



Polyclinics  
SingHealth



# Clinical Care Performance

Financial Year 2019 to 2023

 **SingHealth** Academic Healthcare Cluster

PATIENTS. AT THE HEART OF ALL WE DO.®

Partner in Academic Medicine



Singapore General Hospital



KK Women's and Children's Hospital



National Cancer Centre Singapore



National Dental Centre Singapore



National Heart Centre Singapore



National Neuroscience Institute



Singapore National Eye Centre



Polyclinics SingHealth



Bright Vision Hospital

Sengkang Health

**DUKE NUS**  
UNIVERSITY MEDICAL SCHOOL SINGAPORE

# SHP Clinical Care Performance

Diabetes Mellitus

Hyperlipidemia

Hypertension





# Diabetes Mellitus

**Diabetes mellitus is a disease in which the pancreas, a gland in the body, produces too little or ineffective insulin, a hormone.**

When the food you eat is digested, most of it is broken down to glucose, which is absorbed into the blood stream. In a healthy person, insulin helps glucose to enter the cells, to be burned for energy. In a diabetic person, the glucose cannot enter, and accumulates to high levels in the blood.

**Glycated haemoglobin (HbA1c)** measures the average blood sugar level over the preceding three months. For most patients, the HbA1c target is more stringent at below 7%. However, for patients with a higher risk of hypoglycaemia, especially for frail elderly, the HbA1c target can be less stringent at less than 8%.

Find out how our patients are doing for:

