MINISTRY OF
HEALTH &
WELLNESS

INTERIM GUIDELINES FOR THE CLINICAL MANAGEMENT OF HYPERTENSION IN JAMAICA

July 2020

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Preface

The management of Hypertension has changed since the last version of the Guidelines for the Management of Hypertension was published. The Ministry of Health and Wellness is in the process of conducting a comprehensive and holistic revision of these guidelines. The objective of these interim guidelines is to provide key clinical updates in Hypertension Care.

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Special thanks to:

1. Dr. Andrene Chung, Consultant Physician (Internal Medicine), Consultant Cardiologist
2. Dr. Trevor Ferguson, Consultant Physician (Internal Medicine), Epidemiologist
3. Dr. Karen Phillips, Consultant Physician (Internal Medicine)
4. Professor Rainford Wilks, Consultant Physician (Internal Medicine), Professor of Epidemiology

List of Acronyms

ABPM	ambulatory blood pressure monitoring
ACEIs	angiotensin converting enzyme inhibitors
ACC	American College of Cardiology
AF	atrial fibrillation
AHA	American Heart Association
ARBs	angiotensin receptor blockers
BB	beta blockers
BMI	body mass index
Ca	calcium
CCBs	calcium channel blockers
CKD	chronic kidney disease
CVD	cardiovascular disease
DASH	Dietary Approaches to Stop Hypertension
DBP	diastolic blood pressure
DM	diabetes mellitus
ECG	electrocardiogram
eGFR	estimated glomerular filtration rate
HER	electronic health record
ESC	European Society of Cardiology
ESH	European Society of Hypertension
GDMT	Guideline-directed medical therapy
HbA1c	Haemoglobin A1c
HBPM	home blood pressure monitoring
HCP	health care provider
HDL-C	high density lipoprotein cholesterol
HFrEF	heart failure with reduced ejection fraction
HFpEF	heart failure with preserved ejection fraction
HR	heart rate

IHD	ischaemic heart disease
IV	intravenous
IVtPA	intravenous tissue-type plasminogen activator
JNC7	Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure
K	potassium
LDL-C	low density lipoprotein cholesterol
LVH	left ventricular hypertrophy
MI	myocardial infarction
Na	sodium
RAAS	renin angiotensin aldosterone system
SBP	systolic blood pressure
TIA	transient ischaemic attack
TOD	target organ damage
TGs	triglycerides

Introduction

High blood pressure, or hypertension, is a condition in which there is sustained non-physiologic elevation of systemic blood pressure. Hypertension is associated with increased morbidity and mortality as a result of damage to the blood vessels and major organs such as the heart, brain and kidneys. Major complications of hypertension include hypertensive heart disease, ischaemic heart disease, cerebrovascular disease, chronic kidney disease, retinopathy and peripheral vascular disease.

Hypertension is often asymptomatic and therefore may not present clinically until significant end organ damage has occurred. Therefore, if persons are not screened regularly for this condition and managed appropriately once diagnosed, they are at high risk of developing complications (end organ damage).

Hypertension is the most common chronic condition that is managed by primary care physicians and other health practitioners. In Jamaica, data from the most recent national survey (Jamaica Health and Lifestyle Survey 2016-2017), found that approximately 34% (BP ≥ 140/ 90 mmHg) of Jamaicans 15 years and older years are affected and 40% of these persons are unaware of their condition. Of those diagnosed 70% are on medication but only 30% of those on medication are controlled. In the same survey using a cut off for hypertension of ≥ 130/80 mmHg the prevalence of hypertension was estimated at 58%.

Therefore, there is an urgent need to improve and achieve optimal control of hypertension at the individual-level and also at the population-level. The management of hypertension is one of the most common interventions in primary care in Jamaica. It is critical to identify and employ more effective evidence-based approaches to achieve optimal control of this condition. The aim is to effectively detect cases, diagnose early and manage appropriately.

Definition and Classification of Hypertension

There is no naturally defined cut off point separating normal from elevated blood pressure. In practice, cut off points are usually decided by expert committees appointed by professional organizations or national or regional public health agencies based on risks associated with elevated blood pressure and the level at which persons are likely to benefit from lowering the blood pressure.

Most of the current guidelines define hypertension as systolic blood pressure (SBP) ≥ 140 mmHg or diastolic blood pressure (DBP) ≥ 90 mmHg. Normal blood pressure is defined as SBP <120 mmHg and DBP <80 mmHg. SBP between 120-139 mmHg and DBP between 80-89 mmHg has been classified by various organizations as prehypertension, high-normal blood pressure or elevated blood pressure. In 2017, The American College of Cardiology (ACC) and the American Heart Association (AHA) among others recommended that hypertension be defined as SBP ≥ 130 mmHg or DBP ≥ 80 mmHg and that persons with SBP of 120-129 mmHg be classified as 'elevated blood pressure.' This represents a departure from the classification from the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC7), which classified SBP of 120-139 mmHg or DBP of 80-89 mmHg as prehypertension and defined hypertension as SBP ≥140 mmHg or DBP ≥ 90 mmHg.

