

29th Two Days in Cardiology

Cardiovascular Disease 2030
Predicting the next decade : ARRHYTHMIA

Charn Sriratanasathavorn, MD
Siriraj Hospital, Mahidol University



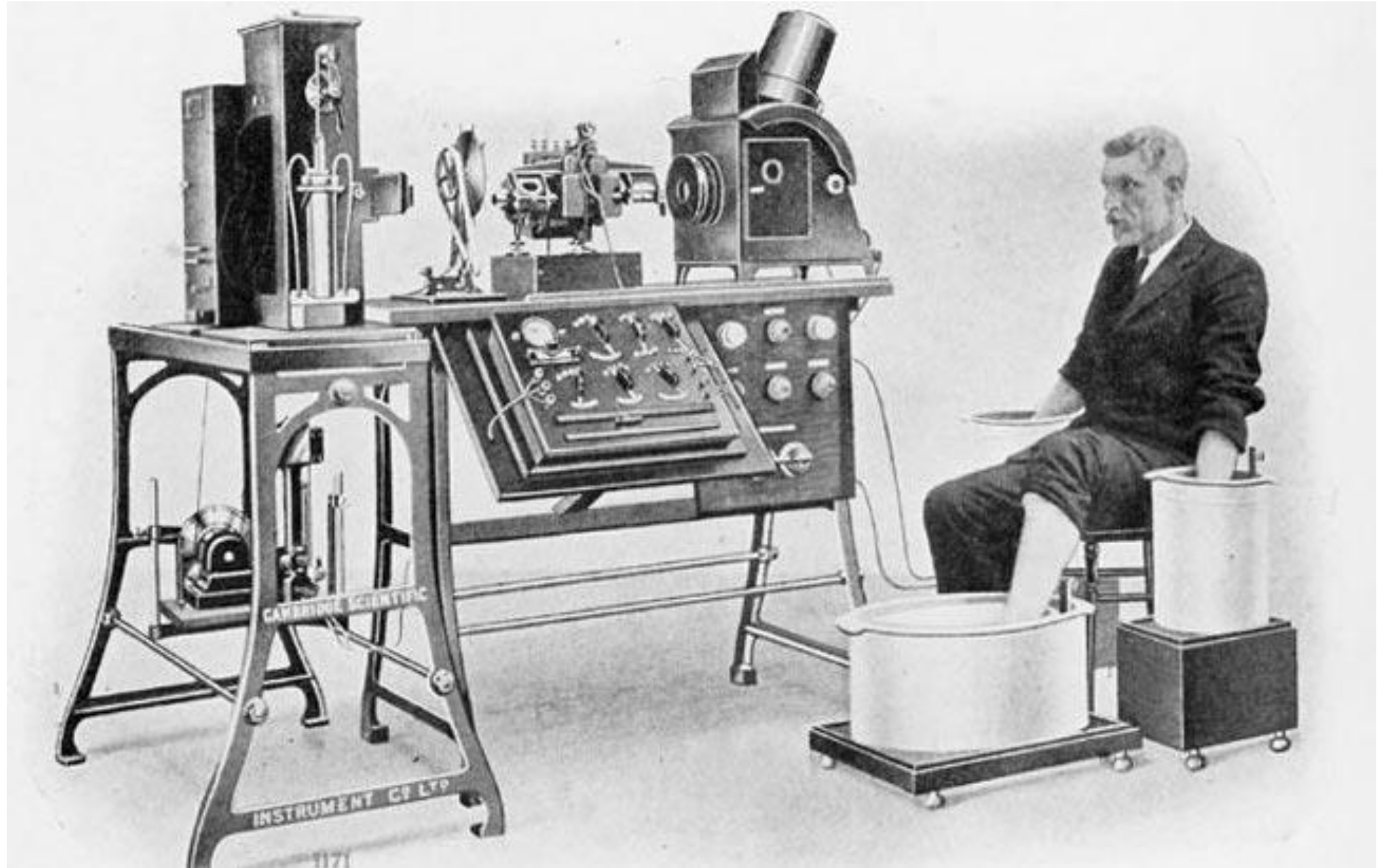
Cardiovascular Disease 2030

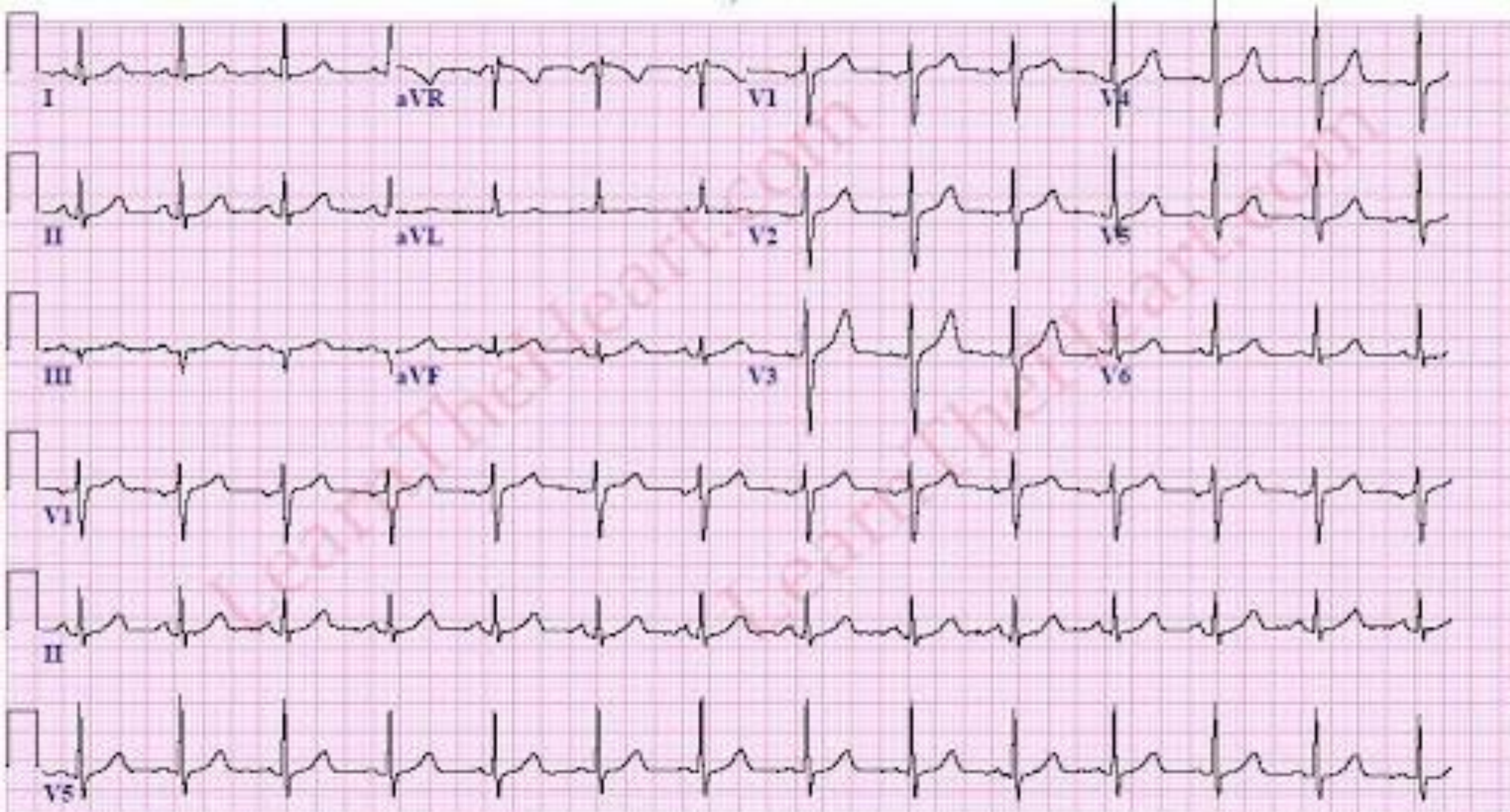
Predicting the next decade : Arrhythmia

- Screening, Detection and Monitoring

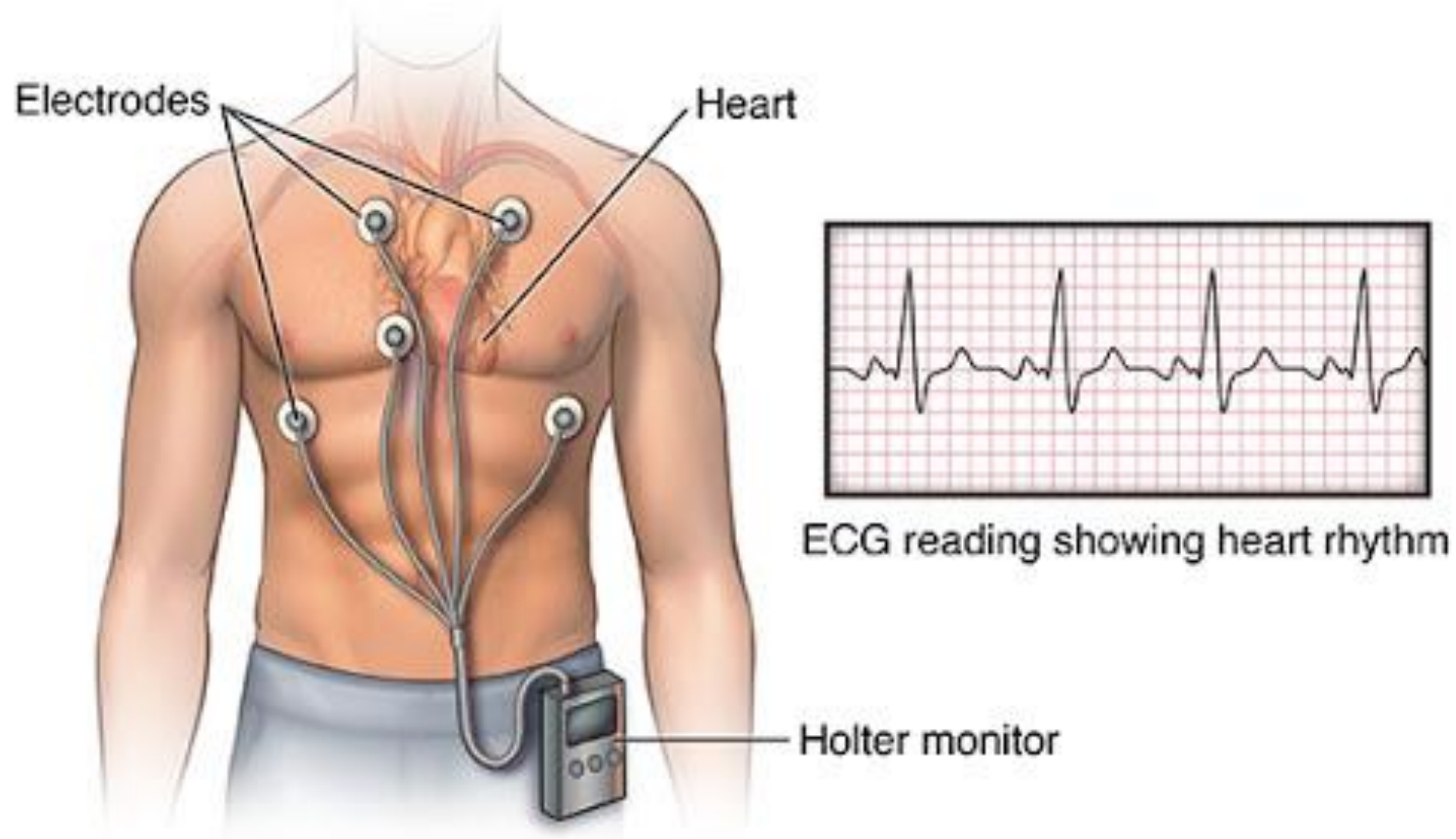


Einthoven : recording of a patient using 3 standard leads





