

THE COOLEST CATHETER ABLATION TECHNOLOGY



**Todd Usen**

*Chief Executive Officer*



TD Cowen 45<sup>th</sup> Annual Healthcare Conference  
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# WHY ADAGIO MEDICAL

Unique near-term opportunity with purpose-designed system for ventricular tachycardia ablations



**Large Unmet Need: \$300 million served Market with Established Reimbursement**

- Highly under-penetrated with potential 2-3x growth opportunity



**2 Year Regulatory and Clinical Head Start**

- Improved Safety, effectiveness and usability<sup>1</sup>
- ~200 patients treated globally; U.S. IDE Underway.



**Broad indication and highly sought-after performance characteristics**

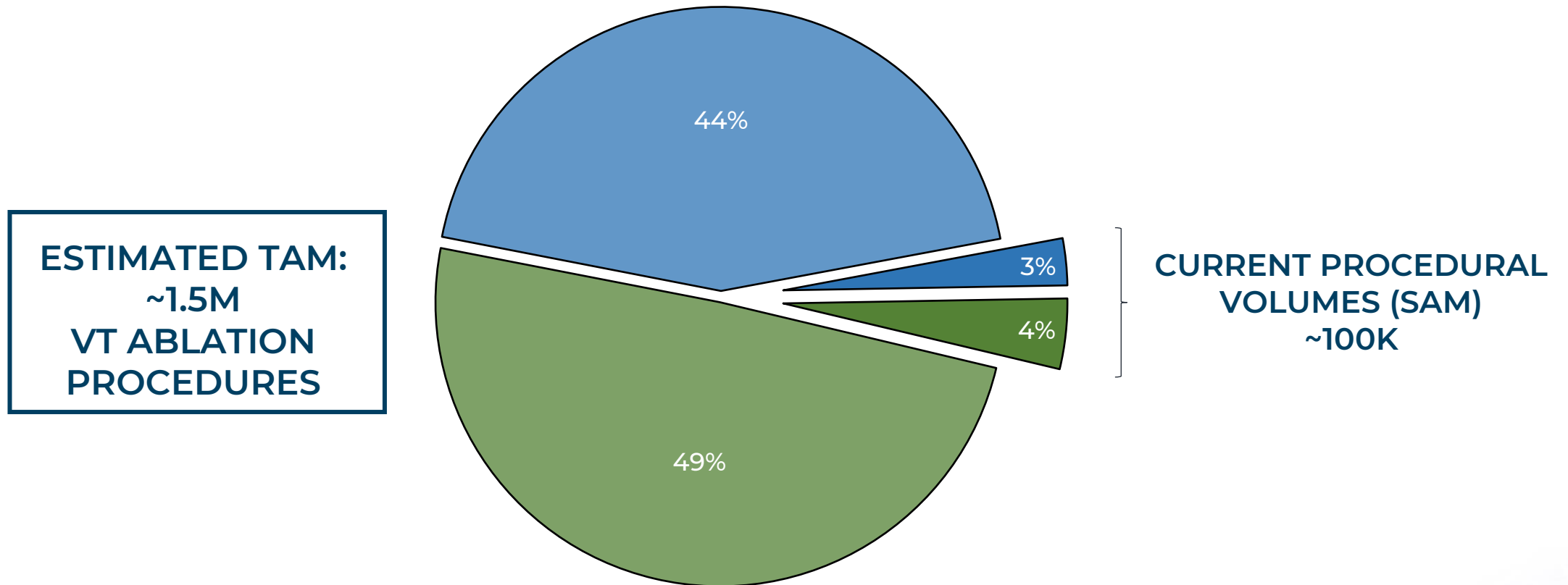
- Demonstrated in successful CE-Mark trial and commercial experience

**Key near-term value drivers:**

- US Pivotal IDE primary endpoints in 2025
- Product design optimization program
- Pulsed Field Cryoablation IP

# VENTRICULAR TACHYCARDIA (VT) ABLATIONS: LARGE, UNDERPENETRATED MARKET OPPORTUNITY

ESTIMATED MARKET OPPORTUNITY, ANNUAL PROCEDURES<sup>1</sup>

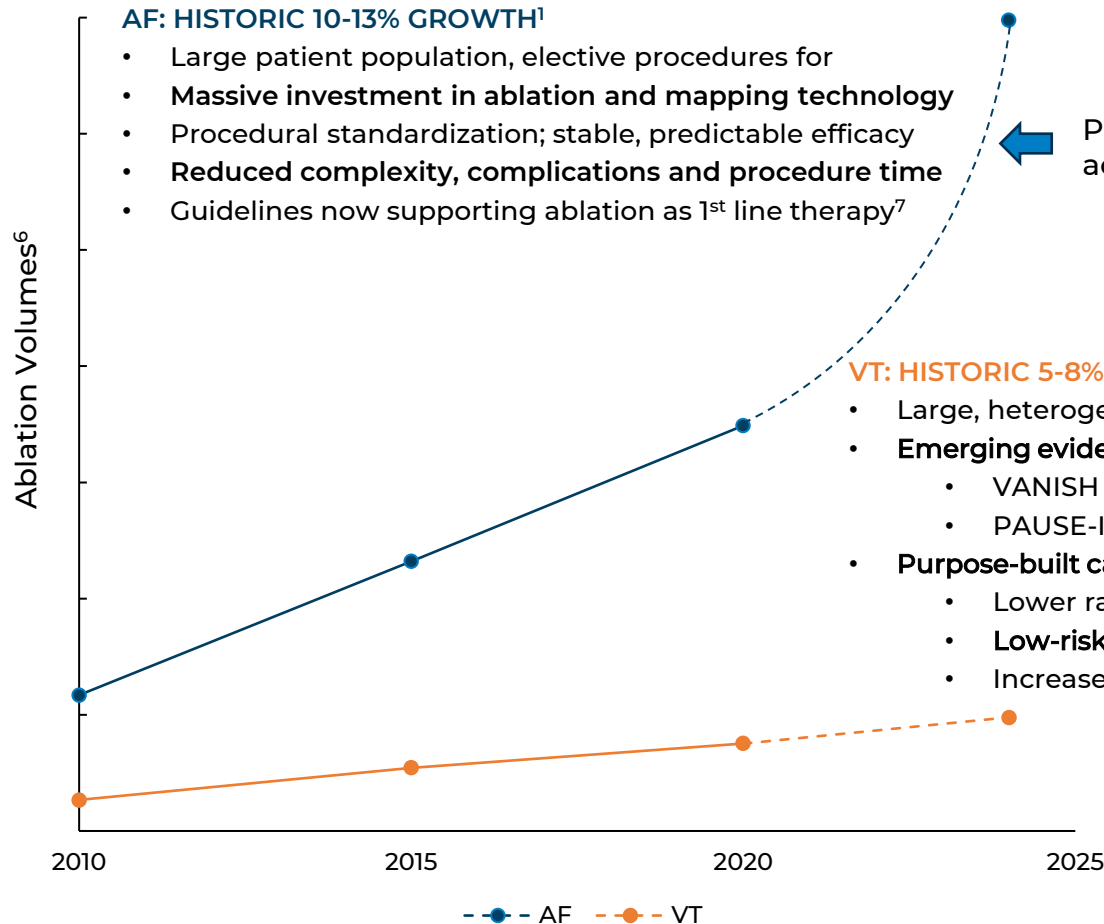


- Two distinct patient subsets, same technology
  - Scar-related VTs in patients with structural heart disease
  - High burden, symptomatic idiopathic arrhythmias: VTs and PVCs (premature ventricular contractions)

