



Introductory Presentation

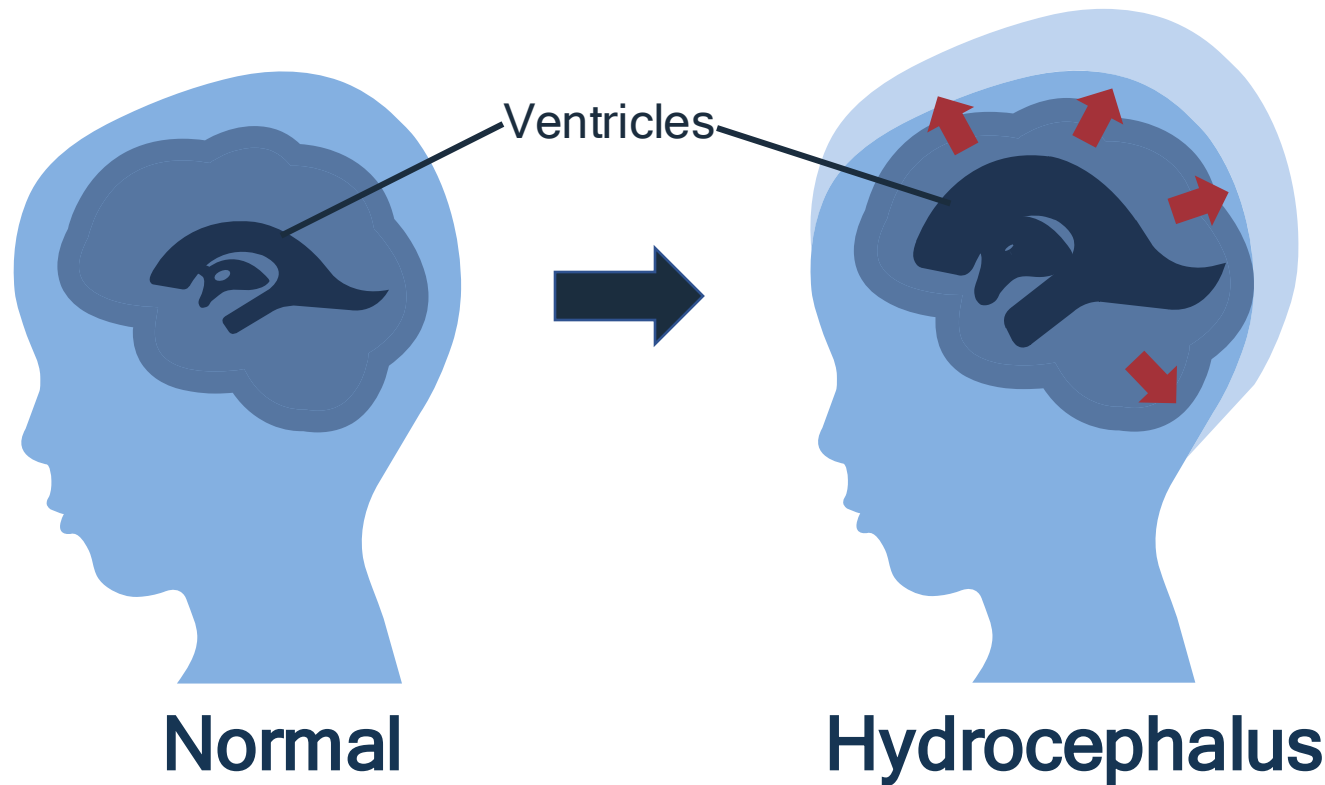
December 2025

A woman in a white lab coat and glasses is looking at a large screen displaying brain scan data. The screen shows several cross-sectional images of a brain, likely MRI or CT scans, with various data points and labels. The overall scene is dimly lit, suggesting a laboratory or clinical setting.