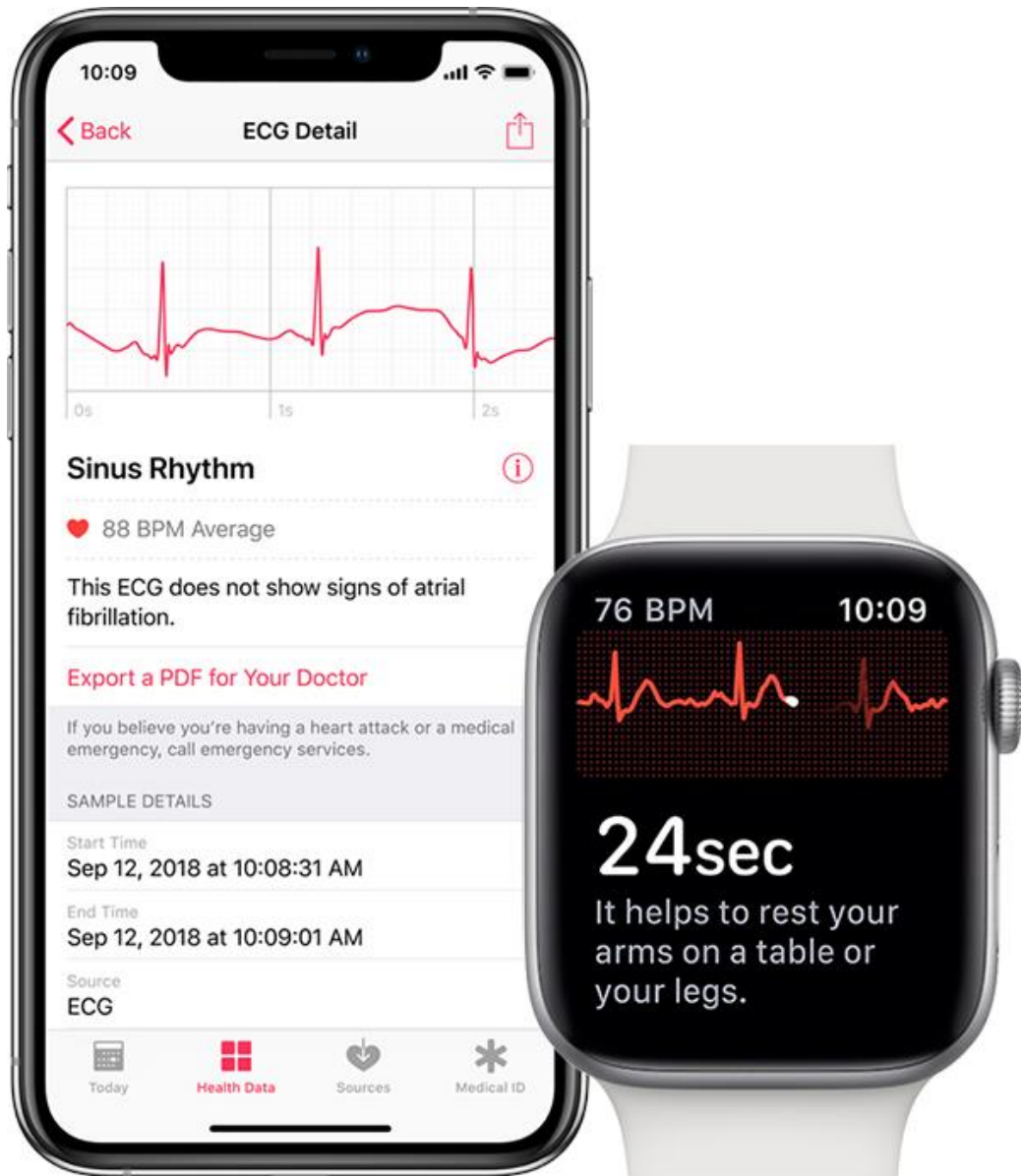
Holter monitor with ECG reading

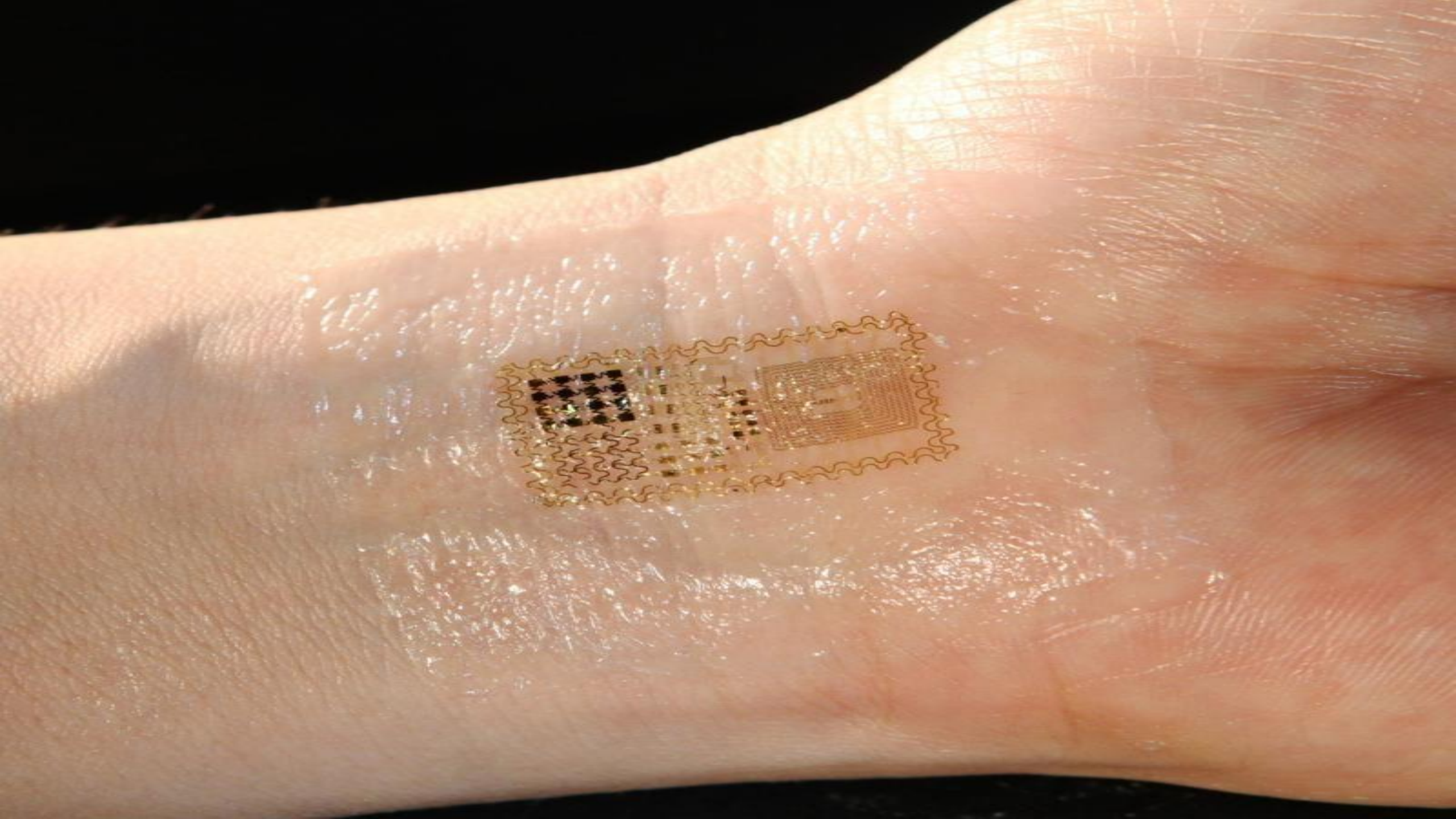


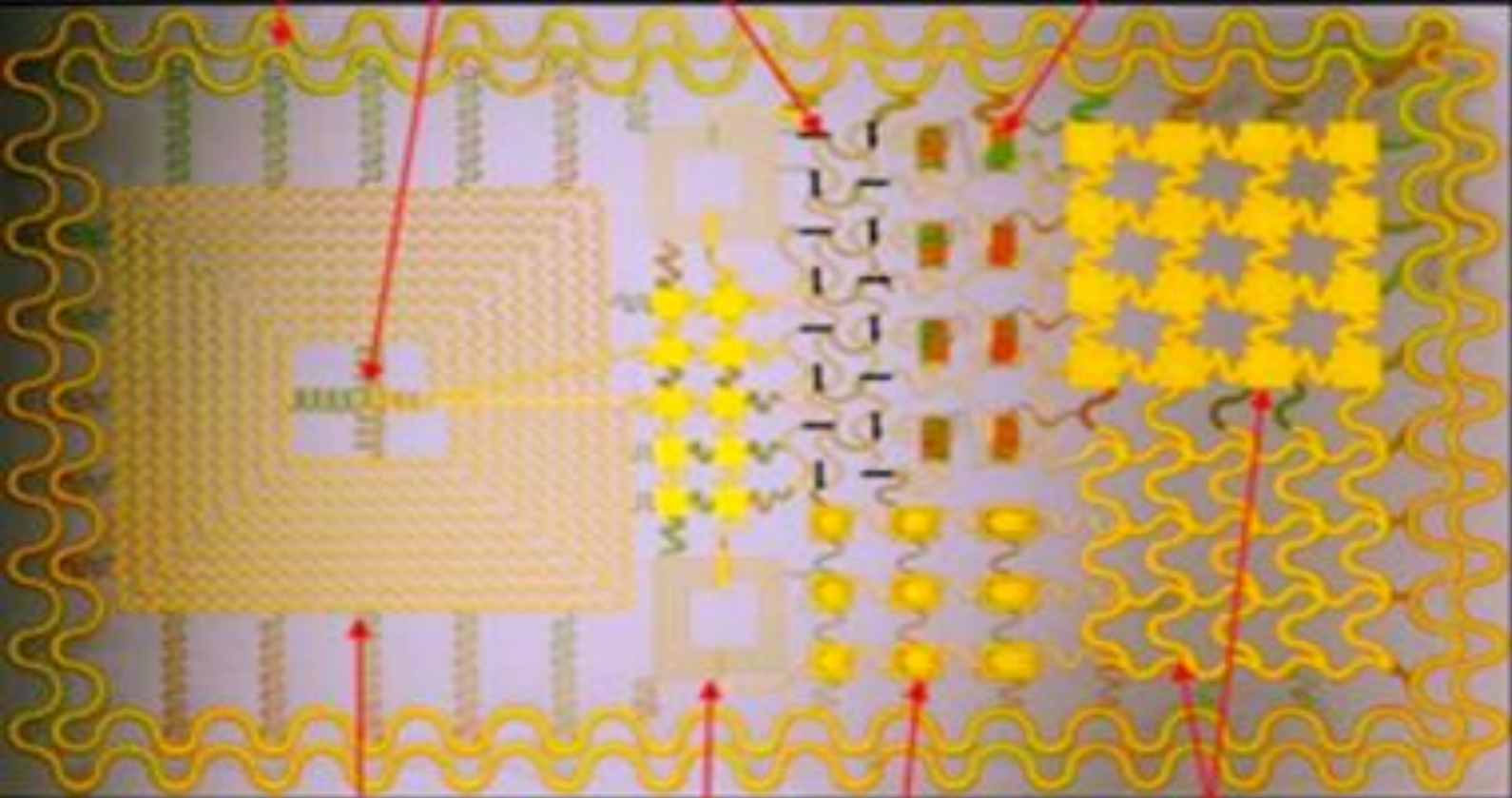




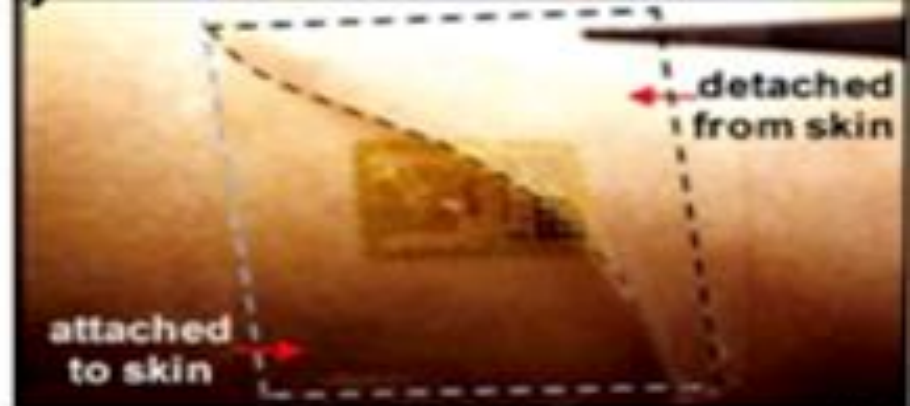




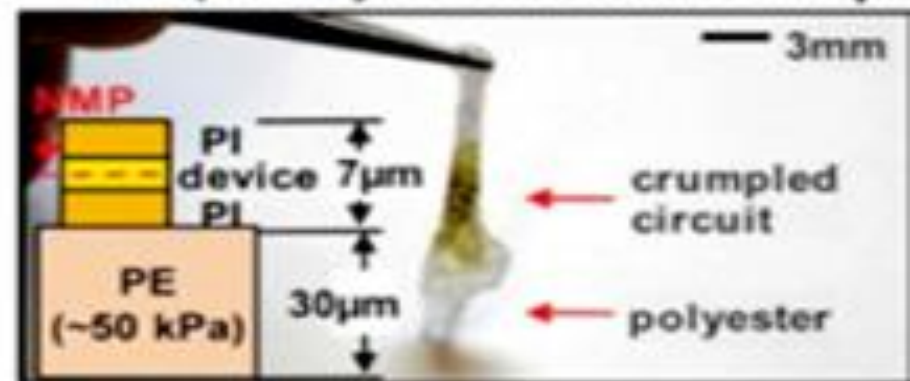




wireless power coil RF coil RF diode ECG/EMG sensor



after partially detach from the skin



after fully detach from the skin

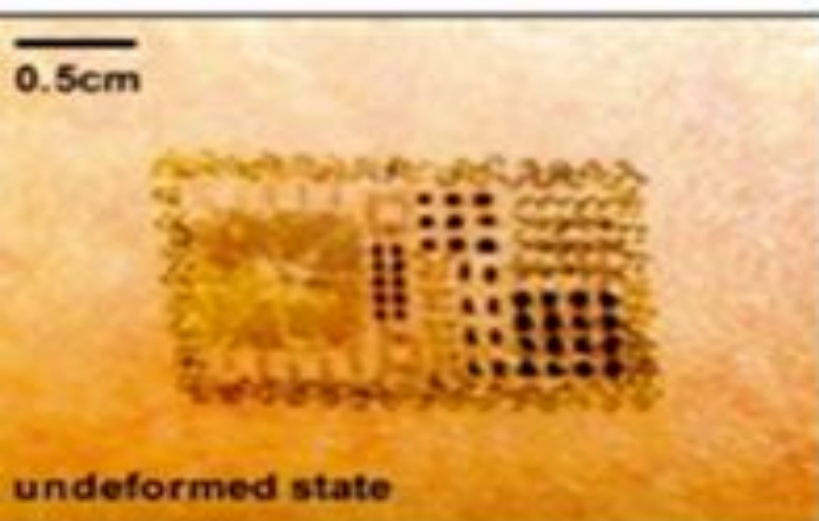
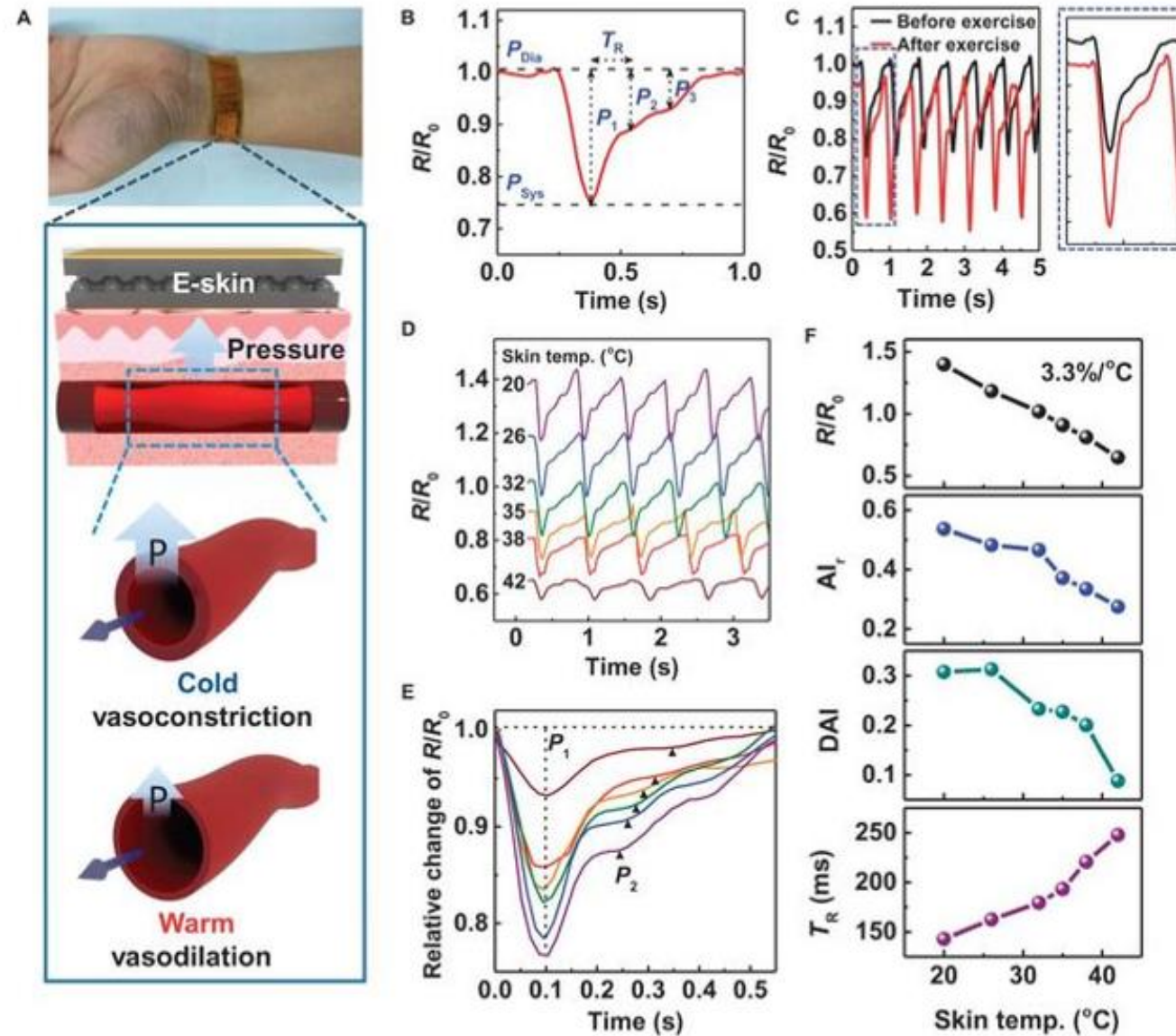
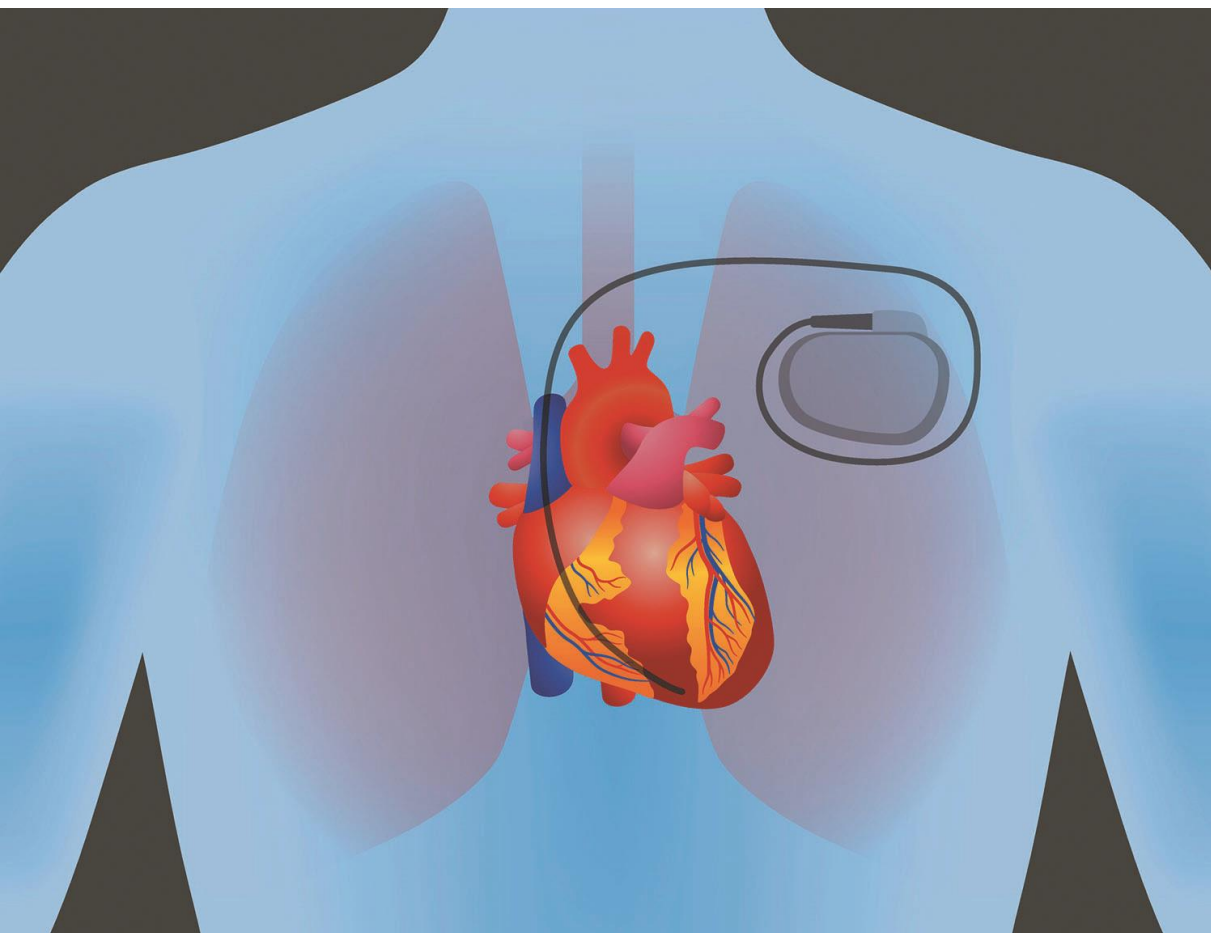


