



Ontario Health
CorHealth Ontario



Ontario Catheter Ablation for Atrial Fibrillation

Patient Eligibility Criteria Guidelines and Facility Quality Criteria

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Table of Contents

3

Purpose

4

Ontario Catheter Ablation for Atrial Fibrillation – Patient Eligibility Criteria Guidelines

5

Ontario Catheter Ablation for Atrial Fibrillation – Facility Quality Criteria

10

Appendix 1 : References

11

Appendix 2 : Patient Experience and Patient Quality of Life

About Ontario Health - CorHealth Ontario

On December 1, 2021, CorHealth Ontario transferred into Ontario Health (OH). Our mandate spans cardiac, stroke, and vascular through the entire course of care, including secondary prevention, rehabilitation, and recovery. Ontario Health - CorHealth Ontario proudly advises the Ministry of Health (MOH), Ontario Health Regions, hospitals, and care providers with the goal of improving the quality, efficiency, accessibility, and equity of cardiac, stroke, and vascular services for patients across the province.

Purpose

The role of catheter ablation for atrial fibrillation (AF) management is evolving rapidly and has contributed to an increase in provincial demand. This growth in demand is likely influenced by improvements in the efficacy and safety of the procedure as well as a growing body of evidence supporting the role of catheter ablation in decreasing patient morbidity and mortality.

The purpose of this resource is to:

- Highlight evidence-informed considerations in determining patients suitable for catheter AF ablation procedures
- Provide facility criteria that will support consistent high quality patient care across Ontario

The contents of this resource were informed by:

- The Canadian Cardiovascular Society National Guidelines
- Peer-Reviewed published literature
- Patient/caregiver engagement
- Feedback from members of the OH-CorHealth Atrial Fibrillation Task Group

Ontario Catheter Ablation for Atrial Fibrillation

Patient Eligibility Criteria Guidelines

The decision to proceed with catheter AF ablation is dependent on several factors that have seen considerable revision over recent years. Once considered a last resort for the most symptomatic patients, procedural outcomes and recent literature strongly suggest earlier intervention is beneficial in the course of the disease process. Determination of patient suitability for catheter AF ablation will be determined by the electrophysiologist overseeing the patient's care whereby criteria and factors outlined in the following sections are considered. In addition, the use of a physician/clinician-patient *model of shared decision making is necessary to ensure* treatment decisions are in alignment with a patient's goals and values.¹

Factors to be considered when identifying patients who are eligible for catheter AF ablation in Ontario

As part of the pathway for consideration of catheter AF ablation, the Canadian Cardiovascular Society (CCS) guidelines recommends the following:²

- Investigation for reversible causes of AF, including hyperthyroidism, pulmonary embolism, myocardial ischemia/infarction, heavy alcohol consumption, recent cardiac surgery, and other acute inflammatory/infectious processes shall be performed.
- Treatment of supraventricular tachycardia triggers for AF (i.e., atrioventricular (AV) nodal re-entry, AV re-entry tachycardia, or atrial tachycardia) should be considered to help limit or eliminate episodes of AF.
- In additional, the following factors need to be considered when determining eligibility for catheter AF ablation:
 - The type of AF (paroxysmal, persistent, or long-standing persistent)
 - Severity of symptoms*,
 - Presence of structural heart disease,
 - Presence of heart failure,
 - Candidacy for alternative options such as rate control or antiarrhythmic drug therapy,
 - Likelihood of complications, and
 - Patient preference.

The primary selection criterion for catheter ablation should be the presence of symptomatic AF or heart failure due to AF. Symptomatic status can be graded according to the CCS Severity of Atrial Fibrillation (SAF) scale which has a score from 0-4 from no symptoms to severe, debilitating symptoms, number of Emergency Department (ED) visits, hospitalizations and/or cardioversions in preceding 3-6 months may also guide assessment of symptoms.³

*Symptomatic AF is defined as the presence of one or more of the following symptoms: palpitations, syncope, dyspnea, chest pain, dizziness, and fatigue. Angina pectoris and symptoms of heart failure, when described, were classified in the Euro Heart Survey as 'other symptoms' possibly related to AF.

