Tri-City Cardiovascular Symposium

August 17, 2024

Joshua Cohen, MD, FACC, FSCAI, RPVI

- Board Certified in Cardiovascular Disease, Nuclear Cardiology, Echocardiography, Vascular Medicine, Cardiac CTA, Endovascular Medicine, Interventional Cardiology, and Internal Medicine.
- He completed his General and Interventional Cardiology Fellowship, Residency, and received his Doctor of Medicine degree from the University of California, San Francisco.
- Serving as the medical director of Tri-City Cardiology's nationally accredited vascular laboratory, Dr. Cohen is a registered physician in vascular interpretation (RPVI). He is also the immediate past Chairman of Cardiology at Banner Desert Medical Center and an expert in the treatment of peripheral vascular and venous diseases.
- Dr. Cohen's exceptional patient care is recognized by Press Ganey, which ranks him in the top 20th percentile in the country among physicians whose patients rate them as friendly and courteous.

TRI-CITY CARDIOLOGY

Novel Approaches in Heart Failure Management: CardioMEMS

TRI-CITY CARDIOLOGY

CardioMEMS™ HF System

PATIENT CANDIDATE **CONSIDERATIONS**

- The CardioMEMS HF System is indicated for more patients.
  - New York Heart Association (NYHA) Class II and III heart failure patients[1] with:
    - One HF hospitalization in the past 12 months[1] and/or
    - Elevated brain natriuretic peptide (BNP) or NT-proBNP level[1]
- The CardioMEMS HF System can:
  - Help optimize GDMT
  - Slow HF progression by treating patients sooner
  - Prevent HF hospitalizations[1]
  - Prevent HF hospital readmissions[2]
  - Benefit patients with preserved ejection fraction (HFpEF) and with reduced ejection fraction (HFrEF)[1]
  - Monitor your patients if they live far from the clinic or who may be traveling
- The CardioMEMS HF System is contraindicated for:
  - Patients with an inability to take dual antiplatelet or anticoagulants for one month post implant
- Learn more about the CardioMEMS HF System by visiting cardiovascular.abbott/cardiomems

TRI-CITY CARDIOLOGY

NT-proBNP and BNP Thresholds According to Ejection Fraction and BMI

An elevated natriuretic peptide level is defined as an NT-proBNP level ≥ 1000 pg/mL or a BNP level ≥ 250 pg/mL.

Thresholds are dependent on left ventricular ejection fraction and body mass index, using a 4% reduction[3] per BMI unit over 25 kg/m2, as listed in the table below:

BMI (kg/m2)	NT-proBNP Threshold (pg/mL)		BNP Threshold (pg/mL)	
	LVEF ≤ 40%	LVEF > 40%	LVEF ≤ 40%	LVEF > 40%
≤25	1000	700	250	175
26	955	668	238	167
27	911	638	227	159
28	870	608	216	151
29	830	581	206	144
30	792	554	197	137
31	756	529	187	130
32	722	504	178	124
33	689	481	170	118
34	657	459	162	112
35	627	438	154	107
36	599	418	147	101
37	571	399	140	96
38	545	380	133	92
39	520	363	126	87
40	496	346	120	83
41	473	330	114	79
42	452	315	109	75
43	431	300	103	71
44	411	286	98	67
45	392	273	94	64
46	374	260	89	60
47	357	248	84	57
48	340	236	80	54
49	324	225	76	51
50	309	215	72	49

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One St. Jude Medical Dr., St. Paul, MN 55117 USA, Tel: 1 651 756 2000
Cardiovascular. Abbott/CardioMEMS

Rx Only

Brief Summary: Prior to using these devices, please review the Instructions for Use for a complete listing of indications, contraindications, warnings, precautions, potential adverse events and directions for use.

CardioMEMS™ HF System Indications and Usage: The CardioMEMS™ HF System is indicated for wirelessly measuring and monitoring pulmonary artery pressure and heart rate in NYHA Class II or III heart failure patients who either have been hospitalized for heart failure in the previous year and/or have elevated natriuretic peptides. The hemodynamic data are used by physicians for heart failure management with the goal of controlling pulmonary artery pressures and reducing heart failure hospitalizations.

CardioMEMS™ HF System Contraindications: The CardioMEMS™ HF System is contraindicated for patients with an inability to take dual antiplatelet or anticoagulants for one month post implant.

