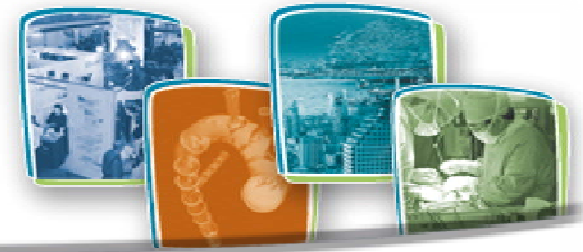


**ICI** Meeting  
**2008**

**Innovations  
in Cardiovascular  
Interventions**



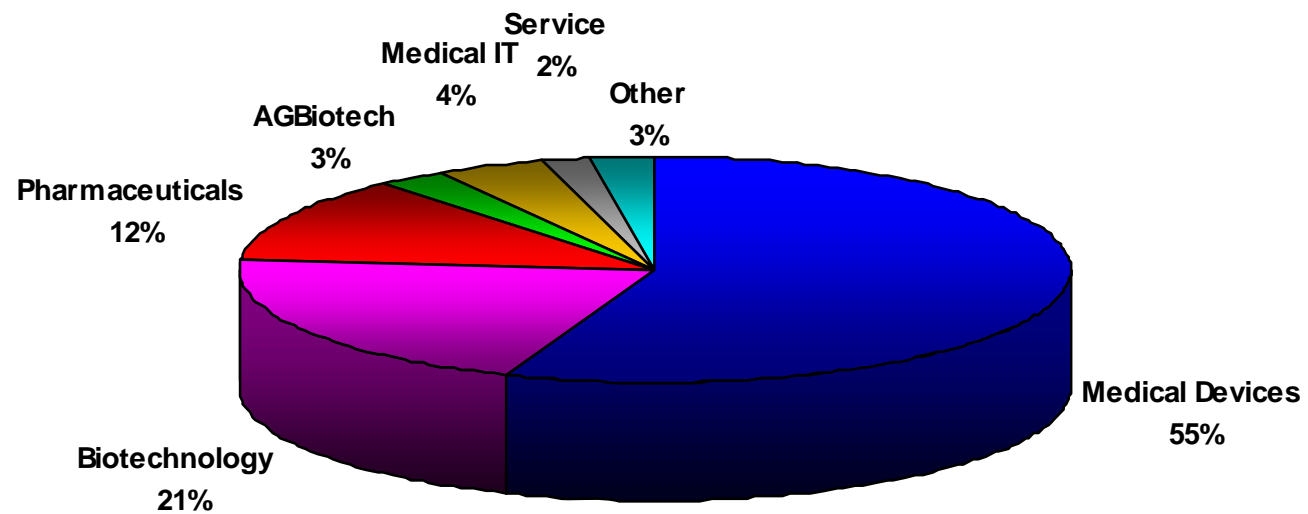
**December 7-9, 2008 | Tel-Aviv, Israel**



