Evolution of Guidelines and Treatment Strategies for Hypertension

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Hypertension Guidelines

JNC 7 2003

TSOC	2010
NICE	2011/16
ESH/ESC	2013/18
JNC 8	2014
CHEP	2018
TSOC	2015/17
AHA/ACC	2017

台灣高血壓治療指引

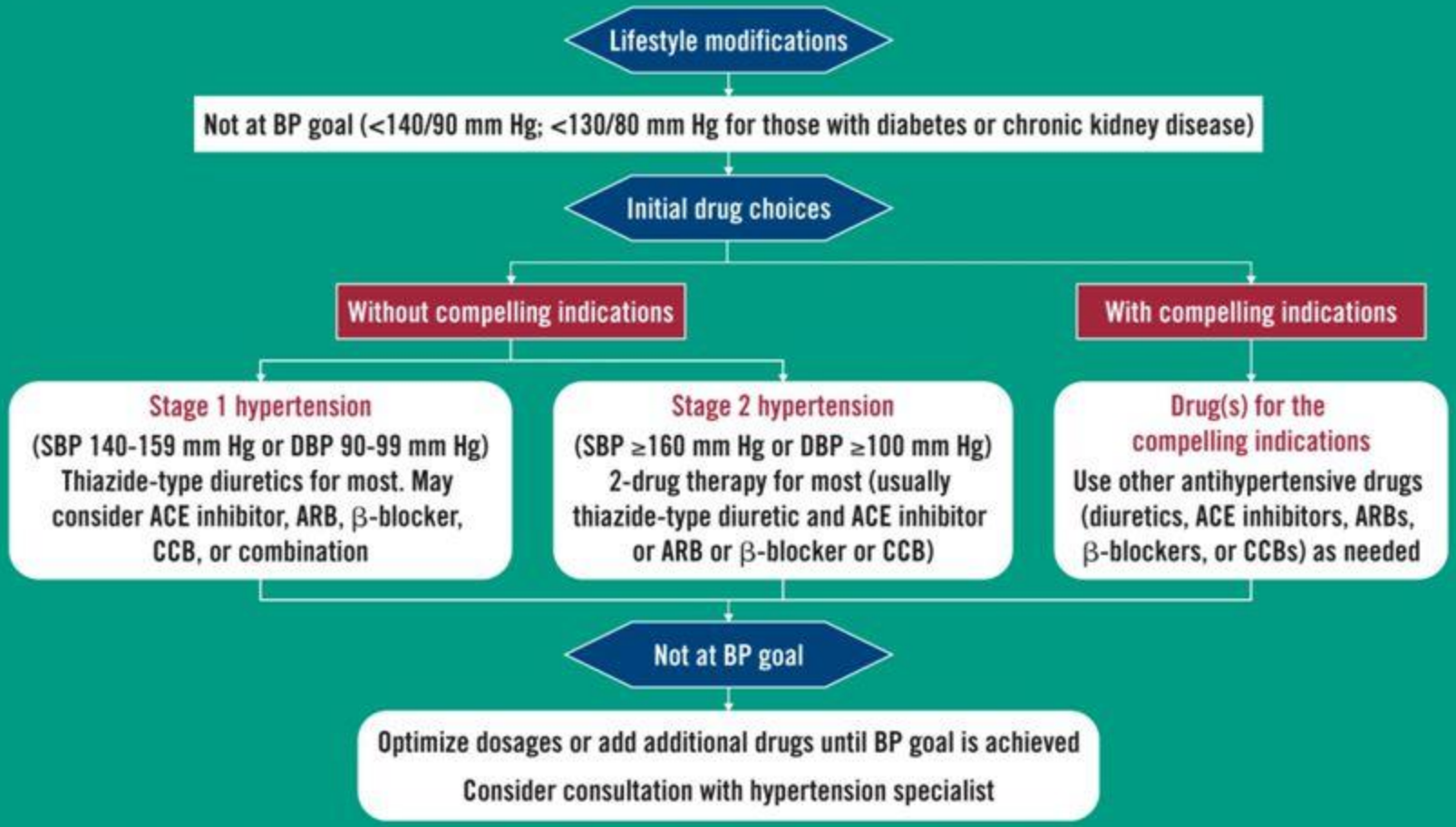
Hypertension Guidelines

JNC 7 2003

TSOC	2010
NICE	2011/16
ESH/ESC	2013/18
JNC 8	2014
CHEP	2018
TSOC	2015/17
AHA/ACC	...2017

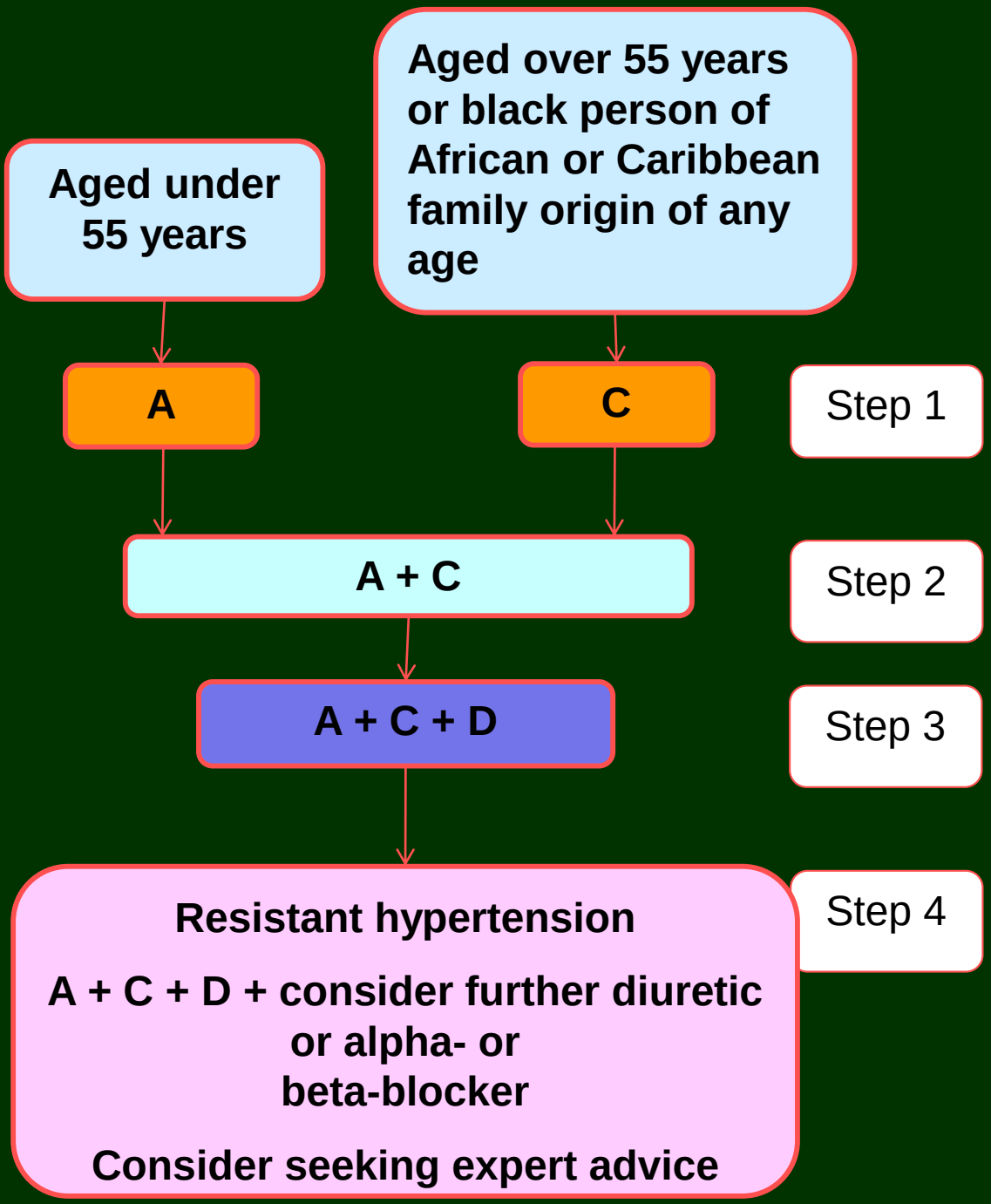
台灣高血壓治療指引

JNC 7 hypertension treatment algorithm



✔ Most patients with hypertension need multiple medications to get to goal

Adapted from Chobanian et al, *JAMA*, 2003.



