

# YOUR GUIDE TO HEART SURGERY

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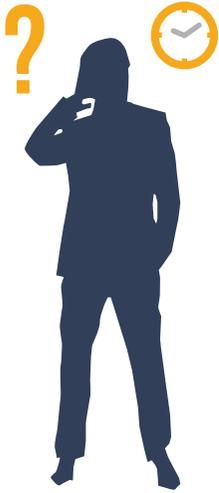
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# CONTENTS

1	<b>GUIDE TO HEART SURGERY</b>	
	<b>EMOTIONS AND HEART SURGERY</b>	
2	<b>PREPARING FOR YOUR SURGERY</b>	
	Medication	
	Smoking	
	Other preparations	
3	<b>PREPARING FOR YOUR HOSPITAL STAY</b>	
	What to bring	
	Admission procedure	
	Cancellation or postponement of surgery	
4	<b>ON THE DAY OF YOUR SURGERY</b>	
	What kind of incisions will I have?	
5	<b>AFTER THE SURGERY</b>	
	Managing pain/ discomfort	
6	Fluid retention	
	Nutrition management	
	Activity level	
7	Monitoring your progress	
	Rest and sleep	
	Hospital Stay	
8	<b>PREPARING FOR DISCHARGE</b>	
	Follow-up appointments	
	<b>SELF-RECOVERY AT HOME</b>	10
	Incisions	
	Signs of infection	11
	Sternal precautions for 6-8 weeks	
	Bathing	
	Leg swelling	12
	Driving	
	Rest and relaxation	
	Household activities	
	<b>LIFESTYLE AND DIET MODIFICATIONS</b>	13
	Exercise	
	Drink in moderation	15
	Stop smoking	
	Diet	16
	<b>RETURN TO WORK</b>	
	<b>SEXUAL ACTIVITY</b>	17
	<b>MEDICATIONS</b>	
	Risk factors for heart disease	18
	What are the different types of medication used for my heart?	
	<b>ACKNOWLEDGEMENTS</b>	



## GUIDE TO HEART SURGERY

Many patients waiting for surgery have questions and concerns about their surgery, hospital stay and post-surgery recovery process. This booklet will help to address these concerns and prepare you for your upcoming surgery.

## EMOTIONS AND HEART SURGERY

- ♥ Most patients have fears about having surgery. It may help to talk about these feelings with your family or a close friend, or to clarify concerns with your doctor.
- ♥ Doing something that you enjoy, e.g. listening to music, going for walks or chatting with friends, can distract you from negative thoughts and help you feel better.





## YOUR HOSPITAL STAY

### What To Bring

- ♥ All the medications you are currently taking in their original containers
- ♥ NRIC or passport
- ♥ Personal Toiletries
- ♥ Your incentive spirometer (given during pre-admission)
- ♥ Loose comfortable clothes to wear when you go home
- ♥ 2 boxes of tissue paper



### Admission Procedure

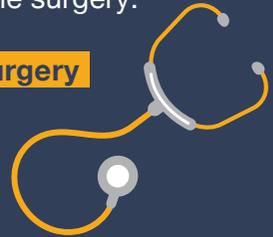
- ♥ Proceed to the Patient Service Centre for admission registration with your NRIC or passport. You will be admitted 1-2 days before the surgery.

### Cancellation or Postponement of Surgery

Your surgery may be postponed if:

- Your blood results are not normal
- You feel unwell
- There is an emergency, life saving surgery to be done
- Insufficient blood in the blood bank
- ICU bed is not available

Your doctor will inform you should any of the above occur.

