

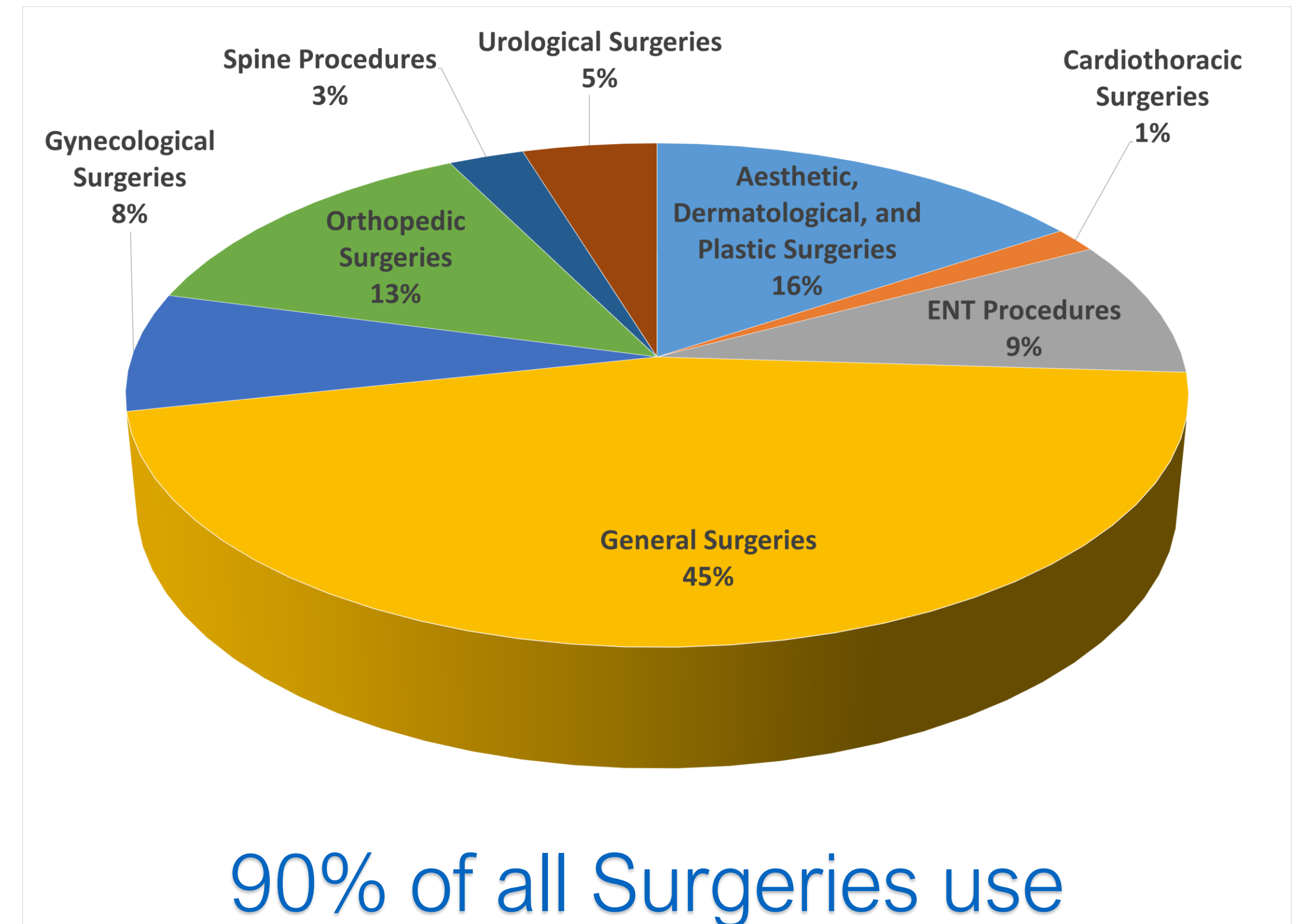


NOVUSON

Soundly Simplifying Surgery

STUART B MITCHELL, PHD

NOVUSON SURGICAL, INC. MARCH 2022



Radio Frequency (RF), Harmonic, Plasma, Monopolar, Bipolar

90% of all Surgeries use Electro-surgical Devices

CAN YOU TELL WHAT'S GOING ON HERE?



Surgeons struggle too. Due to the smoke caused by Radio Frequency & Harmonic tools, the images above are all a surgeon can see while performing surgery.

