



האיגוד הישראלי לכירורגית לב וחזה
THE ISRAEL SOCIETY OF CARDIOTHORACIC SURGERY

האיגוד הקרדיולוגי בישראל
ISRAEL HEART SOCIETY



The 60th International Conference of the Israel Heart Society
in association with the Israel Society of Cardiothoracic Surgery
22-23 April 2013, ICC International Convention Center, Jerusalem

Israeli Innovation and New Technologies in Cardiology



Ran Kornowski, MD, FESC, FACC
Chairman – Department of Cardiology
Rabin Medical Center & Tel Aviv University, Israel

Background

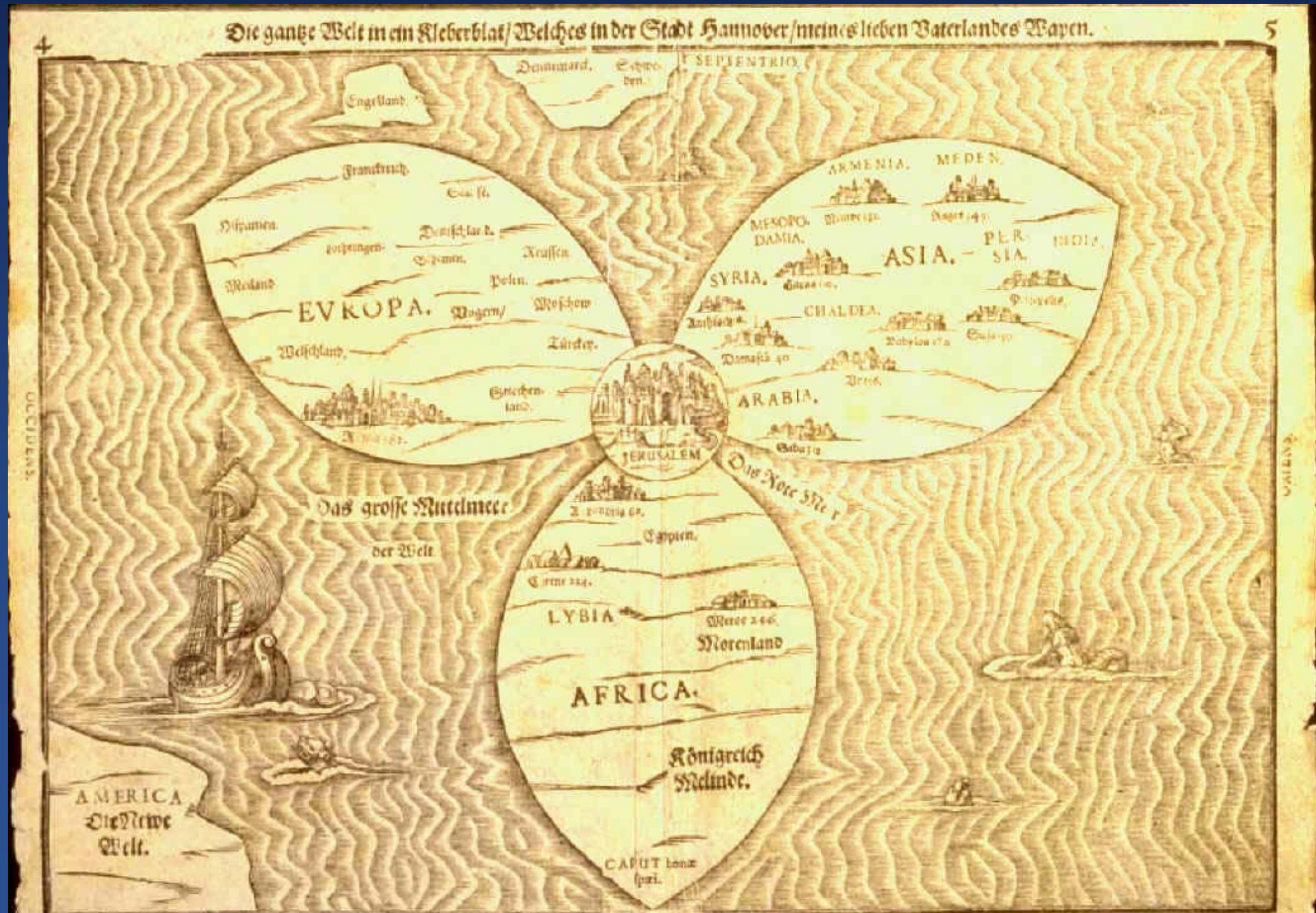
Israel,

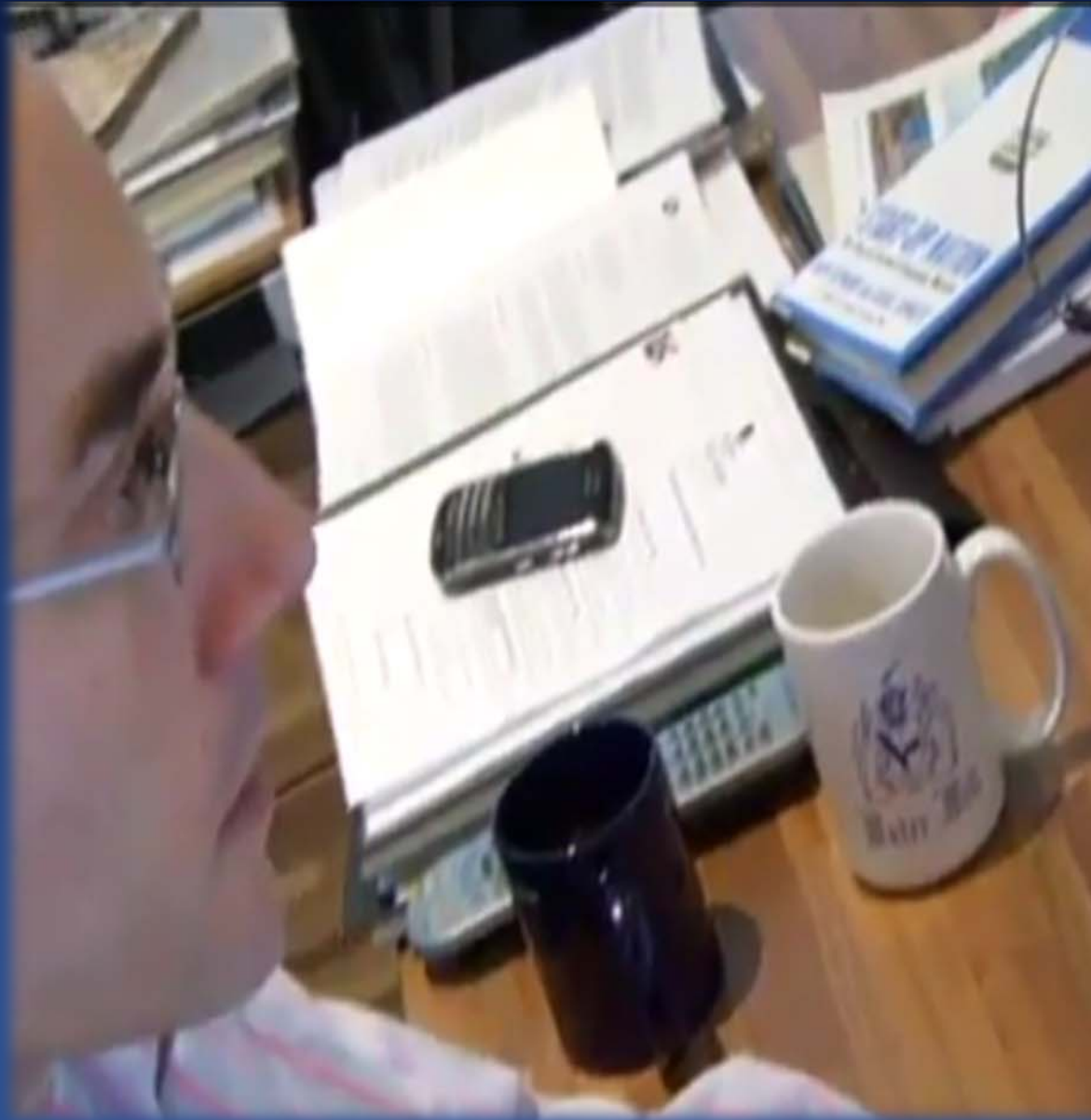
- worldwide leader in innovation
- 1st worldwide (per capita) in IP and start-up companies (N~4,000)
- Backbone of the economy
 - ✓ 15% of GDP (\$200-billion)
 - ✓ 40% of exports (\$35 billion)
 - ✓ Invests ~4.7% of its GDP in R&D



Center of the Universe...

When it comes to innovation...





START-UP NATION

The Story of Israel's Economic Miracle

DAN SENOR AND SAUL SINGER

A Council on Foreign Relations Book

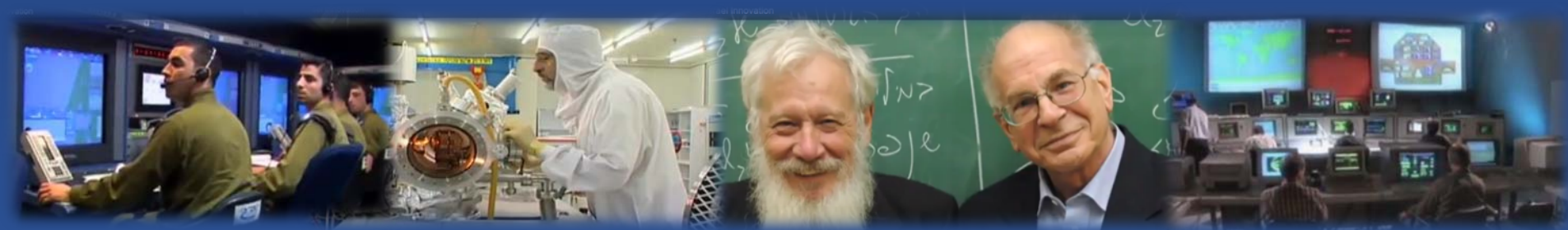


Global Competitive Report of the World Economic Forum (2012-3)

- Israel's main strengths remain its world-class capacity for innovation (3rd), which rests on highly innovative businesses that benefit from the presence of the world's best research institutions geared toward the needs of the business sector.
- Israel's excellent innovation capacity is reflected in the country's high number of patents (4th).
- Its favorable financial environment has contributed to making Israel an innovation powerhouse.