It is noted however that the European Society of Cardiology (ESC) and European Society of Hypertension (ESH) in their 2018 guidelines maintain the 140/90 mmHg cut point for diagnosis of hypertension. **Figure 1** illustrates the different cut-points and classification used by the JNC7, ACC/AHA 2017 and the ES/ESH 2018 guidelines.

<table>
<tr><th colspan="4">SBP CLASSIFICATION</th><th colspan="4">DBP CLASSIFICATION</th></tr>
<tr><th>SBP (mm Hg)</th><th>JNC7 (2003)</th><th>ACC/AHA (2017)</th><th>ESC/ESH (2018)</th><th>DBP (Mm Hg)</th><th>JNC7 (2003)</th><th>ACC/AHA (2017)</th><th>ESC/ESH (2018)</th></tr>
<tr><td><120</td><td>Normal</td><td>Normal</td><td>Optimal</td><td><80</td><td>Normal</td><td>Normal</td><td>Optimal</td></tr>
<tr><td>120-129</td><td rowspan="2">Prehypertension</td><td>Elevated Blood Pressure</td><td>Normal</td><td>80-84</td><td rowspan="2">Prehypertension</td><td rowspan="2">Stage 1 Hypertension</td><td>Normal</td></tr>
<tr><td>130-139</td><td>Stage 1 Hypertension</td><td>High Normal</td><td>85-89</td><td>High Normal</td></tr>
<tr><td>140-149</td><td rowspan="2">Stage 1 Hypertension</td><td rowspan="3">Stage 2 Hypertension</td><td>Grade 1 Hypertension</td><td>90-99</td><td>Stage 1 Hypertension</td><td rowspan="3">Stage 2 Hypertension</td><td>Grade 1 Hypertension</td></tr>
<tr><td>150-159</td><td>Grade 2 Hypertension</td><td>100-109</td><td rowspan="2">Stage 2 Hypertension</td><td>Grade 2 Hypertension</td></tr>
<tr><td>≥160</td><td>Stage 2 Hypertension</td><td>Grade 3 Hypertension</td><td>≥110</td><td>Grade 3 Hypertension</td></tr>
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Figure 1: Classification of Blood Pressure according to the JNC7, ACC/AHA and ESC/ESH Criteria

SBP = systolic blood pressure; DBP = diastolic blood pressure; JNC7 = Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure; ACC = American College of Cardiology; AHA = American Heart Association; ESC = European Society of Cardiology; ESH – European Society of Hypertension

For these guidelines it is proposed that the definition and classification of hypertension posited in the "Seventh Report of the Joint National Committee (JNC - 7) on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure" in 2003 be adopted, while recognizing that people with BP <140/90 are at graded increased risk compared to those at lower levels e.g. <120/80. And in keeping with the Evans & Rose 1971 definition, as public health interventions become safer and more feasible the point of intervention may fall further as it has in the last four decades, as it represents a balance between recognizing the increased risk for persons in the 'pre-hypertension' category without prematurely labeling large segments of the population as hypertensive, without ample evidence to support this strategy. **Table 1** shows the cut off blood pressure values that label patients as having normal blood pressure, 'pre-hypertension', stage 1 and stage 2 hypertension. Persons with BP ≥120/80 should be advised to practice lifestyle modification.

The classification using the JNC-7 cut off points is based on office blood pressure measurement levels. Diagnosis should not be based on values from a single encounter unless persons present with findings of a hypertensive urgency or hypertensive emergency (see below). It is now widely accepted that ambulatory blood pressure monitoring (ABPM) and home blood pressure monitoring (HBPM) are both useful adjuncts to office blood pressure monitoring. Where ABPM and HBPM are used the cut points for classification are lower as shown in Table 2.

