



COVID-19 recovery: Hypertension pathway

September 2020

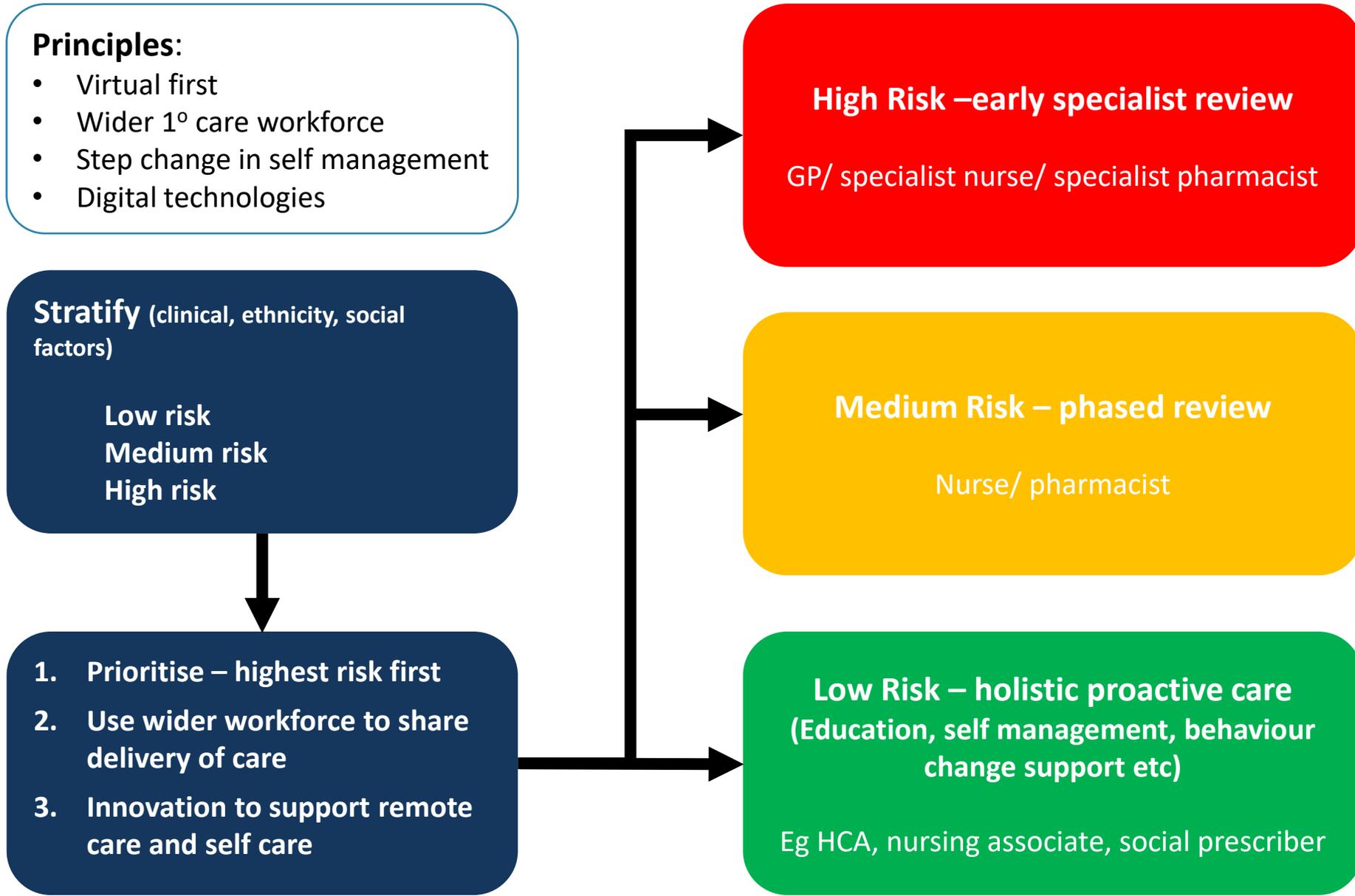
UCLPartners has developed [a series of frameworks](#) for local adaptation to support proactive management of long-term conditions in post-COVID primary care.