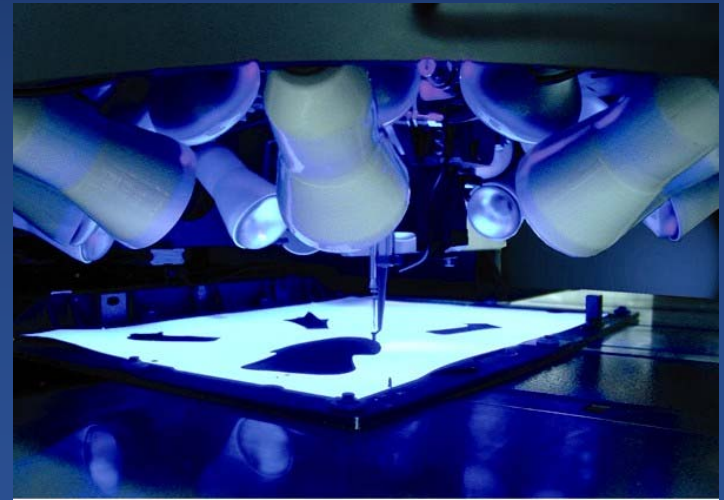
Israel Assets

- Innovative thinking
 - Highly skilled workforce
 - Problem solving orientation
 - Entrepreneurial spirit







Military Background

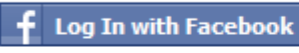
- Israeli security and military technology has been a principle driver behind developing the high-tech scene



And the World's Most Educated Country Is...

By **SAMANTHA GROSSMAN** | @sam_grossman | September 27, 2012 | **13**

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With spiking tuition costs, insurmountable loan balances, and the unemployment rate for recent college graduates **hovering around 53%**, it's clear that a college education hasn't gotten the best rap lately. Despite the ongoing financial woes across the globe, though, many think that college **is still worth the investment**. A new study shows that we've continued to flock to institutions of higher learning, enrolling at record rates over the past few years. Not surprisingly, the percentage of adults with degrees soared highest in developed nations, reaching 30% in 2010. But which of these nations can boast the status of *most* educated?



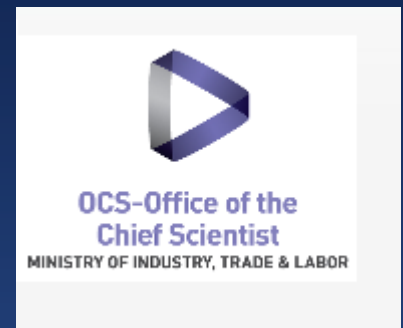
1. Canada
2. Israel
3. Japan
4. United States
5. New Zealand
6. South Korea
7. United Kingdom
8. Finland
9. Australia
10. Ireland

The Israeli Chutzpah



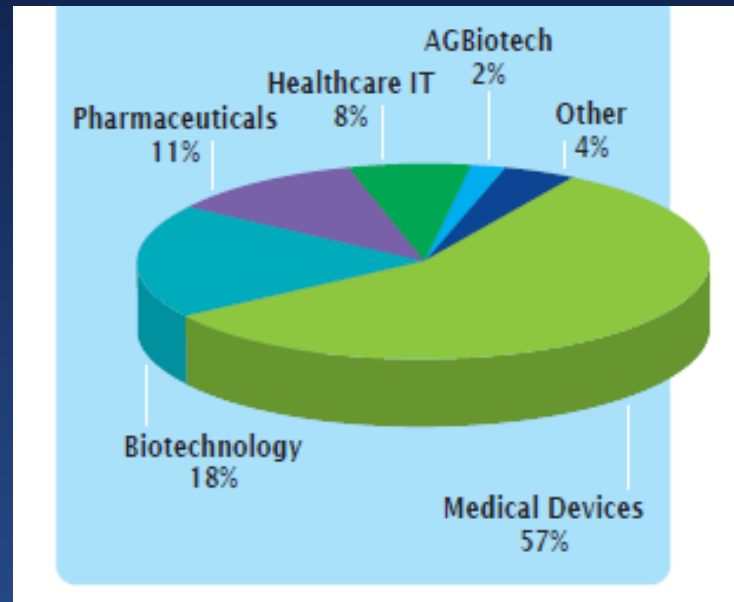
Israel Office of the Chief Scientist

- Principal government tool to support R&D
- Unique Israeli laws to encourage R&D
- Grants programs and tax benefits
- Technological entrepreneurship
- International cooperation in R&D
- Academic-industrial cooperation.
- Life-science is defined as a preferred sector



Israel Life Science Sector

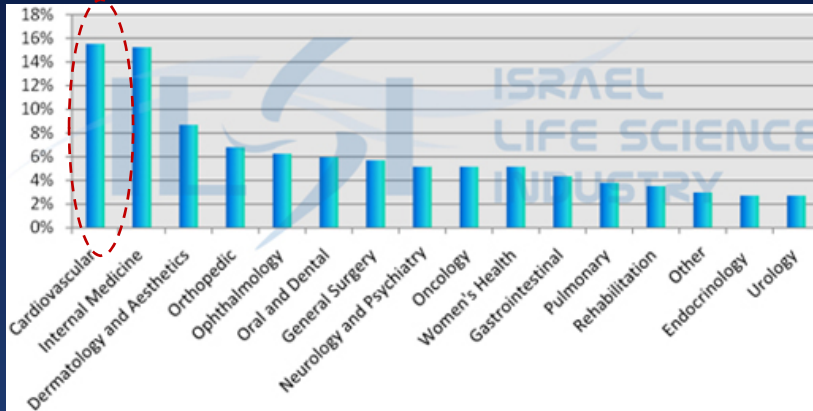
Israel Life Science Industry (2012)



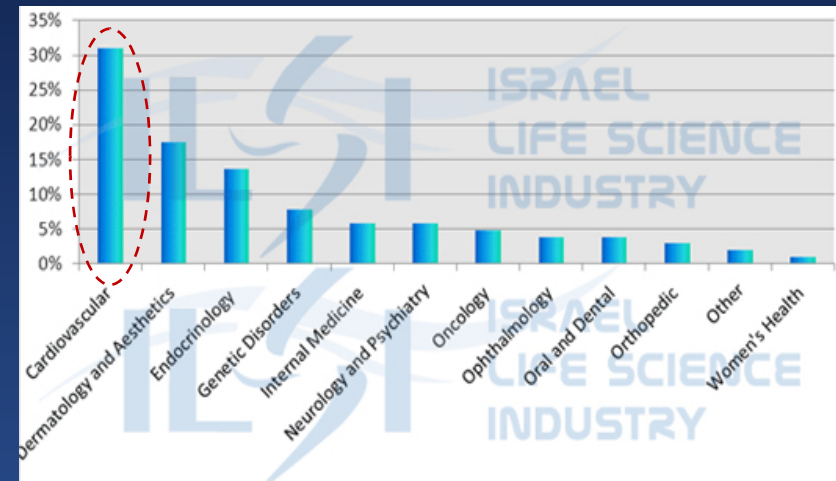
- Fast growing sector.
- Over 1,000 life science companies.
- >500 medical device companies.
- ~50 new LS companies formed /year
- ~1/3 of companies generating revenue.

Israel Life Science Industry by Sector

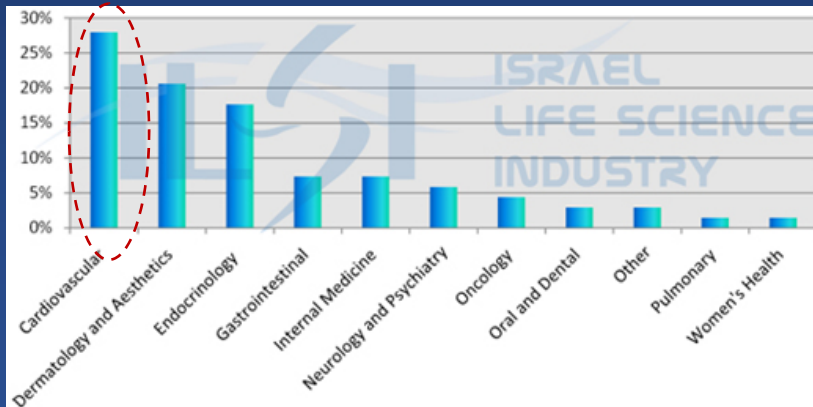
Medical Devices



Biotechnology

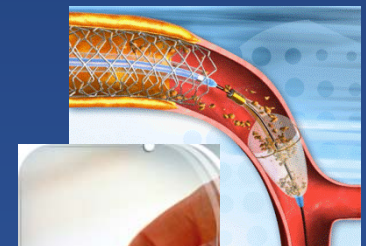
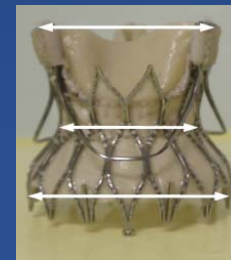
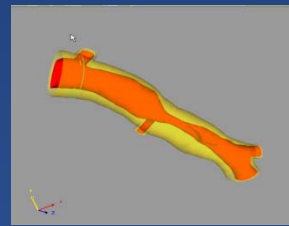
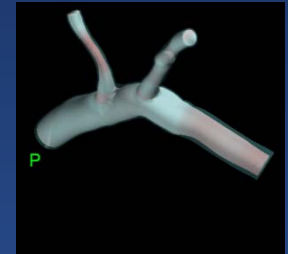
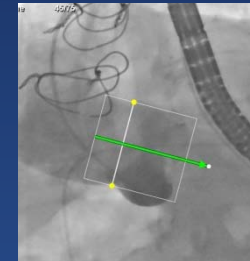
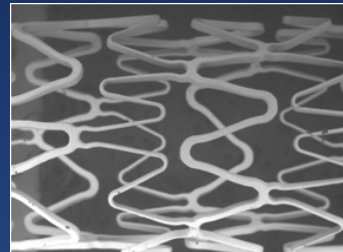
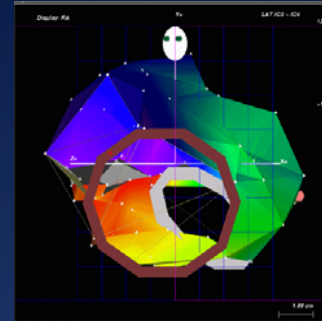
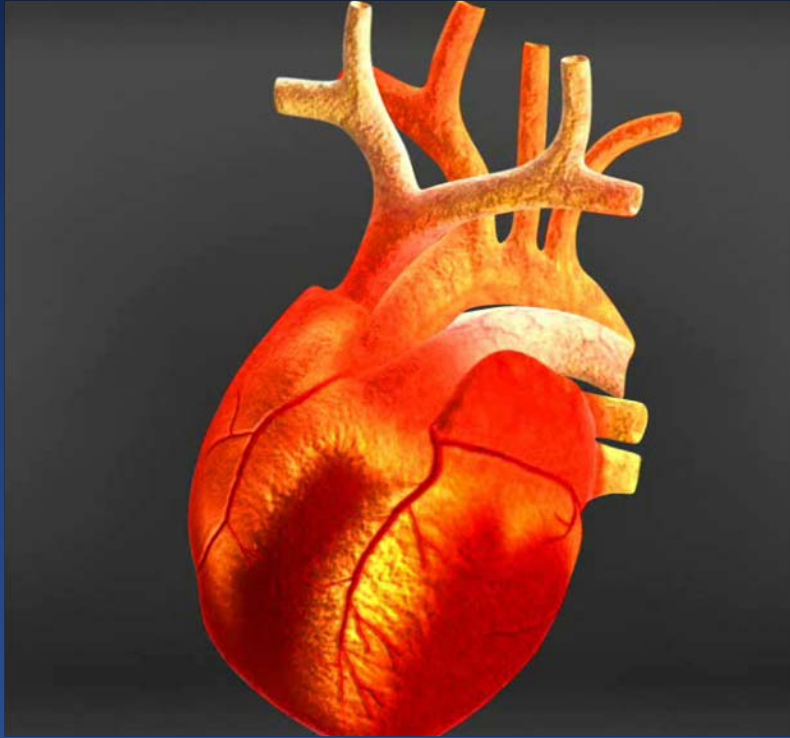