Summary of 2016 BHS/NICE Guideline for HTN

Key

A – ACE inhibitor or low-cost angiotensin II receptor blocker (ARB)

C – Calcium-channel blocker (CCB)

D – Thiazide-like diuretic

Hypertension Canada Guidelines: Summary to 2020

AOBP TARGET <135/85 mmHg

Lifestyle modification therapy

- Thiazide/ thiazide-like† diuretic
- ACE-I
- ARB
- Long-acting CCB
- β-blocker*
- Single pill combination**

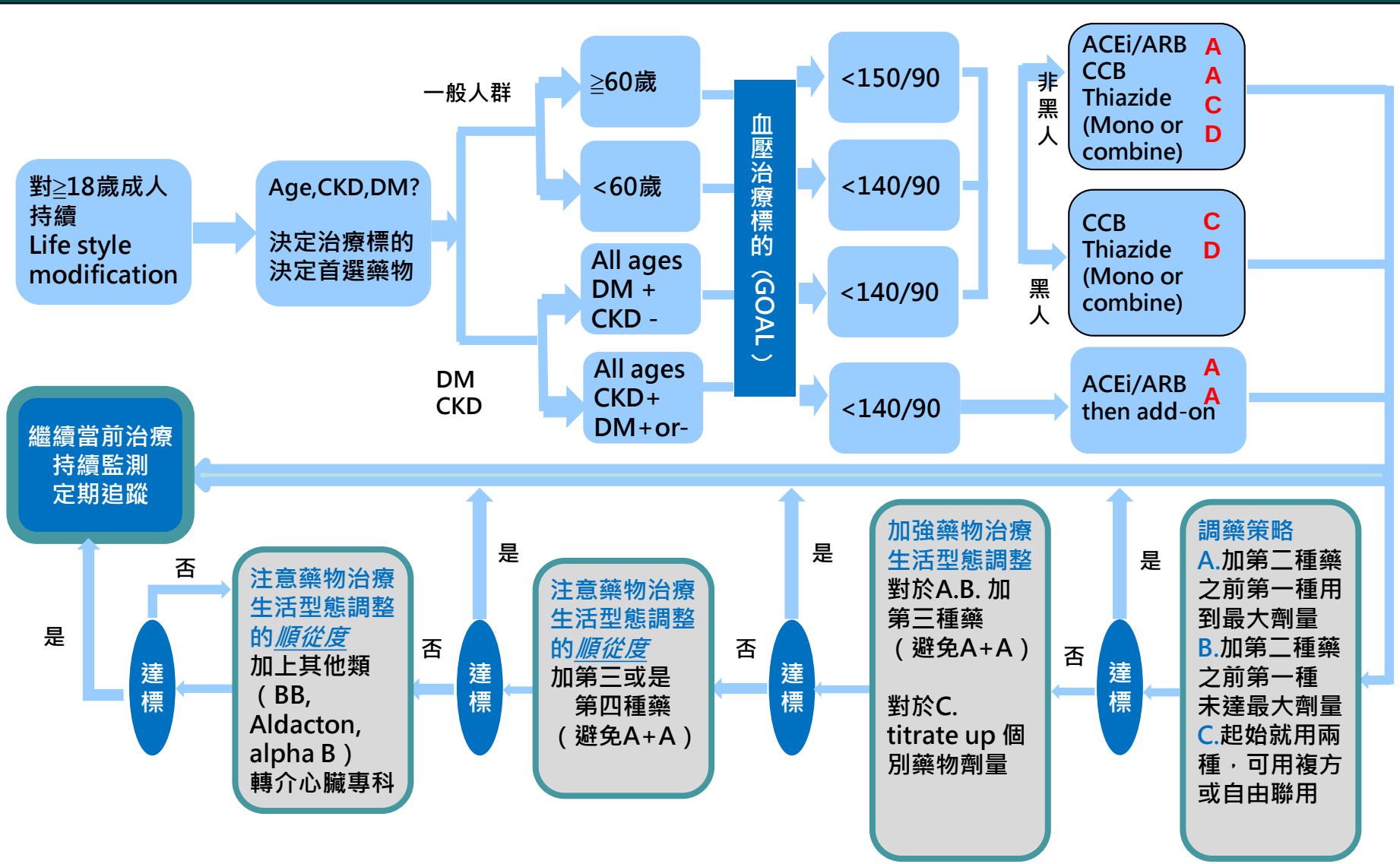
† Long-acting diuretics like indapamide and chlorthalidone are preferred over shorter acting diuretics like hydrochlorothiazide.

* β-blockers are not indicated as first-line therapy for age 60 and above.

**** Recommended SPC choices are those in which an ACE-I is combined with a CCB, an ARB with a CCB, or a CE-I or ARB with a diuretic**

Renin angiotensin system (RAS) inhibitors are contraindicated in pregnancy and caution is required in prescribing to women of child bearing potential

JNC 8: Simple but not Complete



Tsao CR, based on 2014 Evidence-Based BP Guideline; JAMA. 2014;311(5):507-520

ELSEVIER

Available online at www.sciencedirect.com

ScienceDirect

Journal of the Chinese Medical Association 78 (2015) 1–47

www.jcma-online.com

Guidelines

2015 Guidelines of the Taiwan Society of Cardiology and the Taiwan Hypertension Society for the Management of Hypertension

Chern-En Chiang [a,*], Tzung-Dau Wang [b], Kwo-Chang Ueng [c], Tsung-Hsien Lin [d], Hung-I Yeh [e], Chung-Yin Chen [f], Yih-Jer Wu [e], Wei-Chuan Tsai [g], Ting-Hsing Chao [g], Chen-Huan Chen [h,i,j,k], Pao-Hsien Chu [l], Chia-Lun Chao [m], Ping-Yen Liu [g], Shih-Hsien Sung [n], Hao-Min Cheng [h,i,j,k], Kang-Ling Wang [a], Yi-Heng Li [g], Fu-Tien Chiang [o,p], Jyh-Hong Chen [g], Wen-Jone Chen [o,q], San-Jou Yeh [r], Shing-Jong Lin [i,j,s]

正確的血壓測量

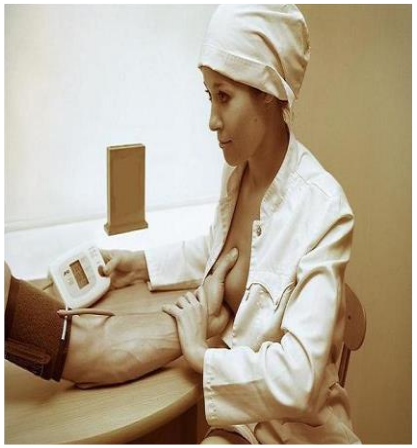
測定前

	1 小時	禁止吸烟、飲咖啡、服用影響血壓的藥物
	30 分鐘	避免運動
	5 分鐘	安靜狀態下坐位
準備	排空膀胱和腸道，脫去上臂所有衣服	
環境	安靜、溫暖的場所	

