

Hypertension

An Insight

Hypertension global burden

- Globally, the overall prevalence of hypertension or raised blood pressure in adults aged 25 and above was around 40% in 2008.
- Worldwide, hypertension is estimated to cause 7.5 million deaths, about 12.8% of the total deaths.
- Hypertension accounts for 57 million disability adjusted life years (DALYS) or 3.7% of total DALYS
- WHO has estimated that globally about 62% of cerebrovascular diseases and 49% of ischemic heart diseases are attributable to suboptimal blood pressure (systolic > 115 mmHg)
- One in three adults worldwide has high blood pressure.

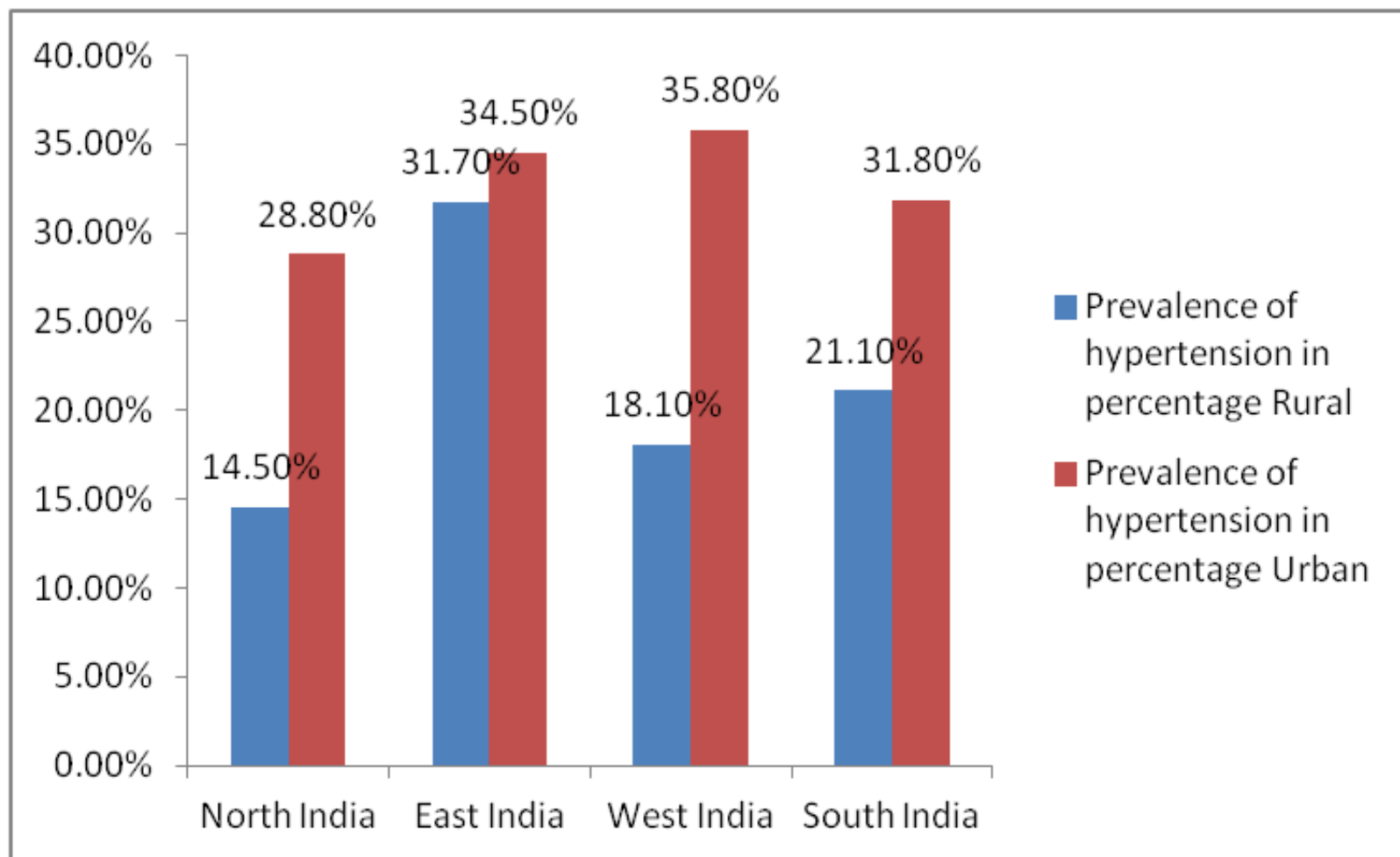
HYPERTENSION BURDEN