Pharmaceuticals



- **Cardiology** is the leading sector within the Israeli LS industry
- There are a~100 active Israeli medical companies in CV medicine

Israel and Biotech in Cardiology



Edwards-LifeSciences Catheter Valve R&D



Sapien XT



Sapien 3



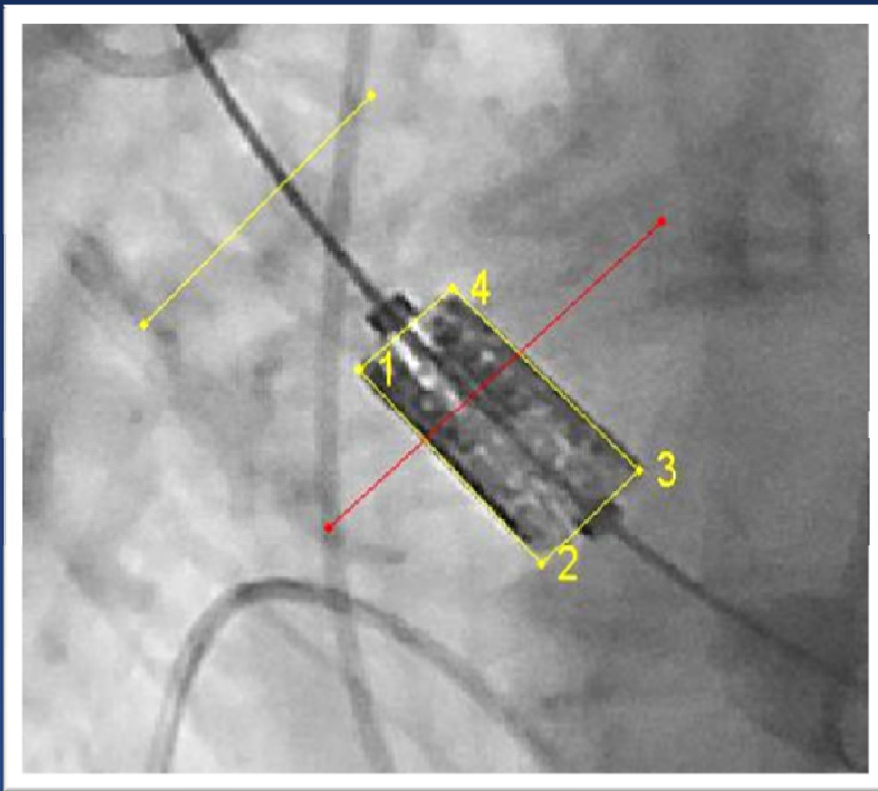
Centera

The Medtronic-Engager™ TA Heart Valve

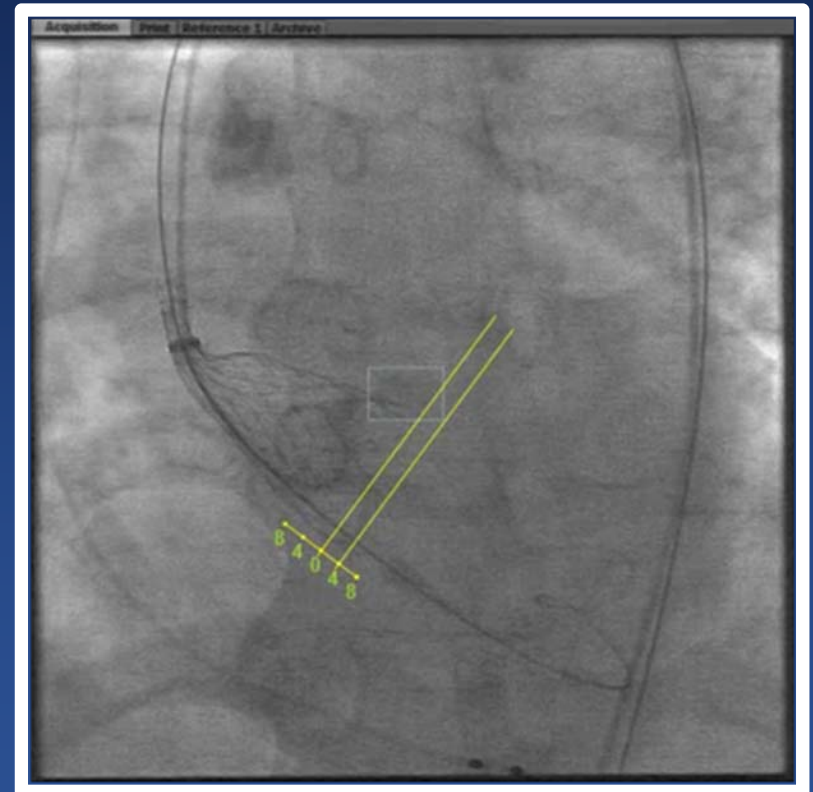


2011
moved away

C-THV Navigation and assessment tool for TAVR

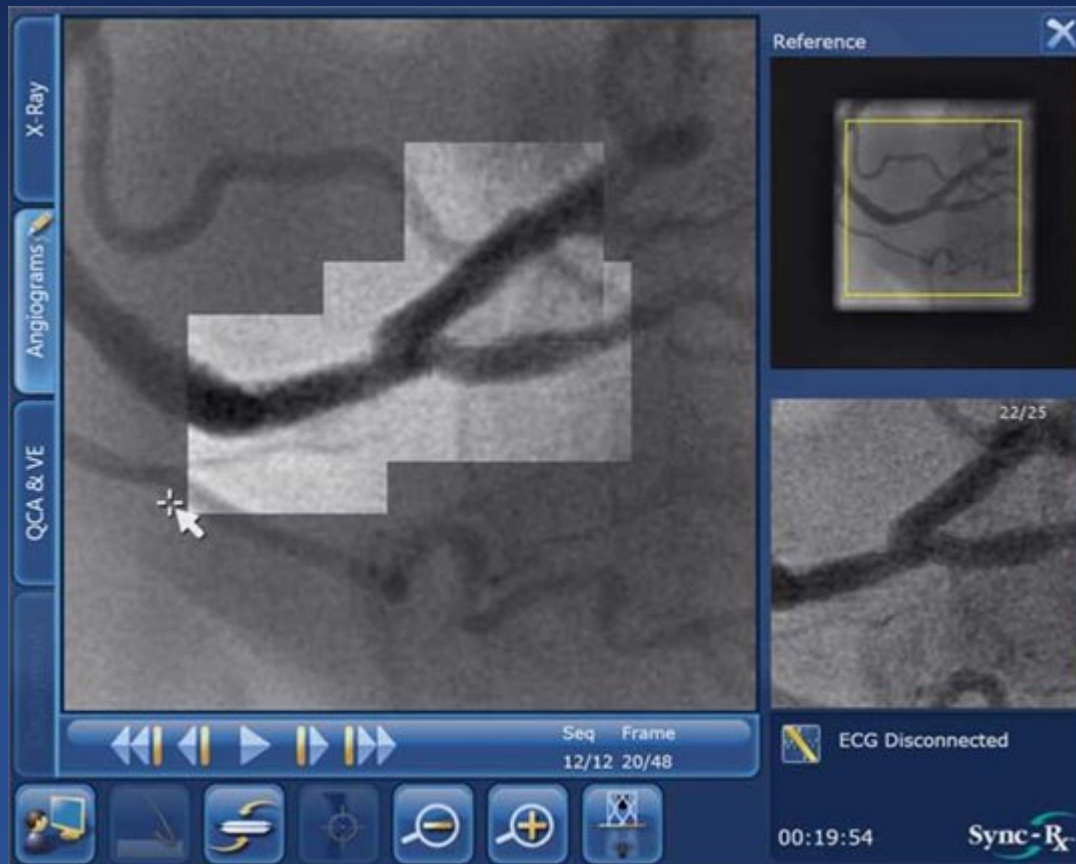


C-THV for Sapien



C-THV for CoreValve

On line vessel and stent enhancement technology



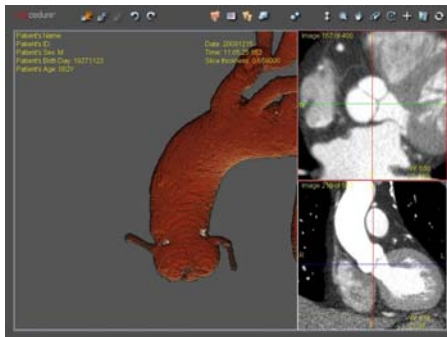
Electro-magnetic Guided lab for EP and Coronary angio



