Electrical cardioversion for atrial fibrillation

Patient information and preparation

Your electrical cardioversion is scheduled for:
DATE: _____
Arrival time: _____
Procedure time: _____
Please present to patient registration at your arrival time and bring your health card.

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What is electrical cardioversion

Atrial fibrillation (AF) makes the two upper chambers of the heart, the atria, beat irregularly. Electrical cardioversion uses a carefully timed electrical shock to try to restore a normal, regular rhythm. While you are briefly asleep, the shock is delivered through pads on your chest and sometimes your back. More than one shock may be needed. Cardioversion can also treat atrial flutter, a related rhythm problem.



Illustrative rhythm tracings. Your own ECG may look different.

Why it may help

Rate control slows the heartbeat while AF continues. Rhythm control tries to restore and maintain a normal rhythm using cardioversion, rhythm medicines, or ablation. Cardioversion is one part of a longer-term rhythm-control plan.

Canadian Cardiovascular Society (CCS) guidance supports considering rhythm control when AF is newly diagnosed, generally within the past year, and recommends it when symptoms persist despite rate control. It is also particularly useful when AF contributes to a weak heart or heart failure. Restoring rhythm may improve palpitations, breathlessness, fatigue, exercise tolerance, and heart pumping function. [1]

What the EAST AFNET 4 study found

In people diagnosed with AF within a year who also had cardiovascular risk factors or disease, an early rhythm-control strategy reduced the combined risk of cardiovascular death, stroke, or hospital admission for worsening heart failure or an acute coronary problem by about 21% relative to usual care, which mainly used rate control. Event rates were about 4 versus 5 per 100 people followed for one year. Fewer cardiovascular deaths and strokes were also seen. [2]

These results apply to an ongoing treatment strategy, not a guarantee from one shock. Medicines and ablation have their own risks. The best approach depends on your health, symptoms, and preferences; older studies in longstanding AF did not show the same clear survival benefit. [1,2]

Success recurrence and possible risks

How likely is it to work and stay in rhythm

A normal rhythm is restored immediately in about 9 out of 10 people. Success and lasting rhythm are less likely when AF has lasted longer or the atria are enlarged. Age, other heart disease, obesity, sleep apnea, alcohol use, and treatment of these factors also matter. [1,3]

AF commonly returns within days, weeks, or months. In many studies of persistent AF, more than half of patients have another episode within a year, especially without rhythm medicines. Watch for a new irregular or racing pulse, palpitations, reduced energy, breathlessness, or reduced exercise tolerance. Some episodes cause no symptoms. An ECG is needed to confirm recurrence. [3,9]

If AF returns

Your cardiologist may start or adjust an anti-arrhythmic medicine to help maintain rhythm, then repeat cardioversion. The medicine is chosen for your heart condition and other health issues. If you are already taking one, another medicine or ablation may be considered. [1,3]

Catheter ablation is a separate procedure by a heart rhythm specialist. Thin tubes pass through a vein, usually in the groin, to the heart. Heat, freezing, or short electrical pulses isolate the electrical signals that trigger AF, usually around the pulmonary veins. It may be offered when medicines fail or are unsuitable, and sometimes as an initial option. Repeat treatment may be needed. [1,10]

Approximate risks of cardioversion

These are published study estimates, not measured South Muskoka hospital rates. Your risk depends on age, heart and lung disease, medicines, and the procedure. The team monitors you and treats problems promptly.

Possible problem	Approximate frequency	What this means
Stroke or another blood clot	About 2–5 in 1,000 (0.2–0.5%)	Within a month in many studies with effective blood thinner treatment. Risk is higher if doses are missed. [1]
Marked slow heartbeat or a long pause	About 1 in 100 (1%)	Often brief. A pacemaker is rarely needed immediately (about 1 in 1,000 in patient guidance). Later need depends on underlying rhythm disease. [5,6]
Breathing or oxygen problem during sedation	About 1 in 10 (10%)	Reported in a Canadian emergency cardioversion study; many events were brief but sometimes needed airway or breathing support. [4]
Low blood pressure during sedation	About 1 in 25 (4%)	Reported in the same study. Treatment may include fluids, adjusting sedation, or medicine. [4]
Skin redness or soreness	About 1 in 6 (17%) in one study	Usually mild and temporary with modern biphasic shocks. Blistering or a serious burn is rare. [7]