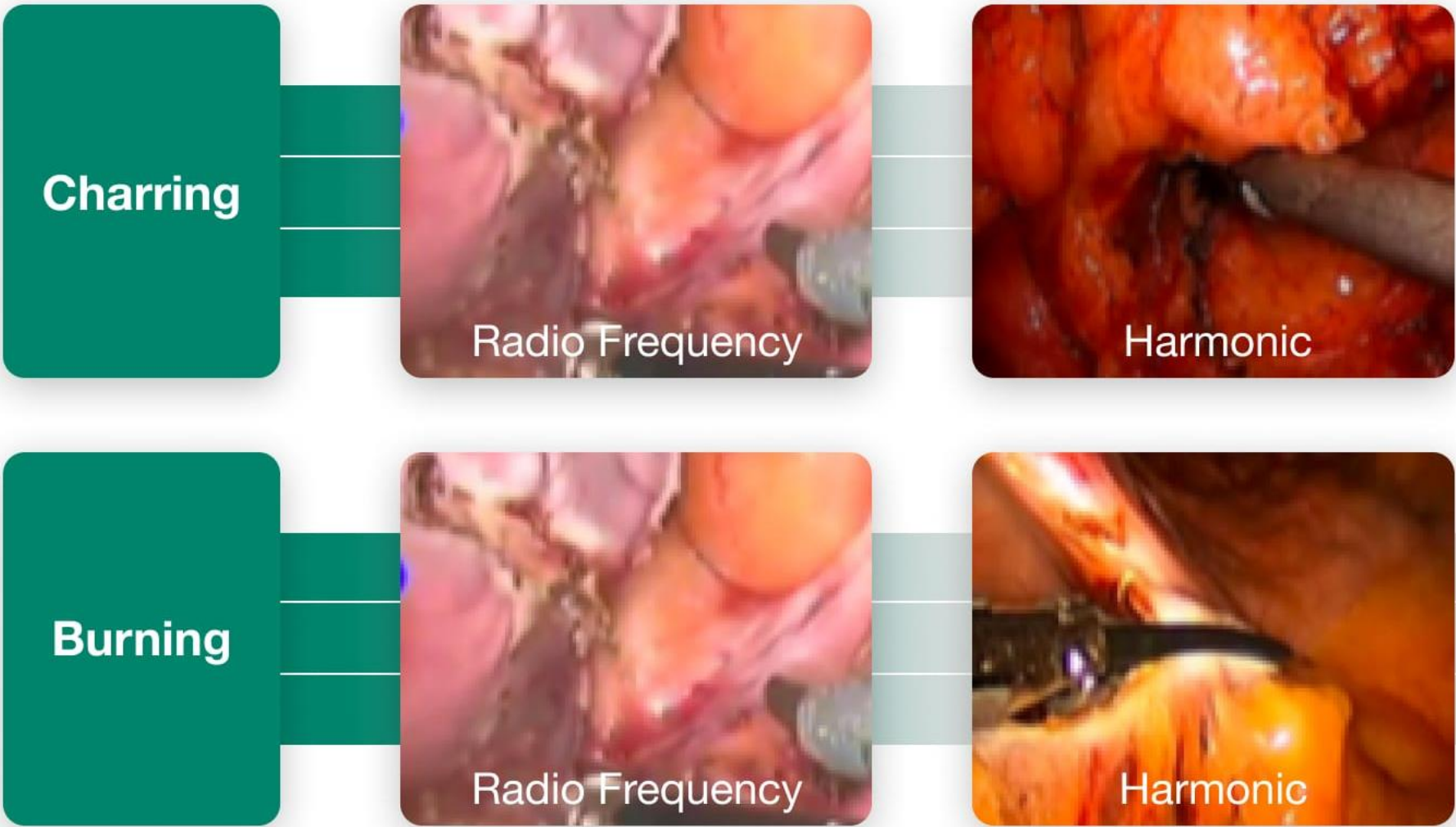
99.9% smoke particles <5um

Kondo et al, Ann Surg 2021;273:e168–e170

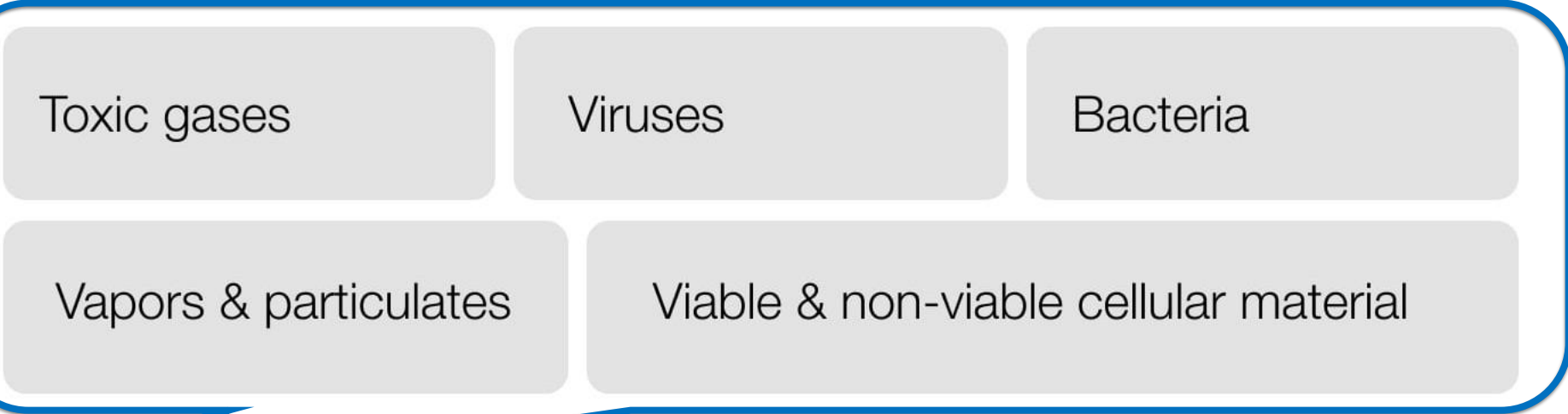
0.5um to 5um

WHY IS THERE SMOKE?

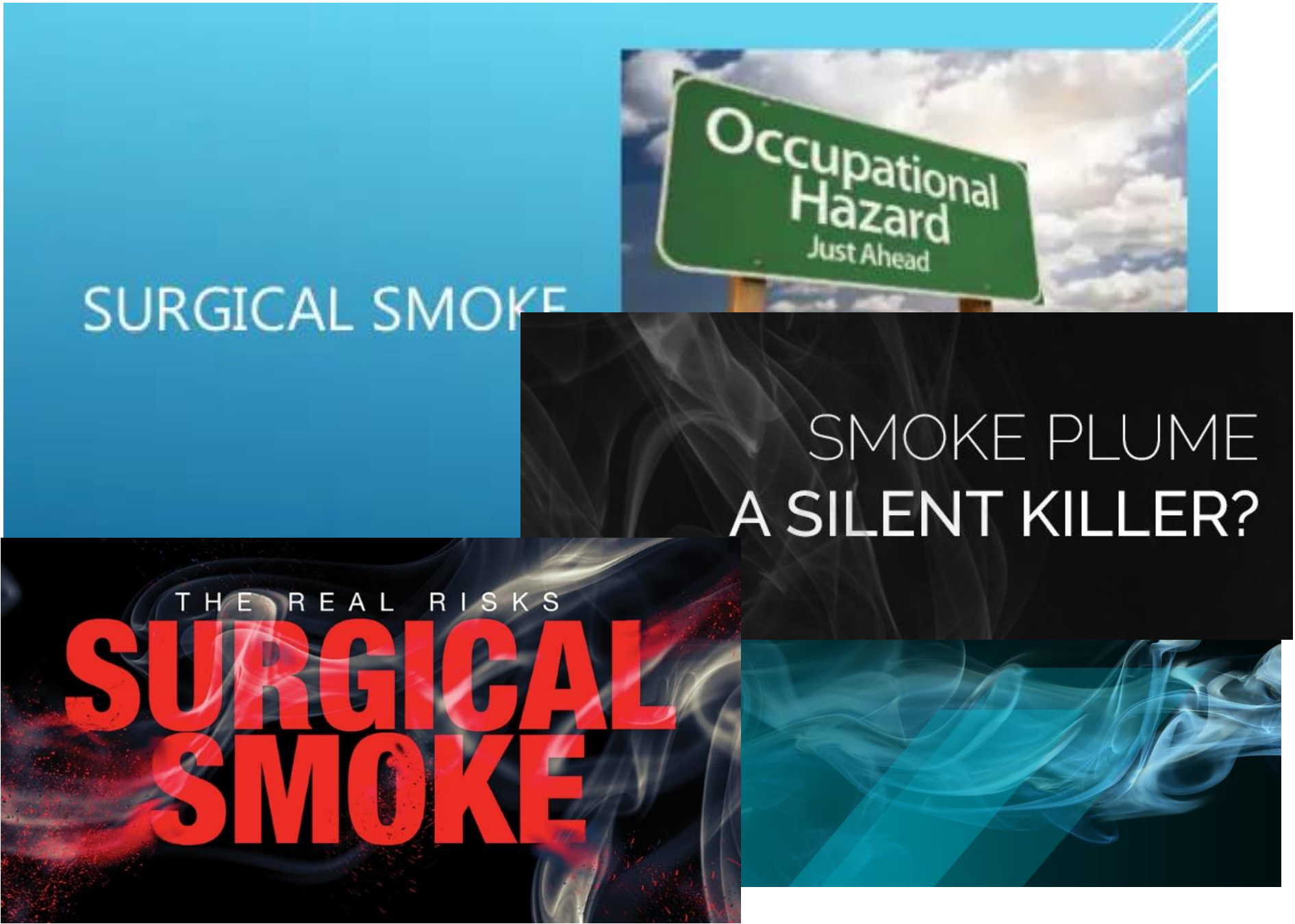
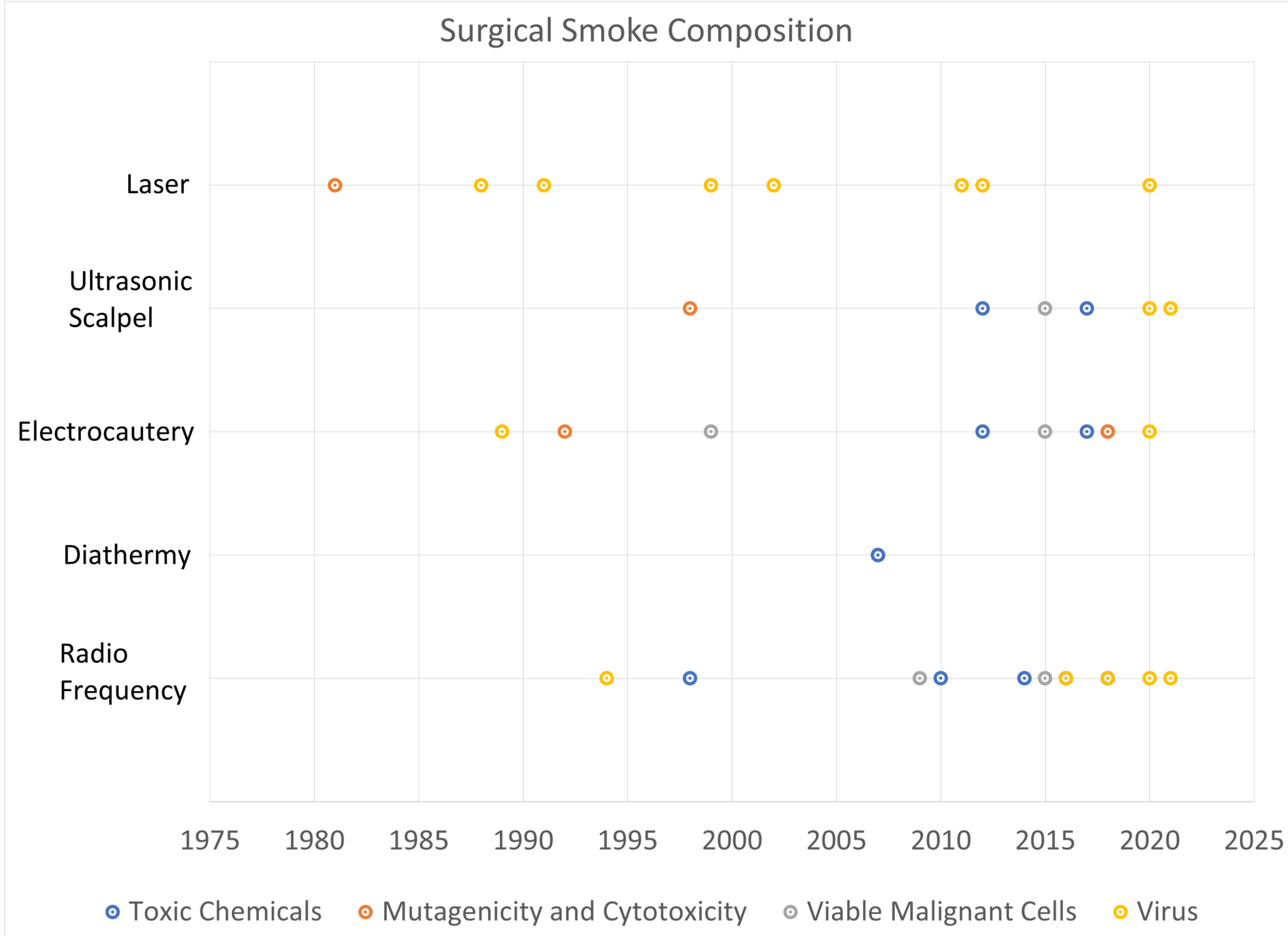
The smoke caused by Radio Frequency and Harmonic tools is due to their processes of charring & burning.