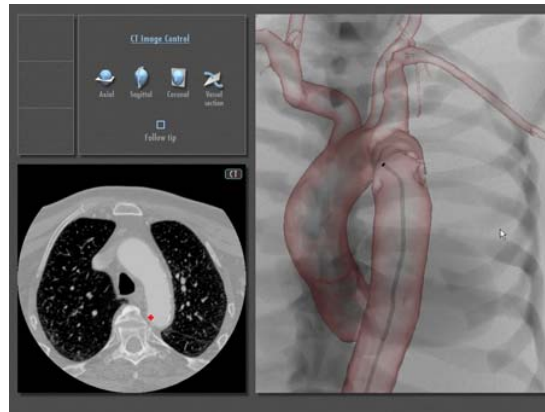
Patient Specific Simulation

Simulators allow to practice complex cardiac procedures

PLAN



REHEARSE



APPLY in
PRACTICE



PROcedure Rehearsal Studio™

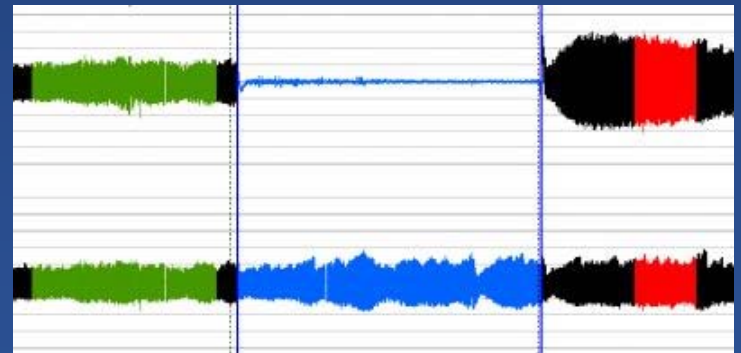
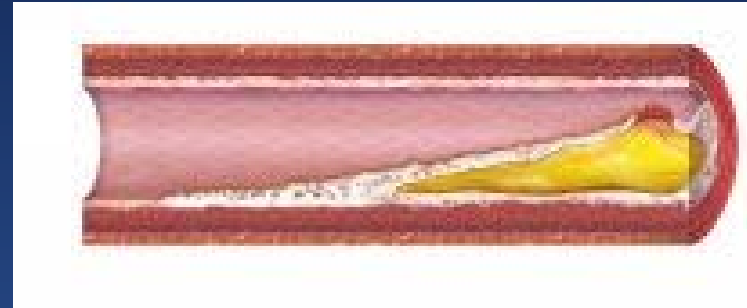
Simbionix™

Detection of Arterial Function

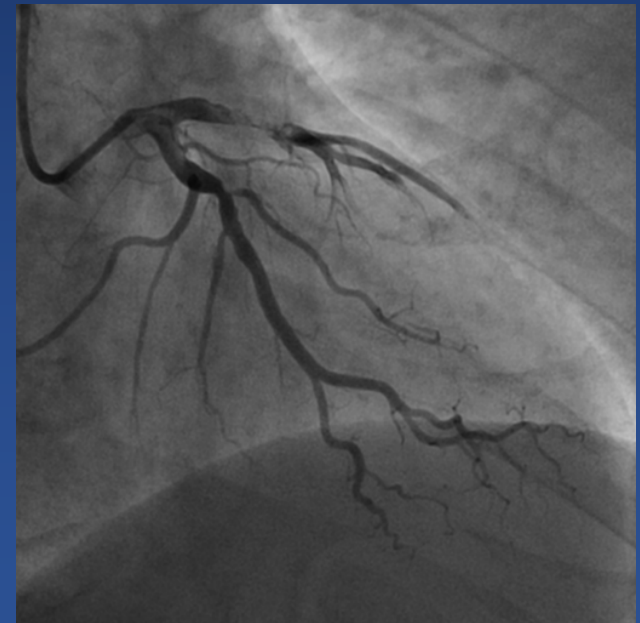
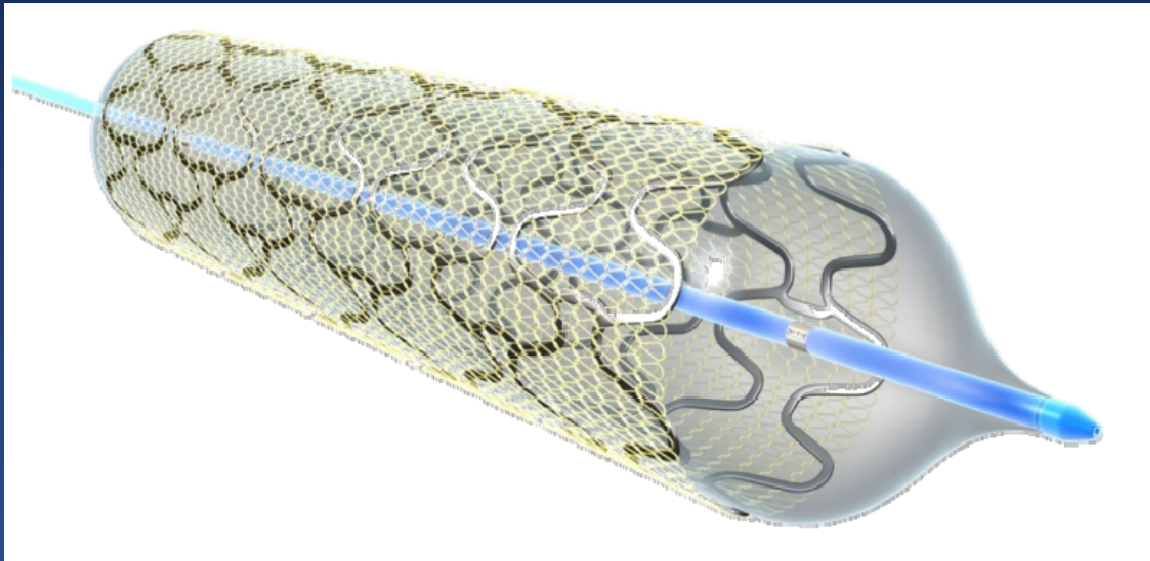
itamar

MEDICAL INFORMATION [IN] YOUR FINGERTIP

Endo-PAT2000



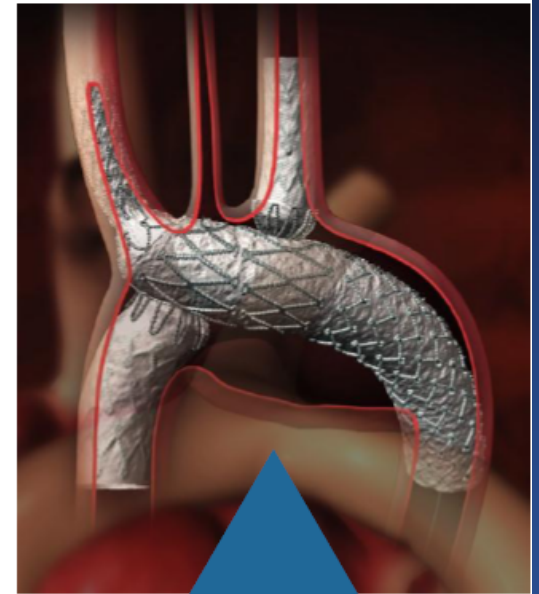
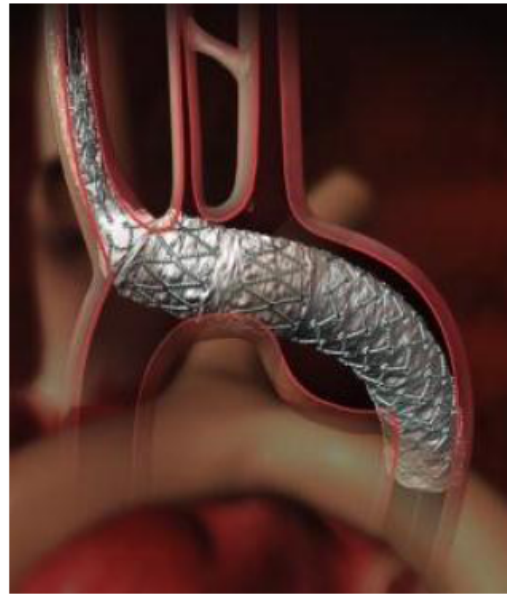
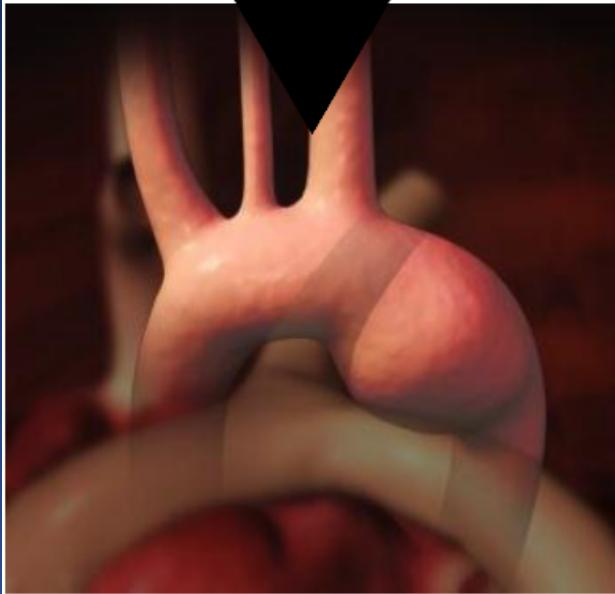
Special stent for Heart Attacks and SVGs



