Supplementary material

Screening Questionnaire

S1. Are you or any of your immediate family members affiliated with a pharmaceutical manufacturer, a market research company, a marketing consultancy or an advertising agency? **(Single response)**

Yes	1	**Terminate**
No	2	Continue

S2a. Record respondent's gender (**SINGLE RESPONSE**)

Male	1	Record only
Female	2	Record only

S2b. Record respondent's age

21-30 years old	1	Record only
31-40 years old	2	Record only
41-50 years old	3	Record only
51-60 years old	4	Record only
61-70 years old	5	Record only
Above 70 years old	6	Record only

S3. What is your primary specialty? (**SINGLE RESPONSE**)

General Practitioner (GP)	1	Continue
Cardiologist	2	Continue
Nephrologist	3	Continue
Others	4	**Terminate**

IF GP (S3 CODE 1)

S4a. Which one of the following best describes your primary practice type? (**SINGLE RESPONSE**)

Public	1	**Terminate**
Private Practice/GP Clinic (own name clinic excluding locum)	2	Continue
Group Practice	3	Continue
Others	3	**Terminate**

IF CARDIO/NEPHRO (S3 CODE 2/3)

S4b. Which one of the following best describes your primary practice type? (**SINGLE RESPONSE**)

Restructured	1	Continue
Private	2	Continue
Others	3	**Terminate**

S5. How many years have you been in practice as a <GP/Cardio/Nephro>?

_______________ years	**Terminate if <3 years**

S6. What proportion of your time is spent on direct patient care (time spend on clinical care)? (**RECORD WHOLE NUMBER**)

_____ % time spent in direct patient care	Terminate if <70%

S7. In a typical **month**, how many hypertensive patients (with or without comorbidities) do you personally have primary responsibilities for treating? Please include new and follow-up patients but count only repeat patients once. (**RECORD WHOLE NUMBER**)

_______________ hypertension patients personally treated	Terminate if <30

S8. Focusing on your hypertension patients in the last month, what is the proportion classified by severity?

Please consider only unique patients, do not count repeat visits from the same patient.

Proportion of patients	**ESH/ESC classification**	Systolic mmHg		Diastolic mmHg
☐☐☐%	Grade 1 HTN	140-159	±	90-99
☐☐☐%	Grade 2 HTN	160-179	±	100-109
☐☐☐%	Grade 3 HTN	≥180	±	≥110
ENSURE TOTAL = 100%				

S9 INTERVIEWER TO RECORD

North	1	Record Only
East	2	
West	3	
North East	4	
Central	5	

S10 RECRUITMENT TYPE

Database	1	To prioritize recruitment from database and proceed to free find once exhausted
Free Find	2	

We are now being asked to pass on to our client details of adverse events that are mentioned during the course of healthcare research interviews. Although what you say will, of course, be treated in confidence, should you raise during the discussion an adverse event in a specific patient, we will need to report this even if it has already been reported by you directly to the company or regulatory authorities.

In such a situation, we will ask you if you are willing to waive the confidentiality given to you under the Market Research Codes of Conduct specifically in relation to that adverse event, so the company's pharmaco-vigilance team can contact you. Everything else you say during the course of the interview will continue to remain confidential. You have the option to remain anonymous if you so wish.

S11 Are you happy to allow me to pass on your details to the company's pharmaco-vigilance team if you describe an adverse event? (**SINGLE RESPONSE**)

Yes – happy to continue and waive anonymity in respect of adverse events	1	Continue
No – happy to continue but would like to maintain anonymity	2	Continue

Invitation to Successful Respondents

As I mentioned earlier, we are currently conducting a study in Singapore to investigate doctors' rationale, challenges and attitudes towards the management of blood pressure variability (BPV) among patients with hypertension. Your views are most important because they could set the direction for this therapy area in the future.

All interviews will be conducted face-to-face by one of our specialist healthcare interviewers and would last 30 minutes.

It can be conducted either at your office or a location of your recommendation, at a time most convenient to you.

