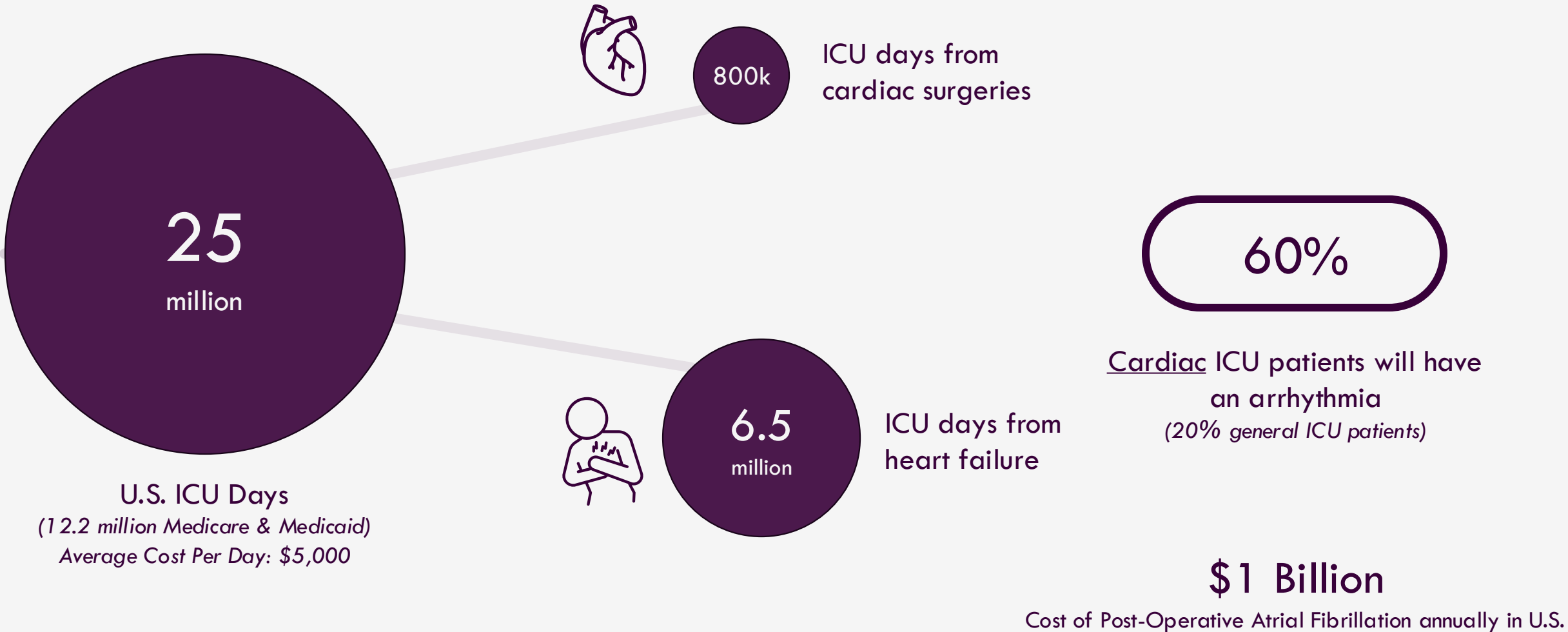# Atrility®

MEDICAL

We make technology to manage sick hearts in the ICU

Cardiac arrhythmias are one of the leading contributors to cost in the ICU

800k — ICU days from cardiac surgeries

25 million — U.S. ICU Days
(12.2 million Medicare & Medicaid)
Average Cost Per Day: $5,000

6.5 million — ICU days from heart failure

60% — Cardiac ICU patients will have an arrhythmia
(20% general ICU patients)

$1 Billion — Cost of Post-Operative Atrial Fibrillation annually in U.S.

Significant challenges with detection of cardiac arrhythmias in the ICU:

1) Bedside Nurses

2) Cardiac Monitors

1) Bedside Nurses

As rates of ICU and arrhythmia costs increase, bedside support is decreasing with nationwide nursing shortages
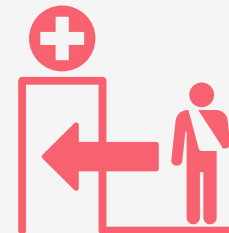
↑ 92%