Novel Endovascular graft technology

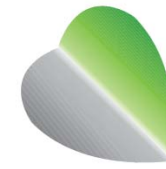
Endospan™ 

A SOLUTION FOR ANEURYSMS INVOLVING THE AORTIC ARCH

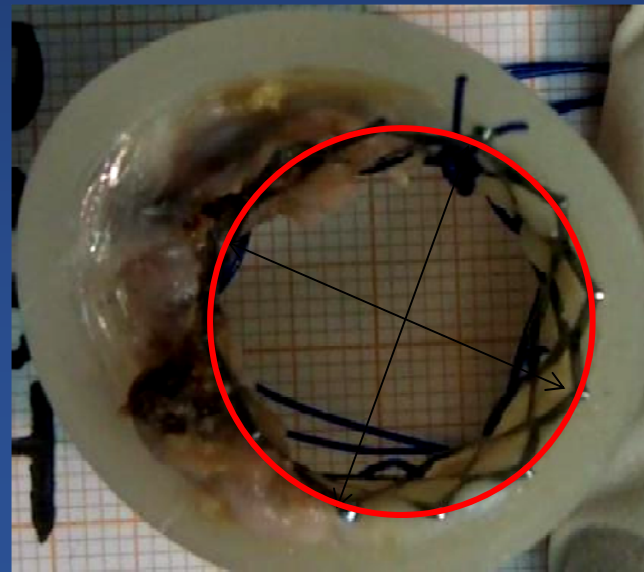


ENDOSPAN LEVERAGES ITS INNOVATIVE PLATFORM TO CREATE A SIMPLE, ENDOVASCULAR PROCEDURE

Adjunct to TAVR



Pi-R-Squared
impacting valve repair

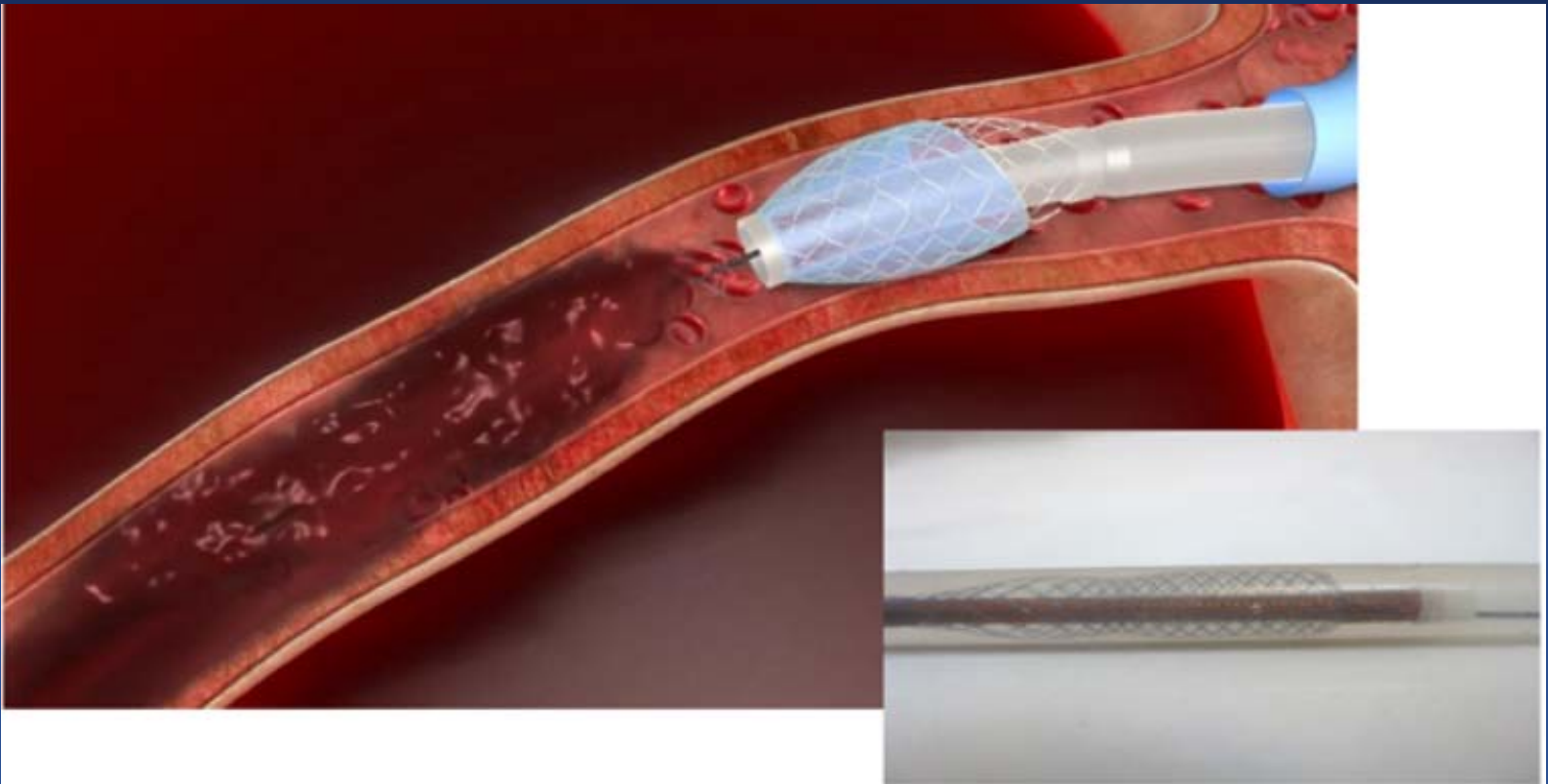


Distal Embolic Protection

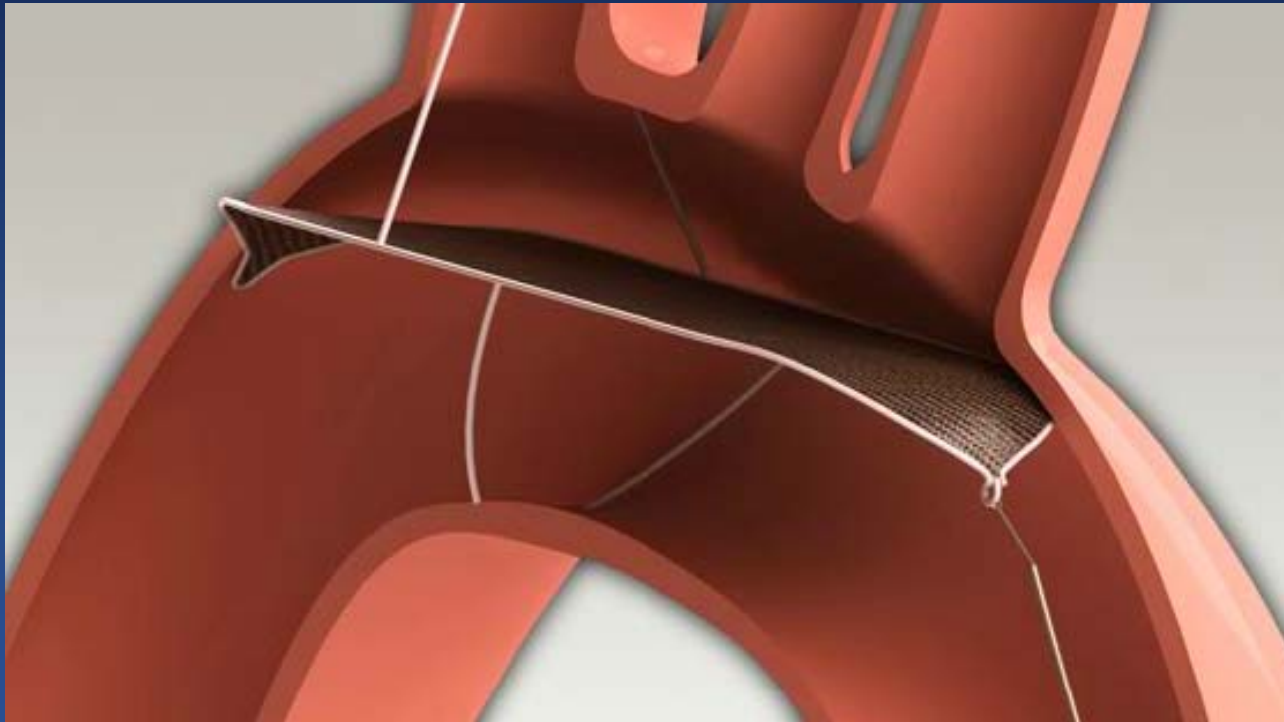


Proximal Embolic Protection