Ontario Catheter Ablation for Atrial Fibrillation: Facility Quality Criteria

VOLUME CRITERIA	
Criteria Description	Method of Evaluation
Procedure Volumes	
Electrophysiology (EP) Program with a minimum of 2 operators that have demonstrated expertise in management of complex arrhythmias and cardiac emergencies. Refer to the <i>Regional Cardiac Program Framework</i> for further information on the roles, responsibilities, and services of each level of cardiac provider site.	<ul style="list-style-type: none"> Facility must perform a minimum of 200 cases that must consist of a combination of EP studies, standard ablations, and complex ablations. <ul style="list-style-type: none"> Minimum of 50 cases per operator/year for diagnostic EP studies

Facility Criteria	
Criteria Description	Method of Evaluation
Electrophysiology Suite or Hybrid Suite	
Programs performing complex ablation procedures require an electrophysiology (EP) suite or hybrid suite. A Hybrid suite meets all requirements of EP suite with additional elements to serve as a fully functional operating room (OR). ¹	<p>Electrophysiology suite/hybrid suite environment shall:</p> <ul style="list-style-type: none"> Meet OR specifications including maintaining controlled entry, infrastructure to manage anaesthesia gases, and salvage and facilitate safe management of sterile supplies and equipment within the operating suite environment ¹ Have sufficient space (a procedural area of 350-500 sq ft of clear floor area, not including control room, is recommended) in a sterile environment, to accommodate necessary personnel, anaesthesia equipment, and echocardiography machines ^{1,4} Have access to radiographic imaging system offering catheterization laboratory-quality imaging ¹ Have ablation system(s) with interfaces to EP equipment (EP recording system, advanced 3D mapping system, programmed stimulator) ^{1,4}

	<ul style="list-style-type: none"> • Ensure EP monitoring system with 64-128 channel capabilities for complex ablations ⁴ • Ensure the availability of equipment for safe monitoring, diagnosis, and management of complications such as hemopericardium, tamponade, hemorrhage, stroke/ TIA, and timely access to emergency cardiovascular surgical support if required ^{4,5} • Biphasic external defibrillator in each EP lab, with a back-up defibrillator immediately available¹ • For EP labs with a control room, ensure functional two-way seamless communications during the procedure ¹
<p>Anesthesia Facilities</p>	
<p>Programs performing ablation procedures shall ensure anesthesia equipment, medications, and supplies meet the same standards as those for conventional operating theatres (Canadian Anesthesiologist Society)</p> <ul style="list-style-type: none"> • General anesthesia (GA) or deep sedation are generally the preferred methods of anesthesia, because of the prolonged duration of the procedure and the need to minimize patient movement to improve catheter and mapping system stability.⁵ GA may also improve the safety of the procedure for patients at risk of airway obstruction and improve patient comfort. 	<p>Anesthesia facilities shall:</p> <ul style="list-style-type: none"> • Ensure standardized anaesthesia equipment is available and maintained as per the organization’s standard operating procedures • Support pre-procedure assessment by anesthesia, when indicated
<p>Access to Imaging</p>	
<p>Programs providing ablation procedures will have access to the following: ^{1,4}</p> <ul style="list-style-type: none"> • 3D electroanatomic mapping/ Advanced mapping system • Fluoroscopy (single-plane or bi-plane) • Transesophageal Echocardiography (TEE) or Intracardiac Echocardiography (ICE) 	<p>Imaging services shall:</p> <ul style="list-style-type: none"> • Achieved current Standards for Provision of Echocardiography in Ontario