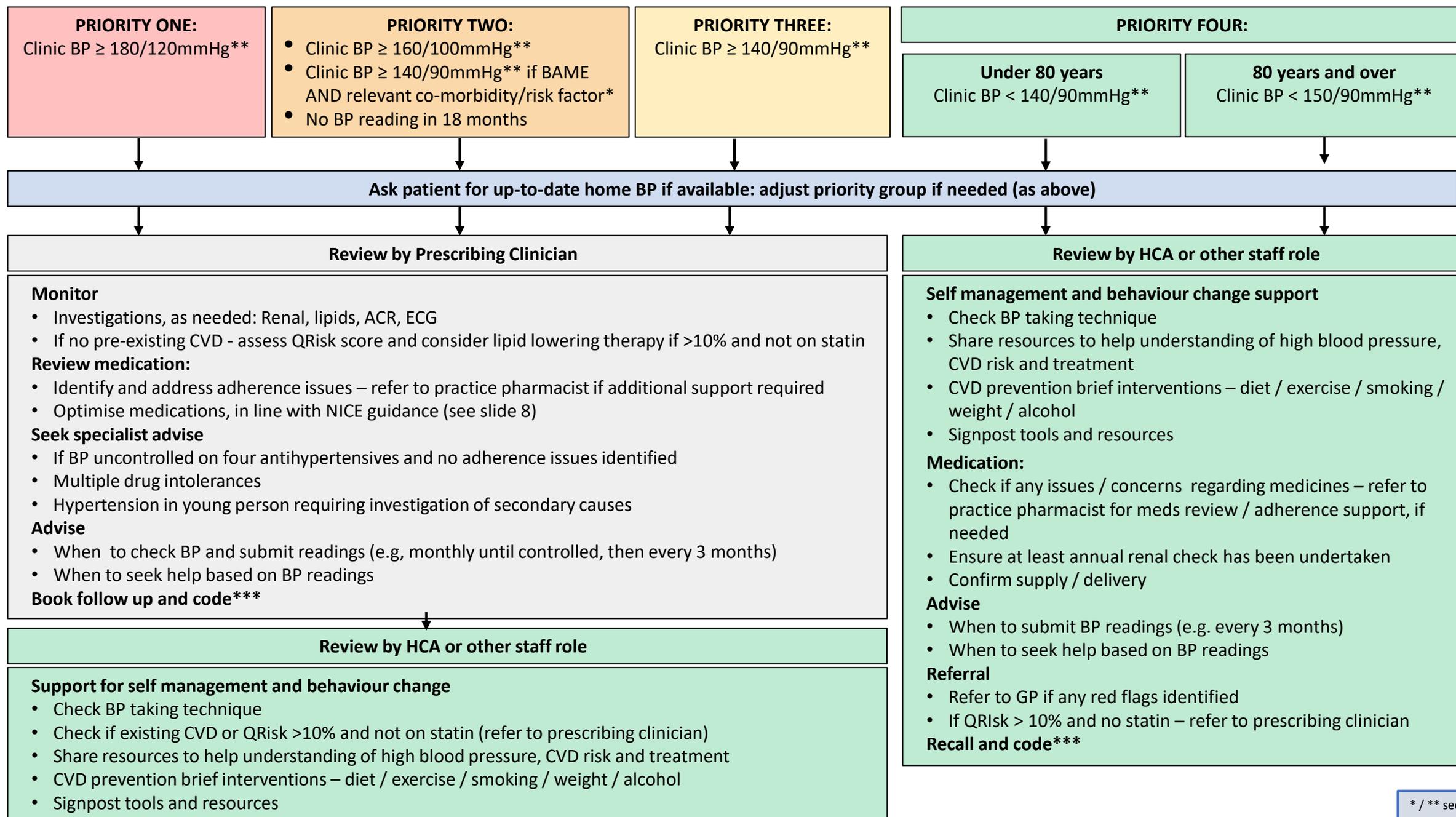
- Led by clinical team of GPs and pharmacists
- Supported by patient and public insight
- Working with local clinicians and training hubs to adapt and deliver

Core principles:

1. Virtual by default
2. Mobilising and supporting the wider workforce (including pharmacists, HCAs, other clinical and non-clinical staff)
3. Step change in support for self-management
4. Digital innovation including apps for self management and technology for remote monitoring