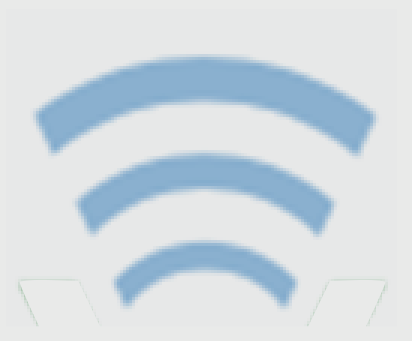
The smoke can cause additonal severe heath hazards post surgery, including:



DECADES OLD PROBLEM



PROBLEM — SAFETY FOR THE PATIENTS AND SURGEONS



CDC Recommends Against These Devices

<https://www.cdc.gov/niosh/topics/healthcarehsps/smoke.html>

Manufactures Recommend
Smoke Evacuators



Compliance is low
3 out of 98

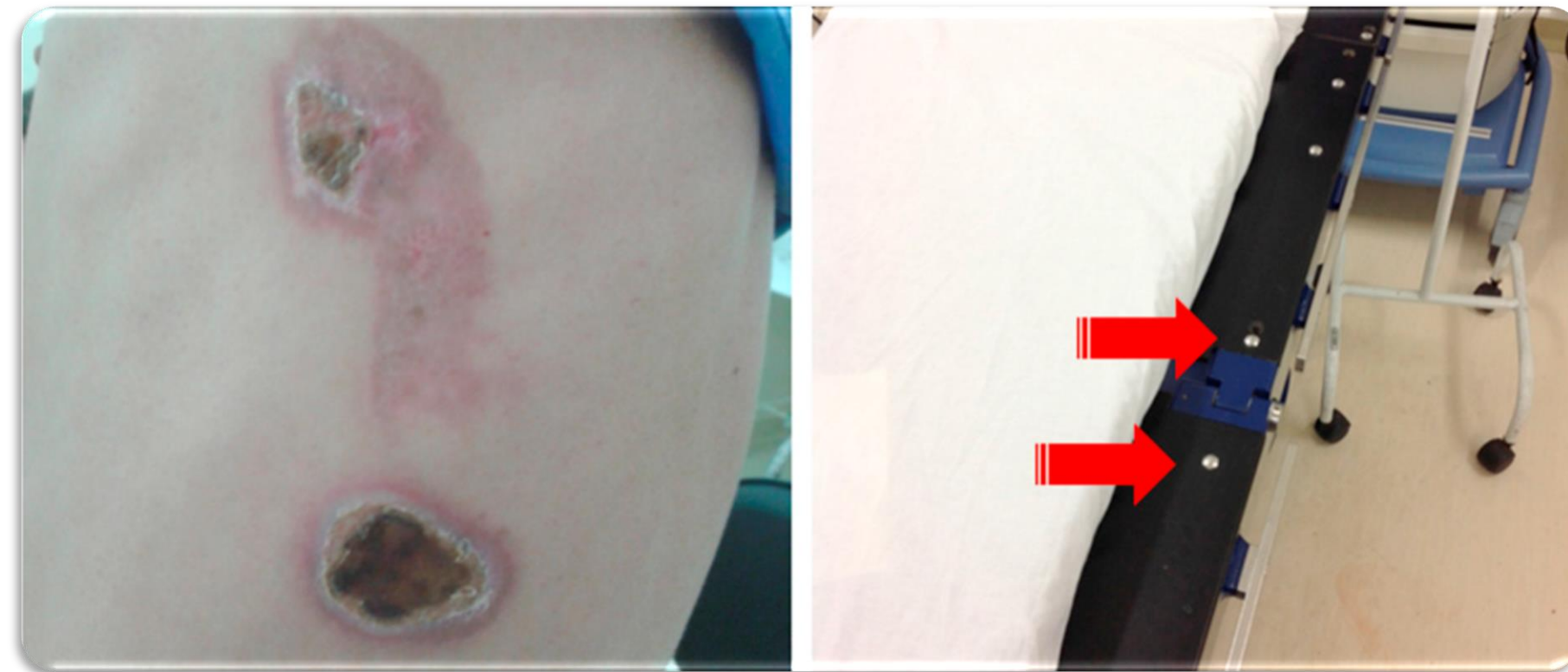
Affects Over 90 Million Patients
per Year in North America

PROBLEM — PATIENT SAFETY

RADIO FREQUENCY (ELECTRICITY BASED)



1 out of 200 Uses of RF Devices Result in Severe Burns or Fires

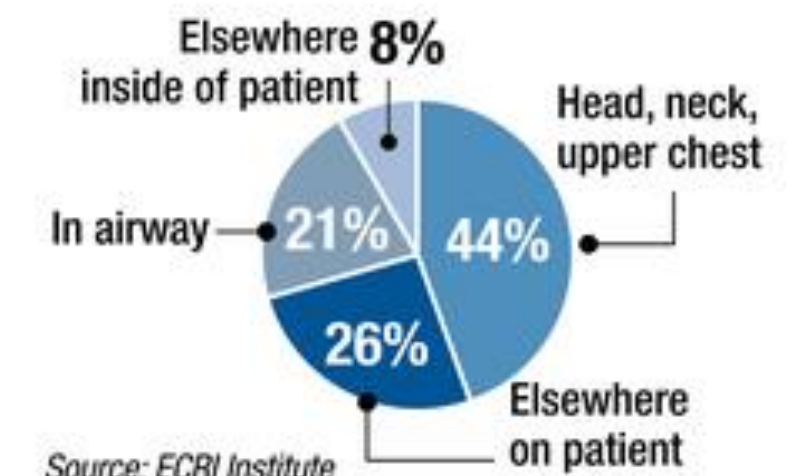


Massarweh, N. N., Cosgriff, N., & Slakey, D. P. (2006). Electrosurgery: history, principles, and current and future uses. *Journal of the American College of Surgeons*, 202(3), 520-530

