



# All you ever wanted to know about hypertension and guidelines...

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# Summary

- Introduction
- Guidelines
  - **NICE CG 127: hypertension,**
  - Diabetes – how does it fit in?
  - (lipid lowering treatment and NHS Health Checks)
- QOF
  - Hypertension
  - BP and Other domains
  - Possible changes

# Hypertension

The clinical management of primary hypertension in adults

*Clinical Guideline 127*

*Methods, evidence, and recommendations*

*August 2011*

*Commissioned by the National Institute for  
Health and Clinical Excellence*

# What's covered

- BP measurement [Louise Beesley earlier and tomorrow]
- **Diagnosis** inc thresholds
- Treatment [Una Martin earlier]
  - Non pharmacological  
[inc patient education LB Tuesday]
  - **Pharmacological**
- Ongoing Management
  - Targets
  - Monitoring

# What's different in the latest guidelines

- Key changes are in
  - Diagnosis
  - Thresholds and targets
  - Drug choice
    - 1<sup>st</sup> line in over 55s
    - Diuretic choice
    - 4<sup>th</sup> line
  - Monitoring

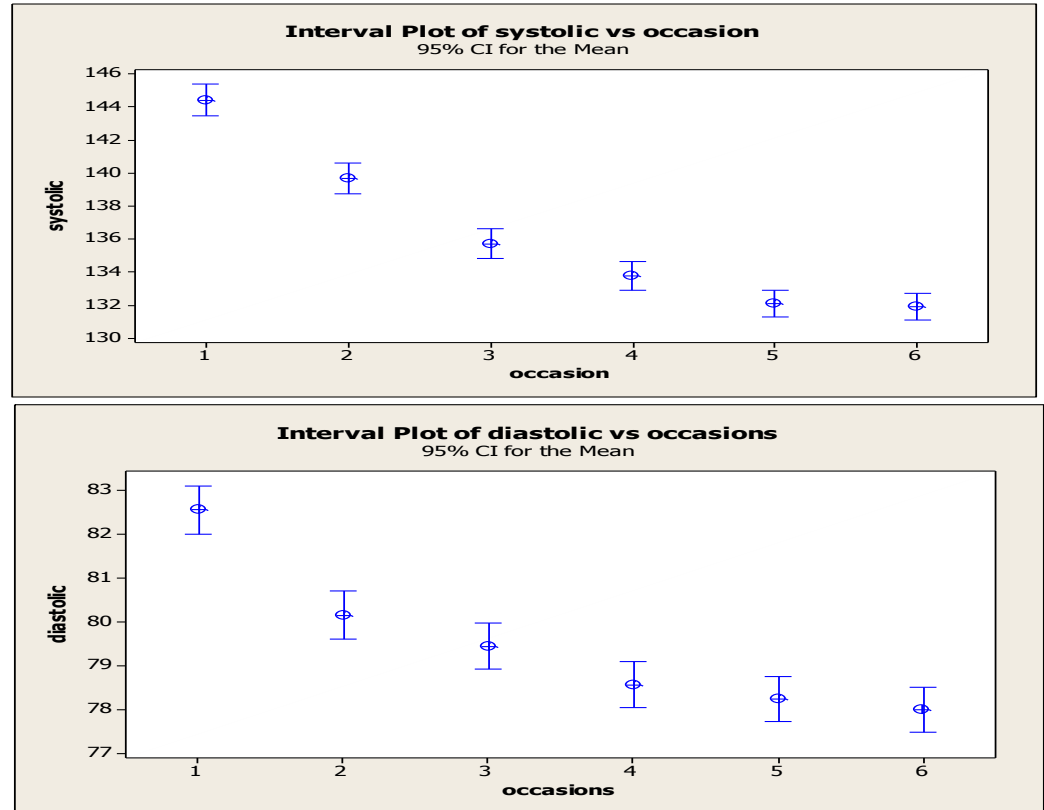
# DIAGNOSIS

# Diagnosis

- Check BP once initially, if  $< 140/90$  mmHg then no need to repeat
- Remember – no talking, uncross legs and ... relax
- If raised then repeat at the end of consultation  
(blood pressure tends to settle over time)

# Effect of time on mean measured BP

- Approx 1500 patients
- 24 practices
- 6 readings at 1min intervals
- 12 mmHg systolic drop
- Stable after 5<sup>th</sup> reading





