PATIENT INFORMATION BOOKLET
FOR ATRIAL FIBRILLATION

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THE NORMAL HEART

- The primary function of the heart is to pump blood (and the oxygen and nutrients within blood), to all areas of the body.

- There are four main areas within the heart: two upper chambers called the “atria”, and two lower chambers called the “ventricles”.

- The atria collect blood from vessels leading from various parts of the body into the heart. This blood is then pumped from the atria into the ventricles. The right ventricle sends blood to the lungs to be nourished with oxygen, and the left ventricle pumps the oxygenated blood through arteries leading back to all parts of the body.

- In summary, the atria receive blood, and the ventricles pump blood. The regular beating (also known as “pumping”, “contracting” or “squeezing”) of the heart, moves blood throughout the body in this manner.
In a normal adult heart, there are between 60 to 100 heartbeats per minute which occur at regular intervals. This is known as “sinus rhythm” or “normal heart rhythm”. It is normal, with exercise and stress, for the heart rate to increase above 100 heartbeats per minute.

What makes the heart beat?....the heart has its own electrical system. Heartbeats are controlled by automatically-initiated electrical impulses (signals) traveling through the heart.

These electrical signals, are initiated from the heart’s “Sinoatrial node” or “SA node”, located in the right atrium. They activate or cause the muscle cells within the heart to contract (pump).

In the normal heart, these electrical impulses initiate at the SA node, then flow through the right and left atria, and then flow down through the “AV node”, which is the only pathway leading to the ventricles. The AV node is a very important part of the electrical system of the heart, as it helps to regulate the heart rate by preventing rates from going too fast. The movement of the electrical signal through the ventricles causes them to contract and pump blood to the lungs and the rest of the body.

ARRHYTHMIAS OF THE HEART

When something goes wrong with the heart’s electrical system, the heart does not beat at a regular rate or rhythm.

Abnormal heart rates and rhythms are known as “arrhythmias” (pronounced: a-rith-mee-uhs) and can be either too slow (bradycardias) or too fast (tachycardias).

When there is an arrhythmia present, the heart cannot adequately pump an appropriate amount of blood to the body.

Arrhythmias that are the result of a damaged or malfunctioning heart can be dangerous or fatal. This is why it is important to have arrhythmias accurately diagnosed.
DIAGNOSIS OF ARRHYTHMIAS

- The doctors in our clinic are Cardiologists who specialize in the electrical function of the heart. These specialists are known as Electrophysiologists.

- To diagnose an arrhythmia, your doctor may ask questions about your past health, perform a physical examination, order blood tests and order other specific tests, depending on the type of arrhythmia suspected. These tests may include:

  - Echocardiogram (a non-invasive ultrasound image of your heart that will show how well your heart and heart valves are functioning)
  - 24 or 48 hour electrocardiogram, more commonly known as a Holter monitor (non-invasively records the electrical activity in your heart during normal daily activity)

  Illustration of patient wearing at 24-hour holter monitor

  - Event Monitor: (the same as holter monitor but you will turn it on yourself when you are experiencing palpitations in order to record your heart rhythm).

  - A “stress test” (you will be asked to walk on a treadmill while your heart is being monitored or your heart may be “stressed” with drugs if you are not physically able to exercise).

  - Electrophysiology study (a minor invasive procedure where a catheter is inserted into the heart, through a vein in the leg or neck, to record specific electrical activity inside the heart in order to pinpoint the type and location of the arrhythmia)
ATRIAL FIBRILLATION – the most common arrhythmia

- Atrial Fibrillation ("A-Fib" or "AF"), is the most common arrhythmia and one of the most difficult heart rhythm disorders to treat effectively.

- Although A-Fib can occur at any age, it affects approximately 5% of the population over 65 years of age, 10% of the population over 80 years of age, and its prevalence is projected to double by 2050. The reason as to why A-Fib is on the rise is not fully understood but an overall increase in heart disease is believed to be a factor.

- With Atrial Fibrillation, the electrical signals in the atria (upper chambers of the heart) bounce around and become chaotic, as opposed to following the normal route through the heart.