10-year cost increase of critical care medicine

↑ $6k per patient

Postoperative arrhythmias significantly increase costs of hospitalized patients

↓ 10%

US Chamber of Commerce projects continued nursing shortage over next 10 years

↑ 25%

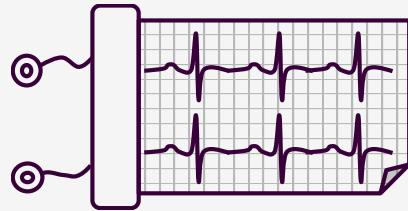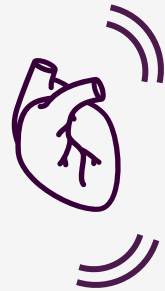Increased readmissions and complications from Lower nurse ratio and arrhythmias

2) Cardiac Monitors

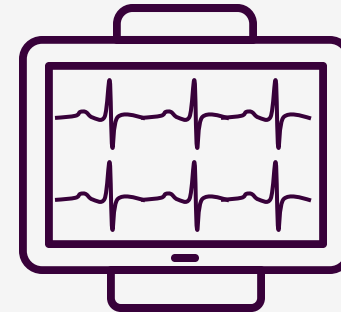*ICU monitors provide confusing information and alarms are inaccurate*

"80%–99% of ECG monitor alarms are false or clinically insignificant."

[1] Atzema C, Schull MJ, Borgundvaag B, Slaughter GR, Lee CK. ALARMED: adverse events in low-risk patients with chest pain receiving continuous electrographic monitoring in the emergency department. A pilot study. Am J Emerg Med. 2006;24:62-67.
[2] Lawless ST. Crying wolf: false alarms in a pediatric intensive care unit. Crit Care Med. 1994;22:981-985.

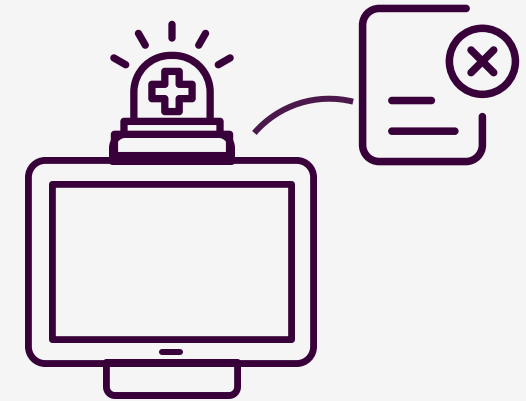**Inaccurate/ Unclear Alarms**

Electrocardiogram (ECG)
Invented in **1895**

Displayed on Bedside Monitor
Same signal invented in **1895**

"We recently tested basic ECG competency and over 50% of our nurses failed. ECG interpretation is a source of extreme anxiety for nursing"
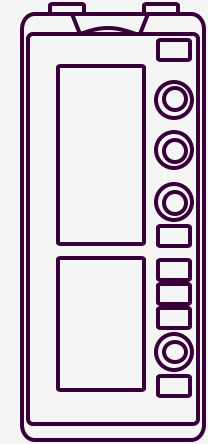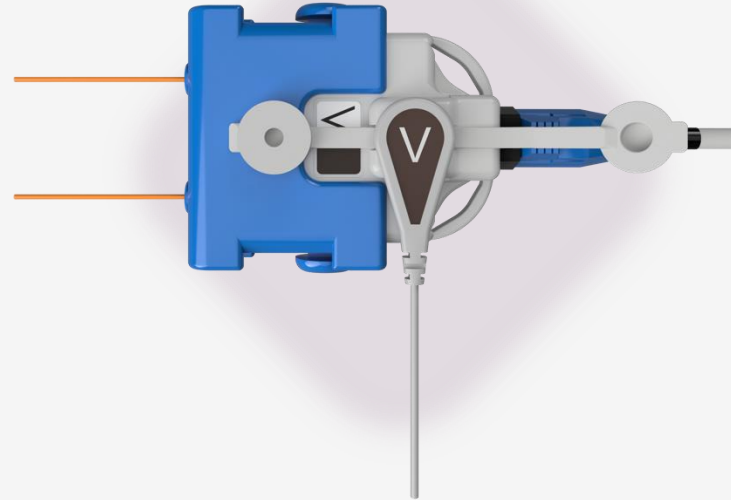
Nurse Educator, Nationally Ranked Children's Hospital

Interpretation requires Expertise

Our Current Technology

The AtriAmp Edge: Direct Cardiac Access – Larger Signals on Bedside Monitor

AtriAmp connects monitor to wires on the surface of the heart that are routinely placed after cardiac surgery for external pacing

Medtronic External Pacemaker

Surface ECG
(from 1895)