CardioMEMS™ HF System Potential Adverse Events: Potential adverse events associated with the implantation procedure include, but are not limited to, the following: air embolism, allergic reaction, infection, delayed wound healing, arrhythmias, bleeding, hemoptysis, hematoma, nausea, cerebrovascular accident, thrombus, cardiovascular injury, myocardial infarction, death, embolization, thermal burn, cardiac perforation, pneumothorax, thoracic duct injury and hemothorax.

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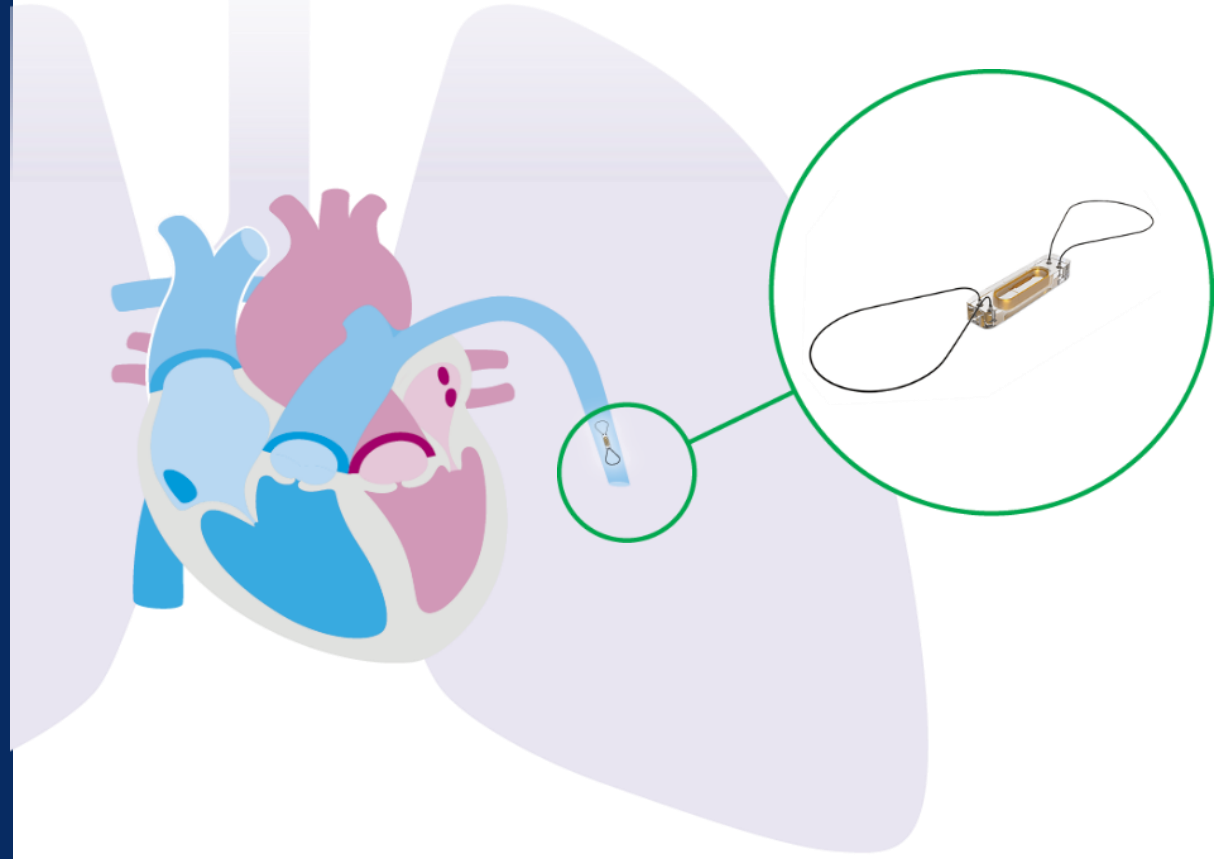
TRI-CITY CARDIOLOGY

Agenda:

- What is CardioMEMS HF System?
- CardioMEMS Indication
- CardioMEMS Data

The CardioMEMS™ HF System:

Pulmonary Artery Pressure Sensor



ONE SMALL DEVICE

The CardioMEMS™ PA Sensor is inserted via a commonly performed right heart catheterization, often as an outpatient procedure. Most patients can return home the same day.