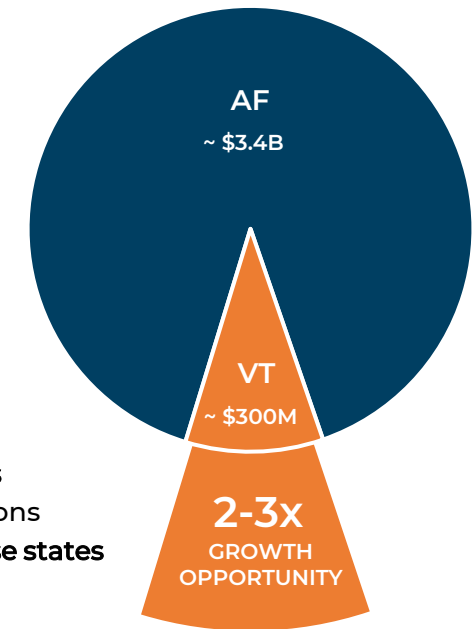
# VT MARKET POISED FOR AF-LIKE ACCELERATION

with stronger guidelines recommendations and purpose-built catheter

## COMPLEX ABLATIONS MARKET DYNAMICS



## COMPLEX ABLATIONS CATHETER MARKET SIZE TODAY: ~ \$3.7B<sup>1</sup>



~ \$1B

CURRENT PROCEDURAL COMPLICATIONS <sup>4,5</sup>	
Death	2.7%
Perforations/tamponade	2.0%
Major Bleeding	5.6%
Vascular	1.7%
Stroke	0.4%
Unspecified	1.8%
<b>Total Complication Rate</b>	<b>11.5%</b>

For illustration purposes only. 2010-2020 data are adopted from Eckardt L, Deldl F, Busch S, et al. 10-year follow-up of interventional electrophysiology: updated German survey during the COVID-19 pandemic. Clinical Research in Cardiology (2023) 112:784-794. 2020-2024 data are approximation of the overall market trends as described in (1).

# ULTRA-LOW TEMPERATURE VT CRYOABLATION

System and catheter purpose-designed for ventricular ablations  
2-year head start on regulatory approvals

## DIFFERENTIATED AND HIGHLY DESIRABLE FUNCTIONAL PERFORMANCE

- Large, durable lesions of **titratable depth (>10 mm)**
  - Endocardial ablations of mid-myocardial scar
  - Catheter stability during energy delivery
  - Time and effort efficient procedures with few lesions
  - No catheter irrigation simplifies hemodynamic management in HF patients
- 
- Clinically tested in patients with ischemic and non-ischemic cardiomyopathy - routinely used in all-comer patient population (including idiopathic VT/PVCs)



**NOW  
CE MARKED**



**-196°C LN<sub>2</sub>  
Cryoablation  
Console**

**Adagio™  
MEDICAL**

\* Image adopted from: Mayo Clinic,  
<https://www.mayoclinic.org/>, with modifications/

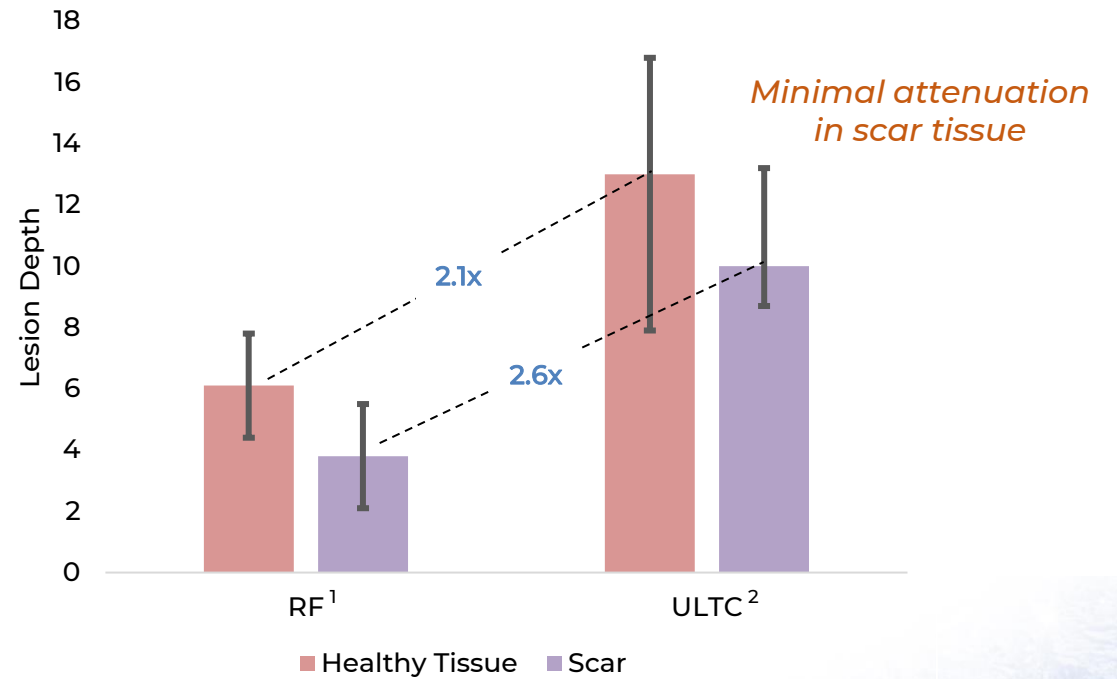
# ULTRA-LOW TEMPERATURE CRYOABLATION (ULTC): SAFE, LARGE AND DEEP VENTRICULAR LESIONS

## ULTC FREEZE AND LESIONS (PRE-CLINICAL)



Video courtesy Dr. Petr Neuzil, Nemecina Na Homolce, Prague, CZ.  
Preclinical images are adopted from Verma et al.<sup>3</sup>

## VENTRICULAR LESION DEPTH FROM DIFFERENT ENERGY SOURCES



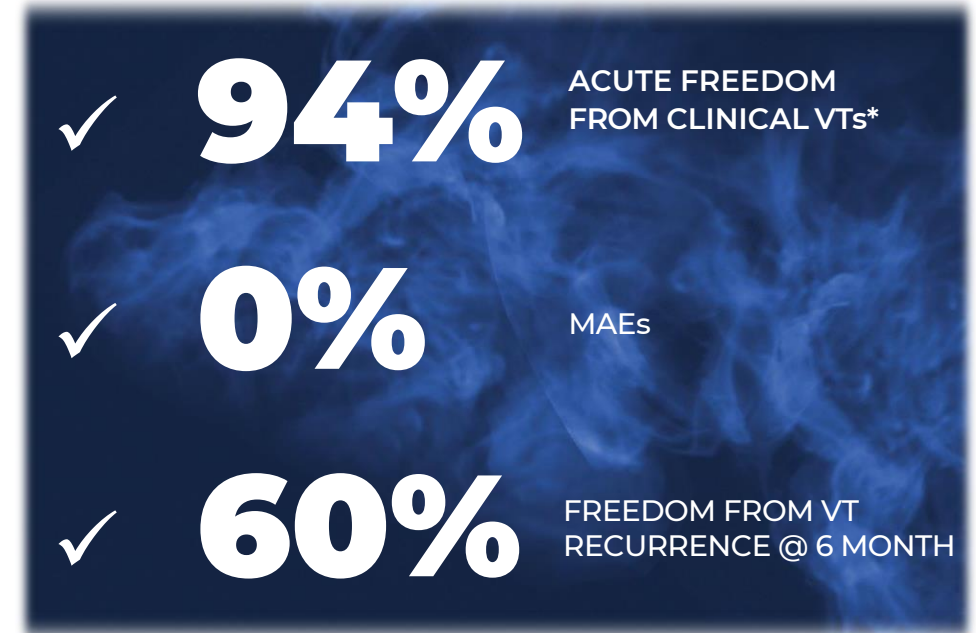
UNIQELY SUITABLE  
ANATOMIC TARGETS

- Deep (as well as large area) ischemic scars
- Mid-myocardial non-ischemic scars
- All-cause sub-epicardial circuits from endocardium

# IMPACTFUL CLINICAL RESULTS: CRYOCURE-VT<sup>1,2</sup>

Nine (9) centers in EU and Canada; 64 patients with ischemic and non-ischemic cardiomyopathy; data used for CE Mark

- **Efficient Procedures**
  - Average Procedure Time: 185 min (vs 225 - 273 min for RF<sup>3</sup>)
  - Average # of Lesions per Patient: 9 (vs 24 - 34 for RF<sup>4,5</sup>)
- **Safety Profile**
  - 0% Major Adverse Events ◀ FDA Trial Primary Endpoint
- **Acute Effectiveness**
  - 94% non-inducibility of clinical VTs
  - 97% elimination of VT morphologies
- **Chronic effectiveness @ 6 months**
  - 60.3% freedom from VT recurrence ◀ FDA Trial Primary Endpoint
  - 81.0% freedom from ICD shock
  - No difference between ischemic & non-ischemic outcomes
- **Sustained improvement in VT burden & toxic Rx use**
  - 6-mo median number of events reduction from 4 to 0
  - 60% reduction in amiodarone use