Developing smart neurotechnology for hydrocephalus & other neurologic disorders

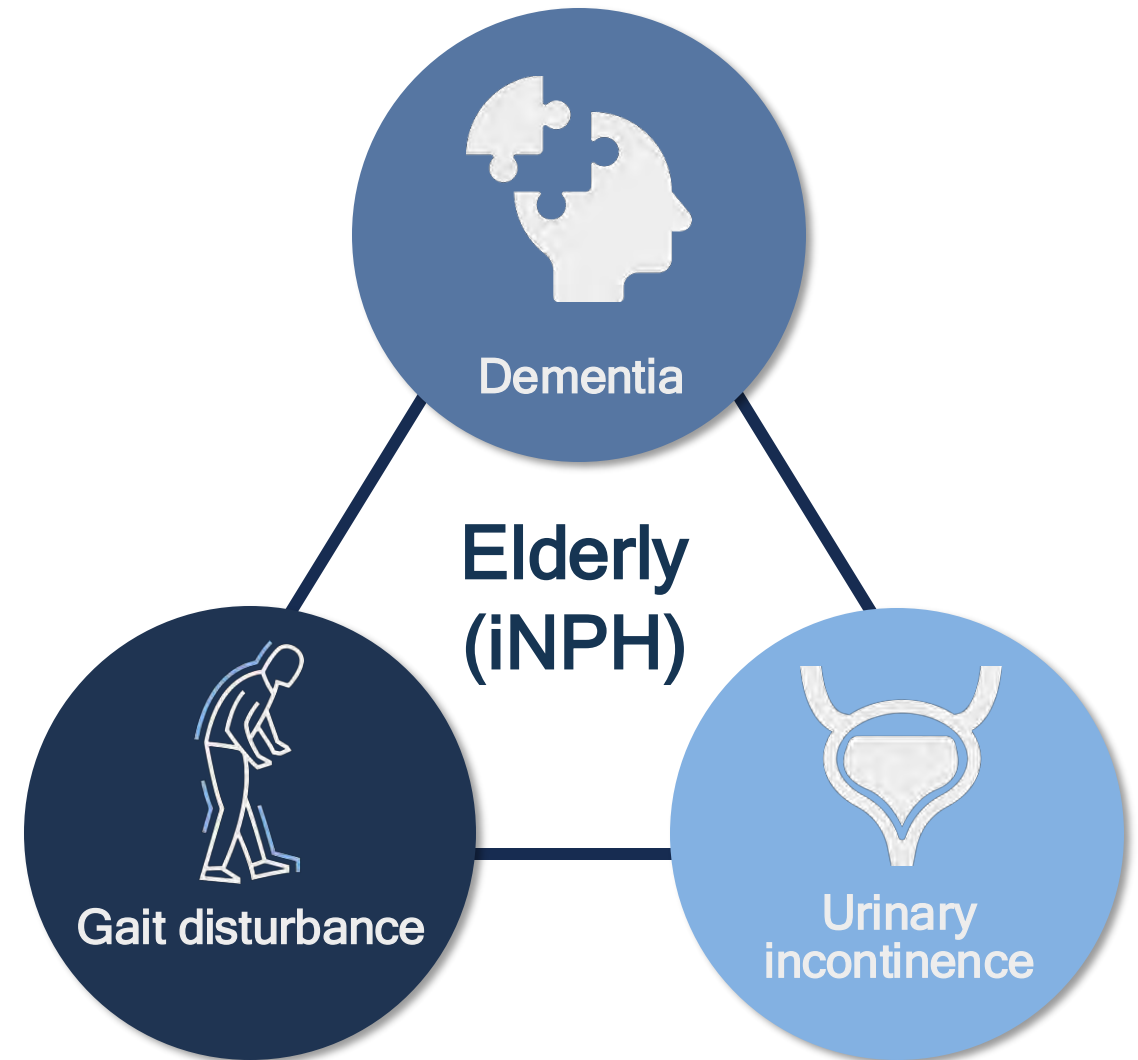
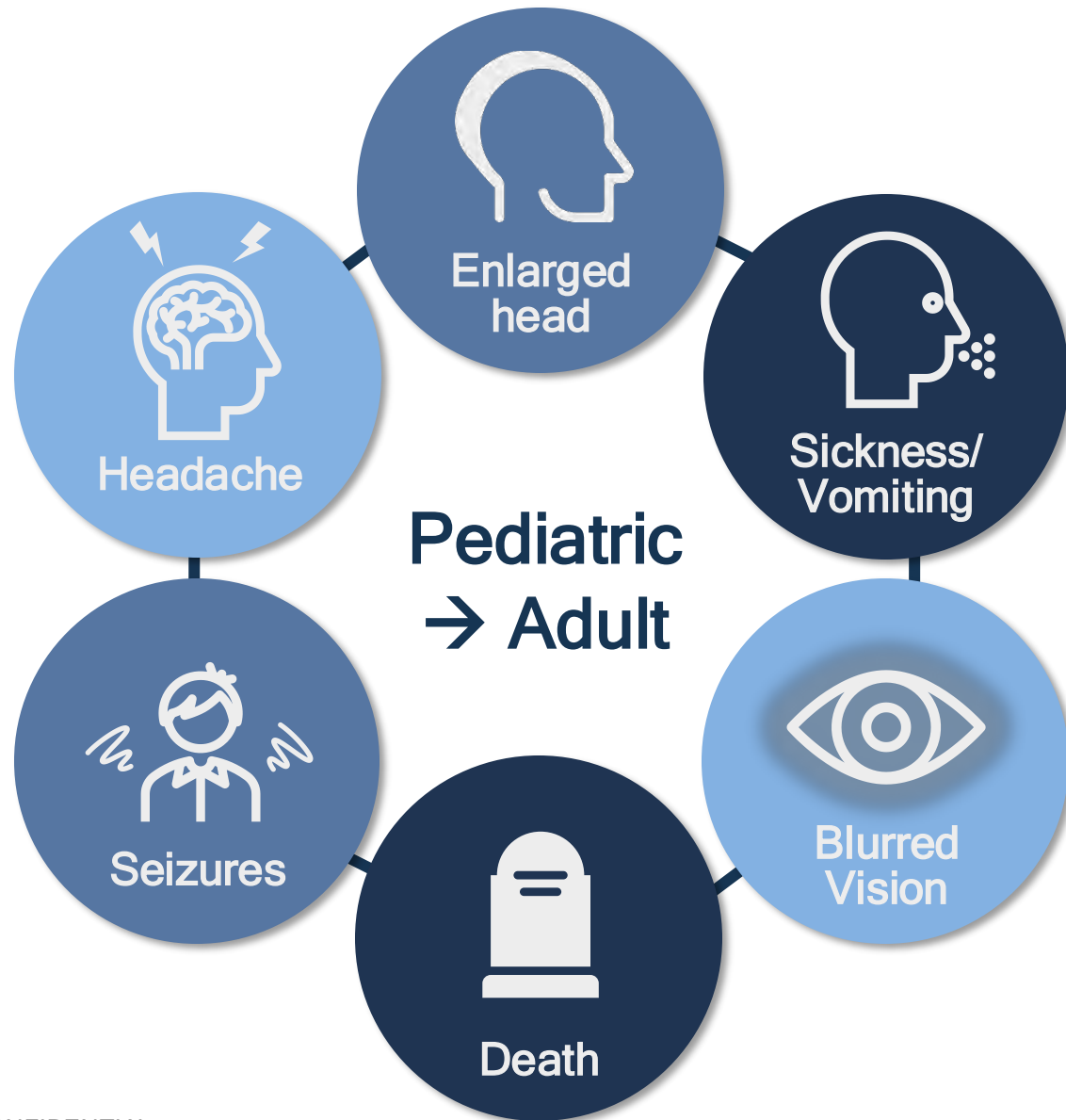
Hydrocephalus

Accumulation of cerebrospinal fluid (CSF) and elevated intracranial pressure (ICP) caused by numerous etiologies



#1
may be most common
neurologic disorder¹

Hydrocephalus Symptoms



The New York Times

Billy Joel Has Normal Pressure Hydrocephalus. What Is It?

The singer canceled his upcoming concerts because of the brain disorder. Here's what to know about the symptoms, prognosis

 NBC NEWS


What is normal pressure hydrocephalus? Billy Joel's condition is often treatable

The singer announced Friday that he was diagnosed with the brain disorder after he'd had trouble with his hearing, vision and balance.