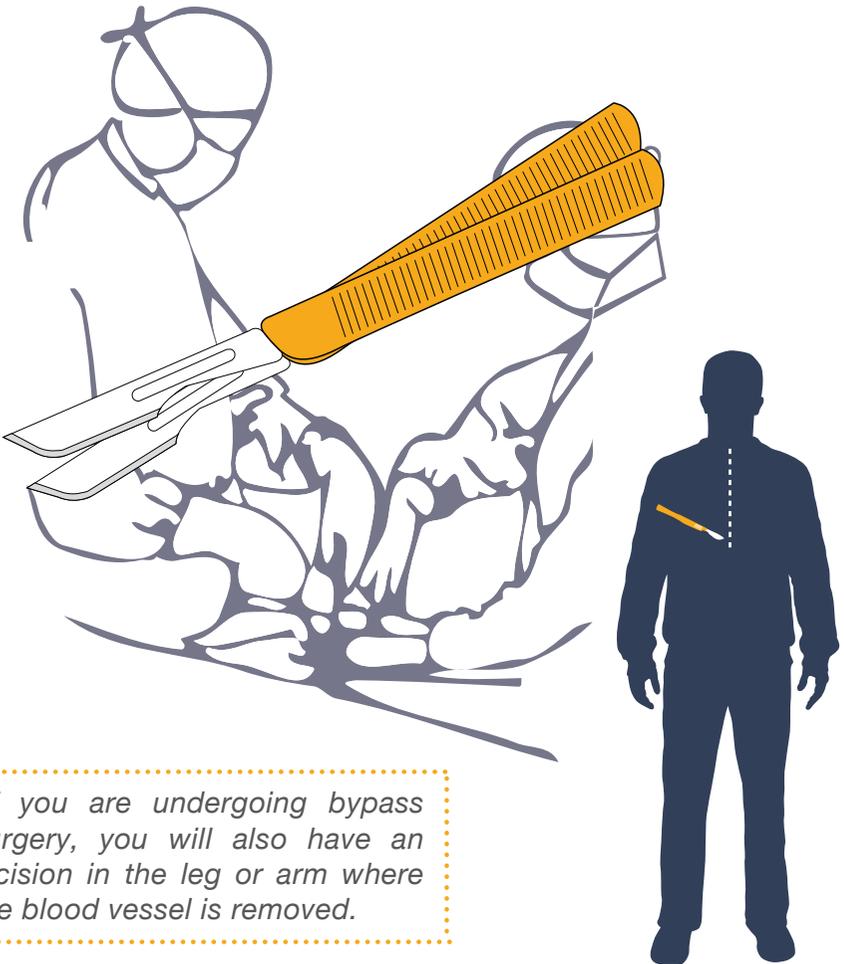


# ON THE DAY OF YOUR SURGERY

- ♥ Your family members may visit you in the ward before you go into the operating room. They should come about two hours before the scheduled time of surgery.

## What Kind of Incisions Will I Have?

- ♥ To operate on the heart, the surgeon usually makes an incision in the centre of the chest, from below the neck to the end of your breastbone.



*\*If you are undergoing bypass surgery, you will also have an incision in the leg or arm where the blood vessel is removed.*

# AFTER THE SURGERY

- ♥ You will be transferred to the Cardio Thoracic Intensive Care Unit (CTICU) - Ward 20. You will remain there for 2-3 days for close monitoring.
- ♥ When you wake up from surgery, you may feel groggy, thirsty or cold. These are common after effects of the surgery. Warm blankets will be provided for your comfort.
- ♥ You will be connected to a heart monitor and other intravenous lines in your neck and arms.
- ♥ Your breathing tube will be removed once you are able to breathe on your own without assistance. Use a note pad or sign language to communicate your needs to the nurses.
- ♥ You will usually have two or more chest tubes inserted into your chest and a urinary catheter to drain urine from your bladder.

## Managing Pain/Discomfort

- ♥ Everyone experiences pain and discomfort differently after surgery.
- ♥ You should expect to experience:
  - Some discomfort in and around your incisions
  - Stiffness and aching in your back, arms, neck and/ or shoulders.
- ♥ Please ask your nurse for pain medication. Increased comfort will make it easier for you to do exercises and activities which will aid your recovery.
- ♥ Hold the small pillow provided firmly against your chest to minimise pain.