\* patients with inducible clinical VTs pre-ablation and which were non-inducible post-ablation

# PROVEN SAFETY AND EFFECTIVENESS

Adagio Results Exceed Hurdles of Currently Approved and Investigational Devices for VT

Manufacturer / Device / Study		Energy Source	Indication	Access	Procedure Time, min	# of Lesions	Irrigation Volume, L	Acute Complications <sup>a</sup>			Acute Effectiveness <sup>b</sup>	Chronic Effectiveness <sup>c</sup>
								All	Death	Stroke		
Adagio <sup>1</sup>	CRYOCURE-VT	ULTC	ICM+NICM	Endo	188	9	0	6.1%	0%	0%	94%	60%
JnJ <sup>2</sup>	Thermocool PM	RF	ICM	Endo	270	34	1.5	4.3%	1.3%	0%	76%	62%
JnJ <sup>3,7</sup>	Thermocool IDE	RF	ICM	Endo	315	24	1.3	18.0%	3.4%	0%	49%	53%
Abbott <sup>6</sup>	LESS-VT IDE	RF	NICM	Endo+Epi	232 <sup>d</sup>	NR	0.75 <sup>d</sup>	21.1%	1.2%	0.6%	93%	58%
Thermedical <sup>4</sup>	SERF Needle	RF	ICM+NICM	Endo	282	10	0.09	18.8%	6.3%	6.3%	97%	50%
BWH & JnJ <sup>5</sup>	SERF Needle	RF	ICM+NICM	Endo	316	12	0.07 (est.)	19.5%	0%	0%	65%	40%

<sup>a</sup> All complications reflect the rate of “serious adverse events” although the definitions vary between the studies

<sup>b</sup> Acute effectiveness reflects non-inducibility of the targeted VTs, although definitions vary between the studies

<sup>c</sup> Chronic effectiveness reflects primary endpoints of the study inclusive of the freedom from recurrence at 6 months, although definitions vary between the studies

<sup>d</sup> Index procedure only. Higher values reported in limited number of staged procedures

Cleared by FDA in for use in U.S.

Investigational Device in the US



# FULCRUM-VT\* PIVOTAL STUDY

Proposed Indication: treatment of scar-mediated monomorphic ventricular tachycardia (MVT) by ablation of arrhythmogenic tissues that drive and maintain these arrhythmias.

## • Study Design

- Single arm; 206 patients across ~20 sites
  - Ischemic cardiomyopathy
  - Non-ischemic cardiomyopathy
- } ~50/50 split

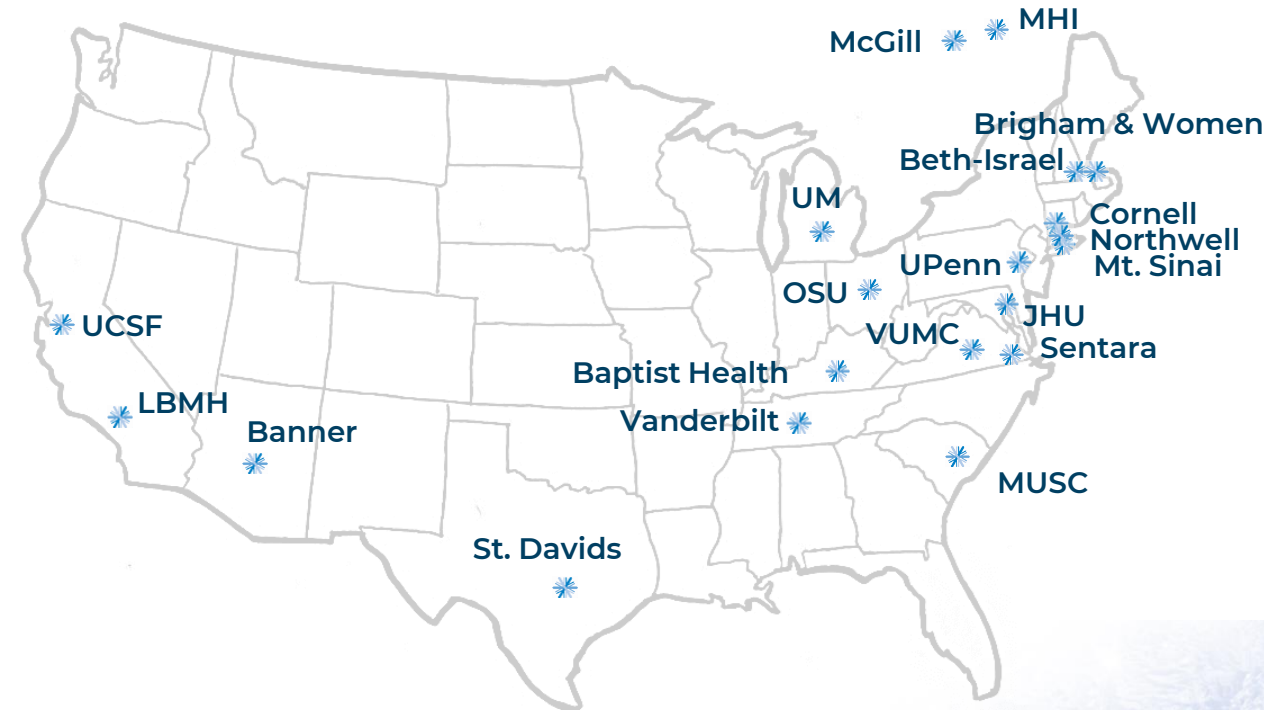
## • Performance Goals<sup>1</sup>

Goals	Metrics	Value	Cryocure-VT Reference
Primary Safety	Major Adverse Events @ 7 days	≤ 20%	0%
Primary Effectiveness	Freedom from VT recurrence @ 6 month	≥ 50%	60%

## • Status

- > 35% enrolled
- Expected primary end points: 2H' 2025

FULCRUM-VT CENTERS

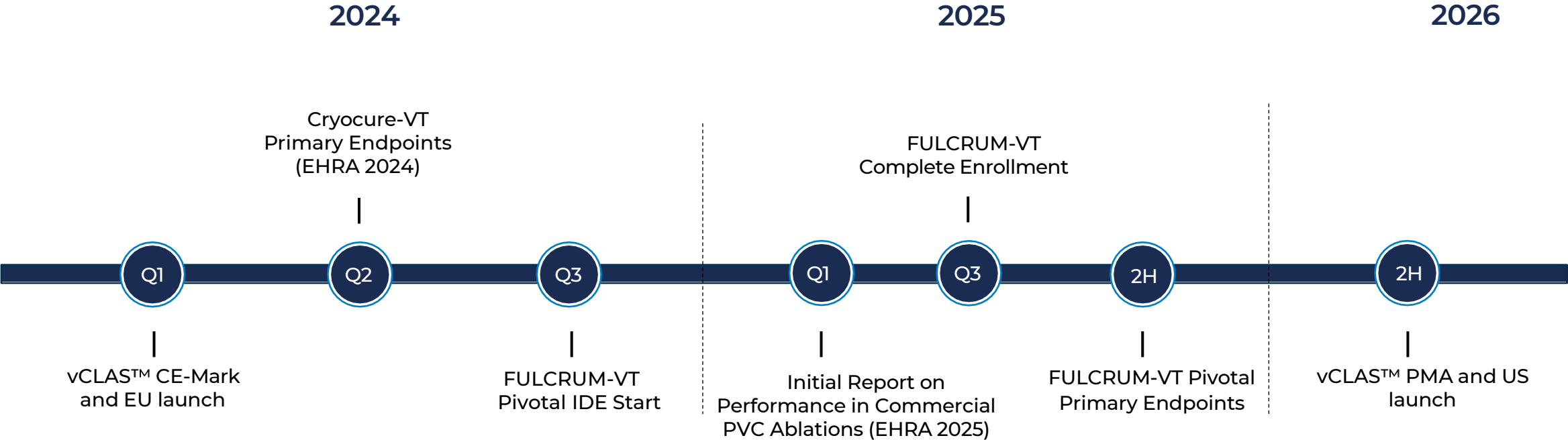


\*FEASIBILITY OF ULTRA-LOW TEMPERATURE CRYOABLATION FOR RECURRING MONOMORPHIC VT, NCT #05675865

2. Adagio Medical CS-300. Data on File.

# FULCRUM-VT PRIMARY ENDPOINTS - 2025

+ Other Key Clinical Read-outs



Note: Milestones are preliminary and subject to change. Please see Disclaimer – Forward-Looking Statements on slide 2.