HbA1c

Annual Retinal Screening

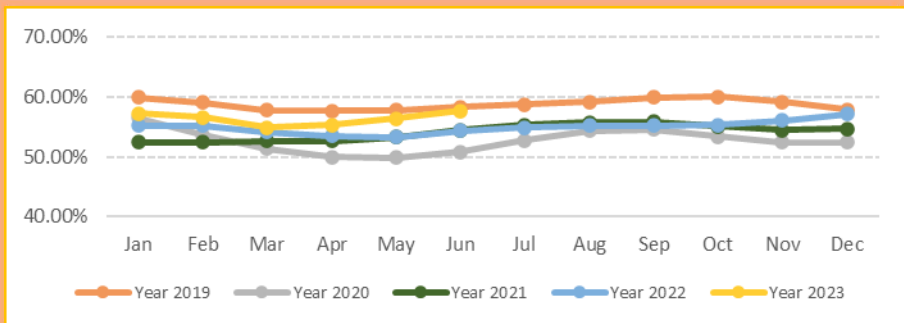
Annual Foot Screening

Hyperlipidaemia

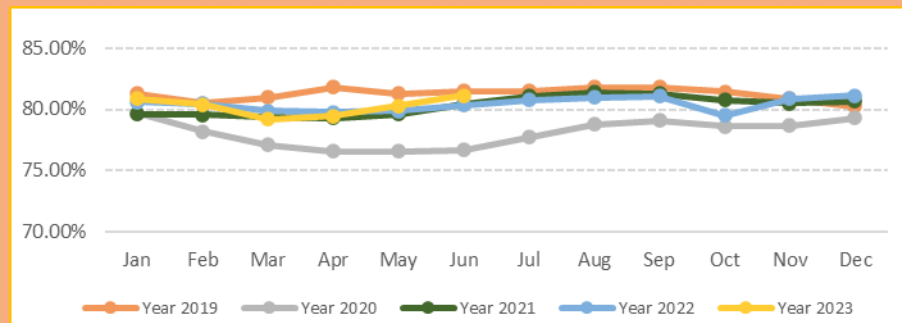
Hypertension



## Diabetes Mellitus - HbA1c

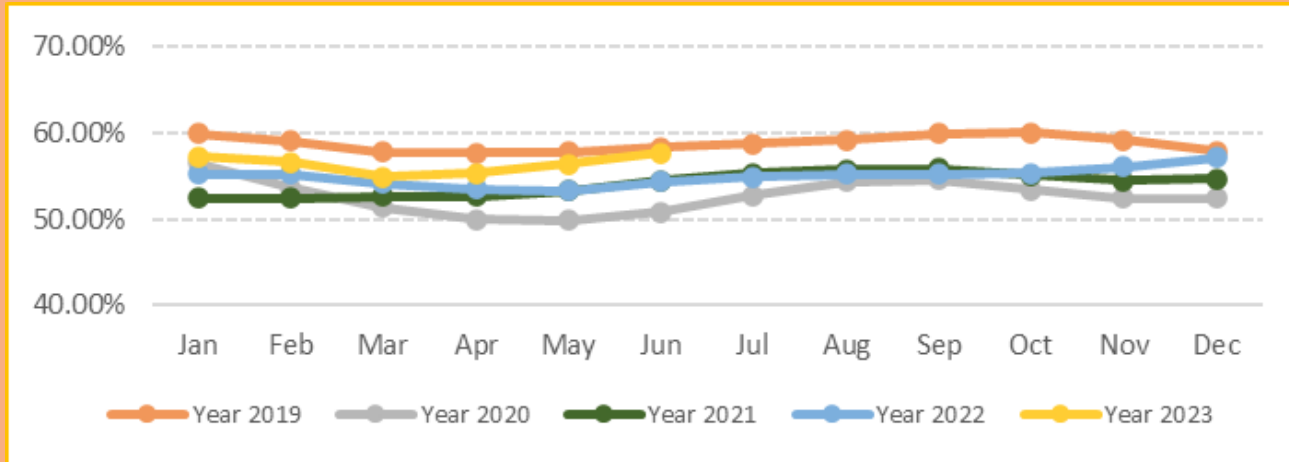


**HbA1c ≤ 7%**



**HbA1c ≤ 8%**

## Patients<sup>1</sup> with Diabetes with Optimal Control<sup>2</sup> (HbA1c ≤ 7%)



Note:

1. All patients with diabetes who visited SingHealth Polyclinics at least twice in a year.
2. This refers to HbA1c levels ( $\leq 7\%$ ) that approach the normal range and is the desirable target of control for majority of patients with diabetes (reference: MOH Clinical Practice Guidelines-Diabetes, 2014 Singapore: Ministry of Health).

*Improving Diabetes Care Together!*



Check out the ways to improve your diabetes!

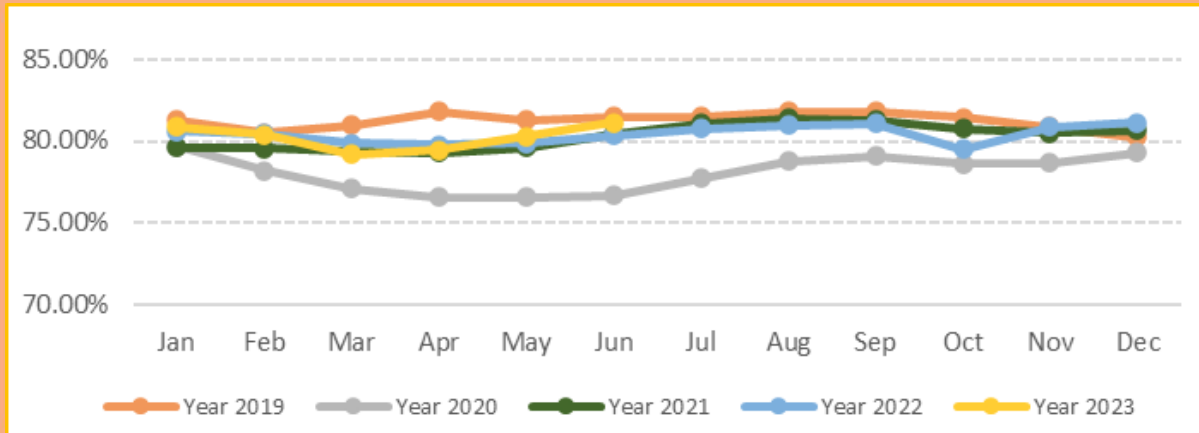
Control  
Your Diabetes

Monitor Your Blood  
Glucose At Home

Our Programmes  
and Services



## Patients<sup>1</sup> with Diabetes with HbA1c $\leq$ 8%<sup>2</sup>



Note:

1. All patients with diabetes who visited SingHealth Polyclinics at least twice in a year.
2. This includes patients who have HbA1c ( $\leq$ 7%). Suboptimal refers to HbA1c levels (7.1-8.0%). In special subset of patients, eg the frail elderly this suboptimal level of control may be the best that is safely attainable (reference: MOH Clinical Practice Guidelines-Diabetes, 2014 Singapore: Ministry of Health)

*Improving Diabetes Care Together!*



Check out the ways to improve your diabetes!