# Diagnosis

- If the first and second blood pressure measurements taken during a consultation are both 140/90 mmHg or higher, offer 24-hour ABPM to confirm the diagnosis
- If a person is unable to tolerate ABPM, home blood pressure monitoring is a suitable alternative
- If the person has severe hypertension and evidence of target organ damage, start antihypertensive drug treatment immediately

# Definitions used

- ***Stage 1 hypertension:*** initial clinic blood pressure 140/90 mmHg or higher and subsequent ABPM daytime average or home blood pressure monitoring HBPM average blood pressure 135/85 mmHg or higher.
- ***Stage 2 hypertension:*** initial clinic blood pressure 160/100 mmHg or higher and subsequent ABPM daytime average or HBPM average blood pressure 150/95 mmHg or higher.
- ***Severe hypertension:*** clinic blood pressure 180/110 mmHg or higher.

# Rationale: systematic review of home and clinic measurement performance

Test name	Sensitivity % (95%CI)	Specificity % (95%CI)
Home measurement (n=3)	85.7 (78.0 to 91.0)	62.4 (48.0 to 75.0)
Clinic measurement (n=3)	85.6 (81.0 to 89.2)	45.9 (33.0 to 59.3)

- Assuming ABPM is reference standard for diagnosis, then both home and clinic measurement perform poorly

Hodgkinson et al BMJ 2011 [James is speaking on Weds]

# Rationale – cost effectiveness

- ABPM is the most cost-effective method of confirming a diagnosis of hypertension in a population suspected of having hypertension based a CBPM screening measurement  $\geq 140/90$  mmHg, compared with further CBPM or HBPM.
- Conclusion consistent across a range of age/gender stratified subgroups.
- Unaffected by sensitivity analyses

# Cost effectiveness

Subgroup	Incremental QALYs vs CBPM		Incremental costs vs CBPM		Most CE strategy	Probability CE
	HBPM	ABPM	HBPM	ABPM		
Male, 40 years	-0.001 (CI: -0.006, 0.004)	-0.004 (CI: -0.009, 0.005)	-£48 (CI: -£128, £17)	-£235 (CI: -£322, -£117)	ABPM	100%
Male, 50 years	0.001 (CI: -0.009, 0.009)	0.006 (CI: -0.003, 0.017)	-£34 (CI: -£89, £11)	-£156 (CI: -£233, -£62)	ABPM	100%
Male, 60 years	0.003 (CI: -0.010, 0.015)	0.017 (CI: 0.006, 0.029)	-£26 (CI: -£70, £7)	-£112 (CI: -£178, -£43)	ABPM	100%
Male, 70 years	0.005 (CI: -0.009, 0.017)	0.022 (CI: 0.012, 0.035)	-£23 (CI: -£65, £7)	-£89 (CI: -£150, -£30)	ABPM	100%
Male, 75 years	0.004 (CI: -0.007, 0.015)	0.021 (CI: 0.012, 0.030)	-£16 (CI: -£49, £6)	-£56 (CI: -£105, -£10)	ABPM	100%
Female, 40 years	-0.001 (CI: -0.004, 0.001)	-0.006 (CI: -0.008, -0.003)	-£68 (CI: -£167, £25)	-£323 (CI: -£389, -£222)	ABPM	100%
Female, 50 years	-0.001 (CI: -0.006, 0.004)	-0.001 (CI: -0.006, 0.007)	-£40 (CI: -£106, £15)	-£182 (CI: -£256, -£79)	ABPM	100%
Female, 60 years	0.001 (CI: -0.006, 0.008)	0.006 (CI: 0.000, 0.015)	-£32 (CI: -£83, £11)	-£146 (CI: -£220, -£55)	ABPM	100%
Female, 70 years	0.003 (CI: -0.005, 0.011)	0.014 (CI: 0.008, 0.021)	-£20 (CI: -£59, £8)	-£82 (CI: -£142, -£25)	ABPM	100%
Female, 75 years	0.002 (CI: -0.004, 0.007)	0.010 (CI: 0.006, 0.015)	-£17 (CI: -£52, £11)	-£63 (CI: -£121, -£8)	ABPM	100%