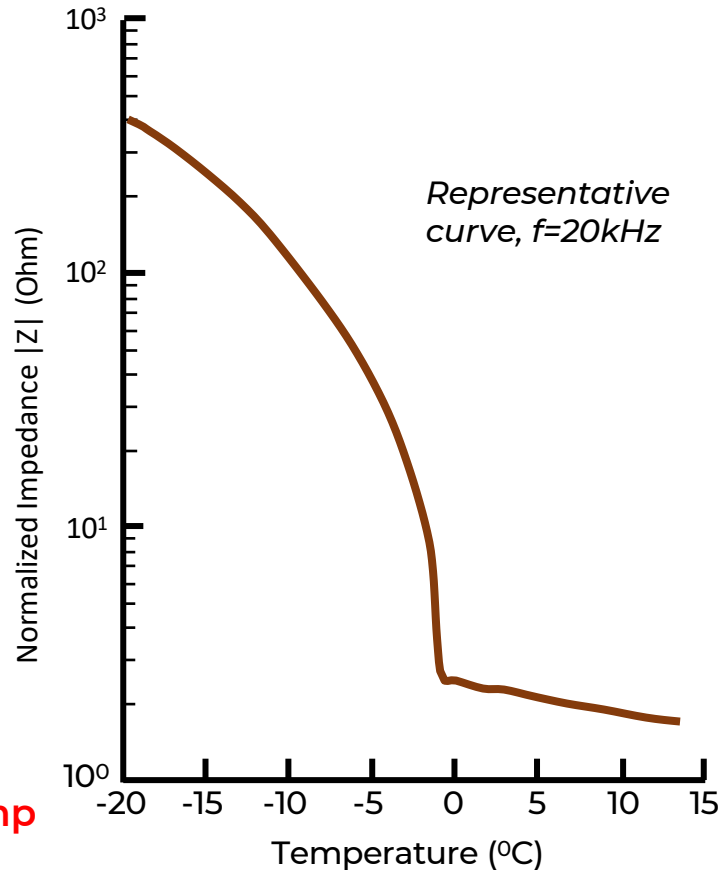


# PFCA: DESIRED DEPTH WITH LESS ENERGY

Pulsed Field Cryoablation (PFCA): short duration ULTC followed by PFA using the same catheter

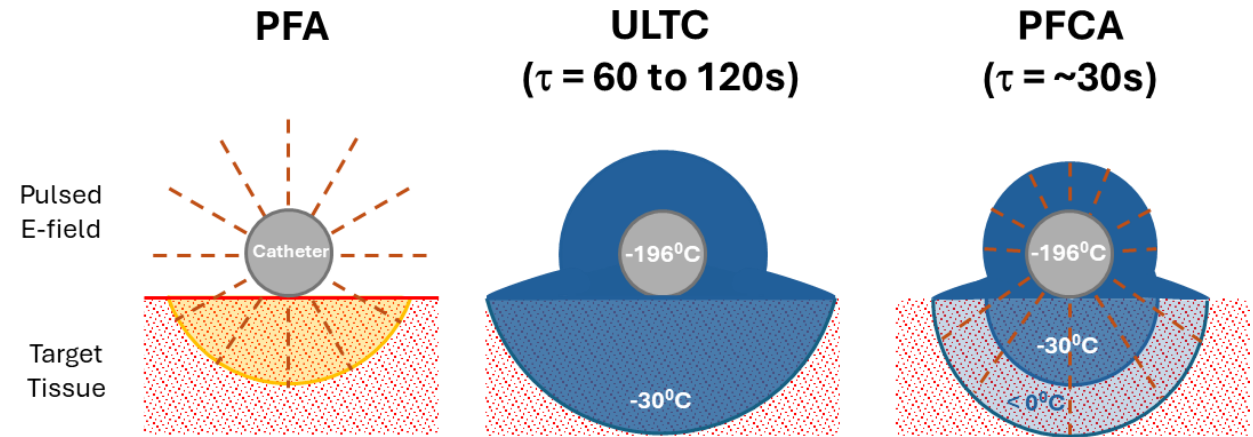
INCREASED IMPEDANCE OF FROZEN TISSUE  
DRAMATICALLY REDUCES PFA CURRENT<sub>1</sub>

Atrial  
PFCA<sup>7</sup>:  
< 1 Amp



Atrial  
PFA<sup>6</sup>:  
up to 25 Amp

CONCEPT AND POTENTIAL BENEFITS OF PFCA<sup>2,3,4</sup>



$\tau$  - energy application time per lesion

- Consistent tissue contact
- No phrenic nerve capture
- No skeletal muscle activation
- No or minimized microbubbles
- No or minimized coronary spasm<sup>5</sup>

Demonstrated in AF- but of even higher importance for VT ablations

# LEADERSHIP TEAM: ~200 YEARS OF MEDTECH EXPERIENCE



**Todd Usen**  
*Chief Executive Officer*



**John Dahldorf**  
*Chief Financial Officer*



**Nabil Jubran**  
*Chief Compliance Officer*



**Doug Kurschinski**  
*VP Clinical Affairs*



**Orly Mishan**  
*Chairwoman of Board of Directors*



**Alex Babkin**  
*Chief Technology Officer*



**Ilya Grigorov**  
*VP Global Marketing & Product Management*



**Caroline Corner**  
*Investor Relations*



THE COOLEST CATHETER ABLATION TECHNOLOGY



**THANK YOU**



# REFERENCES

## • Slide #3

1. Market size and growth potential are based on management's analysis and projections using internal and third-party estimates and resources, subject to certain assumptions and limitations.  
Note: Management's analysis and estimates which are subject to significant uncertainty and may prove to be incorrect.

## • Slide #4

1. Total available and currently served market sizes are based on management's analysis and projections using internal and third-party estimates and resources, subject to certain assumptions and limitations.  
Note: Management's analysis and estimates which are subject to significant uncertainty and may prove to be incorrect.

## • Slide #5

1. The current catheter market size, historical and future market growth are based on management's analysis and calculations using internal and third-party estimates and resources, subject to certain assumptions and limitations.
2. Sapp JL, Tang ASL, Parkash R, Stevenson WG, et al. Catheter Ablation or Antiarrhythmic Drugs or Ventricular Tachycardia. N Engl J Med 2024 Nov 16. doi: 10.1056/NEJMoa2409501
3. Tung R, Xue Y, Chen M, Jiang C, et al. First-Line Catheter Ablation of Monomorphic Ventricular Tachycardia in Cardiomyopathy Concurrent With Defibrillator Implantation: The PAUSE-SCD Randomized Trial. Circulation. 2022;145:1839–1849
4. Ding WY, Pearman CM, Bonnett L, et al. Complication rates following ventricular tachycardia ablation in ischaemic and non-ischaemic cardiomyopathies: a systematic review. Journal of Interventional Cardiac Electrophysiology (2022) 63:59–67
5. Cheung JW, Yeo I, Ip JE, et al. Outcomes, Costs, and 30-Day Readmissions After Catheter Ablation of Myocardial Infarct-Associated Ventricular Tachycardia in the Real World. Circ Arrhythm Electrophysiol. 2018;11:e006754.
6. For illustration purposes only. 2010-2020 data are adopted from Eckardt L, Deldl F, Busch S, et al. 10-year follow-up of interventional electrophysiology: updated German survey during the COVID-19 pandemic. Clinical Research in Cardiology (2023) 112:784–794. 2020-2024 data are approximation of the overall market trends as described in (1).
7. Tzeis S, Gerstenfeld EP, Kalman J, et al. 2024 European Heart Rhythm Association/ Heart Rhythm Society/Asia Pacific Heart Rhythm Society/Latin American Heart Rhythm Society expert consensus statement on catheter and surgical ablation of atrial fibrillation. Europace 2024; 26:1–107