Fig. 4 Piezoresistive e-skin with interlocked microdome array for simultaneous monitoring of artery pulse pressure and temperature.





CareLink Monitor



Cardio Messenger II-S

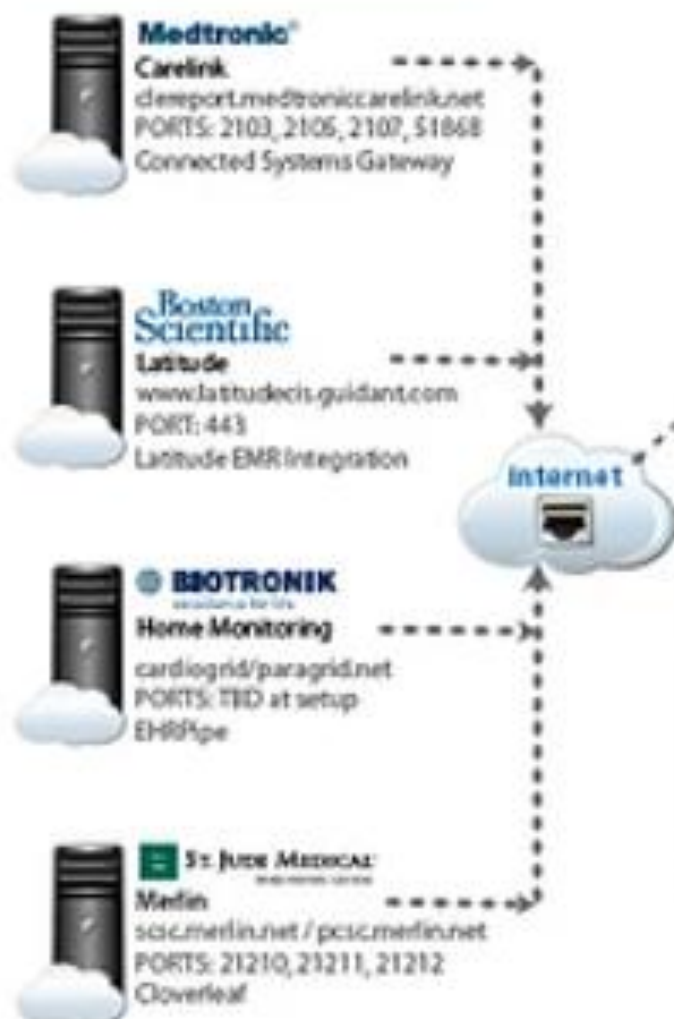


LATITUDE communicator

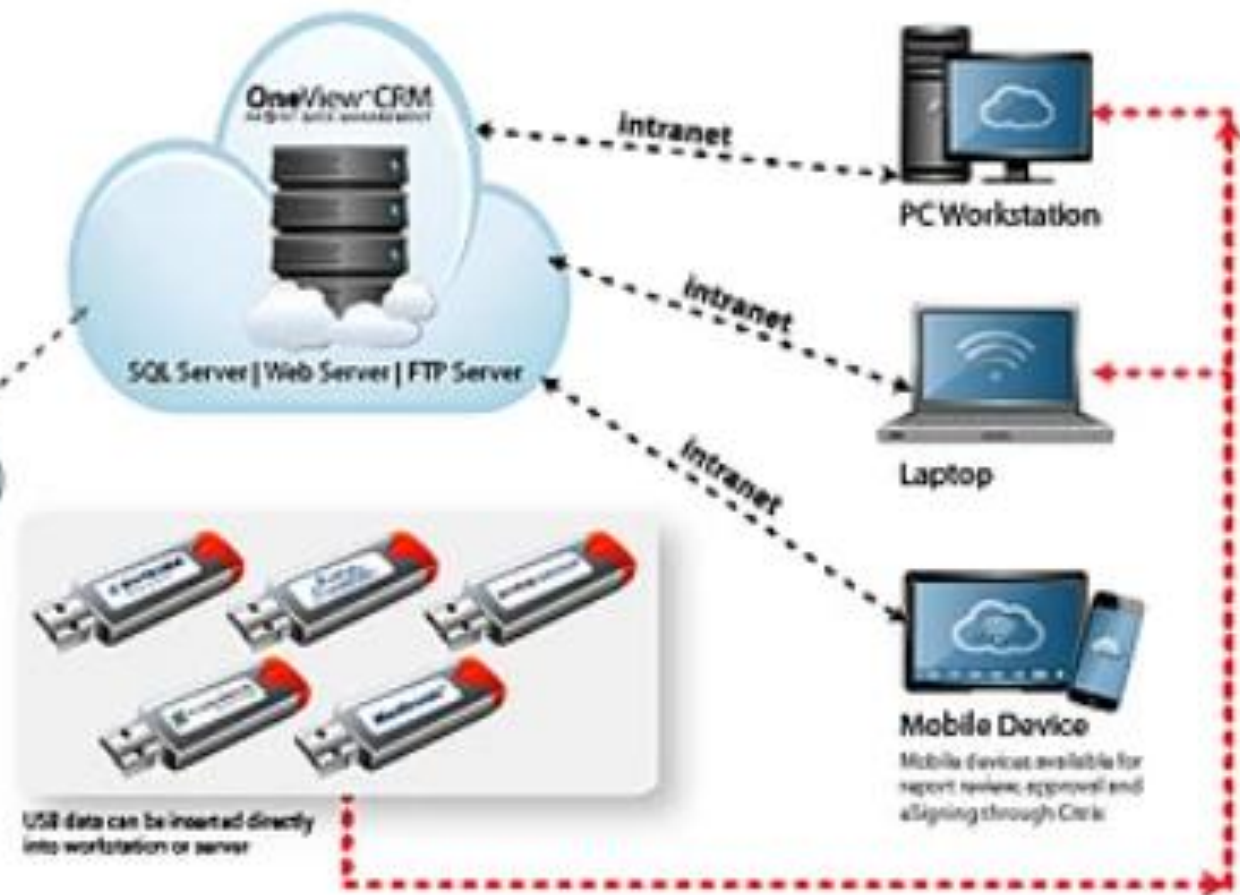


Merlin@Home

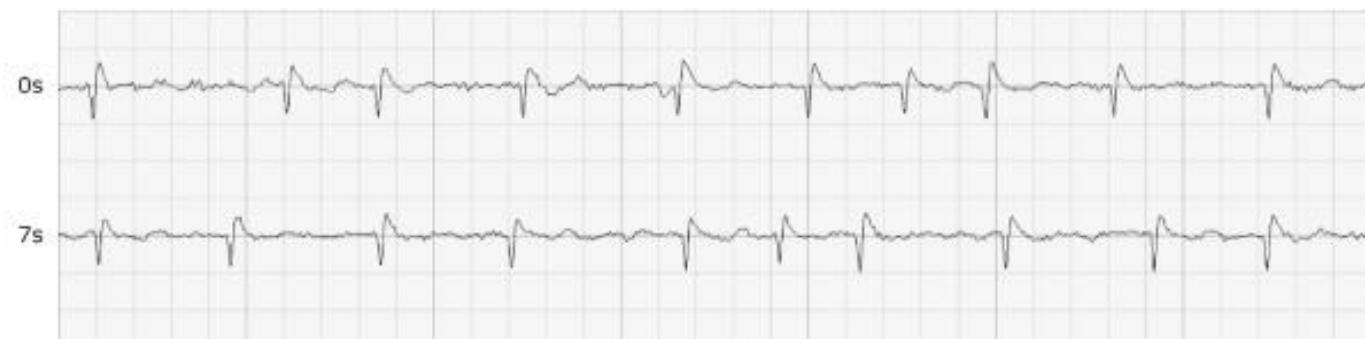
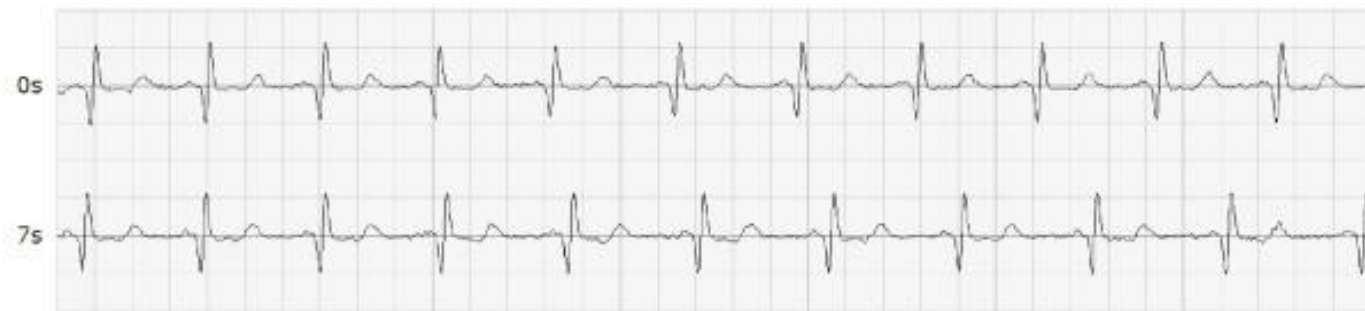
Remote Device Monitoring



In-Clinic Programmer Checks







EDUCARE

HeartLogic Heart Failure Diagnostic Learning Center

www.HeartLogictraining.com

Learn about HeartLogic, which was validated in the MultiSENSE Study to detect the **early warning signs of worsening heart failure** by combining data from **5 physiologic sensors into a single composite index**.

Learnings include:

- A 1-hour CEU interactive training program covering
 - Key takeaways from the MultiSENSE study
 - HeartLogic overview
 - Configuring HeartLogic within LATITUDE™ NXT
 - Managing HeartLogic Alerts
- Videos
- Links to available resources
- FAQs
- Submit your own case study

The screenshot shows the EDUCARE HeartLogic™ Heart Failure Diagnostic Training website. The header includes the EDUCARE logo, the title 'HeartLogic™ Heart Failure Diagnostic Training', and the Boston Scientific logo with the tagline 'Advancing science for life™'. A navigation bar contains links for CE TRAINING, VIDEOS, WORKBOOKS, RESOURCES, and FAQ. The main content area features a large pink box with the text: 'Worsening heart failure may be associated with a decrease in the activity level or a low level of activity.' To the right is a white box with a bar chart icon and the text: 'Activity reflects overall patient status and fatigue.' Below these are two blue boxes. The 'Image Atlas' box shows two HeartLogic device images and a 'Launch' button. The 'HeartLogic Game' box shows a game wheel and a 'Play Now' button.

EDUCARE HeartLogic™ Heart Failure Diagnostic Training

Boston Scientific Advancing science for life™

CE TRAINING VIDEOS WORKBOOKS RESOURCES FAQ

Worsening heart failure may be associated with a decrease in the activity level or a low level of activity.

Activity reflects overall patient status and fatigue.

