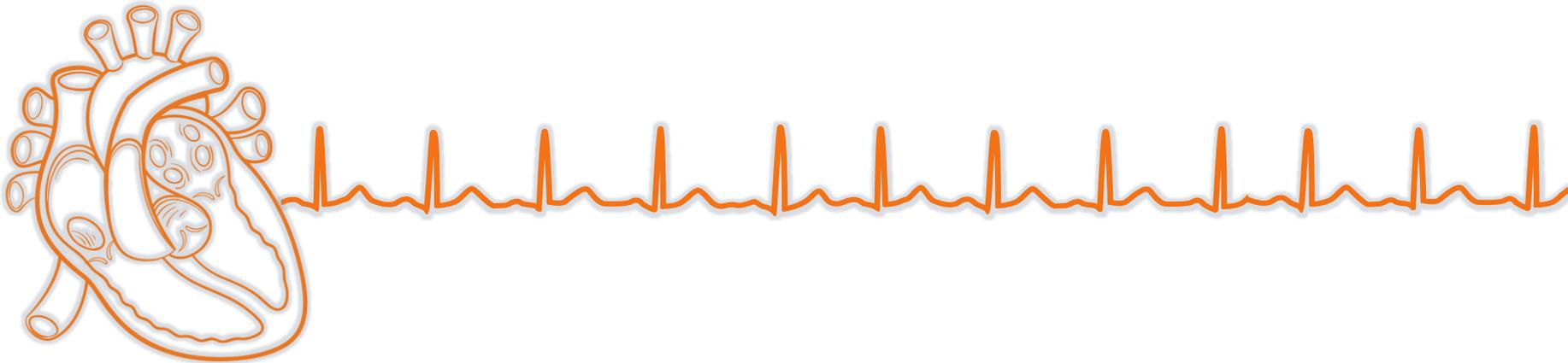


AtriCure Investor Presentation

Creating a World Class Afib Platform



Forward Looking Statements

This presentation contains “forward-looking statements,” which are statements related to future events that by their nature address matters that are uncertain. All forward-looking information is inherently uncertain and actual results may differ materially from assumptions, estimates or expectations reflected or contained in the forward-looking statements as a result of various factors. For details on the uncertainties that may cause AtriCure’s actual results to be materially different than those expressed in its forward-looking statements, see its Annual Report on Form 10-K and Quarterly Report on Form 10-Q filed with the SEC and available at <http://www.sec.gov>, which contain risk factors. Forward-looking statements address AtriCure’s expected future business, financial performance, financial condition as well as results of operations, and often contain words such as “intends,” “estimates,” “anticipates,” “hopes,” “projects,” “plans,” “expects,” “seek,” “believes,” “see,” “should,” “will,” “would,” “target,” and similar expressions and the negative versions thereof. Such statements are based only upon current expectations of AtriCure. Any forward-looking statement speaks only as of the date made. Reliance should not be placed on forward-looking statements because they involve known and unknown risks, uncertainties and other factors which may cause actual results, performance or achievements to differ materially from those expressed or implied. Forward-looking statements include statements that address activities, events or developments that AtriCure expects, believes or anticipates will or may occur in the future. Forward-looking statements are based on AtriCure’s experience and perception of current conditions, trends, expected future developments and other factors it believes are appropriate under the circumstances and are subject to numerous risks and uncertainties, many of which are beyond AtriCure’s control. These risks and uncertainties include, but are not limited to: whether AtriCure will be able to successfully implement commercialization plans for CONVERGE; whether the market opportunity for CONVERGE is consistent with the Company’s expectations and market research; AtriCure’s ability to execute on the commercial launch of CONVERGE on the timeline expected, or at all; whether AtriCure will be able to generate its projected net product revenue on the timeline expected, or at all; the effects of the COVID-19 outbreak on AtriCure’s business and results of operations, including the effects of suspension or halting of elective surgeries; other matters that could affect the availability or commercial potential of CONVERGE and AtriCure’s other products and product candidates; whether AtriCure’s ongoing clinical trials will meet the specified endpoints and will be approved by FDA and any other required regulatory authorities; competition from new and existing products and procedures in the highly competitive medical device industry; and other important factors, including, AtriCure’s expectations regarding its financial performance and capital requirements, any of which could cause AtriCure’s actual results to differ from those contained in the forward-looking statements or otherwise discussed in AtriCure’s reports filed with the SEC. With respect to the forward-looking statements, AtriCure claims the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995. AtriCure undertakes no obligation to publicly update or revise any forward-looking statements to reflect new information or future events or otherwise unless required by law.

Non-GAAP Financial Measures

To supplement AtriCure's consolidated financial statements prepared in accordance with accounting principles generally accepted in the United States of America, or GAAP, AtriCure provides certain non-GAAP financial measures as supplemental financial metrics in this presentation.

Adjusted EBITDA is calculated as net income (loss) before other income/expense (including interest), income tax expense, depreciation and amortization expense, share-based compensation expense, acquisition costs, legal settlement costs, impairment of intangible asset, and change in fair value of contingent consideration liabilities. Management believes in order to properly understand short-term and long-term financial trends, investors may wish to consider the impact of these excluded items in addition to GAAP measures. The excluded items vary in frequency and/or impact on our continuing results of operations and management believes that the excluded items are typically not reflective of our ongoing core business operations and financial condition. Further, management uses adjusted EBITDA for both strategic and annual operating planning. Adjusted loss per share is a non-GAAP measure which calculates the net loss per share before non-cash adjustments in fair value of contingent consideration liabilities and impairment of intangible asset.

The non-GAAP financial measures used by AtriCure may not be the same or calculated in the same manner as those used and calculated by other companies. Non-GAAP financial measures have limitations as analytical tools and should not be considered in isolation or as a substitute for AtriCure's financial results prepared and reported in accordance with GAAP. We urge investors to review the reconciliation of these non-GAAP financial measures to the comparable GAAP financials measures, and not to rely on any single financial measure to evaluate our business.