## • Slide #7

1. Im SI, Higuchi S, Lee A, et al. Pulsed Field Ablation of Left Ventricular Myocardium in a Swine Infarct Model. J Am Coll Cardiol EP 2022;8:722-731
2. Dewland TA, Higuchi S, Venkateswaran R, Lee C, Gerstenfeld EP. AB-452672-2 Ultra-low Temperature Cryoablation Versus Ultra-low Temperature Cryoablation Combined With Pulsed Field Ablation In A Swine Ventricular Infarct Model. Heart Rhythm 2023;20:S92-S93. doi: doi.org/10.1016/j.hrthm.2023.03.395 . Reference slide #87 for further detail.
3. Verma A, Essebag V, Neuzil P, et al. Cryocure-VT: the safety and effectiveness of ultra-low-temperature cryoablation of monomorphic ventricular tachycardia in patients with ischaemic and non-ischaemic cardiomyopathies. EP Europace 2024; 26(4):euae076

## • Slide #8

1. De Potter T, Balt, JC, Boersma L, et al. First-in-Human Experience With Ultra-Low Temperature Cryoablation for Monomorphic Ventricular Tachycardia. J Am Coll Cardiol EP 2023; 9(5):686-691
2. Verma A, Essebag V, Neuzil P, et al. Cryocure-VT: the safety and effectiveness of ultra-low-temperature cryoablation of monomorphic ventricular tachycardia in patients with ischaemic and non-ischaemic cardiomyopathies. EP Europace 2024; 26(4):euae076

## • Slide #9

1. Verma A, Essebag V, Neuzil P, et al. Cryocure-VT: the safety and effectiveness of ultra-low-temperature cryoablation of monomorphic ventricular tachycardia in patients with ischaemic and non-ischaemic cardiomyopathies. EP Europace 2024; 26(4):euae076
2. Marchlinski FE, Haffajee CI, Beshai JF, et al. Long-Term Success of Irrigated Radiofrequency Catheter Ablation of Sustained Ventricular Tachycardia. JAmColl Cardiol2016;67:674–83
3. Stevenson WG, Wilber DJ, Natale A, et al. Irrigated Radiofrequency Catheter Ablation Guided by Electroanatomic Mapping for Recurrent Ventricular Tachycardia After Myocardial Infarction. Circulation. 2008;118:2773-2782
4. Packer DL, Wilber DJ, Kapa S, et al. Ablation of Refractory Ventricular Tachycardia Using Intramyocardial Needle Delivered Heated Saline-Enhanced Radiofrequency Energy: A First-in-Man Feasibility Trial. Circ Arrhythm Electrophysiol 2022;15:e010347
5. Tedrow UB, Kurata M, Kawamura I, et al. Worldwide Experience With an Irrigated Needle Catheter for Ablation of Refractory Ventricular Arrhythmias: Final Report. J Am Coll Cardiol EP 2023;9:1475–1486
6. FlexAbility Ablation Catheter, Sensor Enabled, PMA P110016/S080. <https://www.fda.gov/medical-devices/recently-approved-devices/flexability-ablation-catheter-sensor-enabled-p110016s080>
7. Thermocool SmartTouch Bi-Directional Navigation Catheter, Instructions For Use. <https://www.e-ifu.com/search-document-metadata/THERMOCOOL%20SMARTTOUCH%E2%84%A2%20Bi-Directional%20Navigation%20Catheter>

## • Slide #10

1. Adagio Medical CS-300, Data on File.

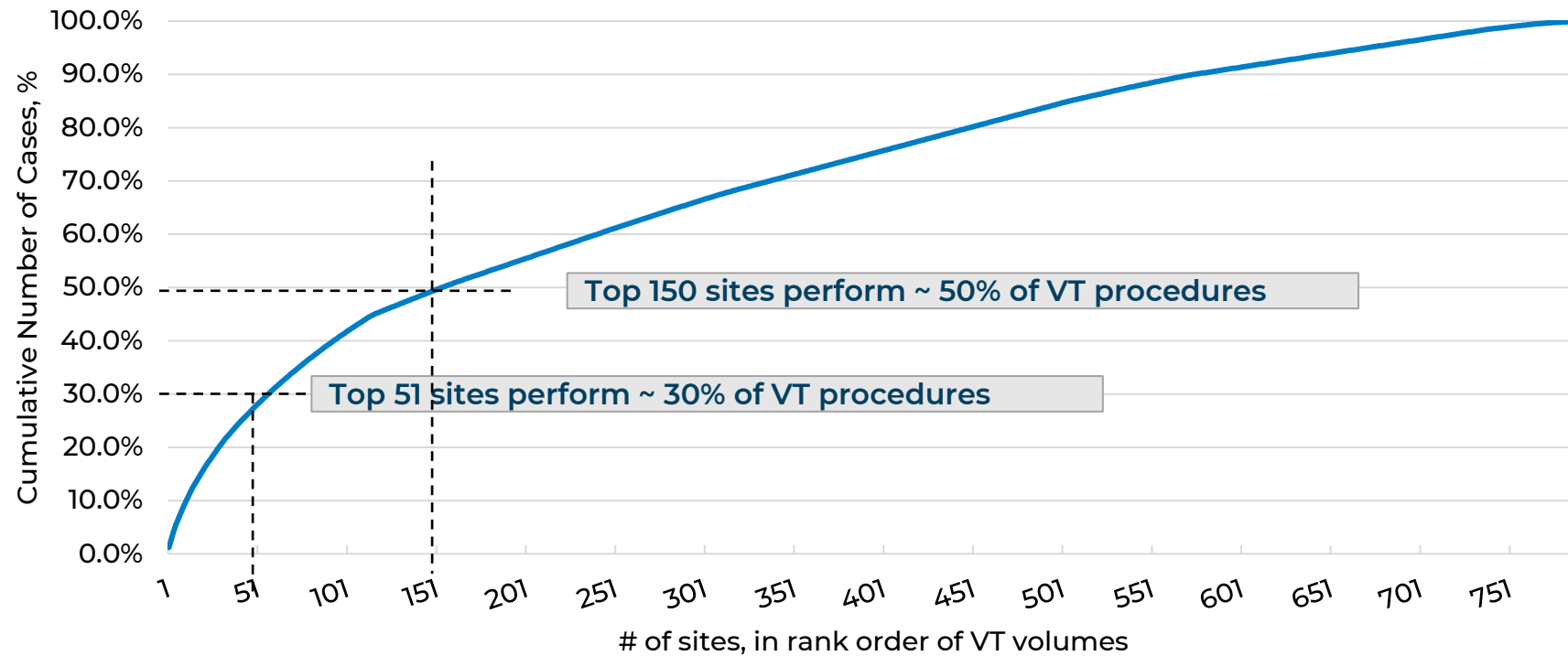
## • Slide #13

1. Fischer G et al. Impedance and conductivity of bovine myocardium during freezing and thawing at slow rates – implications for cardiac cryoablation. Medical
2. Daniels CS, Rubinsky B. Temperature Modulation of Electric Fields in Biological Matter. PLoS ONE 2011; 6:e20877. doi:10.1371/journal.pone.0020877
3. Verma A, Feld GK, Cox JL, et al. Combined pulsed field ablation with ultra-low temperature cryoablation: A preclinical experience. J Cardiovasc Electrophysiol. 2022;1–10
4. Essebag V, Boersma L, Petry J, et al. Acute Procedural Characteristics and Safety of Pulsed Field Cryoablation for Persistent AF: Multicenter Results from the First in Human PARALELL Trial. EHRA 2024
5. Preliminary data, courtesy Dr. E. Gerstenfeld (UCSF). AF Symposium 2023. <https://vimeo.com/798627743/00bc646d3b>
6. Verma A, Neal R, Evans J, et al. Characteristics of pulsed electric field cardiac ablation porcine treatment zones with a focal catheter. J Cardiovasc Electrophysiol. 2023;34:99–107.
7. Adagio Medical Internal Assessments.