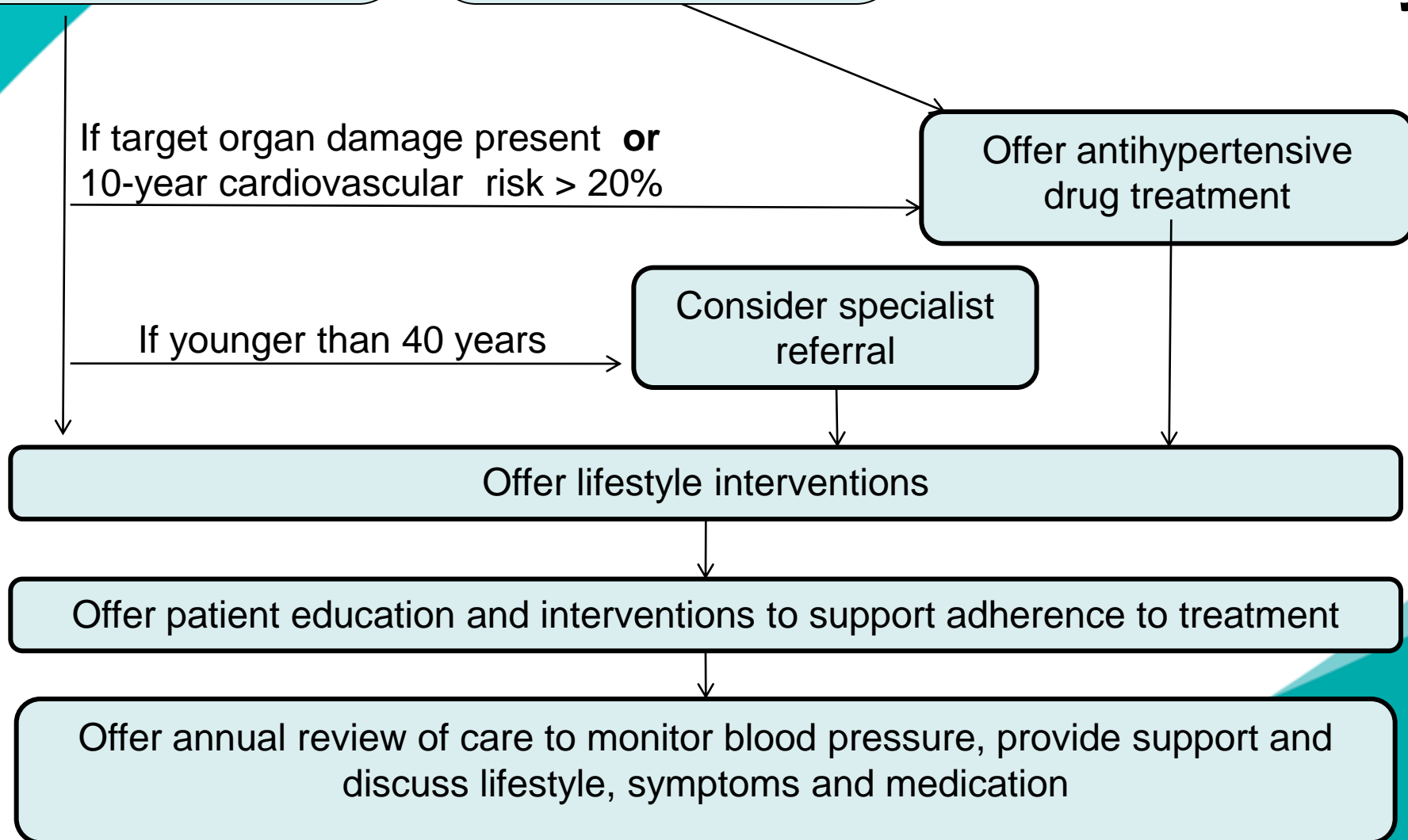
CBPM  $\geq 140/90$  mmHg  
& ABPM/HBPM  
 $\geq 135/85$  mmHg

*Stage 1 hypertension*

CBPM  $\geq 160/100$  mmHg  
& ABPM/HBPM  
 $\geq 150/95$  mmHg

*Stage 2 hypertension*

# Care Pathway



# **THRESHOLDS AND TARGETS**

# Essential Hypertension

Offer Treatment	Target for Treatment
<p>All with initial CBP  <math>\geq 160/100</math> &amp; ABPM or HBPM <math>\geq 150/95</math> mmHg</p>	<p>Under 80  <math>\leq 140 / 90</math> CBP            (means both systolic and diastolic below target)</p>
<p>CBP <math>\geq 140/90</math> mmHg and subsequent ABPM or HBPM <math>\geq 135/85</math> mmHg AND:            10 yr CHD risk <math>\geq 15\%</math>            10 yr CVD risk <math>\geq 20\%</math>            Existing CVD or TOD</p>	<p>Over 80  <math>\leq 150 / 90</math> CBP</p>