 CBS NEWS

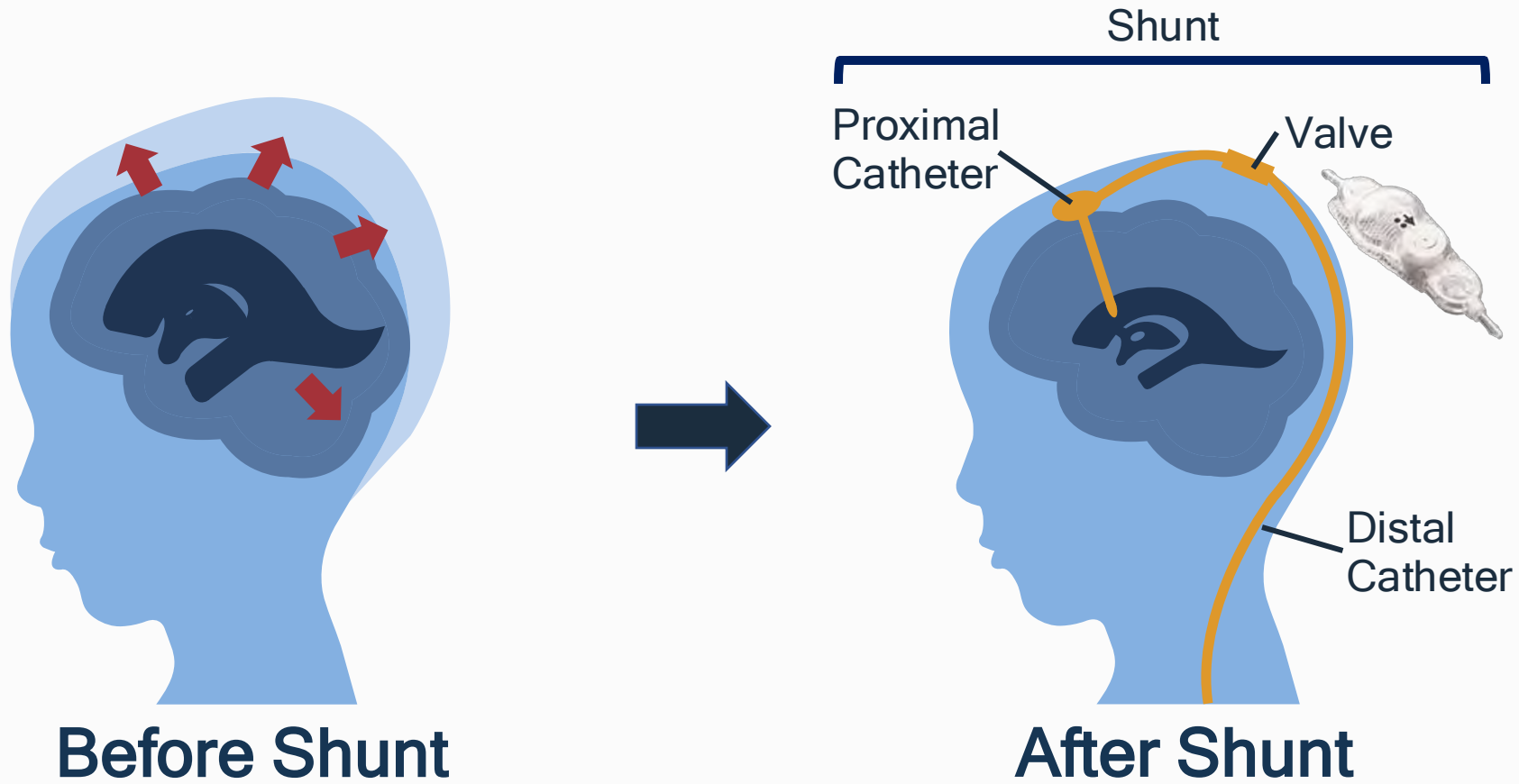
What is hydrocephalus? A neurosurgeon explains Billy Joel's concert tour-canceling diagnosis.

Billy Joel has canceled his upcoming tour, including all of his scheduled concerts up to early July 2026. Dr. Matthew Potts, a neurosurgeon with Northwestern Medicine, shares some thoughts.