Image Atlas

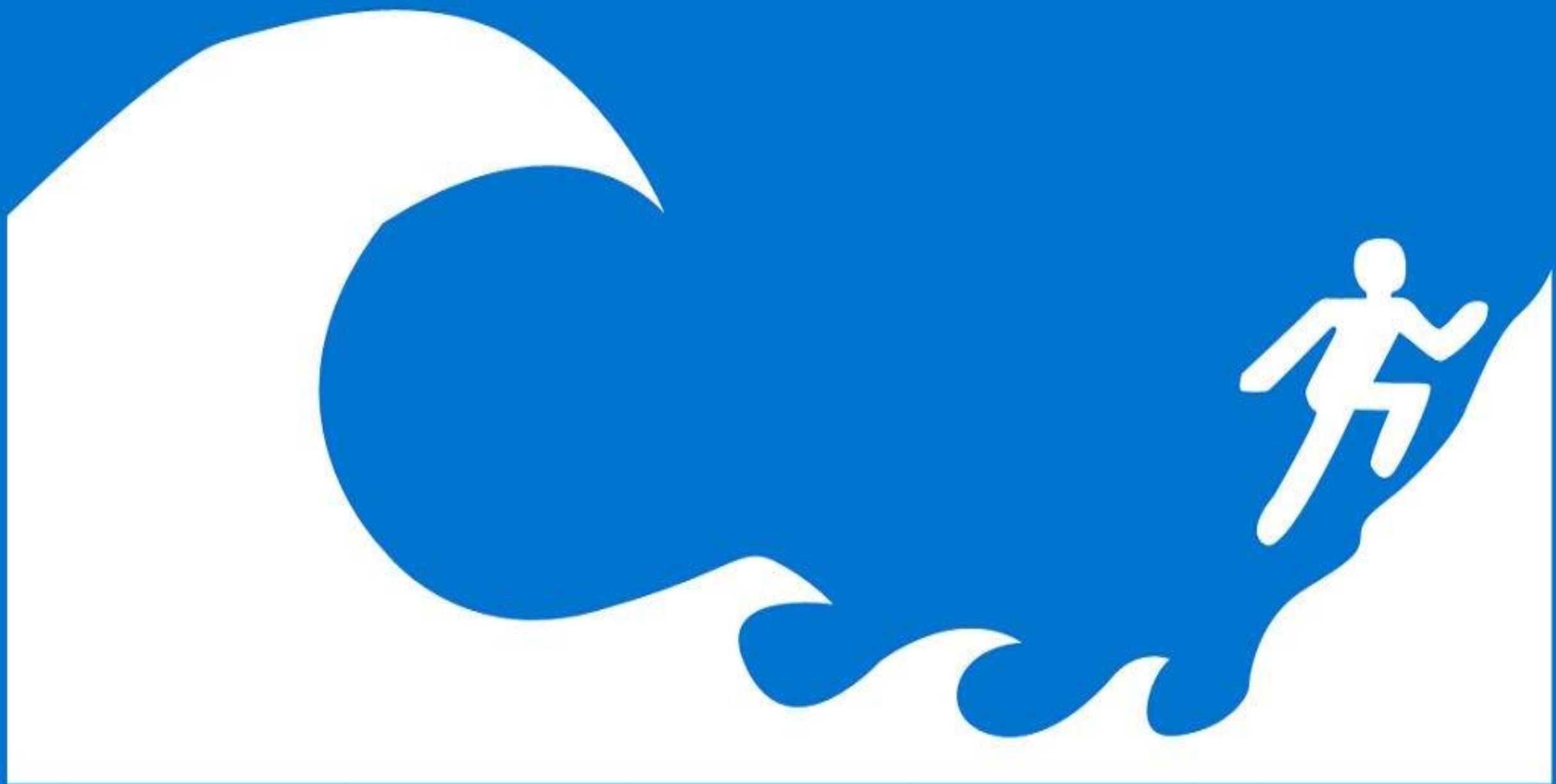
Looking for an image for your presentation? Check out the Image Atlas.

Launch

HeartLogic Game

Test your knowledge by spinning the big wheel and answering questions.

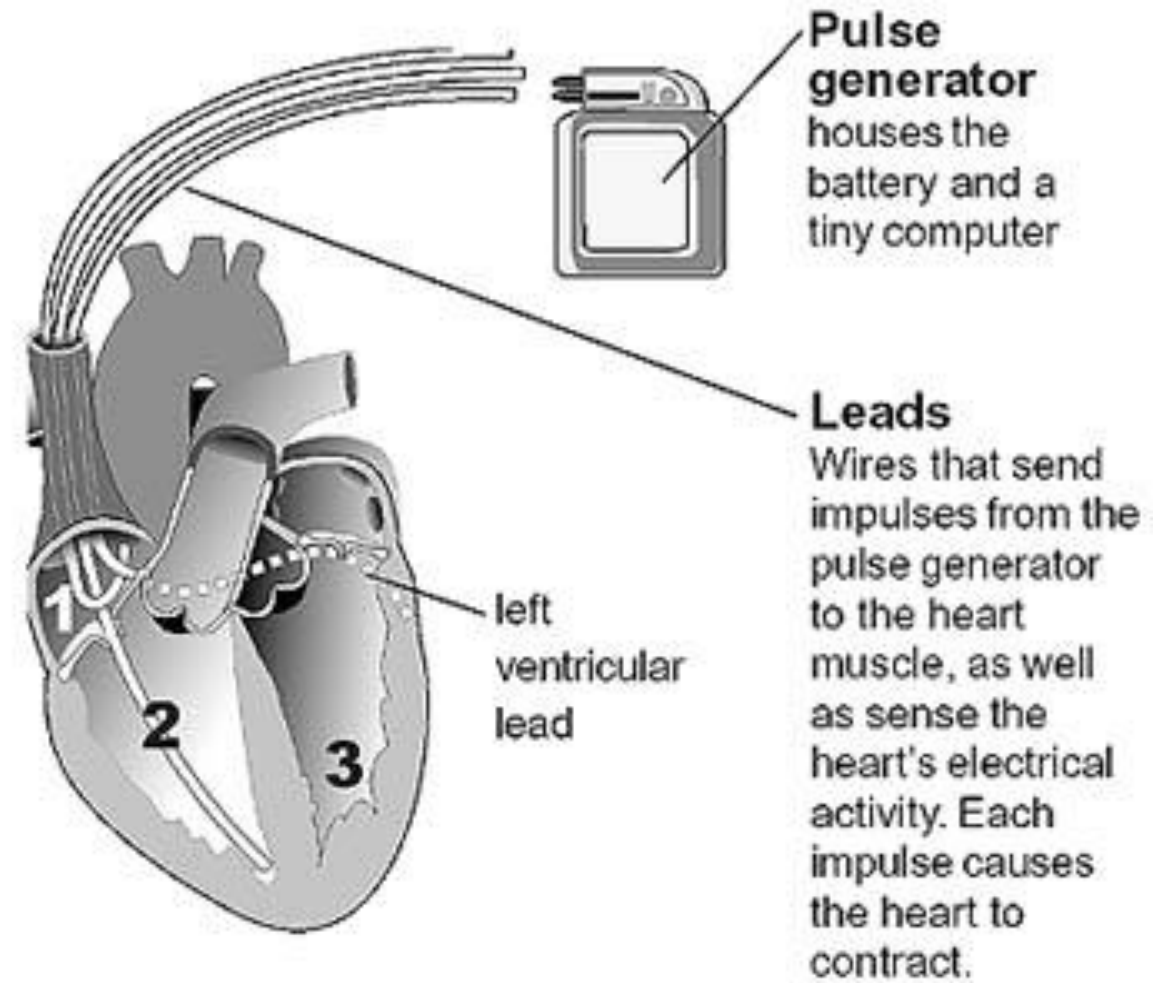
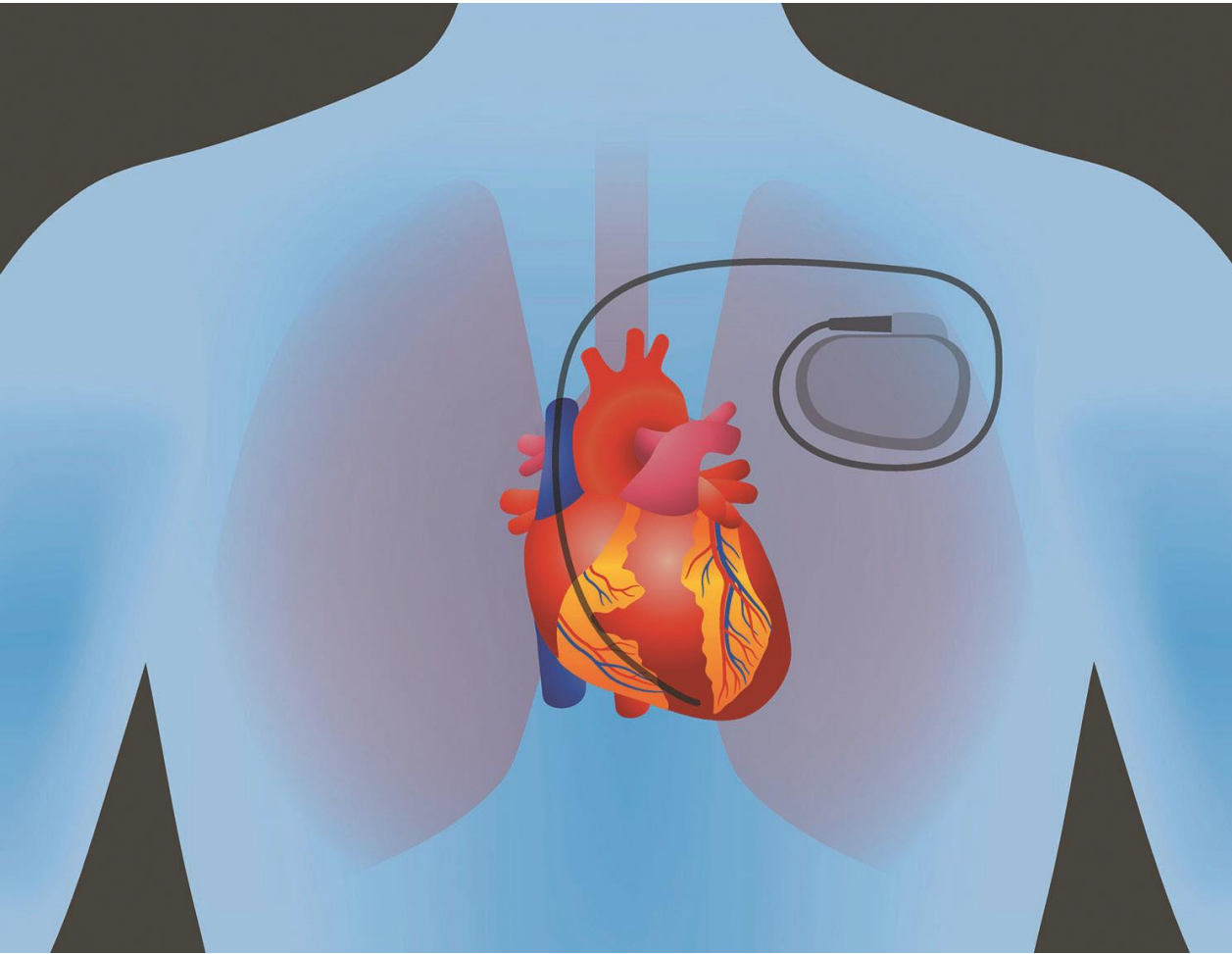
Play Now



Cardiovascular Disease 2030

Predicting the next decade : Arrhythmia

- Screening, Detection and Monitoring
- Cardiovascular Implantable Electronic Devices (CIED)





5800
First External
Pacemaker

1958



5858
Pediatric Asynchronous
Pulse Generator

1970



Activitrax®
Rate response

1986



MicroMinix®
Radically
smaller size

1990



Thera®
1st Micro-
processor-based,
Mode switching

1995



EnPulse®
Full automaticity

2004



RevoMRI®
1st MRI-
Conditional

2011

1960
First Implantable
Pacemaker

Chardack - Greatbatch



1979

Byrel®

1989
Dual chamber
rate response

Synergist™



1991

Elite™



1998
Rate response via activity
& minute ventilation

Kappa®



2006
MVP, Full
automaticity

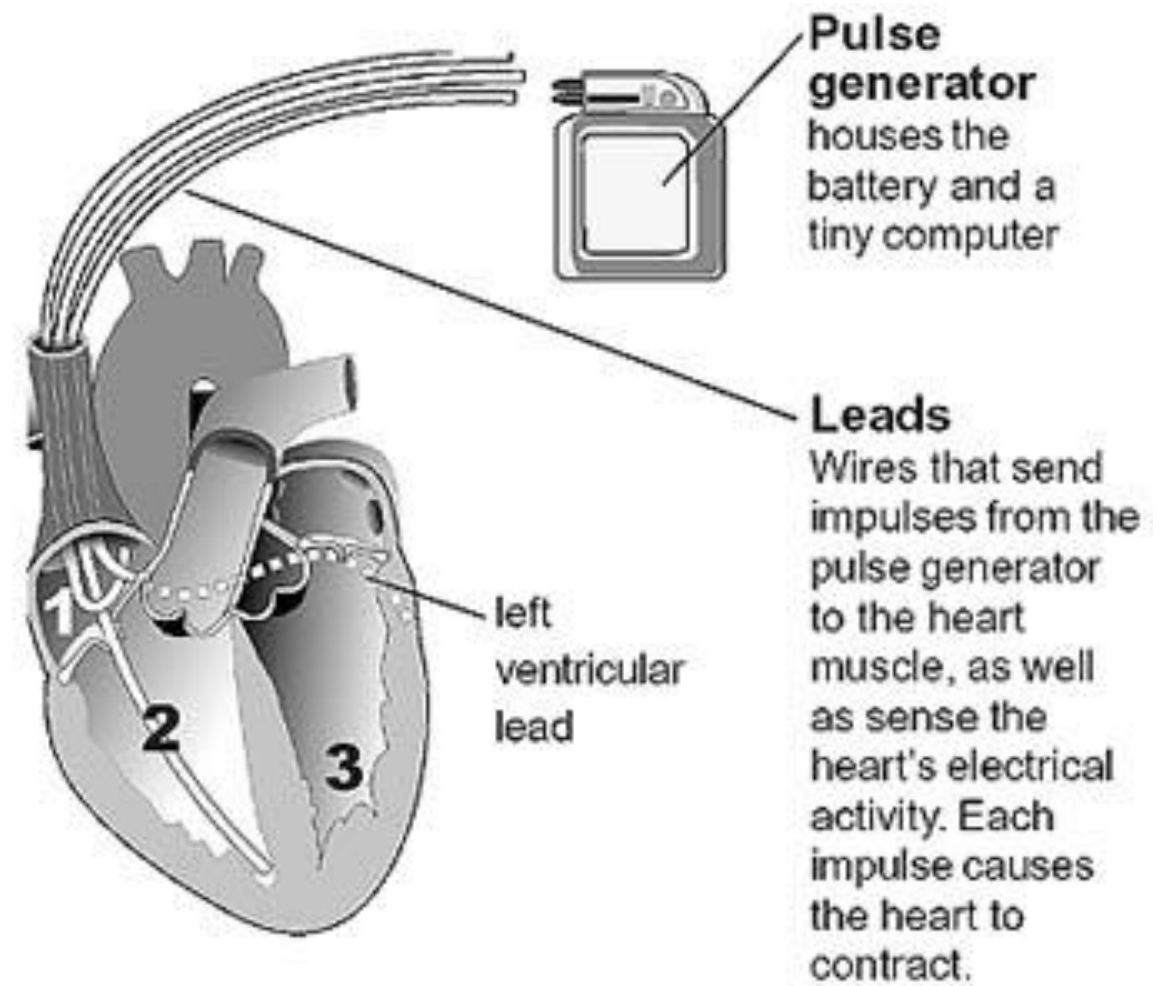
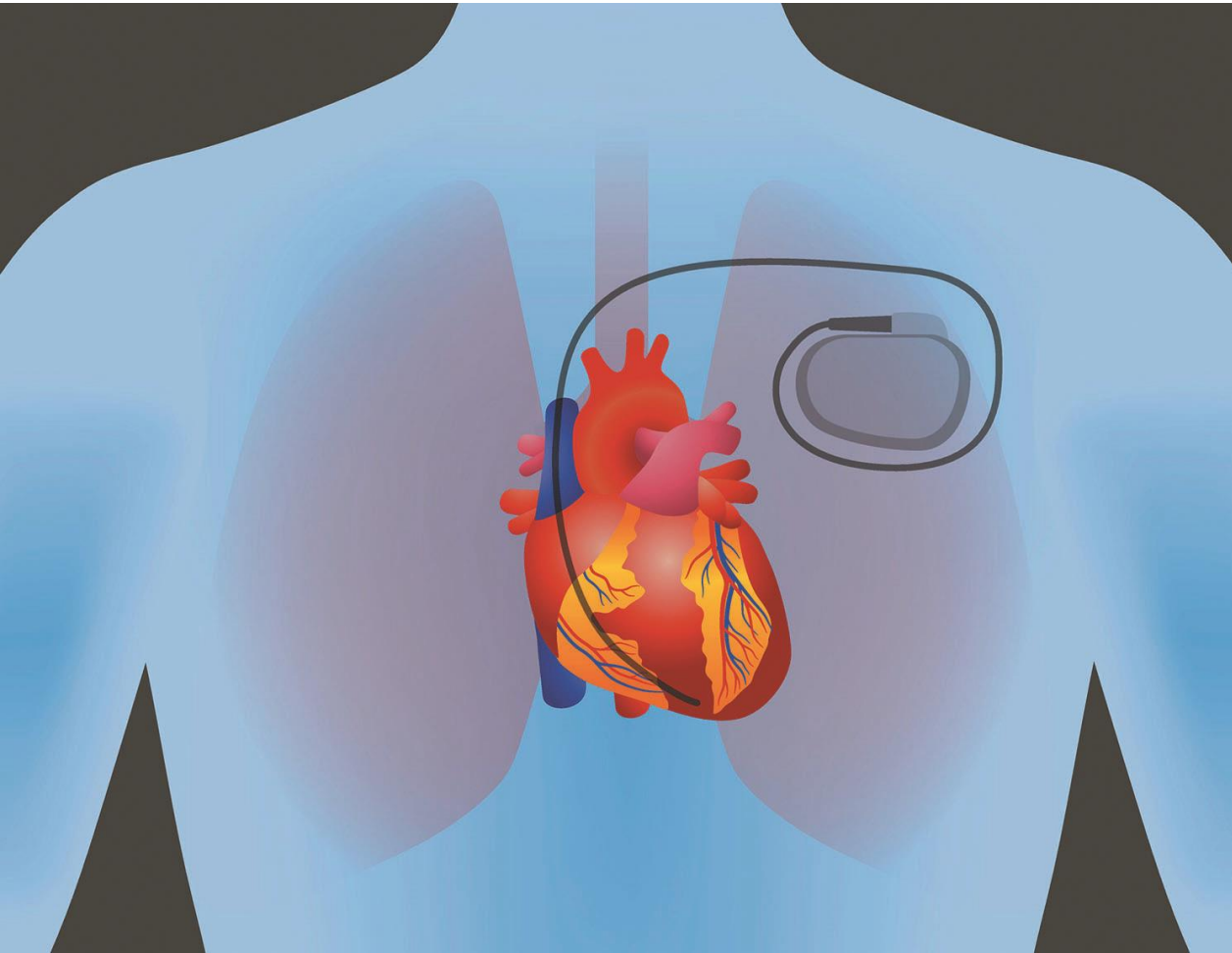
Adapta™