TABLE 1: CLASSIFICATION OF BLOOD PRESSURE (ADULTS AGES 18 YEARS AND OLDER)

Blood Pressure Classification	*Systolic Blood Pressure (mmHg)	*Diastolic Blood Pressure (mmHg)
Normal	<120	<80
Pre-Hypertension	120−139	80−89
Stage 1 Hypertension	140−159	90−99
Stage 2 Hypertension	≥160	≥100

*Individual is classified according to the higher blood pressure (diastolic or systolic) category

Source: Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, Izzo JL et al. Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. Hypertension. 2003; 42:1206-1252. Available from: http://www.hypertensionaha.org. Doi:10.1161/01.HYP.0000107251.49515.c2

TABLE 2: DEFINITION OF HYPERTENSION USING AMBULATORY AND HOME BP LEVELS

SBP/ DBP	HBPM	Daytime ABPM	Night-time ABPM	24-hour ABPM
ACC/AHA Guidelines 2017	≥130/80	≥130/80	≥110/65	≥125/75
ESC/ESH Guidelines 2018	≥135/85	≥135/85	≥120/70	≥130/80

Modified from Townsend RR, Cohen J. Out-of-office blood pressure measurement: Ambulatory and self-measured blood pressure monitoring. UpToDate 2020. Available at: https://www.uptodate.com/contents/out-of-office-blood-pressure-measurement-ambulatory-and-self-measured-blood-pressure-monitoring

BP: blood pressure; SBP: systolic blood pressure; DBP: diastolic blood pressure; HBPM: home blood pressure monitoring; ABPM: ambulatory blood pressure monitoring; ACC/AHA: American College of Cardiology/American Heart Association; ESC/ESH: European Society of Cardiology/European Society of Hypertension.

Diagnosis of Hypertension

The diagnosis of hypertension should be made in patients with a clinic blood pressure of 140/90 mmHg or higher or 24-hour ABPM of ≥ 130/80 mmHg or daytime average or HBPM average of 135/85 mmHg or higher. Persons with nighttime average BP of ≥ 120/70 would be classified as having non-dipping blood pressure as illustrated in Table 2.

If clinic blood pressure is between 140/90 mmHg and 160/100 mmHg, ABPM should be offered to confirm the diagnosis of hypertension. If ABPM is unsuitable or the person is unable to tolerate it, offer HBPM to confirm the diagnosis of hypertension.

When considering the diagnosis of hypertension, measure blood pressure in both arms. If the difference in readings between both arms is > 15 mmHg, the measurements should be repeated.

If in subsequent readings the difference remains > 15 mmHg, measure subsequent blood pressures in the arm with the higher reading.

If clinic blood pressure reading is 140/90 mmHg or higher, take a second blood pressure reading during the consultation. If the second reading is substantially different from the first, take a third measurement. Record the lower of the last two measurements as the clinic blood pressure.

If initial BP readings are between 140/90 mmHg and less than 160/100 mmHg and there is no evidence of target organ damage, BP measurements should be repeated on two other occasions within one month and HBPM & ABPM can help to clarify the diagnosis.

If initial reading is greater than or equal to 160/100 mmHg, this patient is likely to have hypertension, if no target organ damage (TOD); review patient within two weeks.

Diagnosis can be established on the basis of a **single BP pressure ≥160/100 mmHg. If there is evidence of target organ damage,** the patient should be classified as hypertensive with specific target organ disease (**See table 3**).

Table 3: Target Organ Disease Secondary to Hypertension

Vascular Disease	**Cerebrovascular Disease**
Endothelial dysfunction Atherosclerosis Arterial stenosis & aneurysms	Transient ischaemic attack Ischaemic stroke Haemorrhagic stroke
Renal Disease	**Heart Disease**
Albuminuria Proteinuria Chronic renal impairment Renal failure	Left ventricular hypertrophy Coronary micro-angiopathy Coronary artery disease Myocardial infarction Arrhythmias e.g. atrial fibrillation (AF) Heart failure

Evaluation of Persons with Hypertension

Routine laboratory tests that are recommended prior to initiation of therapy are as follows:

1. Urine-analysis & microscopy: urinary protein, blood, abnormal urinary sediments
2. Test for albuminuria / proteinuria, particularly if the patient has diabetes & chronic kidney disease (CKD): microalbumin dipstick (specimens should be first morning void). Request albumin / creatinine ratio on spot urine sample to quantify urine albumin excretion
3. Complete blood count
4. Blood chemistry: serum creatinine, blood urea nitrogen, K, Na, lipid profile (TC, HDL- C, LDL-C & TGs); Ca & eGFR
5. Blood sugar: fasting and 2-hr postprandial for all patients initially and annually (for screening for Diabetes Mellitus). At present we do not recommend the use of HbA1c for screening and diagnosis of Diabetes Mellitus
6. Chest X-ray as indicated to identify heart failure or other cardiac abnormality
7. Electrocardiography: 12-lead electrocardiogram (ECG) can identify ischaemic heart disease or LVH which are indicators of target organ damage
8. Abdominal ultrasonography as indicated to identify renal disease or other causes of secondary hypertension

Young patients, those with resistant hypertension and persons with suggestive symptoms (e.g. palpitations, excessive sweating, recent weight gain etc.) should be evaluated for secondary hypertension and referred for specialist care as indicated below.