- The chaotic electrical signals cause the atria to quiver or fibrillate (contracting at 350 to 600 times per minute).

- As the chaotic electrical signals from the fibrillating atria reach the ventricles (lower heart chambers), a fast and irregular heartbeat results. The heart, therefore, cannot effectively pump blood at a strong steady rhythm of 60 to 100 beats per minute.

- There are three main types of A-Fib episodes:
  
  - **Paroxysmal A-Fib** is an on-and-off arrhythmia. It can spontaneously start and will typically self-terminate within 24 hours. Episodes can last a few seconds or minutes, to a few hours or even days.

  - **Persistent A-Fib** may be prolonged (typically more than a week in duration) and requires cardioversion (through the use of drugs or electrical shock) to terminate the episode and "reset" the electrical signals within the heart.

  - **Long Standing Persistent A-Fib (also known as Permanent A-Fib or Chronic A-Fib)** is constant and although it may be terminated with cardioversion, will recur within a short time frame. This arrhythmia is typically less responsive to all types of therapy.
CAUSES OF ATRIAL FIBRILLATION

With most cases of A-Fib, the causes are unknown. In the majority of cases of Atrial Fibrillation, there is no apparent cause and doctors cannot find any signs of a cause after thorough testing. In these cases, abnormal electrical beats (akin to electrical triggers/sparks) appear to cause Atrial Fibrillation. These electrical triggers/sparks are most commonly found in the region of the pulmonary veins that return blood from the lungs to the left atrium.

- Arrhythmias often occur among people who have structural heart defects and/or those whose hearts have been strained and/or damaged by heart attack, surgery or heart disease.

- Some people with Atrial Fibrillation have some form of heart disease. Specific heart problems include:
  - Coronary Artery Disease (CAD) (narrowing or blocked arteries that supply oxygenated blood to the heart muscle)
  - Thickened heart muscle from long-term high blood pressure (hypertension)
  - Abnormalities of the heart's pumping function or abnormalities of the heart’s valves (especially the mitral valve which is located on the left side of the heart)
  - Dysfunction of the sinus node or “SA” node in the right atrium where electrical impulses in the heart are initiated

- Approximately one-third of patients with Atrial Fibrillation, however, have no underlying heart disease. Other possible causes include:
  - An overactive thyroid (high thyroid level known as Hyperthyroidism)
  - Sleep disturbances including sleep apnea (when a person stops breathing while sleeping due to airway obstruction)
  - Exposure to substances that stimulate the heart, such as caffeine, tobacco, stimulant medications/drugs (that range from decongestants to cocaine), or alcohol (“binge drinking” where a large quantity of alcohol is consumed at once, can even cause an episode of Atrial Fibrillation in an otherwise healthy heart)
  - Lung diseases such as emphysema or asthma
  - Obesity (being overweight)
  - Genetics (those with a parent(s) who had A-Fib)
SYMPTOMS OF ATRIAL FIBRILLATION

- Patients with A-Fib may not have any symptoms or complain of the following:
  - Palpitations (sensations in the chest and/or throat of racing, pounding or fluttering, sometimes with an uneven beat)
  - Rapid heart rate (fast pulse)
  - Weakness
  - Fatigue (feeling tired)
  - Chest pain
  - Shortness of breath (dyspnea)
  - Sweating
  - Dizziness or light-headedness
  - Decreased quality of life

- Symptoms may spontaneously come and go and can last for a few seconds to hours. Some patients with Long Standing Persistent A-Fib, feel constant symptoms that never terminate until treated (usually with Catheter Ablation, as detailed below).

RISKS OF ATRIAL FIBRILLATION

- *The most serious risk of Atrial Fibrillation is an increased risk of stroke.* This applies only to patients with other risk factors for stroke, such as diabetes, high blood pressure, or age over 75 years.