2013
2nd MRI-
Conditional

AdvisaMRI®







5800
First External
Pacemaker

1958



5858
Pediatric Asynchronous
Pulse Generator

1970



Activitrax®
Rate response

1986



MicroMinix®
Radically
smaller size

1990



Thera®
1st Micro-
processor-based,
Mode switching

1995



EnPulse®
Full automaticity

2004



RevoMRI®
1st MRI-
Conditional

2011



Micra™
Transcatheter
Pacing System

2015

1960
First Implantable
Pacemaker

Chardack - Greatbatch



1979

Byrel®

1989
Dual chamber
rate response

Synergist™



1991

Elite™



1998
Rate response via activity
& minute ventilation

Kappa®



2006
MVP, Full
automaticity

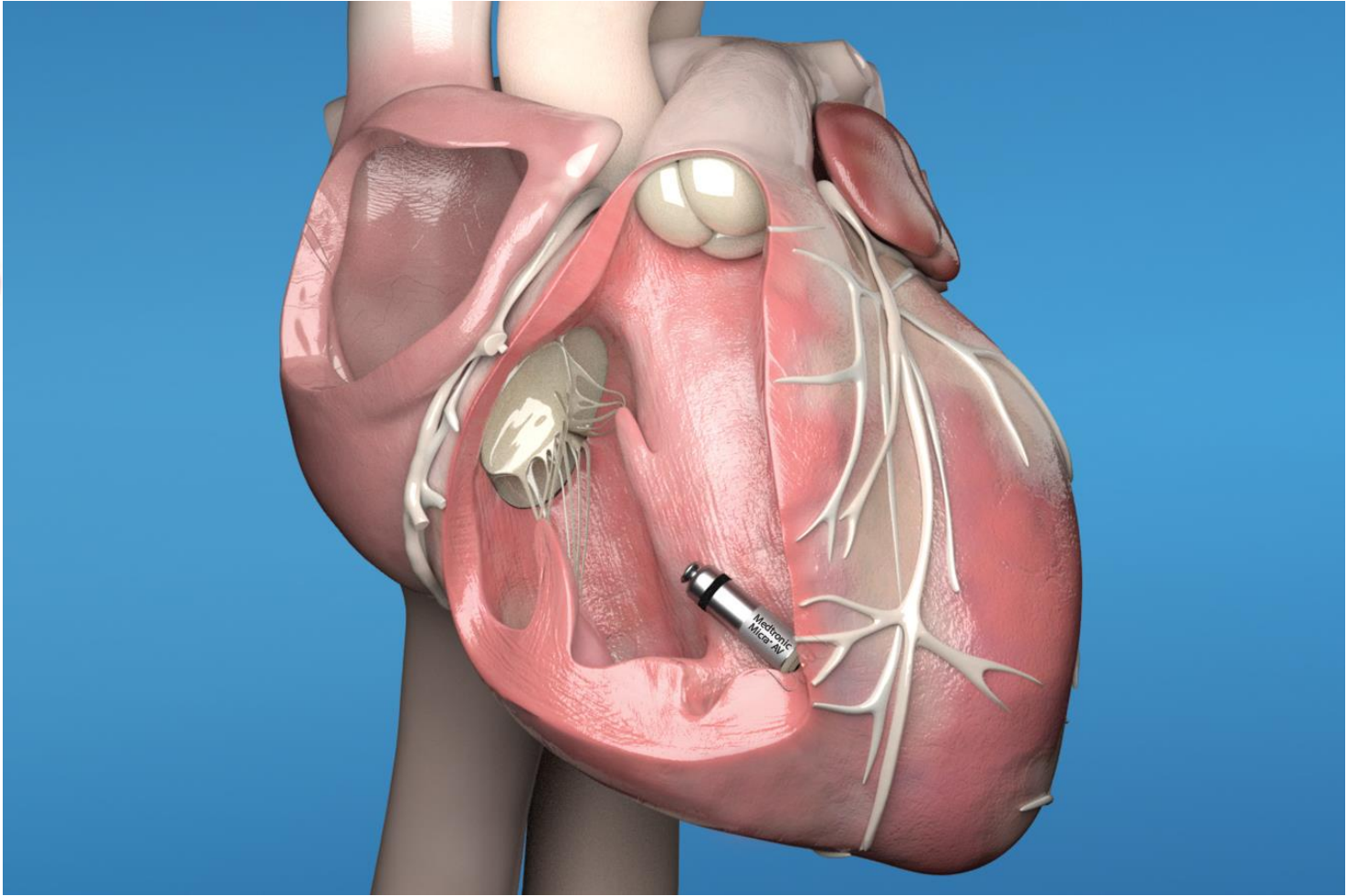
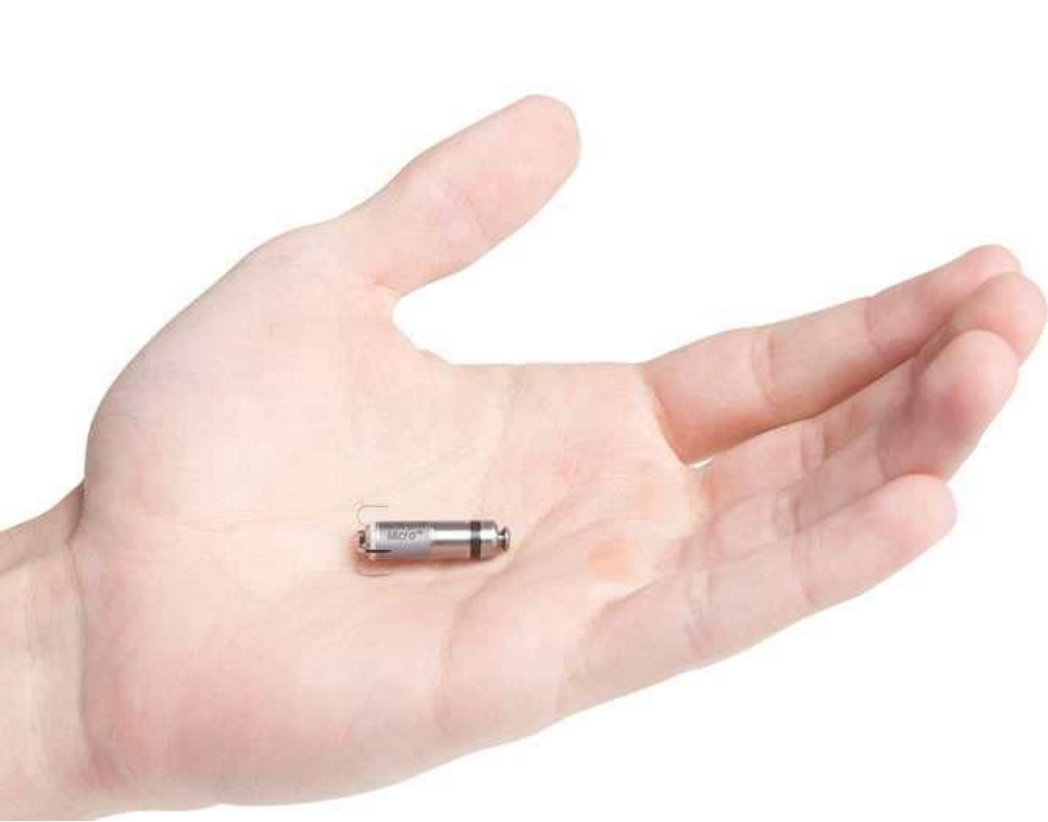
Adapta™