 MIT Live
Billy Joel diagnosed with hydrocephalus: What is the disorder

Current Treatment

CSF shunts internally drain CSF and are the standard of care treatment



Problems with Current Shunts

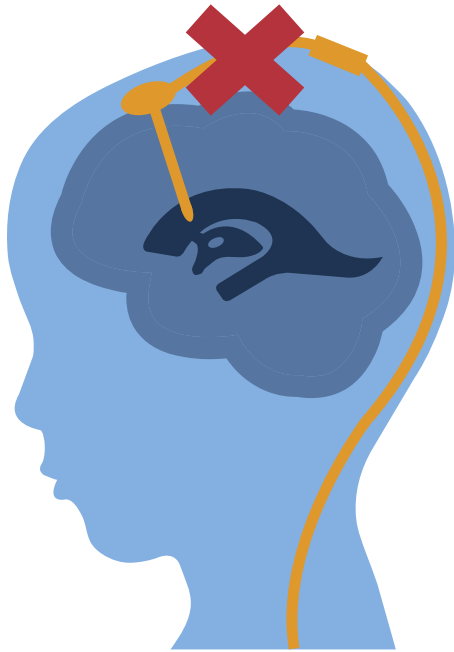
Shunts Fail /
Obstruct
Frequently

75%

shunts fail within
1-2 years¹

25%

Patients have
≥10 life-time
revisions²



Diagnostics are
Non-Specific,
Invasive, Costly

60%

1 false alarm by
first year³



14

MRI / CT / X-rays
within 4 yrs⁴



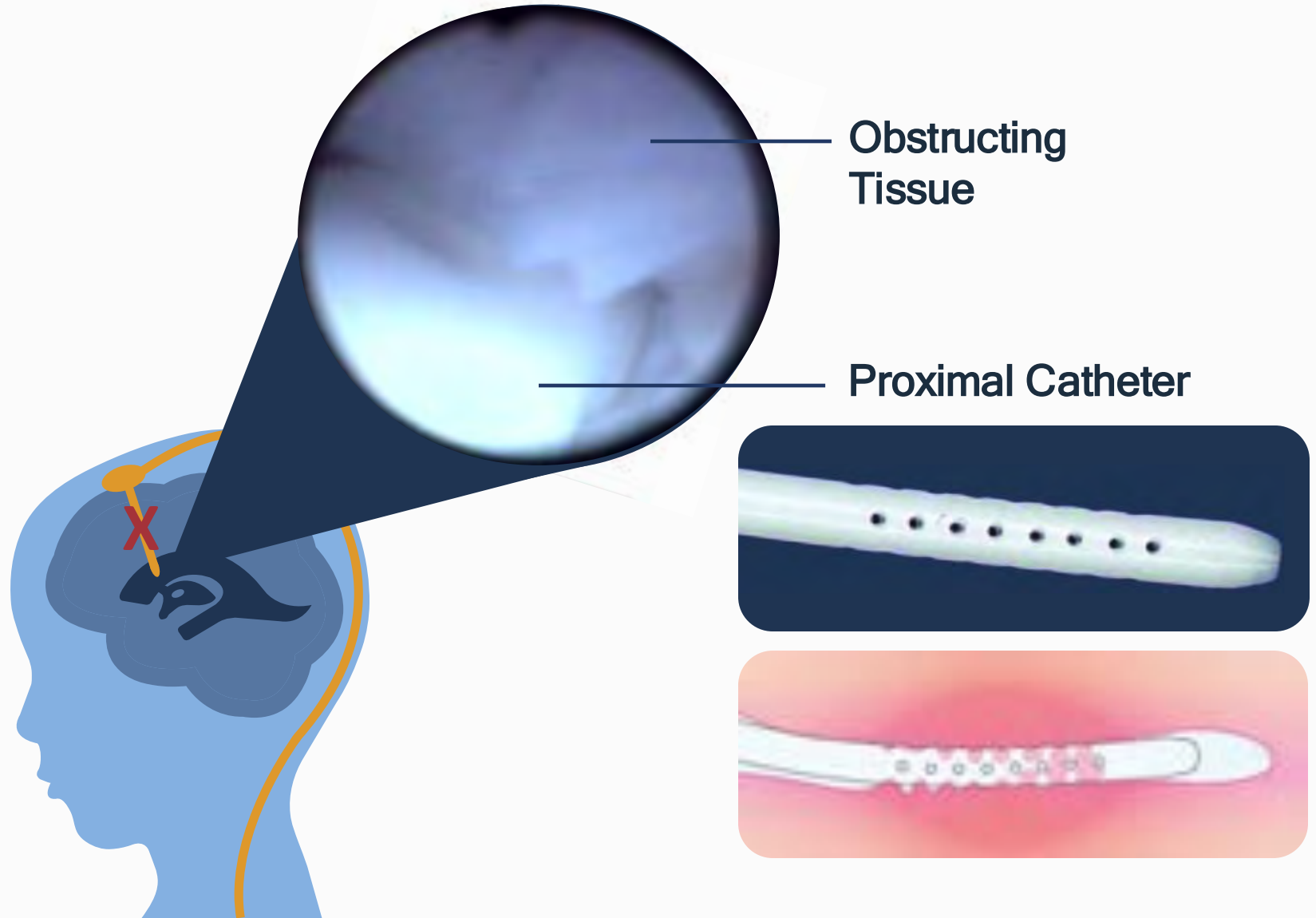
This is Richard

> 150
neurosurgeries
in first decade
of life

Chronic Overdrainage Causes Failure & Complications

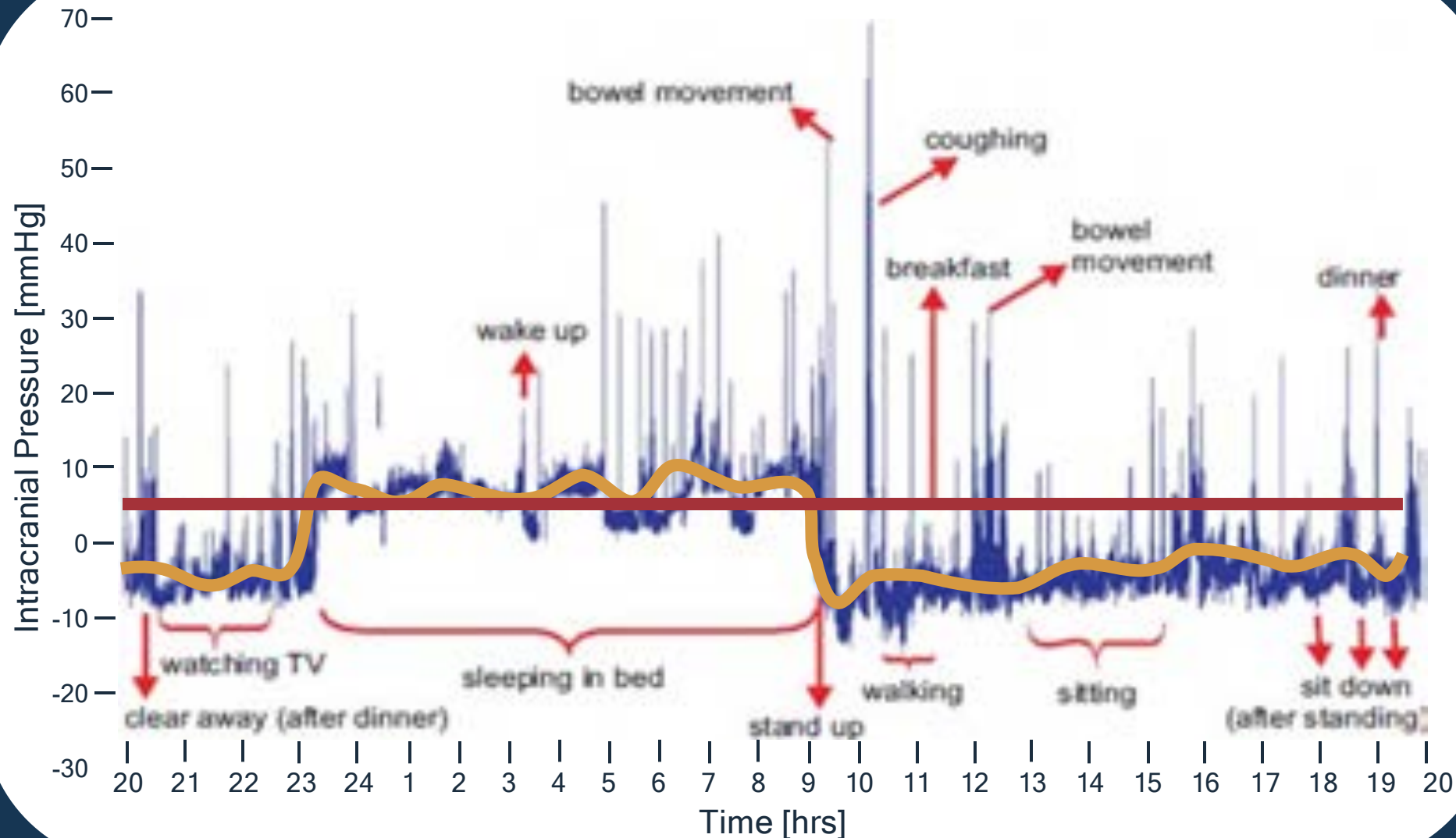


Bermans Iskandar, MD
Professor,
Pediatric Neurosurgery



*Mark R. Kraemer, Joyce Koueik, Susan Rebsamen, David A. Hsu, M. Shahriar Salamat, Susan Luo, Sara Saleh, Taryn M. Bragg, and Bermans J. Iskandar, *Overdrainage-related ependymal bands: a postulated cause of proximal shunt obstruction*, J Neurosurg Pediatr 22:567-577, 2018