Serious sedation problems are rare. Across adult emergency sedation studies overall, aspiration (stomach contents entering the lungs) and needing a breathing tube were each estimated at about 1–2 in 1,000; these are not cardioversion-specific rates. Serious allergy or another dangerous heart rhythm is rare, without a dependable single percentage. [6,8]

How to prepare

When and where to arrive

Cardioversion is usually scheduled for around 8 a.m. Patients are usually asked to arrive at the emergency department and check in at switchboard around 7 a.m. Please call the emergency department at (705) 645-4404 ext 3121 at around 6 a.m. the morning of the procedure to confirm they can accommodate the procedure. Cardioversions infrequently need to be cancelled due to high volumes in the emergency department.

South Muskoka Memorial Hospital, 75 Ann Street, Bracebridge. Tell staff you are there for scheduled electrical cardioversion. Follow the arrival time given by your team if it differs. Allow a few hours for your visit; delays may occur.



South Muskoka emergency entrance. Photo from Muskoka Algonquin Healthcare.

Food and drink

Do not eat or drink after midnight the night before, unless your team gives different fasting instructions. This includes water, coffee, gum, and candy. An empty stomach reduces the risk of stomach contents entering your lungs.

Arrange help and bring what you need

- Arrange for a responsible adult to take you home and stay for 24 hours, including overnight. Tell the team beforehand if this is not possible.
- Bring your health card and medication list; pharmacy containers if requested. Wear comfortable clothing. Avoid lotions on your chest or back.
- Tell the team about allergies, sleep apnea, previous sedation problems, or a new illness.

Home medications

Take your usual home medications on the morning of cardioversion with small sips of water only, except for the diabetes medicine changes below or medicines your care team has specifically told you to hold or change.

Diabetes medicines and insulin

Arrange a personal diabetes medication plan before the procedure with your primary care provider or cardiologist, including exact insulin doses and when to restart held medicines. Follow these fasting instructions unless your care team gives a different plan. [13,14]

SGLT2 inhibitors: Stop canagliflozin, dapagliflozin, and empagliflozin at least 3 days beforehand (usually 3–4 days). Stop ertugliflozin at least 4 days beforehand. This also applies if you take them for heart failure or kidney disease. Fasting with these medicines can cause diabetic ketoacidosis (DKA), a dangerous build-up of acids, even when blood glucose is normal or near normal. A normal glucose reading does not rule it out.

Metformin and other oral diabetes medicines: Hold them on the morning of the procedure. **Short- or rapid-acting mealtime insulin:** Hold it while you are not eating or drinking (NPO). Only use correction insulin if directed by your care team.

Basal or background insulin: Continue it, usually at a reduced dose to prevent low glucose while fasting—for example, about 75% of the usual long-acting insulin dose or 50% of the usual NPH dose. Confirm the dose and whether the change applies the evening before, the morning of the procedure, or both. **Never completely stop basal insulin in type 1 diabetes, even while fasting.**

Check glucose every 2–4 hours while fasting and bring your glucose meter and supplies. Tell the team promptly if an SGLT2 inhibitor was not stopped in time. Seek urgent care for vomiting, abdominal pain, rapid or deep breathing, or marked weakness—even with normal glucose.

Tell the team if you accidentally eat or drink. Report a persistently slow pulse, low blood pressure, dizziness, or fainting before the procedure.

Blood thinners are essential

Continue your blood thinner exactly as prescribed. Do not stop it for cardioversion. Most planned cardioversions require at least 3 weeks of uninterrupted treatment beforehand.

