eminent professor in the field of cardiovascular medicine, first coined the term 'White Coat Hypertension' in the 1980s (he was none other than the son of Sir George Pickering of 'The great debate', page 14). It described a phenomenon where individuals appeared to have high blood pressure at the doctor's surgery or in other clinical settings (hence the term 'white coat') but had a normal blood pressure at home or when they were going about their daily lives.

Although definitions vary slightly depending on which country you are in, a person is thought to have White Coat Hypertension if their blood pressure in a clinical environment (also known as 'office blood pressure') is persistently high and meets the criteria for a diagnosis of hypertension but outside the medical setting they have a normal blood pressure. In the UK, that would mean an office blood pressure of 140/90mmHg or higher but an average home reading of 135/85mmHg or less.

It is thought that being in a clinical setting can set off a stress response in some individuals – the so called 'fight or flight' response. This causes an increase in stress hormones such as adrenaline which cause heart rate and blood pressure to rise. Although many individuals who have this reaction do feel very anxious or stressed when visiting their doctor, there are some who don't feel stressed but still have evidence of the white coat effect, which can be confusing.

The days when doctors wore white coats are long gone, but White Coat Hypertension continues to be a significant problem. It is estimated that around one third of those with high blood pressure in a clinical setting have White Coat Hypertension, and it appears to be more common in women, older adults, and those recently diagnosed with hypertension.

The use of ambulatory or home blood pressure monitoring is essential in diagnosing White Coat Hypertension. In other words, confirming whether someone with high blood pressure readings in clinic truly has sustained hypertension or whether their blood pressure is only high in clinic.

The days when doctors wore white coats are long gone, but White Coat Hypertension continues to be a significant problem.

Why is it so important to identify White Coat Hypertension?

Current guidelines suggest it's not necessary to treat patients who have White Coat Hypertension with medication, as these individuals don't appear to be at higher risk of cardiovascular disease such as heart attacks and strokes. However, a lot more research is still needed in this area as data from clinical trials is lacking.

It's very important to identify those with White Coat Hypertension as they risk being misdiagnosed with high blood pressure and prescribed unnecessary life-long treatment with blood pressure lowering medication and their potential risk of side-effects.

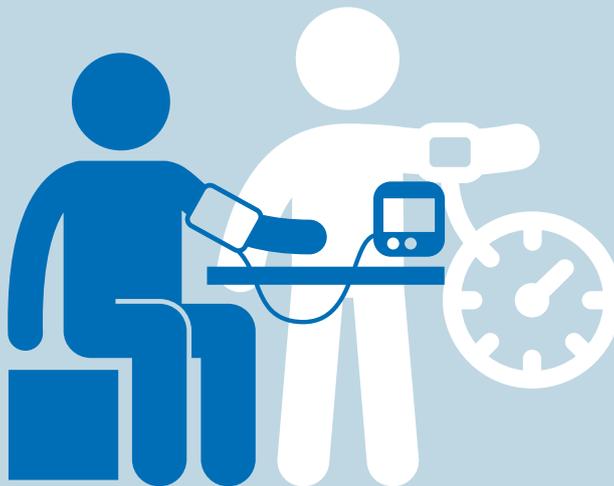
We also know that those with White Coat Hypertension have around a four-fold increased risk of developing high blood pressure in the future. It is therefore important to monitor them with repeat ambulatory and home blood pressure monitoring on an annual basis.

24-hour ambulatory monitoring vs home blood pressure monitoring: What are the key differences?

Finding out what someone's blood pressure is like at home is vital in diagnosing White Coat Hypertension. Although 24-hour ambulatory blood pressure monitoring has been considered the 'gold standard' in monitoring outside the clinical setting, home monitoring is increasingly becoming the method of choice for both patients and healthcare professionals alike, and this has especially been the case during the COVID-19 pandemic. But what are the key differences and how do we decide which monitoring method to choose? On the next page are the key features and differences which can help us decide.

So, which method of monitoring is best?

In summary, there is still no consensus on which method of blood pressure monitoring is better, and both can be used to make a diagnosis of White Coat Hypertension. In general, many people may prefer home monitoring as it's more accessible, better tolerated, and can be used for ongoing blood pressure monitoring at home – so you can keep an eye on your numbers over time. However, your doctor may choose ambulatory blood pressure monitoring to provide a more detailed analysis of your blood pressure. In particular, to determine whether you are a 'non-dipper' (that is, your blood pressure does not dip at night) as this would make you at increased risk of cardiovascular disease and your doctor may need to treat your blood pressure more actively.