Chronic Overdrainage is Caused by Pressure Spikes

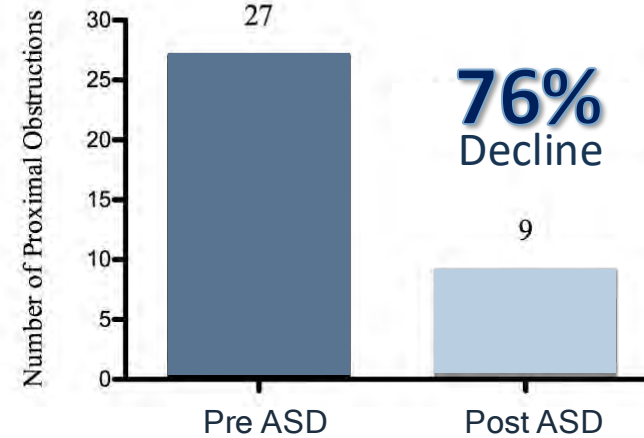


— 'Classic' ICP assumption

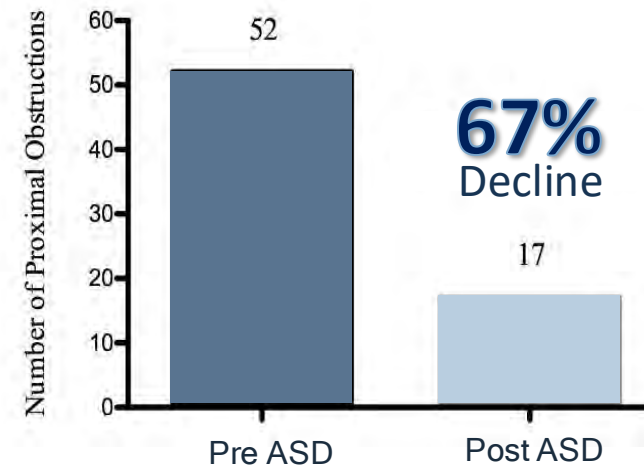
— Valve 'open' setpoint

— Measured ICP

Less Overdrainage → Less Shunt Failure / Complications



Complex Patient



Simple Patient

Our Solution SmartShunt



Standard Proximal Catheter

Optional Reservoir

Valve

Standard Distal Catheter

ICP Sensor

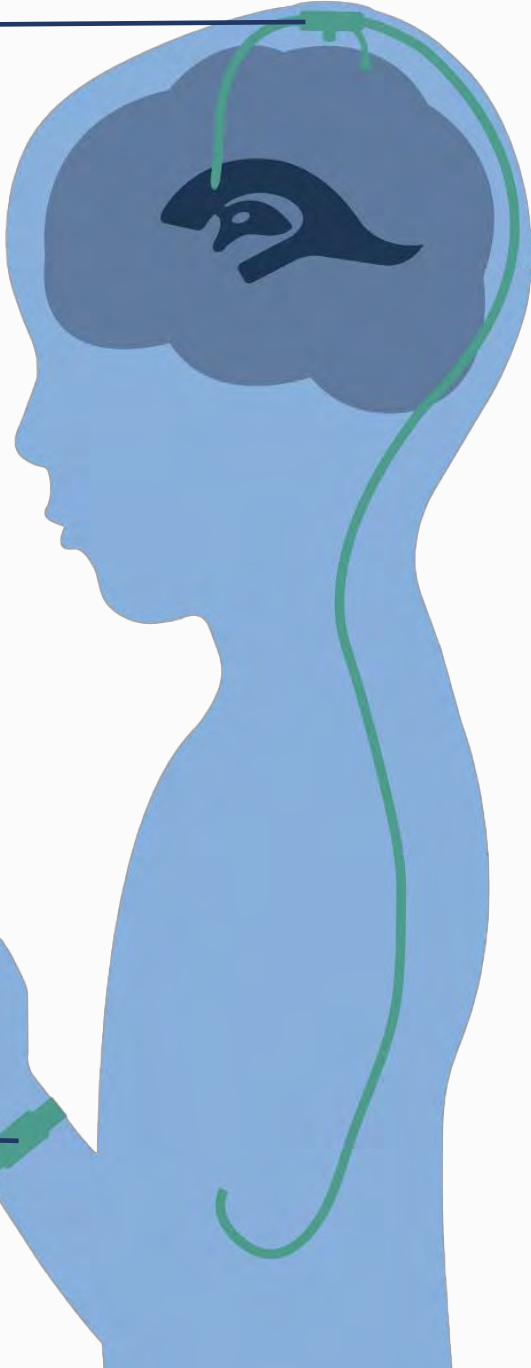
Reduces Shunt Failure & Complications

ICP controlled valve prevents (under)overdrainage

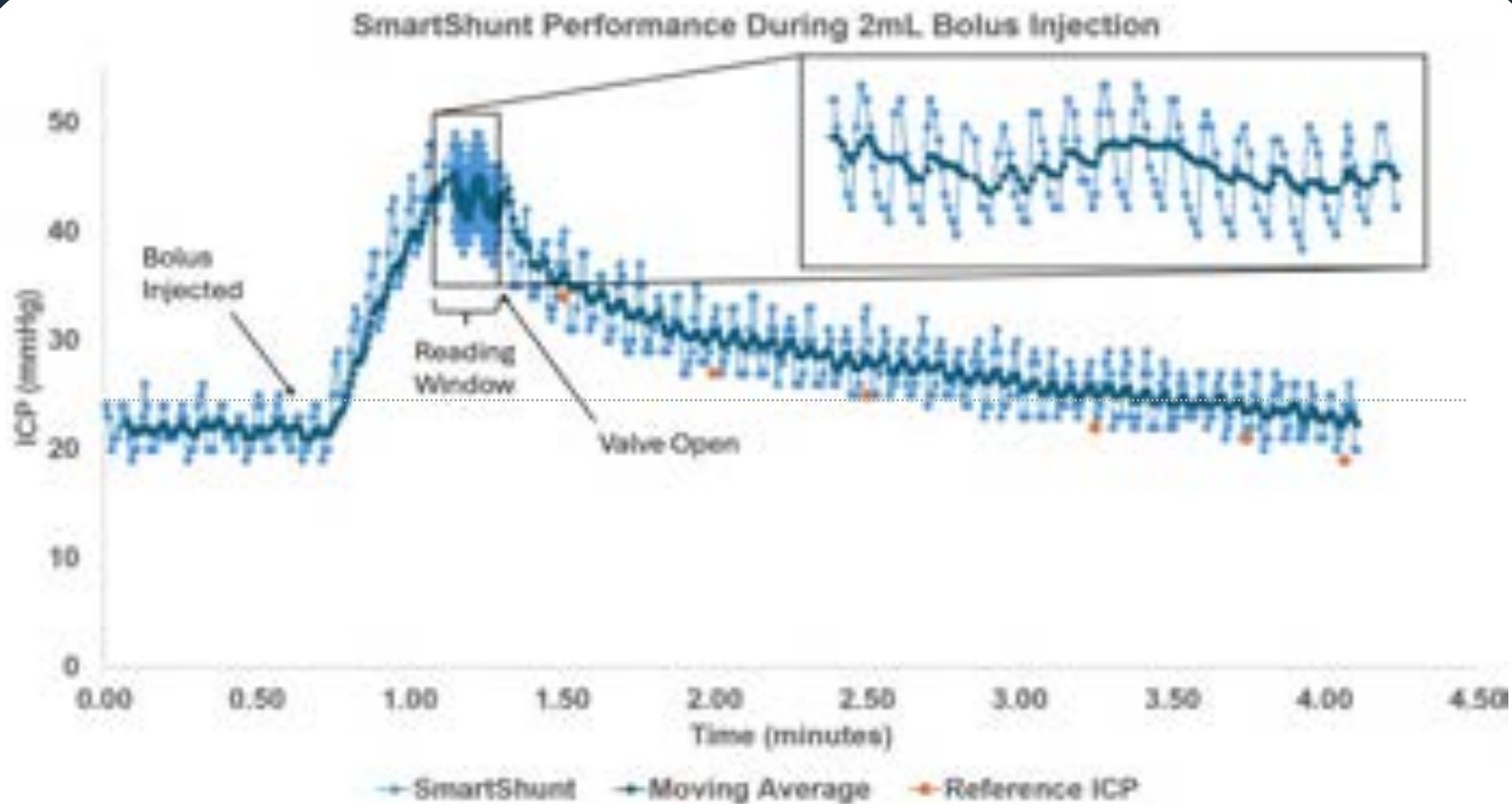
Reduces Healthcare Utilization

Continuous ICP data to eliminate false alarms

SmartShunt System



Initial Bench & Animal Studies Completed with Beta Prototype



Beta 1.0
Prototype

SmartShunt Valve Assembly

Example SmartShunt performance during 2ml bolus injection simulating hydrocephalus in live sheep model



**“THIS DEVICE IS NOT JUST A BETTER SHUNT
... IT’S A GAME-CHANGER.”**

**- SANDI LAM, MD, MBA
(NEUROSURGEON)**

Northwestern Medicine
Feinberg School of Medicine

Northwestern University
Feinberg School of Medicine

**“THIS SHUNT WILL TRULY BE
LIFE CHANGING!”**

**- JOSEPH BATTERMAN
(PATIENT)**



Broader Device Landscape

ICP/FLOW SENSORS



VALVES

DE-OBSTRUCTION

Intellectual Property

1

issued
patent

8

patents
pending

FTO

Freedom
To Operate

McDonald Hopkins

 Michael Best[®]
Michael Best Strategies LLC

 **WARF**
Wisconsin Alumni Research Foundation

Multiple Revenue Streams



Implant Unit Economics
Target ASP: \$15k+
COGS (est): \$3K
Gross Margin >80%








Physician Portal



Patient App

Potential Subscription Revenue
~\$1k/patient/year

Significant Potential Cost Savings / Patient

Current Provider Costs							
	Year 1 (post-shunt)			Year 2 (post-shunt)			
	 Doctor	 Emergency	 Hospital	 Doctor	 Emergency	 Hospital	