<ul style="list-style-type: none"> • Transthoracic Echocardiography (TTE) • CT and/or MRI 	
Immediate Post-Procedure Care	
<p>Programs providing ablation procedures will have access to post-anaesthesia care environment and Level 3 Intensive Care Unit with personnel experienced in managing patients who have undergone catheter ablation procedures for AF.¹</p>	<p>Post-Anaesthesia Care Units:</p> <ul style="list-style-type: none"> • The facility shall ensure healthcare team members are experienced in managing patients who have undergone complex cardiac procedures
Other Facilities/Services	
<ul style="list-style-type: none"> • Ready availability of cell-saver technology in case of pericardial effusion and tamponade • Access to blood bank products • Physical clinic space/setup to accommodate assessment of ablation patients • Peripheral vascular interventional expertise • EP lab without access to on-site cardiac and/or vascular surgery must: <ul style="list-style-type: none"> ○ Consider exclusion of patients with co-morbidities and conditions that may result in an increased risk of complications. ○ Ensure a standing agreement between the EP lab and receiving hospital with immediate surgical capabilities. This agreement shall include clearly communicated policies and procedures for safe and quick patient transfer, in the event of an unanticipated complication. ○ Engage in shared decision-making with patient that informs the patient that their procedure is being performed without surgical capabilities onsite. • Timely access to neurology / interventional neuroradiology to support stroke management if needed 	

Clinical Services Criteria	
Criteria Description	Method of Evaluation
Interdisciplinary Heart Rhythm Team	
<p>Healthcare team members shall have appropriate training and credentialing for the management and treatment of cardiac arrhythmias, with additional staff required as patient complexity increases. At a minimum, 1 registered nurse (RN) with specialized training in the management of complex arrhythmias and cardiac emergencies must be present during each invasive EP procedure.¹</p>	<p>Interdisciplinary Heart Rhythm Team Responsibilities:</p> <ul style="list-style-type: none"> • Patients shall be evaluated by an EP specialist with expertise in the management of AF, review of anticoagulation, as well as appropriate subspecialties. • Physician operator shall be a fully trained electrophysiologist with demonstrated expertise in management of complex arrhythmias and cardiac emergencies. • Registered nurse shall have specialized training and demonstrated expertise in the care of patients with complex arrhythmias and cardiac emergencies.

<p>The clinical care pathway for patients undergoing catheter AF ablation should include structured system for seamless and timely access to the EP ablation team post-procedure for questions, concerns, or issues, especially during the blanking period (first 3 months post-procedure) at a minimum</p> <p>A patient focused, multidisciplinary approach to care of patients to improve integration of care providers and support transition back to community care.</p>	<ul style="list-style-type: none"> • Utilize the Ontario Catheter Atrial Fibrillation Patient Eligibility Criteria Guidelines to inform patient selection • Commit to principles of shared decision making which may include: <ul style="list-style-type: none"> ○ Ensuring patients and families are provided comprehensive information the various treatment options available ○ Patient and family educational materials reflect an appropriate literacy level ○ Ensuring patients and families have direct access to representatives of each specialty ○ Utilize appropriate evidence-based guidelines (where applicable) to inform decision making • Ensure protocol-driven standardized approaches to patient care, discharge planning, and follow-up which may include: <ul style="list-style-type: none"> ○ Standardized care pathways that include optimization of Length of Stay (LOS) ○ Assessment of patient readiness for discharge ○ Ensure appropriate post-discharge supports and escalation pathways are in place for to reduce the risk of post-procedure complications and the need for acute care utilization ○ Process for seamless access to the EP team for questions/concerns and post-procedure needs, with an emphasis on specific issues that warrant immediate contact with Interdisciplinary Heart Rhythm Team ○ Arrangement of follow-up appointments ○ Standardized patient education materials
<p>Hospital Administration</p>	
<p>Programs providing catheter AF ablation procedures will have a dedicated hospital administrator as part of the team</p>	<p>Hospital Administrator shall:</p> <ul style="list-style-type: none"> • Ensure all necessary infrastructure are in place to support catheter AF ablation procedures
<p>Training</p>	
<p>Programs providing AF catheter ablation procedures shall define the qualifications and responsibilities for each health care professional within the interdisciplinary heart rhythm team, including required level of education, training, experience, and certifications.</p>	<p>Programs shall:</p> <ul style="list-style-type: none"> • Ensure Interdisciplinary Heart Rhythm Team remains up to date with new and evolving evidence as it relates to catheter AF Ablation • Maintain recommended credentials and training to support safe patient care • Ensure ongoing training and competency in ablation equipment utilization