24-hour ambulatory monitoring



A healthcare professional fits you with a special device which measures your blood pressure over a 24-hour period, usually every 30 minutes during the day and every hour at night. The readings are then uploaded to a computer which produces a detailed report including average blood pressures for the day and night.

✓ SOME OF THE PROS

Useful for people who would have difficulty measuring their own blood pressure at home, for example, due to cognitive or physical problems such as poor memory or severe arthritis in the hands.

Useful for those who have difficulty finding the time to measure their own blood pressure due to busy lifestyles, for example.

Provides an accurate and detailed hour-by-hour analysis of blood pressure during the day and overnight. Blood pressure usually dips overnight, but if it doesn't, this may indicate a higher risk of cardiovascular disease. This type of monitoring is therefore helpful in finding those at higher risk of complications.

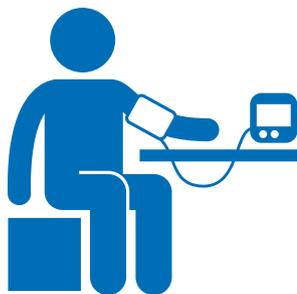
✗ SOME OF THE CONS

More expensive in terms of resources needed such as equipment and trained staff. Some devices can cost over £2,000.

Some patients find the frequent blood pressure readings uncomfortable, especially overnight, which may disturb sleep.

May be considered inconvenient by some, for example due to having to attend appointments to have the monitor fitted and then again to return it, or the inconvenience of the monitor 'going off' during work or other activities.

Home blood pressure monitoring



You use a home blood pressure monitor to measure your own blood pressure twice a day, preferably morning and evening, at roughly the same times each day for 7 days. Readings can be recorded either with a paper diary or electronically via a computer programme or application. The average blood pressure over the 7-day period is then calculated.

✓ SOME OF THE PROS

Allows for patient autonomy and control over their own blood pressure monitoring and management, as people can measure their blood pressure at a time convenient to them.

Perceived by many as a more convenient option, for example, due to fewer visits to a healthcare professional.

May be better tolerated/less uncomfortable as fewer readings are taken over a longer period of time.

Reduces the risk of spurious blood pressure readings, for example, due to having an unusually stressful day, as readings are taken over a week not just a single day.

Relatively cheap. Some home monitors can be purchased for as little as £20).

✗ SOME OF THE CONS

The success of home monitoring depends on the person knowing how to use the monitor and measure their own blood pressure accurately, and being motivated to do so at roughly the same time each day, twice a day, so some might find this difficult.

Readings may not be accurate if the monitor has not been validated or tested. The British and Irish Hypertension Society publish a list of validated home monitors at <https://bihsoc.org/bp-monitors/for-home-use/> Monitors also need to be regularly calibrated and may be less accurate if they are more than four years old.

Blood pressure can't be monitored whilst the person is asleep, so important prognostic information may not be available.

BLOOD PRESSURE, MEMORY AND DEMENTIA

WHAT'S THE LINK?



Professor John Potter

John Potter, Professor of Ageing & Stroke Medicine at the University of East Anglia, takes a look at the latest evidence exploring the link between blood pressure, memory loss and dementia, and whether blood pressure lowering can help.

Memory problems become more common as we get older and can often be regarded as part of the natural ageing process. However, memory loss can progress to “mild cognitive impairment (MCI)” where individuals regularly mislay items or forget names or places. While these symptoms suggest short term memory issues, they do not significantly interfere with everyday life.

About 5-20% of over 60s have this type of cognitive impairment and it's important to note that only about 10% of those progress to dementia. And for some, symptoms can even be reversed if they're related to underlying issues such as depression.

What is dementia?

Dementia is probably the diagnosis most people fear, being linked with confusion, memory and communication loss and personality changes. Symptoms progress over time, causing a meaningful change to everyday life.

Dementia-related mortality is now the most common cause of death in women. Numbers continue to rise and account for nearly 12% of all UK adult deaths; more than ischaemic heart disease or stroke. The social and economic burden is huge.

Approximately 850,000 people in the UK have dementia, that's 1 in 14 over 65-year-olds, with total costs being estimated at £260 billion!

More positively, the number of new cases has fallen by 15% per 10 years for the last 30 years. The rise in the number of deaths is related to the fact that we are all living longer and dementia is a disease, in the majority, of old age.

What are the types of dementia?

See the box below for a description of the two main types: Alzheimer's disease and vascular cognitive impairment.

Is high blood pressure a risk factor for dementia?