Utilization Rate	4.63/patient	0.73/patient	1.08/patient	3.72/patient	0.38/patient	0.57/patient	Total (2 Year)
Costs / Event	\$125 / visit	\$2.1k / visit	\$48k/admission	\$125 / visit	\$2,050 / visit	\$48k/admission	
Total / Patient			\$54,480			\$28,120	\$82,590
Cost Savings with SmartShunt							
Rate change w/ SmartShunt	-25%	-50%	-75%	-50%	-75%	-75%	
Total / Patient			\$14,300			\$7,140	\$21,440
Savings w/ SmartShunt			(\$40,180)			(\$20,980)	(\$61,150)

Large Growing Market

Current SmartShunt Market

Global: 270k target annual procedures (\$10k ASP)

US: 32k target annual procedures (\$15k ASP)

Potential SmartShunt Market w/ iNPH Growth

Global: 11.5M prevalence (\$10k ASP)

US: 1.5M prevalence (\$15k ASP)

Global: \$2.9B+
US: \$500M+

Global: \$100B+
US: \$16.6B+

Key Growth Drivers:

- Increasing awareness (e.g. Billy Joel)
- Better diagnostics (e.g. X-Pressure)
- Clear efficacy data (i.e. PENS Trial for iNPH)

Deep Brain Stimulation for PD for comparison:

DBS for Parkinson's Disease (US)		
	Prevalence	Incidence
Parkinson's Disease	1,500,000	90,000
DBS Candidates (10%)	150,000	9,000
Revenue Potential (DBS ASP = \$24,420)	\$4B	\$2.35M

Experienced Management: 4 Exits Worth \$2B



Tyler Wanke
MD, MBA, MEM
CEO



Mike Nagy
MS
CTO



David Wesner
MA
CPO & VP Operations



Bermans Iskandar
MD
CMO



Patrick Shanley
MS
VP Regulatory & Quality



John Slump
BBA
Executive Board Member



Josh Medow
MD, PhD
Co-Founder



Dedicated Full Time Engineering Team



Robert Shuler
MS

Prin. Electrical Engineer



Jeff Neuwirth
MS

Staff Systems Engineer



Adi Subramanian
MS

Mechanical Engineer



Alex Bodurka
MS

Lead S/W Dev. Engineer



Kyle Coda
MS

Test Engineer



Alex Rivera Hidalgo
MS

Firmware Engineer



Tharuni Gelli
MS

Electrical Engineer



Sohini Shah
MS

Software Engineer



Other Traction



Roadmap

Exit Horizon



2024	2025	2026	2027	2028	2029
\$2M SAFE	\$8M Seed	~\$15M Series A		~\$20M Series B	