<p>Programs shall provide ongoing relevant training and educational opportunities for the Interdisciplinary Heart Team.</p>	<ul style="list-style-type: none"> Engage in strategies to continuously improve team functions, including providing regular opportunities to train and work together to support communication, discuss the progress and/or challenges, and create a forum to improve care and services
<p>CorHealth Ontario Registry Participation</p>	
<p>Programs providing AF catheter ablation procedures will engage in ongoing outcome evaluation</p>	<p>Programs shall:</p> <ul style="list-style-type: none"> Participate in CorHealth Ontario Registry, including all data elements required for quality monitoring as determined by Ontario Health - CorHealth Ontario Participate in active waitlist management and triage of patients waiting for catheter AF ablation Participate in ongoing evaluation to ensure volume criteria are maintained
<p>Quality Improvement</p>	
<p>Programs providing catheter AF ablation procedures will regularly engage in quality improvement processes</p>	<p>Programs shall:</p> <ul style="list-style-type: none"> Engage in regular quality improvement processes, including ongoing outcome measurement (i.e., post-procedure complications, morbidity/mortality, patient reported outcomes/experience, procedural efficiencies)^{1, 5} See Appendix 2 for recommendations to optimize patient experience as informed by patient and caregiver engagement

Appendix 1 – References

1. Haines DE, Beheiry, S, Akar JG et al. Heart Rhythm Society Expert Consensus Statement on Electrophysiology Laboratory Standards: Process, Protocols, Equipment, Personnel and Safety. *Heart Rhythm*. 2014; 11(8): e9-51.
2. Andrade JG, Aquilar M, Atzema C et al. The 2020 Canadian Cardiovascular Society / Canadian Heart Rhythm Society Comprehensive Guidelines for the Management of Atrial Fibrillation. *Canadian Journal of Cardiology* 2020, 36; 1847-1948.
3. Dorian P, Cvitkovic SS, Kerr CR et al. A novel, simple scale for assessing the symptom severity of atrial fibrillation at the bedside: the CCS-SAF scale. *Can J Cardiol*. 2006 Apr;22(5):383-6.
4. The IAC Standards and Guidelines for Cardiac Electrophysiology Accreditation. Intersocietal Accreditation Commission 2019; 22-35.
5. Calkins H, Hindricks G, Cappato R et al. 2017 HRS/EHRA/ECAS/APHS/SOLAECE Expert Consensus Statement on Catheter and Surgical Ablation for Atrial Fibrillation. *Europace* 2018; 20: e1-160.

Appendix 2 – Patient Experience and Patient Quality of Life

Ontario Health - CorHealth Ontario Patient and Caregiver Engagement

Purpose

To gather information from people with lived experience of catheter AF ablation to help shape clinical recommendations that reflect what matters most to people undergoing this procedure or their family caregivers.

Approach

- Target: patients who had undergone catheter ablation for AF in Ontario
- Semi-structured virtual interviews with patients +/- family member (average time: 1 hour)
- Interviews conducted by two consistent Ontario Health - CorHealth Ontario team members
- Interviews continued until saturation reached
- Member checking- patients confirmed (de-identified interview summary notes and key takeaways)

Sample

- 7 Patients - majority had more than 1 ablation procedure
- 3 interviews included patient + family member
- Ottawa, Kingston, Barrie, Hamilton, and Toronto areas

Summary of Key Findings :

The following figure highlights the current patient experience followed by suggestion(s) on what is needed to improve the patient experience along the clinical pathway from entering the wait list for catheter AF ablation to long-term follow up post procedure.