Evaluation in Young Patients

Hypertension is common among young people affecting 1 in 8 adults between 20 - 40 years of age. This prevalence is likely to trend upwards with changes in lifestyle behaviours and lowering of diagnostic thresholds. Additionally, young adults are at risk of specific identifiable causes of hypertension.

Baseline laboratory work up should include:

- Fasting blood glucose
- Complete blood count
- Serum sodium
- Potassium
- Creatinine
- Estimated or measured GFR
- Calcium
- Lipid Profile

Additional screening tests should be performed on an individualized basis as indicated from the clinical evaluation. Recommended screening tests are shown in Table 4.

Table 4. Identifiable Causes of Secondary Hypertension and Recommended Screening Tests

CONDITION	SCREENING TEST
Chronic Kidney Disease	Estimated GFR (eGFR) Urine albumin excretion
Coarctation of the Aorta	Computed Tomography Angiography
Cushing's syndrome and other states of glucocorticoid excess eg. chronic steroid therapy	Dexamethasone suppression test
Drug induced/drug related hypertension	Drug screening
Pheochromocytoma	24-hr urine vanillyl mandelic acid (VMA) initially; 24-hr urine metanephrine and normetanephrine if VMA positive
Primary aldosteronism, other states of mineralocorticoid excess	Plasma aldosterone to renin activity ratio (ARR). If abnormal refer for further evaluation such as saline infusion to determine if aldosterone levels can be suppressed, 24hr urinary aldosterone and specific mineralocorticoid tests
Renovascular hypertension	Doppler flow ultrasonography, magnetic resonance angiography, computed tomography angiography
Sleep apnea	Sleep study with oxygen saturation (screening would include a validated sleep scale such as the Epworth Sleepiness Scale)
Thyroid/parathyroid disease	Thyroid stimulating hormone level, serum parathyroid hormone level

Adapted from: Chobanian AV, Bakris GL, Blachk HR, et al, and the Joint National Committee on the Prevention, Detection, Evaluation and Treatment of High Blood Pressure; National Heart, Lung and Blood Institute; National High Blood Pressure Education Program Coordinating Committee. Seventh report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure.

Treatment of Hypertension

Despite the controversy in blood pressure classification, most health practitioners and scientists will agree that the “lower the blood pressure the better” providing there is no pathological process causing the “low blood pressure” and it is not symptomatic or likely to cause risk of hypoperfusion, particularly to brain, coronaries and kidneys.

At the same time, it is recognized that elevated blood pressure often clusters with other biological markers to increase the risk of several adverse outcomes (target organ damage [TOD] often of vascular aetiology). This has driven the paradigm which demands that blood pressure perturbations and the response to it, including level of BP at which pharmacological intervention was recommended, take into consideration the presence or not of these other risk factors. In one guideline (JNC7, 2003) this approach included specific comorbidities, notably diabetes mellitus and chronic kidney disease, for which specific BP targets were recommended, but more recently the inclusion of pooled estimates of overall cardiovascular risk has emerged as the favoured approach in guiding the treatment of hypertension.

The undeniable disadvantage is the additional time and effort required to make this “pooled-risk” assessment in clinical practice. The following algorithm retains the BP-level only guidance despite strong evidence for the inclusion of pooled CVD risk.

Treatment Algorithm in Hypertension

All patients diagnosed as having prehypertension should be advised to initiate lifestyle modification and be assessed for comorbidities including diabetes mellitus or prediabetes, dyslipidaemia and obesity. Recommended lifestyle modifications are shown in Table 5. The recommended treatment algorithm for persons with diagnosed hypertension is shown in Figure 2.

The recommended drugs for use in the management of hypertension are illustrated in Table 5. Initial treatment should begin with a non-dihydropyridine calcium channel blocker, ACE inhibitor or ARB, or a thiazide-like or thiazide diuretic. Consider low dose single pill combination as initial therapy. If the patient's BP is not controlled, move to a full dose combination of two drugs and then to a three-drug combination. If the patient is not controlled on three drugs consider resistant hypertension and refer to hypertension specialist, cardiologist or internist for further evaluation and management