Control Your Diabetes

Monitor Your Blood Glucose At Home

Our Programmes and Services



## Diabetes Mellitus - Annual Retinal Screening

Find out how our patients are doing for:

**HbA1c**

**Annual Foot Screening**

**Hyperlipidaemia**

**Hypertension**

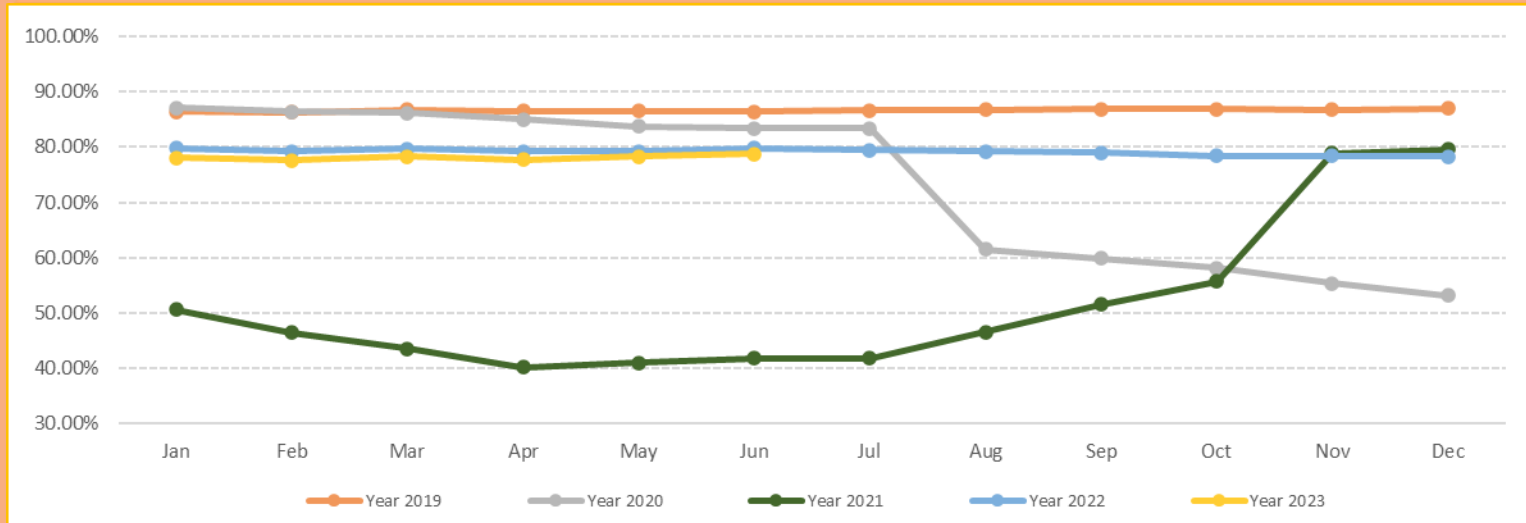
Diabetes can cause eye complications such as cataract and bleeding from retinal blood vessels, which can lead to visual blurring and even blindness.

Regular eye screening (through visual acuity checks and retinal photography) helps to detect eye problems due to diabetes so that early treatment can be recommended.

Some patients may require eye-drops to be instilled into the eyes when going for retinal photography hence it is not advisable for the patients to drive to the clinics. They should be accompanied by friends or relatives for the appointment.

Patients are encouraged to go for both retinal and foot screening on an annual basis and these services are offered at all our polyclinics.

## Patients<sup>1</sup> with Diabetes with Annual Retinal Screening Done<sup>2</sup>



Note:

1. All patients with diabetes who visited SingHealth Polyclinics at least twice in a year.
2. Retinal screening done at SHP and other healthcare institutions.

### Improving Diabetes Care Together!



Check out the ways to improve your diabetes!

Control Your Diabetes

Monitor Your Blood Glucose At Home

Our Programmes and Services





## Diabetes Mellitus- Annual Foot Screening

Patients with diabetes may be prone to foot complications. Most of these start off with a small cut or a small wound on the foot that is unnoticed.

Diabetic foot screening allows early detection, prevention and treatment of complications such as gangrene and amputation. Nurse counsellors will also give advice on foot care and footwear.

Patients with diabetes should have eye and foot screening done at least once a year and these services are offered at all our polyclinics.

Find out how our patients are doing for:

**HbA1c**

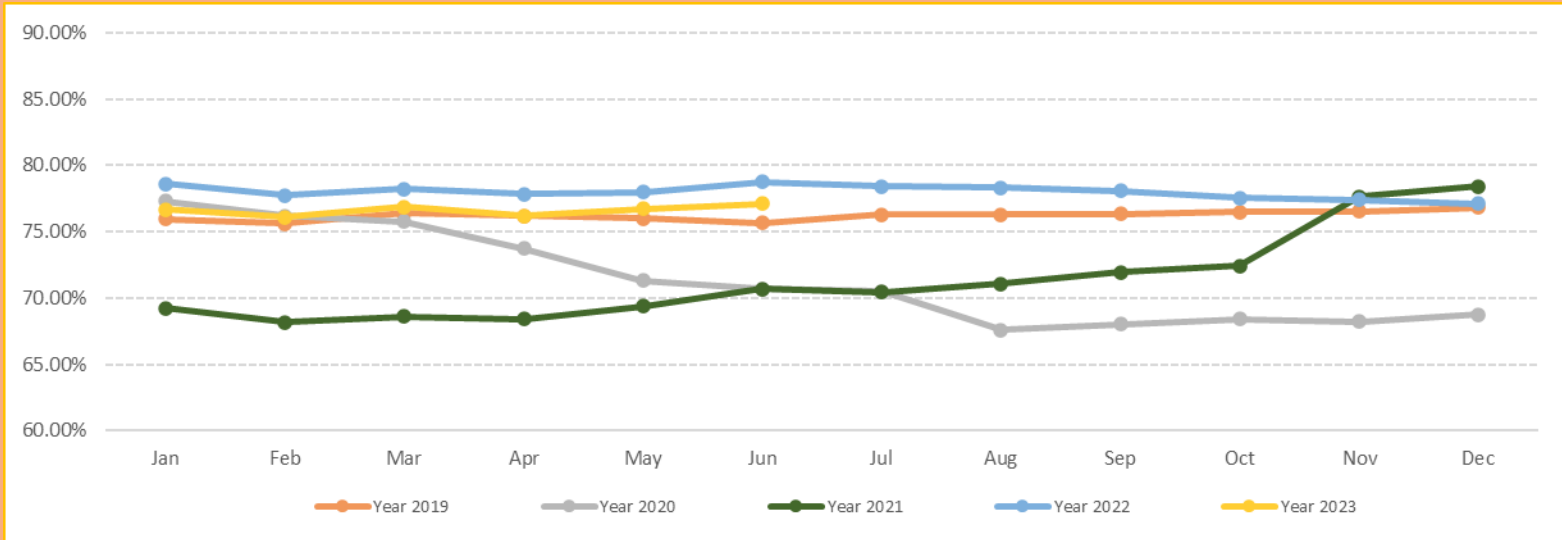
**Annual Retinal Screening**

**Hyperlipidaemia**

**Hypertension**



## Patients<sup>1</sup> with Diabetes with Annual Foot Screening Done<sup>2</sup>



Note:

1. All patients with diabetes who visited SingHealth Polyclinics at least twice in a year.
2. Foot screening done at SHP and other healthcare institutions.

**Improving Diabetes Care Together!**



Check out the ways to improve your diabetes!

Control Your Diabetes

Monitor Your Blood Glucose At Home

Our Programmes and Services



## Control Your Diabetes

Good lifestyle habits such as good diet control, regular exercise and weight management help to better manage your health and stay healthy. It is important to go to your family doctor for health screening if you are above 40 years old, or if you have existing risk factors\*.

Here's how you can better control your diabetes:

- Exercise regularly
- Follow a healthy diet
- Make smart dining out food selection
- Examine your feet daily
- Take your medication correctly
- Manage stress level
- Monitor your blood glucose levels closely

The above information serves only as a general guide and does not replace medical advice and care from your doctor. If you have any questions or medical concerns, please check with your doctor.

All in Patient Information Label  
Please verify patient identity before sticking label



**MY BLOOD GLUCOSE & FOOD DIARY**  
我的血糖与饮食日记



TARGET (mmol/L) 血糖目标	LOW 低	OPTIMAL 理想	SUB-OPTIMAL 较差
Before Food 进食前	↓ 4.0	4.0 - 7.0	↑ 7.0
2 Hours After Food 用餐后两小时	↓ 4.0	4.0 - 10.0	↑ 10.0

NOTES 备注:  
\* Inform your doctor & refer to "Management of Low Blood Sugar"  
\* 告知你的医生并参阅“低血糖管理”  
If you are feeling unwell, you should increase the frequency of blood sugar monitoring.  
如果你觉得身体不适, 你应该增加血糖监测次数。

# Monitor Your Blood Glucose At Home

Self-monitoring of blood glucose (SMBG) can help you improve control of your sugar levels. The results you get from an SMBG test can help you make appropriate adjustments to your medicine, diet and/or level of physical activity. You may check with your doctor or nurse when to do SMBG testing and how to use the results to improve your glucose control.

	Before breakfast	2 hours after food
	> 10.0mmol/L < 4.0mmol/L	> 13.0mmol/L < 4.0mmol/L
	8.1 - 10.0mmol/L	10.1 - 13.0mmol/L
	6.0 - 8.0mmol/L	8.1 - 10.0mmol/L

*This table serves only as a general guide. Discuss with your doctor/ nurse on your personal targets.*

**Check out the Action Plan for Your Blood Glucose!**

The above information serves only as a general guide and does not replace medical advice and care from your doctor. If you have any questions or medical concerns, please check with your doctor.



After Patient Information Label  
Please verify patient identity before sticking label!