In appreciation of your time and co-operation, you will be presented a token of ________ (local currency) upon completion of the interview. You will have the choice of keeping it or donating it to a charitable organisation of your choice. Your participation and comments will be kept in the strictest confidence.

Would you be willing to participate?

Full Survey

Section 1: General BP management

We will like to understand more about the hypertension patients you manage

1.1. Previously you indicated that you have seen <mention answer from S7> hypertensive patients in an average month, is this correct?

	Q1.1
Yes	1
No	2

1.2. And how many of these patients are suffering from the following co-morbidities?

		# of patients
1	Hypertension only	_____%
2	Hypertension with diabetes	_____%
3	Hypertension with hyperlipidemia	_____%
4	Hypertension with stroke	_____%
5	Hypertension with angina	_____%
6	Hypertension with arrhythmia/ atrial fibrillation	_____%
7	Hypertension with heart failure	_____%
8	Hypertension with myocardial Infarction	_____%
	Others	_____%
	TOTAL	**> or = 100%**

1.3. Which guidelines do you follow to manage your hypertensive patients?

MULTIPLE RESPONSES ALLOWED

	Q1.3
ESC/ESH (European Society of Cardiology/Hypertension)	1
MOH (Ministry of Health), Singapore	2
JSH (Japanese Society of Hypertension)	3
NICE (The National Institute for Health and Care Excellence)	4
JNC8 (Eighth Joint National Committee)	5
Others please specify ________________	

1.4. What is the target cut off for clinic <u>diastolic blood pressure</u> when you initiate drug therapy for the following patients?

a. Younger patients
b. Older patients
c. Diabetic patients
d. Kidney disease patients

LOGIC CHECK: SINGLE RESPONSE PER PATIENT TYPE

	Younger patients (40-60 years)	Older patients (>60 years)	Diabetic patients	Kidney disease patients
> 80 mm Hg	1	1	1	1
>85 mm Hg	2	2	2	2
> 90 mm Hg	3	3	3	3

1.5. What is the target cut off for clinic <u>systolic blood pressure</u> when you initiate drug therapy for the following patients?
a. Younger patients
b. Older patients
c. Diabetic patients
d. Kidney disease patients

LOGIC CHECK: SINGLE RESPONSE PER PATIENT TYPE

	Younger patients (40-60 years)	Older patients (>60 years)	Diabetic patients	Kidney disease patients
> 120 mm Hg	1	1	1	1
> 130 mm Hg	2	2	2	2
> 135 mm Hg	3	3	3	3
> 140 mm Hg	4	4	4	4

1.6. What is the proportion of your hypertensive patients who achieve this target?
a. Younger patients
b. Older patients
c. Diabetic patients
d. Kidney disease patients

LOGIC CHECK: ANSWER PER PATIENT TYPE SHOULD BE ≥100%

	Younger patients (40-60 years)	Older patients (>60 years)	Diabetic patients	Kidney disease patients
% of patients who achieve target BP	%	%	%	%

1.7. Now, thinking of this same group of patients, what is the percentage of patients you are likely to initiate monotherapy versus multiple anti-hypertensive drugs?
a. Younger patients
b. Older patients
c. Diabetic patients
d. Kidney disease patients

	Younger patients (40-60 years)	Older patients (>60 years)	Diabetic patients	Kidney disease patients
Single agent	%	%	%	%
>1 agents	%	%	%	%
	=100%	**=100%**	**=100%**	**=100%**

1.8. What is the most commonly prescribed 'Monotherapy' class of anti-hypertensive drugs for these patients groups?
a. Younger patients
b. Older patients
c. Diabetic patients
d. Kidney disease patients

SINGLE RESPONSE ONLY

	Younger patients (40-60 years)	Older patients >60 years)	Diabetic patients	Kidney disease patients
ACEI	1	1	1	1
ARBs	2	2	2	2
CCBs	3	3	3	3
Diuretics	4	4	4	4
ß-blocker FDC	5	5	5	5
None	6	6	6	6

1.9. What is the most commonly prescribed 'combination' among classes of anti-hypertensive drugs for these patients groups?