We are passionately focused on reducing the global Afib epidemic and healing the lives of those affected



Large Markets

Addressing an underserved and growing patient population



Strong Portfolio

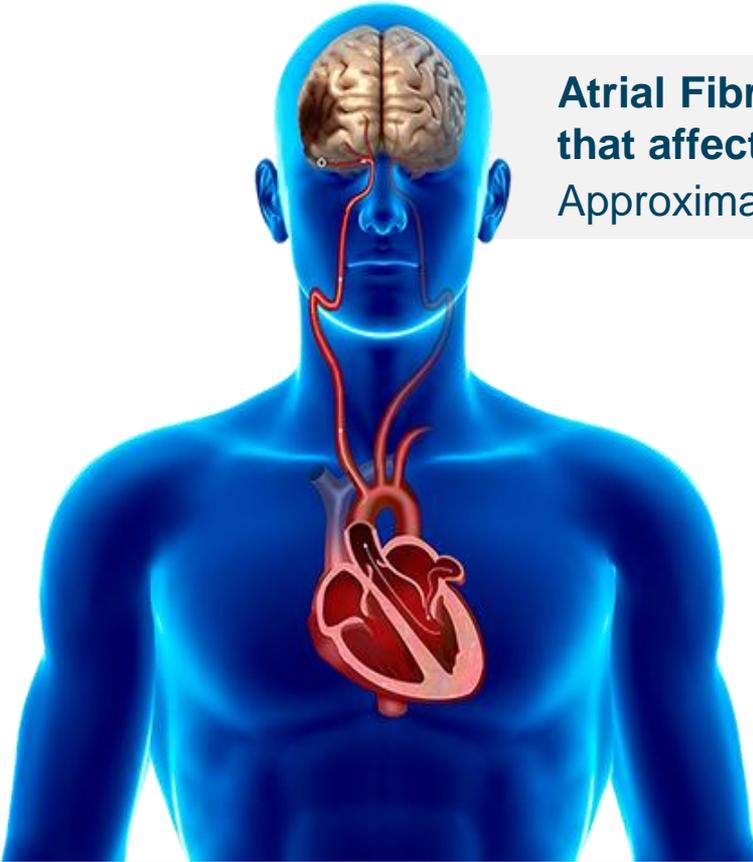
Existing products and solutions driving consistent growth



Bright Future

Novel therapies supported by growing body of clinical evidence

Afib: a Serious Problem



Atrial Fibrillation (Afib) is an irregular heartbeat (or arrhythmia) that affects more than 33 million people worldwide.¹

Approximately 1.2 million Afib diagnoses annually in the US.²

5x

Risk of ***Stroke***³

>5x

Higher risk of ***Heart Failure***⁴

46%

Greater risk of all cause ***Mortality***⁵

US Market Opportunity

\$350M

Pain Management
Procedures
(Ablation)



Boosting
Growth via
adjacent new
market

Estimated **140,000**
thoracic patients
annually

\$700-800M

Concomitant Open
Procedures
(Ablation/LAAM)



Steady Growth in
penetration of
Cardiac Surgery
Market

- Estimated **300,000 total patients** (Afib, non-Afib) annually with structural heart issue
- Only PMA product for the concomitant surgical treatment of Afib

\$2B+ and growing
Standalone Hybrid Procedures

(Ablation/LAAM)

Expansive Growth from development
of Standalone Afib Market

*Vastly underpenetrated market with 10-15% estimated
annual market expansion*

- **Addressable market is more than 3 million patients;** less than 1% treated today
 - 25,000 long-standing persistent patients treated by catheter ablation only today
- Multiple approaches to treatment
 - Hybrid Convergent + AtriClip®, DEEP

Market opportunity based on internal estimates and research, as well as from publicly available information. See Supplemental Information for additional detail.

Significant Global Market Opportunity

US Market Focus

- Continued build of dedicated sales and training expertise
- Clinical data supporting multiple label expansions
- New product development
- Enhanced reimbursement

**US market opportunity
\$3B+ annually**



**International market
opportunity \$2B+ annually**

International Market Focus

- Penetration of large markets first
- Expand product availability
- Improve market access via reimbursement
- Continued build of dedicated sales and training expertise

Market opportunity based on internal estimates and research, as well as from publicly available information. See Supplemental Information for additional detail.

2021 Priorities: Building for the Future



Standalone Hybrid Procedures

Ablation and LAAM

- **CONVERGE PMA approval and launch**
 - Deepen volumes at existing sites and train new accounts
 - Addition of AtriClip to the Convergent procedure
 - Continued global expansion of commercial and training teams



Concomitant Open Ablation

Pain Management

- **EnCompass[®] Clamp clearance and launch**
- **Expansion of commercial team, training programs**

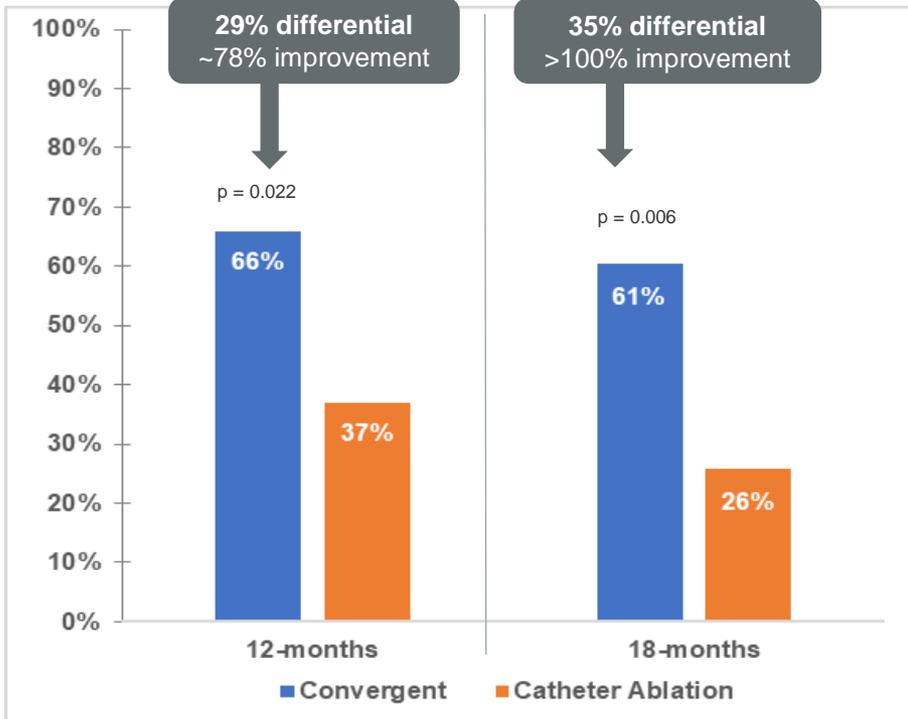


COVID Recovery

- **Supporting our people, patients and partners**

CONVERGE: Long-standing Persistent Afib Patient Analysis

Freedom from AF/AFL/AT from 3-month blanking period through 12-months and 18-months