### MY BLOOD GLUCOSE & FOOD DIARY 我的血糖与饮食日记



TARGET (mmol/L) 血糖目标	LOW 低	OPTIMAL 理想	SUB-OPTIMAL 较差
Before Food 进食前	↓ 4.0	4.0 - 7.0	↑ 7.0
2 Hours After Food 用餐后两小时	↓ 4.0	4.0 - 10.0	↑ 10.0

NOTE 注意:  
\*Inform your doctor & refer to "Management of Low Blood Sugar"  
\*告知您的医生及参阅“低血糖管理”  
If you are feeling unwell, you should increase the frequency of blood sugar monitoring.  
若您感觉不适, 应增加血糖监测次数。

## Action Plan for Blood Glucose

The results you get from an SMBG test can help you make appropriate adjustments to your medicine, diet and/or level of physical activity.

### If you are in the **RED ZONE: DANGER** **High Blood Glucose (> 13.0mmol/L)**

1. Drink plenty of water.
2. Maintain moderate food intake.
3. Check that medications/ insulin have been taken as instructed.

*Your Diabetes is poorly controlled. You need to see your doctor soon.*



### **Low Blood Glucose (< 4.0mmol/L)**

1. Take your meal or snack immediately.
2. Consume immediately:
  - sugar, honey (2-4 teaspoons); or
  - half cup of fruit juice; or
  - half can of regular soft drink; or
  - 3 sugar tablets/ sweets.
3. Re-check your blood glucose level after 15 minutes.

Seek immediate medical attention if your blood glucose readings are persistently high at > 20mmol/L or persistently low at < 4mmol/L, and/ or if you are feeling unwell.

### If you are in the **YELLOW ZONE: CAUTION**

1. Keep to your scheduled appointments with your doctor.
2. Increase your activity level.
3. Improve your eating habits.
4. You may need adjustment to your medications. Discuss with your doctor



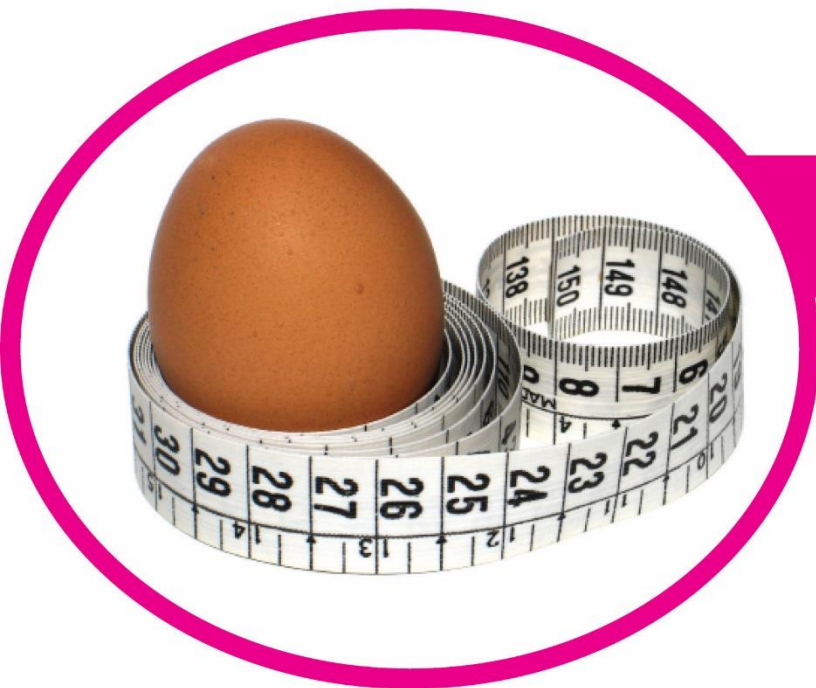
### If you are in the **GREEN ZONE: GOOD CONTROL**

1. Your Blood Glucose level is under control. **GOOD WORK!**
2. Continue on your healthy eating habits, lifestyle measures and medications.
3. Keep to your scheduled appointments with your doctor.
4. Remember to get your annual Panel test done.



The above information serves only as a general guide and does not replace medical advice and care from your doctor. If you have any questions or medical concerns, please check with your doctor.





# Hyperlipidemia

**Hyperlipidemia is the medical term signifying high levels of cholesterol in the blood.**

There is 'good' and 'bad' cholesterol. The 'good' cholesterol - known as *High Density Lipoprotein* (HDL) and 'bad' cholesterol - known as *Low Density Lipoprotein* (LDL).