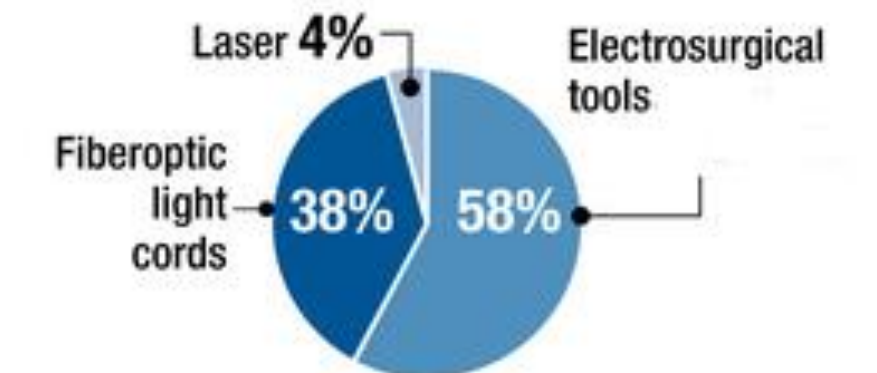


Surgical Fires

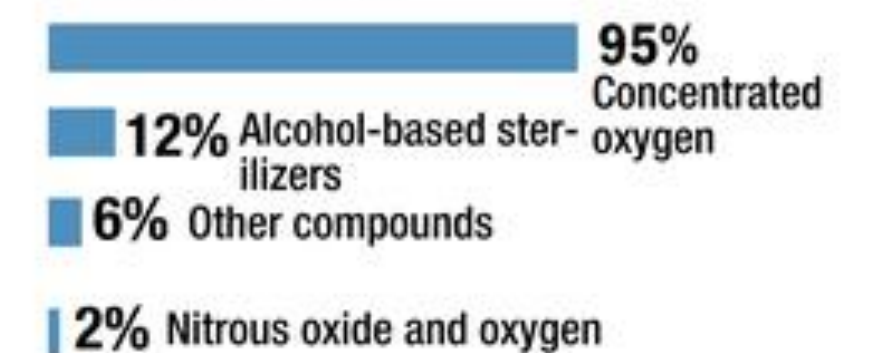
Body locations



Source of ignition



Source of fuel



80k Patients per Year
How many Medical Personnel?
400k – 1M?

Why do Surgical Devices Exist?
Improve efficiency/faster procedures
Improved efficacy/reduce complication
Better outcomes

SURGICAL PROCEDURES AREN'T PERFECT

33%



of all surgeries experience complications

49%



of those surgical complications were avoidable

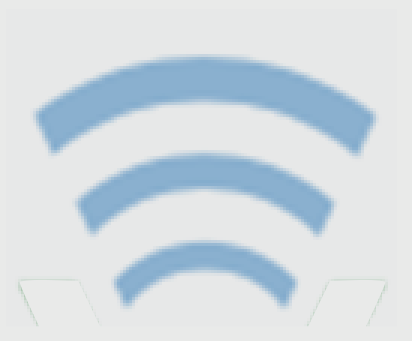
77%



of those were due to technical errors

**Costs Hospital System
\$215 Bn/yr**

VISION, MISSION, AND VALUE



Preeminent World-Wide Leader in surgical solutions that are safer and more effective than existing Advanced Energy Electrosurgical Devices

Our Revolutionary Direct Therapeutic Ultrasound (DTU) is the next generation of advanced energy electrosurgical devices

- Electrically Neutral
- Effective in Blood or Liquid
- No Burning or Charring
- No Smoke
- Less Thermal Damage

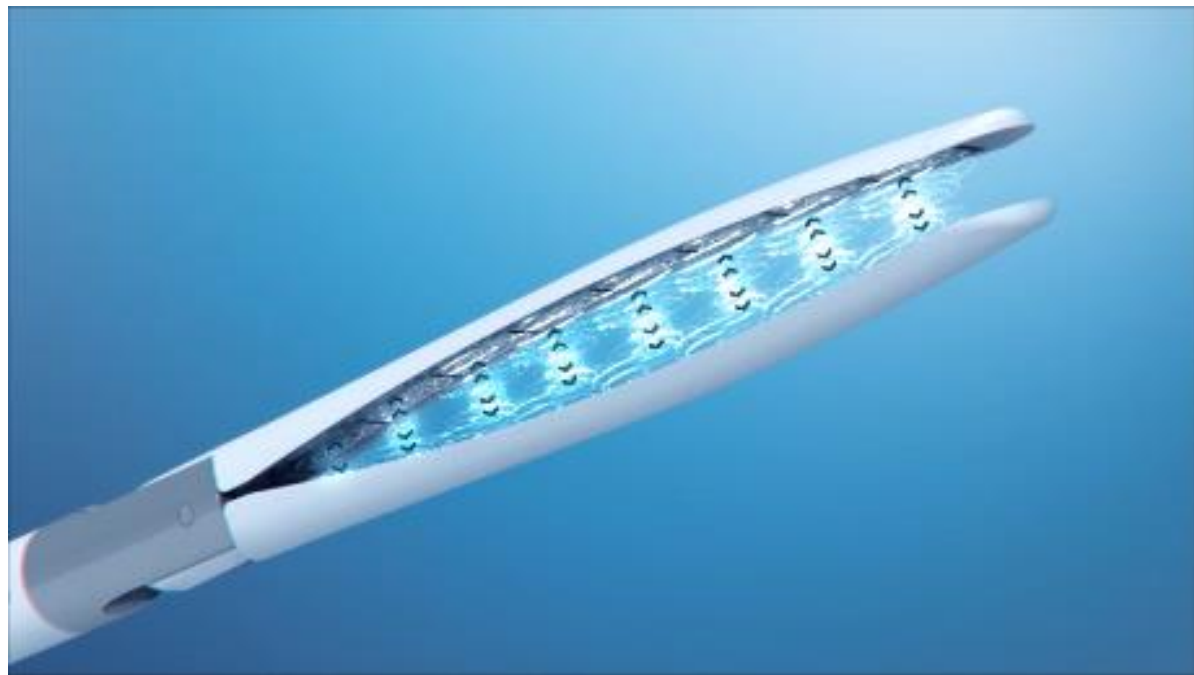


- Reduce Surgical Complication
- Improve Patient Outcome
- Decrease Hospital Cost