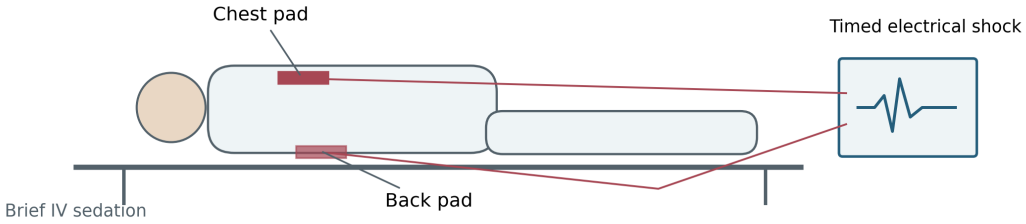
Tell your team promptly if you missed any doses in the weeks beforehand. The procedure may need to be postponed or the plan changed for safety.

At the hospital and after sedation

Before and during the procedure

Your clinician reviews the procedure and consent with you. Confirm when you last ate or drank, your morning medicines, and any missed blood thinner doses. An ECG checks your rhythm. An IV is placed in your hand or arm; chest or back hair may be clipped so the pads stick.

Before the shock, remove medication patches and metal jewellery. Tell staff which patches you use so they can advise when to remove and replace them. Staff will help if needed.



Simplified illustration. Pad positions may vary.

Sedation and breathing support

Propofol is the main sedative usually used. Occasionally ketamine or etomidate is chosen, depending on your condition, particularly when blood pressure is low or a further drop is a concern. The medication acts quickly to produce a brief, deep sleep so you should not feel the shock. Most people remember little or nothing. [11]

A heart monitor, blood pressure cuff, and finger oxygen sensor are used throughout. You receive oxygen. If sedation becomes deeper than intended or suppresses breathing, staff may open your airway or assist ventilation with a mask and breathing bag. A breathing tube is rarely needed. The team is trained and equipped for this. [4,8]

Recovery before going home

The shock takes only a moment; sedation and the procedure usually take a few minutes. Another ECG checks the result. Monitoring often continues for about an hour, or longer if needed. Most patients are discharged home before 11 a.m.

Sedation can affect you after you wake up

Even when you feel normal, judgment, memory, reaction time, balance, and coordination may be affected for up to 24 hours. Get up slowly and ask for help if dizzy or unsteady. Being ready to leave hospital does not mean all effects have worn off.

For at least 24 hours after sedation

- Do not drive, cycle, operate machinery, or do hazardous work.
- Do not make important decisions, sign legal papers, or make major financial transactions.
- Do not drink alcohol or use cannabis, sleeping pills, or other sedating medicines.
- Have an adult stay with you. Do not be the sole caregiver for children or other dependants. Rest for the remainder of the day.

Follow any longer restrictions. Do not resume driving or risky activities if still drowsy or unsteady after 24 hours.

Recovery at home and checking your heart rate

Ideally check your resting heart rate twice daily, morning and evening, and whenever you develop symptoms of a slow heartbeat (bradycardia), such as dizziness, unusual fatigue, weakness, or feeling faint. Record the rate, rhythm, and symptoms. Ask your team about your usual target range.


Morning


Evening


Whenever symptoms occur

You can check manually, or use a blood pressure cuff, pulse oximeter, smartwatch, or smartphone with a suitable heart-rate app or connected device. Watches and apps can misread rates, especially with an irregular rhythm. Confirm unexpected readings manually when possible. Do not delay emergency help to measure your pulse.

Checking your pulse manually

1. Stop what you are doing and sit quietly for about 5 minutes.

2. Place your index and middle fingers on the inside of the opposite wrist, just below the thumb. Press gently until you feel the beats; do not use your thumb.

3. Count for a full 60 seconds. Note whether the beats are regular, irregular, or have pauses. Write down your result and symptoms. Ask a nurse to demonstrate if needed. [12]

If your heart rate stays below 50

If you otherwise feel well, rest for 10 minutes and repeat the reading. **If the rate remains below 50 beats per minute, hold your next dose of rate-controlling medicine**, especially if you also feel dizzy, weak, or faint.