IN INDIA

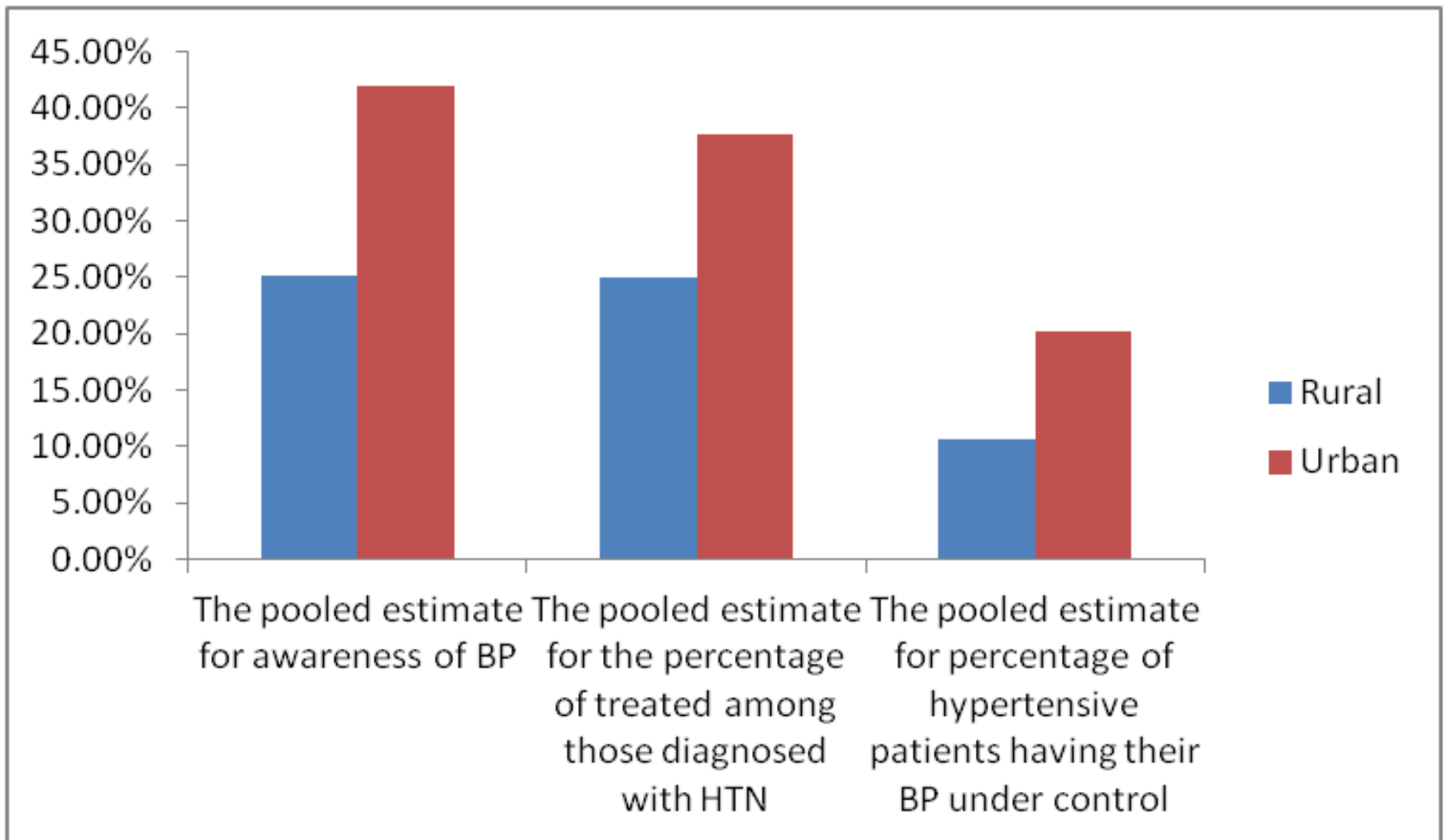
Hypertension in India

- About 33% urban and 25% rural Indians are hypertensive.
- Of these, 25% rural and 42% urban Indians are aware of their hypertensive status.
- Only 25% rural and 38% of urban Indians are being treated for hypertension.
- One-tenth of rural and one-fifth of urban Indian hypertensive population have their BP under control.

Rural vs. Urban contd...



Rural vs. urban contd...



Resistant hypertension prevalence

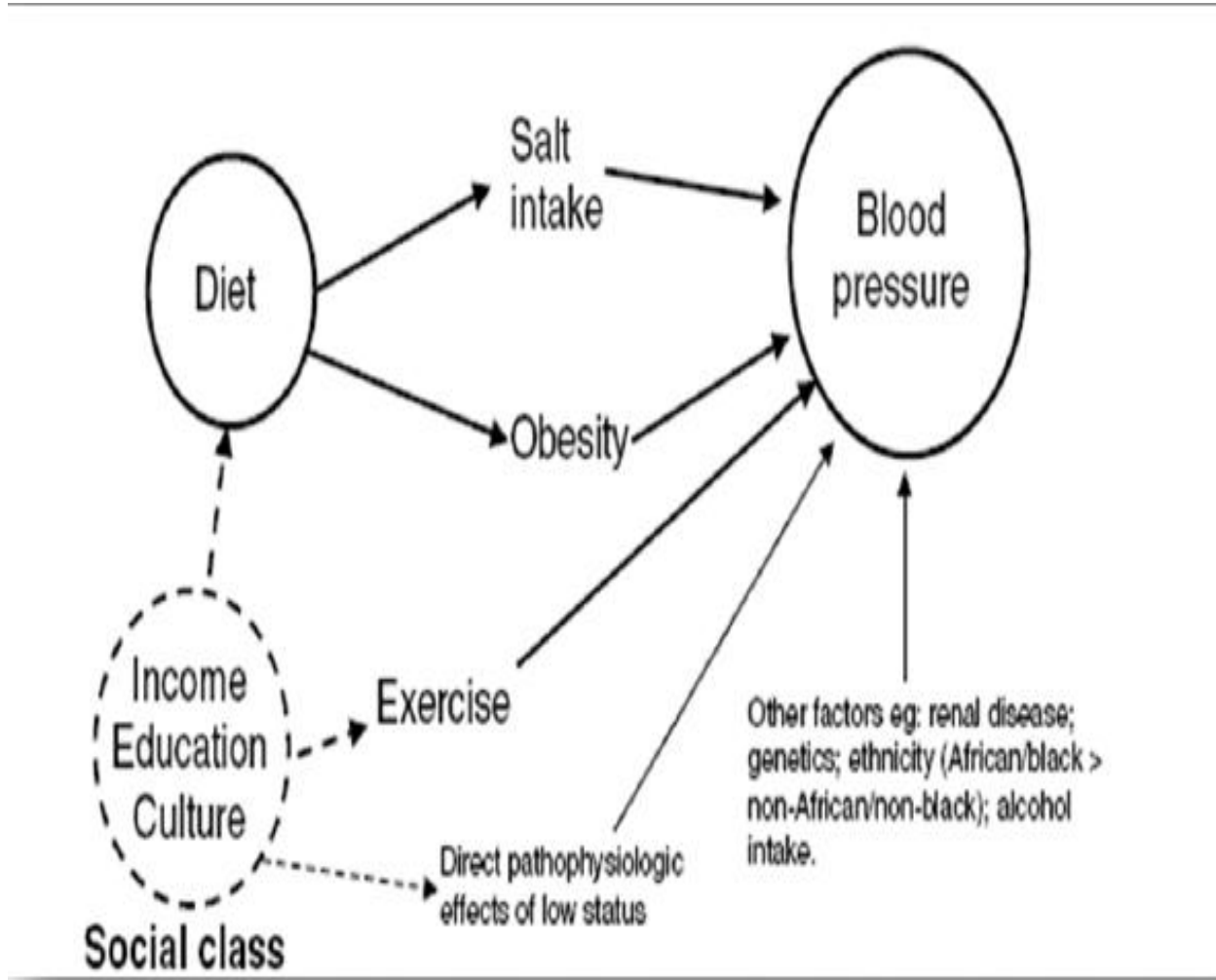
- The exact prevalence of resistant hypertension is unknown.
- In various studies its prevalence has been reported to be 20% to 30% of study participants

