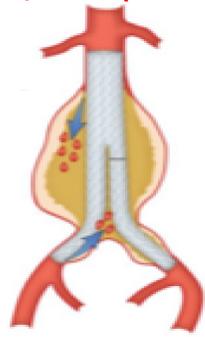


# SAVVY STENT Real-time Aneurysm Monitoring System

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## Abdominal Aortic Aneurysm (AAA)

- Abdominal aortic (AA) rupture has 90% mortality rate
- 30% of EVAR intervention treatments fail
- Formation of endoleaks allow continued aneurysm growth

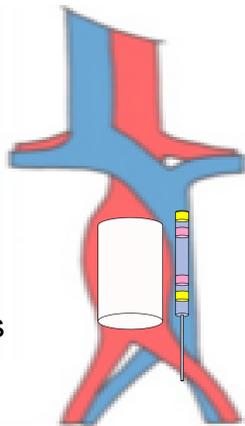


## Current Detection: CT Scans

- Expensive \$3,200 Per Scan
- Harmful Radiation Exposure
- Inconvenient Monthly to Yearly Screening

## Solution via Bioimpedance

- Technology currently used by Saranas for detection of artery punctures
- Endoleak results in impedance drop in area of detection



## Savvy Stent Goal

- One Implantation in Inferior Vena Cava
- Daily, 1-Minute Measurements
- Automatic Transmittance To Physician

## Device Design Criteria

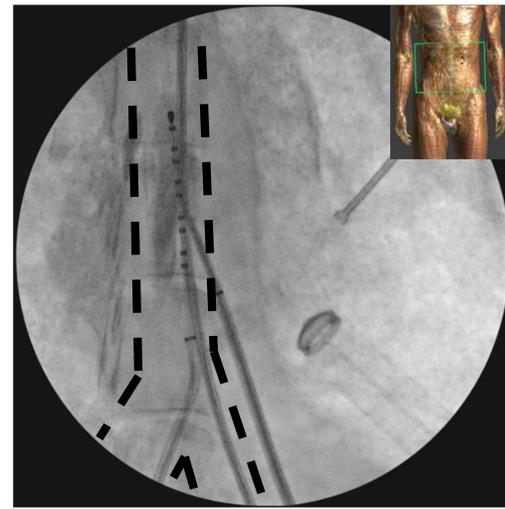
Criteria	Goal	Achieved
Accuracy	> 80%	✓ 95%
Sensitivity	> 80%	70%
Intuitive	> 2/5	✓ 5/5
Price	< \$1,000	✓ < \$100
Lifetime	Minimum 2 year	

## Future Direction

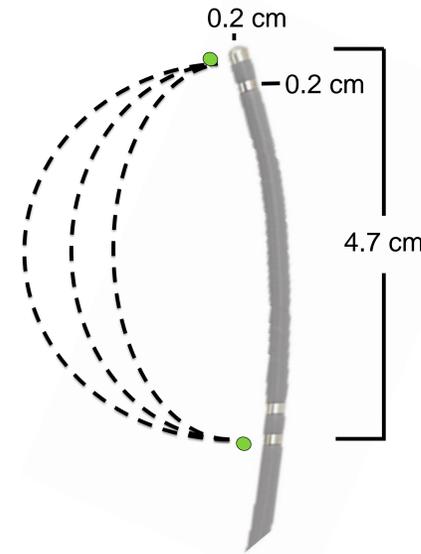
- Develop anchoring mechanism
- Ensure HIPPA approved data transmission and storage

## Acknowledgements

- Saranas; Mathew John; Eric Richardson, Ph.D.



Fluoroscopy Image of Savvy Stent Solution near the AA (Dotted line)