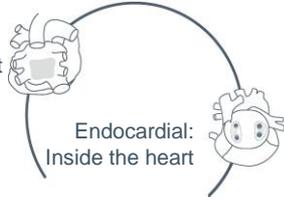


- **Superior outcomes with hybrid Convergent procedure** when compared to endocardial catheter ablation alone in patients with drug refractory long-standing persistent Afib
- Data for long-standing persistent patients in the trial demonstrated **compelling efficacy and durability**
- **Improved EP lab efficiency demonstrated** by reduction in endocardial ablation time as a result of adding epicardial ablation

Benefits of the EPI-Sense System and Hybrid AF Therapy

Benefits based on 7-day continuous rhythm monitoring at 18-months post procedure

Epicardial:
Outside the heart



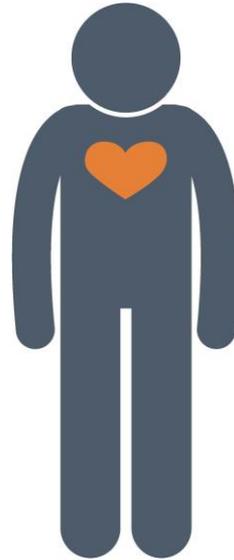
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**TRIGGER AREAS TARGETED
where atrial fibrillation begins**

**Emphasizes value of team-based
approach for advanced AF treatment**



**LESS TIME IN AF
For most patients at 1 year**



**Patients in the Hybrid AF Arm
report feeling better, both
physically + emotionally⁶**

More than

**2x AS EFFECTIVE AT
STOPPING AA**
(vs endocardial RF ablation alone)



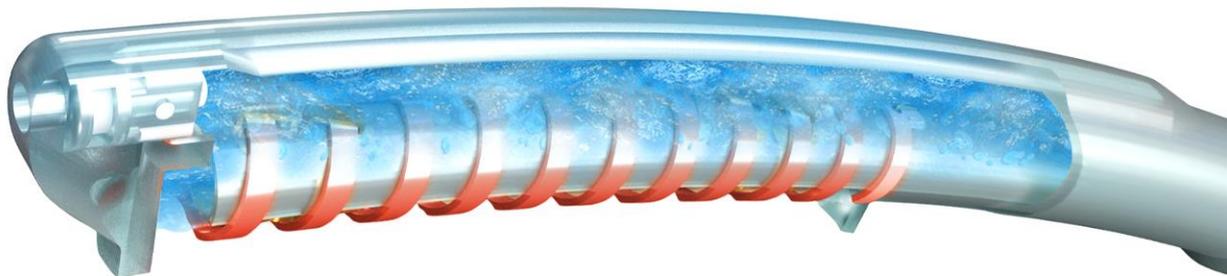
**Additive to endocardial
catheter ablation**

Patients are

**2x MORE LIKELY TO
NO LONGER NEED
AF MEDICATION**
(vs endocardial RF ablation alone)



Commercial Strategy for the EPi-Sense System



TARGET

Drive utilization with existing and new sites

BUILD

Train and develop programs, build referral channel

LEVERAGE

Add AtriClip to Hybrid AF Therapy

EXPAND

Grow commercial + training teams, broaden internationally

AMPLIFY

Spread awareness of Hybrid AF Therapy to patients

Innovative and Expanding Product Portfolio



ISOLATOR®
SYNERGY™
CLAMP



cryoICE®
CRYOABLATION
PROBE



EPI-SENSE®
DEVICE



cryoSPHERE®
CRYOABLATION
PROBE



2H 2021 Product Launch:
ISOLATOR SYNERGY
ENCOMPASS® CLAMP

Continued innovation toward less invasive, simpler, and more efficient products

LAA Management

ATRICLIP®
FLEX DEVICE



ATRICLIP PRO®
DEVICE



ATRICLIP PRO-V®
DEVICE



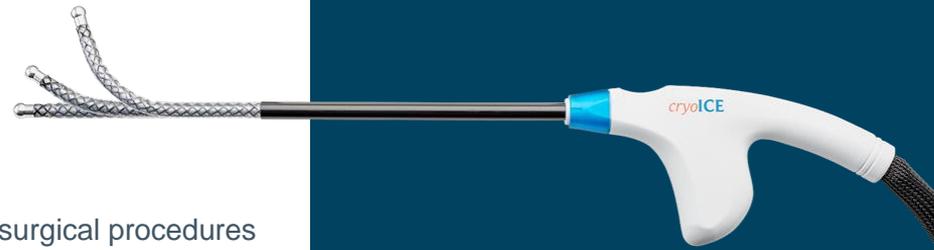
ATRICLIP FLEX-V®
DEVICE



SPOTLIGHT: Cryo Nerve Block for Pain Management

Therapy Overview

- Long-lasting pain management therapy, designed for use in thoracic surgical procedures
- Temporarily stops transmission of pain signals coming from the chest wall during surgery
- Nerve “scaffolds” remain intact allowing axons to regenerate and restore nerve function over time
- Applicability in a wide variety of thoracic surgical approaches (thoracotomy, video-assisted, robotic) and procedures (resection, transplant, thoracoabdominal, surgical rib fixation, pectus repair)



HIGHLIGHTS

- \$350M U.S. market opportunity*
- Dedicated commercial team established in 2019 and expanding
- Q1 2019 launch of cryoSPHERE probe
- **Q4 2020 label expansion includes adolescent patients as young as 12 years of age**
- **~8% of 2021 YTD worldwide revenue**
- Continuing to gather data to support evidence development for therapy
- Potential to contribute to combatting the opioid epidemic – 1 in 7 thoracic surgery patients become reliant upon opioids after their procedure⁷

* Market opportunity based on internal estimates and research, as well as from publicly available information.