## Fluid Retention

- ♥ “Retaining water” is common after surgery and will cause your weight to increase. This is a temporary situation. It is important that you do not drink more than what is advised by your doctor.
- ♥ Water pills that help to promote the loss of excess fluid often cause people to feel thirsty and take in more liquids. If you are given water pills, you can ask your family to bring some candy or try some ice chips without water to help with the feelings of thirst.

## Nutrition Management

- ♥ Your diet will progress from soft diet to solids in the first 1-2 days after surgery.
- ♥ Your initial appetite might be poor but it will improve with time.

## Activity Level

- ♥ Fatigue and weakness are a normal part of recovery. Your activity will progress daily as tolerated. Progressive activity includes sitting on the chair for increasing periods of time and walking. You may feel better on some days than others.
- ♥ You will be able to sit out of bed the day after your surgery and expect to walk 1-2 days after surgery, with help from your physiotherapist.
- ♥ To help speed up your recovery:
  - Sit out of bed / in an armchair more frequently.
  - Elevate your feet and move your ankles up and down. Avoid crossing your legs.
  - Take frequent short walks spread out throughout the day / walk about in the general ward.
  - Pace yourself and space activities to prevent excessive fatigue.
  - Maintain good standing and sitting posture.
  - Lie on your back and not sideways for the next 4 weeks to reduce the strain on your healing breastbone.



### Monitoring your progress

- ♥ Your vital signs (heart rate, blood pressure, breathing rate, temperature) will be recorded regularly throughout your hospital stay.
- ♥ Blood tests, chest X-rays and electrocardiograms (ECGs) will be done at varying intervals after the surgery. A heart scan might also be ordered.

### Rest and Sleep

- ♥ Adequate rest and sleep are important.
- ♥ You may experience some temporary disturbances of sleep pattern. This is common.
- ♥ If you experience difficulty sleeping or have strange dreams, please let your nurse or doctor know.

### Hospital Stay

- ♥ Most patients are ready for discharge 5-6 days after surgery.
- ♥ Your stay may be extended if there are complications.
- ♥ Patients who live alone or who do not have caregivers at home may need to be transferred to the community hospital for rehabilitation.
- ♥ Please highlight any anticipated discharge problems before surgery.



- ♥ It usually takes 6-12 weeks for patients who had heart surgery to recover. However, everybody recovers differently, depending on factors such as age and how active they were before surgery.
- ♥ Your doctor, nurse, dietitian or physiotherapist will talk to you about your medication, nutritional guidelines and activities for a safe recovery at home.
- ♥ You may need help when you first arrive home. Try to arrange for a family member or friend to stay with you for the first 1-2 weeks.



# PREPARA FOR DISC

Ambula

### Follow-up appointments

- ♥ You will be given an appointment to see your surgeon, cardiologist and physiotherapist upon discharge to monitor your recovery.
- ♥ You are encouraged to sign up for the cardiac rehabilitation program available at NUH. A team comprising of a physiotherapist, cardiac rehab nurse, dietitian, pharmacist and social worker will guide you on prescribed exercise training, health education and risk factor modification. You should be able to attend classes about 3-4 weeks after your surgery.

# ARRIVING ON CHARGE



Phone 995

# SELF-RECOVERY AT HOME

## Incisions

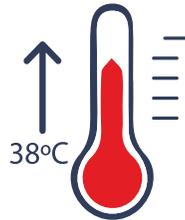
- ♥ You may continue to experience itchiness or tingling feeling and pain in chest around the incision area for about 3 months. It may take up to 1 year for the intensity to be reduced.
  - Soreness and numbness in your incisions, back and shoulders. In the first 4-6 weeks, changes in the weather, lying in one position too long or not getting enough exercise may cause you to feel more stiff and sore.
  - Bruising, especially along your leg incision, will fade and eventually disappear.
  - The lump or swelling at the top of your incision will gradually disappear over the next 3 months.
- ♥ If your surgeon used an artery in your chest (internal mammary artery) for a bypass, you may occasionally experience:
  - A burning discomfort in your chest wall on the side in which the artery was used (usually the left side).
  - Sharp, shooting pains that last momentarily. These sensations may take up to 6 months to disappear.
- ♥ Maintain good posture and move your head and neck normally to prevent further stiffness.
- ♥ During the 6-12 weeks healing period of your breastbone (sternum), you may notice a slight clicking of the breast bone when you move or take a deep breath.
- ♥ You may occasionally notice some clear yellow or slightly blood tinged drainage from your incisions or chest tube sites.