首選：居家

再者：安靜處

再者：診間



完全錯誤

正確的血壓測量

測定中

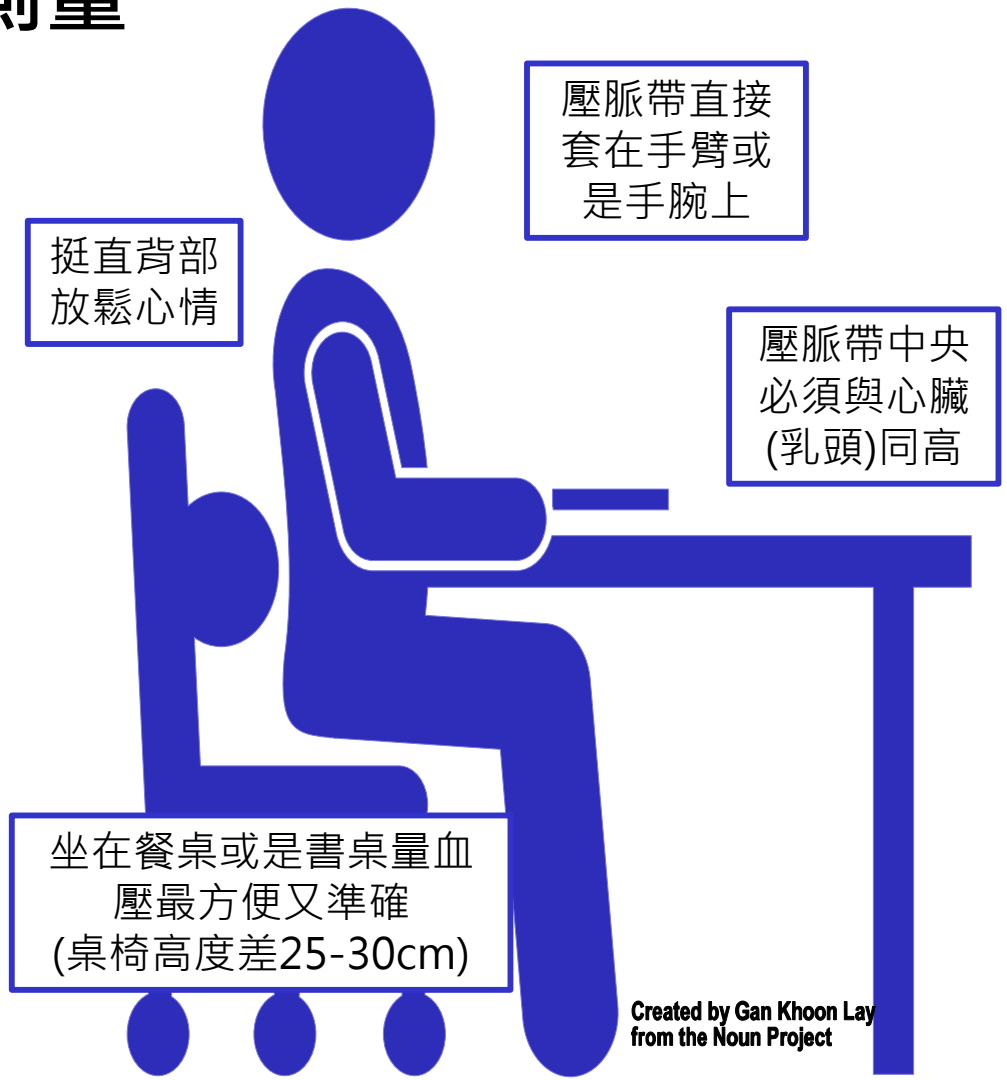
體位 坐位，後背有支撐，雙腿勿交叉，雙足平放地面放鬆

上臂袖帶 有支撐，測量血壓較高一側在心臟水平，選擇尺寸合適的袖帶

測定 隔 1 ~ 2 分鐘，測量 2 次，如果需要測量心率，則紀錄第 2 次測量值。

對心房顫動患者，使用直接聽診法手動測量肱動脈血壓；

若疑似姿勢性低血壓，測定站立位 1 分鐘和 3 分鐘血壓



正確的血壓測量

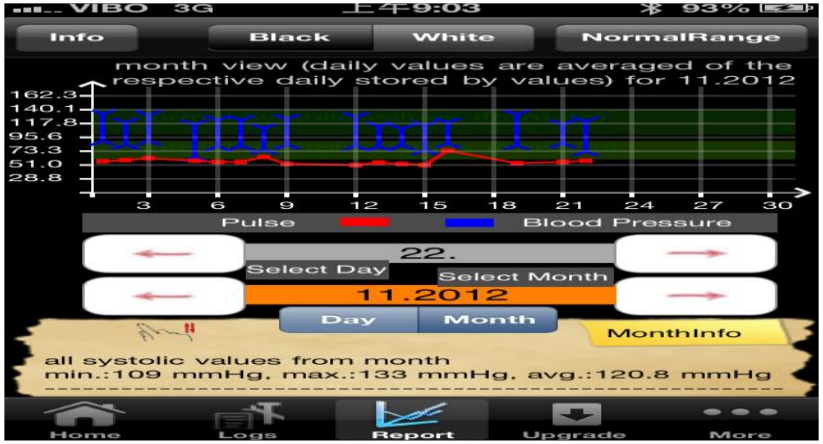
測定後

間隔一分鐘兩次測量計算血壓均值 記錄數據

	A	B	C	D	E
1	日期	時間	收縮壓	舒張壓	心跳
2	2010-Nov-01(Mon)	上午	129	79	72
3	2010-Nov-01(Mon)	下午	133	80	75
4	2010-Nov-02(Tue)	上午	142	90	70
5	2010-Nov-02(Tue)	下午	141	84	68
6	2010-Nov-03(Wed)	上午	137	84	70
7	2010-Nov-03(Wed)	下午	139	83	72
8	2010-Nov-04(Thu)	上午	140	85	78
9	2010-Nov-04(Thu)	下午	138	85	69
10	2010-Nov-05(Fri)	上午	135	79	75
11	2010-Nov-05(Fri)	下午	136	81	72
12	2010-Nov-06(Sat)	上午	137	83	69
13	2010-Nov-06(Sat)	下午	138	85	66
14	2010-Nov-07(Sun)	上午	135	80	67
15	2010-Nov-07(Sun)	下午	142	85	72