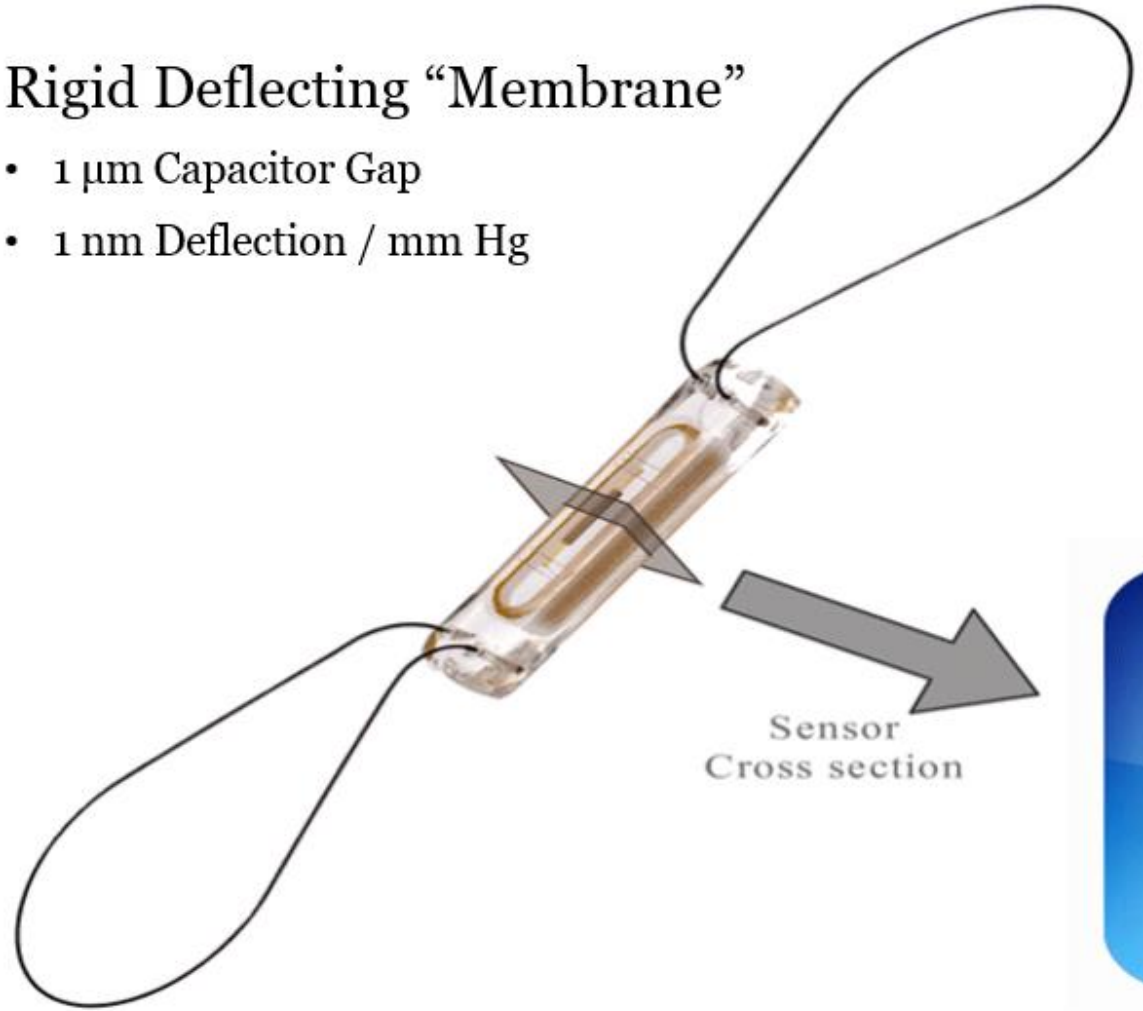
Data from the sensor gives you the precise and actionable presymptomatic data to inform proactive treatment modifications going forward.