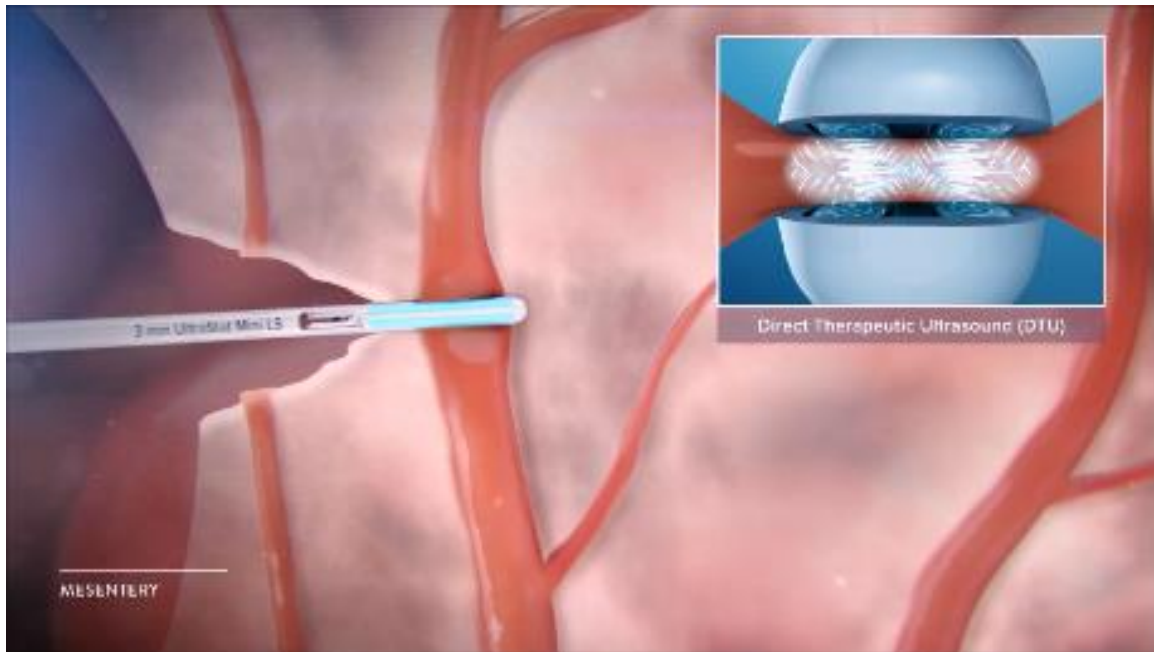
DIRECT THERAPEUTIC ULTRASOUND VS LEGACY



DTU Cauterizes Inside to Outside



3mm Mini LS Seal Mode

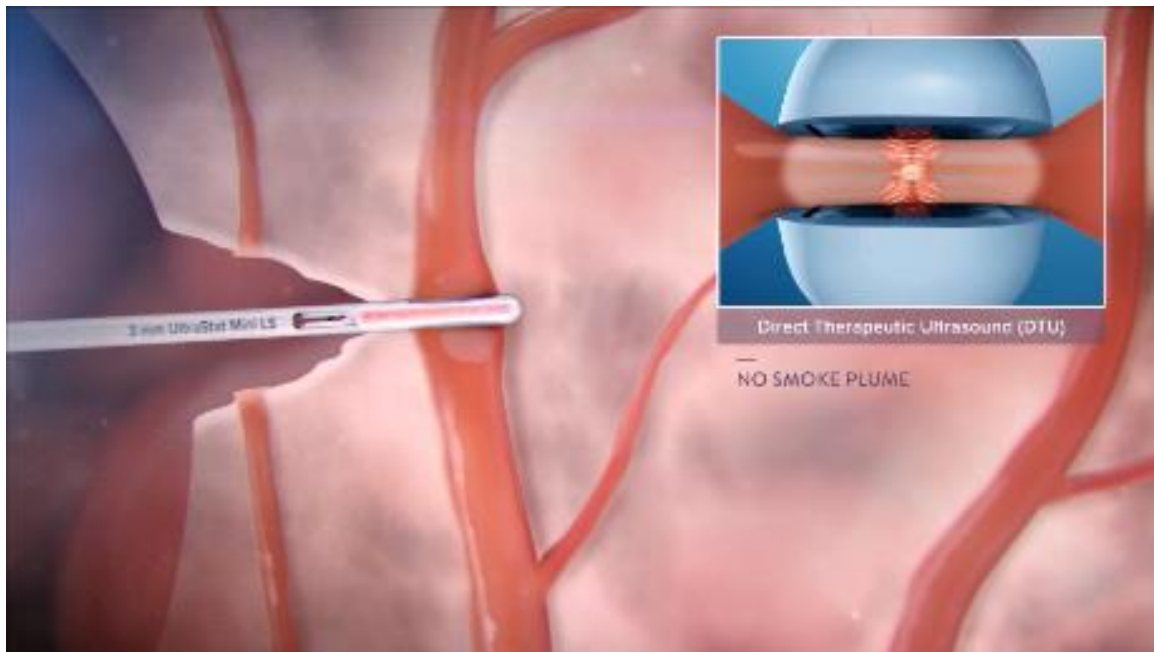


Radiofrequency (RF), [Monopolar, Bipolar]