Hypertension-the problem statement

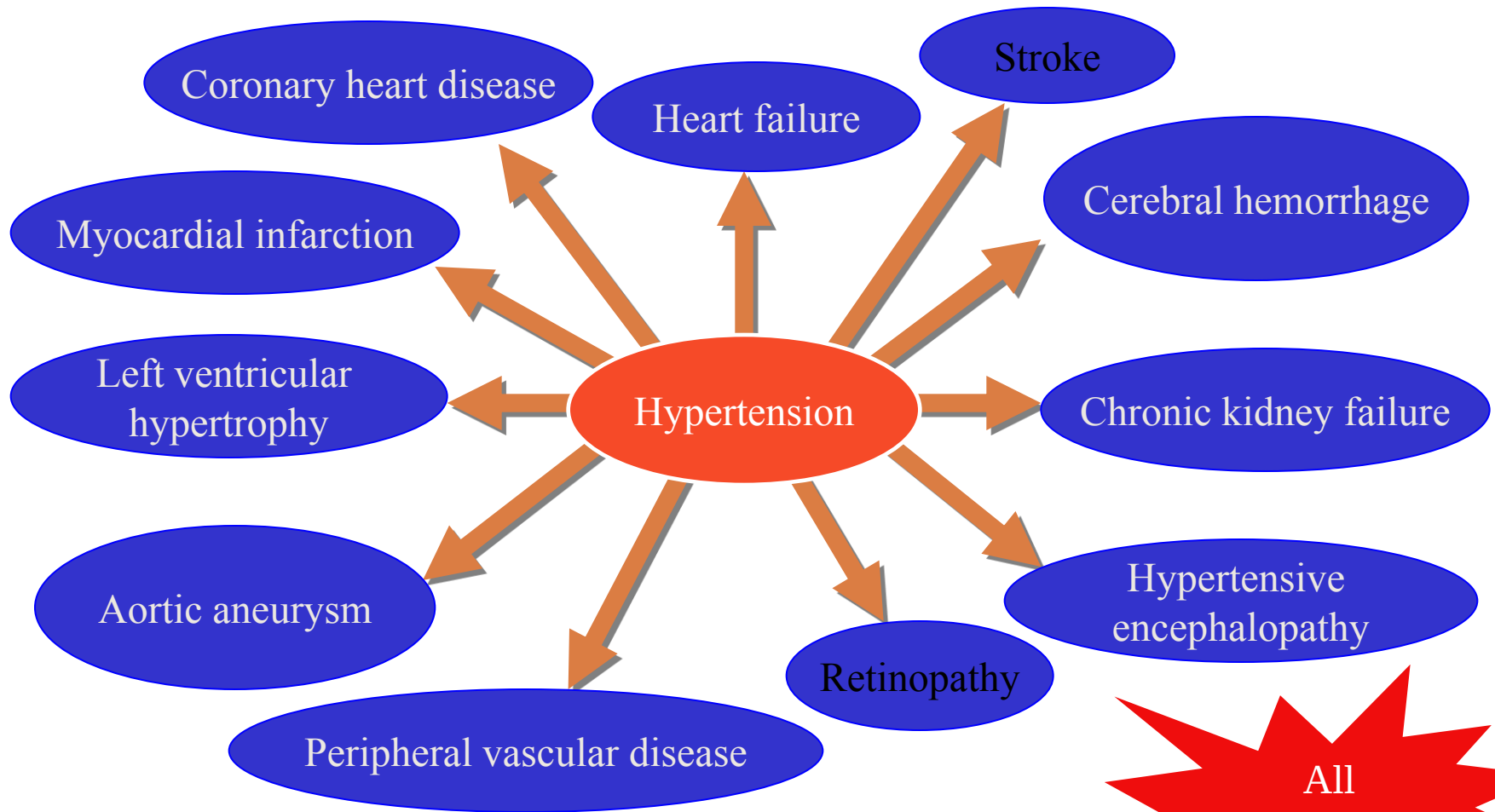
- Affects 20–60% of patients with diabetes.
- Substantially increases the risk of both macro vascular and micro vascular complications.
- Increases mortality by 7 folds.
- In diabetic nephropathy increases mortality by 37 folds.
- 85% of nephropathy patients have hypertension.