# ***Israel - A Nest For Cardio Innovations***

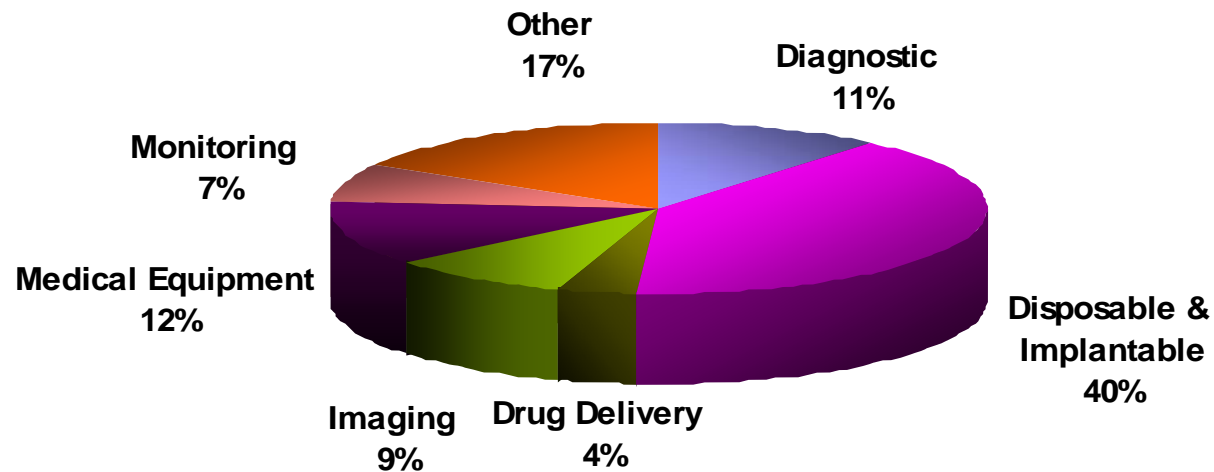
***Rafi Hofstein, PhD***

## Israel's Life Science Industry – Sectors



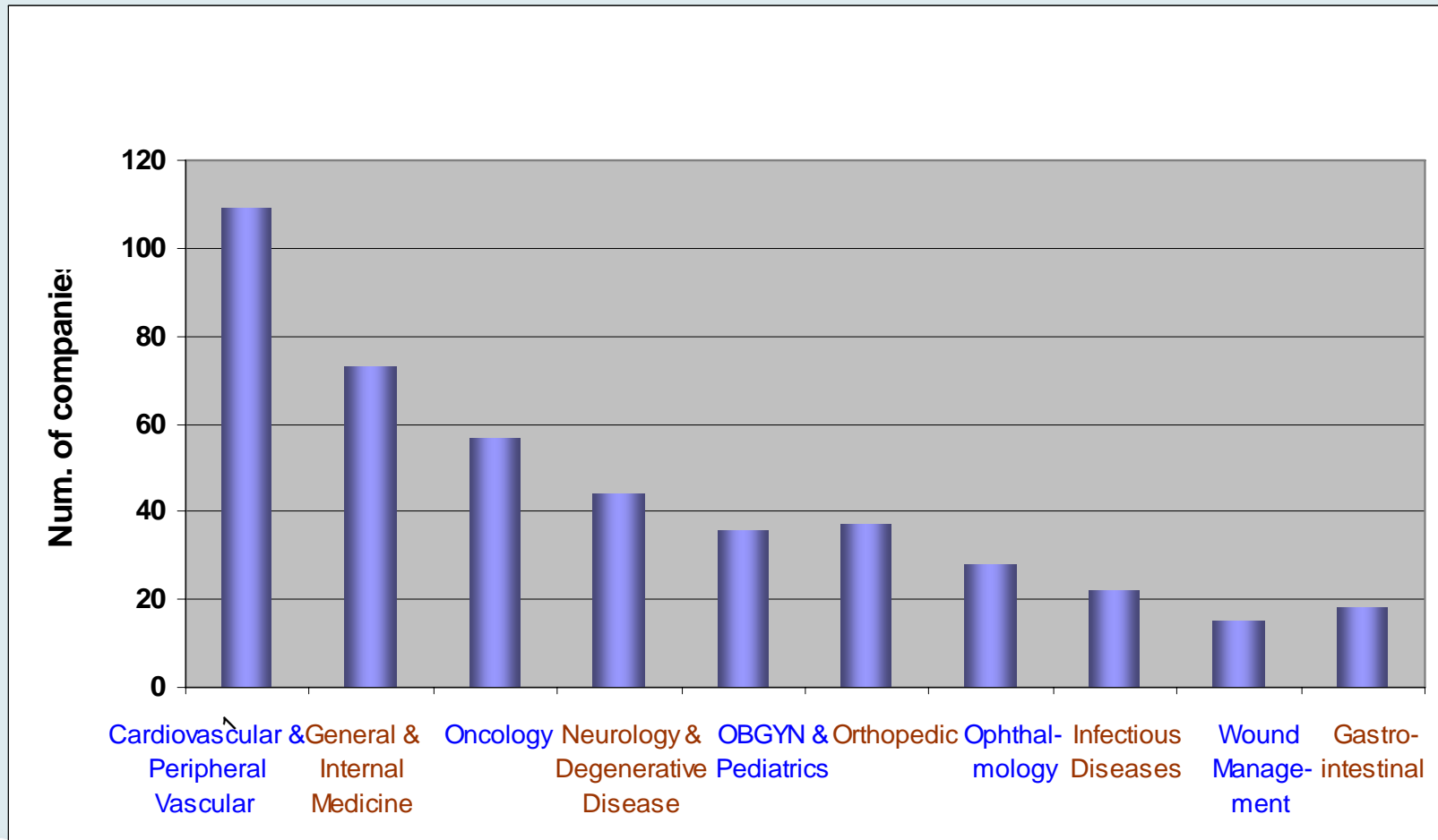
Source: ILSI Data Base – 2008

## Israel's Medical Device Companies (501 companies)



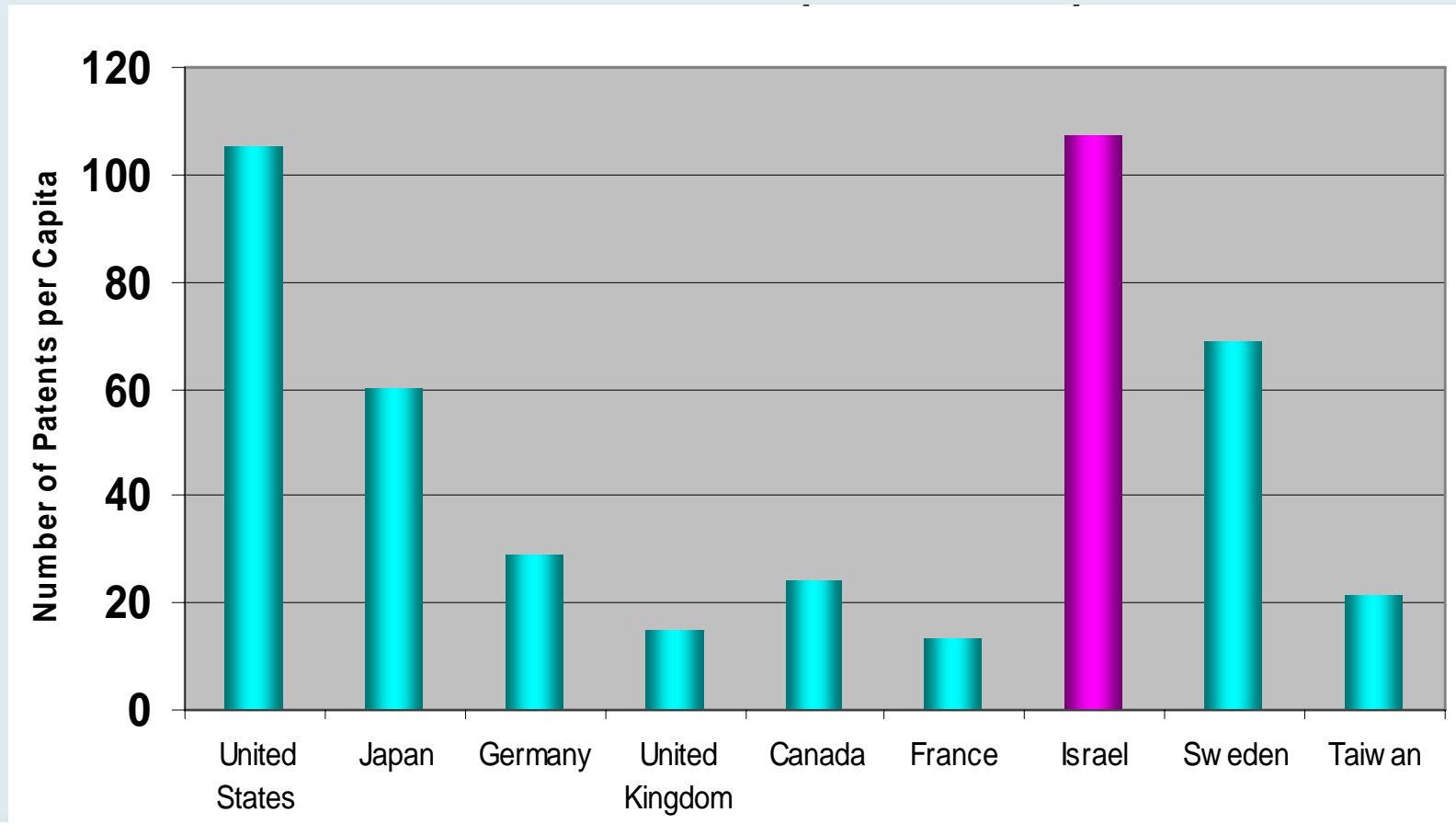
Source: ILSI Data Base – 2008

## Main Medical Fields



Source: ILSI Data Base – 2008

## Medical Device Patents per million Capita



Source: [www.uspto.gov](http://www.uspto.gov),  
Analysis: ILSI ©

# Hadassah Cardiovascular Innovation Center

Improving medical care through innovation



# Hadassah Cardiovascular Innovation Center Highlights

- Established: November 2007
- Joint operation: Hadasit & Hadassah Heart Institute
- Mission:  
To nurture entrepreneurship and improve patient care through innovation
- Means:
  - Creating a fostering environment. Reward for innovation