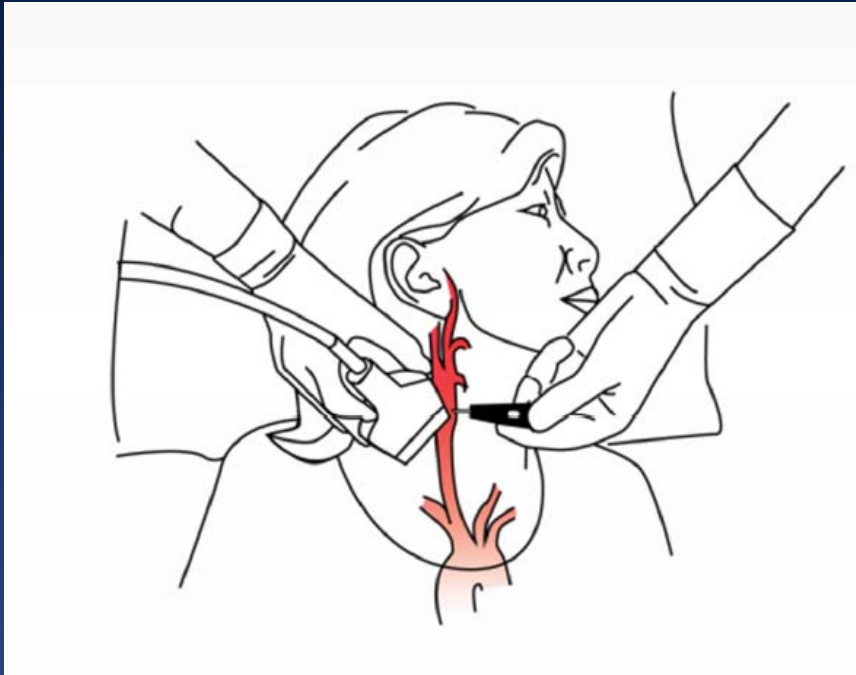
EmboPRO



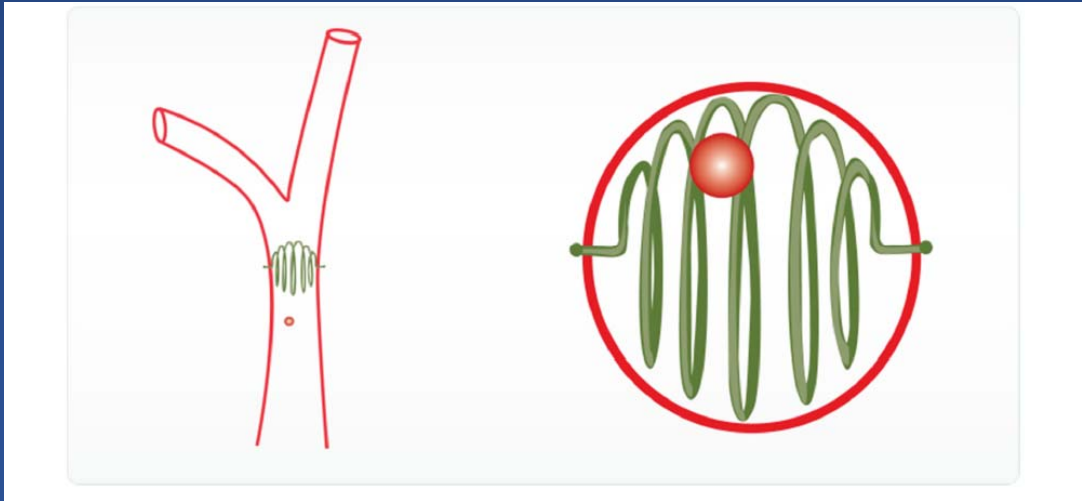
Embololic Protection



Cord Traps Emboli from all Source

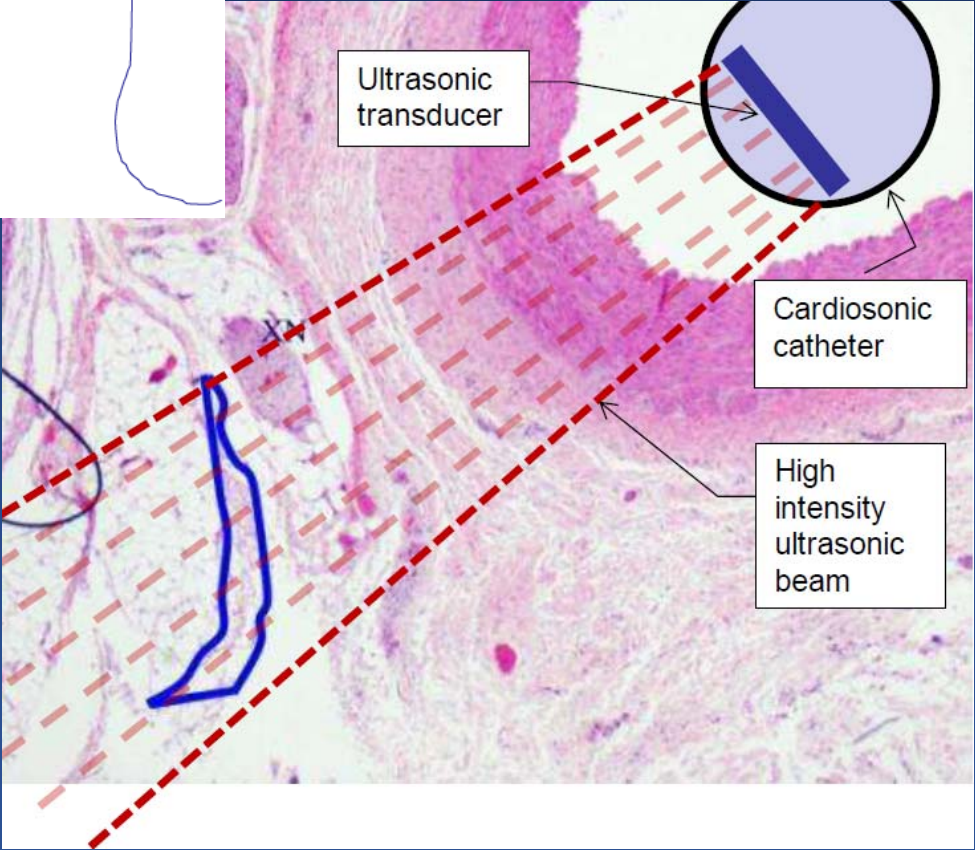
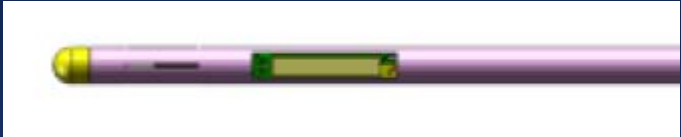
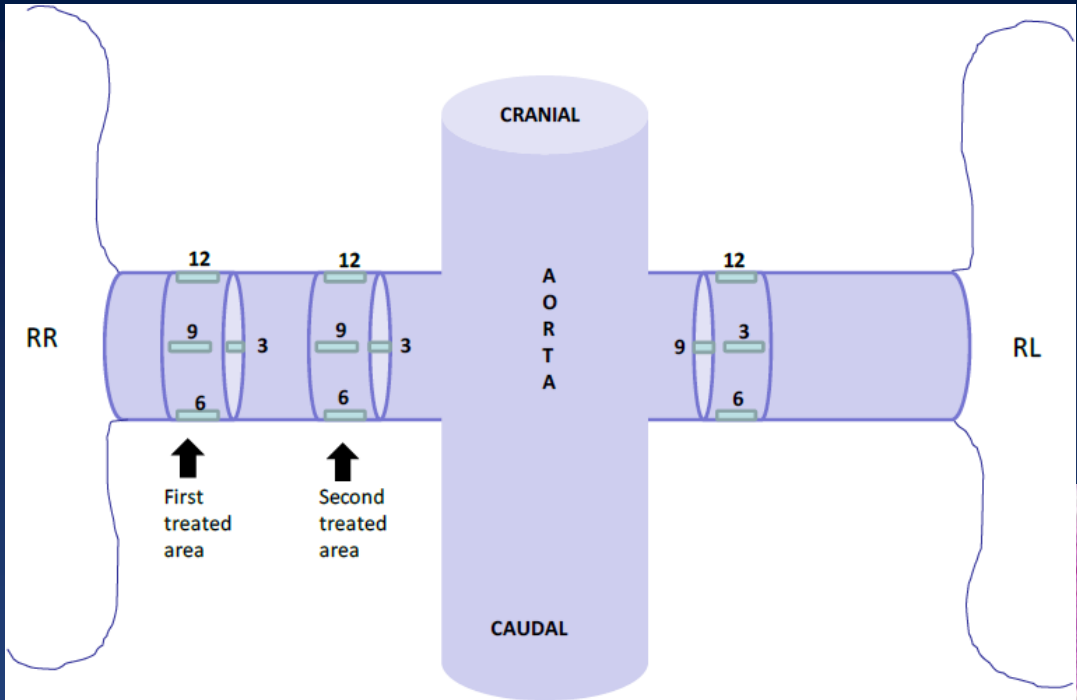


JAVELIN

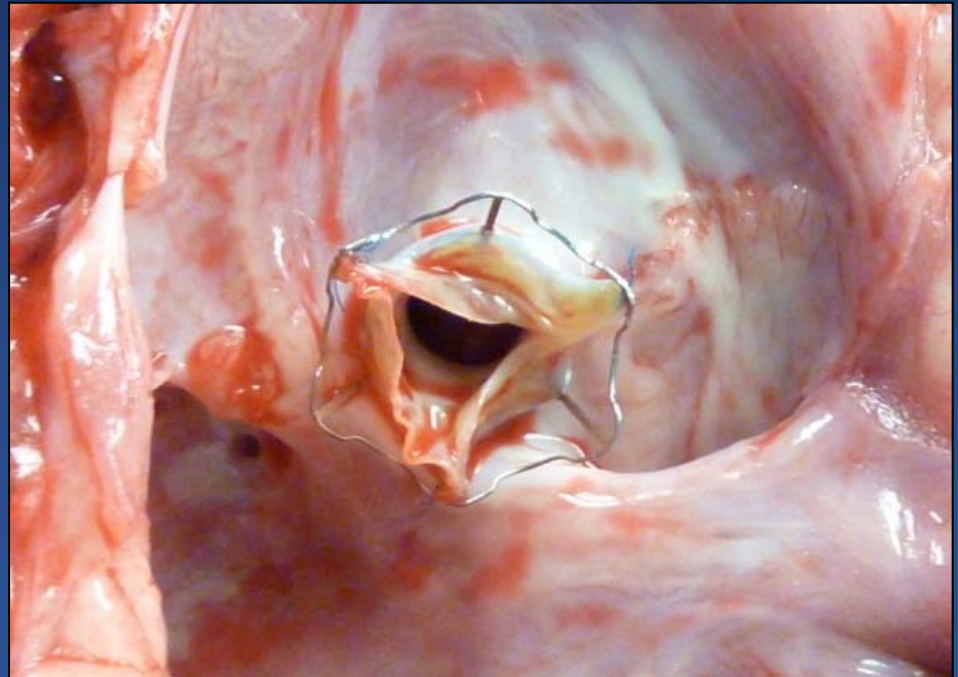


realview 

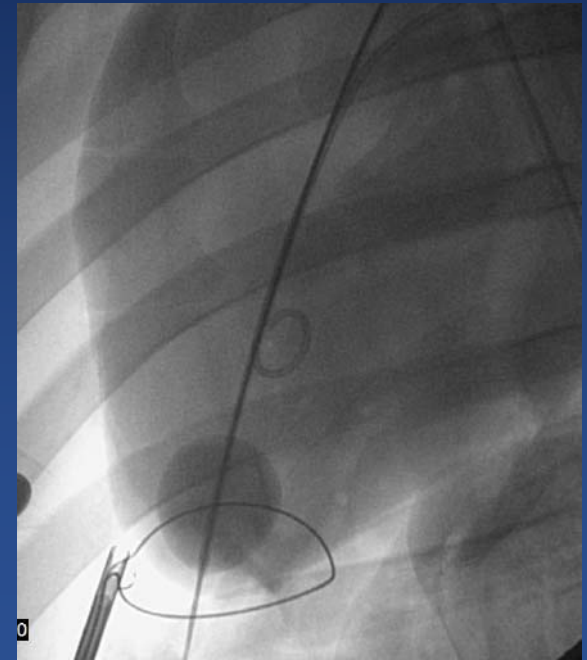
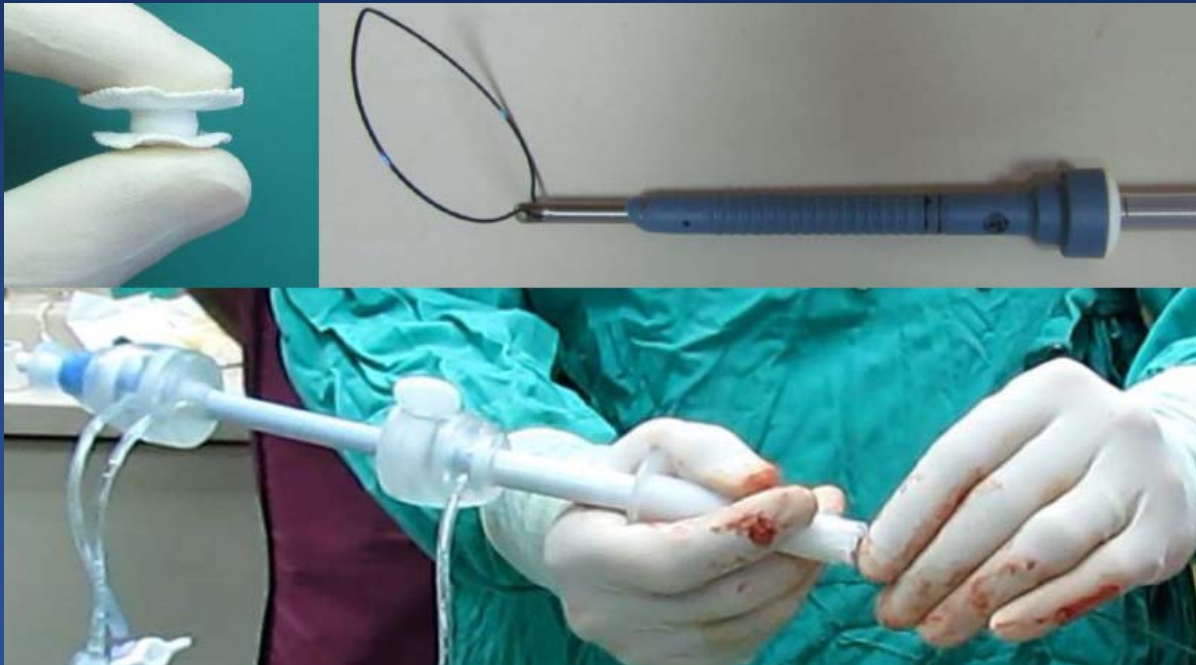
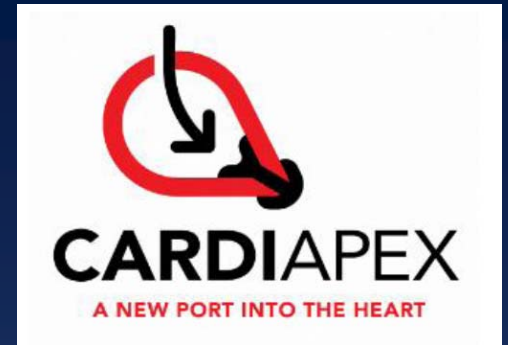