SPOTLIGHT: Isolator Synergy EnCompass® Clamp



Product Overview

- **FDA 510(k) clearance to ablate cardiac tissue during surgery**
- Designed with same benefits of the AtriCure Isolator Synergy Clamps:
 - + Parallel closure
 - + Uniform pressure
 - + Synergy algorithm provides custom power
- Compatible with existing AtriCure RF generator

*A simpler and faster approach
to ablating the heart in
open procedures*

HIGHLIGHTS

- FDA 510(k) clearance July 2021
- Limited initial release began 3Q 2021
- Full commercial launch expected late 2021
- Continue to drive penetration of cardiac surgery market

Key Investments Driving Growth

AtriCure Pillars

Foundation of our past and strengthening our future

Innovation

Expanding pipeline to drive Open ablation penetration and build MIS market

Clinical Science

Hybrid AF Therapy proven by CONVERGE trial: a complimentary and differentiated approach for advanced Afib

Education

Significant investment in physician education, providing multiple training options

Aligning Expertise with Opportunity

Dedicated commercial and education teams

U.S. Cardiac

57 Sales Managers and 68 Clinical Specialists

U.S. Hybrid Therapies

37 Sales and Clinical Specialists

U.S. Cryo Nerve Block

26 Sales and Clinical Specialists

U.S. Sales Leadership

23 Area Directors across our specialized teams

U.S. Education

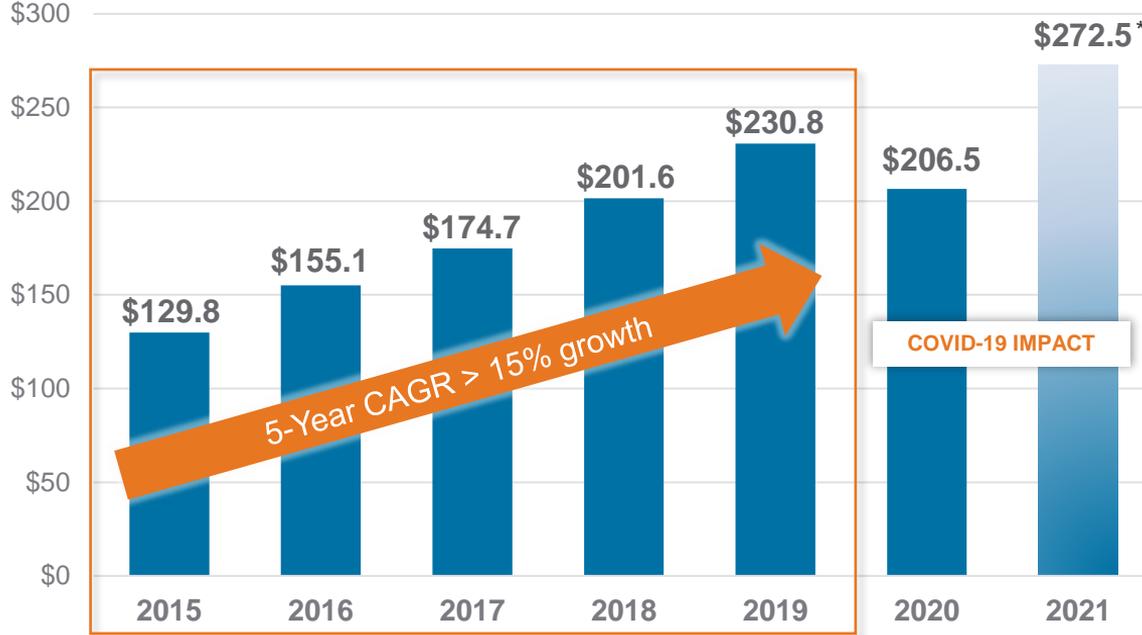
40 Physician + Field Supporting Roles

International

50 Sales and Education Professionals

History of Strong Financial Performance

Worldwide Revenue (\$ Millions)



Historical Results

Consistent Revenue Growth
Strong history of double-digit YoY growth pre-COVID-19

Steady Improvement to Gross Margin
pre-COVID-19

Revenue Growth	20.8%	19.5%	12.6%	15.4%	14.5%	(10.5%)
Gross Margin	71.6%	71.6%	72.2%	73.0%	73.8%	72.3%

*Based on midpoint of 2021 guidance

Third Quarter 2021 Financial Highlights

WORLDWIDE REVENUE* (\$M)



- Cardiac surgery procedure volumes stabilized over same quarter in 2020
- Demand growing and strong activity across key product lines
- U.S. revenue of \$57.5M (82% of revenue)
- International revenue of \$12.9M (18% of revenue)

KEY METRICS*

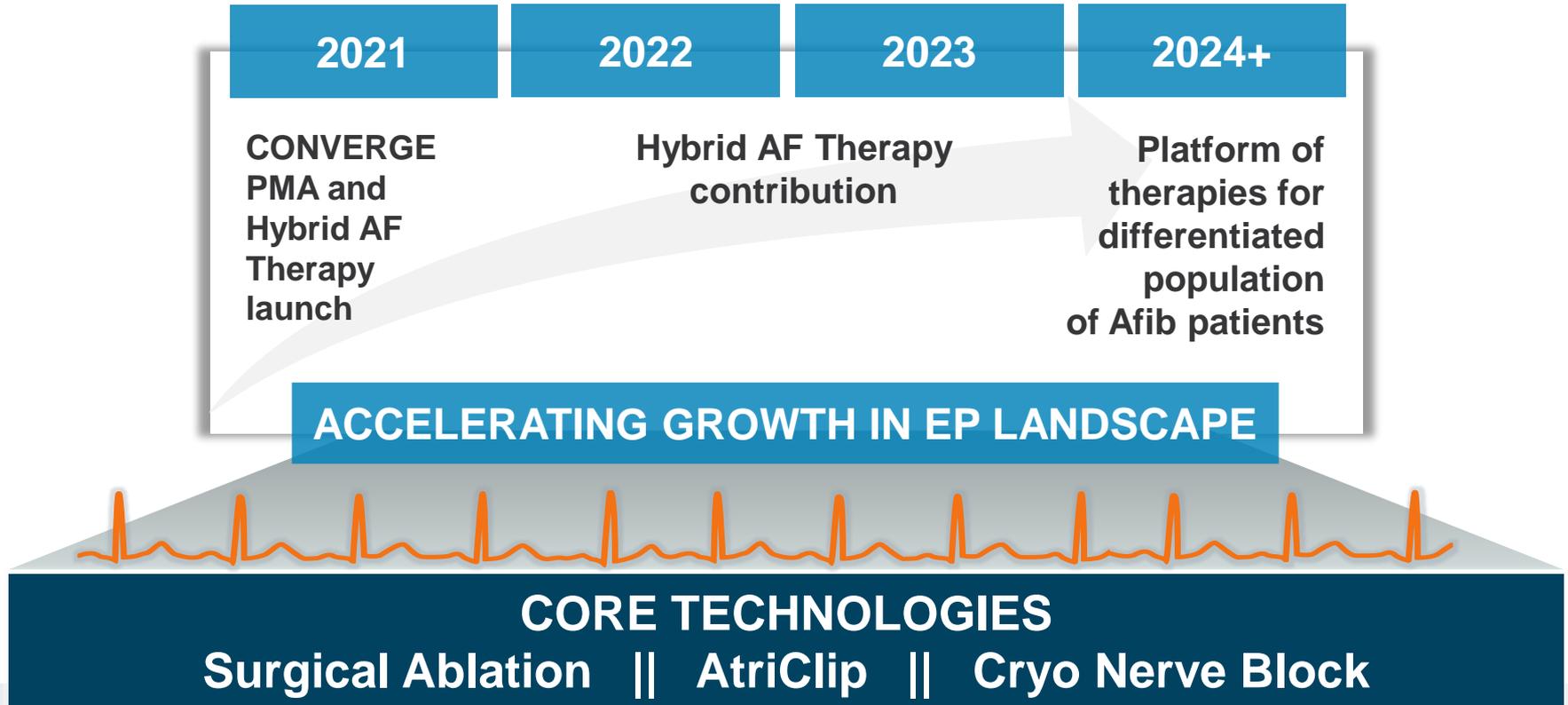
	Q3 2020	Q3 2021
GROSS MARGIN	73.7%	74.1%
ADJ. EBITDA	\$4.2M	\$0.7M
ADJ. LOSS PER SHARE	(\$0.11)	(\$0.23)
CASH & INVESTMENTS	\$248M	\$225M