CARDIOMEMS™ PA SENSOR

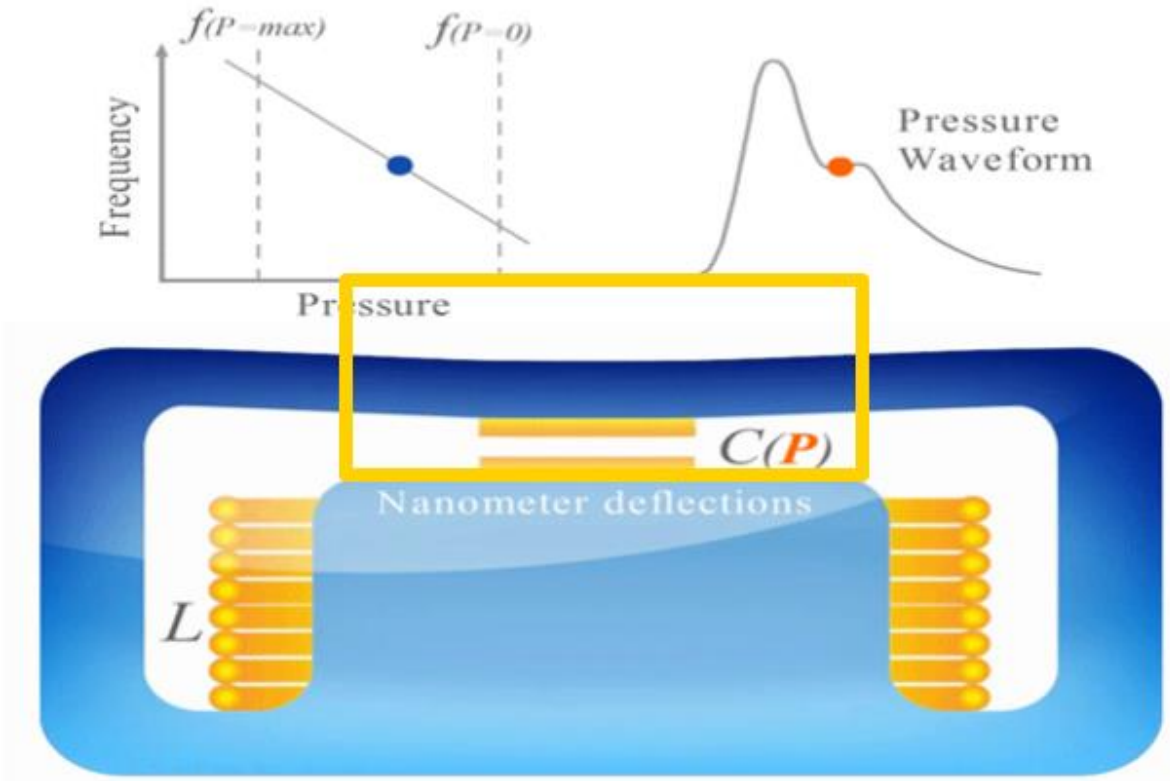
Sensor Concept

Rigid Deflecting "Membrane"