SINGLE RESPONSE PER PATIENT TYPE

a. Younger patients
b. Older patients
c. Diabetic patients
d. Kidney disease patients

	Younger patients (40-60 years)	Older patients (>60 years)	Diabetic patients	Kidney disease patients
ARB + CCB	1	1	1	1
ARB + Diuretics	2	2	2	2
ARB + BB FDC	3	3	3	3
ACEi + CCB	4	4	4	4
ACEi + Diuretics	5	5	5	5
ACEi + BB FDC	6	6	6	6
ARB + CCB + Diuretics	7	7	7	7
ACEi + CCB + Diuretics	8	8	8	8
ARB + ACEi	9	9	9	9
Others	10	10	10	10
None				

Section 2: BPV awareness and Diagnosis

Within this section, we will be discussing how you define and manage hypertensive patients.

2.1. Which of the following do you consider to be part of blood pressure variability?

Multiple responses allowed

	Q2.1
Morning hypertension	1
Evening hypertension	2
Nocturnal hypertension	3
Nocturnal dipping	4
Morning surge	5
Diagnosis of white-coat hypertension	6
Diagnosis of masked hypertension	7
Others: Please specify	

2.2. How do you typically diagnose hypertensive patients with Blood Pressure Variability (BPV)?

Multiple responses allowed

	Q2.2
Clinic Blood Pressure (CBP)	1
Home Blood Pressure Monitoring (HBPM)	2
Ambulatory Blood Pressure Monitoring (ABPM)	3

2.3. How much value do you place the following clinical parameters in the diagnosis and treatment of hypertension? On a scale of 1 to 10 where 1 is “not at all important” and 10 is “extremely important”, please provide a scale for each of this clinical parameter.

		Q2.3
1	Clinic Blood Pressure (CBP)	
2	Home Blood Pressure Monitoring (HBPM)	
3	Ambulatory Blood Pressure (ABPM)	

Section 3: Home Blood Pressure Monitoring - 10 mins

In this section, we will like to understand your opinions about home blood pressure monitoring

3.1a. Do you recommend measurements of Home Blood Pressure Monitoring (HBPM) to your hypertensive patients?

3.1b. For what proportion of your hypertensive patients do you recommend measurement of home blood pressure monitoring?

	Q3.1	Q3.1b
Yes	1	%
No	2	Proceed to Q3.3

IF Q3.1b CODE 1 IS SELECTED

3.2. Why do you recommend Home Blood Pressure Monitoring (HBPM) to your hypertensive patients?

Multiple responses allowed

	Q3.2
Evaluation of efficacy of anti-hypertensive drugs	1
Hypertension management based on HBPM	2
Diagnosis of resistant hypertension	3
Improvement of drug compliance	4
Diagnosis of hypotension	5
Evaluation of blood pressure variability	6
Evaluation of hypertensive patients’ CVD risks	7
Others	

3.3. What weekly HBP measurement frequency do you recommend to patients?

SINGLE RESPONSE ONLY

	Q3.3
One day	1
Two days	2
Three days	3
Four days	4
Five days	5
Six days	6
Everyday	7

3.4. How many times should home blood pressure (HBP) monitoring be measured on each occasion?

SINGLE RESPONSE ONLY

	Q3.4
Once	1
Twice	2
Three times	3
Four times	4
No instructions	5

3.5. How long should home blood pressure (HBP) be monitored?

SINGLE RESPONSE ONLY

	Q3.5
For a week	1
For a month	2
For several months	3
For a year	4
For several years	5
Lifelong	6
No instructions	7

3.6. How do you instruct patients to document high blood pressure measurement?

SINGLE RESPONSE ONLY

	Q3.6
First measurement	1
Second measurement	2
Third measurement	3
All measurements	4
Mean (first, second measurement)	5
Mean (second, third measurement)	6
Mean (all measurements)	7
Other	8
No instructions	9

3.7. Please select your instruction of HBP measurement in the morning to your patients with hypertension.

SINGLE RESPONSE ONLY

a. "Timing of measurement after waking"