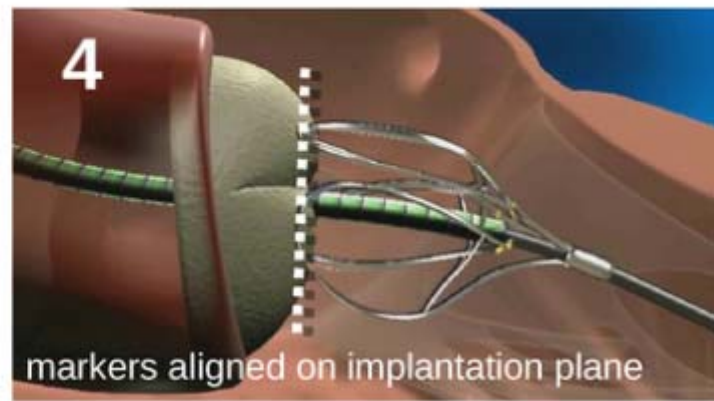
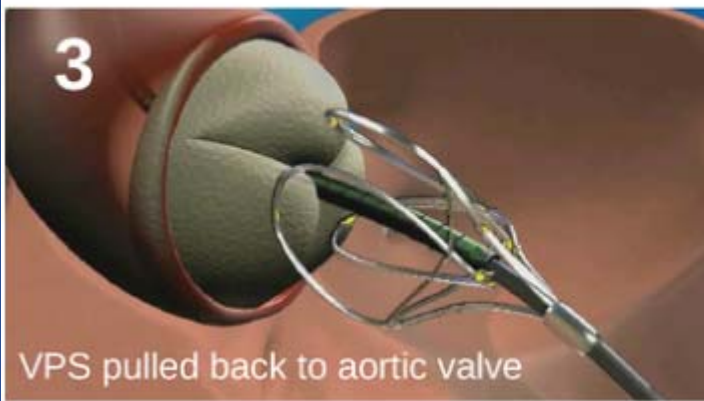
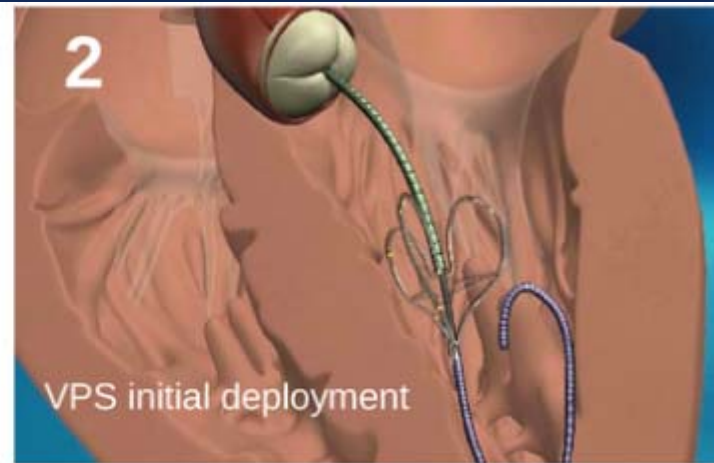
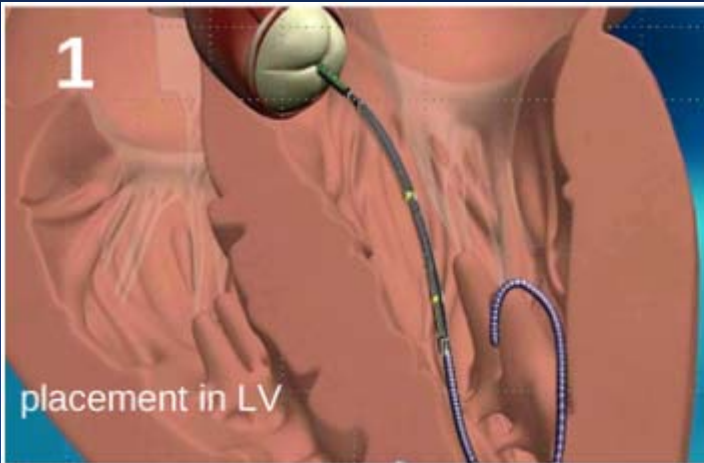
Intra-Atrial Valve for Unloading CHF



Percutaneous Trans-Apical Access and Closure Devices

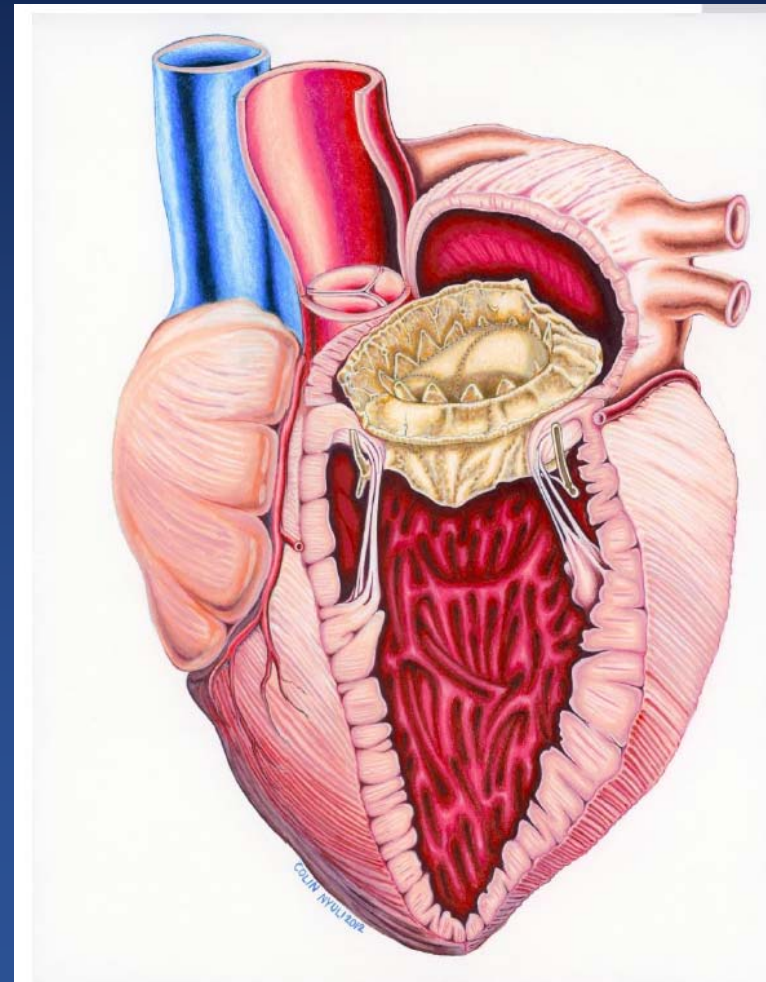
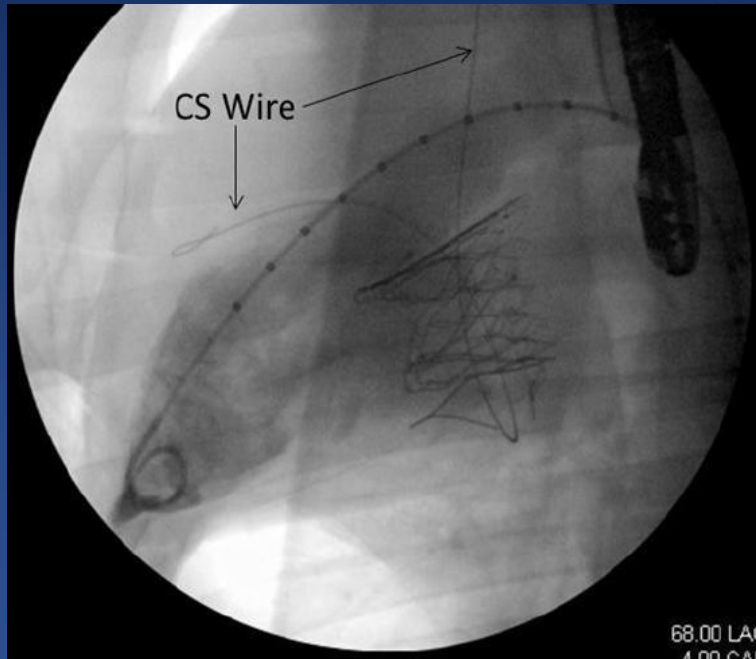