# APPENDIX

# US MARKET- EARLY MARKET PENETRATION OPPORTUNITY

US VT MARKET STRUCTURE<sup>1</sup>



<sup>1</sup>) Based on management's analysis of Medicare FFS data, subject to certain assumptions and limitations. Please see Slide #71 which is part of Appendix II - Market Sources & Analysis for further details.

# BOARD OF DIRECTORS: OVER 150 YEARS OF MEDTECH EXPERIENCE



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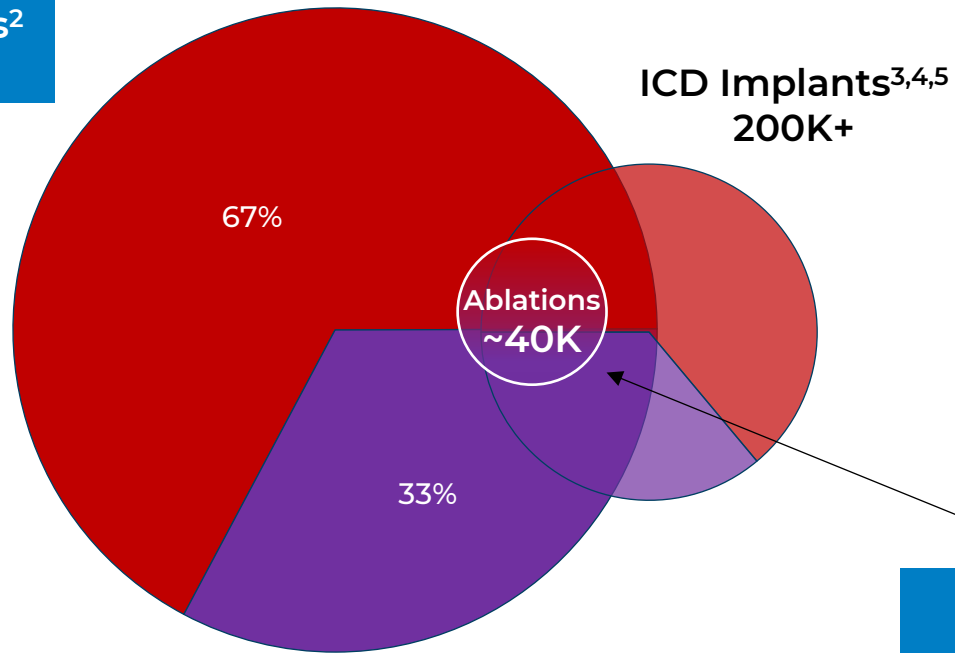
**Keyvan Mirsaeeedi-Farahani, MD**  
*Perceptive Advisors*

# VENTRICULAR ABLATIONS: 1.5M PTS. OPPORTUNITY

With the exception of the specific PVC presentation, current guidelines treat VT ablation as 2<sup>nd</sup> line therapy after antiarrhythmic Rx<sup>7,8</sup>

## Structural Heart Disease Arrhythmias Estimated Annual TAM

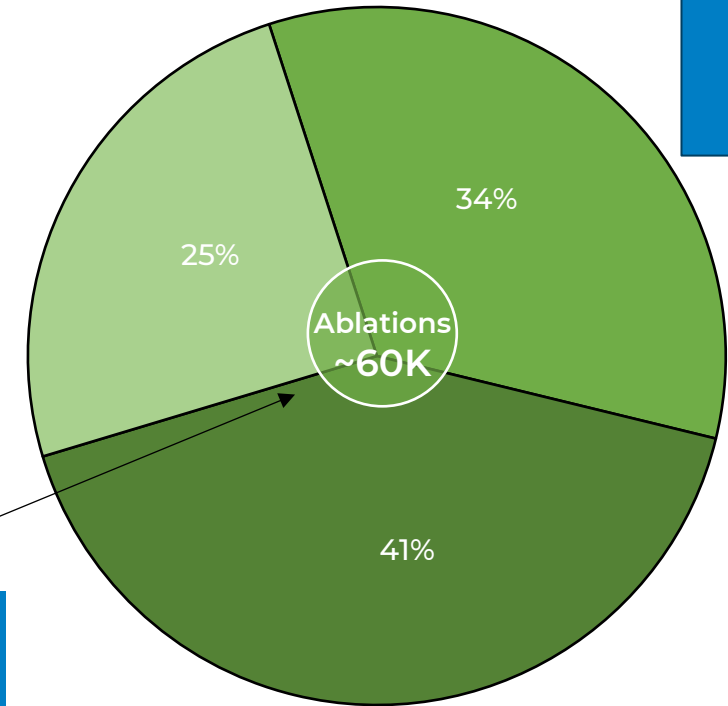
VT Events<sup>2</sup>  
~ 700K



■ Coronary (Ischemic) Heart Disease ■ Non-Ischemic Cardiomyopathies

## Idiopathic Arrhythmias Estimated Annual TAM

High Risk  
VT/PVC  
Events<sup>6</sup>  
~800K



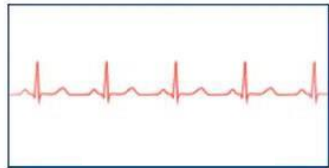
■ High Burden Idiopathic VT  
■ High Burden Symptomatic PVC  
■ VA-Induced Cardiomyopathy

Current SAM:  
~100K  
procedures<sup>9</sup>

1. Srinivasan V, Shilling R. Sudden Cardiac Death and Arrhythmias. *Arrhythm Electrophysiol Rev.* 2018;7:111-117  
 2. Management analysis based on the WW prevalence of underlying conditions and rates of VT recurrence stated in the literature, subject to significant uncertainty and may prove to be incorrect.  
 3. Kramer DB, Kennedy KF, Noseworthy PA, et al. Characteristics and Outcomes of Patients Receiving New and Replacement Implantable Cardioverter-Defibrillators: Results from the NCDR. *Circ Cardiovasc Qual Outcomes* 2013;6:488-97  
 4. Ammannaya GKK. Implantable cardioverter defibrillators – the past, present and future. *Arch Med Sci Atheroscler Dis* 2020;5:e163–e170  
 5. Kobe J, Willy Ket al. Selection and outcome of implantable cardioverter-defibrillator patients with and without cardiac resynchronization therapy: Comparison of 4384 patients from the German Device Registry to randomized controlled trials. *J Cardiovasc Electrophysiol.* 2022;33:483–492  
 6. Management analysis of WW population incidence based on Sirichand SS, Killu AM, Parmanadhan, et al. Incidence of Idiopathic Ventricular Arrhythmias A Population-Based Study. *Circ Arrhythm Electrophysiol.* 2017;10:e004662  
 7. Cronin EM, Bogun FM, Maury P, et al. 2019 HRS/EHRA/APHRS/LAHR expert consensus statement on catheter ablation of ventricular arrhythmias. *Heart Rhythm* 2020; 17:e3-e154  
 8. Zeppenfeld K, Tfelt-Hansen J, da Riva Marta, et al. 2022 ESC Guidelines for the management of patients with ventricular arrhythmias and the prevention of sudden cardiac death. *European Heart Journal* (2022) 43, 3997–4126  
 9. Management estimates based on secondary data sources.