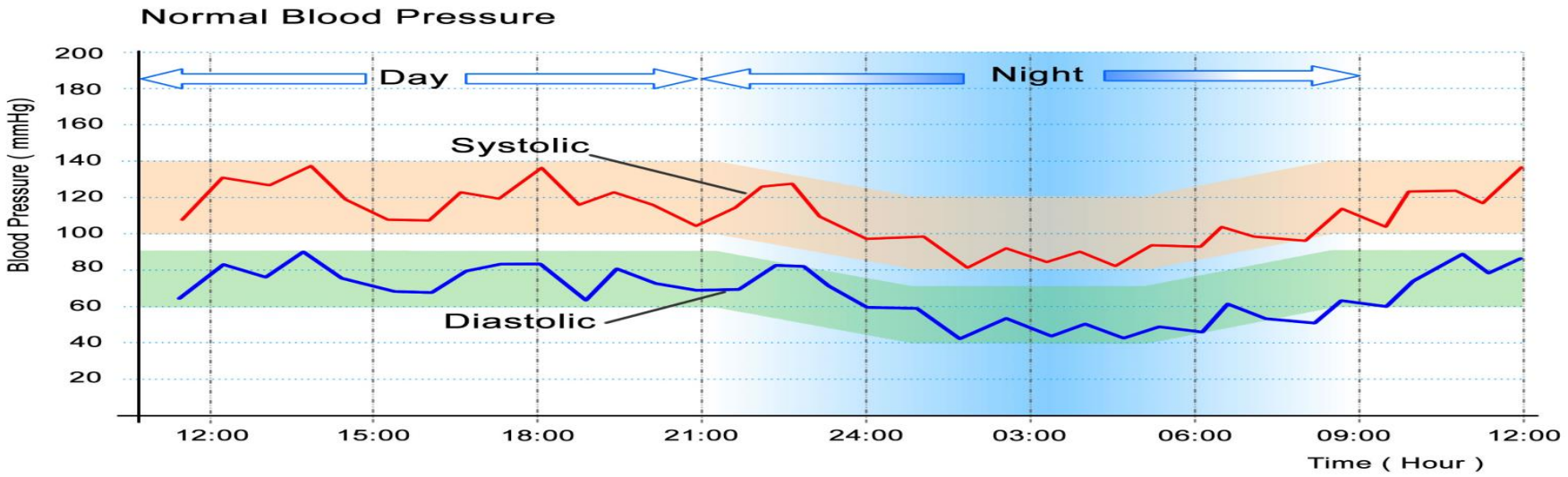
正確的血壓測量

測定後　各式各樣 APP 與雲端應用



白袍高血壓！？

ABPM 24小時自動血壓計



確立高血壓之診斷

- 居家測量值

  ≥ 135/85

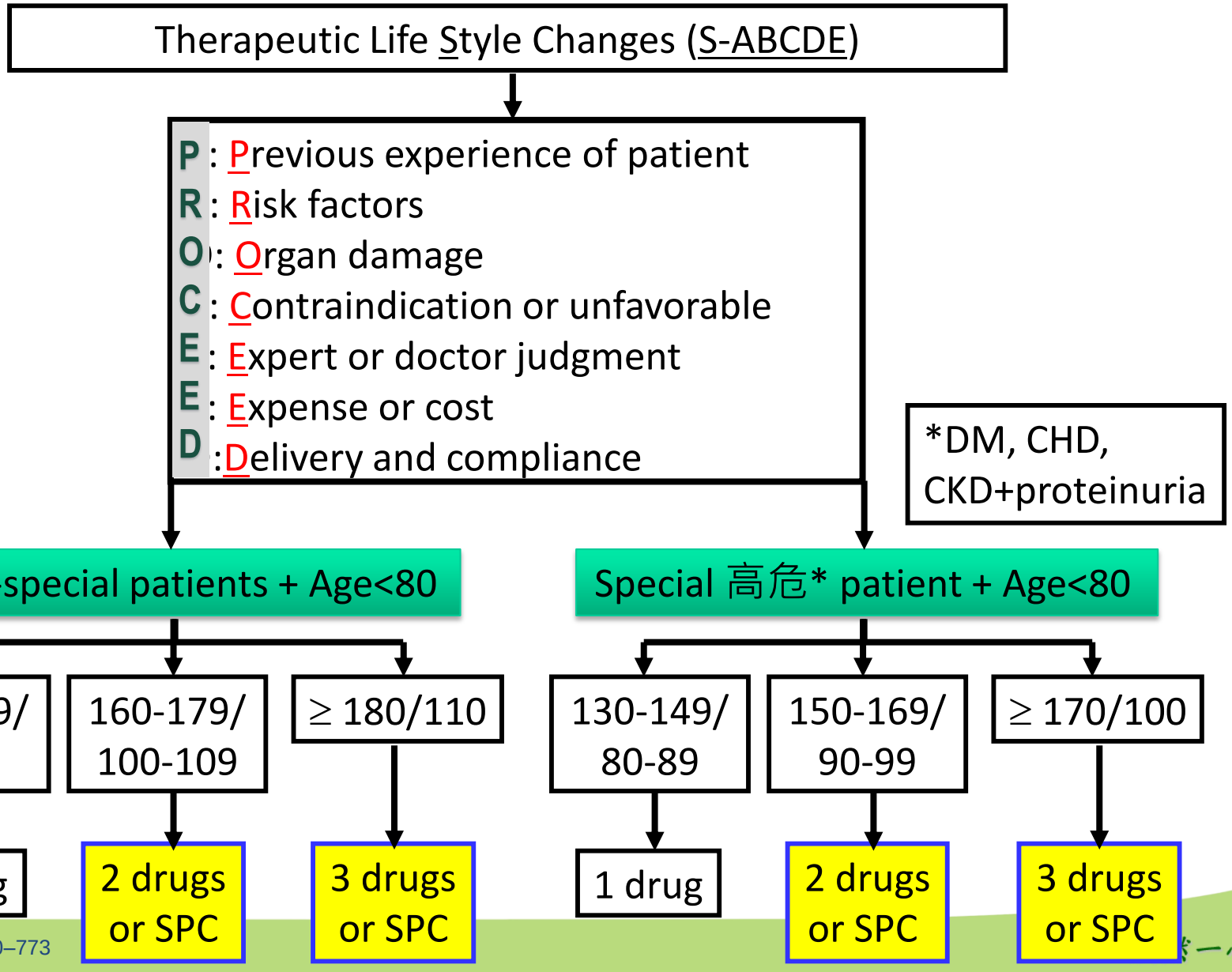
- 24小時自動血壓計平均值

  ≥ 130/80

高血壓的非藥物治療（保健）

改變	建議	預期收縮壓下降	證據等級
Sodium restriction	2-4 克/天 Na	2.5mmHg/↓g Na	I
Alcohol limitation	男:<30 克/天 酒精 女:<20 克/天 酒精	2-4mmHg	
Body weight reduction	BMI:22.5-25	1mmHg/↓Kg	I
Cigarette smoking cessation	完全戒菸		I
Diet adaptation	DASH 飲食 (多蔬果低脂)	10-12mmHg	I
Exercise adoption	有氧運動 (40min/天,3-4 天/周)	3-7mmHg	I

2015 TSOC/TSH Hypertension Guideline



JPMA 2010; 59(10): 740–773

In this guideline, we suggest that beta-blockers, except atenolol, can be used as the first-line therapy, especially in patients with:

(1) CAD
(2) history of myocardial infarction
(3) higher heart rate (80 beats/min)

Blood pressure not at goals

↓

AT GOALs

↓

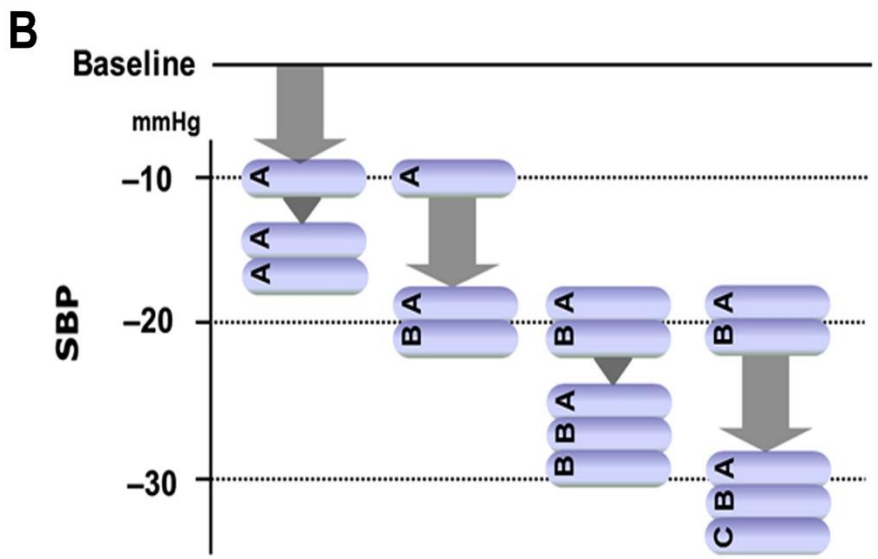
A	Adherence: reconfirmation
T	Timing of administration: by diurnal BP profile
G	Greater doses of same drugs: increasing or maximizing
O	Other classes: switching or adding
A	Alternative combinations or single-pill combination
Ls	Life style modification + Laboratory tests

Journal of the Chinese Medical Association 2015 78, 1-47DOI: (10.1016/j.jcma.2014.11.005)

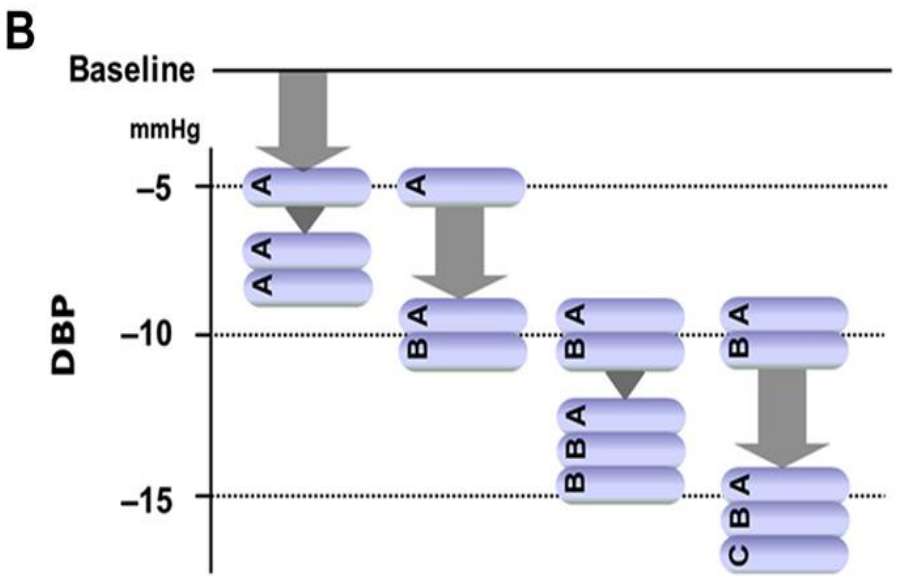
Early add-on, better reduction

rule of 10/5 for S-/D-BP

For SBP, the rule of 10 for add-on



For DBP, the rule of 5 for add-on



Recommended 2-combination

- ✓ ARB+CCB (A+C)
- ✓ ACE inhibitor+CCB (A+C)
- ✓ ARB+thiazide diuretic (A+D)
- ✓ ACE inhibitor+thiazide diuretic (A+D)
- ✓ CCB+beta-blocker (B+C)

Recommended 3-combination

ACE inhibitor (or ARB)+CCB+Thiazide diuretic (A+C+D)

NO combination

Beta-blocker + diuretic (except in heart failure)

ACE inhibitor + ARB

(ACE inhibitor or ARB) + DRI

The 2017 Focused Update of the Guidelines of the Taiwan Society of Cardiology (TSOC) and the Taiwan Hypertension Society (THS) for the Management of Hypertension