Management of Hypertension

Influence of risk factors on BP



Diseases Attributable to Hypertension



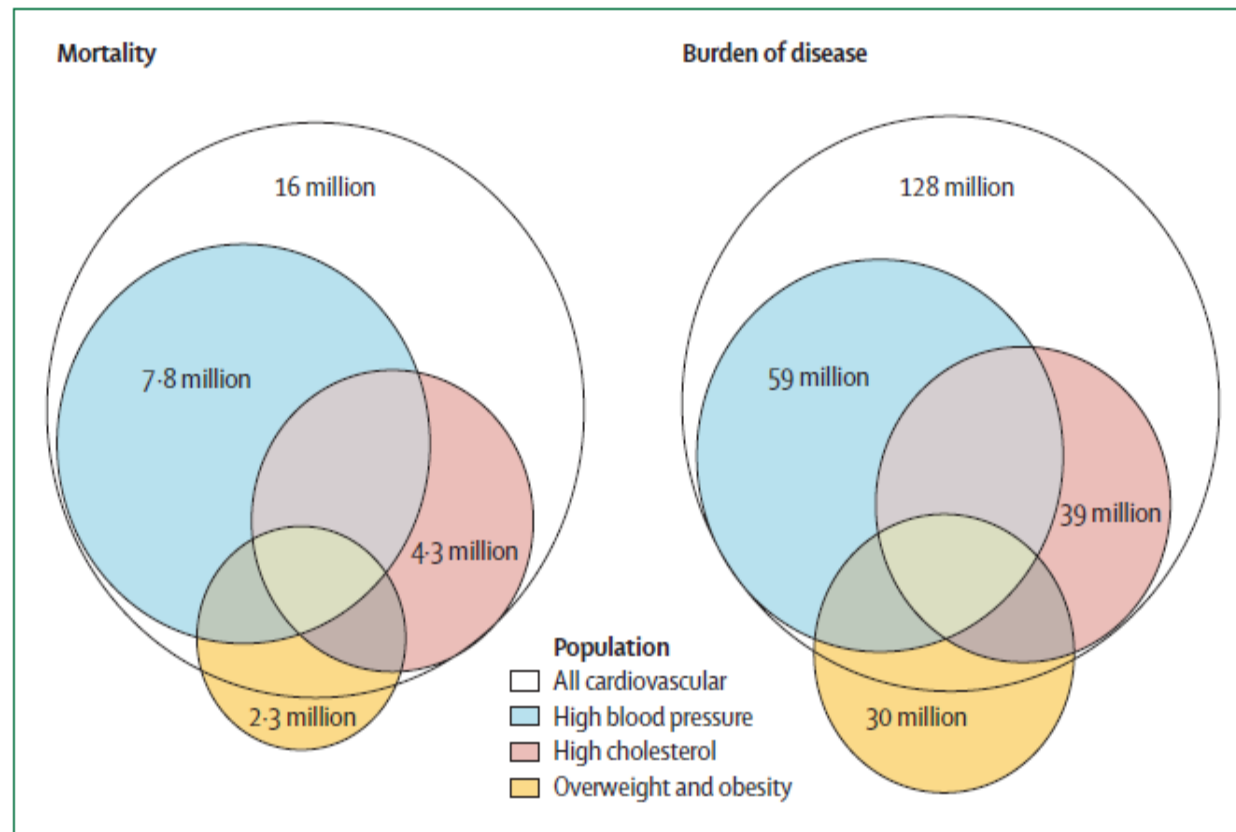
All
Vascular

Benefits of Treating Hypertension

- Younger than 60 (reducing BP 10/5-6 mmHg)
 - reduces the risk of stroke by **42%**
 - reduces the risk of coronary event by **14%**
- Older than 60 (reducing BP 15/6 mmHg)
 - reduces overall mortality by **15%**
 - reduces cardiovascular mortality by **36%**
 - reduces incidence of stroke by **35%**
 - reduces coronary artery disease by **18%**

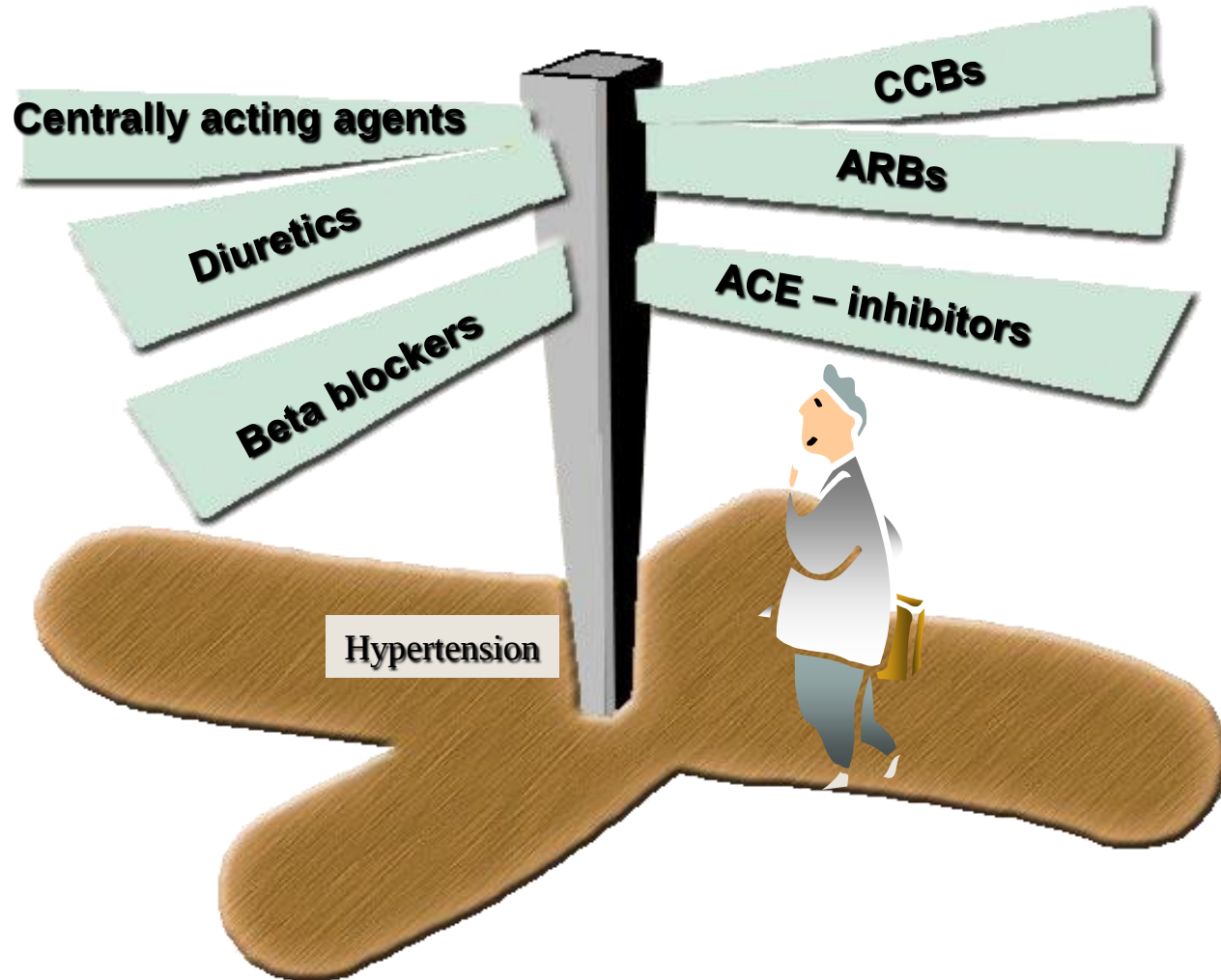
Hypertension often coexists with various conditions