  - Screen & carefully select the most promising and innovative ideas
  - Accelerate the selected initiatives & prepare them for the next phase





Ideas



No Go

- Market validation (size, trend) ?
- Intellectual property ?
- Technical feasibility ?
- Clinical & regulatory pathways ?

Go/ No go

Go

- Initial Proof of concept in vitro, in vivo
- Business Plan, marketing strategy and operational program
- Scientific Advisory Board, Management spine
- Initial validation & expression of interest from industry
- Intellectual Property strategy
- Clinical & regulatory strategy (FIM)



## HCIC - The Setup

**Global  
Innovation Centers**

**Industry players**



**Financial resources  
VCs, Corp. funds**

**Medical & Scientific  
Advisory Board**



## HCIC – Summary

- ⇒ A global leading source of new technologies
- ⇒ Seeking cooperation with:
  - ⇒ Leading innovation & acceleration centers
  - ⇒ Global venture capital firms
  - ⇒ Industry players
- ⇒ Establishing an investment consortium with focus on accelerating & commercializing the selected technologies
- ⇒ Screening and due diligence process assisted by world-class experts in:
  - ⇒ Medical
  - ⇒ Scientific & Industry arenas



## Selected Innovations: Controlled Angioplasty



Improving **Efficacy** & **Safety**

*A.T. Weiss, D. Leibowitz, M. Mosseri, H. Danenberg,  
I. Katz, B. Varshitsky, L. Boguslavsky, H. Nassar & C. Lotan*



## Computerized Pressure Volume Curves

- Real time assessment of stent deployment after each inflation
- Area index provides an indication which is:
  - More accurate than angiography
  - Correlative well with IVUS
  - Indicates need for further inflations / balloon rupture / plaque resistance
- Valuable guide for optimal stent deployment
- Can be used in any procedure, no additional equipment / time