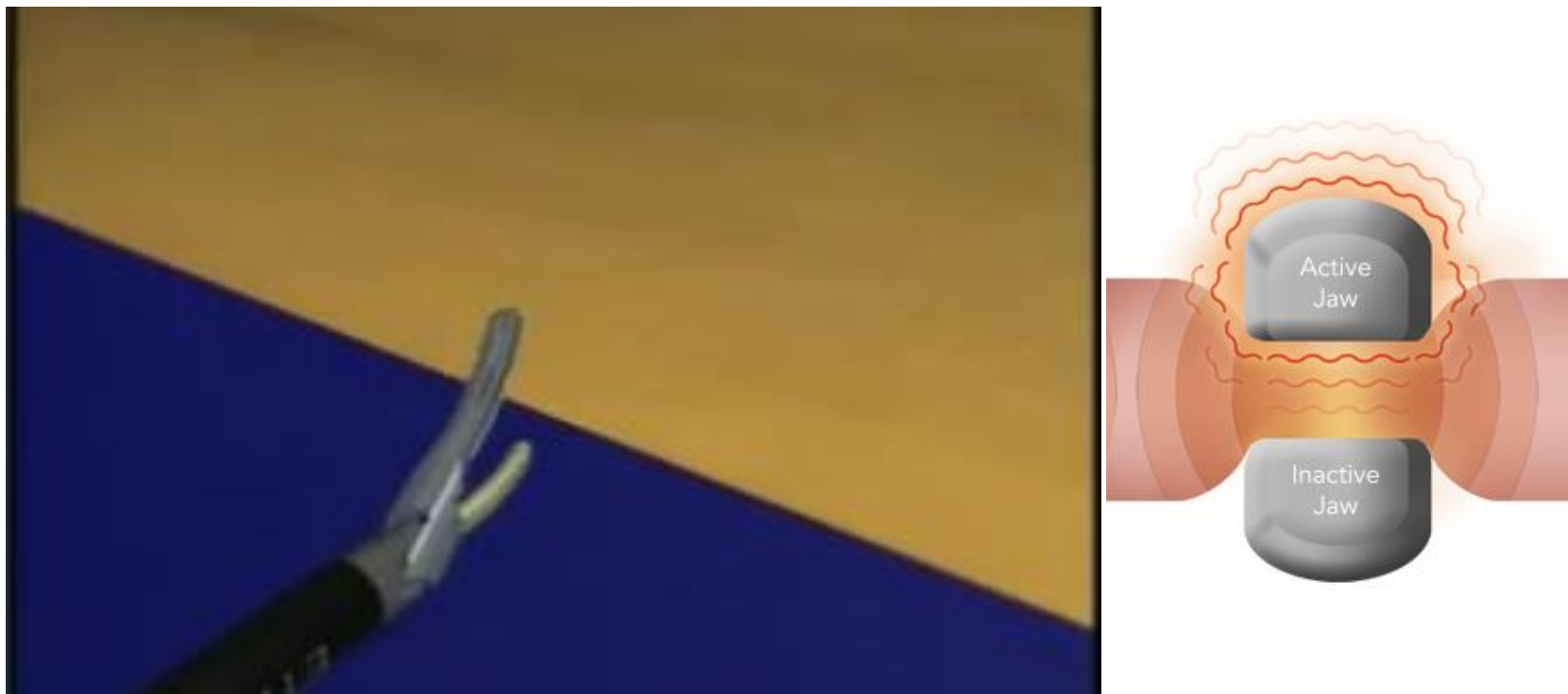


https://youtu.be/26cMx8LWk_A

3mm Mini LS Divide Mode



Harmonic



<https://youtu.be/1SFUjk7nSql>



REVOLUTIONARY DIRECT THERAPEUTIC ULTRASOUND

FEATURES

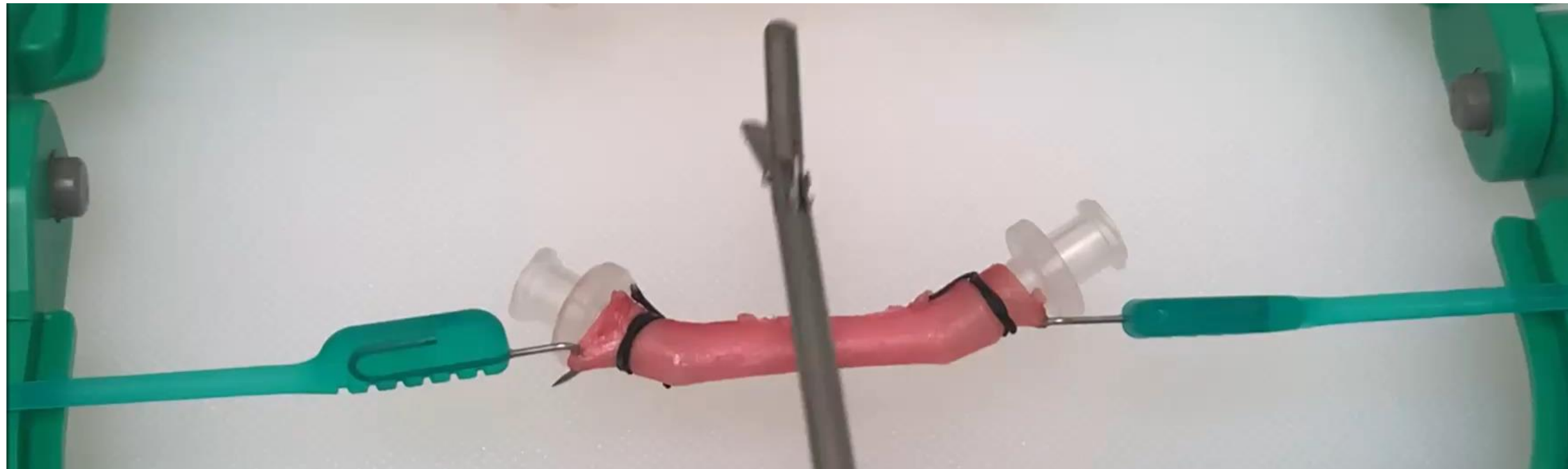
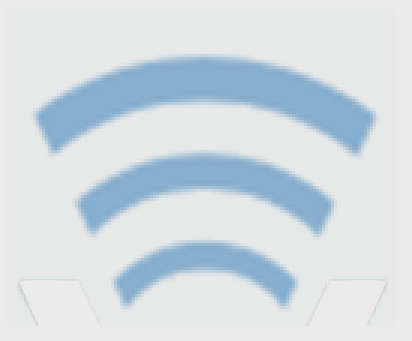
- | Transducers imbedded into the jaws ***Directs*** the ***Ultrasound***
- | First ***3mm Sealer/Divider***
- | ***Therapeutic*** energy constrained to width of jaws and works from the inside out
- | ***Electrically Neutral***
- | Jaw does not need to be on a straight shaft
- | Different Jaw Sizes



BENEFITS

- | ***Versatile*** up to 7mm vessels, and efficacious under complete liquid submersion
- | ***Smaller Scars***
- | ***Precision, Speed, and Control***, preventing thermal spread
- | ***Safer*** – no smoke, no charring, no burning
- | ***Only Sealer/Divider for Robotic & Endoscopic Surgery***
- | ***Wide Range*** of Clinical Applications

OVER 500 FORMATIVE BENCH STUDIES



6 mm porcine carotid artery
Treatment time < 5 seconds
Burst pressure > 700mmHg

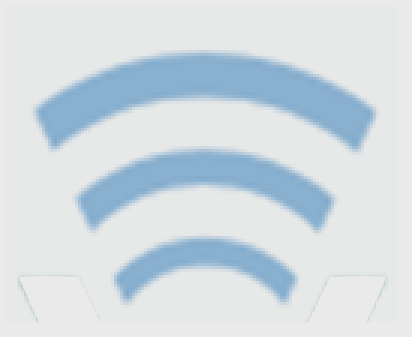


3 mm porcine carotid artery
Treatment time < 3 seconds
Burst pressure > 700mmHg

Exceeds FDA
Requirement

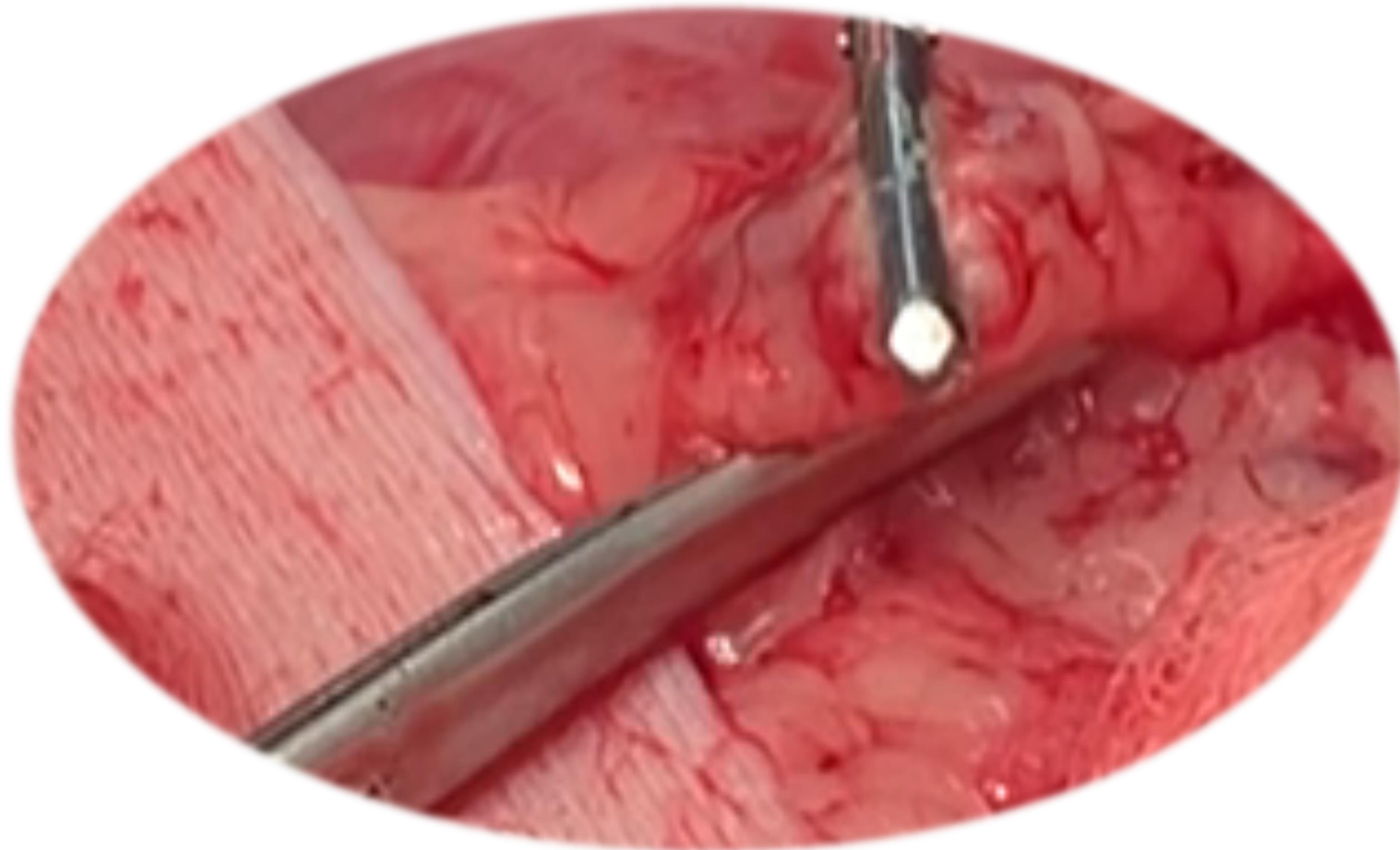
Less Than 0.5 mm Thermal Spread
Lowest in Industry