- The risk of stroke related to Atrial Fibrillation arises from blood in the atrium that does not flow properly. Because the atria do not pump properly during Atrial Fibrillation, blood does not completely flow through and empty into the ventricles. This causes blood to pool at the bottom of the atria. Pooled blood is more likely to form clots (thrombus). Clots in the atria can dislodge (embolize), get pumped into the bloodstream by the heart, and travel up to the brain. This clot could then block blood flow (and oxygen) to the brain, causing a stroke.
Atrial Fibrillation can also cause weakening of the heart muscle (Congestive Heart Failure) when the heart rates remain fast, (over 100 beats per minute) constantly, for several weeks. This can be a concern to patients with permanent Atrial Fibrillation.

With heart failure, the heart does not have the physical ability, as a result of damaged muscle cells, to pump an adequate amount of blood to the body. This is another important reason why Atrial Fibrillation with rapid heart rates should be treated as soon as discovered in order to return the heart to normal sinus rhythm.

It is important to understand that congestive heart failure does not happen if the Atrial Fibrillation episodes last only a few hours or days.
TREATMENT OPTIONS FOR ATRIAL FIBRILLATION

- A number of treatments are available for Atrial Fibrillation. A patient’s treatment choices depend on the cause and type of AFib, severity of symptoms, tolerance and responsiveness to medications, and risk of stroke. All treatment options will include a plan to restore normal heart rhythm and/or to slow the heart’s rate and to prevent blood clots from forming (stroke prevention).

- Treatment options include:
  - **Cardioversion** (to “reset” the heart and restore normal sinus rhythm -- usually ineffective as a long-term or permanent treatment)
  - **Medications** (those that (i) slow down the heart rate, (ii) those that control the rhythm of the heart beat, and (iii) those that thin the blood to reduce the risk of blood clot formation)
  - **Catheter Ablation** (to destroy the abnormal tissue in the heart that causes the chaotic electrical signals)
  - **AV nodal catheter ablation and Pacemaker implantation** (to destroy the AV node in the heart (normally responsible for moving electrical signals from the atria to the ventricles), and to implant a pacemaker to act as a replacement for the AV node in order to better regulate the heart beat)

More details for each of these treatment options can be found below....

- **Cardioversion**
  - Doctors sometimes use cardioversion to restore a patient’s heart to a normal rate and rhythm which is usually a temporary solution only.
  - Cardioversion can be performed using either fast-acting drugs or a low-voltage, direct electrical current (shock).
  - For electrical cardioversion, the patient would be placed under light anaesthesia and would receive this electrical shock through paddles or patches on the chest.
  - The shock would stop the heart's electrical activity for a split second. When the heart's electrical activity resumes on its own, normal rhythm should be restored.
- Sometimes, the same effect as with electrical cardioversion can be achieved with antiarrhythmic drugs.

**Medication**

- **Rhythm-control medicines** (antiarrhythmics) may help prevent the atria from quivering or fibrillating in the first place, but also may help to return the heart to normal sinus rhythm if Atrial Fibrillation develops. When initially effective, about half of patients will have a recurrence of A-Fib after one year. These medications may also cause side effects such as nausea and fatigue. Some of these medications include Sotalol, Flecainide, Propafenone, Dronedarone and Amiodarone.

- **Rate-control medicines** keep the heart from beating too fast during Atrial Fibrillation. These drugs include beta blockers, calcium blockers, and Digoxin. These drugs work by slowing down electrical impulses through the AV node, thereby slowing down the heart rate. This allows the ventricles to pump blood at a slower, more appropriate rate. Your atria, however, will still experience A-Fib and be fibrillating, so blood-thinning drugs may still be required in combination with rate-control medicines.

- **Blood-thinners (anticoagulants)** are required in patients with Atrial Fibrillation and other risk factors for stroke (such as high blood pressure, diabetes, or age over 75 years) to help prevent strokes. Anticoagulant drugs thin the blood to reduce the likelihood of clot-formation, and are a very important part of any A-Fib treatment plan. The most commonly used drug for blood-thinning is Warfarin (Coumadin®). Patients treated with warfarin require periodic blood tests called "INR tests" to determine if their blood has been "thinned" to the correct degree. In patients with Atrial Fibrillation, most doctors aim for an INR value in the range of 2.0 to 3.0. If the INR is too high, there is a risk of bleeding with Coumadin. New blood thinners including dabigatran (Pradax), rivoroxiban, or apixaban may be recommended instead of Warfarin. These drugs are more expensive and not yet covered by OHIP. If you have a drug plan they are usually covered. It is very important to note that unlike warfarin these medications are not readily reversed in the case of emergency.