AtriAmp ECG

ECG

HR 59

mm

AtriAmp provides signals not seen on previous standard of care

AFib, diagnosed using the AtriAmp

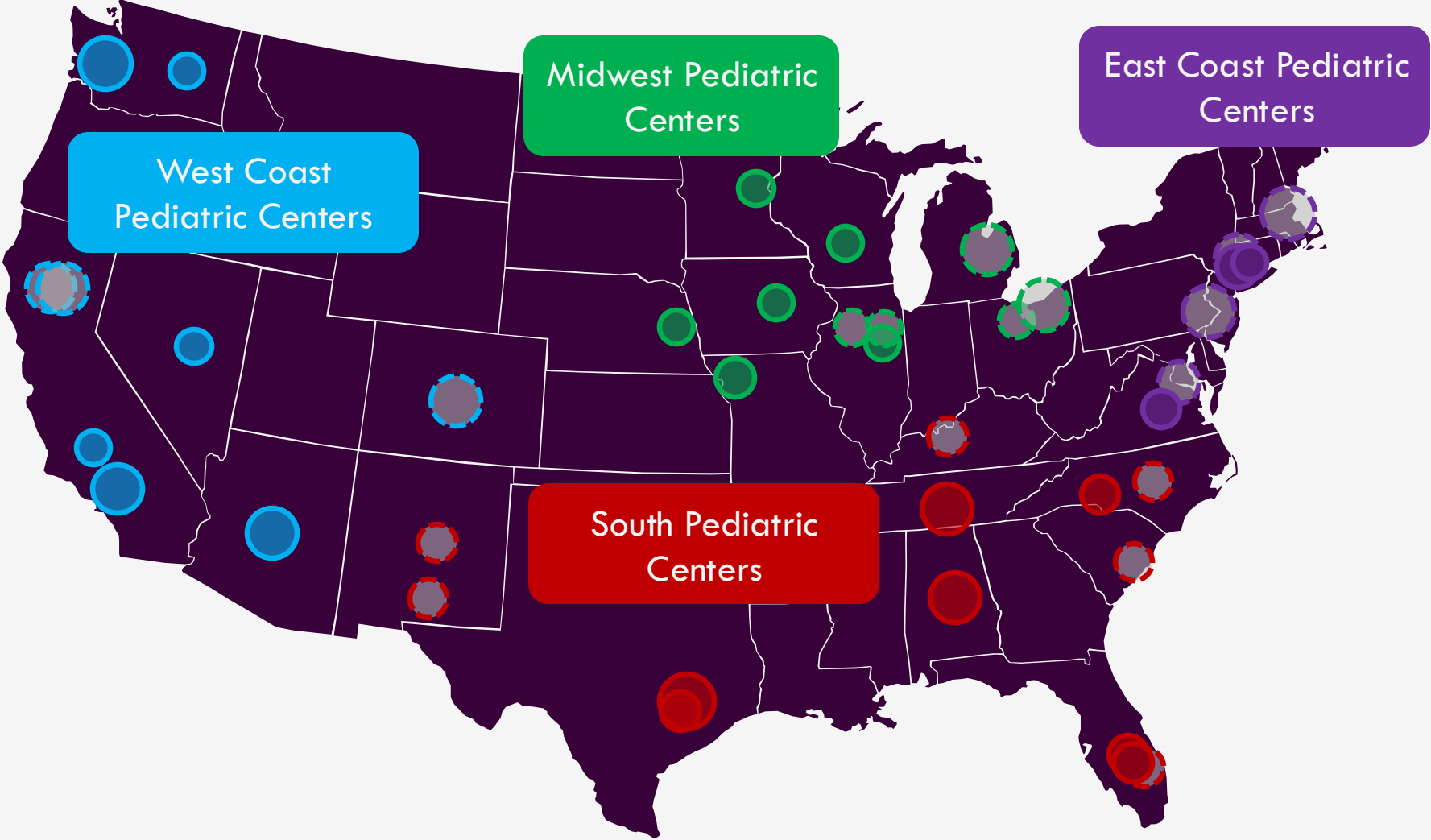# Starting in Pediatrics: The sickest in the hospital

[1]

[2]

Moving to Valve Surgeries and CABG

Atrility is currently partnering with leading adult cardiac surgery institutions to study and publish the benefits of the AtriAmp in valve and CABG procedures

Today, Leading Pediatric Health Systems Nationwide Use The AtriAmp

20% of U.S. Pediatric Hospitals use the AtriAmp

20% of US Pediatric Hospitals in sales pipeline

Midwest Pediatric Centers

East Coast Pediatric Centers

West Coast Pediatric Centers

South Pediatric Centers

- Current Customer
- In Pipeline

Building the future of cardiac monitoring:
Using AtriAmp signal to power unmatched arrhythmia algorithms