FORMATIVE ANIMAL STUDIES



Novuson UltraStat 3mm Mini-LS
Gastroepiploic bundle Seal and Divide in 8 seconds
Artery, Vein, 10mm connective tissue

No Smoke
No Burning
No Charring



COMPARATIVE ADVANTAGES



	UltraStat	Harmonic Ace ^[1,2,3,5,6,7,8]	Ligasure ^[1,2,3,4,5,6,8]	Enseal ^[1,2,3,5,6]	FDA Regulation
Energy Modality	DTU	Harmonic	RF	RF	510 Guidance
Thermal Damage (mm)	0.55	2.02	2.39	1.8	Quantified
Charring	None	X	X	X	Safety
No Smoke	None	X	X	X	Safety
Electrically Neutral	✓	✓	X	X	Safety
Hemostasis Efficacy	95%	84%	92%	83%	90%
Burst Pressure (mmHg)	569	647	547	608	240
Speed	8.0	9.7	8.0	13.7	
Artery Diameter	6.6	5.6	6.5	6.3	
Adhesions	1%	4%	22%	8%	Safety
Shaft Diameter (mm)	3	5	5	5	
Articulating	✓	X	X	X	

[1] Lamberton *et al* (2008) Vol. 22 (10)

[2] Landman *et al* (2003) Vol. 169, 697–700

[3] Hruby *et al* (2007) Vol. 178, 2689-2693

[4] Lyle *et al* (2015) Vol. 9326, 932600-1

[5] Milsom *et al* (2012) Vol. 22 (4)

[6] Newcomb *et al* (2009) Vol. 23, 90–96

[7] Tanaka *et al* (2015) Vol. 22 (4) 338–343

[8] Timm *et al* (2014) Vol. 7, 263–271

[9] Tuzun *et al* (2017) Texas Institute for Preclinical Studies

LEADERSHIP



Executive Management



Stuart B Mitchell, PhD

CEO, CSO, Founder

- 35 yrs Business and Program Mgmt
- 25 yrs Biomedical Technology
- 15 yrs Therapeutic Ultrasound



Jean Maixner, DVM, MBA

EVP Operations and Finance

- Entrepreneur w/Successful Exit
- Strategic Planning
- Financial Projections/Budgeting



Marco Daoura, MS BioE

EVP Program and Product Mgmt

- 20 years in healthcare industry
- Development and Regulatory
- Launch and Commercialization

Board of Directors



Stuart B Mitchell, PhD

Chairman



Carla Corkern

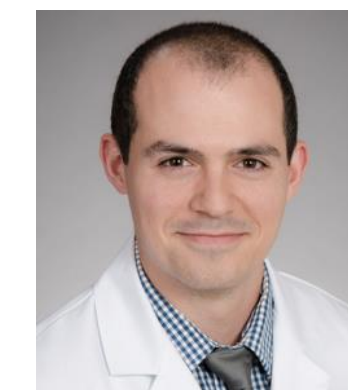
Former CEO, Talyst



Sam Liao

CFO, Series A Investor

Medical Advisors



Derek Khorsand MD, Chief

Medical Officer, Novuson Surgical
Interventional Radiologist, Coeur
d'Alene, Idaho



**RUSSELL JENNINGS, MD, PEDIATRIC
SURGERY**

Boston Children's Hospital,
Department of Surgery



**CAMRAN NEZHAT, MD, FACS, FACOG,
GYNECOLOGICAL SURGEON**



JONATHAN GELBER, MD, MS

Orthopedic Surgeon, Olmsted
Medical Center, Rochester,
Minnesota

NOVUSON PRODUCT LAUNCH TIMELINE



Adaptive Control Console
(\$21,000 Retail - \$5,000 COGS)

DFM – Regulatory
Launch 2022



UltraStat 3mm MiniLS
(\$595 Retail - \$150 COGS)

DFM –
Regulatory
Launch 2022

YEAR	Electrosurgical Procedures	
Q4 2022	KOL's Usability	
	GYN	3 PILOT ACCOUNTS
	PED SURG	2 PILOT ACCOUNTS
2023	Total	8,413,659
	GYN	3,764,500
	PED SURG	2,254,517
	UROLOGY	2,394,643
2024	Total	11,335,006
	GYN	3,737,333
	PED SURG	2,268,847
	UROLOGY	2,430,786
	TRAUMA	945,353
	LIVER	45,167
	KIDNEY	52,520
	GASTROINTESTINAL	1,855,000

