




Neuro Thrombectomy & Emboli Protection System

Maysa Mustafa, CEO

May 2019

Ceretrieve, In Brief

- Developing uniquely designed aspiration-based neuro thrombectomy device with integral emboli protection
- Successful functional prototype, **tested at UMASS stroke research lab**
- Successful animal trial: POC and safety
- IP: submitted PCT, National Phase
- Investors:  **trendlines**
medical • agtech • labs

Stroke: #2 Leading Cause of Death Worldwide

Every



3 people have a stroke
and 1 dies

Each year



6.9 million new or recurrent
ischemic strokes



of stroke survivors leave
hospital with a disability

New Standard of Care: Mechanical Devices

Treats acute ischemic stroke due to blood clot in large vessels

- **physically removes clot**; endovascular procedure
- **improves blood flow rates**
- extends window of treatment to **6-24 hours**



Stent retriever

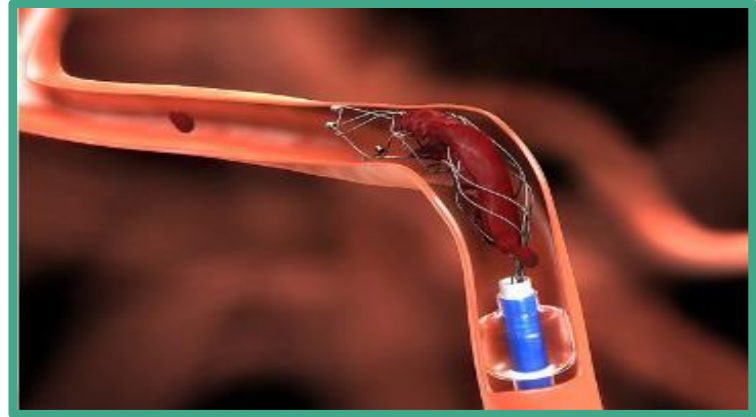


Aspiration catheter

Drug treatment: tPA is given via IV to dissolve the clot and must be given within 3-4 hours of symptom onset. Does not completely restore blood flow, especially in large vessels.

Yet, These Devices Have Limitations...

During removal, clots may **fragment**, **break off**, and **become lost**.