Chern-En Chiang,[1] Tzung-Dau Wang,[2] Tsung-Hsien Lin,[3] Hung-I Yeh,[4] Ping-Yen Liu,[5] Hao-Min Cheng,[6] Ting-Hsing Chao,[7] Chen-Huan Chen,[8] Kou-Gi Shyu,[9] Kwo-Chang Ueng,[10] Chung-Yin Chen,[11] Pao-Hsien Chu,[12] Shih-Hsien Sung,[13] Kang-Ling Wang,[14] Yi-Heng Li,[7] Kuo-Yang Wang,[15] Fu-Tien Chiang,[16] Wen-Ter Lai,[3,17] Jyh-Hong Chen,[18] Wen-Jone Chen,[2,19] San-Jou Yeh,[20] Ming-Fong Chen,[21] Shing-Jong Lin[22] and Jiunn-Lee Lin[2]

2017年台灣高血壓指引重點更新

血壓量測四重點EMAU

EMAU代表：

Electronic and automated device	**電子式血壓計**
Multiple readings	隔一分鐘量兩次
Averaged mean	**取平均**
Unattended and undisturbed spaces	舒適安靜的空間才準

2017年台灣高血壓指引重點更新

高血壓治療特殊族群

傳統診間血壓標的

放寬標準	血壓標的
大於75歲	140/90

嚴格控制	血壓標的
糖尿病	130/80
冠心病	130/80
腎病變有蛋白尿	130/80
吃抗血栓藥物預防腦中風	130/80

2017年台灣高血壓指引重點更新

高血壓治療特殊族群

診間外自動血壓計、居家血壓、ABPM

新標準	血壓標的
大於75歲	120/na

嚴格控制	血壓標的
糖尿病	130/80
冠心病	120/na
腎病變有蛋白尿	120/na
吃抗血栓藥物預防腦中風	130/80

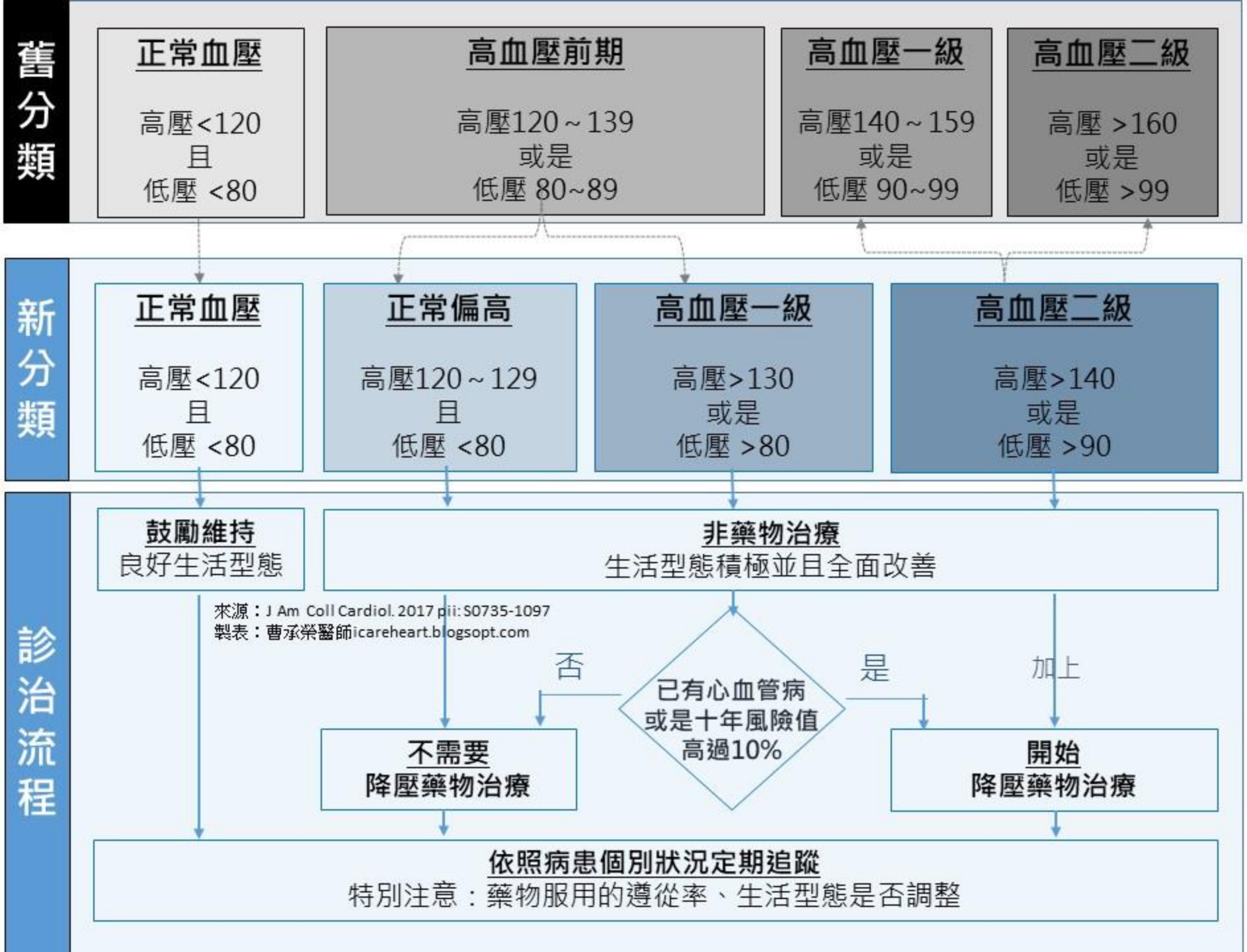
2017年台灣高血壓指引重點更新

2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults

Paul K. Whelton, MB, MD, MSc, FAHA, *Chair*
Robert M. Carey, MD, FAHA, *Vice Chair*

AMERICAN COLLEGE of CARDIOLOGY

American Heart Association®
life is why™


舊分類
正常血壓
高壓<120
且
低壓 <80
高血壓前期
高壓120~139
或是
低壓 80~89
高血壓一級
高壓140~159
或是
低壓 90~99
高血壓二級
高壓 >160
或是
低壓 >99
新分類
正常血壓
高壓<120
且
低壓 <80
正常偏高
高壓120~129
且
低壓 <80
高血壓一級
高壓>130
或是
低壓 >80
高血壓二級
高壓>140
或是
低壓 >90
診治流程
鼓勵維持
良好生活型態
非藥物治療
生活型態積極並且全面改善
來源：J Am Coll Cardiol. 2017 pii: S0735-1097
製表：曹承榮醫師icareheart.blogsopt.com
否
已有心血管病
或是十年風險值
高過10%
是
加上
不需要
降壓藥物治療
開始
降壓藥物治療
依照病患個別狀況定期追蹤
特別注意：藥物服用的遵從率、生活型態是否調整

高血壓的非藥物治療

方法	內容	降壓效果	
		高血壓患者	正常人
減重	比理想體重（BMI 20～25）還高的民眾適用。大約每減重1 公斤，收縮壓會降低 1 mmHg。	-5 mm Hg	-2/3 mm Hg
得舒飲食（DASH diet）	多攝取六大類食物（全穀根莖類、蔬菜類、水果類、脫脂/低脂奶類、高蛋白質類、油脂及堅果類）	-11 mm Hg	-3 mm Hg
少鹽飲食	每日理想的鈉攝取量是 <1500 mg/d, 對大多數民眾而言，至少每天減少1000 mg的鈉離子攝取	-5/6 mm Hg	-2/3 mm Hg
多鉀食物	如果沒有腎臟病，可以多攝取含有鉀離子的蔬果，每天最適當的量是3500–5000 mg。	-4/5 mm Hg	-2 mm Hg
有氧運動	● 每週90–150 分鐘 ● 達到最大心跳的 65%–75%	-5/8 mm Hg	-2/4 mm Hg
動態阻力性運動 Dynamic resistance	● 每週 90–150 分鐘 ● 達到 50%–80% 1RM(rep maximum) ● 6 個循環, 每次循環3組動作，每組動作重複10次。	-4 mm Hg	-2 mm Hg
等長阻力性運動 Isometric resistance	● 四次兩分鐘的握力 (hand grip), 中間每次間隔一分鐘，達到30%–40% 最大握力，每週至少三次 ● 8–10 週見效	-5 mm Hg	-4 mm Hg
飲酒需適量	● 男性：每天勿超過 30CC純酒精 ● 女性：每天勿超過 15CC純酒精	-4 mm Hg	-3 mm

