

Assessment of Hospital Charges for Initial and/or Repeat Catheter Ablations for Atrial Fibrillation Performed in 2017, 2018, or 2019

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INTRODUCTION

Catheter ablation for atrial fibrillation (AF) was a novel treatment in 1998. Today, ablations are commonplace and compete with rate/rhythm drugs as first-line therapies. While some ablations are performed as outpatient procedures, many others require overnight hospitalizations that increase cost. Even without hospitalization, ablations are expensive because they require substantial human and material resources as well as specialized hospital facilities that are subject to inflationary pressures. Newly emerging electrophysiologic (EP) technologies used during cardiac ablations offer better signals with low-noise, high-frequency bandwidth, and wide dynamic range. Additionally, customizable software enables expanded real-time analyses and improved procedural decision-making. If the new platforms deliver better clinical and economic outcomes, they will satisfy not only electrophysiologists but also other healthcare stakeholders. Evaluation will require comparisons with existing technologies and also pharmaceutical interventions that have been a mainstay of therapy for many years. In- and out-patient care can be assessed with modeling of published data or analysis of newly captured data from clinical trials or administrative records. These types of studies are currently in preparation or already underway.

OBJECTIVE

To identify and compare common hospital charges for catheter ablations performed in the years prior to the COVID-19 pandemic, data from the State of Maryland were collected and analyzed in anticipation of the need for such information to inform upcoming outcome assessments of emerging EP technologies.

METHODS

- A retrospective analysis of inpatient and outpatient data from 2017, 2018, and 2019 was performed to determine the stability of hospital charges or the amount of change from year to year. Charges account for all resources consumed, medical and surgical, in association with any ablation procedure for any form of AF – paroxysmal, persistent, long-term persistent, or permanent
- The analysis was performed using 2017, 2018, and 2019 discharge data from Maryland’s State Inpatient and State Ambulatory Surgery and Services Databases from the Healthcare Cost and Utilization Project, Agency for Healthcare Research and Quality
- Patient eligibility criteria: 1) Any form of Atrial Fibrillation (AF) - paroxysmal, persistent, long-term persistent, or permanent in any ICD-10 diagnosis code position. 2) One or more ablation procedures in any ICD-10 or CPT code position
- Charges include all resources consumed, medical and surgical, in association with any ablation procedure
- Additional endpoints include 1) The difference in charges for inpatient versus outpatient ablation procedures. 2) Ablation charges by AF type. 3) Repeat ablation frequency, including differences between payer types