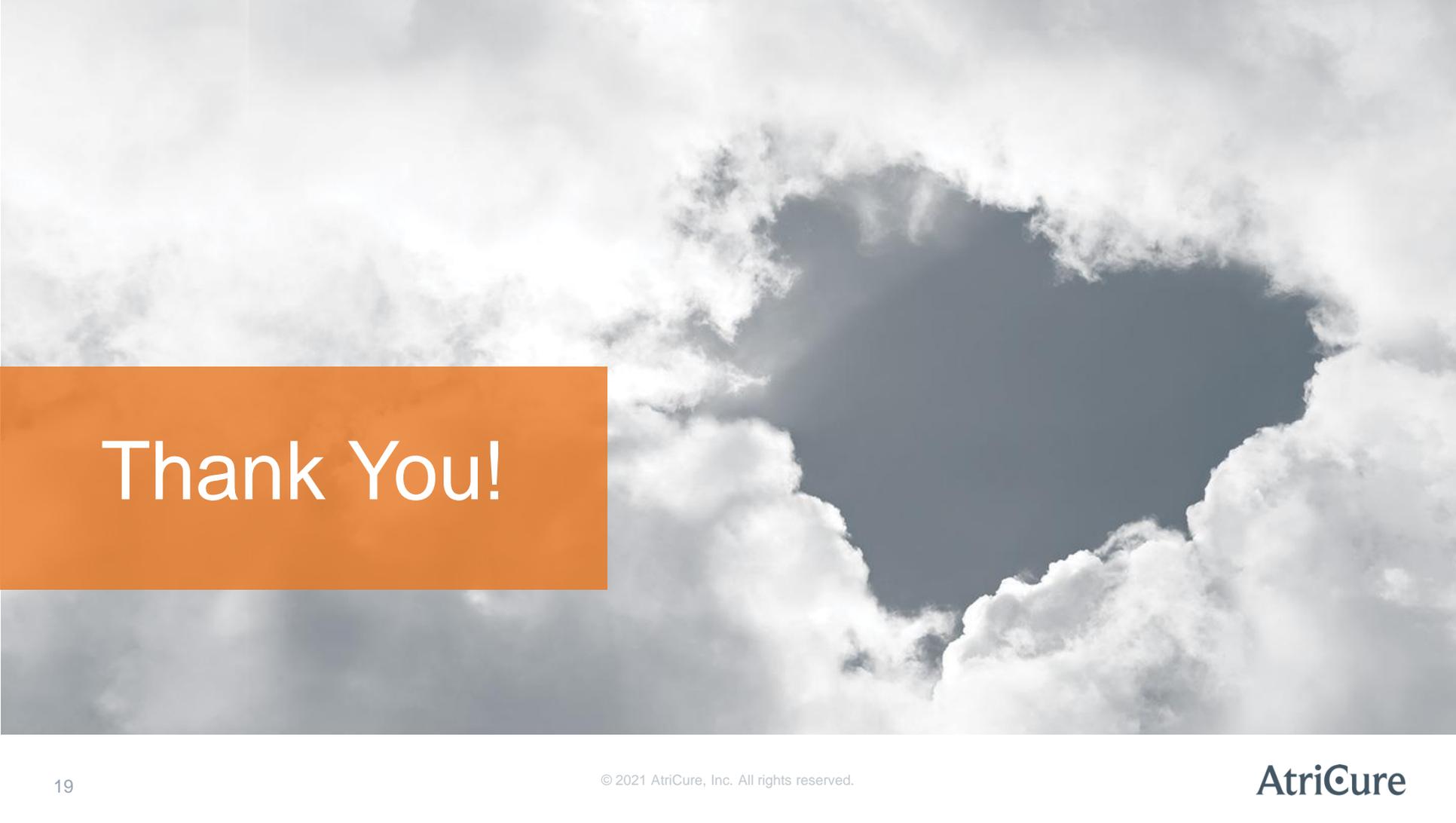
FULL YEAR 2021 GUIDANCE

- Worldwide Revenue of \$270M to \$275M
- Adjusted EBITDA loss of ~\$10M
- Adjusted loss per share of ~\$1.20

* 2021 financial results are preliminary and unaudited.

An Exciting Future Ahead





Thank You!

Supplemental Information

References for any comments, statistics, or figures in this presentation are available upon request.