Optimal TAVI positioning

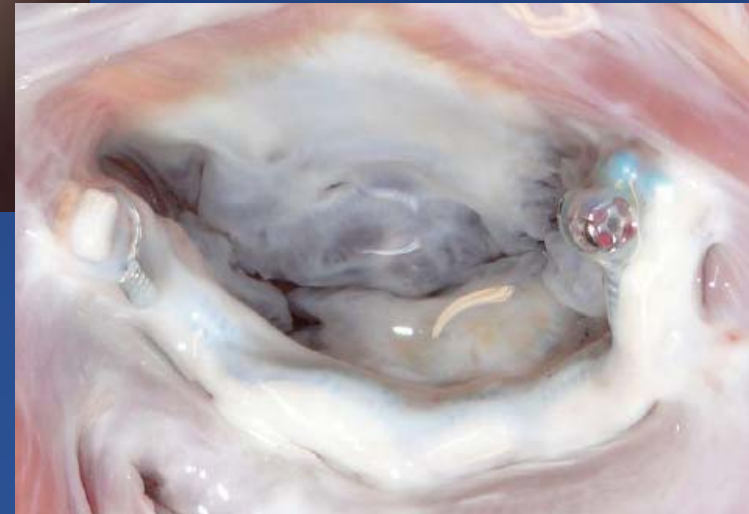
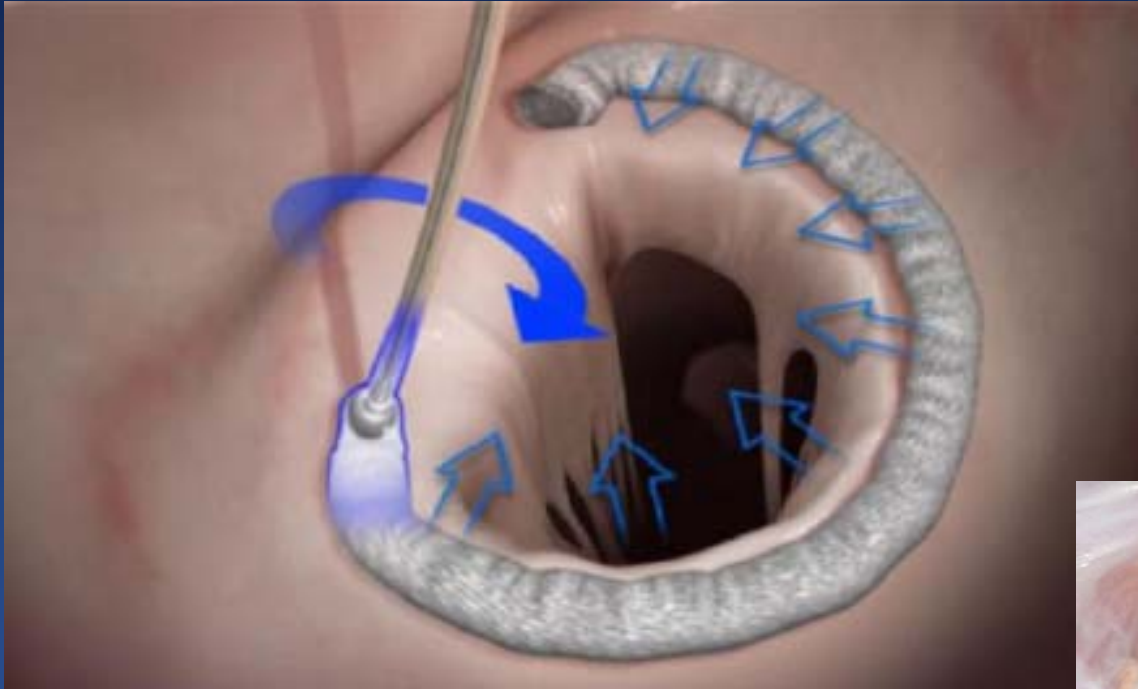


Trans-Apical Mitral Bioprosthesis

TIARA



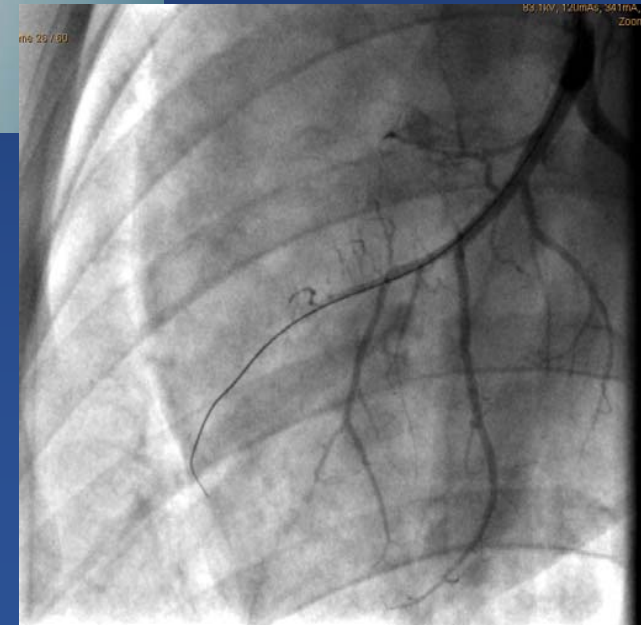
Percutaneous mitral annuloplasty



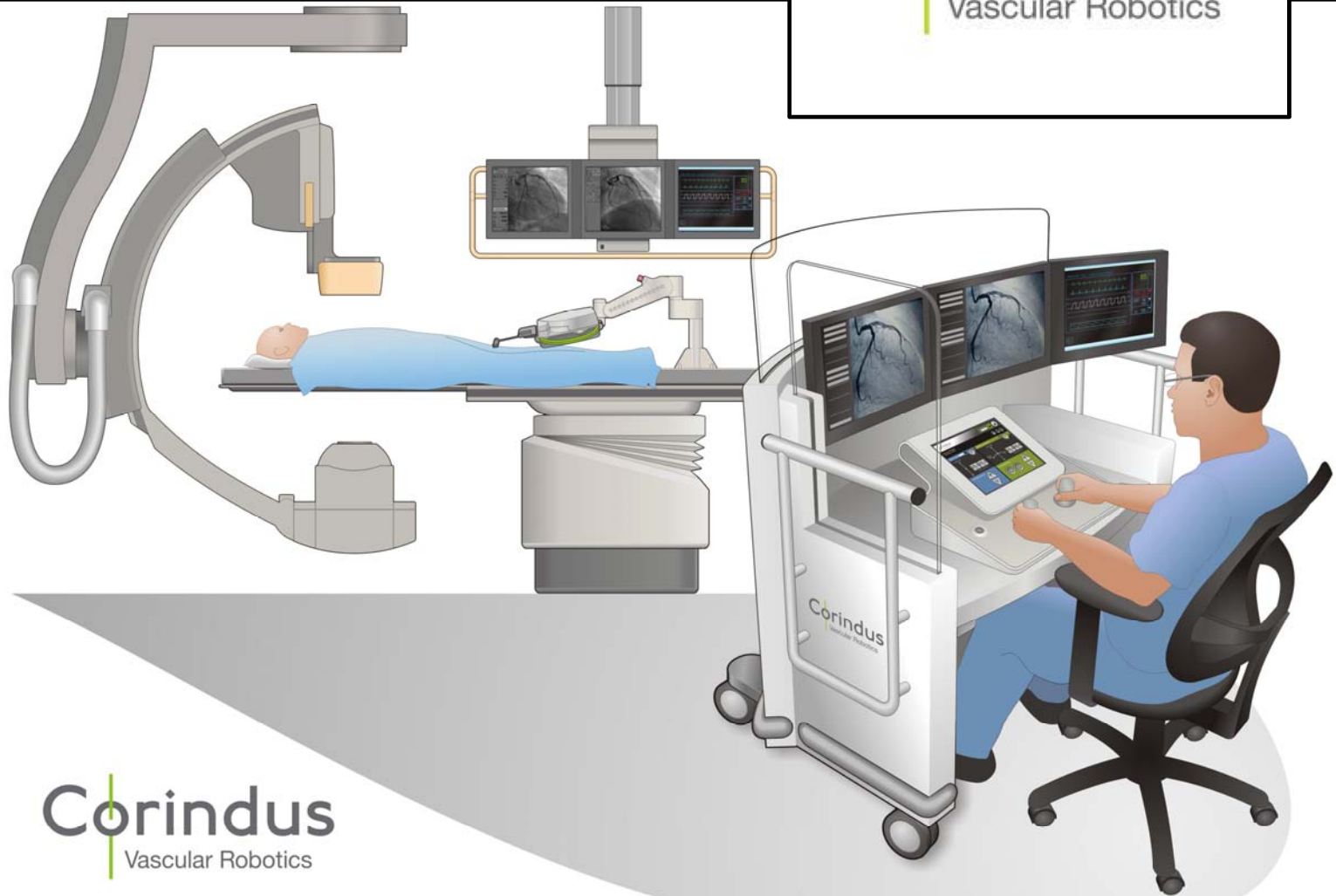
Closure devices



CTO enabling device



Corindus
Vascular Robotics



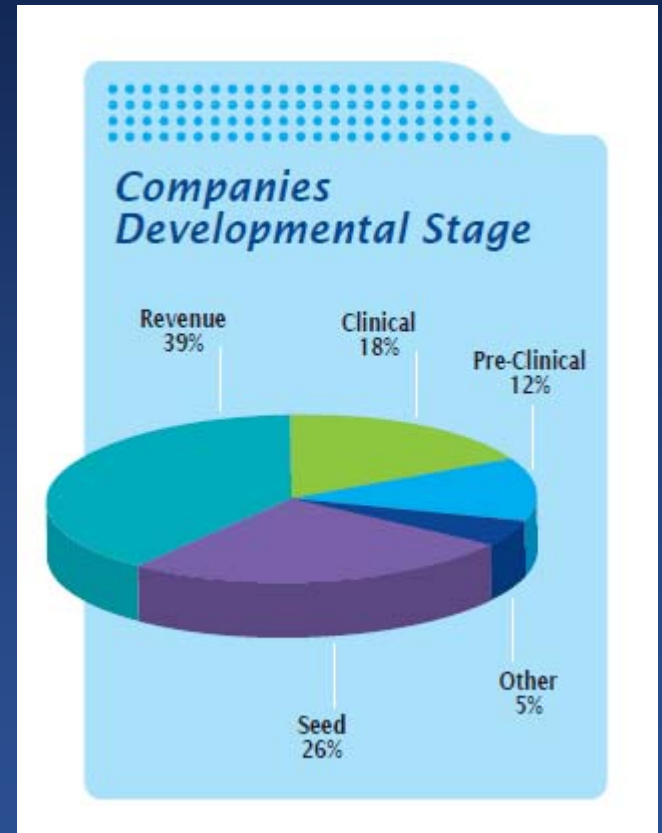
Corindus
Vascular Robotics

Made in Israel



Warning signs for the industry

- **Diminished Funding resources !**
 - ❖ Diminished early financing & late stage funding
 - ❖ Shrinking VC investments
- **'Brain drainage'**
- **Failure to mature**
 - ❖ 35% will not survive >5 yrs



Conclusion

- Israel innovation is a universally admired national asset.
- Israel exports high-tech and bio-tech to the world.
- Life Science is a major sector of innovation and R&D.
- Cardiology is an important sector in Israeli Life Science.
- The Israeli innovation scene continues to hold promises but shows some vulnerable business signs at the same time!



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Thank you!