## Selected Innovations: Innovative Stent Positioning Platform



Accurate positioning in the origin of vessels

*B. Varshitzky, N. Borivker, C. Lotan & M. Mosseri*

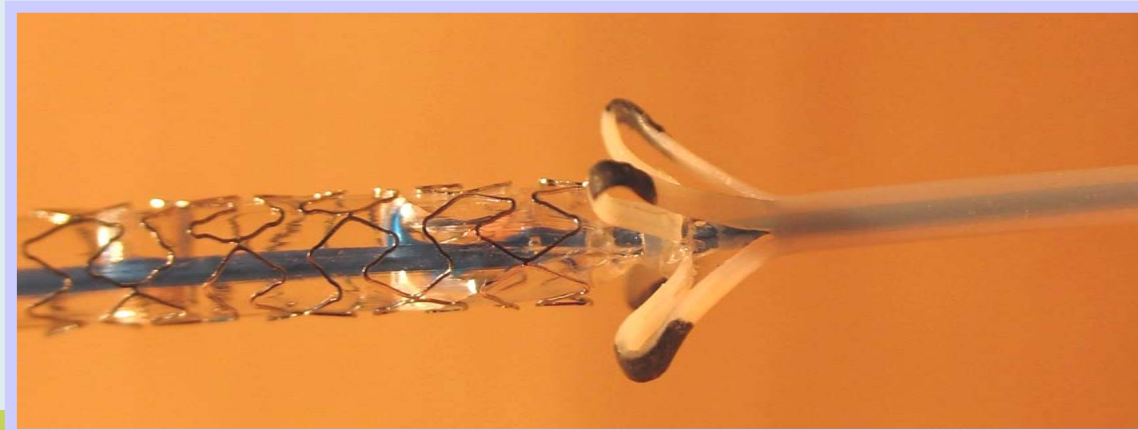


## Aorto ostial lesions – Risks

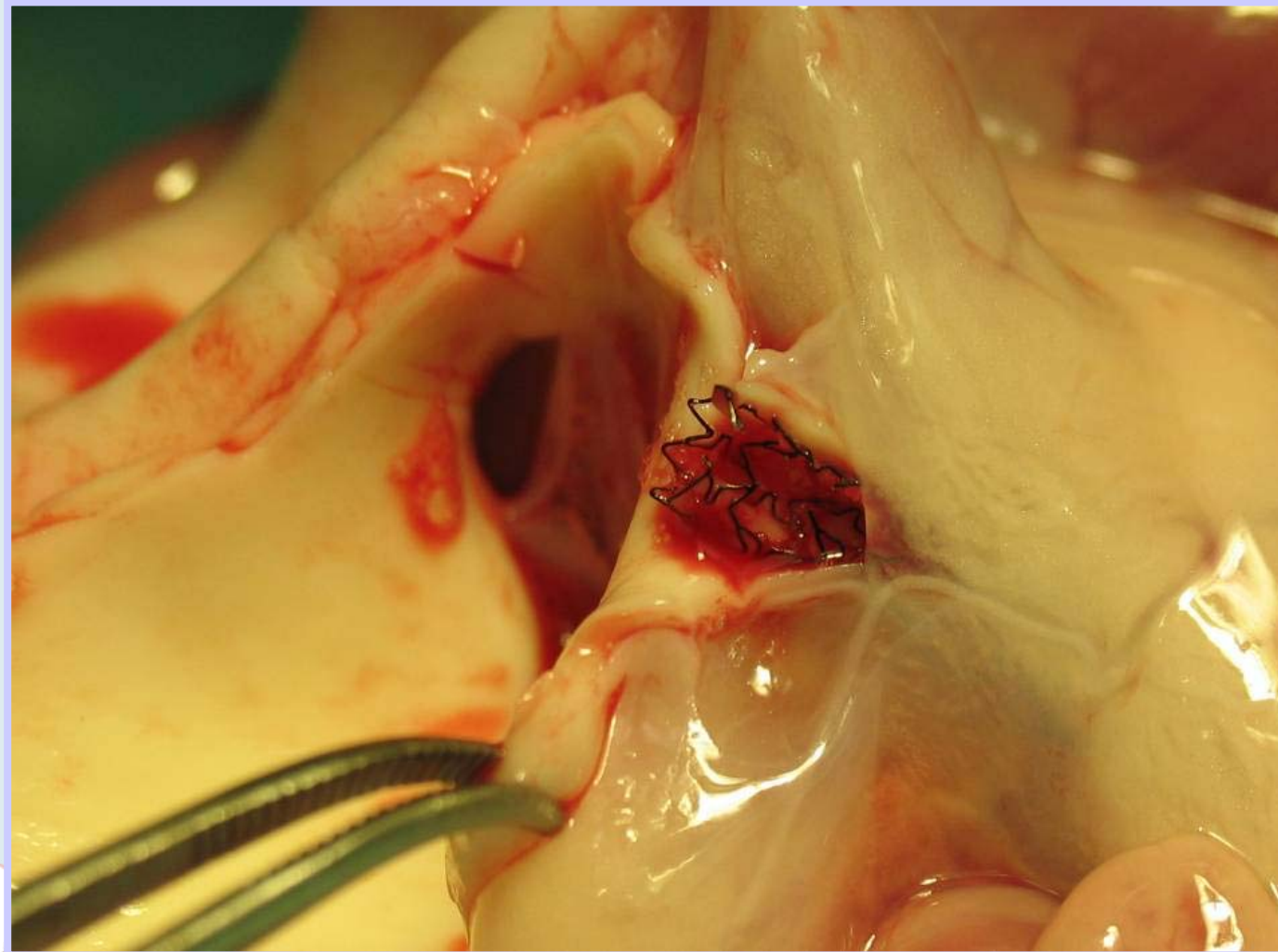


## Aorto Ostial system – The Concept

Accurate stent positioning guaranteed by dedicated locator system



## Results in sacrificed pig



## The HCIC Aorto Ostial Solution - Advantages

- Accurate stent implantation
- For all types of ostial lesions
- Compatible with most PCI tools
- Simple, friendly, intuitive
- Shorter procedure time
- Minimizes procedural risks
- Lower radiation dose