# **TREATMENT**

**(FURTHER DETAILS ON TREATMENT TOMORROW)**

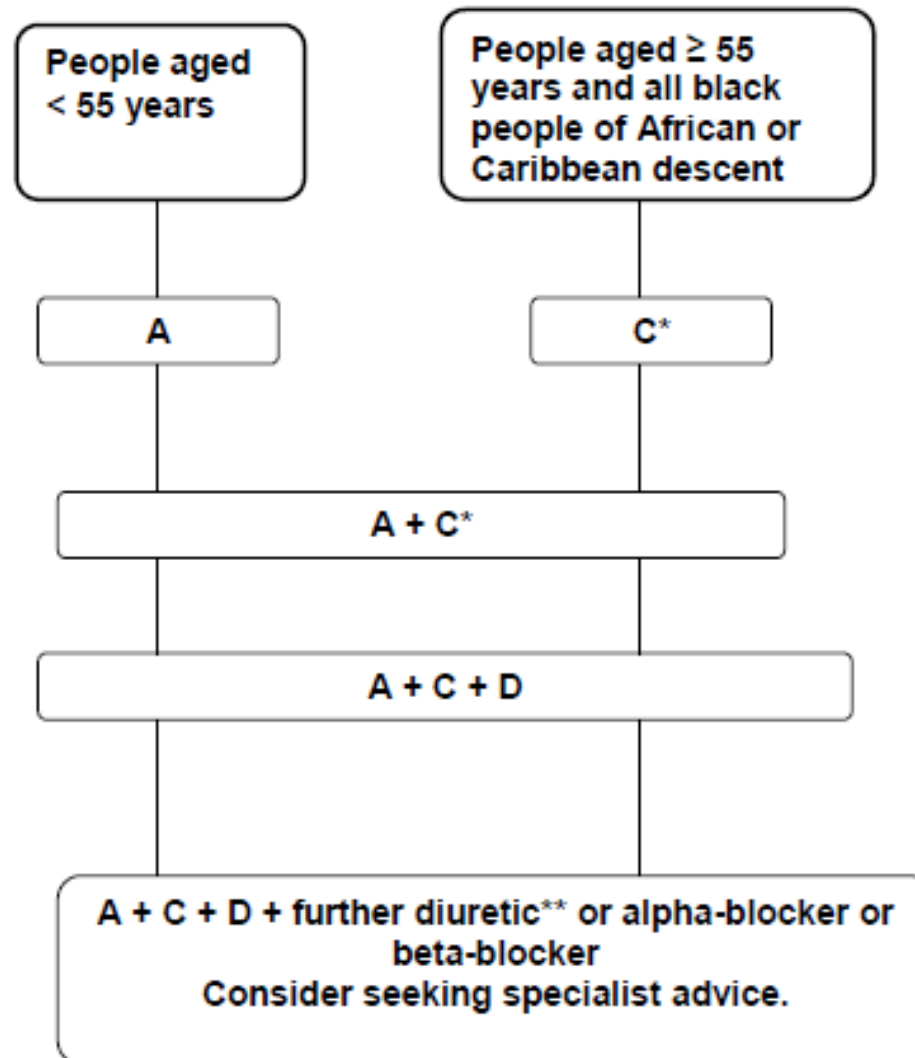
# What treatment ?

- Treatment results in improved health outcomes (higher QALYs) and with all of drug classes results in overall cost savings compared to no treatment
- The reduction in cardiovascular events leads to savings that offset the relatively low cost of antihypertensive medication

# Pharmacological Treatment

- Aim to reduce blood pressure to 140/90 mmHg or less, adding more drugs as needed, until further treatment is inappropriate or declined.
- Titrate drug doses as described in the 'British national formulary', noting any cautions and contraindications.