* Co-morbidities / risk factors

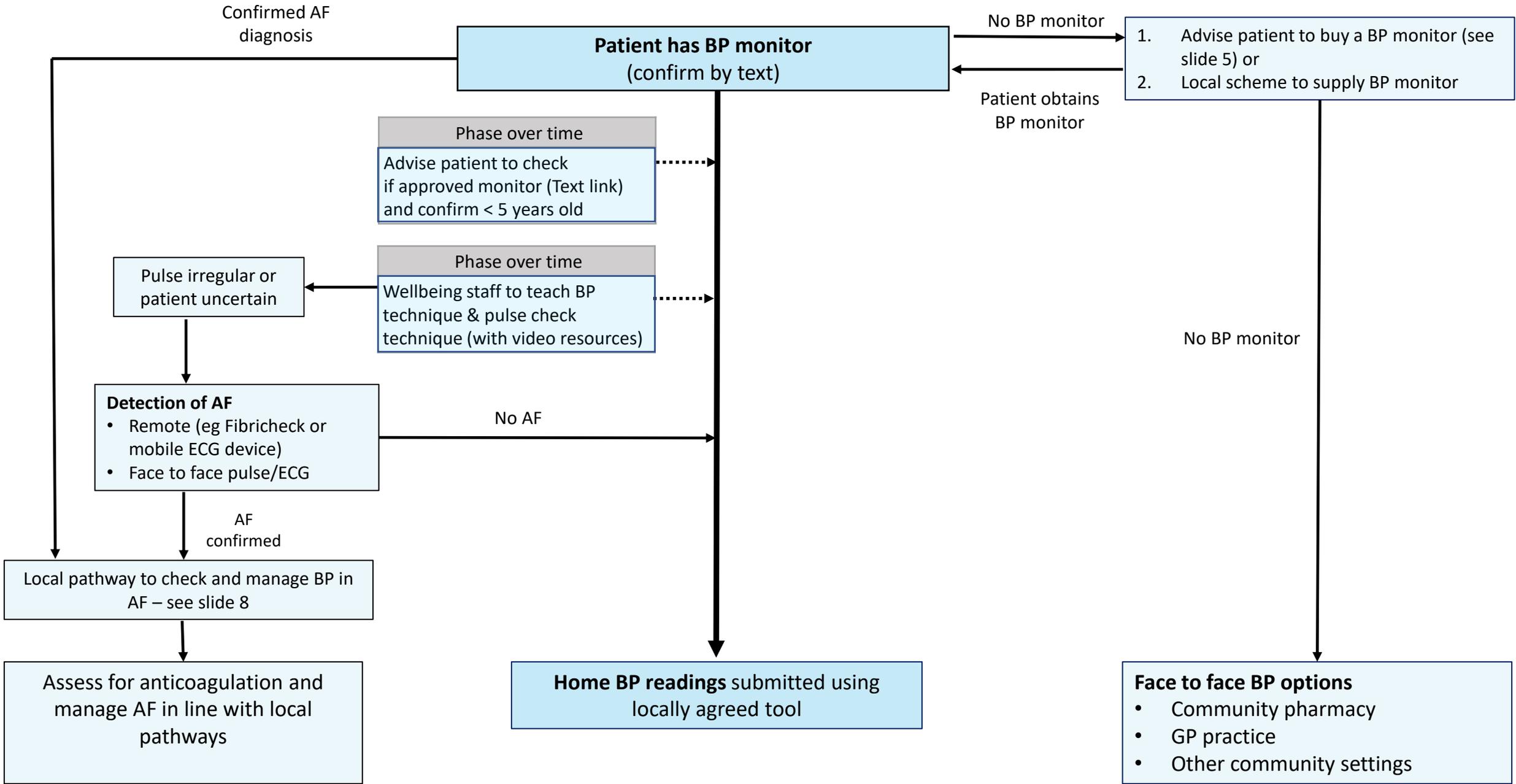
- Established CVD (prior stroke/TIA, heart disease, peripheral arterial disease)
- Diabetes
- CKD 3 or more
- Obesity with BMI > 35

**Clinic vs Home BP readings

Clinic BP reading	Equivalent Home BP
BP = 180/120mmHg	BP = 170/115mmHg
BP = 160/100mmHg	BP = 150/95mmHg
BP = 150/90mmHg	BP = 145/85mmHg
BP = 140/90mmHg	BP = 135/85mmHg