2013
2nd MRI-
Conditional

AdvisaMRI®

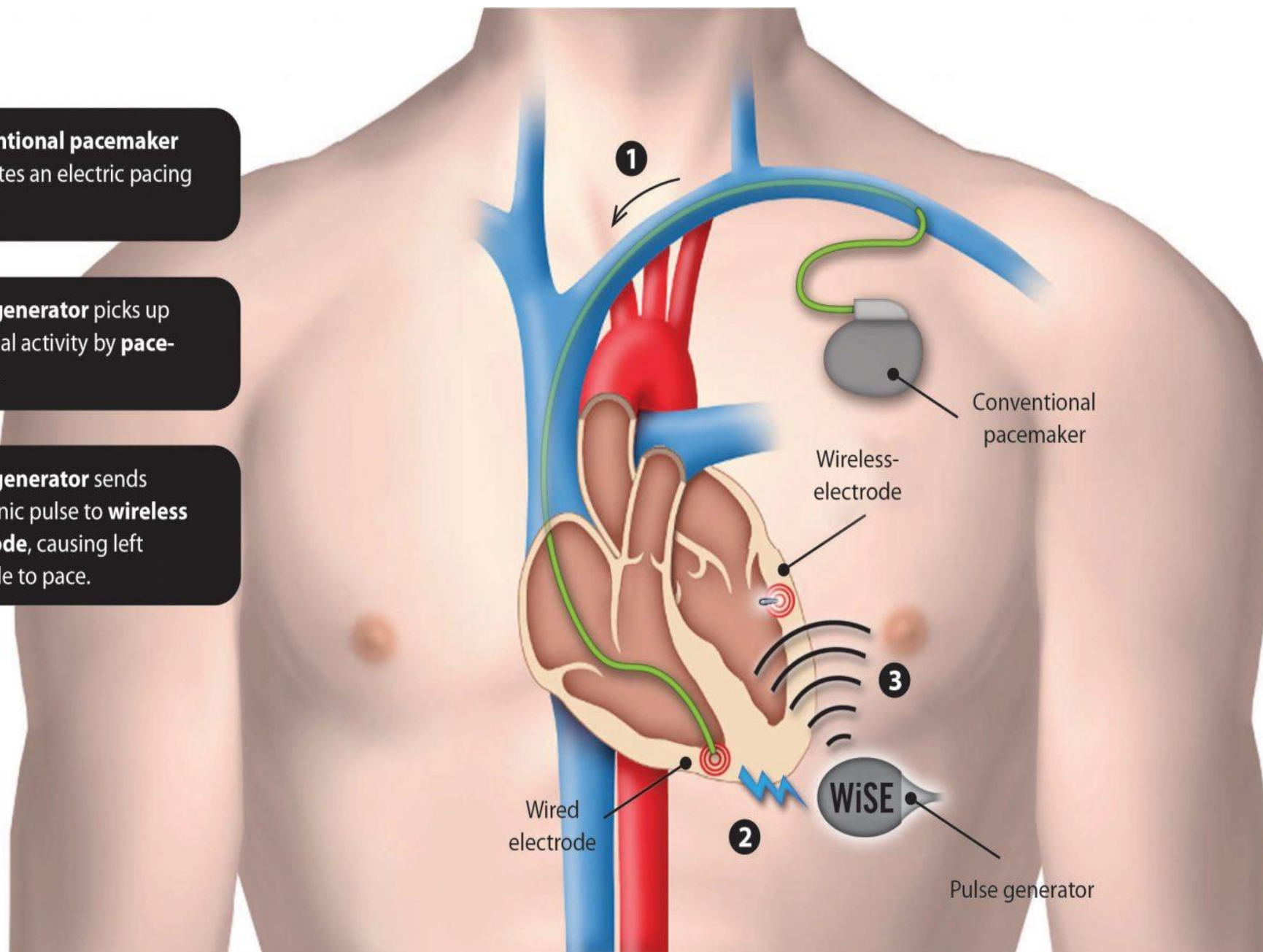


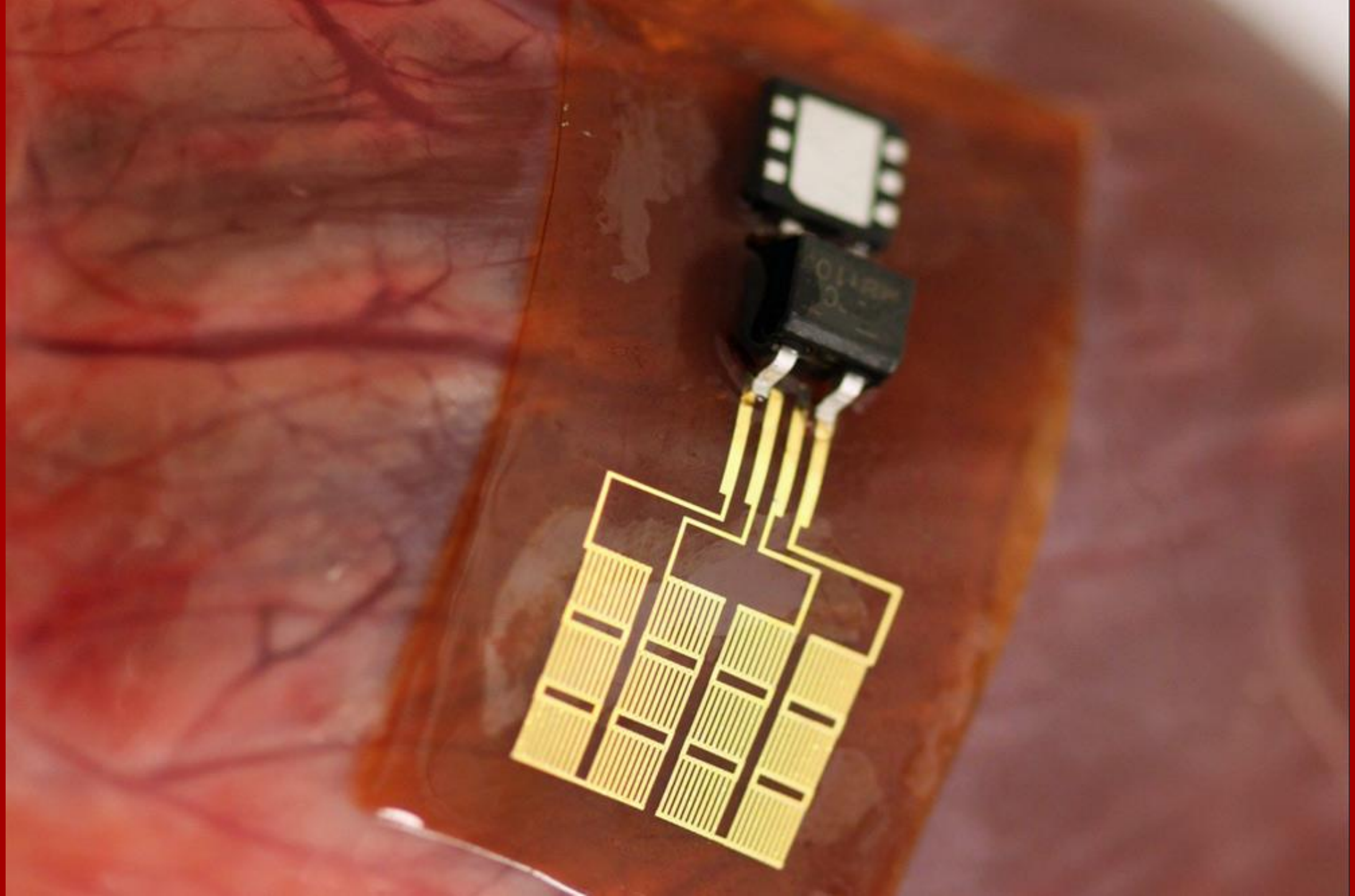


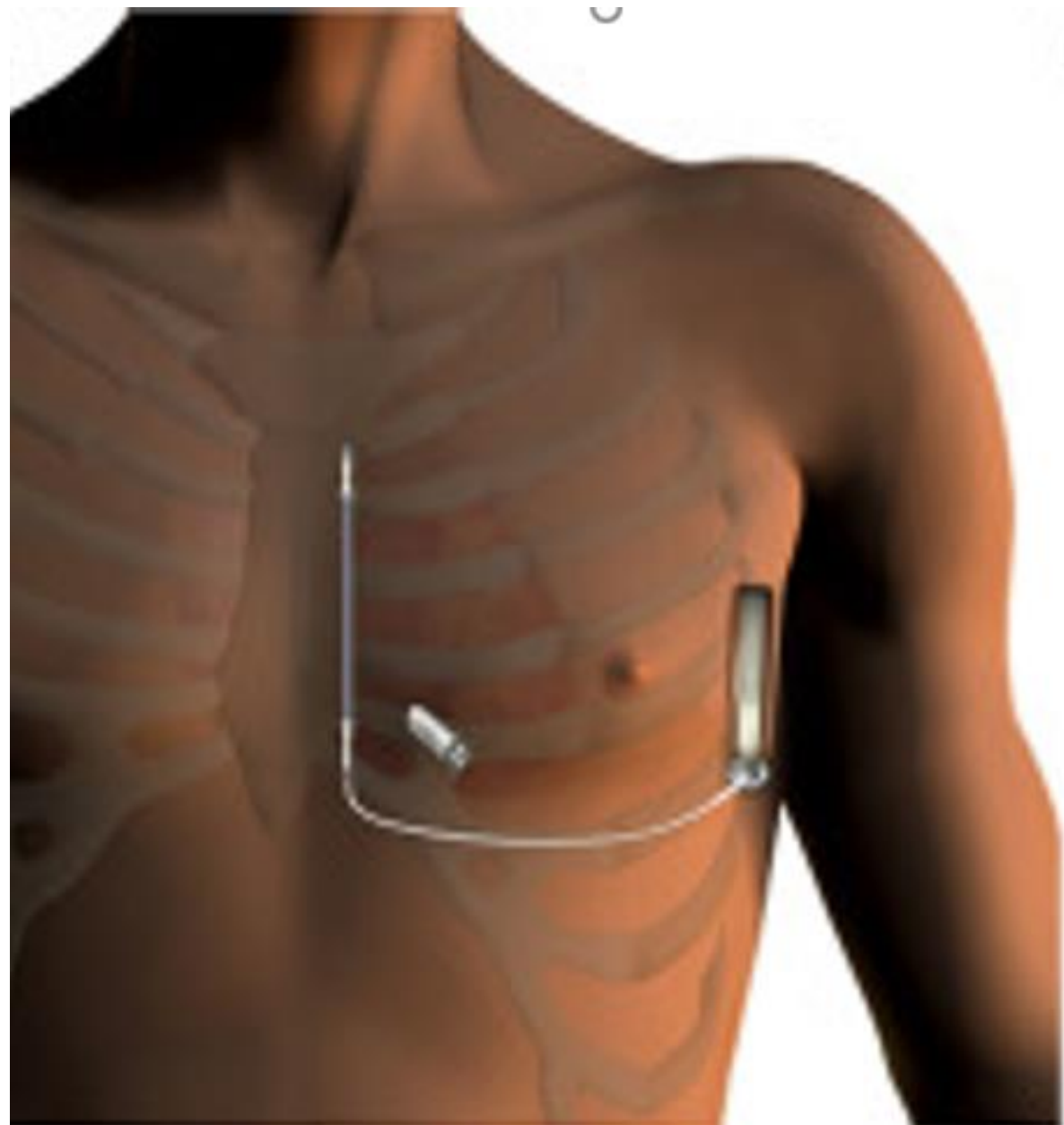
1 **Conventional pacemaker** generates an electric pacing pulse.

2 **Pulse generator** picks up electrical activity by **pace-maker**.

3 **Pulse generator** sends ultrasonic pulse to **wireless electrode**, causing left ventricle to pace.



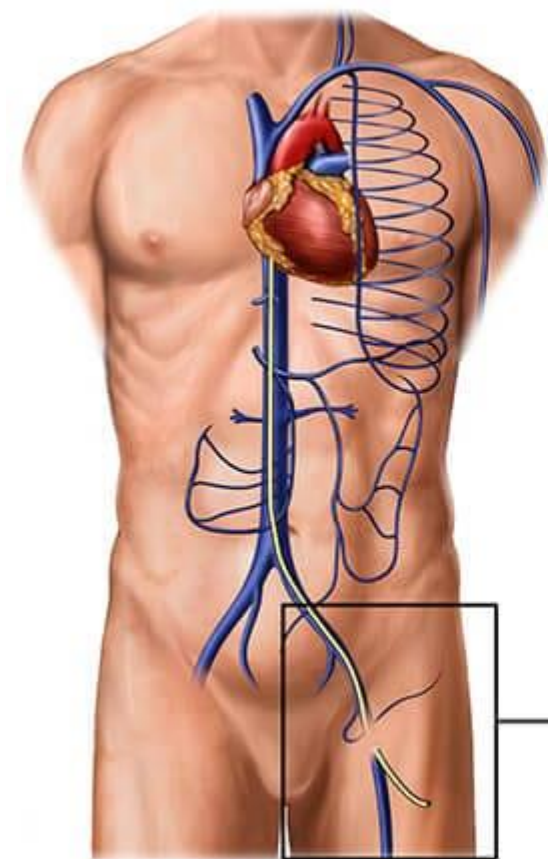




Cardiovascular Disease 2030

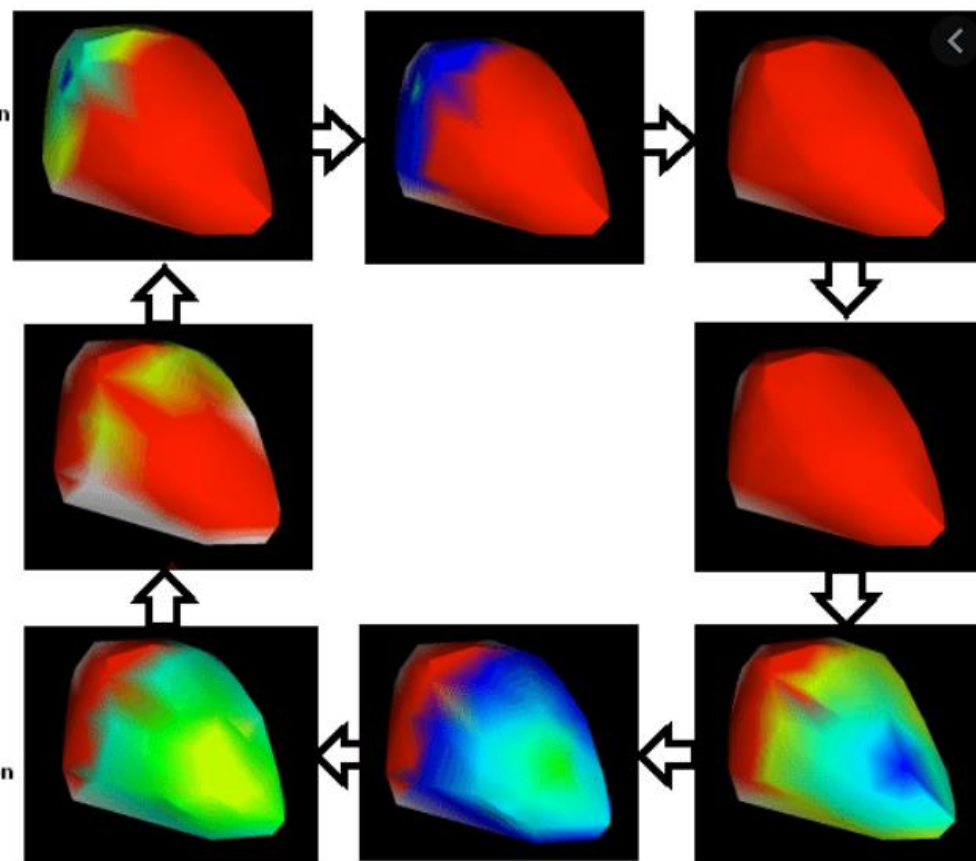
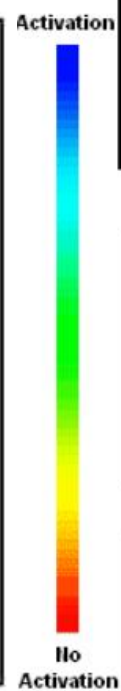
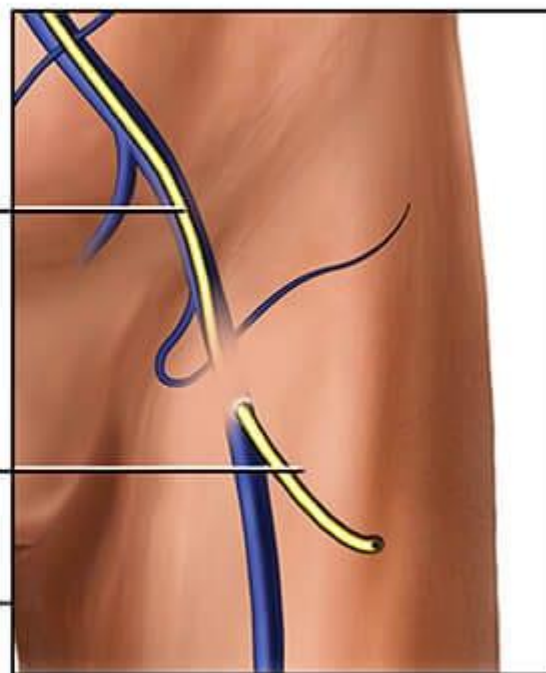
Predicting the next decade : Arrhythmia

- Screening, Detection and Monitoring
- Cardiovascular Implantable Electronic Devices (CIED)
- Electrophysiology and Ablation