## Signs of infection



Increasing or persistent pain at the wound site



Fever above 38°C.



A red, tender area in your incision that is warm to touch



Thick yellow-green discharge from any incision



Excessive swelling/-bleeding

See a doctor if any of these signs or symptoms occur.

## Sternal (breastbone) precautions for 3 months

- ♥ No pulling or pushing heavy articles e.g. chair or door
- ♥ No lifting of more than 3kg in weight for 6-8 weeks
- ♥ No heavy lifting for 3 months
- ♥ No driving for at least 6 weeks

## Bathing

- ♥ Shower with non-perfumed soap and water.
- ♥ Ensure surgical wound is thoroughly rinsed.
- ♥ Dab wound dry with clean towel.
- ♥ Do not rub or scratch wound.
- ♥ Avoid any cream/ ointment/ powder to the wound for the first 3-4 weeks.

## Leg Swelling

This may last for 10-12 weeks. To minimize swelling and improve circulation, you are advised to:

- Elevate your legs when you sit down;
- Avoid prolonged standing in one position
- Avoid crossing your legs when you sit down because pressure on the area behind your knees can decrease the blood flow

## Driving

- Avoid driving for at least 6 weeks after surgery as your reaction time is slow due to weakness, tiredness and medications.
- When you resume driving, have someone with you, and drive in light traffic, good weather and take familiar routes to decrease stress.
- To prevent the seatbelt strap from rubbing against your incision, place a small pillow or folded towel beneath the strap.
- For the first few weeks, you should avoid long trips. Consult your doctor if you must go for long trips.

## Rest and Relaxation

Rest is an important part of the post-surgical recovery period.

- Try to get eight hours of sleep every night.
- Plan two 30-60 minutes rest periods (i.e. taking a short nap or relaxing in a chair) each day during the first week at home.



## When to Resume Usual Activities

Example:

### Week 1 - 6

Dusting  
Setting the table  
Washing dishes  
Folding clothes  
Potting plants  
Trimming flowers  
Shopping  
Climbing stairs

### After 6 weeks

Vacuuming  
Sweeping  
Laundry  
Travelling  
Fishing  
Driving  
Walking dog on leash

### After 3 months

Scrubbing floor  
Soccer  
Jogging

# LIFESTYLE AND DIET MODIFICATIONS

## Exercise

- ♥ Walking is the easiest and best exercise for you to do after a heart surgery.



♥ Increase your activity gradually. For example:

Week	Time in Minutes	Approximate Distance (Metres)	Times Daily	Pace
1	5-10	250 (1 Bus stop)	2	Stroll
2	10-15	500 (2 Bus stop)	2	Comfortable
3	15-20	1000 (4 Bus stop)	2	Comfortable
4	20-25	1500 (6 Bus stop)	1-2	Comfortable / Brisk
5	25-30	1500 (6 Bus stop)	1-2	Comfortable / Brisk
6	30	2000 (8 Bus stops)	1-2	Comfortable / Brisk

♥ **REMEMBER**, listen to your body because it will tell you when to stop what you are doing or when you are ready to do more strenuous activities.



### Drink in moderation

- ♥ Do not drink in the first 3-4 weeks after surgery.
- ♥ If you wish to drink after the first 3 - 4 weeks, please consult your doctor.