常見的高鉀蔬果


蘆筍


哈密瓜


葡萄柚


蘑菇


鳳梨


酪梨


玉米


奇異果


洋蔥


甜豆


高麗菜

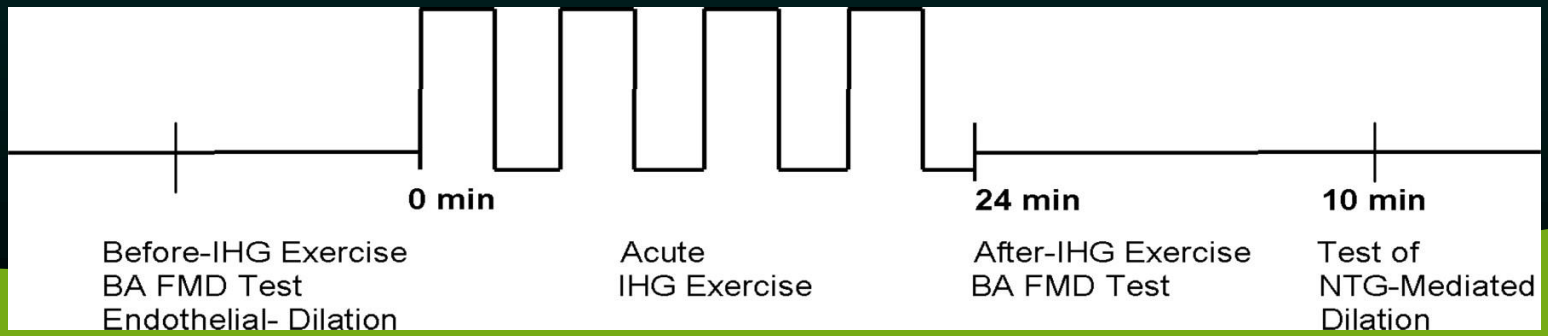

茄子


芒果


木瓜


地瓜

Isometric handgrip exercise



Choice of Initial Medication

COR	LOE	Recommendation for Choice of Initial Medication
I	A^{SR}	For initiation of antihypertensive drug therapy, first-line agents include thiazide diuretics, CCBs, and ACE inhibitors or ARBs.

SR indicates systematic review.

高血壓藥物治療的閥值與控制目標值

臨床情境	治療閥值	治療目標值
通盤情形		
已患有心血管病或是10年ASCVD指標≥10%	≥130/80	<130/80
沒有心血管病且10年ASCVD指標<10%	≥140/90	<130/80
非虛弱老人 (65歲以上，非機構安養，行動方便)	≥130 (SBP)	<130 (SBP)
特殊狀況與共病		
糖尿病	≥130/80	<130/80
慢性腎病	≥130/80	<130/80
腎病接受腎臟移植後	≥130/80	<130/80
心衰竭	≥130/80	<130/80
穩定性冠心病	≥130/80	<130/80
腦中風次級預防	≥140/90	<130/80
腦中風次級預防（小動脈血管Lacunar）	≥130/80	<130/80
週邊動脈疾病	≥130/80	<130/80

Top Ten Things to Know: 2017 Hypertension Clinical Guidelines

1. Change in Classification of BP
2. Prevalence of Hypertension
3. Accurate measurement of BP
4. Secondary Forms of Hypertension
5. Nonpharmacological management of high BP
6. Drug management of hypertension
7. Choice of Antihypertensive Medication
8. Special Patient Groups
9. Other Considerations in Adults with Hypertension
10. Improving Treatment and Control in Adults with Hypertension

Top Ten Things to Know: 2017 Hypertension Clinical Guidelines

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2018 ESC/ESH Guidelines for the Management of Arterial Hypertension

The Task Force for the management of arterial hypertension of the European Society of Cardiology (ESC) and the European Society of Hypertension (ESH)

Authors/Task Force Members:

Bryan Williams* (ESC Chairperson) (UK), Giuseppe Mancia*(ESH Chairperson) (Italy), Wilko Spiering (The Netherlands), Enrico Agabiti Rosei (Italy), Michel Azizi (France), Michel Burnier (Switzerland), Denis L. Clement (Belgium), Antonio Coca (Spain), Giovanni de Simone (Italy), Anna Dominiczak (UK), Thomas Kahan (Sweden), Felix Mahfoud (Germany), Josep Redon (Spain), Luis Ruilope (Spain), Alberto Zanchetti, Mary Kerins (Ireland), Sverre E. Kjeldsen (Norway), Reinhold Kreutz (Germany), Stephane Laurent (France), Gregory Y. H. Lip (UK), Richard McManus (UK), Krzysztof Narkiewicz (Poland), Frank Ruschitzka (Switzerland), Roland E. Schmieder (Germany), Evgeny Shlyakhto (Russia), Costas Tsioufis (Greece), Victor Aboyans (France), Ileana Desormais (France).

www.escardio.org/guidelines

Williams B, Mancia G et al. Eur Heart J (2018); doi:10.1093/eurheartj/ehy339
Williams B, Mancia G et al. J Hypertens (2018); doi:10.1097/HJH0000000000001940

Top-line Summary - New concepts

Blood Pressure measurement

- Wider use of out-of-office BP measurement with ABPM and/or HBPM, especially HBPM, as an option to confirm the diagnosis of hypertension, detect white coat and masked hypertension and monitor BP control.

Less conservative treatment of hypertension - especially in older and very old patients

- Lower BP thresholds and treatment targets for older patients – with emphasis on considerations of biological rather than chronological age (i.e. the importance of frailty, independence, and the tolerability of treatment)

New target ranges for Blood Pressure in treated patients

- Target BP ranges for treated patients to better identify the recommended BP target and the lower boundary of safety for treated BP, according to a patient's age and specific comorbidities.

www.escardio.org/guidelines

Williams B, Mancia G et al. Eur Heart J (2018); doi:10.1093/eurheartj/ehy339
Williams B, Mancia G et al. J Hypertens (2018); doi:10.1097/HJH0000000000001940

Top-line Summary - New concepts

A Single Pill treatment strategy to improve BP control

- **Preferred use of two-drug combination** therapy for the initial treatment of most people with hypertension.
- **A single-pill treatment strategy for hypertension** with the preferred use of single pill combination therapy for most patients.
- **Simplified drug-treatment algorithms** with the preferred use of an ACE inhibitor or ARB combined with a CCB or/and a thiazide/thiazide-like diuretic as the core treatment strategy for most patients, with beta-blockers used for specific indications.

Detecting poor adherence to drug therapy

- Strong emphasis on the importance of evaluating treatment adherence as a major cause of poor BP control.

Key role for nurses, pharmacists in the longer-term management of hypertension

www.escardio.org/guidelines

Williams B, Mancia G et al. Eur Heart J (2018); doi:10.1093/eurheartj/ehy339
Williams B, Mancia G et al. J Hypertens (2018); doi:10.1097/HJH0000000000001940

Classification of Blood Pressure (Office BP*)

Recommendations	Class	Level
It is recommended that BP be classified as optimal, normal, high-normal, or grades 1–3 hypertension, according to office blood pressure.	I	C

Category	Systolic (mmHg)		Diastolic (mmHg)
Optimal	< 120	and	< 80
Normal	120–129	and/or	80-84
High normal	130–139	and/or	85-89
Grade 1 hypertension	140–159	and/or	90-99
Grade 2 hypertension	160–179	and/or	100-109
Grade 3 hypertension	≥ 180	and/or	≥ 110
Isolated systolic hypertension	≥ 140	and	< 90

*Conventional office BP rather than unattended office BP

www.escardio.org/guidelines

Williams B, Mancia G et al. Eur Heart J (2018); doi:10.1093/eurheartj/ehy339
Williams B, Mancia G et al. J Hypertens (2018); doi:10.1097/HJH0000000000001940

2018 ESH/ESC Hypertension Guideline

Category	Systolic BP (mmHg)		Diastolic BP (mmHg)
Office BP	≥140	and/or	≥90
Ambulatory BP			
Daytime (or awake)	≥135	and/or	≥85
Nighttime (or asleep)	≥120	and/or	≥70
24-h	≥130	and/or	≥80
Home BP	≥135	and/or	≥85

Cardiovascular Risk is influenced by Severity of Hypertension, other Risk Factors, Hypertension-Mediated Organ Damage and Disease

ESC European Society of Cardiology

ESH European Society of Hypertension

CV Risk Influenced by:

- Severity of Hypertension
- Other risk factors (SCORE)
- Hypertension-Mediated Organ Damage (HMOD)
- Co-existing disease (CVD, CKD, Diabetes)