- Heart medications all have potential side effects. For instance, Amiodarone is a strong antiarrhythmic medication and works better than other drugs to prevent Atrial Fibrillation. However, Amiodarone may also have potential long term risks including scarring of the lungs, liver, and thyroid gland. In order to reduce these risks with Amiodarone, blood tests need to be performed.
every 6 months by your Cardiologist or family doctor to make sure there is no damage to your thyroid gland or liver. Patients should be aware of these risks and should discuss them with their doctor.

- To read more about medications used to treat Atrial Fibrillation, an informative website can be found at:
  [http://www.a-fib.com/Medications.htm](http://www.a-fib.com/Medications.htm)

**Catheter Ablation**

- Unfortunately, cardioversion and medications leave many patients with recurrent and debilitating symptoms from Atrial Fibrillation. At the same time, many who experience improvements with drug therapies are concerned about long-term drug side effects. In these cases, a procedure known as catheter ablation may be recommended if the patient is a suitable candidate.

- Catheter ablation is a moderately invasive heart procedure that attempts to control the underlying cause of A-Fib, namely the abnormal electrical triggers and pathways around the pulmonary veins, that initiate and maintain Atrial Fibrillation. It is important to understand that catheter ablation aims to control the majority of Atrial Fibrillation episodes, but rarely cures Atrial Fibrillation completely.

- The majority of patients who have undergone catheter ablation, experience a substantial long-term reduction in the number and severity of A-Fib episodes.

- It is estimated that over 50,000 catheter ablation procedures for A-Fib have been performed worldwide.

- There has been a high success rate for this procedure -- 75% of Paroxysmal A-Fib patients have minimal/no symptoms related to A-Fib for at least one year, without any anti-arrhythmic drugs. This includes half of patients who require a second “touch-up” catheter ablation procedure within 6 months of the first ablation procedure.

- Approximately 50% of Persistent A-Fib patients have minimal/no symptoms related to A-fib for at least one year, without any anti-arrhythmic drugs. This includes half of patients who require a second “touch-up” catheter ablation procedure within 6 months of the first ablation procedure.

- With Long-standing Persistent A-Fib, the success rate decreases to about 30%. In other words, only about 30% of these patients have
minimal/no symptoms related to A-fib for at least one year, without antiarrhythmic drugs. In these patients, a second or third ablation procedure is commonly required along with anti-arrhythmic medications to improve the long-term success of catheter ablation beyond 1 year.

- Catheter ablation is performed by inserting thin, flexible wire-like tools (called “catheters”) into the patient’s blood vessels. The catheters are then threaded through the vessels into the heart with the use of very accurate imaging and monitoring systems.

- To ablate and destroy the abnormal tissue, a burst of radio-frequency energy (a low-voltage, high-frequency current) is emitted from the tip of the catheter at the appropriate site.

- Once ablated, a small scar or lesion forms within the tissue through which electrical signals can no longer pass. Also, this scarred tissue will not be able to initiate any abnormal electrical signals.

*Illustration of high-frequency energy being emitted from the tip of the catheter into the heart tissue to create a scar/lesion through which electrical signals cannot pass.*

(image courtesy of Biosense Webster)

- In patients with Paroxysmal Atrial Fibrillation, catheter ablation is performed around the four pulmonary veins. The tissue surrounding the four pulmonary veins that lead into the left atrium are typical “hot spots” for abnormal cells. These hot spots are believed to initiate and perpetuate the electrical signals that cause A-Fib. Therefore, these areas are ablated so that the pulmonary veins are electrically "isolated" and can no longer conduct unwanted signals.
In patients with Persistent Atrial Fibrillation or long standing persistent Atrial Fibrillation, catheter ablation is performed within the left atrium, targeting electrical “hot spots” that are defined by special computers, in addition to the ablation around the four pulmonary veins.