### Stop smoking

After Stopping	Benefits
< 30 minutes	Heart rate & blood pressure returns to normal.
8 Hours	Carbon monoxide level in blood returns to normal.
24 Hours	Risk of heart attack decreases.
72 Hours	Breathing becomes easier.
3 Months	Sperm count returns to normal.
1 Year	Risk of heart attack reduces by half.
5 Years	Stroke risk reduces.
10 Years	Risk of heart attack becomes the same as that of non-smokers and risk of cancers decreases.



## Diet

- ♥ Balanced nutrition speeds healing and lessens fatigue.
- ♥ Consume fruit, vegetables and whole grain breads and cereals on a daily basis to achieve a balanced diet.
- ♥ Consume smaller portions of lean meat. Remove visible fat and skin on meat and poultry before cooking and eating.
- ♥ Choose low fat dairy products such as skimmed milk and low fat cheese.
- ♥ Opt for polyunsaturated oils like corn and sunflower oil and soft tub margarines.
- ♥ Limit egg consumption to 3 per week (or less).
- ♥ Eliminate foods high in salt such as canned soups and processed and cured meats.

You may see a dietician for more information.

## RETURN TO WORK

- ♥ How soon you can return to work depends on the type of work you do, job demands and the level of physical exertion involved. You should discuss your situation with your cardiologist.
- ♥ The usual duration of hospitalisation leave given is about 6 weeks. Following this would be outpatient leave depending on individual patient needs and the doctor's discretion.



# SEXUAL ACTIVITY

Open communication with your partner is important.

Some patients find that their sex drive (libido) may be decreased in the early recovery period after heart surgery. This is usually temporary and should not cause undue anxiety. Hugging and kissing can be a sensual experience and a way to bring couples closer together.

The amount of energy required for sexual intercourse is equal to climbing 2 storeys of stairs. If you can climb 2 storeys without becoming too tired or short of breath, you may resume sexual intercourse.

- ♥ Avoid making love after a large meal or considerable physical exercise. If you are tired or tense, wait until you feel better.
- ♥ Avoid taking the weight of your body on your arm for at least 6 weeks after surgery. If certain positions cause discomfort, try different ones.

# MEDICATIONS

- ♥ Take your medication as prescribed.



- ♥ Ensure that the medications can last till the next follow-up appointment.
- ♥ Do not offer your prescription medication to other people nor should you take their pills.
- ♥ Keep all medication in its original container, labeled with the name of the drug and the dosage. Check the expiry date for your medications before you take them.
- ♥ Seek medical help if there are side effects such as rash, fever, nausea, vomiting, diarrhea, jaundice or severe bruising.



## **Risk Factors for Heart Disease**

- ♥ Coronary artery disease can still progress after surgery. New blockages or blockages of bypass graft may occur over time. Keeping healthy after bypass surgery is your responsibility.

Risk factors for heart disease that can be modified are:

<b>Major</b>	<b>Other</b>
<b>High blood pressure</b>	<b>Stress/lifestyle</b>
<b>High cholesterol levels</b>	<b>Lack of exercise</b>
<b>Smoking</b>	<b>Obesity</b>
<b>Diabetes</b>	

- ♥ To maintain a healthy lifestyle:
  - Avoid smoking
  - Control your weight
  - Maintain a regular exercise routine or program
  - Develop methods to reduce emotional tension and stress
- ♥ Continue to take medications for high blood pressure or high cholesterol levels if your doctor advises you to do so.

If you have any questions about any of the above risk factors, and how to modify them, ask your nurse, surgeon or cardiologist.