Hypertension disease staging	Other risk factors, HMOD, or disease	BP (mmHg) grading			
		High-normal SBP 130–139 DBP 85–89	Grade 1 SBP 140–159 DBP 90–99	Grade 2 SBP 160–179 DBP 100–109	Grade 3 SBP ≥ 180 DBP ≥ 110
Stage 1 (uncomplicated)	No other risk factors	Low-risk	Low-risk	Moderate Risk	High-risk
	1 or 2 risk factors	Low-risk	Moderate risk	Moderate – high risk	High-risk
	≥ 3 risk factors	Low – moderate risk	Moderate – high risk	High-risk	High-risk
Stage 2 (asymptomatic disease)	HMOD, CKD grade 3, or diabetes mellitus without organ damage	Moderate – high risk	High-risk	High-risk	High – very high-risk
Stage 3 (Established disease)	Esyablished CVD, CKD grade ≥ 4, or diabetes mellitus with organ damage	Very high-risk	Very high-risk	Very high-risk	Very high-risk

Recommendations	Class	Level
CV risk assessment with the SCORE system is recommended for hypertensive patients who are not already at high or very high risk due to established CV or renal disease or diabetes or a markedly elevated single risk factor (e.g. cholesterol), or hypertensive LVH.	I	B

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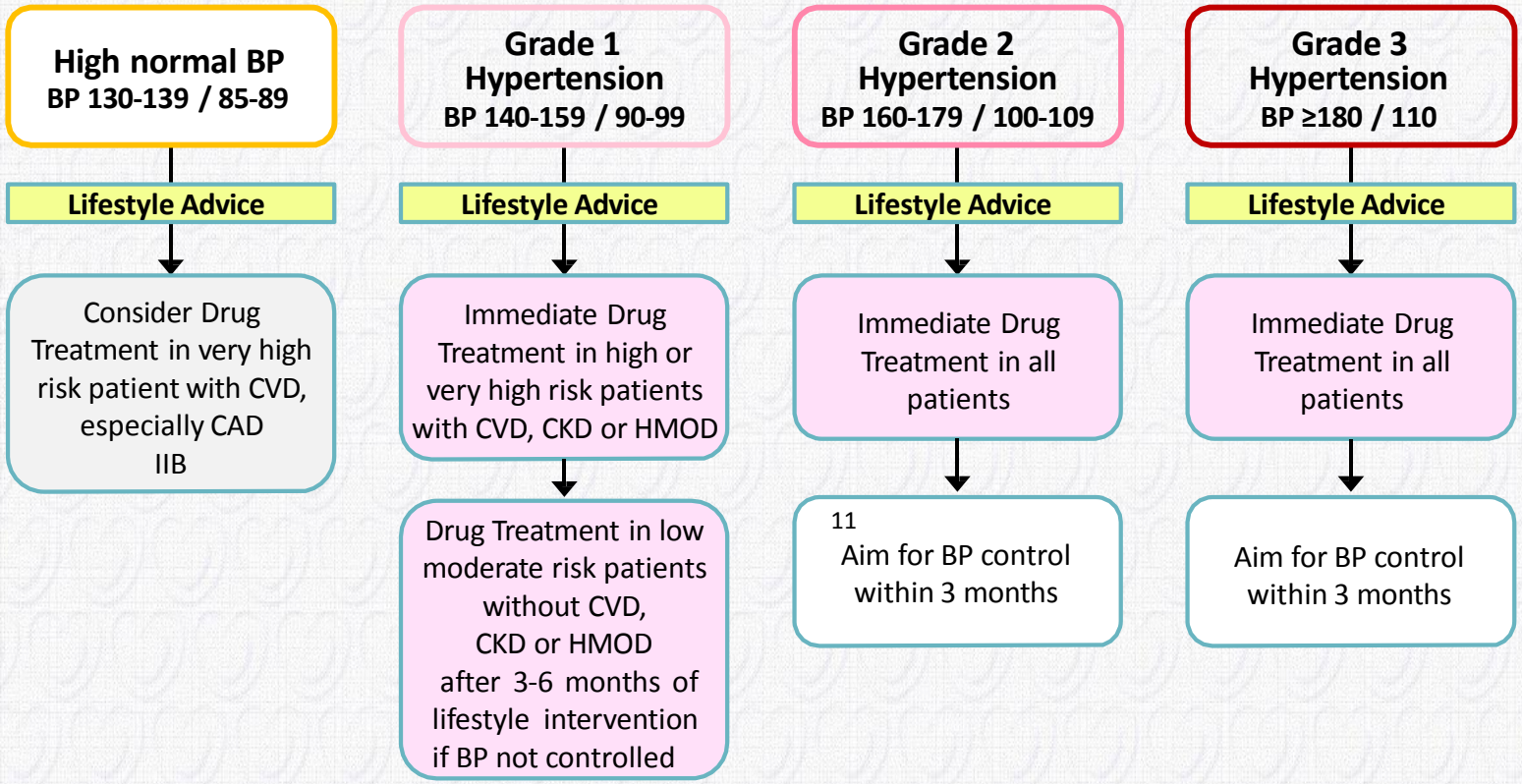
Williams B, Mancia G et al. Eur Heart J (2018); doi:10.1093/eurheartj/ehy339
Williams B, Mancia G et al. J Hypertens (2018); doi:10.1097/HJH0000000000001940

Office Blood Pressure Thresholds for Treatment



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Williams B, Mancia G et al. Eur Heart J (2018); doi:10.1093/eurheartj/ehy339
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Summary - Office BP Thresholds for Treatment

Age group	Office SBP treatment threshold (mmHg)					Diastolic treatment Threshold (mmHg)
	Hypertension	+ Diabetes	+ CKD	+ CAD	+ Stroke/ TIA	
18–65 years	≥ 140	≥ 140	≥ 140	≥ 140[a]	≥ 140[a]	≥ 90
65–79 years	≥ 140	≥ 140	≥ 140	≥ 140[a]	≥ 140[a]	≥ 90
≥ 80 years	≥ 160	≥ 160	≥ 160	≥ 160	≥ 160	≥ 90
Diastolic treatment threshold (mmHg)	≥ 90	≥ 90	≥ 90	≥ 90	≥ 90	

[a]Treatment may be considered in these very high-risk patients with high–normal SBP (i.e. SBP 130–140 mmHg)

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2018 ESH/ESC Hypertension Guideline

BP ~~Target~~ Range

2018 ESC/ESH Hypertension Guidelines

SBP targets in some hypertensive subgroups

			Class/level
Age < 65 years	120 to <130 mmHg	(recommended)	IA
Age ≥ 65 years	130 to <140 mmHg	(recommended)	IA*
Diabetes	130 mmHg or lower**	(recommended)	IA
CAD	130 mmHg or lower	(recommended)	IA
CKD	130 to <140 mmHg	(recommended)	IA
Post-stroke/TIA	120 to <130 mmHg	(to be considered)	IIaB

* Close monitoring of adverse events / ** if tolerated

ESC European Society of Cardiology

Williams, Mancia et al., J Hypertens 2018 and Eur Heart J 2018, in press

European Society of Hypertension

Summary - Office BP Target Ranges

Age group	Office SBP treatment target ranges (mmHg)					DBP treatment target range (mmHg)
	Hypertension	+ Diabetes	+ CKD	+ CAD	+ Stroke/ TIA	
18–65 years	Target to 130 *or lower if tolerated* Not <120	Target to 130 *or lower if tolerated* Not <120	Target to <140 to 130 *if tolerated*	Target to 130 *or lower if tolerated* Not <120	Target to 130 *or lower if tolerated* Not <120	<80 to 70
65–79 years	Target to <140 to 130 *if tolerated*	Target to <140 to 130 *if tolerated*	Target to <140 to 130 *if tolerated*	Target to <140 to 130 *if tolerated*	Target to <140 to 130 *if tolerated*	<80 to 70
≥ 80 years	Target to <140 to 130 *if tolerated*	Target to <140 to 130 *if tolerated*	Target to <140 to 130 *if tolerated*	Target to <140 to 130 *if tolerated*	Target to <140 to 130 *if tolerated*	<80 to 70
DBP treatment target range (mmHg)	< 80 to 70	< 80 to 70	< 80 to 70	< 80 to 70	< 80 to 70	