58% of patients with hypertension suffer from unrecognized abnormalities of glucose metabolism i.e. either diabetes or impaired glucose tolerance



Global mortality and burden of cardiovascular disease and major risk factors for people aged 30 years

The Many Faces of Hypertension Therapy Today



Drug combinations in hypertension:

American Society of Hypertension recommendations

Preferred	ACE inhibitor/diuretic ^a ARB/diuretic ^a ACE inhibitor/CCB ^a ARB/CCB
Acceptable	β -blocker/diuretic ^a CCB (dihydropyridine)/ β -blocker CCB/diuretic Renin inhibitor/diuretic ^a Renin inhibitor/ARB Thiazide diuretics/K ⁺ sparing diuretics ^a
Less effective	ACE inhibitor/ARB ACE inhibitor/ β -blocker ARB/ β -blocker CCB (nondihydropyridine)/ β -blocker Centrally acting agent/ β -blocker

ACE, angiotensin-converting enzyme; ARB, angiotensin receptor blocker;
CCB, calcium-channel blocker.

Case Scenarios

In Daily Practice

What this section covers...

Clinical case scenarios, including:

- presentation
- medical history
- Examination

The clinical decisions surrounding diagnosis and management will
then be examined

Definitions

Stage 1 hypertension:

- Clinic blood pressure (BP) is 140/90 mmHg or higher **and**
- ABPM or HBPM average is 135/85 mmHg or higher.

Stage 2 hypertension:

- Clinic BP 160/100 mmHg is or higher **and**
- ABPM or HBPM daytime average is 150/95 mmHg or higher.

Severe hypertension:

- Clinic BP is 180 mmHg or higher **or**
- Clinic diastolic BP is 110 mmHg or higher.

White-coat effect:

- A discrepancy of more than 20/10 mmHg between clinic and average daytime ABPM or average HBPM blood pressure measurements at the time of diagnosis

Case scenario 1: *Patient Initials- MA*

Presentation

38 year old, attending for routine appointment about her contraception, for which she uses a diaphragm.

Medical history

From her records you notice that MA's blood pressure has increased since her last check twelve months ago. She does not smoke, drinks 10-12 units of alcohol a week and has no notable medical history.

On examination

MA's first clinic blood pressure measurement is 158/94 mmHg. Her heart rate is 72 beats per minute and regular

You are considering a diagnosis of hypertension and therefore take another reading in MA's other arm. There is no notable difference between readings.

Next steps for diagnosis

Question 1.1

What would you do next?

Case scenario 1 : MA

- **Answer 1.1**

- You would take MA's blood pressure a third time during the consultation.

- **Question 1.2**

- The third reading is 149/93 mmHg. You suspect hypertension – what would you do next?

Case scenario 1 : MA

- ***Answer 1.2***

- Organise for MA to receive ambulatory blood pressure monitoring (ABPM) through your GP practice. If you are responsible for setting up the monitoring device, you ensure that at least two measurements per hour are taken during MA's usual waking hours (for example, between 8 am and 10 pm). You would use the average value of at least 14 measurements taken during MA's usual waking hours to confirm a diagnosis of hypertension.
- At the same time you would also carry out investigations for target organ damage (such as left ventricular hypertrophy, chronic kidney disease and hypertensive retinopathy).

Case scenario 1 : MA

- ***Answer 1.2 (continued)***

- test for the presence of protein in the urine by sending a urine sample for estimation of the albumin:creatinine ratio and test for haematuria using a reagent strip
- take a blood sample to measure plasma glucose, electrolytes, creatinine, estimated glomerular filtration rate, serum total cholesterol and HDL cholesterol
- examine the fundi for the presence of hypertensive retinopathy
- arrange for a 12-lead electrocardiograph to be performed.

Case scenario 1 : MA

- ***Answer 1.2 (continued)***
- You would also carry out a formal assessment of cardiovascular risk (MA's clinic blood pressure must be used in the calculation of cardiovascular risk) using a cardiovascular risk assessment tool, in line with Identification and assessment of CVD risk in 'Lipid modification' (NICE clinical guideline 67).
- Additionally, you would also ascertain information about lifestyle in areas such as diet, exercise, alcohol, smoking and caffeine consumption and dietary sodium intake and offer appropriate lifestyle advice.
- Record the results of all investigations and assessment in MA's notes.

Case scenario 1 : MA

- ***Question 1.3***
- You identify her dietary sodium intake is greater than recommended levels. NICE PH25 on prevention of cardiovascular disease recommends that as part of preventing cardiovascular disease at a population level there should be a reduction in salt intake. By 2015 an adults maximum intake of salt per day should not exceed 6g and by 2025 this should be reduced to 3g. Additionally, MA's exercise patterns are not in line with national guidance. (For the Chief Medical Office current recommendations for physical activity see UK physical activity guidelines)
- What advice would you offer?

Case scenario 1 : MA

- ***Answer 1.3***
- You would advise that healthy diet and regular exercise can reduce blood pressure. You would also encourage her to keep her dietary sodium intake low as this can reduce blood pressure. You should also inform her about local initiatives

Case scenario 1 : MA

Question 1.4

- The result of MA's ABPM shows daytime average blood pressure of 145/92 mmHg.
- What would your diagnosis and your next steps be?