✓Continuous waveforms being collected around the US through AtriAmp

✓Customer requests for automated signal labeling

✓Current data stream through a US News Leading Pediatric Center

✓10 additional data partners in progress

✓NSF grant support

Existing Partnerships

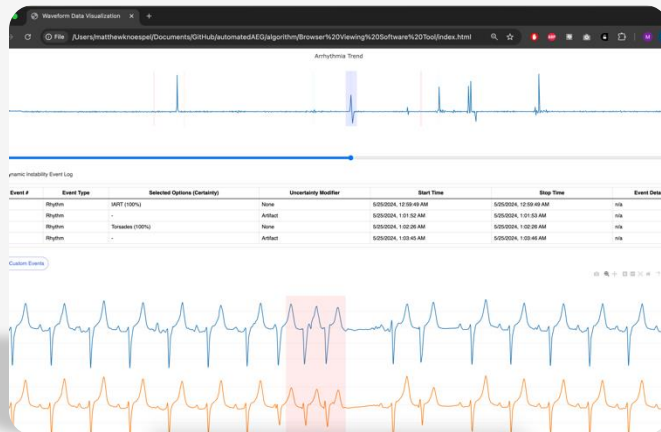Data Partnerships in Progress

**18k hours
of data**

60k hours of data partnerships in progress

Powerful Signal Processing to multiply the value of the AtriAmp while unlocking the key to arrhythmia diagnosis and management

Supervised Machine Learning Algorithm on Automatic Feature Labeling Data Set
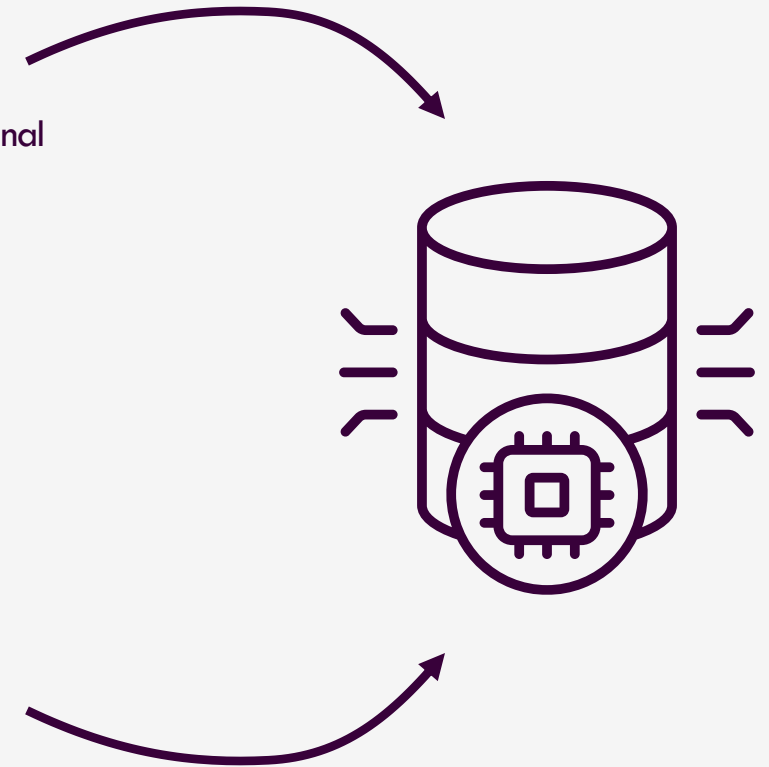
Feature Labeling on Waveform

We automatically label key features with signal analysis techniques that are effective <u>today</u>