Catheter ablation usually takes 3 to 5 hours to perform and the patient is given adequate sedation to relieve any potential discomfort.

Illustration of the “hot spot” regions surrounding the four pulmonary veins that lead into the left atrium of the heart. This is where the ablation catheters will be placed to destroy and isolate this abnormal tissue so that electrical impulses can no longer flow through these areas. (Image courtesy of The Mayo Clinic)

In some patients, catheter ablation is the most effective treatment option for their A-Fib, particularly when medications have not worked. However, it is important to keep in mind that catheter ablation is an invasive procedure associated with a 5% complication rate. These complications commonly include:

- Stroke (1%)
- Serious perforation of the heart muscle (1%)
- Significant narrowing of the pulmonary veins (1%)
- Injury to blood vessels in the leg or organs surrounding the heart (such as the esophagus, lungs, nerves) (1%)

Patients considering catheter ablation should have an understanding of these risks, and should discuss them with their doctor.
"Ablate and Pace" Treatment: Catheter Ablation of AV Node and Pacemaker Implant

- For some patients an “AV node ablation” is recommended instead of “Atrial Fibrillation catheter ablation”, but it should be clear that this is a palliative therapy only (to reduce symptoms) and will not prevent A-Fib.

- The AV node is the pathway between the atria and the ventricles (the upper and lower chambers of the heart) through which electrical signals flow.

- In this procedure, the AV node is ablated and the heart loses its ability to conduct the electrical signals from the atria through to the ventricles. As a result, the ventricles no longer receive any electrical signals to prompt them to pump blood.

Illustration of an ablation catheter ablating the AV node in the right atrium of the heart. The AV node is the entranceway to the path through which electrical impulses flow into the ventricles of the heart (the chambers that pump blood to the rest of the body) (Image courtesy of Medtronic, Inc.)
The ventricles are the chambers that pump blood to the rest of the body. During A-Fib, there are many chaotic electrical signals being initiated in the atria. When many of these signals flow down through the AV node and into the ventricles, the heart pumps blood too rapidly.

After an AV node ablation, the ventricles would no longer receive any signals to pump. A pacemaker would therefore be implanted to emit electrical signals to the ventricles to replace the heart’s natural signals.

The pacemaker would ensure that a normal heart rhythm is restored and maintained.

Anticoagulation medication (blood-thinning medication) will still be required after the procedure, if this was needed before the procedure. This is to reduce the chance of developing blood clots because the atria will still be fibrillating, in isolation (but no longer being able to cause symptoms).

Photograph of implantable pacemaker pulse generator
(image courtesy of Medtronic, Inc.)

Illustration of implantable pacemaker system.
The pulse generator is implanted under the skin of the chest. A lead wire is threaded internally into the ventricle of the heart where it becomes imbedded in the myocardial (heart) tissue. This system controls the pumping of the heart by emitting electrical impulses that cause the ventricles to contract.
Catheter Ablation Treatment Summary:

The chart below summarizes the treatment options described above in relation to treatment goals and effects on A-Fib:

<table>
<thead>
<tr>
<th>TREATMENT</th>
<th>GOAL</th>
<th>EFFECT ON A-FIB</th>
<th>INVASIVENESS</th>
<th>ON-GOING DRUGS REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardioversion</td>
<td>To restore normal heart rhythm</td>
<td>Terminates current A-Fib episode only</td>
<td>Non-invasive</td>
<td>Anticoagulation required for 4 - 6 weeks Anti-arrhythmics may be req’d to prevent A-Fib recurrence</td>
</tr>
<tr>
<td><strong>DRUGS:</strong></td>
<td></td>
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<tr>
<td>Rate Control</td>
<td>To slow heart rate</td>
<td>None</td>
<td>Non-invasive</td>
<td>Required indefinitely</td>
</tr>
<tr>
<td>Rhythm Control</td>
<td>To restore normal heart rhythm &amp; prevent A-Fib recurrences</td>
<td>Reduces A-Fib recurrence</td>
<td>Non-invasive</td>
<td>Required indefinitely</td>
</tr>
<tr>
<td>(Anti-arrhythmics)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anticoagulation</td>
<td>To thin blood to prevent blood clots (reduce risk of stroke)</td>
<td>None</td>
<td>Non-invasive</td>
<td>Required indefinitely</td>
</tr>
<tr>
<td>Catheter Ablation</td>
<td>To restore normal heart rhythm &amp; prevent A-Fib recurrences when drugs have failed</td>
<td>Reduces A-Fib recurrence (not a cure)</td>
<td>Moderately invasive</td>
<td>Anticoagulants req’d for 4 weeks before and 8 weeks after ablation Anti-arrhythmics may be discontinued 8 weeks after ablation</td>
</tr>
<tr>
<td>&quot;Ablate and Pace&quot;</td>
<td>To slow heart rate when drugs have failed</td>
<td>None</td>
<td>Moderately invasive</td>
<td>Rate and rhythm controlling drugs can be stopped Must continue anticoagulation drugs</td>
</tr>
</tbody>
</table>
Regardless of the A-Fib treatment option you decide upon, it is important that you do not stop or alter your medications until directed to do so by your doctor.
If Catheter Ablation is your Choice:

Preparing for Catheter Ablation:

- You will be given specific instructions regarding medication prior to your procedure. Most patients are maintained on Coumadin for 4 weeks before catheter ablation. If you are taking antiarrhythmic drugs, you may be asked by your doctor to stop some of them 1 week before catheter ablation.

- During the week prior to catheter ablation, the Coumadin is discontinued and replaced with a blood thinner known as Heparin (which may be dispensed under another name). Heparin is injected every day for 5 days, and you will be given full instructions about Heparin administration by our hospital’s Thrombosis Clinic.

- You will have a special chest scan performed prior to your procedure date, called a **CT (computerized tomography) scan**. This scan will require you to be injected with an iodine-based contrast injected (intravenously). Shortly after your injection, you will be placed under a scanning machine and “pictures” of your chest and heart will be taken. You will not feel anything and the entire procedure will take 1 hour to complete.

- The image of your heart from your CT scan will be downloaded into a computer-aided navigation system that will be used during your catheter ablation procedure. This image will become part of a three-dimensional “map” of your heart that will help the Electrophysiologist performing your procedure, to find the appropriate areas within your left atrium to ablate.

*Image of computer-generated three-dimensional “map” of a left atrium used by physicians to navigate to specific areas of the heart to analyze electrical signals, and ablate where appropriate. (Image courtesy of Biosense Webster)*
• Prior to your ablation procedure (usually 1-2 days before), you will require a “Trans-Esophageal Electrocardiogram” or “TEE” to check for blood clots that may be present inside your heart. This procedure is usually done on an out-patient basis and you will need someone to accompany you to your appointment and to get you home safely. After you receive sedation, a small ultrasound-imaging probe will be inserted into your throat to view the inside of your heart, from your esophagus. The procedure takes approximately 30 minutes in total.

• For your actual ablation procedure, your doctor will ask that you not consume any food or liquids from midnight on the evening prior to your procedure date.

**During Catheter Ablation**

• For your catheter ablation, it makes no difference whether you are in A-Fib or normal sinus rhythm at the time of your procedure.

• Your doctor will need to insert catheter(s) through vessels in your groin or your neck (or both). These areas need to be cleaned and shaved, which will be done by nurses who will help you to prepare. Please note that for male patients, the chest and back areas will be shaved to provide a clean, smooth skin surface upon which to apply large patches. These patches help to record electrical signals coming from the heart during the procedure. Everyone involved in your procedure will be wearing sterilized clothing.

• You will receive a local anesthetic so that you do not feel any pain when the catheters are being inserted. You will, however, feel pressure at the insertion sites, which is normal.

• You will also be given sedation (continuous intra-venous anesthesia) and pain-relievers for the procedure by an Anaesthesiologist. It is important that you inform your doctor, at any time during your procedure, if you feel pain and/or discomfort so that your sedation level can be appropriately adjusted. Typically, patients have very little or no pain/discomfort, and they recall very little, if any, of the procedure.