- 1 µm Capacitor Gap
- 1 nm Deflection / mm Hg

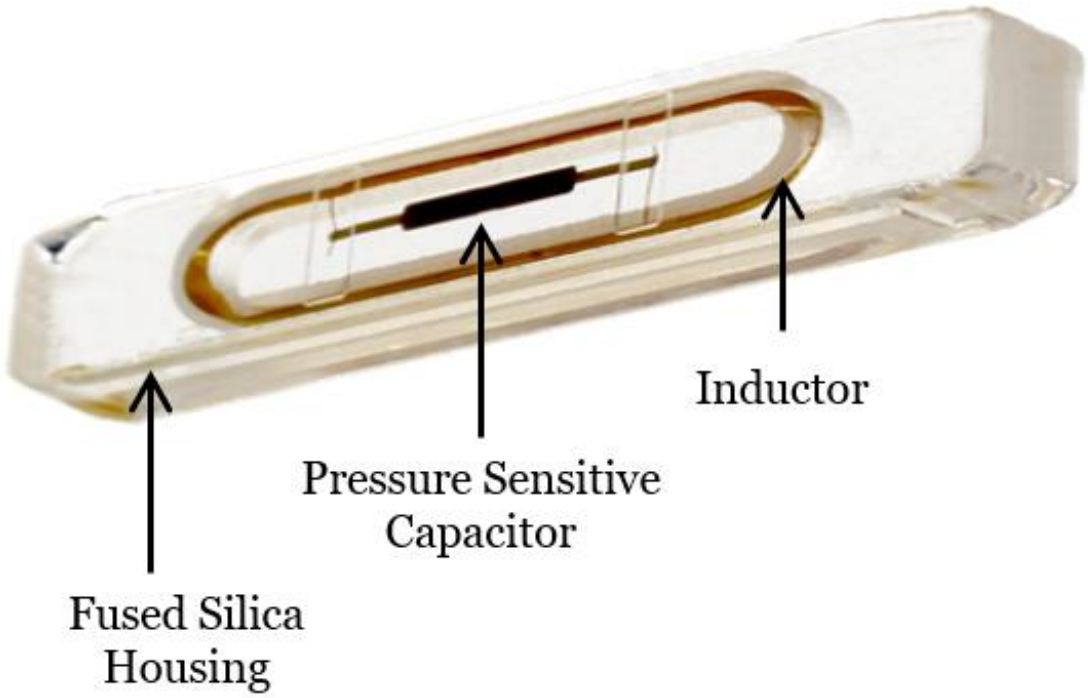


$$f = \frac{1}{2\pi\sqrt{L\ C(P)}}$$



CARDIOMEMS™ PA SENSOR

Sensor Design Features



Design Simplicity = ↑ Reliability

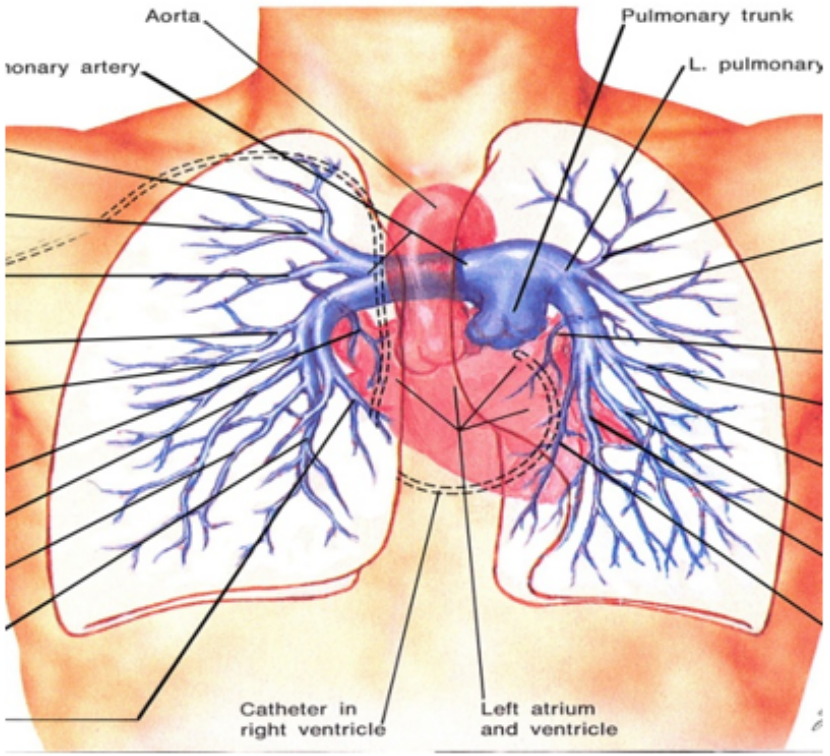
Stable Performance

- Biocompatible Material Selection
- Hermetically Sealed