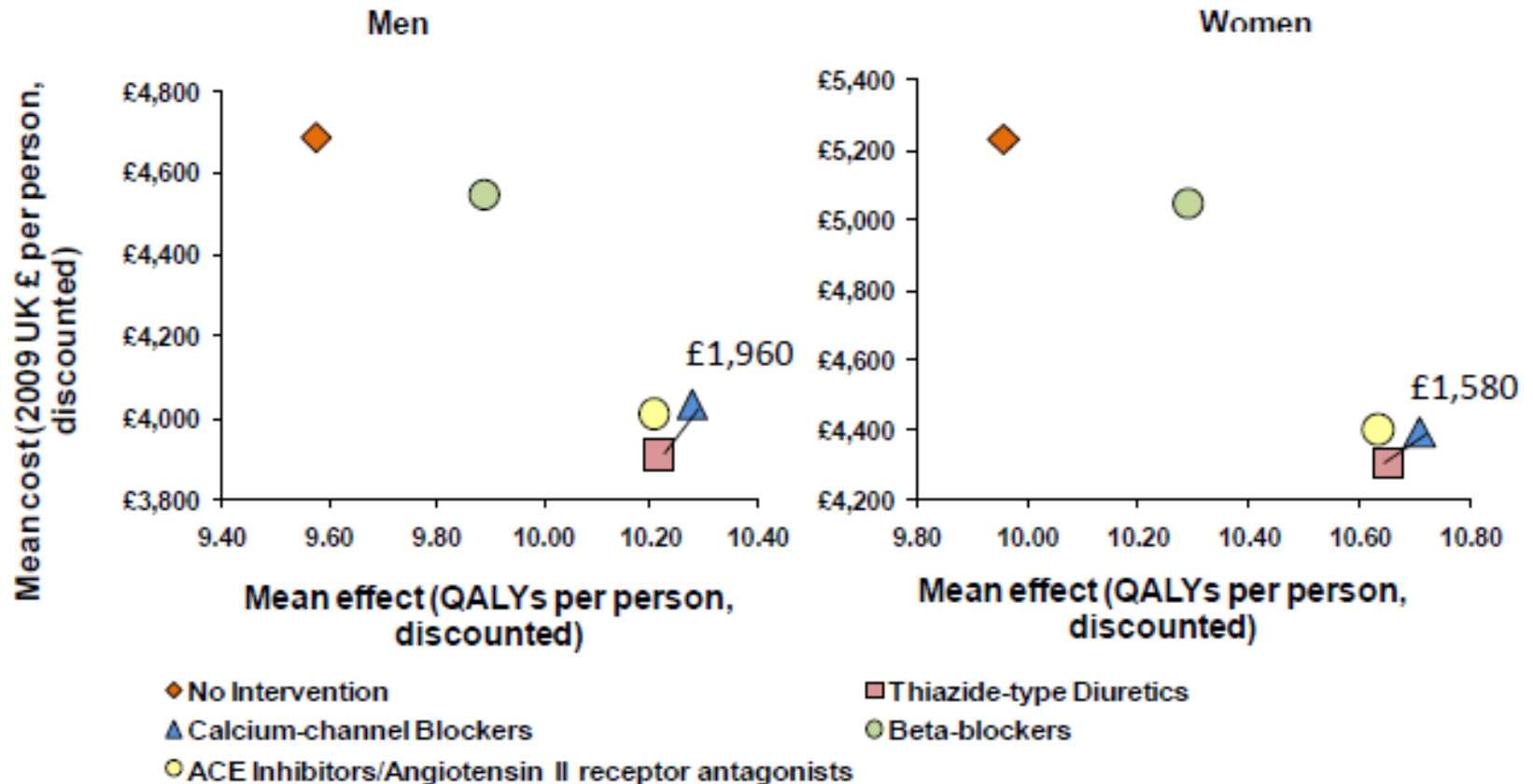
# Treatment choices



# Why CCB first line?

- Modelling from 2006 updated and CCB now cheaper (amlodipine off patent)
- Diabetes risk from diuretic means CCB dominate in the model
- If a CCB is not suitable, for example because of oedema or intolerance, or if there is evidence of heart failure or a high risk of HF, offer a thiazide-like diuretic.