• If you have been diagnosed with Paroxysmal A-Fib, your doctor will likely ablate the areas around your pulmonary veins only. If you have Persistent or Permanent A-Fib, your doctor will likely ablate around your pulmonary veins in addition to other “hot spot” areas in your left atrium which will lengthen your procedure time. A-Fib ablation procedures therefore can take anywhere from 3 to 5 hours.

• You will be given a blood thinning drug, know as heparin, to reduce the risk of blood clot formation and stroke.
**In the Hospital:**

- Once your procedure is completed, the catheters will be removed from your body but depending on your doctor’s approach, the catheter sheaths (hollow tubes providing access into the leg veins) may be left in for several hours until your blood returns to its normal state. It is important that you remain still during this process and do not move or bend your legs. Pressure will be applied at the catheter insertion sites to minimize bleeding.

- You will remain in bed, with limited movement allowed, for approximately 4 hours after the catheter sheaths have been removed.

- You will undergo another echocardiogram the following day while you are still in the hospital. This echocardiogram is not the same as the transesophageal echocardiogram you had before the ablation, but a simpler one that takes pictures from the surface of your chest.

- If you are feeling well, you can go home the day after your catheter ablation.

- It is important to restart your medications after your catheter ablation, and your doctor will provide details. In general, you should restart your antiarrhythmic medications and Coumadin. It will take 5 days for your INRs to become therapeutic, so you should restart your Heparin injections during this time, and these details will be provided by our hospital’s Thrombosis Clinic.

**Back At Home**

- **Activity:**
  - Once back at home, you will still need to limit your activity and stay away from ALL strenuous activity for a few days. This will mean that you should not partake in any aerobic/fitness exercise (which would include running, cycling or climbing stairs quickly), and you should not lift anything heavier than 10 lbs for one week. You will then be able to go back to your previous level of activity.

  - It is also important to understand that your “normal” electrical system should continue to function as before the catheter ablation procedure. Your heart will work at rest, or during exercise, as it should normally. The level of exercise should be discussed with your doctor.
Return to Work:

- If you work, and your work is not physically demanding, you may be able to return to work after a few days. If your work is physically demanding, work should be delayed for one week, and for some, depending on how you feel, up to two weeks may be required.

What to Watch For:

- It is not uncommon for some bruises to develop at the site(s) where the catheters were inserted. You should, however, contact your doctor immediately if these sites start to swell or remain painful.

- It is also normal to experience chest discomfort (especially when inhaling deep breaths) for up to a week after your procedure (caused by inflammation).

- You should contact your doctor immediately if you experience worsening chest discomfort or persistent chest discomfort (more than one week).

- Contact your doctor immediately if you experience a fever or difficulty swallowing within the first few weeks.

- It is not unusual for A-Fib to recur in the first 2 - 6 weeks after your ablation procedure, and this is considered a normal part of the healing process. This is because the ablation scars in your heart can take 1 to 2 months to heal and to block abnormal electrical signals. In order to reduce the risk of A-fib recurrence during the first 2 – 6 weeks, antiarrhythmic medication(s) may be prescribed by your doctor.

Follow-up:

- You will undergo a second CT scan of your heart approximately 3 months after catheter ablation to ensure that the pulmonary veins are not damaged from the ablation energy. The risk of significant pulmonary vein narrowing is 1%, and this will be clarified with the CT scan.

- Your doctor will see you again 2 - 3 months after your ablation to see how you are doing. If you have not experienced any further A-Fib, your doctor will stop your antiarrhythmic medications. If you continue to experience A-Fib, you may require a second “touch-up” ablation.
At this follow-up visit, your doctor may also stop your Coumadin, if you did not require it before catheter ablation, otherwise the Coumadin will be continued. It is important to understand that catheter ablation does not reduce the risk of stroke, so if you required Coumadin before catheter ablation, you will still require Coumadin long-term after catheter ablation.

If you have any questions or issues following your catheter ablation procedure, please contact us:

- Nurse Practitioner (Nancy Marco): Mon-Fri 9am-5pm at 416-340-4800 ext 4532
- For emergency situations after working hours or on weekends, please go to your nearest emergency department.