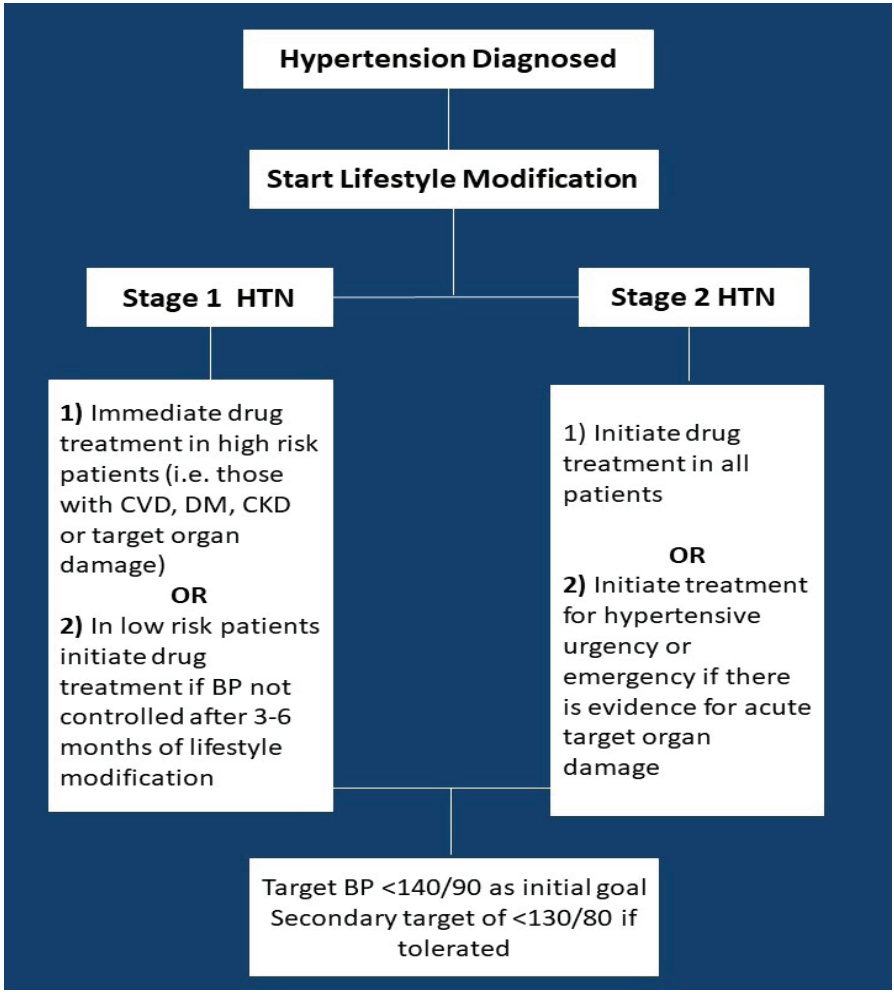

Figure 2: Treatment algorithm for persons diagnosed with hypertension

Adapted from: 2020 International Society of Hypertension Global Hypertension Practice Guidelines. Hypertension. 2020;75:1334-1357. DOI: 10.1161/HYPERTENSIONAHA.120.15026.
Individuals where SBP and DBP fall in different categories should be classified according to the higher of the 2 categories. BP indicates blood pressure (based on an average of ≥2 careful readings obtained on ≥2 occasions, as detailed in Section 4); DBP, diastolic blood pressure; and SBP, systolic blood pressure. HTN = hypertension; CVD = cardiovascular disease, DM = diabetes mellitus; CKD = chronic kidney disease

Table 5: Lifestyle Modifications in Hypertension Management

Modification	Recommendation	Approximate BP Reduction
Reduce weight	Maintain normal body weight (BMI 18.5–24.9 kg/m^2)	5–20 mmHg/10 kg
Adopt DASH eating plan	Consume a diet rich in fruits, vegetables and low-fat dairy products with a reduced content of saturated and total fat	8–14 mmHg
Lower sodium intake	a. Consume no more than 2,400 mg of sodium/day b. Reduction of sodium intake to 1,500 mg/day is desirable c. Reduce intake by at least 1,000 mg/day since that will lower BP, even if the desired daily sodium intake is not achieved	2–8 mmHg
Physical activity	Engage in regular aerobic physical activity such as brisk walking (at least 30 min per day, most days of the week)	4–9 mmHg
Moderation of alcohol consumption	Limit consumption to no more than 2 drinks (e.g., 24 oz beer, 10 oz wine, or 3 oz 80-proof whiskey) per day in most men, and to no more than 1 drink per day in women and lighter weight persons	2–4 mmHg

Source: AHA/ACC/CDC Science Advisory: An Effective Approach to High Blood Pressure Control. Hypertension. 2013; doi:10.1161/HYP.0000000000000003