- Rigid Sensing Element

No Internal Power Supply

Pulmonary Artery Anatomy

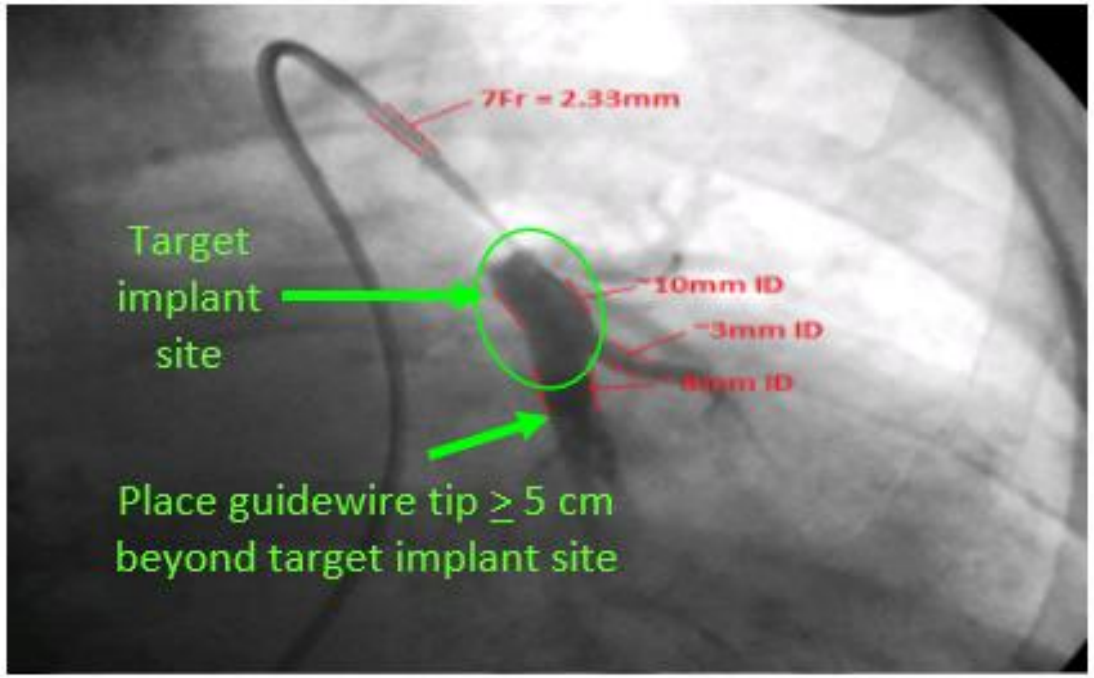
Right Left

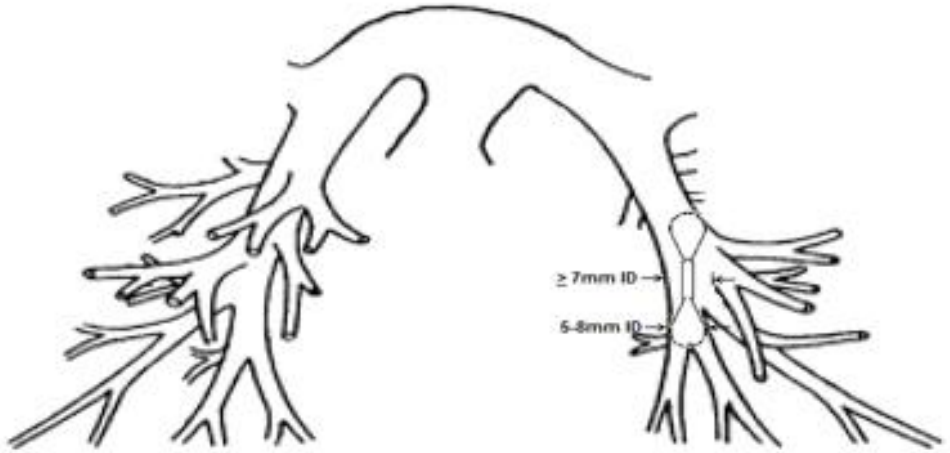


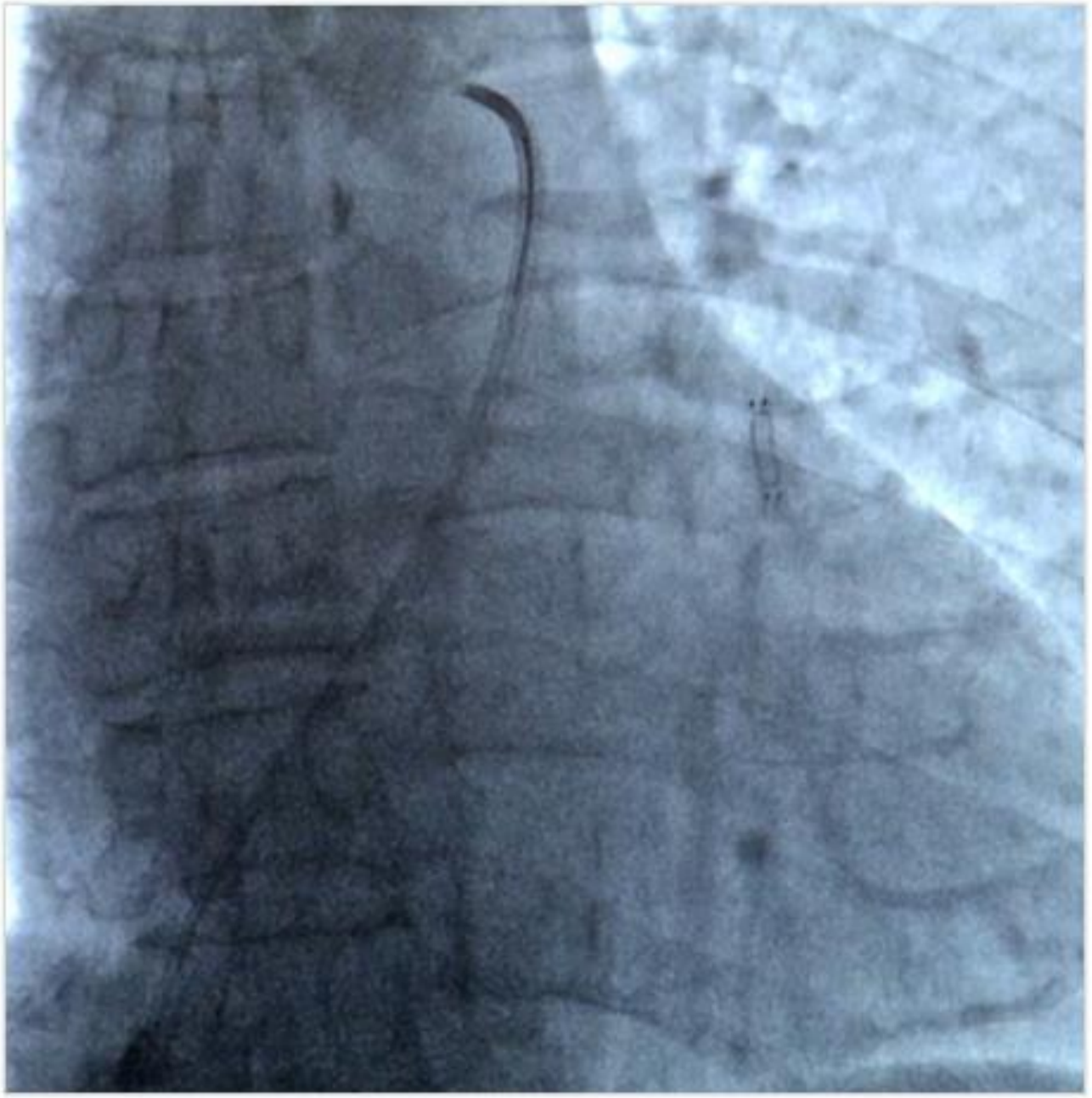
Images from Anatomy of the human body (1918) Grays anatomy

WHY DO WE PLACE THE SENSOR IN THE PA?