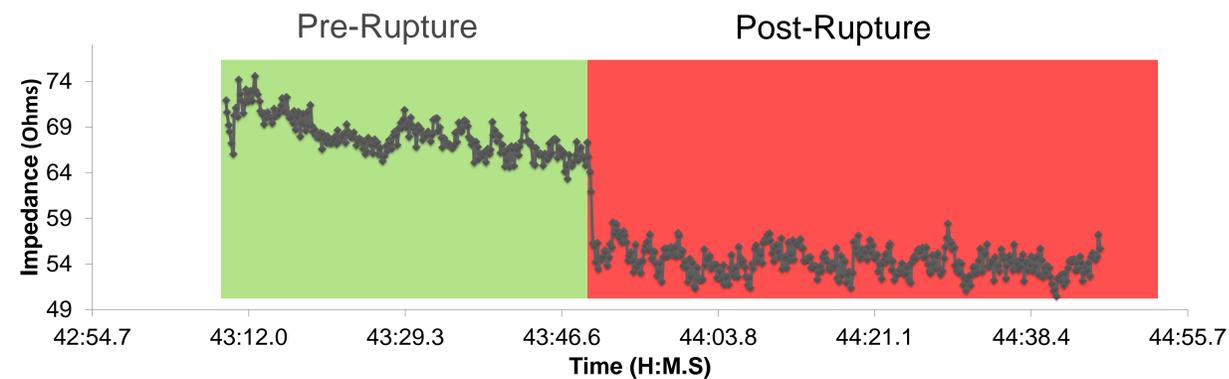


Savvy Stent Catheter with bioimpedance detecting electrodes



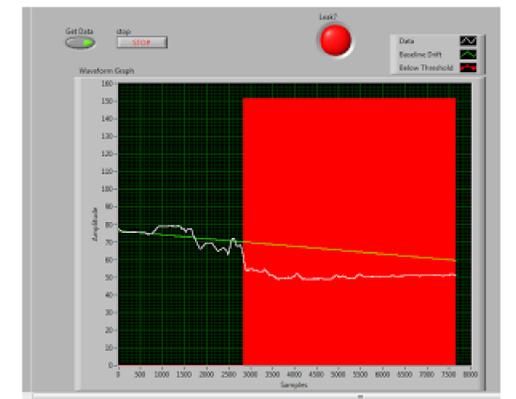
Savvy Stent Analysis Software coupled with Saranas data logger

## Significant Leak Detected



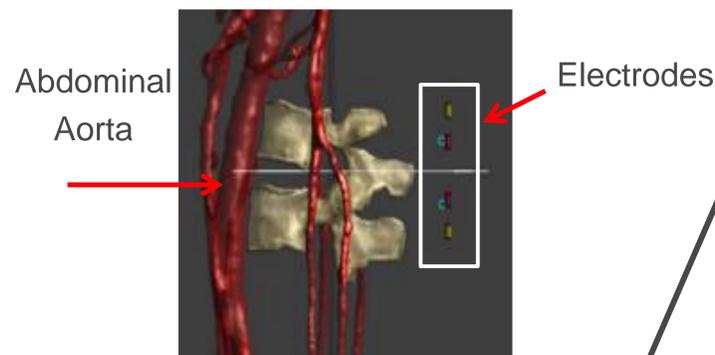
Data: Large Animal Verification Study (3.8.16)

## Doctor / Patient interface



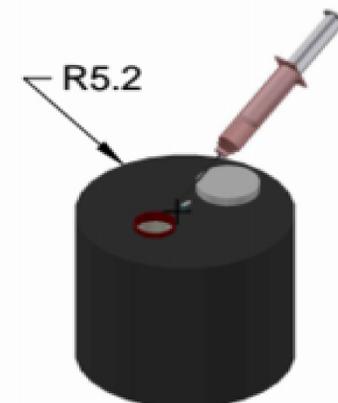
## Computational Modeling

Used Sim4Life software to simulate bioimpedance resolution of electrodes



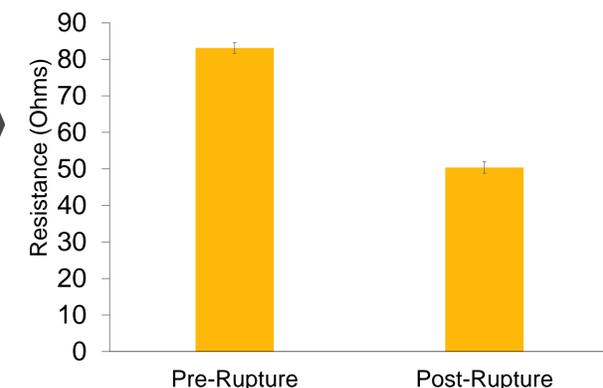
## Bench-top Model

Developed synthetic muscle, artery, and blood mimic for testing platform



## Animal Studies

Implanted prototype in large animals to demonstrate detection of AA rupture



Data: Large Animal Verification Study (3.8.16)