	Q3.7a
Just after waking	1
Within 30 minutes after waking	2
Within an hour after waking	3
No instructions	4

b. "Micturition"

	Q3.7b
After Micturition	1
Before Micturition	2
No instructions	3

c. "Body Position"

	Q3.7c
Sitting position	1
Recumbent position	2
No instructions	3

d. "Time of rest before measurement"

	Q3.7d
None	1
1-2 minutes of rest before measurement	2
3-4 minutes of rest before measurement	3
5 minutes or more of rest before measurement	4
No instructions	5

e. "Taking hypertensive drug"

	Q3.7e
After taking hypertensive drug	1
Before taking hypertensive drug	2
No instructions	3

f. “Breakfast”

	Q3.7f
After breakfast	1
Before breakfast	2
No instructions	3

3.8. Please select your instruction of timing of HBP measurement in the evening to your patients with hypertension.

SINGLE RESPONSE ONLY

	Q3.8
Before dinner	1
After dinner	2
Before bedtime	3
No instructions	4

3.9. Which HBP is important when you judge or treat patients with hypertension?

SINGLE RESPONSE ONLY

	Q3.9
Morning HBP	1
Evening HBP	2
Equally	3

3.10. In your opinion, what are the main benefits of home blood pressure monitoring? Please rank the top 3 benefits where 1 = Most important benefit and 3 = 3rd most important benefit

MULTIPLE RESPONSES ALLOWED

	Q3.10
Helps to detect and monitor blood pressure in the day-to-day management of hypertensive patients	1
Detects short term effects of withdrawing anti-hypertensive drug	2
Able to track changes in blood pressure induced by treatment	3
Enhance the evaluation of how effective blood pressure is being controlled in patients who are taking medication	4
Detects duration of the action of the anti-hypertensive drug effects (i.e. morning effect versus the evening effect ratio)	5
Provides objective measurements and strict phenotypes of blood pressure compared with ABPM and CBPM	6

3.11. Which target cut off do you follow in HBPM for diastolic blood pressure for diagnosis of hypertension?
SINGLE RESPONSE ONLY

	Q3.11
> 80 mm Hg	1
>85 mm Hg	2
> 90 mm Hg	3

3.12. Which target cut off do you follow in HBPM for systolic blood pressure for diagnosis of hypertension?
SINGLE RESPONSE ONLY

	Q3.12
>130 mm Hg	1
>135 mm Hg	2
> 140 mm Hg	3

Section 4: Ambulatory Blood Pressure Monitoring - 4 mins

In this section, we will like to understand more about ambulatory blood pressure monitoring.

4.1a. Do you recommend measurements of Ambulatory Blood Pressure Monitoring (AMPM) to your hypertensive patients?

4.1b. For what proportion of your hypertensive patients do you recommend measurement of Ambulatory blood pressure monitoring?

	Q4.1a	Q4.1b
Yes	1	%
No	2	Proceed to Q4.3

IF Q4.1 CODE 1 IS SELECTED

4.2. Why do you recommend Ambulatory Blood Pressure Monitoring (ABPM) to your patients?

Multiple responses allowed

	Q4.2
Evaluation of efficacy of anti-hypertensive drugs	1
Hypertension management based on HBP	2
Diagnosis of resistant hypertension	3
Improvement of drug compliance	4
Diagnosis of hypotension	5
Evaluation of Blood Pressure Variability	6
Evaluation of patients' CVD risks	7
To confirm BPV from home blood pressure monitoring results	8
Confirmation of hypertension	10
Others	9

4.3. In your opinion, what are the benefits of ambulatory blood pressure monitoring?

MULTIPLE RESPONSES ALLOWED

	Q4.3
Provides measurement of blood pressure over 24 hours during normal living activities which leads to random and rhythmic variations of blood pressure	1
Helps to detect short-term (every 15-30 minutes) variability of blood pressure	2
Helps to determine the time dependent effects of anti-hypertensive drugs	3

4.4. Which target cut off do you follow in average day ABPM for diastolic blood pressure for diagnosis of hypertension?
SINGLE RESPONSE ONLY