Table 6: Recommended Drugs for Management of Hypertension

Therapy Class	Drug Class	Examples
Preferred drugs for initial therapy	Calcium channel blocker (non-dihydropyridine)	amlodipine nifedipine
	Thiazide-like or thiazide diuretic	indapamide hydrochlorothiazide
	ACE inhibitor or ARB	enalapril lisinopril ramipril valsartan losartan telmisartan candesartan irbesartan
Second line or for special indications	Beta blockers	carvedilol atenolol bisoprolol
Resistant hypertension	Aldosterone antagonist	spironolactone
Others	Direct vasodilators	hydralazine
	Centrally acting agents	methyldopa
	Loop diuretic	furosemide

Management of Hypertension in Special Circumstances

Hypertension is associated with various complications and treatment reduces cardiovascular, renal and cerebrovascular outcomes for all patients. Trial data however suggests that some populations or groups may benefit more than others from specific drug interventions, hence justifying specific approaches for some populations. The special populations addressed in this section include patients with diabetes, patients with vascular complications, pregnant patients and older adults (elderly). Management recommendations for patients with special circumstances are summarized in Table 7.

Table 7: Recommendations for management of hypertension in patients with special circumstances

Comorbidity or special circumstance	BP at which treatment initiated (mmHg)	BP treatment goal (mmHg)	Specific drugs or management indicated
Diabetes mellitus	≥ 140/90	< 140/90	All first line drugs (diuretics, ACEIs, ARBs, CCBs) effective. ACEIs and ARBs in patients with albuminuria
CKD	≥ 140/90	< 140/90	ACEIs or ARBs

Comorbidity or special circumstance	BP at which treatment initiated (mmHg)	BP treatment goal (mmHg)	Specific drugs or management indicated
CCF	≥ 140/90	< 140/90	HFrEF – Guideline-directed medical therapy (GDMT). Non-dihydropyridine CCBs not recommended. HFpEF (with volume overload) – diuretics, then ACEIs or ARBs if volume overload managed but SBP >130 mmHg
Stable Ischaemic Heart Disease (IHD) without heart failure	≥ 140/90	< 140/90	Stable angina/ previous MI – BBs, ACEIs, ARBs with addition of CCBs if angina not controlled
Acute intracranial haemorrhage	> 220 SBP	≥ 140 SBP	Referral for expert treatment. Continuous IV drugs with close BP monitoring.
Acute ischaemic stroke eligible for thrombolytic therapy (IVtPA)	≥ 185/110	< 180/105 for at least 24 hours after treatment	ACEIs or ARBs or combination with a diuretic

Comorbidity or special circumstance	BP at which treatment initiated (mmHg)	BP treatment goal (mmHg)	Specific drugs or management indicated
Acute ischaemic stroke in patients who did not require IVtPA or endovascular treatment and with no other comorbidities requiring acute antihypertensive treatment	≥ 220/120	Reduce BP by ≤ 15% during 1st 24 hours	Thiazide diuretic, ACEI, ARB or combination of thiazide and ACEI or further individualized therapy based on comorbidities No indication to start or restart antihypertensive treatment within 1st 48-72 hours after onset of event
	< 220/120	N/A	
Acute stroke or TIA >72 hours after index event, if neurologically stable	> 140/90	< 130/80	Thiazide diuretic, ACEI, ARB or combination of thiazide and ACEI or further individualized therapy based on comorbidities
Chronic aortic dissection for operative repair	> 140/90	< 140/90	Beta blockers

Comorbidity or special circumstance	BP at which treatment initiated (mmHg)	BP treatment goal (mmHg)	Specific drugs or management indicated
Atrial fibrillation	> 140/90	< 140/90	RAAS blocker (Beta blocker if rate control also required)
Chronic aortic valve regurgitation	> 140/90	< 140/90	Avoid beta blockers or other agents which cause slowing of the heart rate
The elderly or frail ≥ 80 years < 80 years	 > 150/90 > 140/90	 < 150/90 < 140/90	General guideline directed management and therapy. Use clinical judgement for persons with frailty or multimorbidity
Pregnancy (chronic hypertension)	≥ 140/90	110-135/ 70-85	Methyldopa, Nifedipine, Labetalol. ACEIs, ARBs, Direct renin inhibitors should not be used

Comorbidity or special circumstance	BP at which treatment initiated (mmHg)	BP treatment goal (mmHg)	Specific drugs or management indicated
Blacks (without HF or CKD)	> 140/90	< 140/90	Thiazide-type diuretic or CCB
Perioperative management for elective major surgery	> 140/90	< 140/90	Continue chronic medical therapy (including beta blockers) until surgery. Hold ACEIs or ARBs perioperatively. Abrupt preoperative discontinuation of beta blockers or Clonidine may be harmful. Do not start beta blockers on day of surgery in beta blocker-naïve patients
	≥ 180/110	N/A	Defer surgery