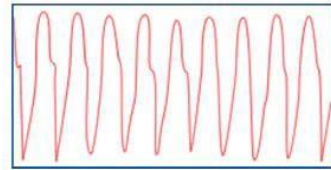
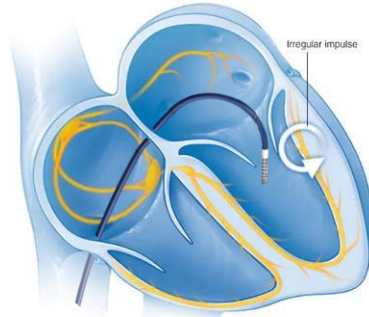
# VENTRICULAR TACHYCARDIA (VT)

## Normal Electrical Conduction



Adopted from: Mayo Clinic,  
<https://www.mayoclinic.org/>

## Ventricular Tachycardia (VT)

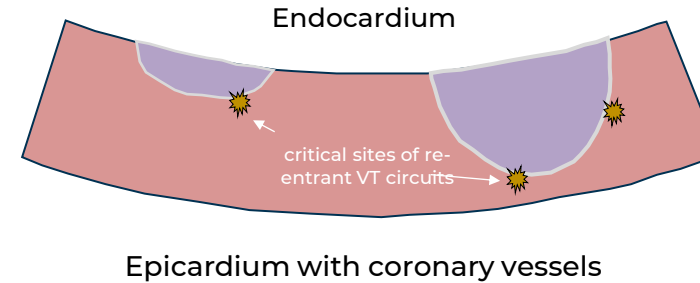


- Catheter ablation creates lesions in myocardial tissue which interrupt VT circuits
- Requires lesion depth and durability to achieve acute success and minimize future recurrences

1. Bourantas CV, Nikitin NP, Loh HP, et al. Prevalence of scarred and dysfunctional myocardium in patients with heart failure of ischaemic origin: A cardiovascular magnetic resonance study. *Journal of Cardiovascular Magnetic Resonance* 2011;13:53  
 2. Piers SRD, Tao Q, de Riva Silva M, et al. CMR-Based Identification of Critical Isthmus Sites of Ischemic and Nonischemic Ventricular Tachycardia. *J Am Coll Cardiol Img* 2014;7:774-84  
 3. Dinov B, Fielder L, Schonbauer R, et al. Outcomes in Catheter Ablation of Ventricular Tachycardia in Dilated Nonischemic Cardiomyopathy Compared With Ischemic Cardiomyopathy. *Circulation*. 2014;129:728-736.  
 4. Kanagasundram A, John RM, Stevenson WC. Sustained Monomorphic Ventricular Tachycardia in Nonischemic Heart Disease: Arrhythmia-Substrate Correlations That Inform the Approach to Ablation. *Circ Arrhythm Electrophysiol*. 2019;12:e007312  
 5. Betensky BP, Kapa S, Desjardins B, et al. Characterization of Trans-septal Activation During Septal Pacing Criteria for Identification of Intramural Ventricular Tachycardia Substrate in Nonischemic Cardiomyopathy. *Circ Arrhythm Electrophysiol*. 2013;6:1123-11306  
 6. Vaseghi M, Hy TY, Tung R, et al. Outcomes of Catheter Ablation of Ventricular Tachycardia Based on Etiology in Nonischemic Heart Disease. *J Am Coll Cardiol EP* 2018;4:1141-50  
 7. Muser D, Tritto M, Mariani MV, et al. Diagnosis and Treatment of Idiopathic Premature Ventricular Contractions: A Stepwise Approach Based on the Site of Origin. *Diagnostics* 2021;11:1840.

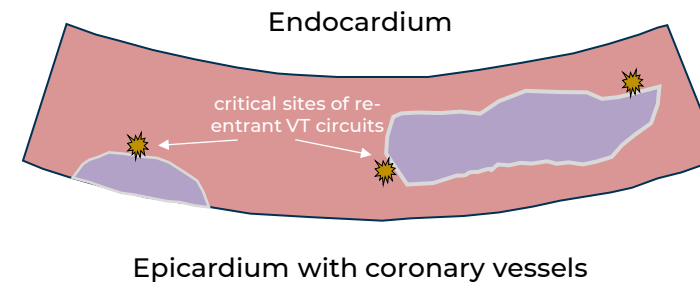
## SCAR-MEDIATED VTs

### ISCHEMIC SCAR<sup>1,2</sup>



< 10% require additional epicardial ablations<sup>3</sup>

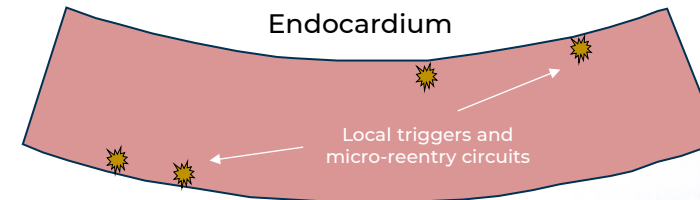
### NON-ISCHEMIC SCAR<sup>2,4,5</sup>



> 30% require epicardial or endo-epicardial ablations<sup>3,6</sup>

## IDIOPATHIC VTs

### LOCAL TRIGGERS AND RE-ENTRY<sup>7</sup>



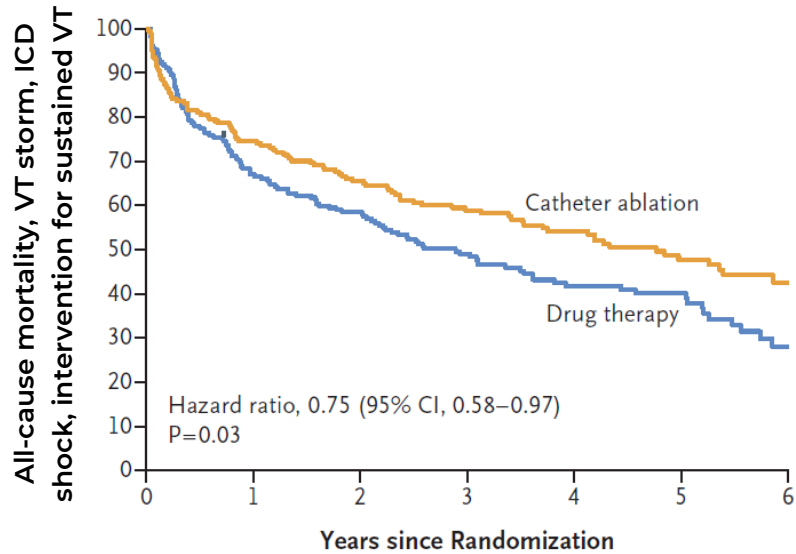
anatomically-specific localized endocardial and epicardial ablation sites

Epicardium with coronary vessels

# RECENT TRIALS POSITIVE FOR EARLY VT ABLATION

## VANISH-2<sup>1</sup>

*Ablation vs AAD in post-MI ICD patients with prior VT events*

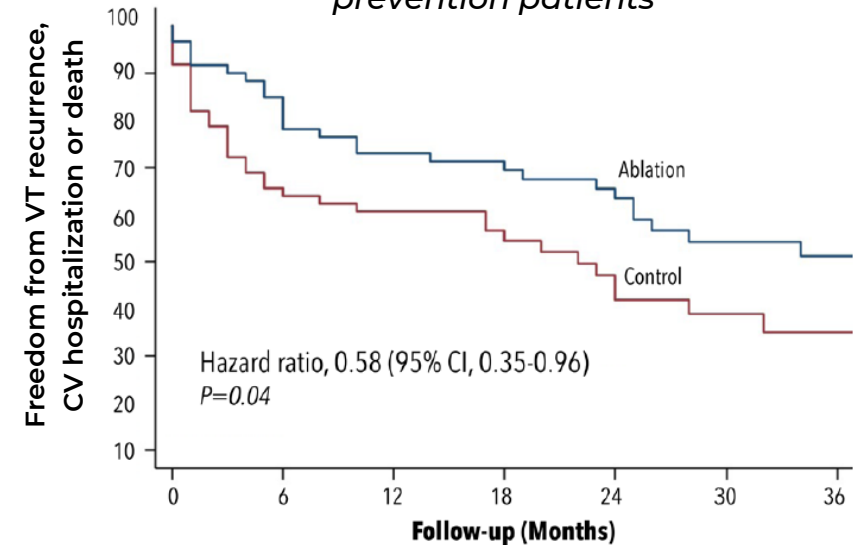


No. at Risk	0	1	2	3	4	5	6
Catheter ablation	203	149	129	95	75	48	24
Drug therapy	213	142	123	81	57	37	13

- 100% ICM
- Epicardial approach: NR
- Procedure time: 212 (168-280) min
- 12.3% of peri-procedural complications (ablation arm)
  - Death: 1%
  - Stroke: 1%
  - Heart Block: 1%
  - Perforation: 0.5%

## PAUSE-SCD<sup>2</sup>

*Prophylactic ablation + ICD vs AAD + ICD in secondary prevention or inducible primary prevention patients*



No. at Risk	0	6	12	18	24	30	36
Control	61	40	36	26	18	11	8
Ablation	60	50	43	39	32	21	13

