The Rise to RHYTHMIA HDx: The evolution of cardiac mapping and navigation technology

New advancements in electroanatomical mapping technology have enabled electrophysiologists (EPs) to see rhythm abnormalities like never before.

Early technology

- 1900s-1950s: The first human electrocardiogram (ECG) is recorded on a string galvanometer, marking the beginning of electrocardiography.
- 1970s: The first 2D maps of the heart are produced when an ultrasound beam directed toward the heart is swept back and forth through an organ, generating an image on an oscilloscope.

The advent of combined mapping and navigation

- 1980s-1990s: Catheter ablation safety starts to improve with combined mapping and navigation systems, allowing more accurate real-time data and improved outcomes. Pioneering engineers design a series of firsts in the field:
  - 1988: The first human use of intracardiac electroanography (ICG) during electrophysiological cardiac catheterization.
  - 1993: The CARTO™ electroanatomical mapping system is introduced, offering the first picture of heart anatomy and electrical activity in 3D.
  - 1995: The LocaLisa™ 3D and EnSite™ imaging systems are introduced, enabling catheter localization in real-time.

From standard definition to high definition

- 2000-2004: Pioneering engineers drive a series of firsts in the field:
  - 2004: The RHYTHMIA™ Mapping System is introduced, combining the two technologies to improve mapping speed and accuracy.
  - 2005: The CARTO™ XTi system is released, offering faster mapping capability.
  - 2006: The CARTO™ XTi system receives FDA approval.

2012-present

- More than 70 data publications support and reinforce the clinical utility of the RHYTHMIA Mapping System hardware, catheters, and software to comprehensively and accurately map even the most complex arrhythmias.

2014-2016: The innovation of those software updates for the RHYTHMIA Mapping System provide physicians with high-definition and high-sensitivity imaging with consistency and speed.

2017 and beyond

RHYTHMIA HDx is the innovative new platform built for scalability, optimized workflow and maximum efficiency and includes the same high-quality, 25X faster mapping capability and 99.98% annotation accuracy as its predecessor.

References

- 12: Endocardial Solutions, Inc. Endocardial Solutions Announces FDA Approval of EnSite NavX(TM) [press release]. Published April 22, 2003.