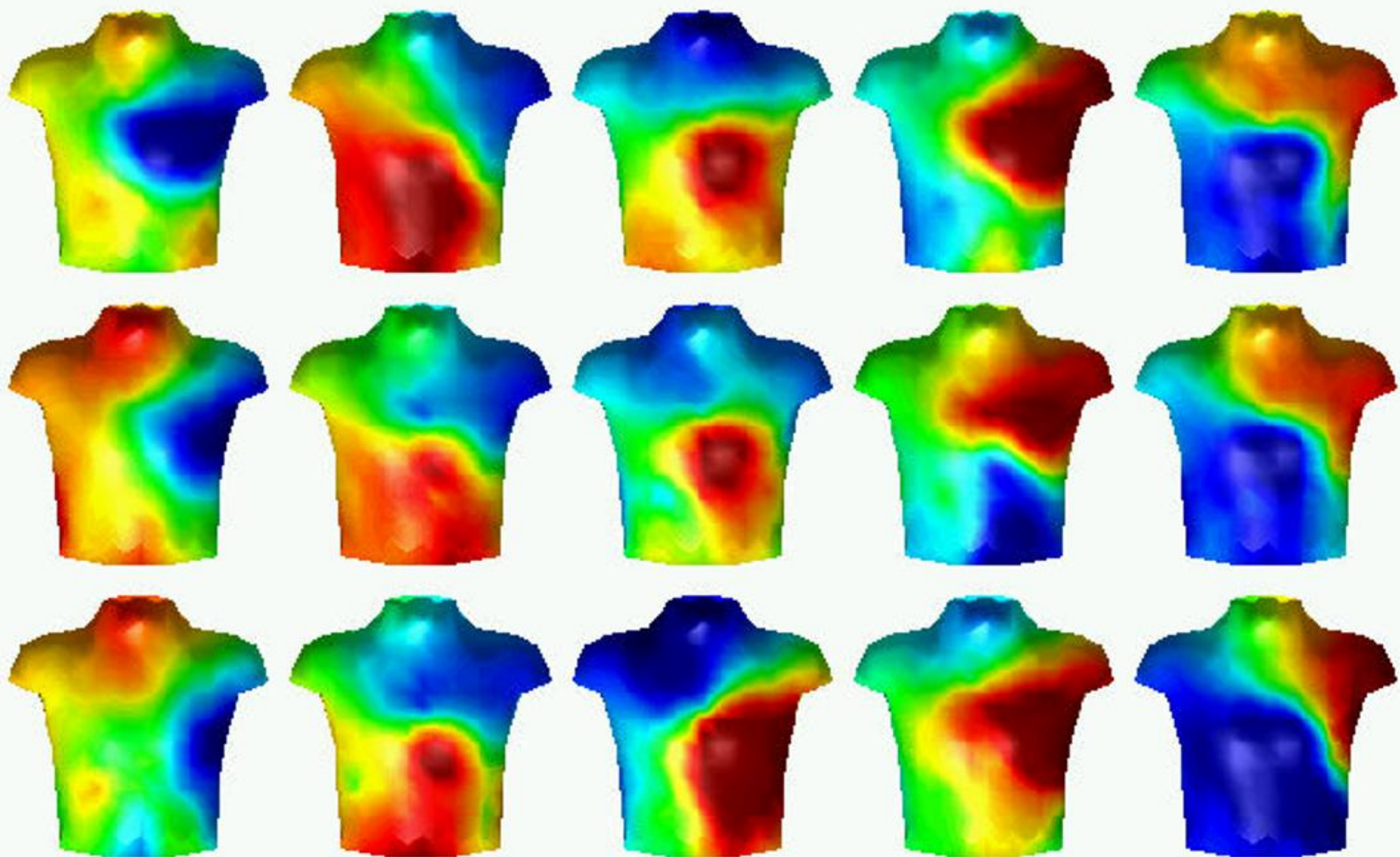


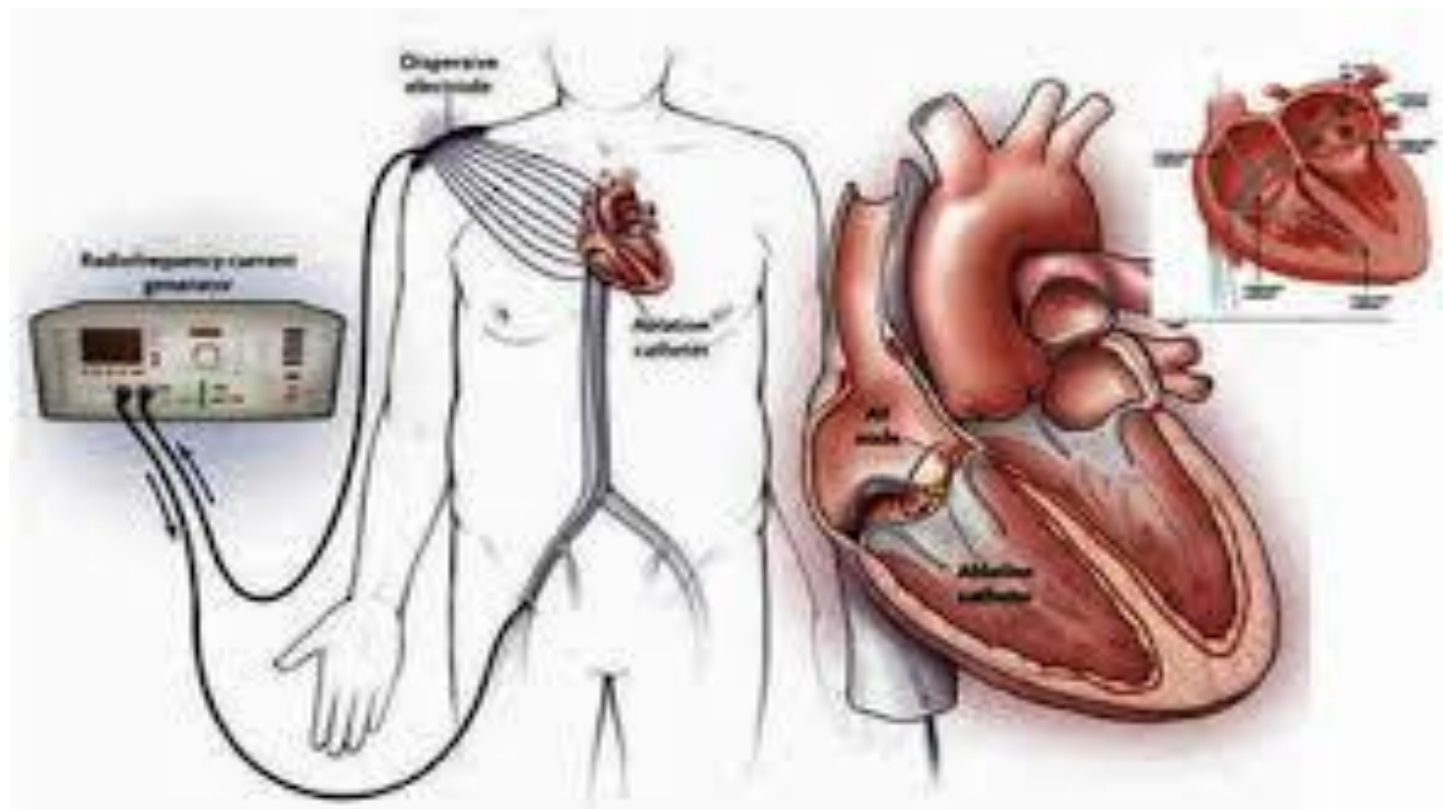
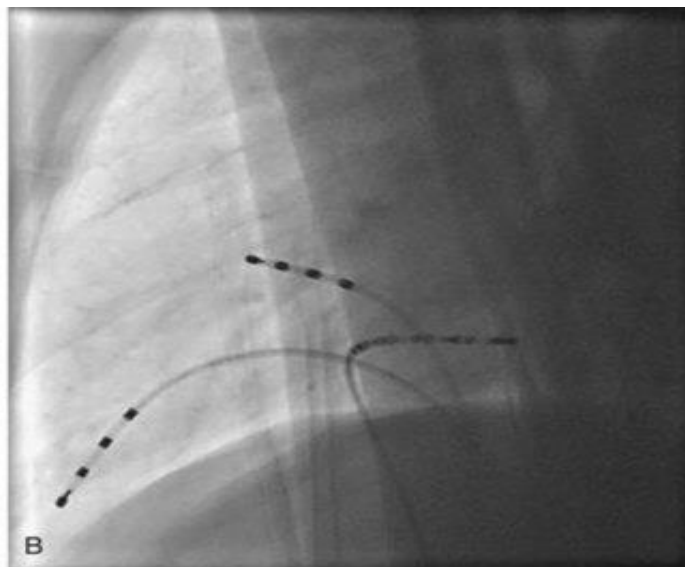
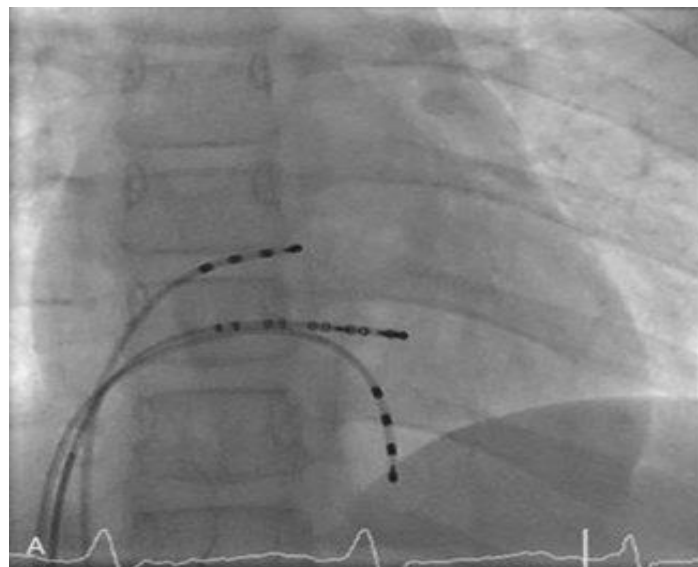
Femoral vein

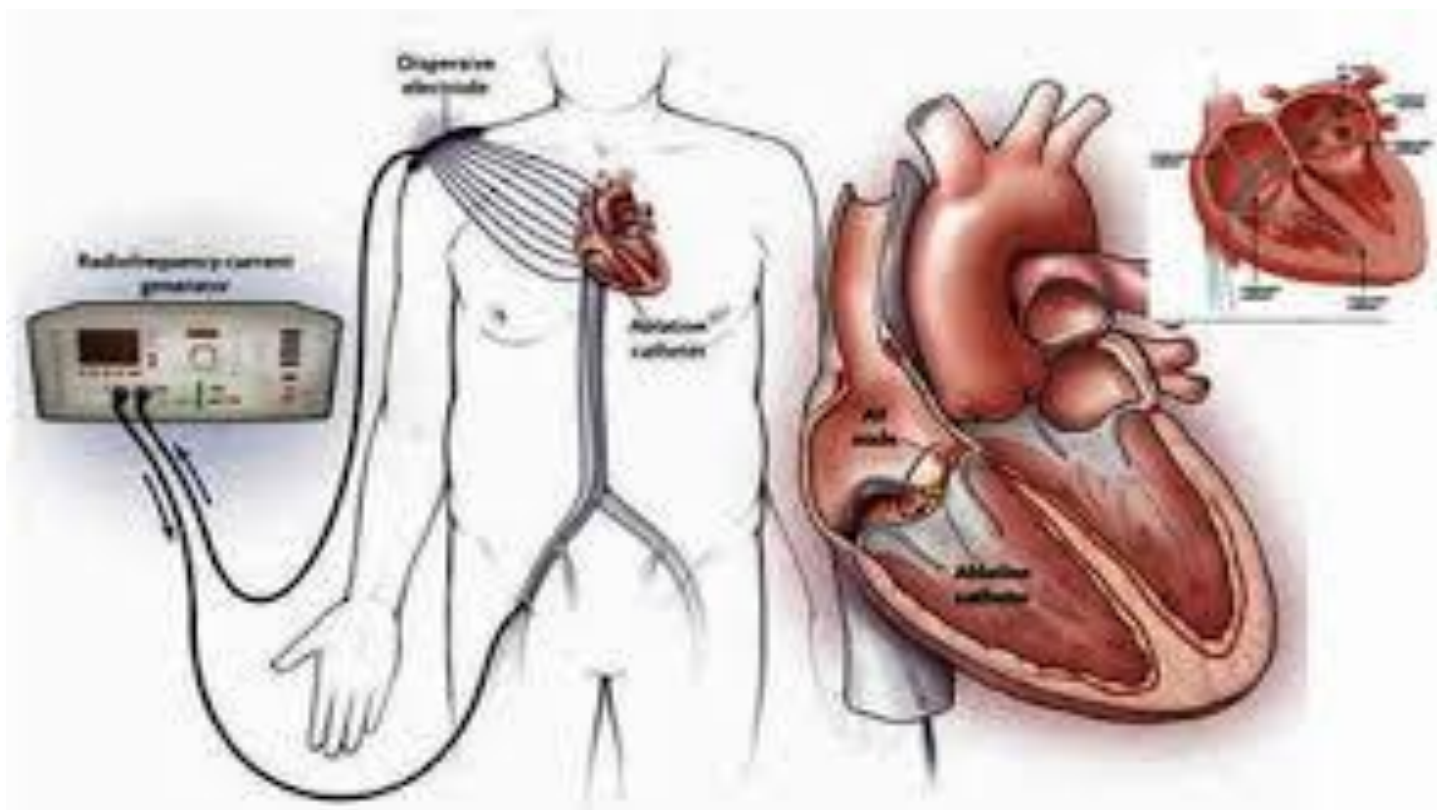
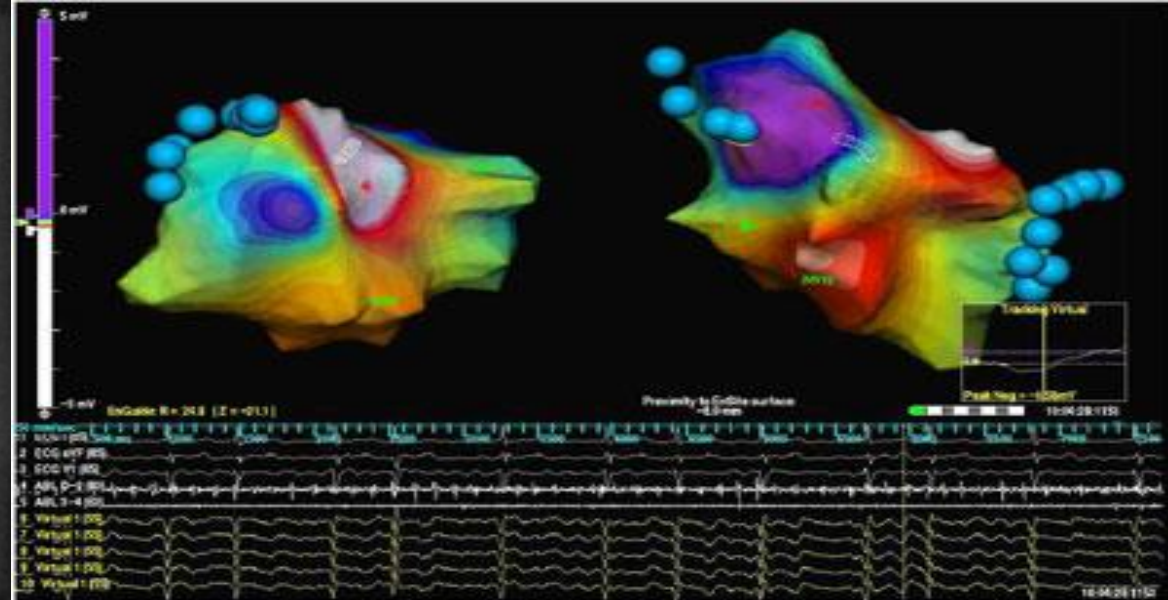
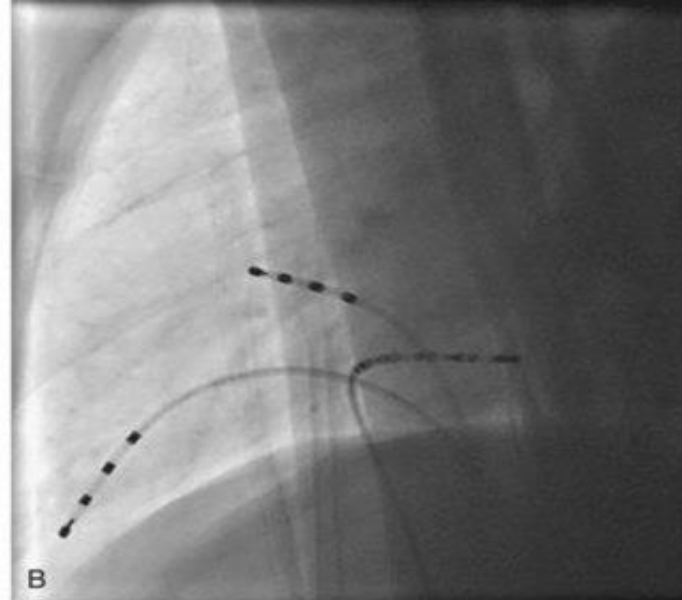
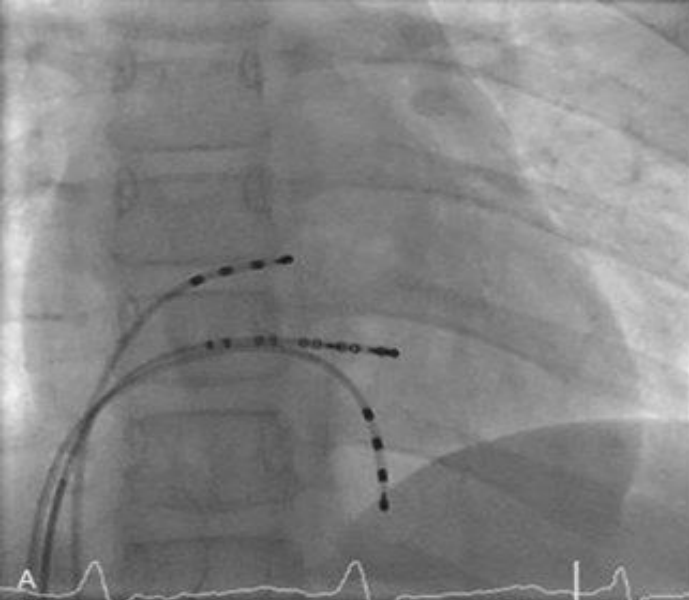
Catheter