THE RESULT

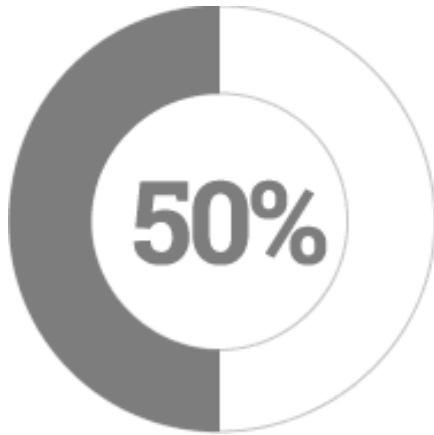
Risk of distal embolization

Number of passes

Risk of re-blockage

Procedure time

....and Poor Clinical Outcomes



of cases blood flow
is not completely restored

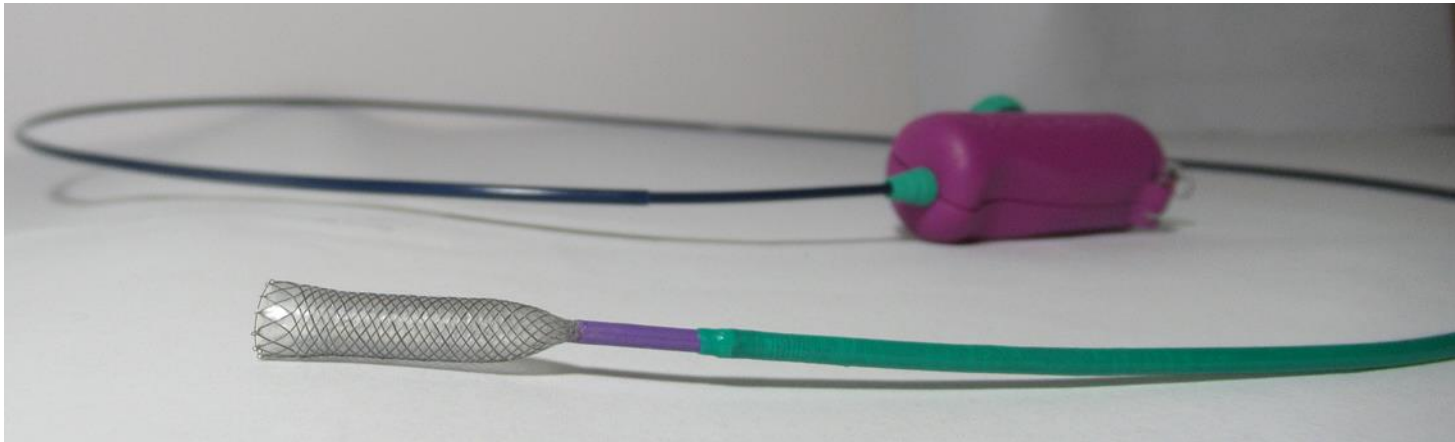


patients remain with
serious disability

The market seeks a thrombectomy device that can
**quickly and securely remove entire clots in one pass for
improved clinical outcomes**

One-Pass Aspiration with Ceretrieve

Ceretrieve's uniquely designed aspiration-based thrombectomy device **improves clinical outcomes by quickly and securely removing blood clots in one pass.**



With Ceretrieve, “one pass, no emboli left behind.”

System Advantages



Ceretrieve's aspiration catheter with stent-like covered large-bore funnel and closure tip **securely grasps and holds the clot**

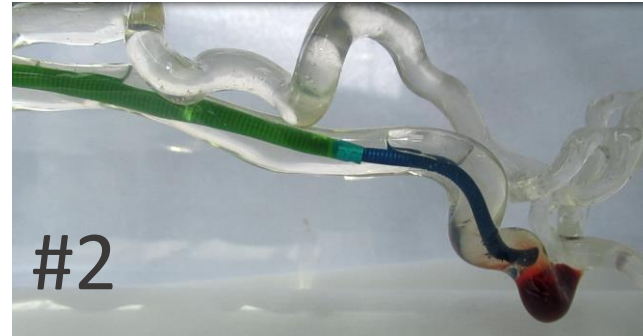


- Provides proximal protection and blocks blood flow (flow arrest)
- Enhances clot aspiration power and efficacy
- Secures retention of clot during removal (distal emboli protection)
- Compatible with stent retrievers