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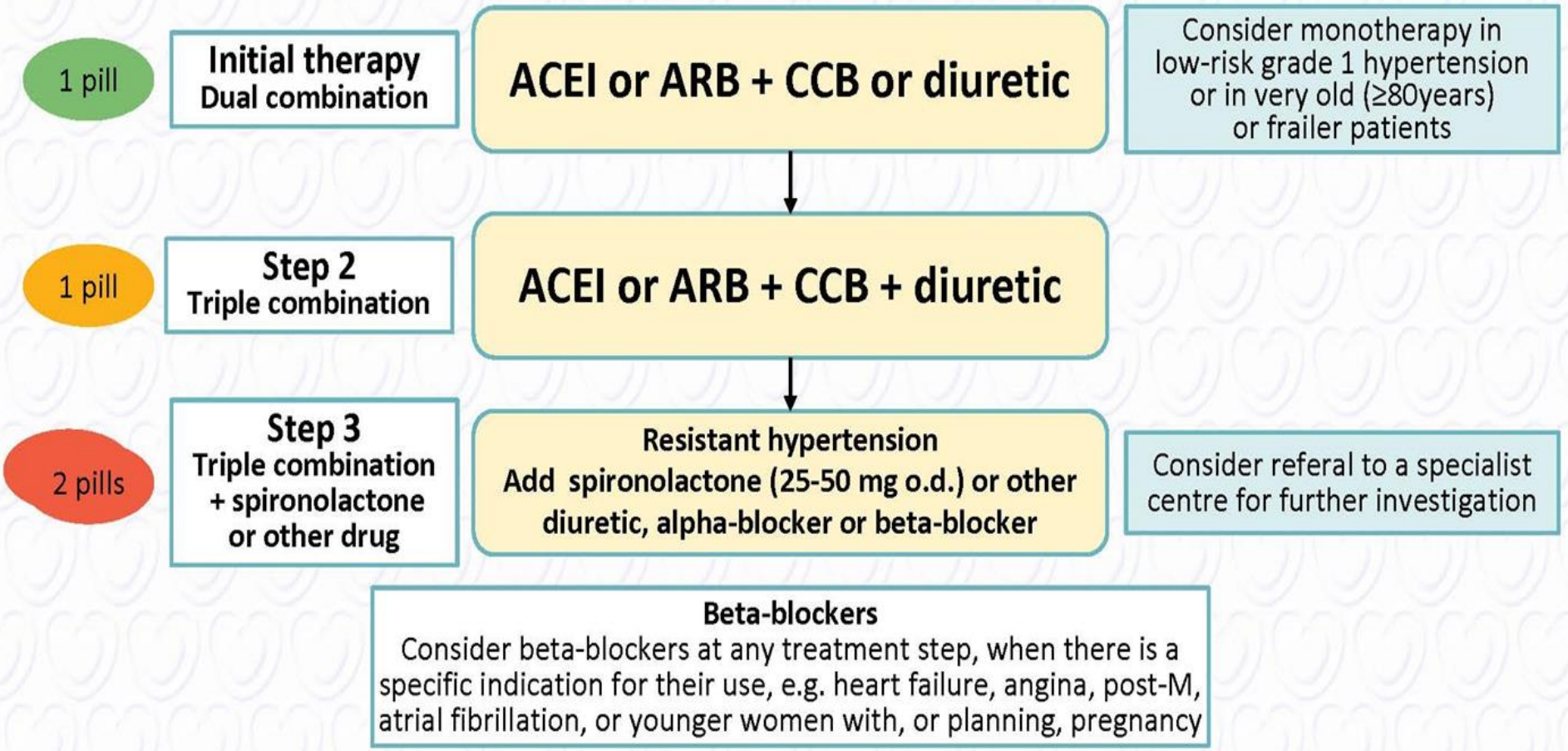
Williams B, Mancia G et al. Eur Heart J (2018); doi:10.1093/eurheartj/ehy339
Williams B, Mancia G et al. J Hypertens (2018); doi:10.1097/HJH0000000000001940

2018 ESH/ESC Hypertension Guideline

Drug therapy



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2018 ESC/ESH Guidelines for the management of arterial hypertension
European Heart Journal (2018) doi:10.1093/eurheartj/ehy339
European Journal of Hypertension (2018) doi:10.1097/HJH.0000000000001940

2018 ESC-ESH Guidelines for the Management of Arterial Hypertension

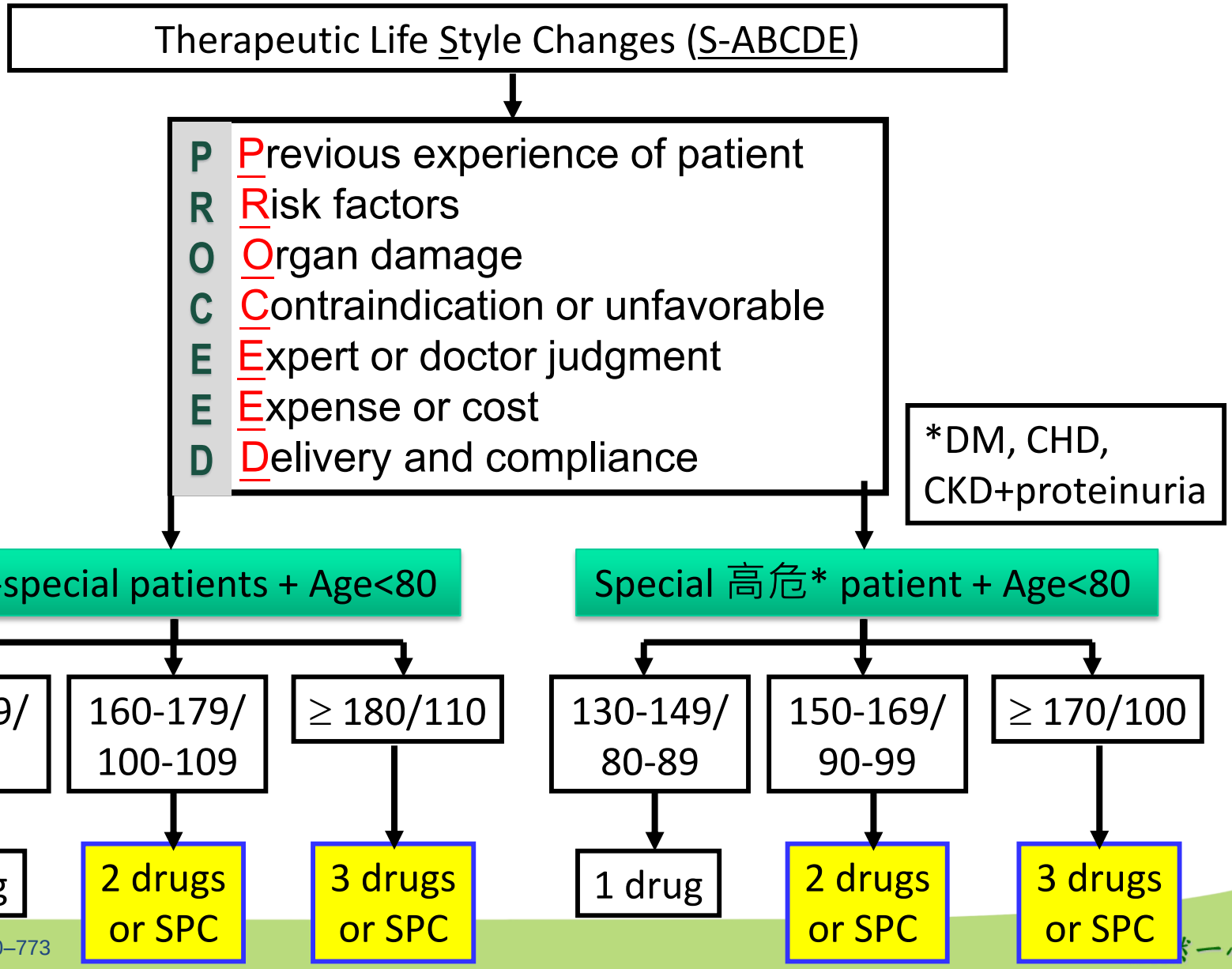
Hypertension in specific circumstances

- Management of hypertension emergencies
- Updated recommendations on the management of BP in acute stroke
- Updated recommendations on the management of hypertension in women and pregnancy
- Hypertension in different ethnic groups
- Hypertension and chronic obstructive pulmonary disease
- Hypertension and AF and other arrhythmias
- Oral anticoagulant use in hypertension
- Hypertension and sexual dysfunction
- Hypertension and cancer therapies
- Perioperative management of hypertension
- Glucose-lowering drugs and BP

Take Home Message

- 國內外報告皆顯示約七成高血壓病人需要兩種以上高血壓藥物治療.
- 國內外最新guideline皆建議 A+C 為最佳正確組合
- Single pill combination可以增加病人服藥順從性達30%；服藥順從性增加可以改善心血管疾病危險因子進而改善病人長期預後
- 血壓控制目標值：
  高壓保在120-140，越高危越積極

2015 TSOC/TSH Hypertension Guideline



JNMA 2010; 49(10): 740–773

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謝謝

Evolution of Guidelines and Treatment Strategies for Hypertension

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