Case scenario 1 : MA

Answer 1.4

- This result shows that MA has stage 1 hypertension.
- If you had not already done so (answer 1.2), you would estimate cardiovascular risk and offer tests for target organ damage.
- You would use the results of the cardiovascular risk assessment to discuss prognosis and healthcare options with MA.
- Continue to ascertain information about her lifestyle in order to provide tailored lifestyle advice in accordance with the guideline on areas such as diet (including sodium and caffeine intake) and exercise and alcohol consumption.
- See the [definitions slide](#) for ABPM diagnosis criteria

Case scenario 1 : MA

- ***Question 1.5***

- The results of the investigations for target organ damage and formal assessment of cardiovascular risk are:
 - no evidence of target organ damage
 - 10-year cardiovascular risk less than 20%.
- Nothing abnormal was detected in the other investigations you organised.
- What is your next step and what treatment and follow up would you offer?

Case scenario 1 : MA

- ***Answer 1.5***

- **Further assessment**

- You would consider seeking specialist evaluation of secondary causes of hypertension and a more detailed assessment of potential target organ damage. This is because 10-year cardiovascular risk assessments can underestimate the lifetime risk of cardiovascular events in these people. Additionally, people under 40 years with stage 1 hypertension are less likely to have overt evidence of target organ damage or vascular disease.

Case scenario 1 : MA

- ***Answer 1.5 (continued)***
- MA does not have target organ damage, established cardiovascular disease, renal disease, diabetes or a 10-year cardiovascular risk equivalent to 20% or greater, therefore you would not offer antihypertensive drug treatment.
- You would continue to provide further tailored lifestyle advice (recommendation 1.4.1 – 1.4.9) periodically in accordance with the NICE clinical guideline. The NICE clinical guideline recommends that you would provide MA with an annual review of care to monitor blood pressure, provide her with support and discuss her lifestyle and symptoms.

Case scenario 1 : MA

- ***Question 1.6***

- If MA had been eligible to receive antihypertensive drug treatment, what should you consider when prescribing antihypertensive drugs for a woman of child-bearing potential?

Case scenario 1 : MA

- **Answer 1.6**

- There is an increased risk of congenital abnormalities if women take angiotensin-converting enzyme (ACE) inhibitors or angiotensin II receptor blockers (ARBs) during pregnancy, and it is important that women of child-bearing age know this. If the woman is planning a pregnancy she should discuss this with you. If a woman taking ACE inhibitors or ARBs becomes pregnant, these antihypertensive drugs should be stopped and alternatives offered.
- Link to related recommendations from the 'Hypertension in Pregnancy' (NICE clinical guideline 107):
 - [Management of pregnancy with chronic hypertension](#)
 - [Breastfeeding](#)

- **Question 1.7**

- What are the key points to remember when measuring blood pressure to ensure that the reading is as accurate as possible?

Case scenario 1 : MA

- ***Answer 1.7***

- Ensure that staff measuring blood pressure are trained.
 - Ensure the person having their blood pressure measured has a regular pulse before using an automated blood pressure monitoring device.
 - Ensure automated devices are validated, maintained and regularly recalibrated. Although not a NICE recommendation, expert opinion would suggest that devices should be maintained annually and there should be a person accountable for recalibrating the devices in order to ensure consistency.
 - Provide a relaxed environment for the person whose blood pressure is being measured.
 - Ensure the use of an appropriate cuff size.
-
- Link to [British Hypertension Societies](#) list of validated blood pressure monitoring devices

Case scenario 2 : DA

- **Presentation**

- DA is a 39-year-old black male of Caribbean family origin. He presents to you with a sore ankle after 'going over' on it.

- **Medical history**

- DA has no significant past medical history. Previous presentations have been related to coughs and colds.

- He smokes 25 cigarettes a day, alcohol consumption around 20 units/week and has done for 18 years. He works shifts and says that he considers his diet to be unhealthy as a result.

- **On examination**

- You conclude that DA's ankle is sprained. As part of your routine examination you measure his blood pressure. The first measurement in his left arm is 150/92 mmHg, the second measurement in his right arm is 149/91 mmHg and the third measurement in his left arm is 151/92 mmHg.

- **Question 2.1**

- What would you do next?

Case scenario 2 : DA

- ***Answer 2.1***

- You would record DA's clinic blood pressure as 149/91 mmHg. In order to diagnose hypertension, you organise ambulatory blood pressure monitoring (ABPM) to confirm a diagnosis of hypertension. When organising this you ensure that at least two measurements per hour are taken during DA's usual waking hours. You would use the average value of at least 14 measurements taken during DA's usual waking hours to confirm a diagnosis of hypertension.
- At the same time you would also carry out investigations for target organ damage (such as left ventricular hypertrophy, chronic kidney disease and hypertensive retinopathy).

Case scenario 2 : DA

- ***Answer 2.1 (continued)***

- You would:

- test for the presence of protein in the urine by sending a urine sample for estimation of the albumin:creatinine ratio and test for haematuria using a reagent strip
- take a blood sample to measure plasma glucose, electrolytes, creatinine, estimated glomerular filtration rate, serum total cholesterol and HDL cholesterol
- examine the fundi for the presence of hypertensive retinopathy
- arrange for a 12-lead electrocardiograph to be performed.

Case scenario 2 : DA

- ***Answer 2.1 (continued)***

- You would also carry out and a formal assessment of cardiovascular risk (DA's clinic blood pressure must be used in the calculation of cardiovascular risk) using a cardiovascular risk assessment tool, in line with the recommendations on Identification and assessment of CVD risk in 'Lipid modification' (NICE clinical guideline 67).
- Additionally, you would ascertain information about lifestyle in areas such as diet, exercise, alcohol, smoking and caffeine consumption and dietary sodium intake and offer appropriate lifestyle advice. Given the history provided you ensure that you include lifestyle advice about smoking, alcohol consumption and diet and exercise
- Record the results of the investigations and assessments in DA's notes.

Case scenario 2 : DA

- ***Question 2.2***
- ABPM indicates that DA's daytime average blood pressure is 147/89 mmHg.
- There is no evidence of target organ damage, cardiovascular disease, renal disease or diabetes. You identify a 10-year cardiovascular risk equivalent to under 20%.
- With this information, what is your diagnosis and what would you do next?