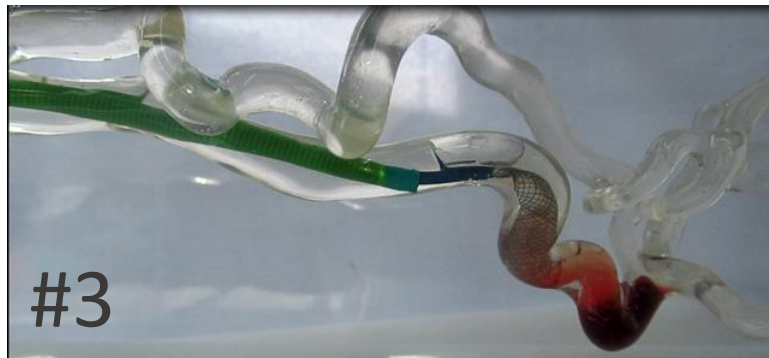
Step-by-Step One Pass Aspiration



#1
Guide catheter into the internal carotid artery



#2
Navigate Ceretrieve proximal to clot



#3
Deploy Funnel; blood flow blocked



#4
Aspirate Clot*



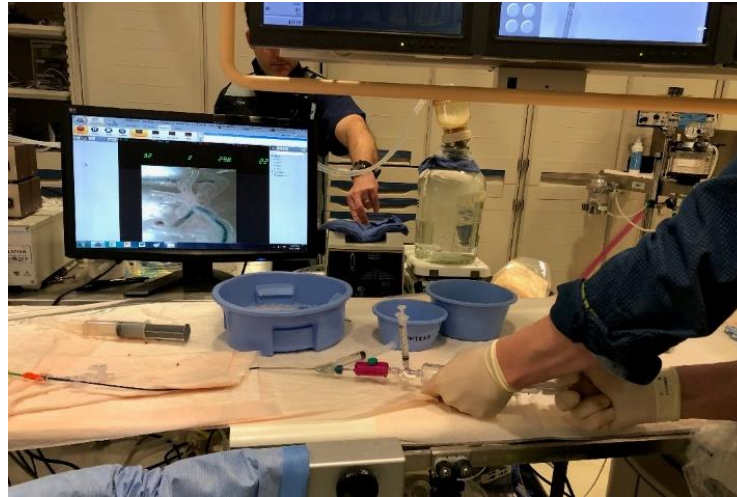
#5
Close tip and retract

* Alternately clot can be dragged with stent retriever into funnel

Superior Performances at UMASS



New England Center for Stroke Research



- Aspirated **all types of clots** (soft, medium, hard)
- All clots were **fully aspirated from first attempt** into the deployed funnel
- **No distal emboli** were observed

Scientific Advisory Director



“Complete System, **ALL IN ONE**
Proximal protection (flow control) •
Aspiration • Distal Emboli Protection”

Prof. Raul Nogueira

*Professor of Neurology,
Neurosurgery and Radiology
Emory University School of
Medicine. Atlanta, GA*

Regulatory Path



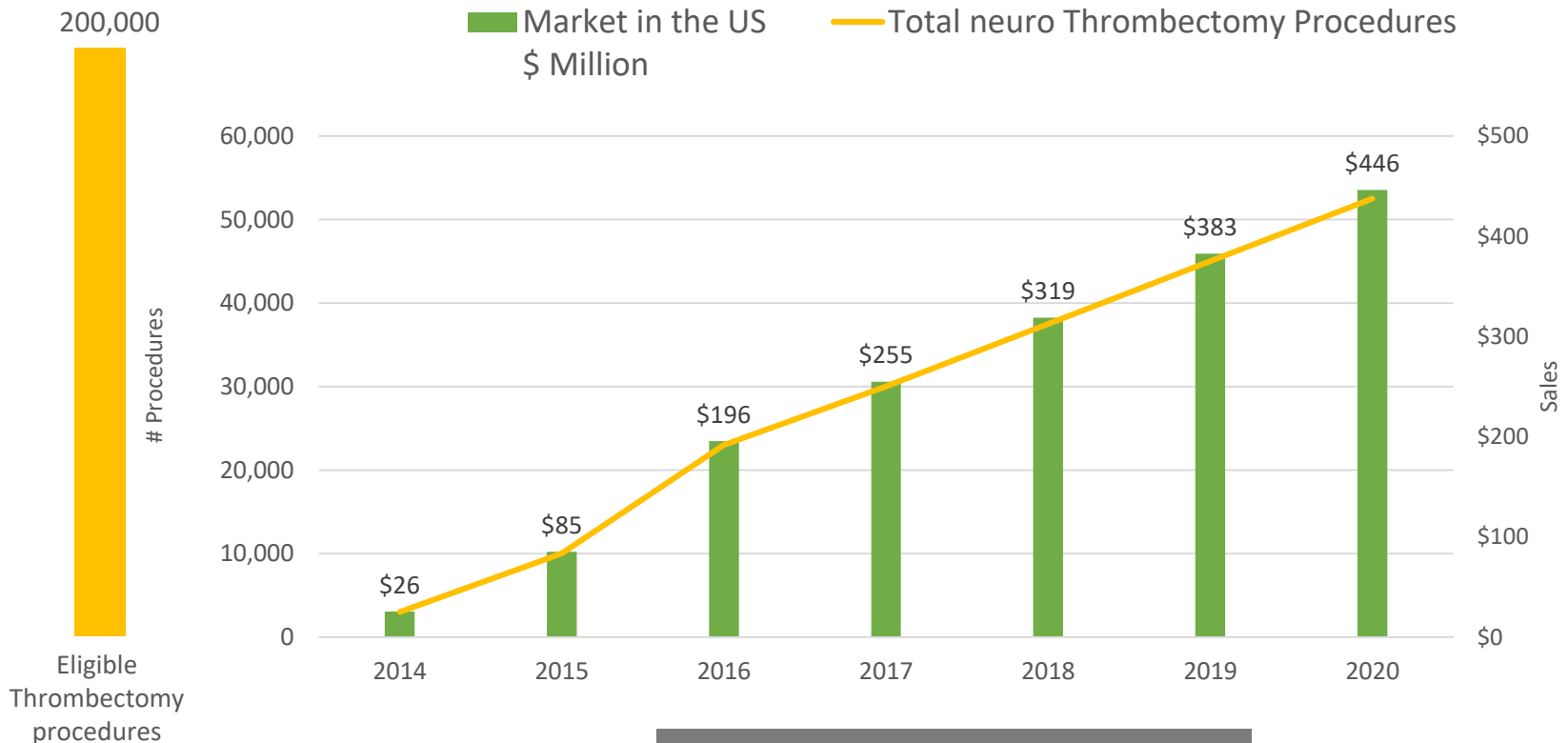
- Class II
- 510K
- Clinical trial 150-200 patients, 90 days follow up