***Snomed codes for home BP readings

- | | |
|---|---|
| <ul style="list-style-type: none"> • Average home bp – for use with home bp readings on a single day <ul style="list-style-type: none"> • 413606001 Average home systolic blood pressure • 413605002 Average home diastolic blood pressure | <ul style="list-style-type: none"> • Home BP multiple reading averaged <ul style="list-style-type: none"> • 314446007 Average day interval systolic blood pressure • 314461008 Average day interval diastolic blood pressure |
|---|---|





Validated devices

A list of validated devices for home use can be found at: <https://giftshop.bhf.org.uk/health/blood-pressure-monitors>

Validated devices for home use are accurate for up to 5 years after purchase

(Hodgkinson JA et al. 2020 Accuracy of blood-pressure monitors owned by patients with hypertension (ACCU-RATE study): a cross-sectional, observational study in central England. BJGP 1 June 2020; bjgp20X710381. DOI: <https://doi.org/10.3399/bjgp20X710381>)



Considerations

- Upper arm blood pressure devices preferred
- Basic model (~£20) is suitable for most patients
- Ensure patient has the correct cuff size based on arm circumference
- Bluetooth connectivity allows automatic transfer of data into a patient held device. However few NHS services are able to interface with these data portals at this time and Bluetooth enabled devices are more expensive to purchase

Newly identified irregular heart rhythm

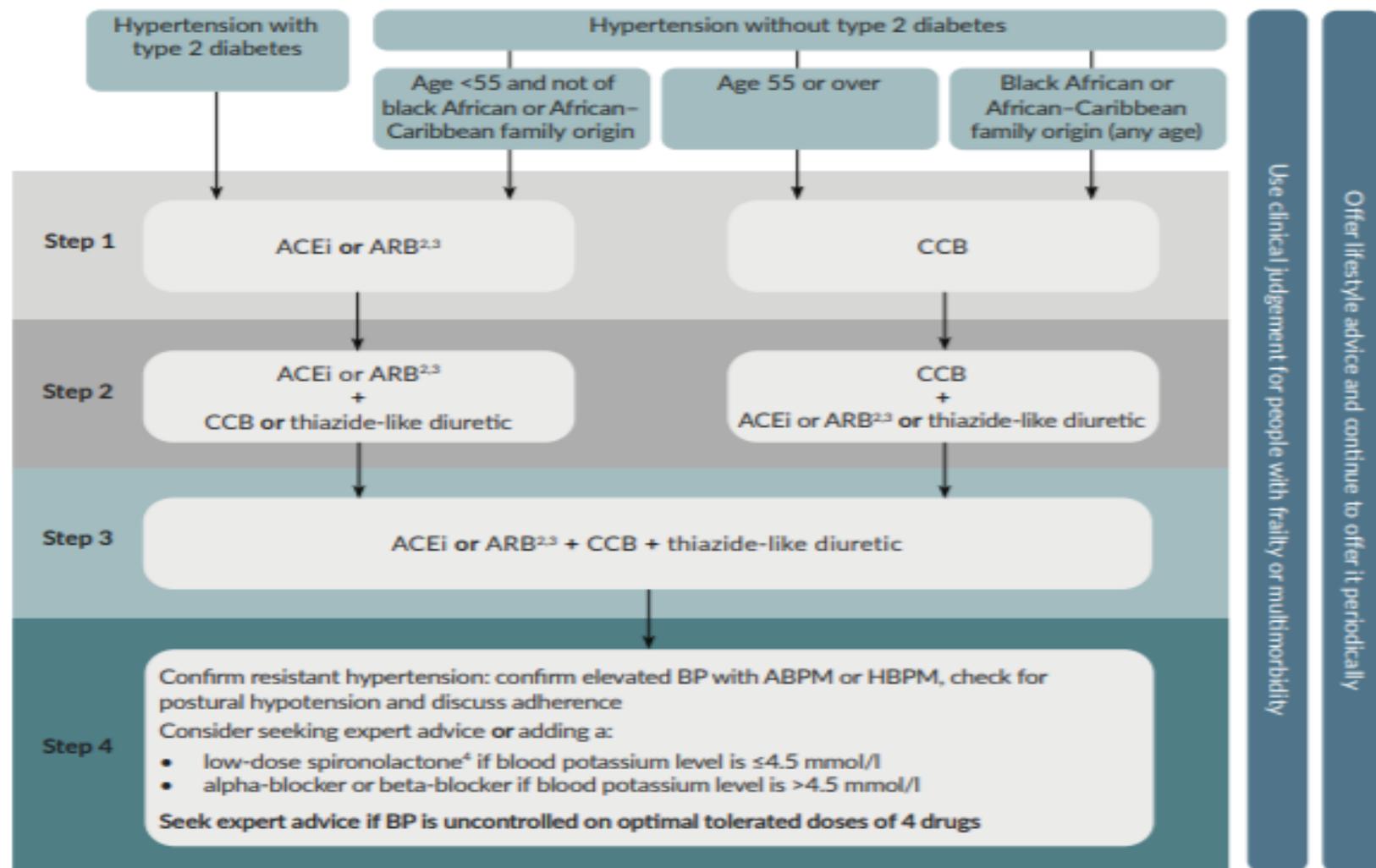
- Practice / community or open access ECG
- Teach patient to use Fibrichck (needs smartphone) www.fibrichck.com/ & ask them to monitor morning and evening for 7 days
- Utilise mobile ECG technology, if available e.g.:
 - Kardia by AliveCor (needs smartphone): www.alivecor.co.uk/kardiamobile
 - MyDiagnostick: www.mydiagnostick.com/
 - Zenicor: <https://zenicor.com/>