Case scenario 2 : DA

• **Answer 2.2**

- You would diagnose stage 1 hypertension and consider referring DA for a specialist evaluation of secondary causes of hypertension and a more detailed assessment of potential target organ damage.
- If you had not already done so (answer 2.1) you would also assess cardiovascular risk and offer to test for target organ damage
- You would use the results of the initial cardiovascular risk assessment to discuss prognosis and healthcare options with DA.
- You would also offer DA lifestyle advice in accordance with the guideline on areas such as diet (including sodium and caffeine intake), exercise, alcohol consumption and smoking.
- See the [definition slide](#) for ABPM diagnosis criteria
- See section 1.4 of the NICE guideline for recommendations about lifestyle interventions

Case scenario 2 : DA

- ***Question 2.3***

- The results of the tests you arranged (presence of protein in the urine, estimation of the albumin:creatinine ratio, haematuria, plasma glucose, electrolytes, creatinine, estimated glomerular filtration rate, cholesterol, hypertensive retinopathy, 12-lead electrocardiograph) have been returned. All are normal with the exception of cholesterol which was total cholesterol = 5.6mmol/L, HDL cholesterol 1.1mmol/L.
- What would you consider next in order to help you decide on the best management strategy for DA?

Case scenario 2 : DA

- ***Answer 2.3***
- You would consider seeking specialist evaluation of secondary causes of hypertension and a more detailed assessment of potential target organ damage. This is because 10-year cardiovascular risk assessments can underestimate the lifetime risk of cardiovascular events in these people. Additionally, people under 40 years with stage 1 hypertension are less likely to have overt evidence of target organ damage or vascular disease.
- You decide to refer DA for the specialist assessment.

Case scenario 2 : DA

- ***Question 2.4***
- The results of the specialist assessment are returned. There are no secondary causes of hypertension; however, he was noted to have left ventricular hypertrophy and early evidence of impaired diastolic relaxation on his echocardiogram. The report suggests that these changes are most likely related to hypertension. Thus, DA has evidence of target organ damage.
- What would you do next?

Case scenario 2 : DA

• ***Answer 2.4***

- You would offer DA treatment with a calcium-channel blocker, for example amlodipine. You would also offer him appropriate information about the drug and unwanted side effects.
- You would see the results of the more detailed cardiovascular risk assessment, which included the cholesterol levels to discuss prognosis and healthcare options with DA (detailed in answer 2.2).
- As appropriate, you would repeat the lifestyle advice that was given in answers 2.1 and 2.2 in accordance with the guideline on areas such as diet (including sodium and caffeine intake), exercise, alcohol consumption and smoking. As DA's cholesterol level is marginally elevated, you would also enquire about the fat content of his diet and recommend that he reduces his fat intake. You would note that his cholesterol needs rechecking.
- You would ask DA to return to your practice in 4 weeks for a review of his blood pressure

Case scenario 2 : DA

- ***Question 2.5***
- You have previously concluded that DA's sprained ankle has healed and all swelling had cleared. DA returns to the clinic and you notice both ankles are very swollen, which are new to him. This is likely to indicate that he is not tolerating his calcium-channel blocker.
- His clinic blood pressure is 135/86 mmHg.
- Would you consider that his blood pressure has been controlled? What would you do next?

Case scenario 2 : DA

- ***Answer 2.5***

- DA's blood pressure has been controlled as his clinic blood pressure is now below 140/90 mmHg which is what you were aiming for. However, he was not tolerating the calcium channel blocker. You would change the calcium-channel blocker to a thiazide like diuretic such as indapamide 2.5 mg once daily. You would arrange for him to return to clinic to check his blood pressure again in 4 weeks.

Case scenario 3 : RS

- **Presentation**

- RS is an 81-year-old female non-smoker. She was diagnosed with stage 2 hypertension, by a practice colleague 1 month ago. It is thought the cause is probably arterial stiffening. Her clinic blood pressure was 174/100 mmHg and her ABPM average was 170/95 mmHg She was not identified as having 'white-coat' hypertension. She has now returned to the practice after your colleague requested she return for a follow up appointment.

- **Medical history**

- RS has no significant medical history.

- **Question 3.1**

- What would you have expected your colleague to have initiated with RS?

Case scenario 3 : RS

• ***Answer 3.1***

- You would have expected your colleague to have:
- Arranged and reviewed the results of all appropriate tests for target organ damage and cardiovascular risk assessment in line with the NICE guideline.
- Provided tailored advice about lifestyle interventions
- Started treatment with a calcium-channel blocker.
- Offered RS information and guidance about her diagnosis and treatment options.
- Asked RS to return to your practice clinic in 1 month to check her blood pressure (this is the purpose of her current visit to you).

Please note some cardiovascular risk assessments have a maximum age and may not be applicable for use with RS. Additionally, given her age, RS will score very highly in all cardiovascular risk assessments.

Case scenario 3 : RS

• ***Question 3.2***

- From RS' notes you can see that your colleague had initiated the management plan in line with the NICE clinical guideline and as identified in answer 3.1.
- RS is taking the calcium channel blocker. You have checked adherence with step 1 treatment and do not believe there is anything you can do, for instance, modify dosing regimen, provide a record for her to monitor her medicine taking, to help enhance adherence further.
- RS's total cholesterol is 4.8mmol/L and her HDL is 1.6mmol/L. Glucose is normal. There is no left ventricular hypertrophy or atrial fibrillation on ECG. Her 10-year cardiovascular risk is greater than 20% (using QRISK2).
- You measure her clinic blood pressure and it is 165/95 mmHg.
- What would you do next?

Case scenario 3 : RS

- ***Answer 3.2***

- RS's blood pressure is not controlled.
- Check her adherence to the regimen and provide interventions to specific needs.
- You would offer step 2 hypertensive treatment with the addition of an ACE or a low cost ARB inhibitor. You would follow local protocols for checking bloods prior to commencing and following initiation of the ACE inhibitor or low cost ARB for a diagnosis of hypertension¹.

- ***Question 3.3***

- RS returns to the clinic one month later. Her clinic blood pressure is 154/90 mmHg and her blood results are acceptable.
What would you do next?