- Class III
- Clinical data for CE submission; ~ 60 patients

Global Sales to Reach \$1 Billion (2020)

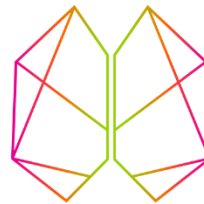
Cerebral thrombectomy sales



Global market to reach
\$1 billion in 2020

Based on conservative estimations:
+ 7,500 new thrombectomy cases a year
Global market 2.5X US market

Thrombectomy Market Players






CERENOVUS
PART OF THE *Johnson & Johnson* FAMILY OF COMPANIES

Medtronic



Thrombectomy Market M&As

Buyer	Company	Amount	Date
 <small>PART OF THE Johnson-Johnson FAMILY OF COMPANIES</small>	Neuravi	\$300m+	April 2017
	Lazarus	\$100m	Sept 2015
	Concentric	\$135m	Aug 2011

Experienced Multidisciplinary Team



Maysa Mustafa, CEO

Biomedical Engineer, MBA;
13+ years in leading medical
device development at Elcam
Medical, West Pharmaceutical,
Bendit technologies



Boris Degtiar, Engineering Manager

Mechanical Engineer, 20+ years
experience in medical devices
development and establishing
manufacturing lines, worked at
Nano retina, West pharmaceutical,
Medtronic Ventor and GI view



Tanhum Feld

Mechanical Engineer, 20+ years
experience in medical devices,
Serial Entrepreneur; NiTi and
stent expert



Dr. Shady Jahshan

Neurosurgeon and
Neuroendovascular
Director of Invasive
Neuroradiology Unit;
Department of Neurosurgery
Galilee Medical Center, Israel



Orna Oz, Ph.D., Regulatory Affairs and Clinical

Dr. in Medical Physics
with 20+ years of experience in the
pre-clinical and clinical research
fields and management of
multidisciplinary research groups

Board of Directors



Dr Ronen Jaffe, Cofounder

Director of interventional cardiology, Carmel Medical Center, Haifa, Israel; assistant professor, Faculty of Medicine, Technion-Israel Institute of Technology; medical device entrepreneur (CoNavi, CardioFlow)



Eytan Jaffe, Cofounder

Israeli certified patent attorney; medical device entrepreneur (CardioFlow); B. Sc., mechanical engineering, MBA Technion-Israel Institute of Technology