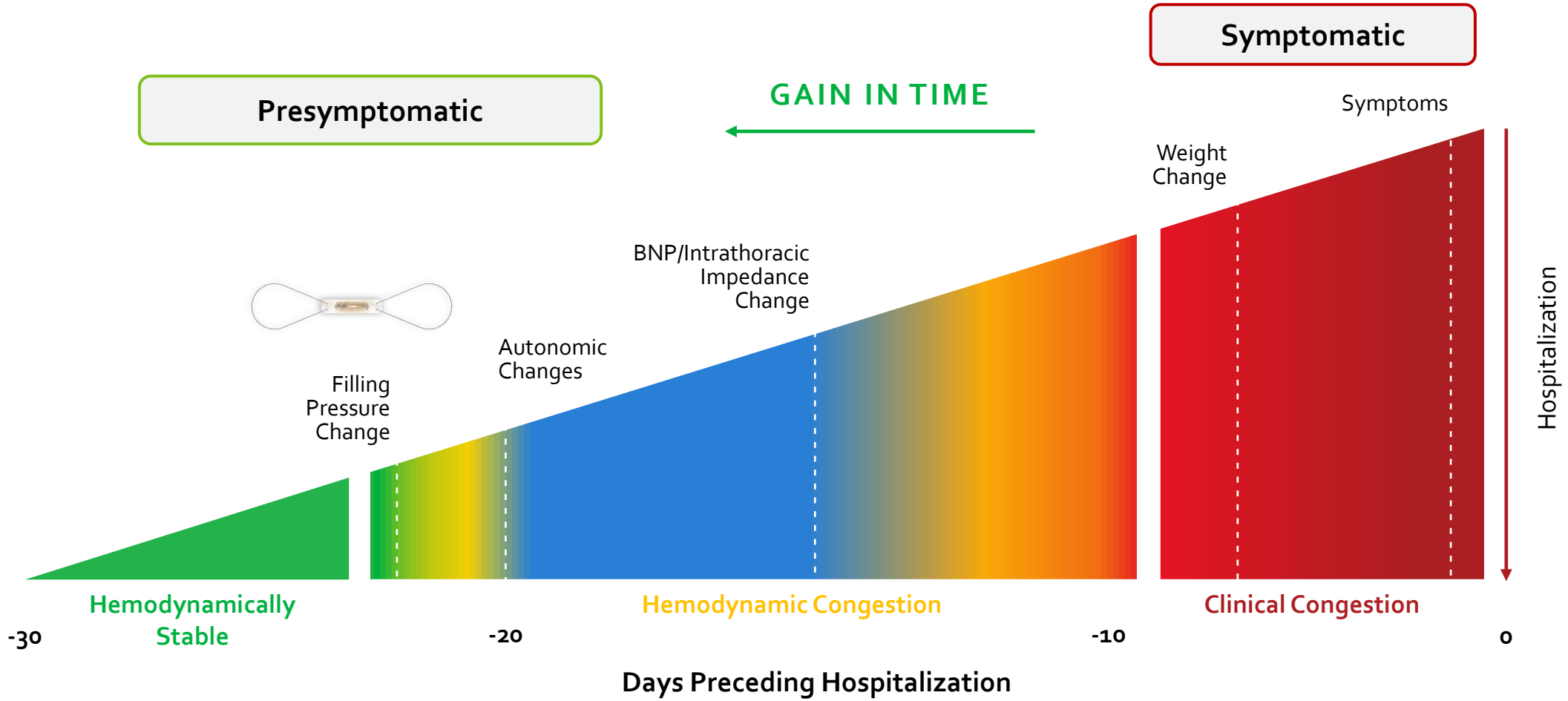
- LV filling pressure is the **clinical** focus for improved management of Heart Failure
- Pulmonary artery pressure (PAP) correlates with LV filling pressure
- Procedure takes place in the right side of heart – low stroke risk, straightforward procedure
- **Sensor design allows for passive fixation**