Final Prototypes 

Animal Studies #3  #4  GLP 

Verification 

FDA Pre-Sub 1  Pre-Sub 2  Pre-Sub 3 / IDE 

Clinical 

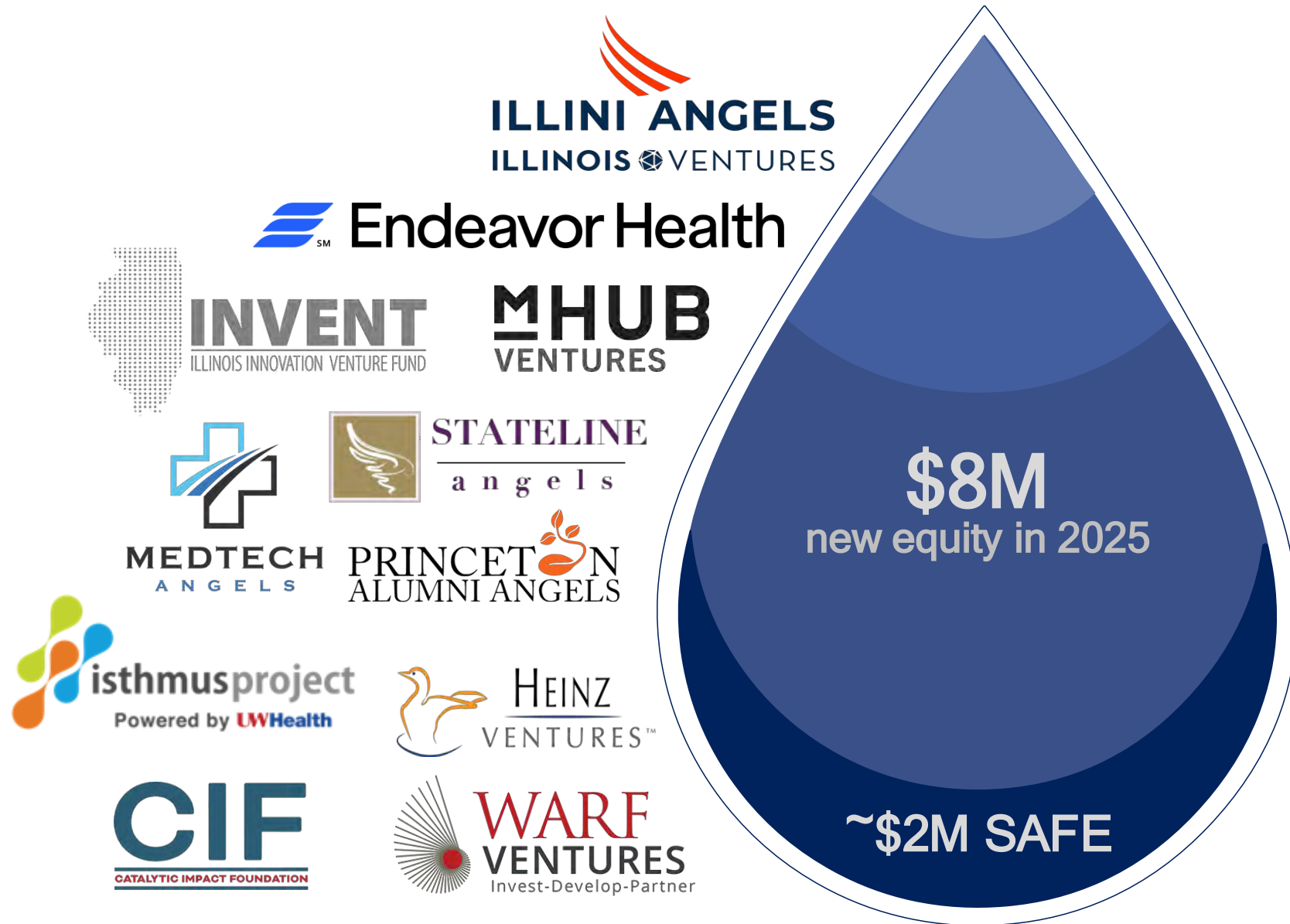


National Institutes of Health



*Future round sizes depend on amount of grants raised; \$3-9M+ in pipeline. Beta 2.0 (final prototypes) includes valve assembly to design freeze & initial accessory device development. FDA here assumes De Novo granted with pre-market clinical data.

Series Seed Round Oversubscribed in 2025















Structure:
1x preferred equity

Valuation:
\$5.95M pre-money

Size:
\$8M
(not including pre-seed SAFEs)

Exit: Likely M&A to Interested Strategic

Company	Acquisition Year	Acquiring Company	Purchase Price	Revenue	Relevance
 NEUROPACE	2021	IPO	\$445M	\$45M	Implantable neuromodulation; Monitoring
 Axonics	2024	 Boston Scientific	\$3.7B	\$366M	Implantable neuromodulation; Stimulation/therapy
 nalu <small>Small size, without compromise.</small>	2025	 Boston Scientific	\$533M	\$50M	Implantable peripheral neuromod; Stimulation/therapy
 ENDOTRONIX	2024	 Edwards	\$800M	N/A	Implantable pressure sensor for HF; Pressure data monitoring
 cardiomems	2014	 ST. JUDE MEDICAL <small>MORE CONTROL. LESS RISK.</small>  Abbott	\$450M	N/A	Implantable cardio sensor; Pressure data monitoring
 SIA	2022	 INTEGRA <small>LIMIT UNCERTAINTY</small>	\$140M	<\$5M	Implant; acquisition to major player in CSF/shunt space

Potential Acquirors

 Medtronic

 INTEGRA
LIMIT UNCERTAINTY

 stryker

 B. BRAUN
SHARING EXPERTISE

 GLOBUS
MEDICAL

 natus

 Johnson & Johnson

 TERUMO

 ZIMMER BIOMET

 longevity

Summary

Product

SmartShunt = solution for top neurosurgical problem

IP

1 issued patent,
8 pending

Team

Veteran team with
4 exits worth \$2B

Regulatory

Pursuing Class II
regulatory pathway

Market

~\$3B annual initial market
opportunity (>\$100B TAM)

Finance

Oversubscribing
Series Seed round





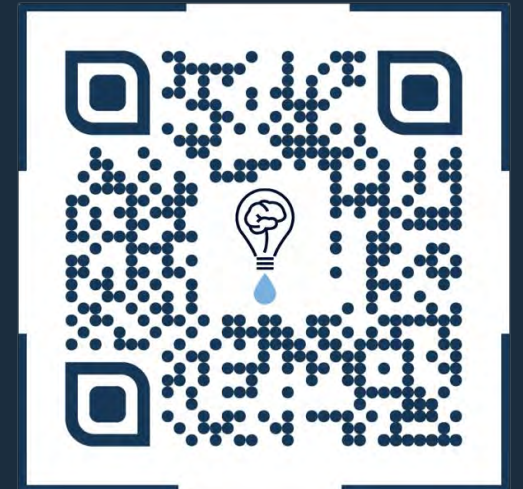
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MD, MBA, MEM

CEO

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Physiology: Chronic Overdrainage Drives Obstruction