For all forms of vascular cognitive impairment, age and being female are the most important risk factors, but potentially treatable causes play an

important role, such as high blood pressure, diabetes, atrial fibrillation, previous stroke, raised cholesterol, obesity, smoking and other lifestyle factors.

Many studies have shown that having a higher systolic blood pressure (the top number) in mid-life leads to a decline in cognition later on. It also increases the likelihood of mild cognitive impairment progressing to dementia, though high blood pressure doesn't necessarily predict the rate of cognitive decline.

The effect of high blood pressure in later life on vascular cognitive impairment is inconsistent but may depend on ethnicity, with the black and Hispanic populations appearing to be at higher risk than whites or Asians. For the over 80s, higher blood pressure of over 130/85mmHg is actually linked with better cognitive function, although the number of studies is small.

What are the types of dementia?

Dementia has many different causes. Around 60% of cases are due to Alzheimer's disease and 15-20% are due to vascular cognitive impairment (the main focus of this article) or a mixture of both. The underlying processes of the two are different. Alzheimer's is linked to a build-up of abnormal proteins in the brain which result in the formation of 'neurofibrillary tangles' and 'neurodegeneration'. Vascular cognitive impairment on the other hand can involve varying types of damage to the blood vessels:

- 1) multiple small brain infarcts (where the blood supply is cut-off to part of the brain)
- 2) the result of a stroke in a specific area of the brain
- 3) a consequence of a brain haemorrhage (bleeding)
- 4) low blood flow in the brain
- 5) hereditary (genetic) changes.

It is sometimes difficult to diagnose the underlying type of dementia but vascular cognitive impairment tends to be associated more with decision-making and problem-solving issues and less with memory loss. Recent data suggest there is an increasing role for high blood pressure and other cardiovascular risk factors in the development of both types of dementia.



More recently, it has been highlighted that higher variation in blood pressure readings between visits may be as important as average blood pressure readings for predicting future cognitive problems.

A drop in blood pressure on standing has been implicated for future memory issues. Some studies also show that lower than normal blood pressure is also linked with the development of both Alzheimer's and vascular cognitive impairment due to lack of blood flow to the brain.

Do blood pressure medicines help?

As high blood pressure is a major risk factor for cognitive impairment in most age groups, it can be expected that drug treatment to lower blood pressure should slow or stop such changes. There are now several large clinical trials of blood pressure medicines and cognition and some, but not all, suggest that blood pressure treatment lowers the risk of dementia or mild cognitive impairment by about 10-20% for people who are diagnosed and treated in mid or later life. Post-stroke dementia may also be decreased but this benefit may depend on the type of stroke. However, in the

very elderly, blood pressure lowering seems to have little cognitive benefit.

No ideal target blood pressure levels for cutting dementia risk have been defined, but trials have shown no difference between an intensive treatment target of SBP <120mmHg compared to standard target of <140mmHg in terms of reducing dementia risk, but the short durations of follow-up may have prevented an effect being found. Unfortunately, there are few data on the benefits of lifestyle changes.

Does blood pressure drug class influence the likelihood of a positive effect of treatment on reducing cognitive issues?

There is reasonable evidence for the protective effects of ACE inhibitors and Angiotensin receptor blockers, calcium channel blockers and diuretics whereas beta-blockers may have an adverse effect on cognition – but these are only used in specific circumstances. Aspirin and statins have not been shown to have a benefit in terms of preventing memory loss.

Despite our increasing knowledge of how high blood pressure causes cognitive issues and the potential

benefits of blood pressure medicines, many knowledge gaps still exist. There are issues with the trials in terms of age, sex and ethnicity of the populations studied, the short duration of follow-up, ability to detect small but important changes in cognition, the need for better methods of assessing type of cognitive impairment, the exclusion from previous trials of those who already have cognitive issues, whether treatment in younger pre-hypertension groups is of benefit and the optimal AHT drug, dose and treatment duration.

Conclusions

In summary, there is now convincing evidence that high blood pressure is related to both vascular dementia and Alzheimer's along with milder forms of cognitive impairment, though in the over 80s higher blood pressure levels potentially reduce this risk. Blood pressure medicines in those aged up to 80 at least reduces this threat, and the most important strategy is to achieve good blood pressure control and reduce other risk factors for diseases of the heart and blood vessels with a healthy lifestyle.



South East Cardiac Pathway Improvement Programme

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Finding out that you have high blood pressure can be traumatic, particularly if you are young. Most people don't know anything about the condition and worry about how it will affect them and those around them.