Key Investment Rationale



Large Markets

Addressing an underserved and growing patient population

- Approximately 33 million Atrial Fibrillation patients globally, with majority having advanced forms of the disease¹
- Multibillion dollar annual market opportunity
- Current standard of care for intervention (catheter ablation) does not adequately address the most advanced forms of the disease



Strong Portfolio

Existing products and solutions driving consistent growth

- Strong history of double-digit revenue growth, driven by great products, clinical evidence, commitment to education, and societal guideline support
- Only PMA product for the concomitant surgical treatment of Afib
- The AtriClip device is the most widely used Left Atrial Appendage device with approximately 300,000 sold to date
- Diverse and expanding product portfolio from internal development and acquisitions



Bright Future

Novel therapies supported by growing body of clinical evidence

- Only PMA product for treatment of LS persistent Afib with Hybrid AF Therapy
- Growing pain management business to address pain associated with surgery
- Early in market development process – evolution to minimally invasive therapies will drive growth, diversifying and accelerating in 2022 and beyond

COVID-19 Response

Positioning AtriCure for long-term growth



Health & Safety

Provide a safe work environment
for our employees

- Enabling employees to work remotely and evaluating hybrid workplans
- Providing personal protection and other measures to ensure the safety of those working in our offices
- Limiting non-essential travel



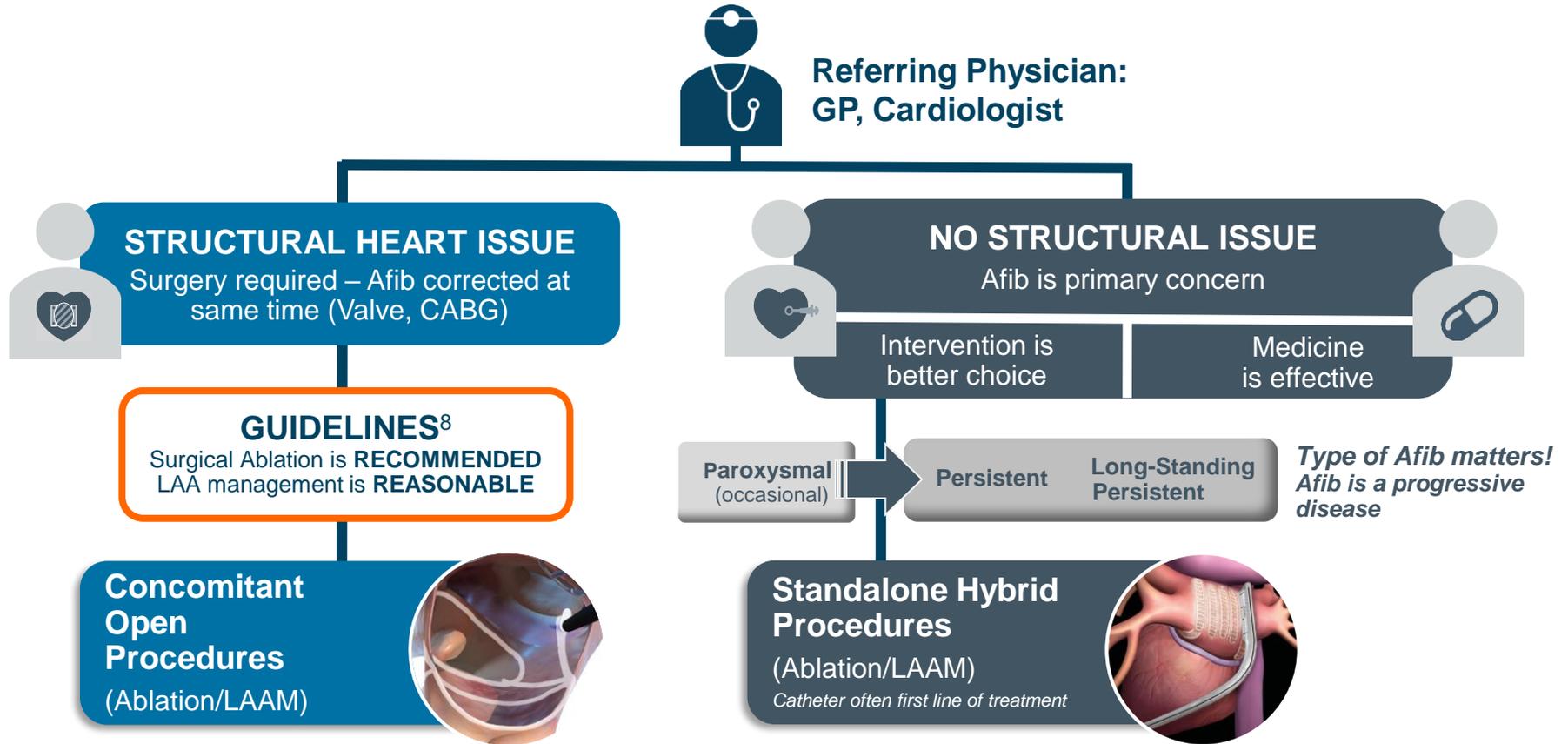
Maintaining Operations

Deliver products and support
to our customers

- Maintaining manufacturing, assembly, fulfillment – modified to adhere to safety recommendations
- Continuing case coverage support
- Utilizing online and mobile training venues to educate our customers

While our plans will continue to evolve in response to changes caused by the COVID-19 pandemic, we remain committed to the AtriCure Team and to the execution of our strategic initiatives.

Two Distinct Patient Profiles



US Concomitant Market Opportunity



Estimated **Afib** Opportunity in Cardiac Surgery

Annual Cardiac Surgeries ¹²	300,000
Pre-Operative Afib Rate ¹⁰	~28%
Cardiac Opportunity – Pre-Op Afib	85,000
ASP Mix (Ablation and Appendage Management) ¹³	\$4,500
Open Cardiac Surgery Opportunity – Afib	\$382M

Estimated **Non-Afib** Opportunity in Cardiac Surgery

Annual Cardiac Surgeries	300,000
Pre-Operative Non-Afib Rate	~72%
Cardiac Opportunity – Pre-Op Afib	215,000
ASP Mix (Appendage Management ONLY) ¹³	\$1,750
Open Cardiac Surgery Opportunity – Non-Afib	\$376M

- US annual cardiac surgery volume steady over the past 5 years with shifts in procedure types⁹
- Pre-Op Afib occurs frequently in cardiac surgery patients¹⁰
- New onset Post-Op Afib is a well-documented complication of cardiac surgery, even if patients do not present with pre-op Afib¹¹

US Standalone Market Opportunity



Estimated Standalone Afib Opportunity

	2020	Projected 2025
Long-standing Persistent Afib Catheter Ablation ¹⁶	25,000	45,000
ASP Mix (Ablation + Appendage Management) ¹³	\$15,000	\$15,000
Immediate Standalone Afib Opportunity	\$375M	\$675M
Additional penetration Long-standing Persistent Afib patients (estimated at 5% penetration)	150,000	175,000
ASP Mix (Ablation + Appendage Management) ¹³	\$15,000	\$15,000
Incremental Standalone Afib Opportunity (estimated at 5% penetration)	\$2B+	\$3B+

Market opportunity in analysis at left considers:

- Addition of ablation and LAAM to existing catheter ablation procedures
 - Catheter ablation procedures have grown 10-15% annually¹⁴
- Incremental penetration of advanced Afib patient population
 - Today, long-standing persistent Afib population represents more than 3 million patients in the United States, expected to grow to more than 4.4 million by 2025¹⁵
- ASP Mix reflects both ablation and AtriClip

CONVERGE Overview

SUPERIORITY TRIAL designed to support FDA approval of the EPI-Sense device

Achieved statistical superiority for primary endpoints

STUDY DESIGN

Summary

Multi-center, prospective, open label randomized 2:1 (Hybrid Convergent procedure vs endocardial catheter ablation) pivotal study

Number of Subjects and Sites

153 subjects
27 sites (25 US and 2 OUS)

Study Duration

12 month and 18 month monitoring, then 3 and 5 year follow-up of all subjects

PRIMARY ENDPOINTS

Effectiveness

Primary efficacy endpoint is success or failure to be AF/AT/AFL free absent class I and III AADs except for a previously failed or intolerant class I or III AAD with no increase in dosage following the 3 month blanking period through the 12 months post procedure follow-up visit

Safety

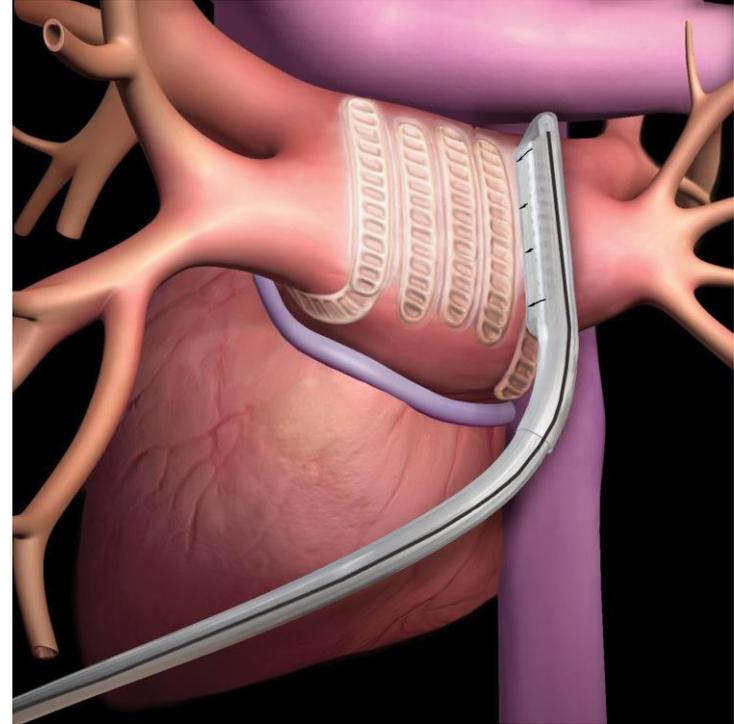
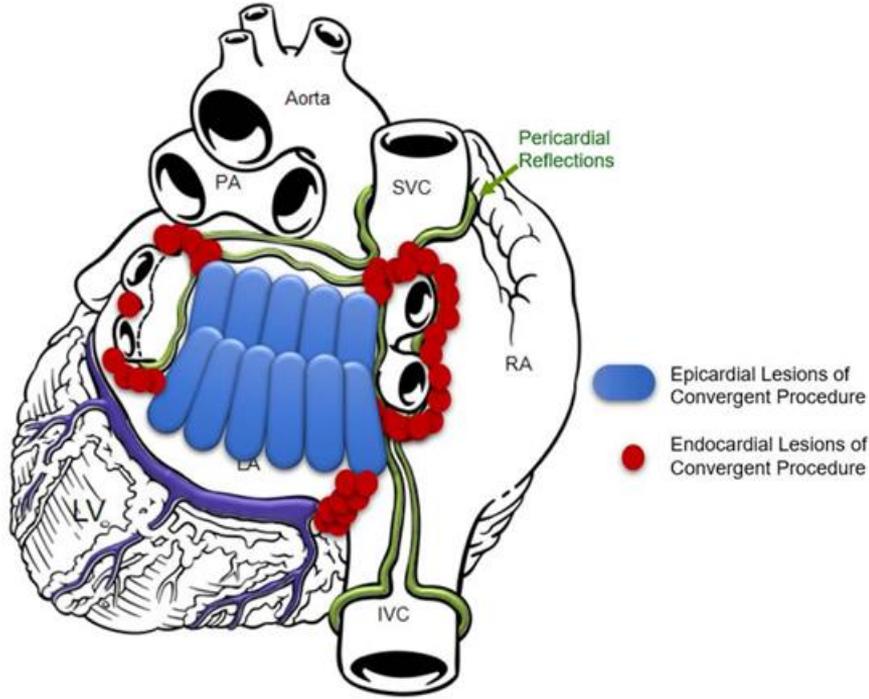
Predetermined performance goal for the study is 12% freedom from MAE's as adjudicated by the CEC for the procedural to 30-day post procedure time period