- 35% ICM, 65% NICM (including 35% ARVC)
- Epicardial approach: 55.4%
- Procedure time: 240 (166-280) min
- 8.3% procedure-related complications

**Cardiac ablation appears superior to AAD as both prophylaxis and response to VT events in ICD population → consideration for 1<sup>st</sup> line therapy**



1. Sapp JL, Tang ASL, Parkash R, Stevenson WG, et al. Catheter Ablation or Antiarrhythmic Drugs or Ventricular Tachycardia. N Engl J Med 2024 Nov 16. doi:10.1056/NEJMoa2409501

2. Tung R, Xue Y, Chen M, Jiang C, et al. First-Line Catheter Ablation of Monomorphic Ventricular Tachycardia in Cardiomyopathy Concurrent With Defibrillator Implantation: The PAUSE-SCD Randomized Trial. Circulation. 2022;145:1839-1849

# RECENT TRIALS POSITIVE FOR VT ABLATION AS A 1<sup>st</sup> LINE THERAPY

## VANISH-2<sup>1</sup>

*Ablation vs AAD in post-MI ICD patients with prior VT events*

416 patients: 100% ICM

An initial strategy of catheter ablation led to a lower risk of a composite primary endpoint of all-cause death, ventricular tachycardia storm, appropriate ICD shock, or sustained ventricular tachycardia treated by medical intervention than antiarrhythmic drug therapy.

## PAUSE-SCD<sup>2</sup>

*Ablation + ICD vs AAD + ICD in secondary prevention or inducible primary prevention patients*

180 patients: 35% ICM, 65% NICM

Early catheter ablation performed at the time of ICD implantation significantly reduced the composite primary outcome of VT recurrence, cardiovascular hospitalization, or death.

# PFCA: COMBINING THE BENEFITS OF ULTC AND MINIMIZING THE LIMITATIONS OF PFA



PFA Console



Cryoablation Console

Single catheter with ablation element capable of both ultra-low temperature cryoablation and PFA

Connected to standalone or integrated cryoablation and PFA consoles



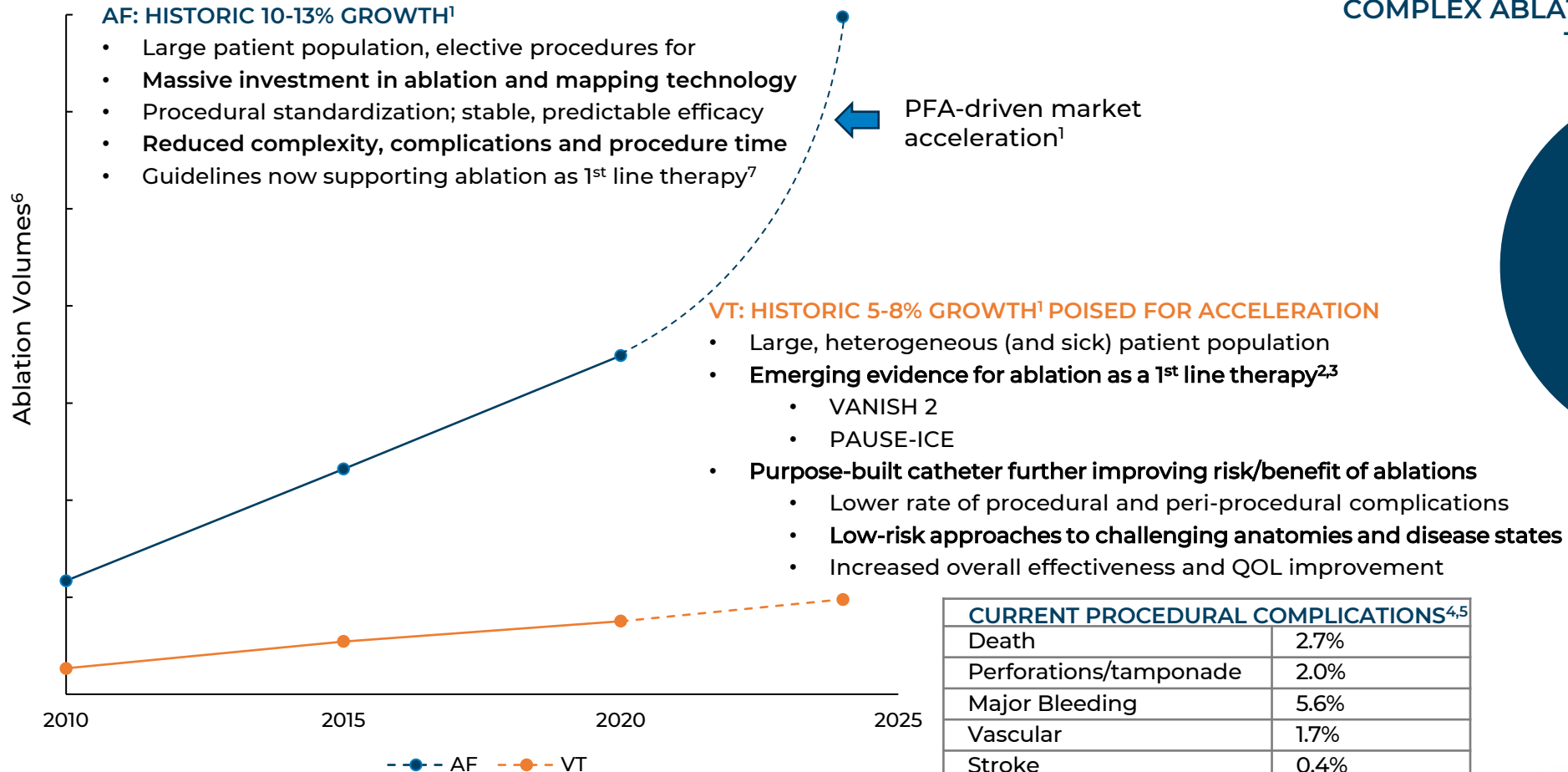
## Lesion Formation:

- 1 Short duration ultra-low temperature cryoablation
- 2 Immediately followed by PFA

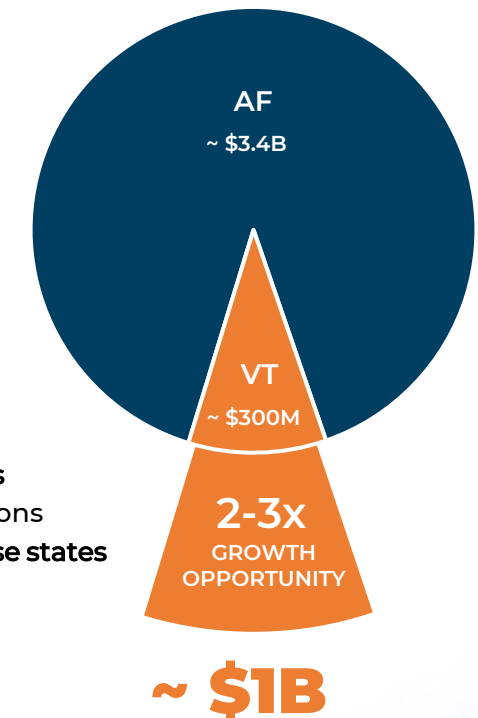
# VT MARKET POISED FOR AF-LIKE ACCELERATION

with stronger guidelines recommendations and purpose-built catheter

## COMPLEX ABLATIONS MARKET DYNAMICS



## COMPLEX ABLATIONS CATHETER MARKET SIZE TODAY: ~ \$3.7B<sup>1</sup>



CURRENT PROCEDURAL COMPLICATIONS <sup>4,5</sup>	
Death	2.7%
Perforations/tamponade	2.0%
Major Bleeding	5.6%
Vascular	1.7%
Stroke	0.4%
Unspecified	1.8%
<b>Total Complication Rate</b>	<b>11.5%</b>

For illustration purposes only. 2010-2020 data are adopted from Eckardt L, Deldl F, Busch S, et al. 10-year follow-up of interventional electrophysiology: updated German survey during the COVID-19 pandemic. Clinical Research in Cardiology (2023) 112:784-794. 2020-2024 data are approximation of the overall market trends as described in (1).