Measuring BP in people AF (NB: automated BP machines are not reliable in people with AF)

- AF detection BP monitors are not validated for assessing BP accurately in people with AF
- Options are:
 - Two BP readings taken each morning and evening over 4 days and averaged (As BP varies from beat to beat in AF, taking an average of multiple readings will improve accuracy)
 - Face to face manual BP check

Resources

Choice of antihypertensive drug¹, monitoring treatment and BP targets



Monitoring treatment

Use clinic BP to monitor treatment.

Measure standing and sitting BP in people with:

- type 2 diabetes or
- symptoms of postural hypotension or
- aged 80 and over.

Advise people who want to self-monitor to use HBPM. Provide training and advice.

Consider ABPM or HBPM, in addition to clinic BP, for people with white-coat effect or masked hypertension.

BP targets

Reduce and maintain BP to the following targets:

Age <80 years:

- Clinic BP $< 140/90$ mmHg
- ABPM/HBPM $< 135/85$ mmHg

Age ≥ 80 years:

- Clinic BP $< 150/90$ mmHg
- ABPM/HBPM $< 145/85$ mmHg

Postural hypotension:

- Base target on standing BP

Frailty or multimorbidity:

- Use clinical judgement

¹For women considering pregnancy or who are pregnant or breastfeeding, see NICE's guideline on [hypertension in pregnancy](#). For people with chronic kidney disease, see NICE's guideline on [chronic kidney disease](#). For people with heart failure, see NICE's guideline on [chronic heart failure](#).

²See MHRA drug safety updates on [ACE inhibitors and angiotensin-II receptor antagonists: not for use in pregnancy](#), which states 'Use in women who are planning pregnancy should be avoided unless absolutely necessary, in which case the potential risks and benefits should be discussed', [ACE inhibitors and angiotensin II receptor antagonists: use during breastfeeding](#) and [clarification: ACE inhibitors and angiotensin II receptor antagonists](#). See also NICE's guideline on [hypertension in pregnancy](#).

³Consider an ARB, in preference to an ACE inhibitor in adults of African and Caribbean family origin.

⁴At the time of publication (August 2019), not all preparations of spironolactone have a UK marketing authorisation for this indication.