RESULTS

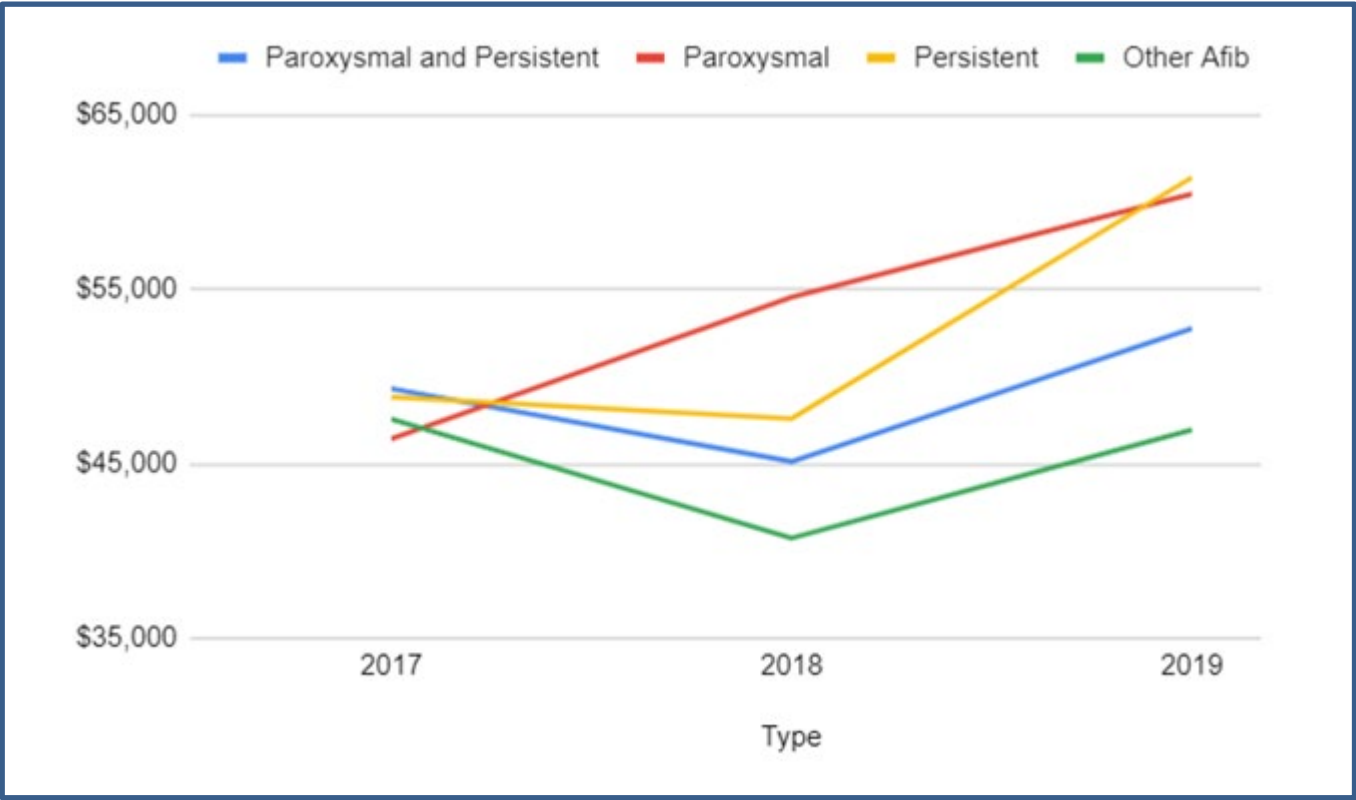
- 60,415 A total of 5,914 ablations were performed over the three-year term of the data. Ablation procedures were performed more frequently in an outpatient setting (n=4,659, 78.8%) compared to an inpatient setting (n=1,255, 21.2%)
- The primary endpoint of stability – hospital charges – for outpatient ablations remained steady over time, \$31,511 (2017), \$31,520 (2018), \$32,392 (2019). However, median charges for an ablation performed during a hospital visit with at least one overnight stay (inpatient) were \$47,793 (2017), \$48,673 (2018), and \$56,670 (2019), reflecting cost stability between 2017 and 2018 but a 15% increase, 2019 versus 2018 (Table 1)

Table 1. Median Ablation Charge

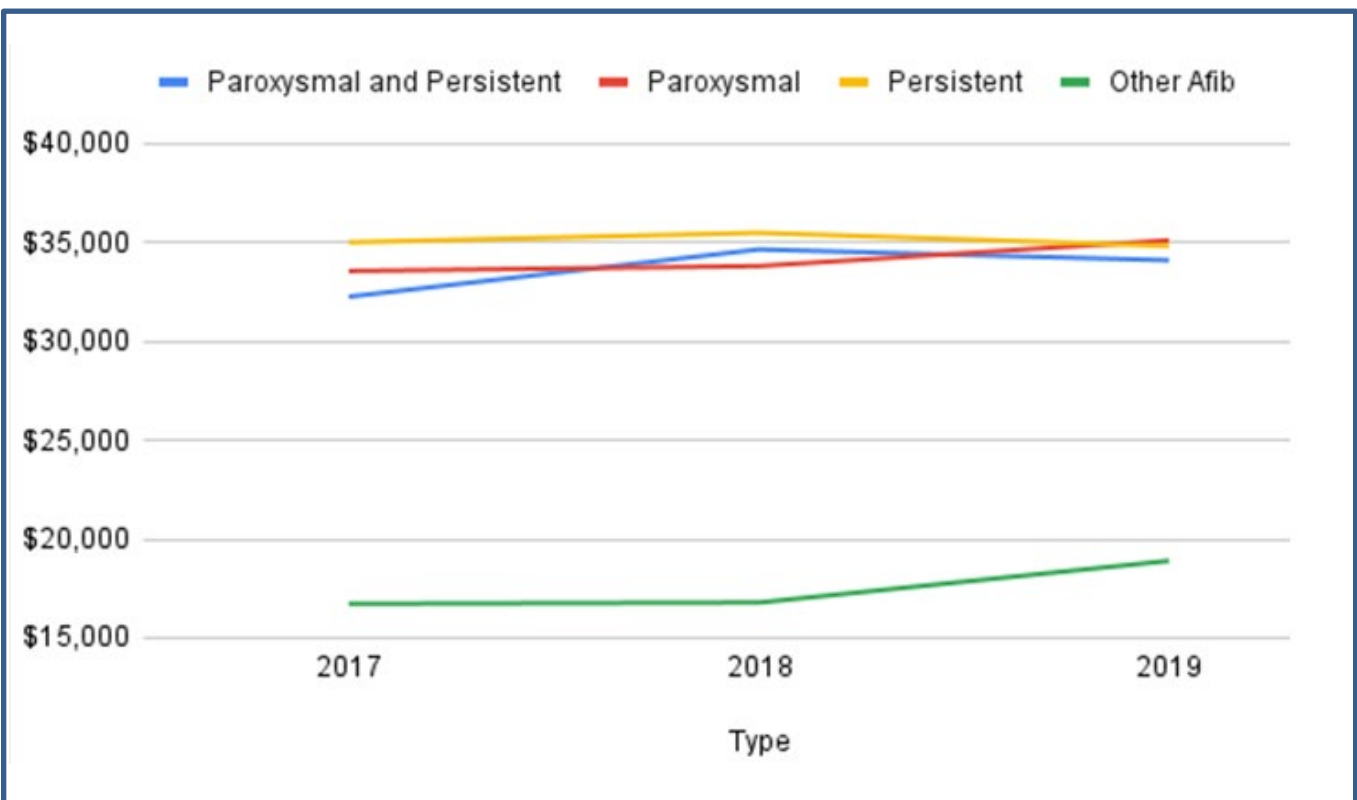
Type	Year	Median	Mean	Count
Inpatient	2017	\$47,793	\$53,345	389
Inpatient	2018	\$48,673	\$60,665	461
Inpatient	2019	\$56,670	\$70,908	405
Outpatient	2017	\$31,511	\$29,331	1405
Outpatient	2018	\$31,520	\$29,777	1678
Outpatient	2019	\$32,392	\$31,462	1576