**SUGGESTED RESOURCES for more information about ATRIAL FIBRILLATION:**

www.atrialfibrillation.com

www.hrs.online.org (go to “Patient Education” and “Afib”)
Summary – Atrial Fibrillation

The following is a summary of this information booklet in the format of FAQ’s (Frequently Asked Questions).

Will catheter ablation permanently cure my Atrial Fibrillation?

We cannot say that catheter ablation will permanently cure your A-Fib. The clinical studies to date show that 75% of Paroxysmal A-Fib patients have minimal/no symptoms related to A-Fib for at least one year, without any anti-arrhythmic drugs. It should also be noted that half of these patients will require a second “touch-up” catheter ablation procedure within 6 months of the first ablation procedure. For those with Persistent A-Fib, this success rate is approximately 50%.

Will catheter ablation reduce my risk of stroke so I no longer need to take Coumadin?

It is important to understand, that catheter ablation of A-fib does not change your stroke risk. Therefore, if you required coumadin before ablation, you will need to continue coumadin after ablation.

Why should I choose Atrial Fibrillation catheter ablation over AV nodal ablation/pacemaker implantation?

A-Fib catheter ablation attempts to restore the heart rhythm back to normal without the need for a pacemaker. This is attractive as it restores the heart to a more natural state. In contrast, AV nodal ablation only attempts to control the heart rate using the pacemaker, and atrial fibrillation remains. Although AV nodal ablation may seem less ideal, it works well to improve symptoms and the risk of the procedure is very low. AV nodal ablation is preferable for patients who already have pacemakers, or in patients who are over 70 years. This option is not preferable for younger, more active patients who need to maintain a normal rhythm. Regardless of the approach, the stroke risk will not change, so if patients needed coumadin before the procedure, it will need to be continued after the procedure.

I have heard of a new drug called Dronedarone, should I try this instead of catheter ablation?

Dronedarone is a relatively new drug and seems to work just as well as sotalol in preventing A-Fib. Dronedarone does not work as well as Amiodarone in preventing A-Fib. An important advantage of Dronedarone is a lower risk of side effects compared to Amiodarone. In general, Dronedarone will not work as well as A-Fib catheter ablation, if patients
have already failed one antiarrhythmic drug. However, if patients have experienced troublesome side effects from antiarrhythmic drugs, Dronedarone may be an option over A-Fib catheter ablation, and this should be discussed with your doctor.

**What is the risk to me of staying in Atrial Fibrillation, if I decide not to go ahead with catheter ablation?**

There is very little risk to your heart of staying in A-Fib so long as your heart rates are well controlled. Poorly controlled heart rates over months will eventually weaken the heart muscle and cause heart failure. Some patients who already have heart failure feel very tired when they are in A-Fib. Your decision to seek catheter ablation treatment for you’re A-Fib should be based on how you feel and any side effects from drug therapy.

**Will I be asleep during my catheter ablation procedure?**

Most patients are not put to sleep with a general anaesthetic. However, you will be sedated adequately to make you feel very calm, and you will be given an adequate amount of medication so that you will not feel pain. There may be some discomfort initially from the injection of a local anaesthetic into the upper thigh where the catheters are inserted at the commencement of the procedure.

**How long will I be in the hospital after my catheter ablation?**

The standard length of stay in the hospital after an ablation procedure is one to two nights.

**Will my heart be damaged from this procedure in any way?**

Your heart will be the same in all regards with the exception of the areas in the atria (upper chambers of the heart) where your doctor will need to perform the catheter ablation in order to treat you’re A-Fib.

**What should I do if I experience A-Fib or Flutter after my catheter ablation?**

A-Fib or flutter is commonly experienced during the healing process in the first 2-3 months after catheter ablation. This is why your doctor will likely prescribe anti-arrhythmic medication immediately after your procedure, to be re-assessed at your follow-up appointment in 2-3 months. If, however, you experience rapid palpitations for several hours with heart rates over 100 beats per minute and feel very unwell, please go directly to your nearest hospital emergency department.