Class of medicines	Members of class	Uses of medicines
Antiplatelets	Aspirin	Helps prevent the formation of blood clot and reduces the chance of heart attack or stroke
	Clopidogrel, Ticlopidine	
Beta-blockers	Atenolol, Bisoprolol, Carvedilol, Labetolol, Metoprolol, Propranolol	Reduce workload and oxygen demands of the heart to cope with reduced blood supply  Also helps to control blood pressure, chest pain, heart rate and prevent second heart attack
ACE inhibitors	Captopril, Enalapril, Lisinopril, Perindopril, Ramipril	Prevent heart from weakening further
Angiotensin II antagonists	Candesartan, Irbesartan, Losartan, Valsartan	Also helps control blood pressure to prevent heart attack, stroke and kidney failure
Lipid-lowering agents	Atorvastatin, Lovastatin, Pravastatin, Simvastatin	Decrease production cholesterol
	Bezafibrate, Fenofibrate, Gemfibrozil	Reduce fat formation
Diuretics	Bumetanide Frusemide	Remove excess water in the body by increasing urination
Warfarin	Anticoagulant	To thin the blood in patients with artificial heart valves, or with atrial fibrillation
Calcium channel blockers	Amlodipine, Diltiazem, Felodipine, Lacidipine, Nifedipine	Reduce oxygen demands and workload of the heart  Relax blood vessels and helps control blood pressure and chest pain
Vasodilators	Glyceryl Trinitrate, Isosorbide Dinitrate, Isosorbide Mononitrate	Relax blood vessels  Increase blood and oxygen supply to heart
	Hydralazine	Nitrates reduce incidence of chest pain
Cardiac glycosides	Digoxin	Improve the strength and pumping action of the heart resulting in better blood circulation
Aldosterone antagonist	Spironolactone	Remove excess fluid in the body

Common Side Effects	Precautions and advice
Gastric irritation, gastric bleed	Stop taking at least 5 days before any surgery, including dental surgery unless otherwise advised
Unexplained sore throat, fever, mouth ulcers, bruising or bleeding to contact doctor immediately	See a doctor if you experience gastric discomfort or pass black tarry stools
Tiredness, dizziness, cold hands & feet shortness of breath, nightmares	See a doctor if shortness of breath becomes severe or persistent dizziness  Inform your doctor if you have impotence, asthma or circulatory problems
Dry cough , changes in taste, dizziness, tiredness	Do not take additional potassium supplements other than those prescribed
Changes in taste, dizziness, tiredness	Avoid using salt substitutes
Constipation, flatulence, abdominal pain, muscle pain or stiffness	Observe proper dietary instructions to optimise treatment
Nausea, rash, itchiness, muscle pain or stiffness	See a doctor if muscle pain, severe nausea, vomiting or yellowing of skin occurs
Nausea muscle cramp, muscle weakness, dizziness	Take during the day to avoid waking in the night to go to the toilet  Contact doctor if severe nausea, vomiting or diarrhoea occurs
Bleeding (both internal and external) which can be life-threatening in serious cases (1-2%)	Many drugs, most TCM, and some foods interact with warfarin to increase or decrease its effect. The Pharmacist will speak to patients before discharge and provide an information booklet to reinforce precautions before discharge. Patients must be monitored closely via the Anti-Coagulation Clinic (ACC) run by NUHCS to prevent potential life-threatening consequences of inadequate or excessive warfarin dosing.
Headache, flushing, swelling of feet, changes in heart rate	See a doctor if swelling of feet or fast heartbeat persist
Headache, flushing, dizziness	Get up slowly from lying or sitting position to prevent dizziness
Palpitations	See a doctor if you experience joint pain
Nausea & vomiting, diarrhoea, unusual tiredness, visual changes	Contact doctor if any side effect occurs
Weight gain, breast tenderness	

# Location



## Contact Information

### National University Heart Centre, Singapore

NUH Main Building,  
Wards 20, 28, 63 and 64  
Kent Ridge Wing (NUH),  
Ward 7A

**Visiting Hours:** 12pm to 8pm (Daily)

**Website:** [www.nuhcs.com.sg](http://www.nuhcs.com.sg)

## Getting to NUH

### Circle Line Kent Ridge MRT Station

Commuters can transit at the Buona Vista MRT Interchange and alight two stops after at the Kent Ridge Station. The station is served by three exit-entry points.

**Exit A:** Right at the doorstep of National University Heart Centre, Singapore.

**Exit B:** Along South Buona Vista Road, which links to Singapore Science Park 1.

**Exit C:** Leads to NUH Medical Centre.



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