Rhythm Management Log

Log features, trends and associated interventions for comprehensive mgmt.
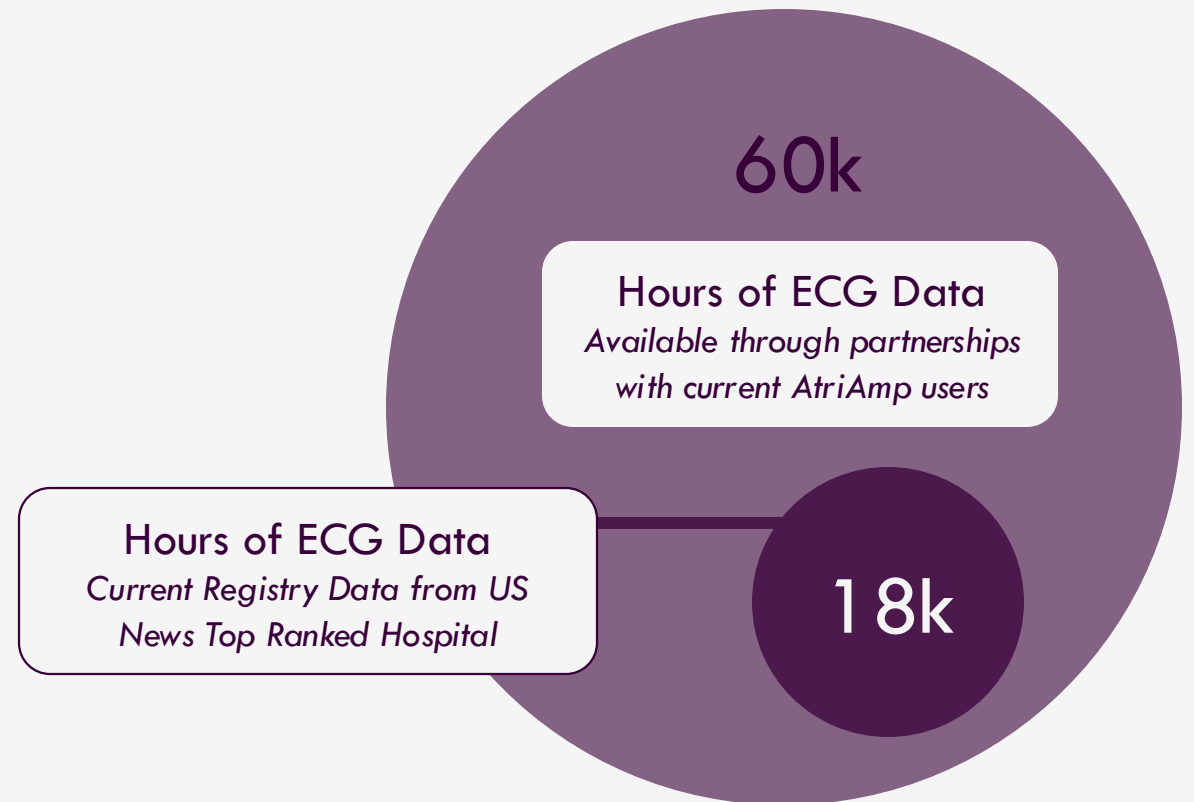
Precision Therapeutic AI Rhythm Model from Management Log

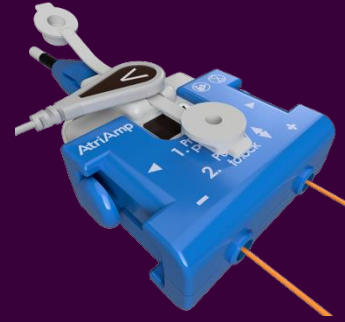# AtriAmp unlocks the ability to automatically label ECG data for advancing ECG machine learning technologies

26k

Minimal progress to-date in developing large datasets of labeled ECG to train models because it requires significant time from clinicians to manually label rhythms

Hours of Labeled ECG Data
Largest Accessible Single-Source ECG Dataset [1][2022]

60k

Hours of ECG Data
Available through partnerships with current AtriAmp users

Hours of ECG Data
Current Registry Data from US News Top Ranked Hospital

18k

High Margin Disposables w/ Direct Cardiac Access

Cardiac Software from Direct Cardiac Access

TAM $1.1B

535,000
US ICU Beds

450,000
US Heart Surgeries

TAM $225M

SAM $50M

100,000
US Valve/Peds Surgeries

SAM $80M

40,000
U.S. CVICU, PICU, NICU beds

Currently Raising $2.5M

Develop Software from AtriAmp Signal with Phase 1 STTR Grant Support

- Fund data partnership grants for acquiring continuous AtriAmp data

- Develop Alpha version of software for 510(k) clearance

- Marketing publication from software clinical validation

Expand AtriAmp Sales into Adult Market

- Fund AtriAmp adult marketing study at leading institution (currently drafting protocol with principal investigator)

Nick Von Bergen, MD
CMO, Co-Founder
Pediatric Cardiac
Electrophysiologist

Phillip Terrien
VP of Operations
Co-Founder

Our Leading Team

Matt Knoespel
VP of Commercialization
Co-Founder

Sara Weber
Director of Business
Development

Mike Bress
CFO

Board of Directors and Advisors

Michael Partsch
Chief Investment Officer
WARF Ventures

Chris Eckstrom
Partner, Rock River
Capital Partners

Elizabeth Hagerman
Chief Innovation Officer
UW Health

Atrility
MEDICAL ®