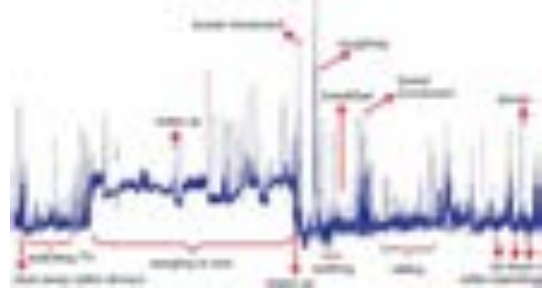
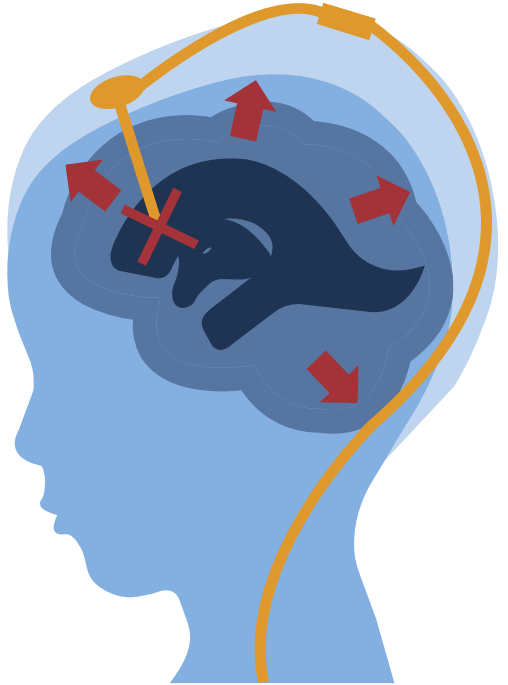
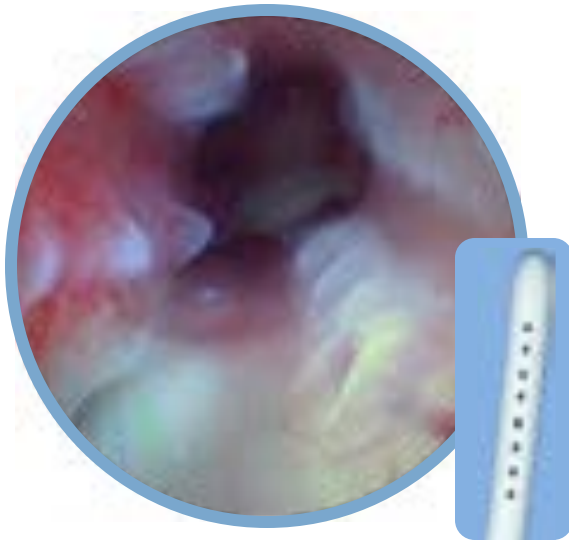


*CHRONIC
OVERDRAINAGE*

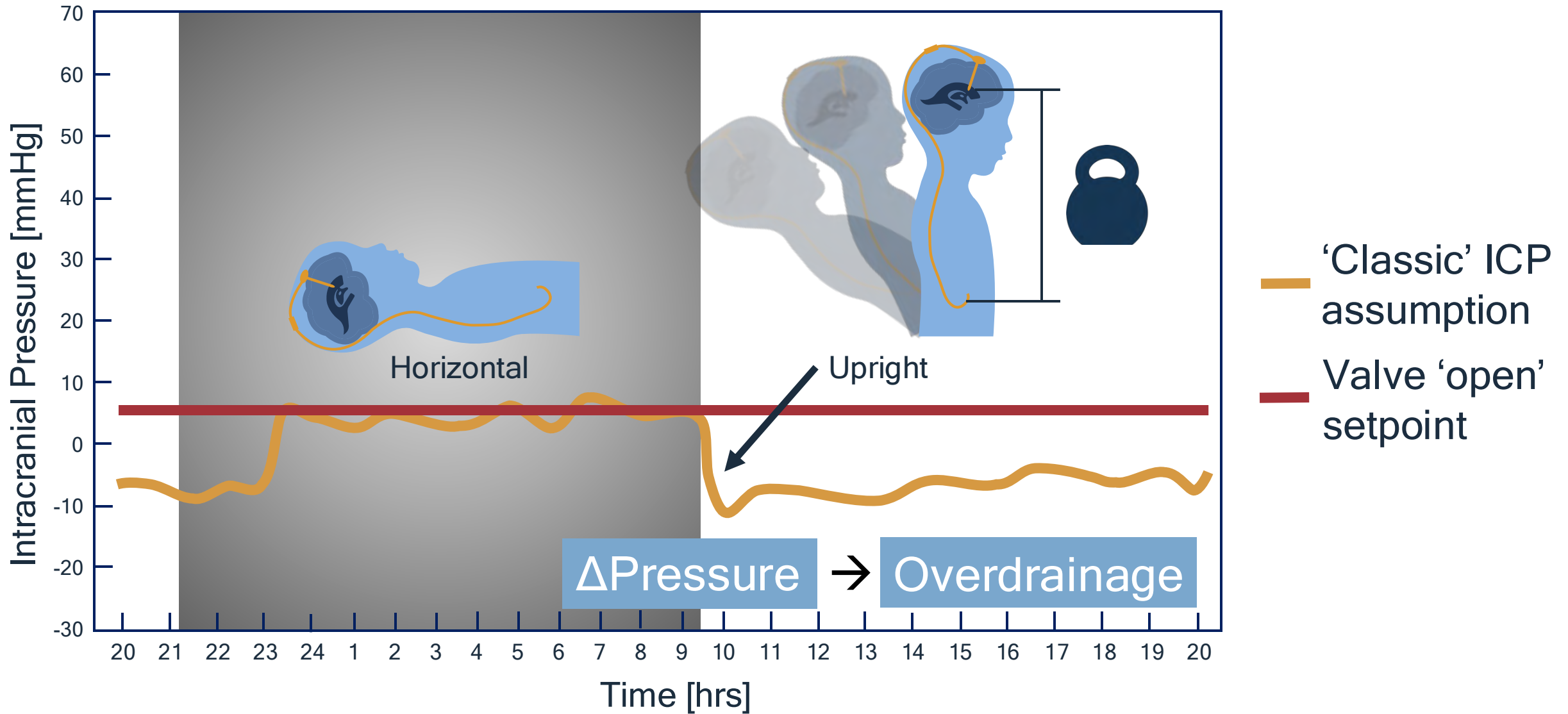
*PROXIMAL
OBSTRUCTION*

GRAVITY

PRESSURE
SPIKES



Chronic Overdrainage Cause #1: Gravity (Siphoning)



SmartValve compared to Programmable Valve



		Programmable (ΔP) Valve	SmartShunt SmartValve
Failure/ Complication Prevention	Adjustable Setting	✓	✓
	Optimized Drainage	✗	✓
	ICP Reading	✗	✓
Advanced Diagnostics	Alerts (e.g. clog detection)	✗	✓
	AI-enabled	✗	✓