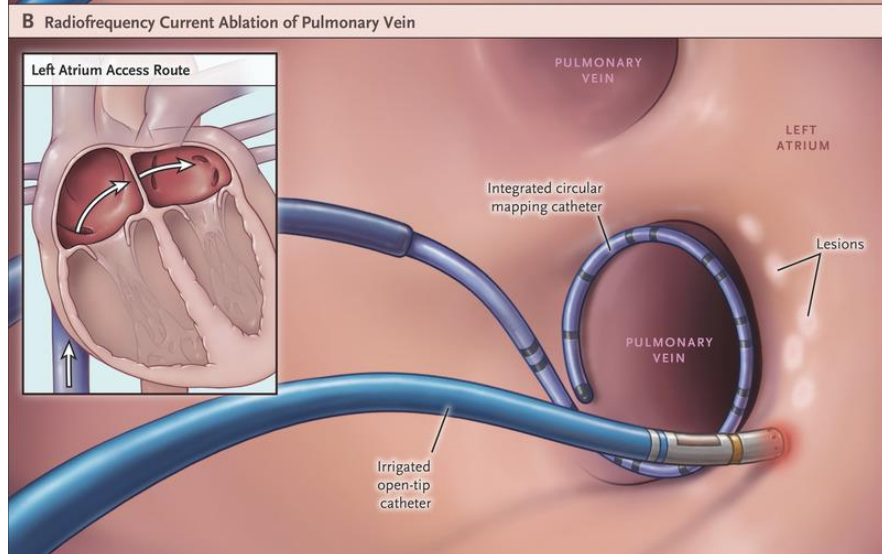
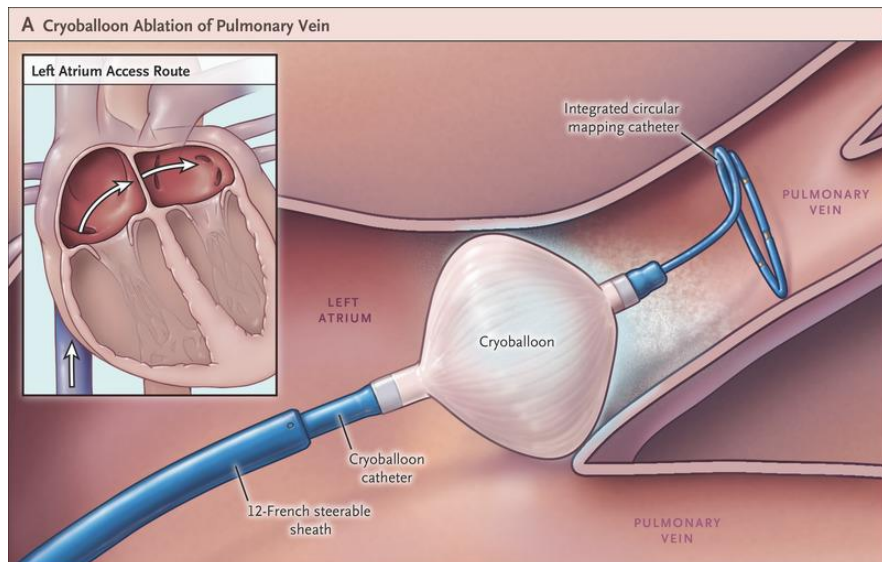




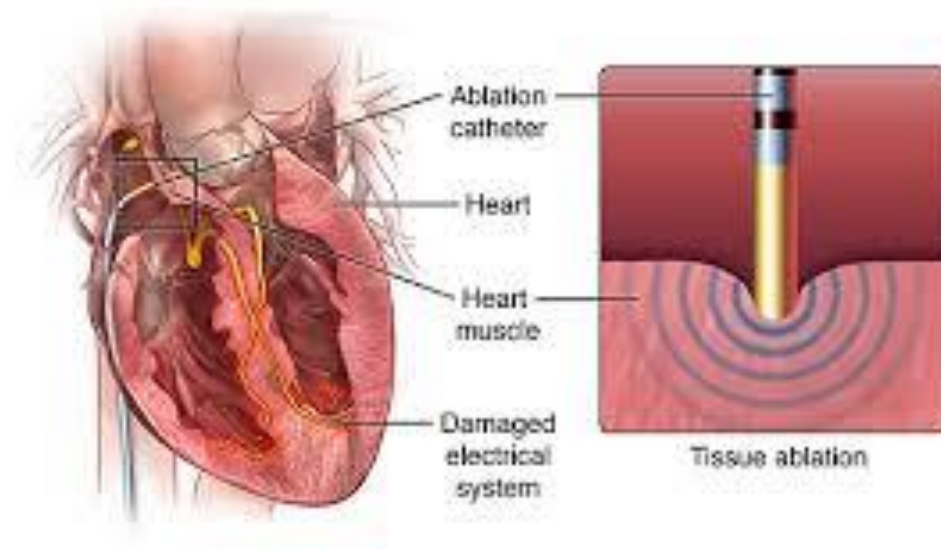


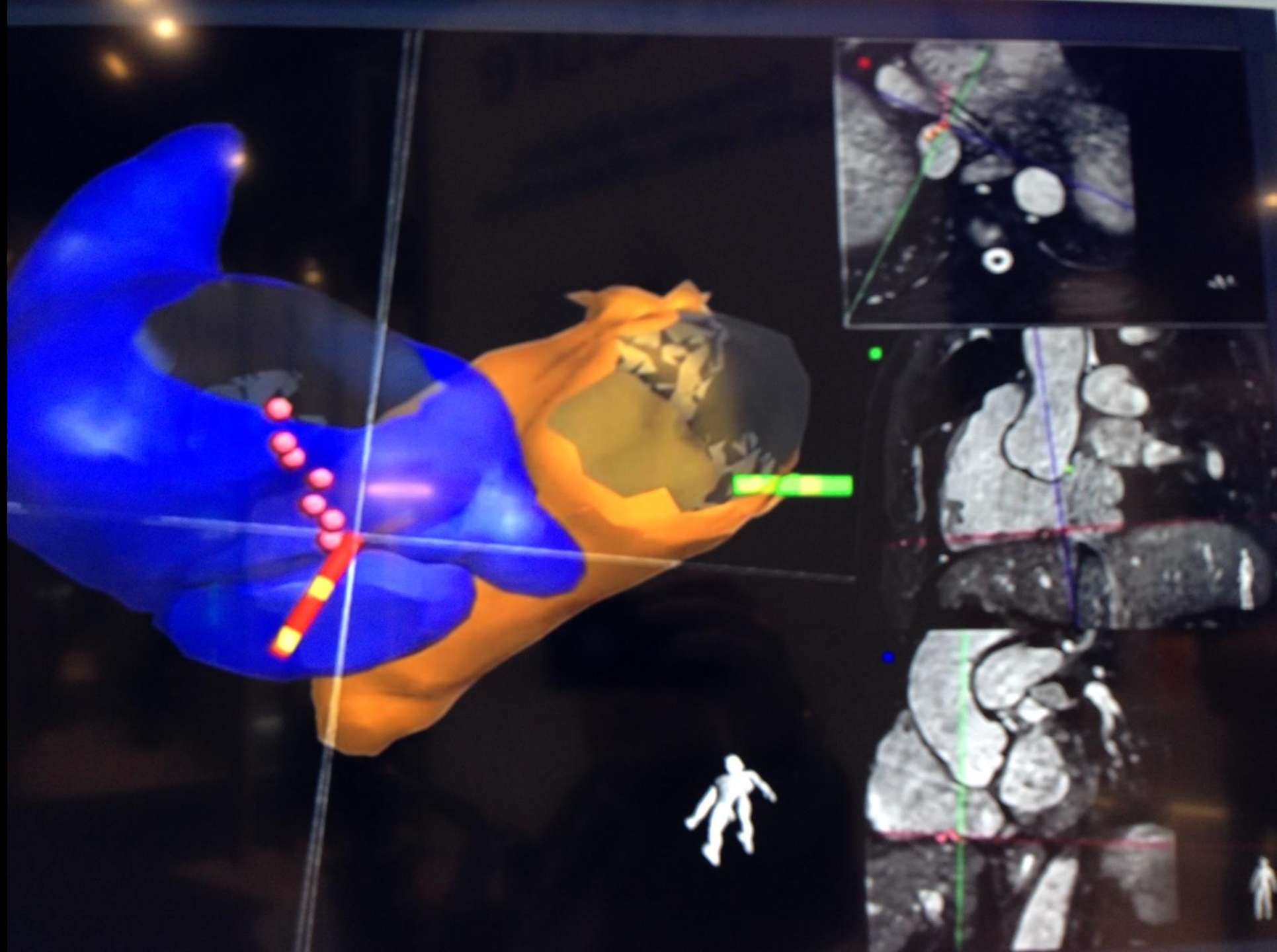






Catheter ablation







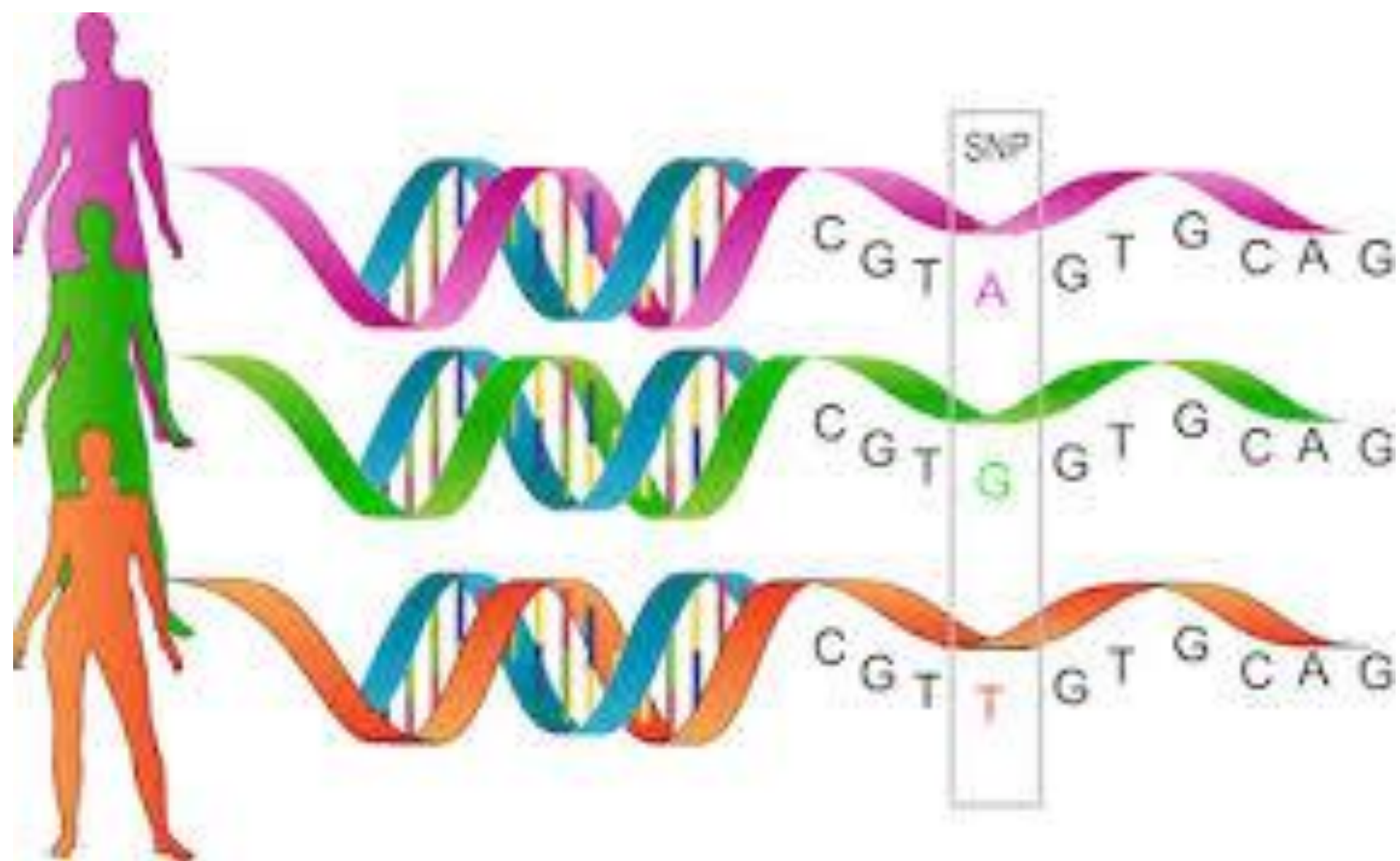
GENESIS
Robotic Man



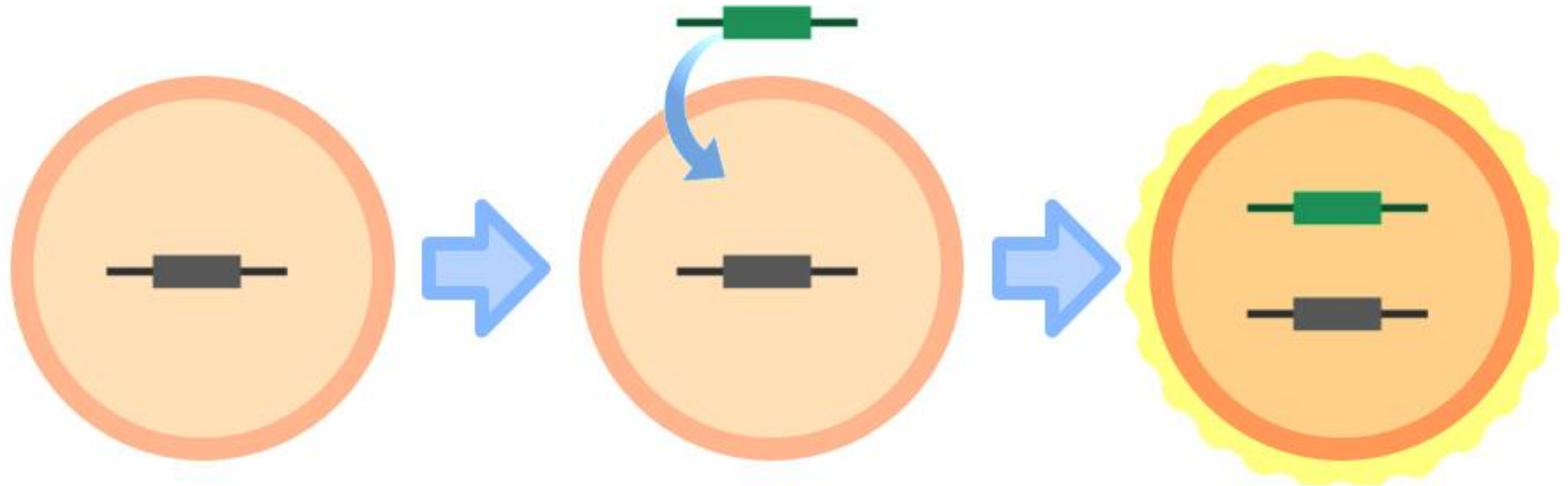
Cardiovascular Disease 2030

Predicting the next decade : Arrhythmia

- Screening, Detection and Monitoring
- Cardiovascular Implantable Electronic Devices (CIED)
- Electrophysiology and Ablation
- Genomic approaches and therapies



healthy gene introduced



cell with defective gene

cell function restored



Cardiovascular Disease 2030

Predicting the next decade : Arrhythmia

- Screening, Detection and Monitoring
- Cardiovascular Implantable Electronic Devices (CIED)
- Electrophysiology and Ablation
- Genomic approaches and therapies



Thank you for your attention