Case scenario 3 : RS

- ***Answer 3.3***

- You would review RS's antihypertensive medication and ensure that it is at the optimal or best tolerated dose.
- You would also consider her adherence to the drug regimen and ensure that any factors that may reduce her adherence are managed.
- At her next clinic appointment RS's blood pressure is 145/85 mmHg.. This is an acceptable blood pressure for a person over 80. RS can stay on current treatment.

Case scenario 4 : Derek

- **Presentation**

- Derek is a 53-year-old male

- **On examination**

- His clinic blood pressures is 176/108 mmHg. Additionally, you have identified left ventricular hypertrophy on ECG. You are unable to confirm the diagnosis of hypertension with ambulatory blood pressure monitoring (ABPM) because EK has refused it because he is a bus driver and it would interfere with his driving.

- ***Question 4.1***

- What alternative test could you use to diagnose hypertension?

Case scenario 4 : EK

- ***Answer 4.1***

- You could offer EK home blood pressure monitoring (HBPM).

- ***Question 4.2***

- When instructing EK in how to use HBPM, what instructions should you give him and what measurements would you base your diagnosis on?



Case scenario 4 : EK

- **Answer 4.2**

- You should ensure that each blood pressure recording is based on two consecutive measurements taken at least one minute apart with EK seated.
- You should ask EK to record his blood pressure twice daily (ideally in the morning and evening) and this should continue for at least four days and ideally for seven days. To diagnose hypertension based on HBPM, you discard the measurements taken on the first day and take an average of all of the remaining measurements.

- **Question 4.3**

- The average HBPM results was 155/97 mmHg. You therefore note EK has a 'white-coat effect'. However despite this, his HBPM measurements indicate a diagnosis of stage 2 hypertension and he had target organ damage. You offer lifestyle interventions in line with recommendations 1.4.1 to 1.4.9 in the guideline and start EK on step 1 treatment. What drug regimen would you offer EK and how would you monitor his response to treatment?

Case scenario 4 : EK

- ***Answer 4.3***
- You would offer EK treatment with an ACE inhibitor or a low cost ARB and use HBPM to monitor his response to treatment. You would follow local protocols for checking bloods prior to commencing and following initiation of the ACE inhibitor or low cost ARB for a diagnosis of hypertension¹.
- ***Question 4.4***
- EK has returned to you with the results of his monitoring HBPM following step 1 treatment. During the past week, his average blood pressure was 150/94 mmHg. What is the target blood pressure for HBPM when monitoring response to treatment and what would you do about this result?

Case scenario 4 : EK

- **Answer 4.4**

- For people aged under 80 the target HBPM blood pressure is below 135/85 mmHg.
- EK's blood pressure is not controlled so you would offer him step 2 treatment with a calcium-channel blocker in addition to his current ACE inhibitor or low cost ARB.

- **Question 4.5**

- When he returns to you 1 month later, EK's HBPM result is still above 135/85 mmHg. What would you do next?

Case scenario 4 : EK

- ***Answer 4.5***

- You would check EK's adherence to treatment in line with recommendations 1.7.1 to 1.7.4 of the guideline.
- You would review his medication to ensure that step 2 treatment is optimal.

- ***Question 4.6***

- EK's medication adherence is good and step 2 treatment is optimal. What would you do next?

Case scenario 4 : EK

- ***Answer 4.6***

- You would offer EK a thiazide-like diuretic in addition to his ACE inhibitor and calcium-channel blocker.

- ***Question 4.7***

- EK returns to your clinic and his blood pressure is still not controlled. What would you do next?

Case scenario 4 : EK

- ***Answer 4.7***

- Check that EK has received optimal medication at step 3 and reassess his adherence to his antihypertensive medication.
- Ensure that EK has been involved in treatment decisions throughout his care and that you have adapted your consultation style in order to facilitate this involvement.
- Review EK's knowledge, understanding and concerns about his antihypertensive medication and .explore whether or not EK believes that he needs the medication.
- Link to [Medicines adherence](#) (NICE clinical guideline 76)

Case scenario 4 : EK

- ***Answer 4.7 (continued)***

- If you identify practical problems, consider interventions such as suggesting EK records his medicine-taking and monitors his condition, simplifying the dosing regimen, using alternative packaging for the medicine or using a multi-compartment medicines system.
- Ensure that EK has received appropriate guidance and materials about the benefits of the drugs and unwanted side effects.
- Repeat all of these actions on a regular basis when reviewing or prescribing antihypertensive drug treatment for EK.

- ***Question 4.8***

- You conclude that EK is adherent to his medication regime and that he is on the optimal doses of the ACE inhibitor, calcium channel blocker and thiazide-like diuretic. What would you do next?

Case scenario 4 : EK

- ***Answer 4.8***

- You seek a specialist opinion for EK. You anticipate he will be started on step 4 treatment.

Case scenario 5 : PP

- **Presentation**

- PP is a 56-year-old male who presents to you with feelings of dizziness every time he stands up.

- **Medical history**

- PP has migraines and takes propranolol modified-release 160 mg daily, which has reduced the frequency.

- He attends the GP surgery's weight loss clinic. He has lost four stones in 12 months as part of a controlled weight loss programme.

- **On examination**

- PP's ECG is normal and his blood pressure is 126/82 mmHg.

- ***Question 5.1***

- What would you do next to investigate the cause of PP's dizziness?

Case scenario 5 : PP

- ***Answer 5.1***

- As he was seated for the first readings, you would ask PP to stand up for one minute and then measure his blood pressure again.

- ***Question 5.2***

- PP's standing blood pressure is 90/50 mmHg.
- What would you do next?

Case scenario 5 : PP

- ***Answer 5.2***

- You would review PP's medication. His recent weight loss may mean that the dose of beta-blocker needs to be reduced
- You would note the postural hypertension in PP's records so that colleagues measuring his blood pressure in the future are aware that they should measure his standing blood pressure, as well
- If changes to the migraine prophylaxis do not relieve PP's dizziness you would consider referral to a specialist.