Excessive levels of cholesterol in blood increase the risk of blockage of the blood vessels of the heart to important organs like the heart and the brain, which can will result in heart attacks or strokes. Concurrent risk factors such as diabetes, high blood pressure or smoking will increase this risk even further. A high HDL level is beneficial as HDL carries cholesterol from different parts of the body back to the liver stores.

LDL cholesterol is believed to be the most important factor underlying atherosclerosis, which causes narrowing of the blood vessels. The target levels for LDL cholesterol are 4.1 mmol/L, 3.4 mmol/L , 2.6 mmol/L and 2.1mmol/L for low, medium , high and very high risk patients respectively.

Find out how our patients are doing for:

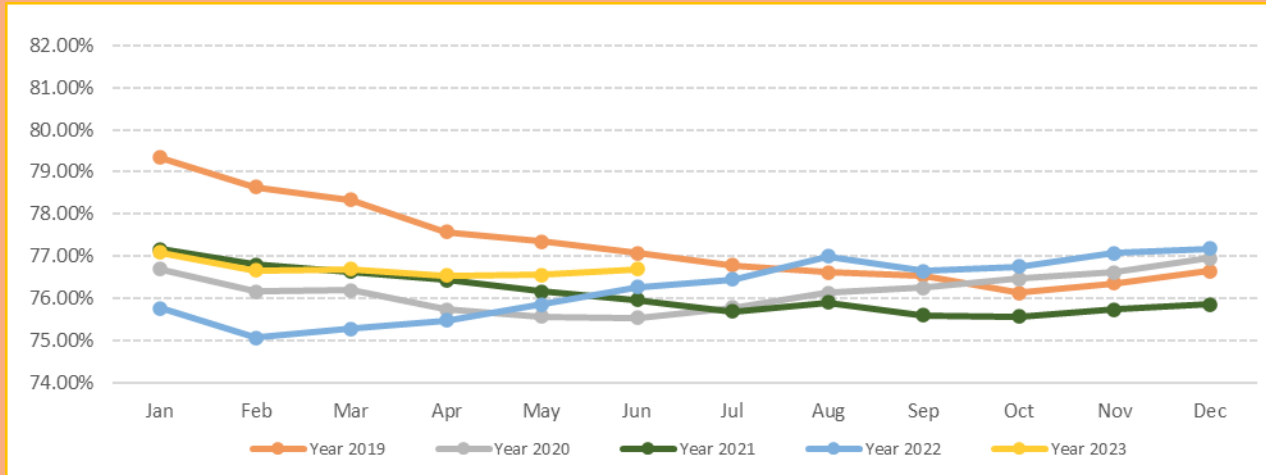
HbA1c

Annual Retinal Screening

Annual Foot Screening

Hypertension

## CVD<sup>1</sup> Patients<sup>2</sup> with well-controlled LDL<sup>3</sup>



Note:

1. CVD refers to cardiovascular disease which includes diabetes, hypertension, hyperlipidemia, stroke, Ischemia Heart Disease, Chronic Kidney Disease and Peripheral Vascular Disease.
2. All CVD patients who visited SHP polyclinics at least twice in a year.
3. Well controlled LDL refers to patients with LDL treated to target (reference MOH Clinical Practice Guidelines on Lipids. Published: Dec 2016)

LDL targets for the following CVD risk groups:

- Very High Risk: <2.1 mmol/l
- High Risk: <2.6 mmol/l
- Medium Risk: < 3.4 mmol/l
- Low Risk: < 4.1 mmol/l

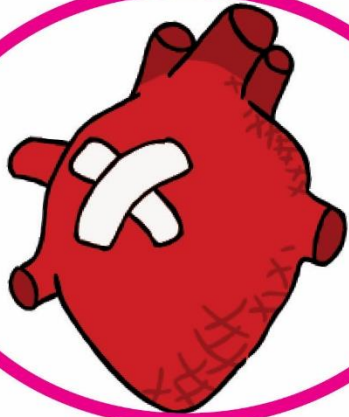
*Improving Cholesterol Care Together!*



Check out the ways to improve your cholesterol!

Control  
Your Cholesterol

Our Programmes  
and Services



## Know Your Risk Factors

Risk factors are additive in their effect. Some of them can be modified, treated or controlled, and some can't. The more risk factors you have, the higher chance of you developing coronary heart disease. Research studies have shown that several risk factors significantly increase the risk of heart and blood vessel (cardiovascular) disease.

Risk factors for chronic heart disease are as follows:

### **Non-Modifiable**

- Increasing age
- Male gender
- Family history of premature CHD
- Indian ethnicity

### **Modifiable**

- Dyslipidaemia
- Hypertension
- Diabetes mellitus
- Cigarette smoking
- Obesity
- Sedentary lifestyle
- Stress

The above information serves only as a general guide and does not replace medical advice and care from your doctor. If you have any questions or medical concerns, please check with your doctor.