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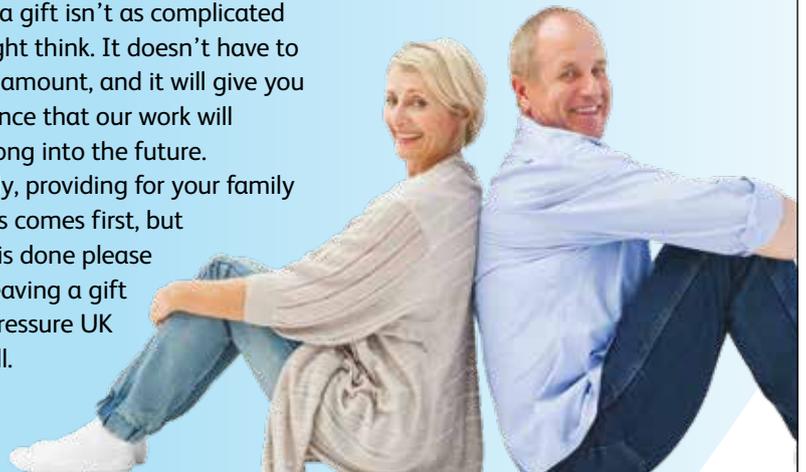
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Blood Pressure UK is here to help. With our information packs, range of leaflets and our helpline, we provide reassurance and support to those who need it. All of this work is expensive, and while membership subscriptions and donations help enormously, leaving a gift in your Will can help us make a bigger difference.

Leaving a gift isn't as complicated as you might think. It doesn't have to be a large amount, and it will give you the assurance that our work will continue long into the future.

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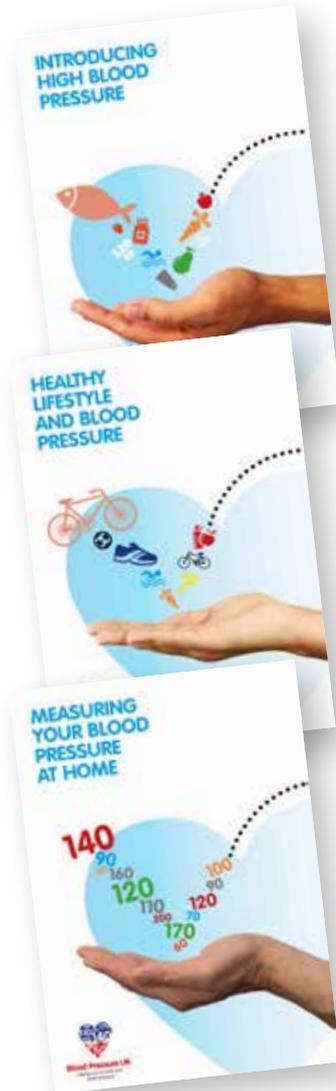
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Information & publications

LOTTERY FUNDED

We have a range of booklets and fact sheets giving valuable information about living with high blood pressure to help you understand it, lower it and manage it.



Introducing high blood pressure

This booklet explains what high blood pressure is, who gets it and why. It gives basic information on lifestyle changes to lower blood pressure, and about measuring your own blood pressure at home.

Healthy lifestyle and blood pressure

This booklet shows how getting more active and keeping to a healthy weight can help lower your blood pressure. It looks at how you can start to build more activity into your day, and what types of activity may be best for you. It also talks about sensible approaches to losing weight if you need to.

Measuring your blood pressure at home

This booklet can help you decide whether measuring your blood pressure at home is right for you, and how to choose the right type of monitor. It also gives you tips about how and when to measure your blood pressure to be sure you are getting reliable readings.

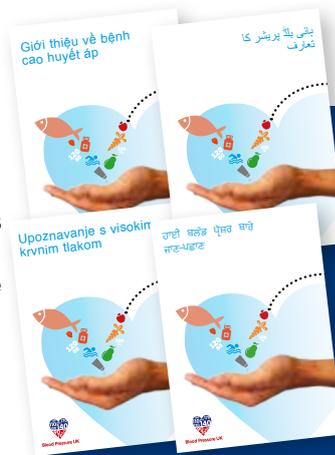


Getting the most from blood pressure medicines

Most people with high blood pressure will need to take medicines to control it. This booklet talks about the different medicines for high blood pressure and about how you can get the best results from them. It also looks at side effects of blood pressure medicines and what you can do to avoid these.

Healthy eating and blood pressure

This booklet looks at how what you eat can affect your blood pressure. It shows you how you can start to eat less salt, and how to get your five daily portions of fruit and vegetables. It also explains how alcohol, fats and sugar can all affect your heart and body.



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