Indications for Medical Referrals

Patients who require a higher level of care may be referred based upon a variety of clinical situations which may be categorized as:

- Non-urgent (to be seen within 1-2 months)
- Urgent (to be seen within 1 week) – markedly elevated BP (≥ 180/120 mmHg) without symptoms or signs. Investigate for TOD as soon as possible. If no TOD identified, clinic BP should be repeated within 7 days and/or specialist should see within 7 days. If TOD identified, consider starting antihypertensive therapy immediately.
- Emergency (same day) – markedly elevated BP (≥ 180/120 mmHg) with acute TOD. Use of telephone contact is vital for consultation and ensuring continuity of care. A patient's relevant clinical and laboratory data should be included in the referral letter from the Health Centre. Similarly, once the consultation is completed, information on laboratory evaluation, diagnosis and current treatment regime should be sent back to the Health Centre/primary care physician.

Indications for referral to a higher level of care include:

A. Non-urgent

1) Clinical suspicion of Secondary Hypertension

2) Resistant Hypertension – unsatisfactory control of blood pressure despite compliance with 3 or more

antihypertensives of different classes at maximal doses (including a diuretic)

3) Significant Target Organ Damage e.g. isc e (≥ Stage 3)

B. Urgent/Emergent

1) Hypertensive Urgency – BP ≥ 180/120 mmHg with no symptoms or signs and no evidence for acute TOD

2) Hypertensive Emergency – BP ≥ 180/120 mmHg and any of the following symptoms or signs:

- retinal haemorrhage or papilloedema (malignant hypertension)
- new-onset confusion
- chest pains
- acute heart failure
- acute kidney injury

3) Suspected Phaeochromocytoma with labile or postural hypotension, headache, palpitations, pallor, abdominal pain or diaphoresis

Home Monitoring of Hypertension

Out-of-office measurement of BP can be helpful for confirmation and management of hypertension. Self-monitoring of BP is the regular measurement of BP by an individual at home or elsewhere outside the clinic setting. Although ambulatory blood pressure monitoring (ABPM) is the best out-of-office measurement method, home blood pressure monitoring (HBPM) is often a more practical approach in clinical practice.

Uses:

1) To confirm the diagnosis of hypertension, in patients with clinic BP between 140/90 and 160/100 mmHg. Measurements should be taken daily, twice a day, for at least 4 days, ideally 7 days.
2) Consider in people with suspected “white coat” effect or masked hypertension
3) Titration of BP-lowering medication in conjunction with telehealth counselling or clinical interventions

Patients who are going to do HBPM should receive training under medical supervision with regards to:

1. Information about hypertension and interpretation of results
    a. HBPM readings are usually ~5 mmHg lower than clinic measurements
    b. Variability of individual BP readings

2. Selection of devices
    a. Automated validated devices should be used and regular calibration or comparison with readings from a medical practitioner's validated machine (every 6 months) should be advised. Auscultatory devices are not recommended as patients rarely master the technique
    b. Devices with provision for storage of readings in memory are preferred
    c. Verify use of appropriate cuff size to fit the arm
    d. Verify insignificant interarm difference. If significant (>15 mmHg), instruct the patient to do readings on the arm with the higher reading.

3. HBPM procedure
    a. Remain still – avoid caffeinated beverages, smoking, exercise within 30 minutes before BP measurement
    b. Ensure at least 5 minutes of quiet rest before BP measurement. There should be no conversation in this time or during the reading
    c. Sit correctly – back straight and supported, feet flat on ground and legs uncrossed, arm supported on a flat surface with arm at heart level
    d. Bottom of the cuff should be placed directly above the antecubital fossa
    e. Do multiple readings – at least 2 readings (1 minute apart) should be taken twice a day, in the morning before medications and in the evening before supper

4. Monitors with built-in memory, or a written log, should be brought to all clinic visits.

When using HBPM to monitor the response to treatment use the average BP level taken during the usual waking hours. Reduce and maintain BP at <135/85 mmHg for adults under 80 years and <145/85 mmHg for adults ≥ 80 years.

Hypertension and Telehealth

Telehealth is defined as the exchange of medical information from one location to another using electronic communication, which improves patient health status. It has multiple applications and can be used for different services including wireless tools, email, two-way video, smartphones and other methods of telecommunications technology. The remote delivery of health care services such as health assessments over the telecommunications infrastructure is an alternate definition.