7Fr = 2.33mm
Target implant site
10mm ID
3mm ID
Place guidewire tip ≥ 5 cm beyond target implant site


≥ 7mm ID
6-8mm ID



The *CardioMEMS™ HF System-*
provides pre-symptomatic and actionable data



Adamson PB. Pathophysiology of the transition from chronic compensated and acute decompensated heart failure: new insights from continuous monitoring devices. *Current Heart Failure Reports.* 2009;6(4):287-292. doi:10.1007/s11897-009-0039-z

The CardioMEMS™ HF System Provides The Actionable Data You Need To Empower Intelligent Remote Monitoring

The PA sensor is inserted via right heart catheterization.

Patient takes daily sensor reading from the comfort of their home.

Data wirelessly transmitted to Merlin.net™ PCN, a secure website that easily presents PA pressure data to inform proactive treatment modifications.

- *CardioMEMS™ HF System*

Clinical Indication

Abbott

CardioMEMS™ HF System

PATIENT CANDIDATE CONSIDERATIONS

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- *CardioMEMS™ HF System*

Clinical Data

CARDIOMEMS™ HF SYSTEM PROGRAM REVIEW

Proven clinical outcomes in a variety of studies

The CardioMEMS™ HF System has shown proven benefits in a variety of clinical studies including **five prospective trials** studying more than 3,000 people[1-4,10] and **four large retrospective studies** of more than 5,000 patients.[5-7,9]

Regardless of trial design, the CardioMEMS™ HF System has demonstrated **significant clinical benefits in over 8,000 heart failure patients.**[1-7,9,10]

PROVEN IN A VARIETY OF CLINICAL STUDIES

25% ↓ **Reduced Mortality[9]**

57% ↓ **Less Hospitalizations[3]**

78% ↓ **Reduced readmissions[11]**

60% ↓ **Reduction In HFpE[3] Hospitalizations[3]**

54% ↓ **Reduction In HFrEF[3] Hospitalizations[3]**

CARDIOMEMS™ PA SENSOR IMPLANT PROCEDURE

A Sensor is Only as Accurate as its Initial Calibration

TO ENSURE ACCURACY, AN IMPLANT PROCEDURE MUST INCLUDE:

1. Appropriate sensor location
2. Quality data calibration
3. Accuracy confirmation

Any Questions?

Please use the QR code to submit your questions.

TRI-CITY CARDIOLOGY

Thank You For Attending the Tri-City Cardiovascular Symposium

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