Considerations:

- Patient facing end
- Integration with existing GP systems, e.g. EMIS
- Ability to flag high-risk results
- Ability to batch message patients to request home BP result

All systems highlighted are:

- GDPR compliant
- CE marked
- Currently only available in English

Comparison of providers (not exhaustive)

	Accurx	E-consult	Omron Connect	Omron HTN +	Primary Care Pathways
Does it integrate with primary care clinical systems, e.g. EMIS?	Pending(1-2months ?) but will be integrated. Need to input BP to be coded	No- a pdf is provided which is incorporated into EMIS and SystmOne. Manually input BP into notes to be coded	No - clinician has separate dashboard & log in	Yes – separate dashboard but does integrate	Yes (EMIS, system one and vision)
Cost	Accurx basic free Florey may cost additional	Free temporarily	Free (not Hypertension+)	Cost TBC- pilot at present	£200 per year for basic package
BP monitors	Patient needs own BP monitor	Patient needs own BP monitor	Bluetooth enabled but can input BP manually	Bluetooth enabled but can input BP manually	Patient needs own monitor
Ease of use for patient	Yes	Yes	Yes- but patient must download app	Yes – patient needs to download app	Simple online form
How many readings	Minimum one reading but can add additional if GP requests	Minimum of 3	Minimum of 3	Variable – clinical can adjust	Review of specific readings options given
Safety netting/ red flags	Safety message at the end of entering data via text	Patient directed to emergency care if any red flags whilst inputting answers	None – higher readings appear at top of dashboard	Alerts with readings – with onus on patient to contact Health care professional	Disclaimer alert to patient prior to completing form.



- Heart Rhythm - PPG technology
 - Fibrichck (needs smartphone) www.fibrichck.com/
- Mobile ECG
 - Kardia by AliveCor (needs smartphone): www.alivecor.co.uk/kardiamobile
 - MyDiagnostick: www.mydiagnostick.com/
 - Zenicor: <https://zenicor.com>
- ACR - home urine testing
 - Healthy.io <https://healthy.io/services/ckd-eur/>



Resources on high blood pressure and how to manage it:

- British Heart Foundation hub for managing blood pressure at home so patients can feel confident checking and managing their blood pressure at home. www.bhf.org.uk/bloodpressureathome
- Stroke Association: www.stroke.org.uk/what-is-stroke/are-you-at-risk-of-stroke/high-blood-pressure

Monitoring your blood pressure at home:

- How to check your blood pressure using a blood pressure machine (video) www.bhf.org.uk/information-support/heart-matters-magazine/medical/tests/blood-pressure-measuring-at-home
- How to measure your BP leaflet/poster: <https://bihsoc.org/wp-content/uploads/2017/11/BP-Measurement-Poster-Automated-2017.pdf>
- Step by step guide for patients on how to take BP: [https://bihsoc.org/wp-content/uploads/2017/09/How to instructional leaflet.pdf](https://bihsoc.org/wp-content/uploads/2017/09/How_to_instructional_leaflet.pdf)
- Home monitoring diary for patients: https://bihsoc.org/wp-content/uploads/2017/09/Home_blood_pressure_diary.pdf
- Validated BP monitors for home use: <https://bihsoc.org/bp-monitors/for-home-use/>
- How to choose a BP monitor www.bloodpressureuk.org/BloodPressureandyou/Homemonitoring/Choosingyourmonitor

How to assess pulse rhythm at home

- How to take your pulse video: www.bhf.org.uk/information-support/tests/checking-your-pulse
- Know Your Pulse Factsheet www.hearhythmalliance.org/resources/view/389/pdf
- What is an Arrhythmia? <http://hearhythmalliance.org/resources/view/522/pdf>

Implementation and support

Search & stratify

Comprehensive search tools for EMIS and SystemOne to stratify patients

- Pre recorded webinar as to how to use the searches
- Ongoing virtual support provided to ensure delivery of the search tools

Workforce training and support

Training tailored to each staff grouping (e.g. HCA/ pharmacist etc) and level of experience.

1. Delivery:

- **Protocols/** wording developed to support staff contact low risk patient
- **Virtual training** in how to use the protocols, support patient self management and covering motivational interviewing developed by UCLP in partnership with Care City

2. Practical training:

- Video training links, e.g. correct inhaler technique; correct BP technique, Very Brief Advice for smoking cessation, physical activity etc

3. Specialist briefings on the long term conditions – usually delivered by local health system

Digital Support Tools

Digital resources to support remote management and self management FOR each condition

Digital implementation support: how to get patients set up with the appropriate digital tools

Support available from UCLP's commercial and innovation team for implementation

All underpinned by communities of practice which can be facilitated by UCLPartners

Thank you

For more information please contact:

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