Commonly used telehealth technologies include:

1. Wired “landline” telephone
2. Wireless smartphone applications
3. Internet-based website via computers and handheld devices
4. Text messaging
5. Email messaging
6. Social networking and social media websites/ applications
7. Wireless BP measurement devices
8. Electronic pill dispensers/counters

General considerations in transitioning to a telehealth practice include the following:

1. Liability/Indemnity considerations:
   - Be sure that malpractice insurance allows for remote visits. There is currently no clear guidance regarding provision of care during a pandemic. National and local guidance should be sought before embarking on telemedicine consultations.
   - Verify where the encounter is considered to have taken place i.e. the patient's physical location or the health care provider's, particularly if the patient is in a remote location.
   - Ensure that the health care provider has the technical skills and competence to do telemedicine consultations. Consider the learning curve.
   - Determine whether the health care provider will see new patients as well as known patients.

2. Remuneration:
   - Ensure that the patients' health insurance providers will reimburse or cover for telehealth consultations at in-office rates.

3. IT considerations:
   - Use Telehealth providers e.g. Microsoft Teams, Zoom for Healthcare, Skype for business, Doxy.me, Updox, VSee, Google G suite Hangouts Meet.
   - Encourage video-consultations; this improves contact with the patient and is important for identification purposes
   - Secure internet access and virtual private networks are required

- Use of personal devices is possible e.g. smartphones but should be used with strong passwords and encryption for patient information security. Safe secure networks should be used

How to proceed:

1. Identify appropriate patients in the practice. Choose known regular patients for routine follow-up, and for whom medical records are available. Telephone triage should be performed to determine if a remote consultation can be done. If yes, continue on telephone or do video-conferencing. Explain to the patient why remote consultation is required e.g. COVID-19 pandemic and need for physical distancing. Let patients know that face-to-face consultations are the normal. The patient needs to give consent and understand what can and cannot be done during a remote consultation. If someone is too ill, breathless while speaking or unstable, direct them to a face-to-face or urgent/emergent visit.

   Reasons to convert to a face-to-face visit include:
   i) Unknown patient/no records/no referral letter
   ii) Concerns about safeguarding data
   iii) Physical examination required
   iv) Technical limitations
   v) Potential confidentiality breach possible e.g. related to location of patient or HCP

2. Use an existing scheduling system to schedule virtual or telephone visits. Create an encounter and document the phone visit. Use standard templates or a narrative note and bill by time. Document as you would during an in-person visit. You may e-prescribe and place orders although diagnostics e.g. ECG or stress test will require an in-person visit.

3. Whether using a makeshift video tool or a formal telehealth platform, once set up, interaction can proceed. A scheduled visit in the EHR will tell the HCP and the patient the time at which to launch the application. Unmute the microphone, raise the volume, allow video connection and alert the patient to do the same. The patient may use a smartphone, tablet, laptop or desktop computer. Look at the camera, not the screen in order to maintain eye contact.

4. The Telehealth team may be just the HCP and the patient but an effective structure is to have an administrative/ medical assistant call the patient in advance to ensure they have the setup for the visit, confirm insurance details for billing and review past medical history, medications, allergies and enter any vital signs obtained at home.

5. Lead the visit as if the patient is in the room. Find out who else is in the room and ask to be introduced to them. A history should be taken as usual but only limited physical examination, if any, can be done. For example, the patient can show scars, abdominal swelling or may be able to push on their skin to demonstrate oedema. Your clinical skills will tell you if they look ill or sound

breathless, for example. Eventually, patients may buy blood pressure cuffs, weight scales, HR and O_2 saturation monitors and share their readings over the patient portal or during the visit or upload to the EHR, but to start with, take a history, answer questions, review medication, provide advice and reassurance, make a plan. Education and counselling are also important. You may also e-prescribe but avoid controlled substances without legal advice. Orders for diagnostics may be placed.

6. If referral or a face-to-face visit is required after the remote consultation:

    a. document rationale for why face-to-face visit is needed
    b. determine which is the most appropriate clinician to see patient
    c. determine how urgently examination must take place

<u>New Patients:</u>

New patients may be "seen" through remote consultations though they will be more suitable for face-to-face visits. Telephone triage such as for known patients should be performed. Considerations particular to new patients include:

1. Are medical records available?
2. Is the referring physician contactable?
3. Is there a referral letter/Are you able to verify the history or medical examination findings?
4. Is it safe for the patient?

Documentation:

Documentation requirements for a telehealth service are the same as for a face-to-face encounter. The information of the visit, history, review of systems, consultative notes, any examination or observations or any information used to make a medical decision about the patient should be documented. Advice provided should be recorded. A statement that the service was provided through telehealth should be included. The HCP must have patient consent to record the video or telephone conversation and any such recording must form part of the patient record.

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