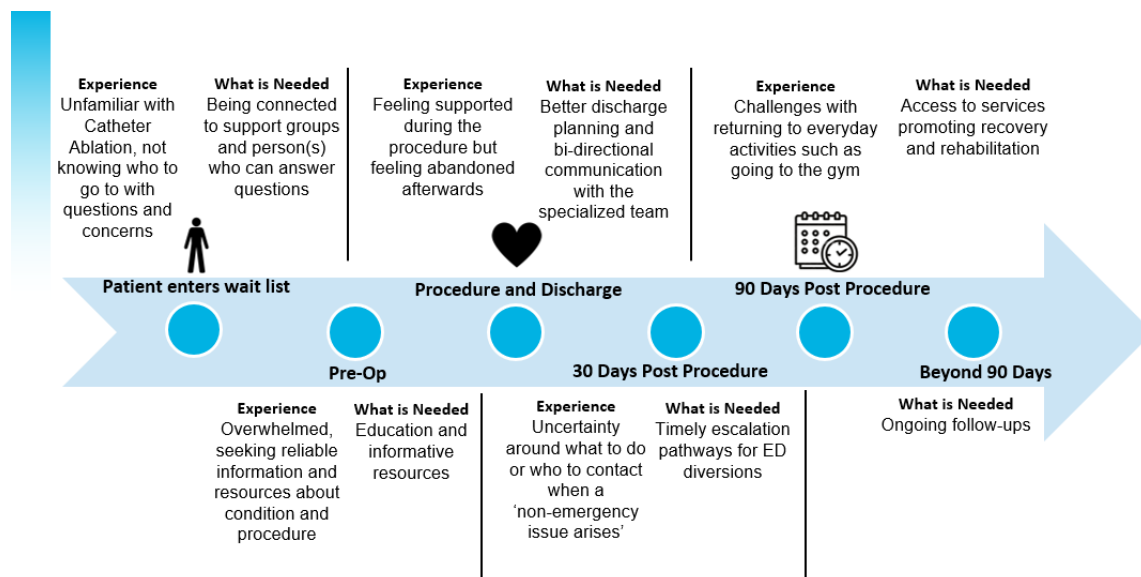


Figure 1. Summary of findings from interviews with patients and their caregiver who had experienced catheter AF ablation in Ontario

Appendix 2 – Patient Experience and Patient Quality of Life – cont’d

Suggested Literature : Patient Experience with Catheter AF Ablation

- Wood KA, Barnes AH, Jennings BM. Trajectories of Recovery after Atrial Fibrillation Ablation. *Western J of Nursing Research* 2021; 1-10 (open access)
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8801207/pdf/nihms-1770869>.
- Bergtun S et al., Patients’ experiences 1-6 months after atrial fibrillation ablation: A holistic perspective. *J Adv Nurs*. 2019; 75:150–160.
- Risom SS, Lind J, McCabe PJ, Berg SK. CopenHeartRFA rehabilitation program for patients treated with ablation for atrial fibrillation. *J Multidisciplinary Healthcare* 2018; 11: 167-174

Patient Reported Outcomes

The measurement of quality of life (QOL) in patients undergoing catheter AF ablation is the main patient reported outcome from clinical trials in this population. A systematic review of the instruments used to measure QOL in the patient population identifies the AF-Effect on Quality of Life (AFEQT) as the preferred disease-specific instrument (Sale & Yu, 2022).

Information about the AFEQT:

- Easy to use format with 20 questions on a seven-point Likert scale
- Takes approximately 5 minutes to complete
- Evaluations health related quality of life across three domains: symptoms, daily activities, and treatment concerns
- Copyright License Agreement required (<http://afeqt.org/>)

Scoring:

- Overall AFEQT Score (18 questions)
- Treatment Satisfaction Score (2 questions)

Additional Resources:

- Sale A, Yu J. Quality of life instruments in atrial fibrillation: a systematic review of measurement properties. *Health Qual Life Outcomes*. 2022 Oct 17;20(1):143. (open access)
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9575307/pdf/12955_2022_Article_2057.pdf
- Allan KS, et al. Health-Related Quality of Life in Patients With Atrial Fibrillation Treated With Catheter Ablation or Antiarrhythmic Drug Therapy: A Systematic Review and Meta-analysis. *CJC Open*. 2020 Apr 2;2(4):286-295. (open access)
<https://www.cjopen.ca/action/showPdf?pii=S2589-790X%2820%2930037-8>