Barak Singer

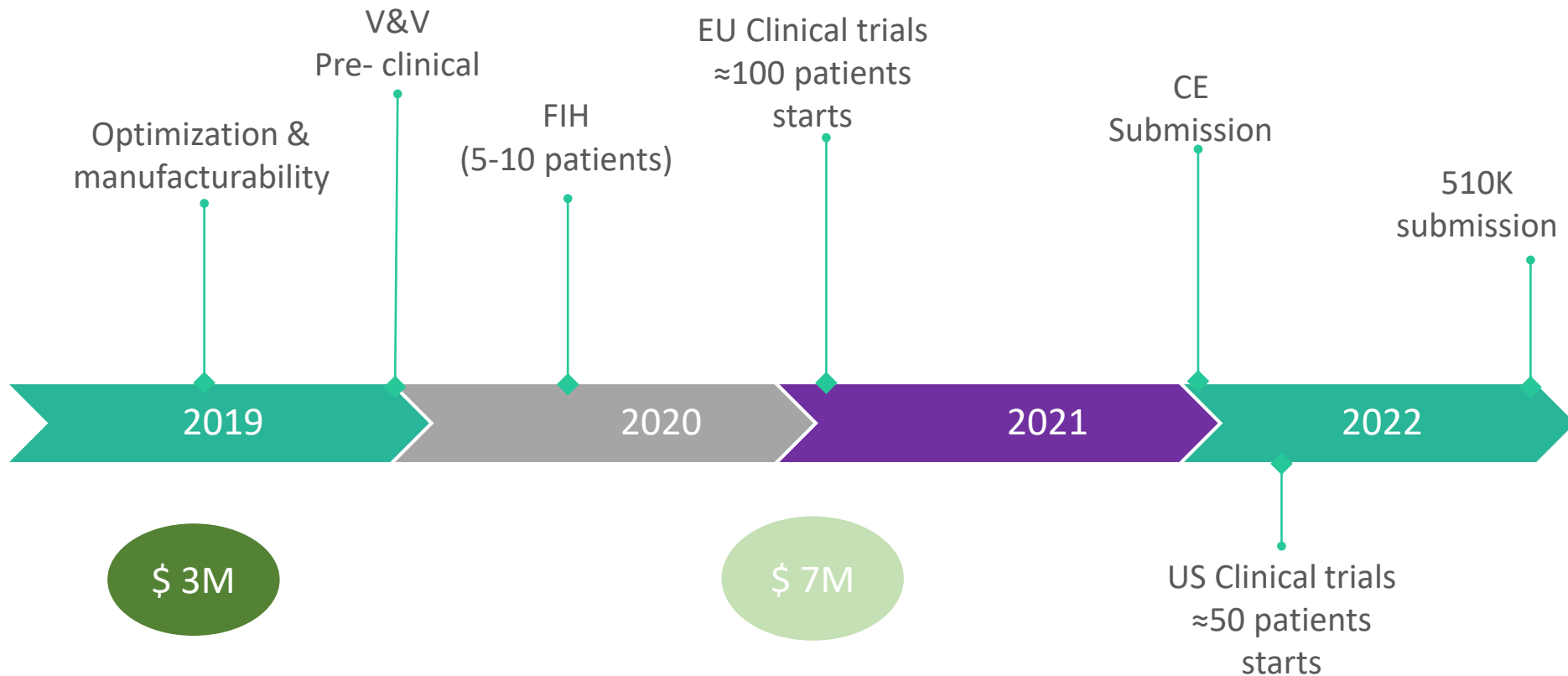
CEO, Trendlines Incubators Israel, Barak Singer has over 15 years of experience in management, business development, investment banking, and venture capital. For the past two years, he served as VP Business Development Trendlines Incubators Israel.



Steve Rhodes

Chairman, CEO, The Trendlines Group; decades of business, finance, and banking experience; Chairman of Trendlines Incubators Israel and Investment Committee Chair of Trendlines Medical Singapore

Milestones and Fundraising



- \$3,000,000 to complete First in Human clinical studies (FIH)
- Raised amount will be leveraged with IIA program for young companies (40-60%)

THANK YOU



Maysa Mustafa, CEO

maysa@ceretrieve.com