- Decrease exposure to contrast media
- Wide range of applications



## Selected Innovations: Aortic Pacemaker

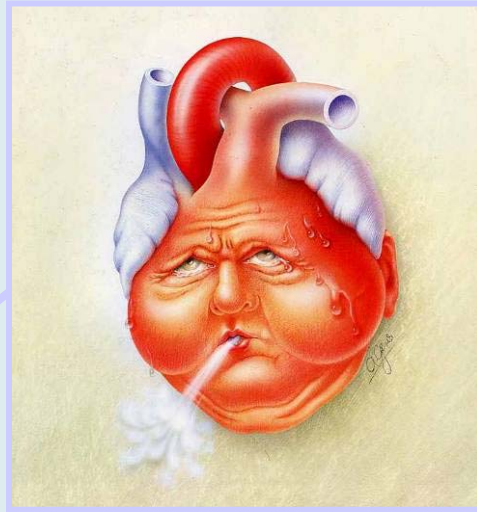


Improving **coronary perfusion** and **cardiac output**

*A Cahan, MD, D Planer, MD*



## CHF Patients - The Multiple Need



Enhanced  
Cardiac Output

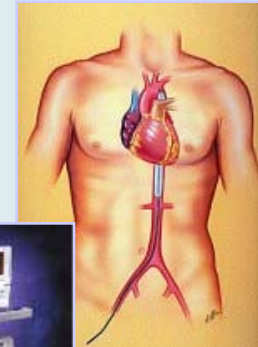
Improved Coronary  
Blood Flow



## Limitations of the current treatment

Intra-aortic balloon pump may improve coronary perfusion, but is:

- ⇒ Restricted to hospitalized patients in intensive care units,
- ⇒ Limited to a short period of time &
- ⇒ Associated with potentially lethal complications