- Median inpatient charges (Graph 1) for patients with paroxysmal AF increased each year from 2017 to 2019. For other types of AF, median charges declined in 2018. But in 2019, median charges were equal to or greater than 2017 charges
- Median outpatient charges (Graph 2) were stable for the different types of AF. However, median charges for paroxysmal and persistent were much higher than other types of AF

Graph 1. Afib Type by Year for Median Charges



Graph 2. Afib Type by Year for Median Outpatient Charge



- Patients undergoing a second ablation within one year were considered to have a repeat ablation. Repeat ablation rates increased from 7.3% to 9.2% for inpatient procedures and from 8.4% to 9.8% for outpatient procedures between 2017 and 2018
- Repeat ablation rates were higher for patients with private insurance (including Medicare supplement and advantage plans) compared to original Medicare

Table 2. Repeat Ablation Rate By Year

Type	Year	Repeat Ablation
Inpatient	2017	7.3%
Inpatient	2018	9.2%
Outpatient	2017	8.4%
Outpatient	2018	9.8%

Table 3. Repeat Ablation Rate By Payer

Payer	2017	2018
Medicare	6.0%	8.5%
Private insurance	10.1%	10.6%

CONCLUSIONS

- Currently, AF is the most common cardiac arrhythmia seen in clinical practice. Incidence and prevalence rates are expected to rise substantially over the next few decades. As rates rise, so will healthcare utilization, resource consumption, hospitalizations, and overall costs
- Catheter ablation for AF represents effective treatment that is equivalent to or superior to antiarrhythmic therapy in selected patients with symptomatic disease. The procedure is performed to eliminate triggers that cause cardiac rate and rhythm disturbances and to diminish subsequent pathologic complications, such as clotting and embolization that contribute to morbidity and mortality. Depending on institutional preference and individual circumstances, catheter ablation may require at least one overnight hospital stay for observation and/or management of occasional procedural complications
- With advancements in ablation procedures and operator skills, clinical outcomes have improved and complications have diminished. Improvements have also led to an increase in the number of ablations being performed annually. Innovations in technologies may likewise lead to better clinical outcomes through improve real-time decision making, faster more precise procedures, and operators who benefit from the enhanced performance of more sophisticated instrumentation. Studies are underway to evaluate such things and to identify ways to lower healthcare costs through innovation in electrophysiology.
- Inpatient charges for catheter ablations are rising in Maryland and so is the re-ablation rate. Cost-containment measures, improvements in ablation procedures and skills, as well as advances in electrophysiology technologies are needed to improve cost-efficiencies

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DISCLOSURES

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