## Control Your Cholesterol

Good lifestyle habits such as good diet control, regular exercise and weight management help to better manage your health and stay healthy. It is important to go to your family doctor for health screening if you are above 40 years old, or if you have existing risk factors\*.

Here's how you can better control your cholesterol:

- Exercise regularly
- Follow a healthy diet - choose lean meat, fish, grains, fruits and vegetables
- Use canola or olive oil which are high in monounsaturated fatty acids
- Quit smoking
- Take your medication regularly

The above information serves only as a general guide and does not replace medical advice and care from your doctor. If you have any questions or medical concerns, please check with your doctor.





# Hypertension

Blood pressure is the force of the blood pushing against the walls of the blood vessels as it flows through. Blood pressure is always given as a higher and lower number, the systolic and diastolic pressures.

- Systolic pressure: When heart contracts, it squeezes blood out like a pump to the blood vessels. The pressure transmitted to the blood vessels on contraction is called systolic pressure.
- Diastolic blood pressure. When the heart is at rest, between beats, your blood pressure falls. The resting pressure retains the patency of the blood vessel. This is the diastolic pressure.

**High blood pressure** is also known as hypertension. A sustained clinic pressure measurement of 140/90mmHg or higher, or an average home blood pressure that is higher than 135/85mmHg is considered high blood pressure.

Find out how our patients are doing for:

HbA1c

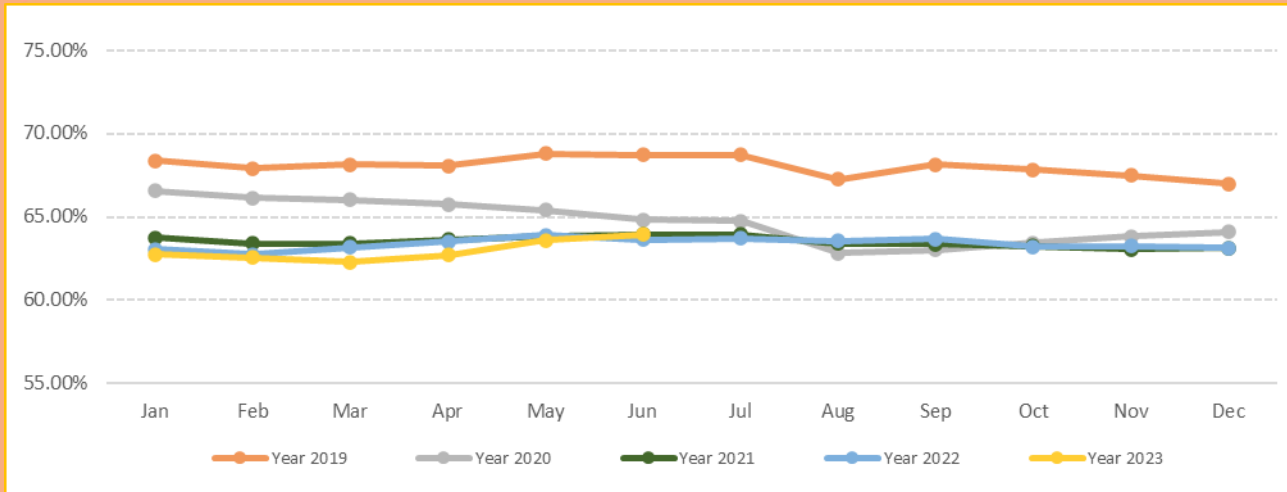
Annual Retinal Screening

Annual Foot Screening

Hyperlipidaemia



## CVD<sup>1</sup> Patients<sup>2</sup> with well-controlled BP<sup>3</sup>



Note:

1. CVD refers to cardiovascular disease which includes diabetes, hypertension, hyperlipidemia, stroke, Ischemia heart disease, chronic kidney disease and peripheral vascular disease.
2. All CVD patients who visited SHP polyclinics at least twice in a year.
3. The definition of well controlled BP was amended in Sep 2015, based on the European Society of Cardiology (ESC) 2013 Hypertension guidelines, which was eventually adopted by the MOH Hypertension CPG in Oct 2017. For most people, well controlled means a clinic BP of < 140/90 mmHg, but may vary depending on your age or clinical condition. Please check with your doctor for your specific target.

### Improving Hypertension Care Together!



Check out the ways to improve your blood pressure!

Control Your Blood Pressure

Monitor Your Blood Pressure At Home

Our Programmes and Services



## Control Your Blood Pressure

Good lifestyle habits such as good diet control, regular exercise and weight management help to better manage your health and stay healthy. Clinical studies have proven that treating high blood pressure saves lives, greatly reduces illnesses, and improves the quality of life.