	Q4.4
> 80 mm Hg	1
>85 mm Hg	2
> 90 mm Hg	3

4.5. What target cut off do you follow in average day ABPM for systolic blood pressure for diagnosis of hypertension?
SINGLE RESPONSE ONLY

	Q4.5
>130 mm Hg	1
>135 mm Hg	2
> 140 mm Hg	3

Section 5: BPV management - 3 mins

5.1. How do you currently manage blood pressure variability among hypertensive patients?

Multiple responses allowed

	Q5.1
Administer anti-hypertensive medication in a single morning dose	1
Administer anti-hypertensive medication at bed time	2
Administer combination anti-hypertensive medications	3
Recommend patients to change unhealthy lifestyle	4
Introduce Amlodipine as monotherapy or in combination therapy	5
Administer anti-hypertensive medication more than once a day (i.e. multiple doses)	6
Others: Please specify	

5.2. What are the challenges encountered when you estimate blood pressure variability among hypertensive patients?

Multiple responses allowed

	Q5.2
Challenges in diagnosis	1
Lack of time for follow ups (time constraints)	2
Lack of resources (e.g. equipment)	3
Lack of internal support and endorsement for BPV	4

Lack of guidelines recommendation	5
Lack of knowledge on BPV	6
Patient refusal for HBPM	7
Patient refusal for ABPM	8
Affordability	9
Resistance to test	10
Lack of compliance	11

5.3. What, if anything, could pharmaceutical companies help to solve some of these barriers?

Multiple responses allowed

	Q5.3
Provide patient education on HBPM and BPV	1
Provide resources to aid diagnosis of BPV	2
Provide subsidies to support patient access for HBPM	3
Provide subsidies to support patient access for ABPM	4
Physician education on the importance of diagnosis and managing of BPV	5
Provide support for recommendations from updated guidelines	6

Section 6: Training needs of HCPs regarding BPV management - 5 mins

6.1. Do you think that changing unhealthy lifestyle helps control blood pressure variability?

SINGLE RESPONSE ONLY

	Q6.1
Yes	1
No	2

6.2. How much time do you spend on educating hypertensive patients on HBPM and BPV in terms of time for medical consultation?

SINGLE RESPONSE ONLY

	Q6.2
3/4 or more	1
1/2	2
1/3	3
1/4	4
Less or none	5

6.3. Can your team provide health education for hypertensive patients on HBPM and BPV during your regular clinic work?

SINGLE RESPONSE ONLY

	Q6.3
Yes	1
No	2

6.4. What is the difficulty in educating patients with hypertension on HBPM and BPV in your practise?

MULTIPLE RESPONSES ALLOWED

	Q6.4
Lack of related educational materials	1
Patient inertia	2
Poor compliance of patients	3
Lack if technique of behavioural medicine	4
Lack of medical consultation time	5
Patients do not have access to a blood pressure machine	7
Other	6

6.5. Did you ever attend any training course on BPV estimation and management?

SINGLE RESPONSE ONLY

	Q6.5
Yes	1
No	2

6.6. Would you like to attend training courses on BPV regularly?

SINGLE RESPONSE ONLY

	Q6.6
Yes	1
No	2

6.7. What is the most appropriate frequency of related training course for BPV?

SINGLE RESPONSE ONLY

	Q6.7
Weekly	1
Bi-weekly	2
Monthly	3
Every 2-3 months	4
Once a year	6
Don’t need training course	5

6.8. What topics should be covered in the related training course?

MULTIPLE RESPONSES ALLOWED

	Q6.8
Diagnosis and evaluation of BPV	1
Medical treatment of BPV	2
Education for hypertensive patients	3
Management of hypertensive patients in community	4
Treatment for patients with complication/co-morbidity	5
Interpretation of ABPM	6

6.9. What kind of format(s) should be used in the related training course?

MULTIPLE RESPONSES ALLOWED

	Q6.9
Expert lectures	1
On-site guidance	2
Case studies discussion	3
Conferences/Symposia	4
Peer to peer discussion (Round table discussions)	5
Online education	6
Others	7

END OF SURVEY