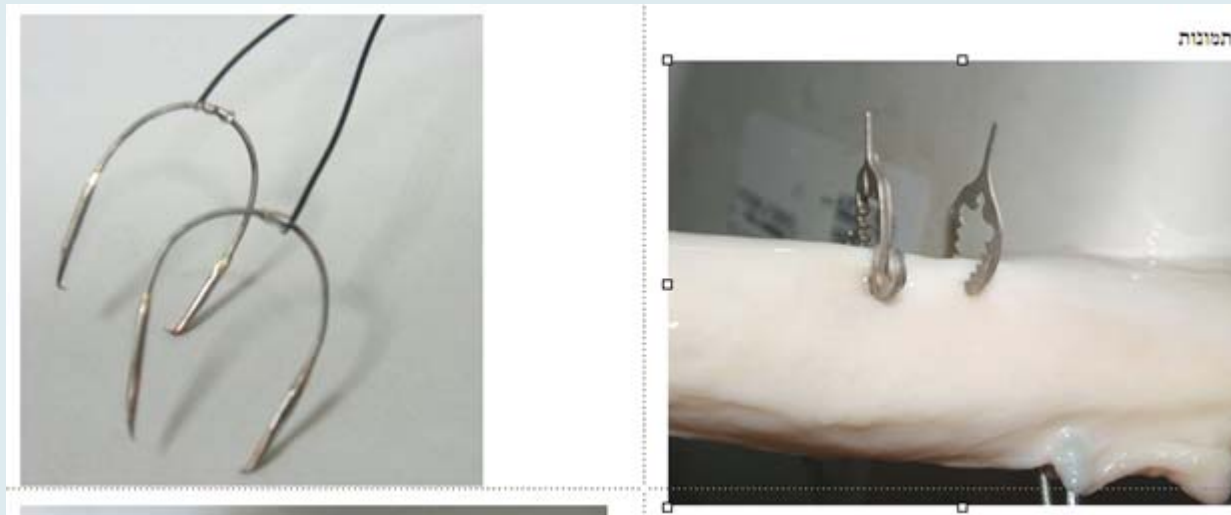
## The Need

An implantable device that enables to globally increase **coronary blood flow** and/or **cardiac output** for Congestive Heart Failure outpatients.





## Initial feasibility in Rats



## Selected Innovations: Double Lumen Guiding Catheter



Continuous intra-coronary infusion of medications

*D Rott, MD*



## The Need for Direct and Continuous Delivery of Drugs and Contrast Media to the Coronary Arteries



The new PTCA set will be equipped with an additional inner lumen that runs along the full length of the main lumen. This lumen allows continuous intra-coronary infusion of medications, during the procedure without interrupting the procedure-carried out using the main lumen.

### Initial feasibility in Sheep



## Selected Innovations: Personal Home-Based Automatic External Defibrillator



Improving **Efficacy** & **Safety** in Home Care

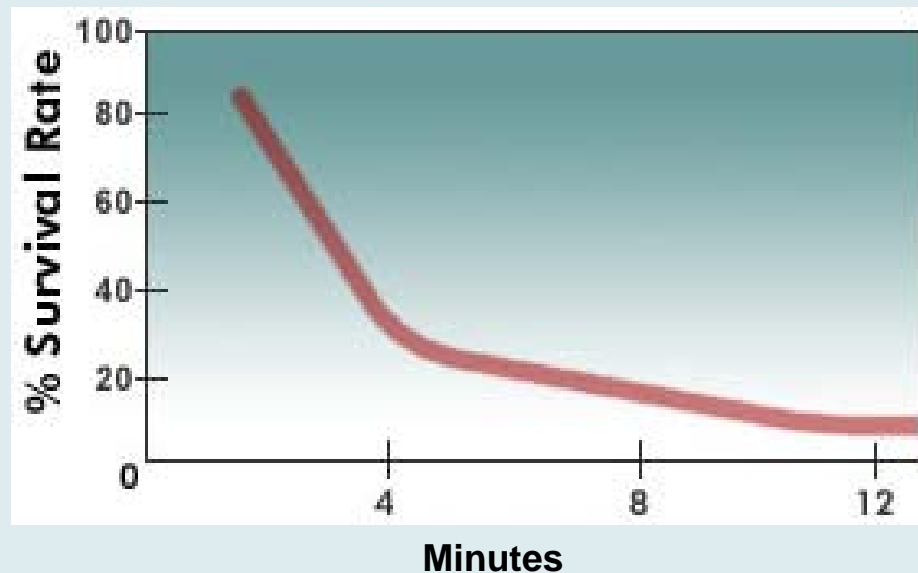
*A.T. Weiss, I. Katz, M. Mendelbaum & S. Gorni*



## The Market Need

- The first sign of heart problems in most individuals is sudden cardiac arrest. SCA claims more than 450,000 lives each year, primarily because life-saving early defibrillation does not reach the victims within the first critical minutes.*

### Early Defibrillation Impacts Survival



## The Advantages of the PAED

- Use the AC mains as source of energy
- Immediately operational
- No delay in repeated operation
- Intelligent and user friendly system



## The Advantages/Benefits of the PAED

- No Battery Needed
- No Capacitors
  - **Maintenance Free**
  - **Lower Cost**
  - **Therefore ideal for home use**



**Initial feasibility in Sheep**

# Hadassah Cardiovascular Innovation Center

A new, global, leading source for innovative technologies

Seeking cooperation with:

- ➔ Leading innovation & acceleration centers
- ➔ Global venture capital firms
- ➔ Industry players