Here's how you can better control your blood pressure:





- Exercise regularly
- Follow a healthy diet
- Reduce sodium intake
- Lose excess weight – the ideal Body Mass Index for Asians is less than 23
- Limit alcohol consumption
- Quit smoking
- Manage stress level
- Monitor blood pressure level closely

The above information serves only as a general guide and does not replace medical advice and care from your doctor. If you have any questions or medical concerns, please check with your doctor.



## Monitor Your Blood Pressure At Home

It is important to measure and keep track of your blood pressure levels at home if you have high blood pressure. Your blood pressure may vary or change throughout the day. You can't sense if your blood pressure levels are up or down hence you need to monitor your levels regularly. Monitoring your blood pressure can help to reduce the risk of getting heart diseases and complications. Discuss with your doctor and nurse on how often you should monitor your blood pressure.

	Systolic BP <sup>135</sup> / <sub>85</sub>	Diastolic BP <sup>135</sup> / <sub>85</sub>
	> or = 180mmHg < 90mmHg 	> or = 110mmHg < 60mmHg 
	140 - 179mmHg	90 - 109 mmHg
	< 140mmHg < 130mmHg <sup>A</sup> (but not less than 90mmHg)	< 90mmHg < 80mmHg <sup>A</sup> (but not less than 60mmHg)

Check out the Action Plan for Your Blood Pressure!

*A: if you have diabetes, kidney problems, heart disease or stroke*

*This table serves only as a general guide. Discuss with your doctor/ nurse on your personal targets.*

The above information serves only as a general guide and does not replace medical advice and care from your doctor. If you have any questions or medical concerns, please check with your doctor.





## Action Plan for Blood Pressure

The results you get from your own blood pressure monitoring can help you make appropriate adjustments to your medicine, diet and/or level of physical activity.

If you are in the **RED ZONE: DANGER**

**High Blood Pressure (> 180/110 mmHg)**

1. Check that you have taken your medications correctly.
2. Rest for 10-20 minutes and re-check your blood pressure.
3. If your readings are persistently in the Red zone, see your doctor as soon as possible.

**Low Blood Pressure (< 90/60 mmHg)**

1. See doctor immediately if you are unwell.
2. Re-check your blood pressure. If your readings are persistently low, see your doctor as soon as possible.
3. Some older patients may have just low diastolic (2nd) readings, and may be otherwise normal. Please check with your doctor.

Seek immediate medical attention if you are experiencing:

- Severe headache/ dizziness
- Sudden blurred vision/ doubled vision
  - Slurred speech
- Weakness/ numbness
- Unsteady steps

If you are in the **YELLOW ZONE: CAUTION**

1. Watch your diet. Reduce salt intake if your blood pressure is high.
2. Keep to your scheduled appointments with your doctor.
3. You may need adjustment to your medications. Discuss with your doctor.

If you are in the **GREEN ZONE: GOOD CONTROL**

1. Your Blood Pressure is under control. GOOD WORK!
2. Continue on your healthy eating habits, lifestyle measures and medications.
3. Keep to your scheduled appointments with your doctor.
4. Remember to get your annual Panel test done.

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## Our Programmes and Services

### **FAMILY PHYSICIAN CLINIC (FPC)**

If your chronic condition is complex and needs more attention - you may enrol in this programme. A team of senior doctors and healthcare professionals will provide comprehensive care and closer monitoring of your condition. It also reduces the risk of long-term complications. You will have an extended and exclusive time with senior doctors so that you will be able to understand your condition and treatment plans better. You will also be guided on the importance of self-monitoring and tools to measure your own health indicators at home.

### **SELF-CARE TOOLKIT**

It a self-care management tool developed by SHP to assist you in monitoring your health at home. The toolkit aims to empower you to take responsibility of managing your own health. It is now available for sale at all 9 polyclinics to patients from the general clinic.

### **NURSE CLINICIAN SERVICE (NCS)**

If your chronic condition is well-controlled - you may enrol in NCS. You will be reviewed by senior nurses who are trained in consultation and health counselling. Under the NCS, you will be managed by doctors and seen by Nurse Clinicians during some of your visits. To ensure continuity of care, Nurse Clinicians will review your medical information and history with a senior doctor. The services include consultations, counselling sessions, review of blood test results and eye & foot checks (for patients with diabetes).

### **PREVENTIVE CARE**

SHP undertakes a key role in preventive healthcare by offering health screenings for illnesses like diabetes, high blood pressure, heart diseases and Hepatitis. Regular health talks, demonstrations and workshops on chronic disease care and other important topics are conducted at all polyclinics to increase public awareness in these areas.