Examples include beta blockers such as metoprolol or bisoprolol, diltiazem, verapamil, and digoxin. Contact your primary care provider or cardiologist promptly, ideally the same day, for advice about doses and when to restart. For fainting, chest pain, or new shortness of breath, seek emergency care (see When to get emergency help); do not drive yourself.

Do not stop your blood thinner because your pulse is slow. Do not stop other medicines or change anti-arrhythmic drugs unless advised.

Other changes to report and home care

Contact your primary care provider or cardiologist for a repeatedly fast resting pulse (above 100 or outside your personal target), a new irregular rhythm, racing episodes, ongoing dizziness, or returning AF symptoms. An ECG may be needed.

Continue your blood thinner for at least 4 weeks after cardioversion, or longer as directed, even if your rhythm is normal. Many people need it long term. Resume food and drinks when the hospital team says it is safe. [1]

Mild skin redness, itching, or soreness may feel like sunburn and usually settles in a few days. A cool compress may help. Ask about a suitable cream; seek advice for blistering, worsening pain, or skin changes that do not improve.

Emergency help and your follow up plan

When to get emergency help

Seek emergency care for loss of consciousness, chest pain, or new shortness of breath, especially with a slow or fast pulse. Call 911 for fainting, chest pain or pressure, severe or sudden breathlessness, severe dizziness or weakness, or signs of a stroke. Do not drive yourself.

Stroke warning signs include sudden face drooping, weakness or numbness on one side, trouble speaking, vision loss, or a sudden severe headache. Call 911 immediately even if symptoms go away. Do not wait for an office callback or a pulse reading.

Who provides your ongoing care

Dr. Luke Wu's involvement is usually limited to performing your cardioversion, unless he has specifically agreed to provide ongoing care. Routine follow-up, rhythm management, and medication advice should be with your primary care provider or cardiologist.

Ensure you have follow-up booked with your cardiologist to discuss ongoing AF management. Contact your cardiologist's office to arrange this if an appointment is not already booked. Your primary care provider can help with symptoms and medication questions in the meantime.

If you do not have a cardiologist and Dr. Wu was the physician who recommended and arranged your cardioversion, contact his office (705-645-2281 ext 3) to book follow-up if it has not already been arranged.

Evidence and image credits

1. CCS/CHRS 2020 AF guidelines, chapters 8 and 9. Rhythm control, anticoagulation and stroke risk. Read source
2. Kirchhof et al. EAST AFNET 4. NEJM 2020. doi 10.1056/NEJMoa2019422. Read source
3. ACC/AHA/ACCP/HRS 2023 AF guideline. Cardioversion, recurrence and rhythm treatment. Read source
4. Liu et al. CJEM 2024. Breathing and blood-pressure events in emergency cardioversion. Read source
5. Gloucestershire Hospitals. Direct Current Cardioversion patient leaflet. Pacemaker estimate. Read source
6. Grönberg et al. FinCV. Europace 2013. doi 10.1093/europace/eut106. Slow rhythms and later pacing. Read source
7. Page et al. JACC 2002. doi 10.1016/S0735-1097(02)01898-3. Skin effects with biphasic shocks. Read source
8. Bellolio et al. Acad Emerg Med 2016. doi 10.1111/acem.12875. Adult emergency sedation risks. Read source
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10. Ottawa Heart Institute. AF treatment and pulsed-field ablation information. Read source Pulsed field
11. Choi et al. Curr Med Res Opin 2018. Etomidate versus propofol for cardioversion. Read source
12. British Heart Foundation. How to check your pulse. Read source
13. American Diabetes Association. Standards of Care 2026. Periprocedure diabetes medicines and insulin. Read source
14. Health Canada. SGLT2 inhibitor safety update 2024. Fasting and ketoacidosis precautions. Read source

Hospital photo: Muskoka Algonquin Healthcare, mahc.ca. Rhythm, cardioversion and monitoring illustrations created for this handout. Preparation and pulse guidance also informed by the supplied Hamilton Health Sciences and St. Joseph's Healthcare leaflet (2012). Reviewed October 2026.