# Modelling first line treatment



# Change in diuretic recommendations

- If a diuretic is required, choose a thiazide-like diuretic, such as chlortalidone (12.5 mg–25.0 mg once daily) or indapamide (2.5 mg once daily) in preference to a conventional thiazide diuretic such as bendroflumethiazide.
- Evidence for efficacy of bendroflumethiazide at currently used doses is lacking

# Change in 4<sup>th</sup> line recommendations

- Consider further diuretic therapy with low-dose spironolactone (25 mg once daily) if  $K^+ < 4.5$  mmol/l and  $eGFR > 60$
- If  $K^+ > 4.5$  mmol/l, consider higher-dose thiazide-like diuretic treatment.
- If further diuretic therapy for resistant hypertension at step 4 is not tolerated, contraindicated or ineffective, consider an alpha- or beta- blocker.



# Young people

- For people younger than 40 years with stage 1 hypertension and no evidence of target organ damage, 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

# General issues when prescribing

- Offer patients with isolated systolic hypertension (systolic blood pressure more than 160 mmHg) the same treatment as patients with both raised systolic and diastolic blood pressure.
- Prescribe drugs taken only once a day if possible.
- Prescribe non-proprietary drugs if these are appropriate and minimise cost.
- Give information about the benefits and side effects of drugs so that patients can make informed choices.

# MONITORING

# Monitoring

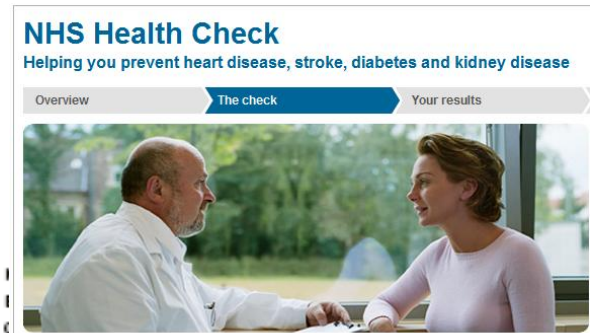
- Use clinic blood pressure measurement to monitor the response to antihypertensive treatment.
- For people with a discrepancy of more than 20/10 mmHg between CBP and ABPM or HBPM, consider using daytime ABPM or HBPM for monitoring the response to antihypertensive treatment. [see next talk for HBPM]
- Aim for a target daytime ABPM or average HBPM blood pressure below 135/85 mmHg.

# **CVD RISK AND CHOLESTEROL**

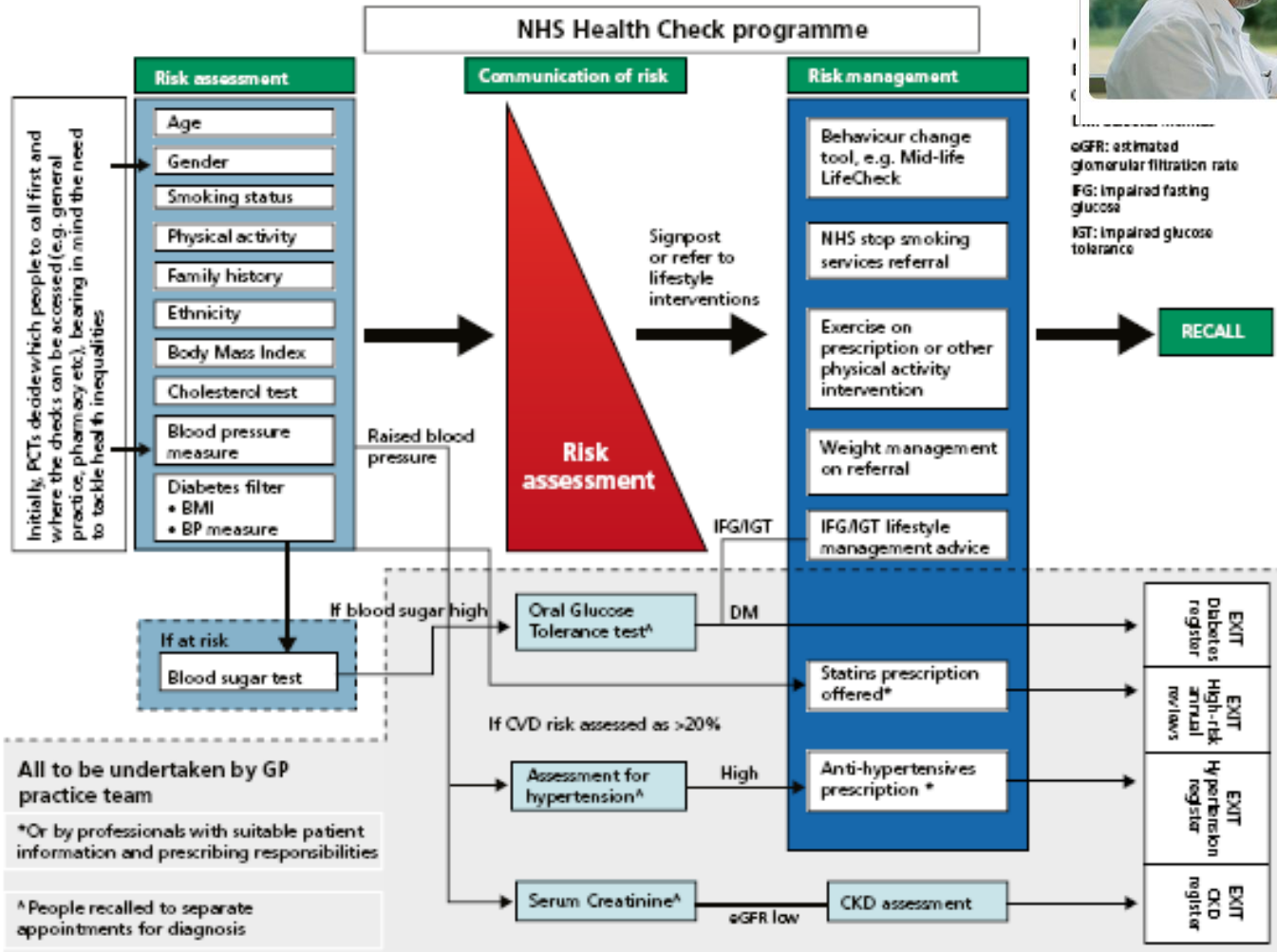
# What about cholesterol?