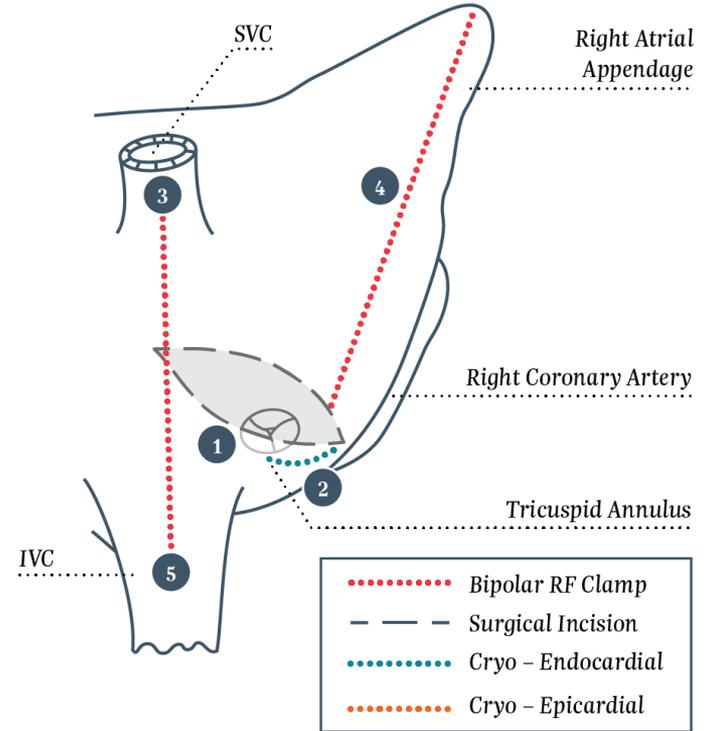
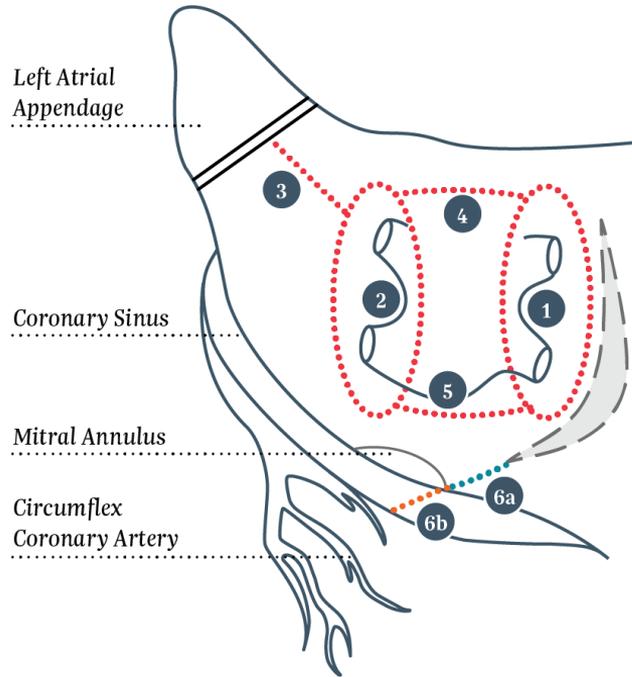
HIGHLIGHTS

- Completed enrollment August 2018
- Data released at virtual Heart Rhythm Society (HRS) conference May 2020
- PMA submission seeking approval for treatment of long-standing persistent Afib November 2020
- Trial results published in *Circulation: Arrhythmia and Electrophysiology* November 2020
- Long-standing persistent Afib patient sub-group analysis presented at 26th Annual Atrial Fibrillation (AF) Symposium January 2021 and 14th Annual Western AF Symposium February 2021
- **FDA approval of EPI-Sense System for treatment of long-standing persistent Afib April 2021**

Hybrid AF Therapy: the Convergent Procedure



The Cox-Maze IV Procedure



aMAZE Overview

SUPERIORITY TRIAL designed to evaluate safety and effectiveness of the LARIAT System to percutaneously isolate and ligate the Left Atrial Appendage for the treatment of persistent or longstanding persistent Afib

STUDY DESIGN

- **Summary**

Multi-center, prospective, open label randomized 2:1

- Control Arm – PVI
- Treatment Arm – PVI + Ligation of LAA with Lariat System

- **Number of Subjects and Sites**

600 subjects; 65 sites, all U.S.

- **Study Duration**

12 month monitoring and then 5-year follow-up of all subjects

PRIMARY ENDPOINTS

- **Effectiveness** - Freedom from episodes of Afib >30 seconds at 12 months post index pulmonary vein isolation
- **Safety** - Primary safety endpoint for the study is 10% freedom from MAE's as adjudicated by the CEC for the period from the procedure through 30 days
- Time Frame: 12 months following pulmonary vein isolation catheter ablation procedure, measured by 24-hour Holter monitoring

amaze
LARIAT[®] Clinical Trial

HIGHLIGHTS

- Acquired SentreHEART[®] August 2019
- Trial enrollment completed December 2019
- Final patient follow-up in 1H 2021
- Unblinded to trial results in July 2021; trial met safety goal but did not meet the primary effectiveness endpoint

References and Abbreviations

Note	Reference
1	Worldwide Epidemiology of Atrial Fibrillation: A Global Burden of Disease 2010 Study
2	The American Journal of Cardiology (2013), 112: 1142-1147
3	J Geriatr Cardiol. 2016 Oct; 13(10): 880–882, doi: 10.11909/j.issn.1671-5411.2016.10.004
4	Santhanakrishnan R et al., "AF Begets Heart Failure and Vice Versa," Circulation, 133 (2016):484-492
5	Odutayo, A. et al. (2016). Atrial fibrillation and risks of cardiovascular disease, renal disease, and deaths systematic review and meta analysis. BMJ 2016; 354:i4482
6	IFU for EPI-Sense® Guided Coagulation System Data: PMA# P200002
7	The Society of Thoracic Surgeons, Current News Release (1/30/2018): 1 in 7 Lung Surgery Patients at Risk for Opioid Dependence
8	The Society of Thoracic Surgeons 2017 Clinical Practice Guidelines for the Surgical Treatment of Atrial Fibrillation
9	STS Adult Cardiac Surgery Database, 2018/2019 Harvest Executive Summary
10	McCarthy, P.M. et al. (2019). Prevalence of atrial fibrillation before cardiac surgery and factors associated with concomitant ablation. J Thorac Cardiovasc Surg, PII: S0022-5223(19)31361-3, DOI: 10.1016/J.JTCVS.2019.06.062.
11	Lin et al, Stroke 2019 Jun; 50(6):1364-1371. doi: 10.1161/STROKEAHA.118.023921. Epub 2019 May 2.
12	Harvested from data previously available through the Society of Thoracic Surgeons
13	Average Selling Prices (ASPs) are management estimates based on a mix of products used for the various procedures
14	Estimated based on various catheter company presentations
15	Medical management estimate: Colilla, et al. Estimates of Current and Future Incidence and Prevalence of Atrial Fibrillation in the U.S. Adult Population. Am Journal of Cardiology 2013, 112: 1142-1147 Persistent patient estimate: Berisso et al Epidemiology of atrial fibrillation: European perspective Clin Epidemiol. 2014; 6: 213–220
16	Estimated based on Advisory Board data, along with various scientific presentations

Key Abbreviations	
Afib or AF	Atrial Fibrillation
AA	Atrial Arrhythmia
AAD	Anti-Arrhythmic Drugs
AFL	Atrial Flutter
AT	Atrial Tachycardia
CABG	Coronary Artery Bypass Graft
CEC	Clinical Events Committee
EP	Electrophysiologist
FDA	Food & Drug Administration
LAA	Left Atrial Appendage
LAAM	LAA Management
LS	Long-standing
MAE	Material Adverse Event
PMA	Pre-Market Approval
PVI	Pulmonary Vein Isolation
RF	Radio Frequency