- For primary prevention of CVD in people with hypertension, treat cholesterol if 10 year CVD risk >20%
- But first consider if other modifiable risks
  - smoking status & alcohol consumption
  - blood pressure (see above!)
  - body mass index or other measure of obesity
  - fasting blood glucose
  - U&Es, LFTs, TFTs
- If primary prevention still appropriate then treat with simvastatin 40mg (Fire and forget). Note issue of simvastatin + amlodipine

# NHS Health Checks



eGFR: estimated glomerular filtration rate  
 IFG: Impaired fasting glucose  
 IGT: Impaired glucose tolerance



# DIABETES



# Hypertension and Diabetes

- **Targets**
  - If kidney, eye or cerebrovascular damage, set a target < 130/80 mmHg.
  - Others, set a target < 140/80 mmHg.
- **If on antihypertensive therapy at diagnosis of diabetes**
  - Review BP control and medication use.
  - Make changes only if BP is poorly controlled or current medications are inappropriate because of microvascular complications or metabolic problems.
- **If the person's BP reaches and consistently remains at the target**
  - Monitor every 4–6 months and check for possible adverse effects of antihypertensive therapy (including those from unnecessarily low blood pressure).

Measure BP annually if not hypertensive or with renal disease.

If BP > target, repeat measurement within:

- 1 month if > 150/90 mmHg
- 2 months if > 140/80 mmHg
- 2 months if > 130/80 mmHg and kidney, eye or cerebrovascular damage

BP above target

Advise on lifestyle measures  
See dietary advice on page 6, and the NICE clinical guideline on hypertension ([www.nice.org.uk/CG034](http://www.nice.org.uk/CG034))

BP above target

Offer ACE inhibitor (titrate dose)  
For people of African-Caribbean descent, offer ACE inhibitor plus diuretic or CCB

BP above target

Add CCB or diuretic  
(usually bendroflumethiazide, 2.5 mg daily)

BP above target

Add other drug (diuretic or CCB – see above)

BP above target

Add alpha-blocker, beta-blocker or potassium-sparing diuretic

If there is a possibility of the person becoming pregnant, start with a CCB.

If continuing intolerance to ACE inhibitor (other than renal deterioration or hyperkalaemia), change to an A2RB.

Use a potassium-sparing diuretic with caution if already taking ACE inhibitor or A2RB.

Maintain lifestyle measures  
Monitor BP 1-2 monthly until consistently below target

# Summary

- NICE Guidelines cover hypertension and related morbidities
  - Diagnosis
  - Treatment
  - Monitoring
- Biggest issue is blood pressure control and drug choice is secondary consideration
- Diabetes needs to be treated more aggressively



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