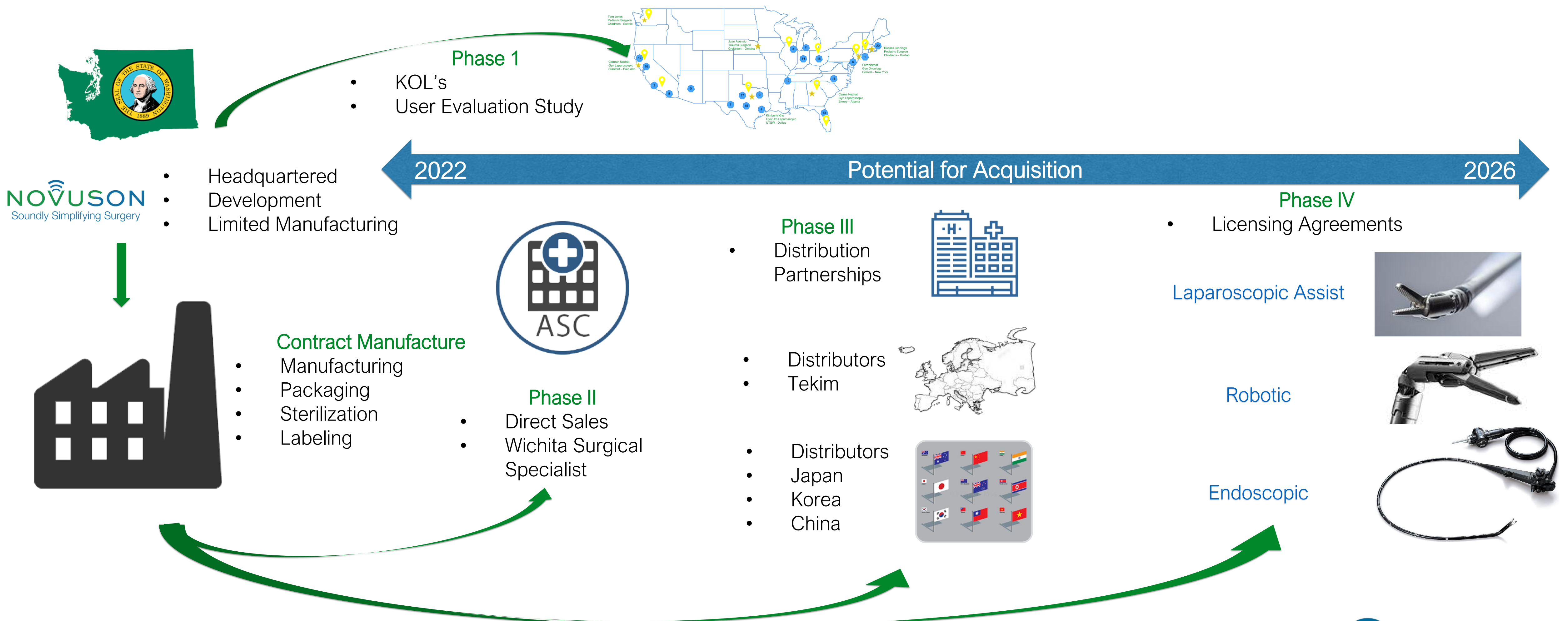
5mm LS



10mm Maxx



GO TO MARKET STRATEGY

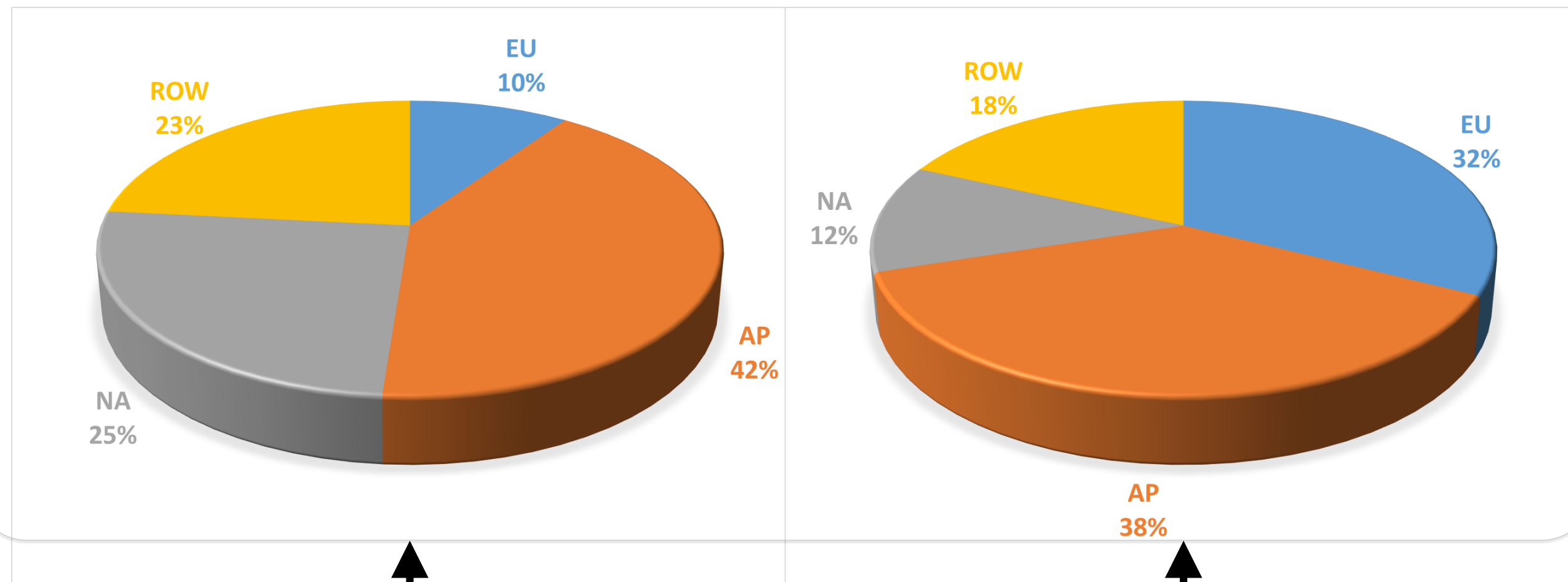


\$6.4Bn TOTAL ADDRESSABLE MARKET



410M SURGICAL PROCEDURES
89% USE ELECTROSURGICAL DEVICES

405K SURGICAL SUITES



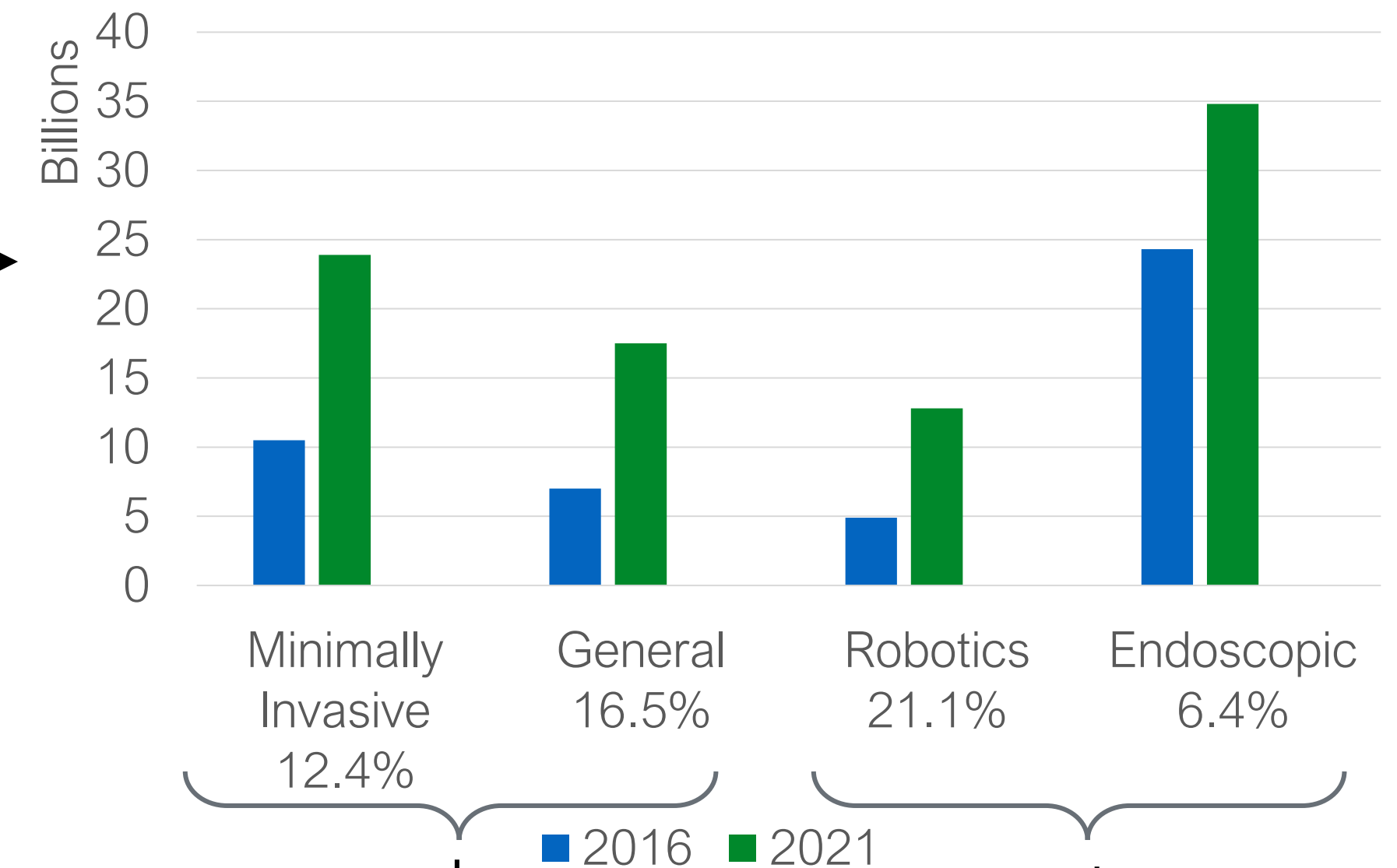
1) Disposable



2) Generator

Electrosurgical
Device Market

\$50Bn GLOBAL SURGICAL DEVICE MARKET



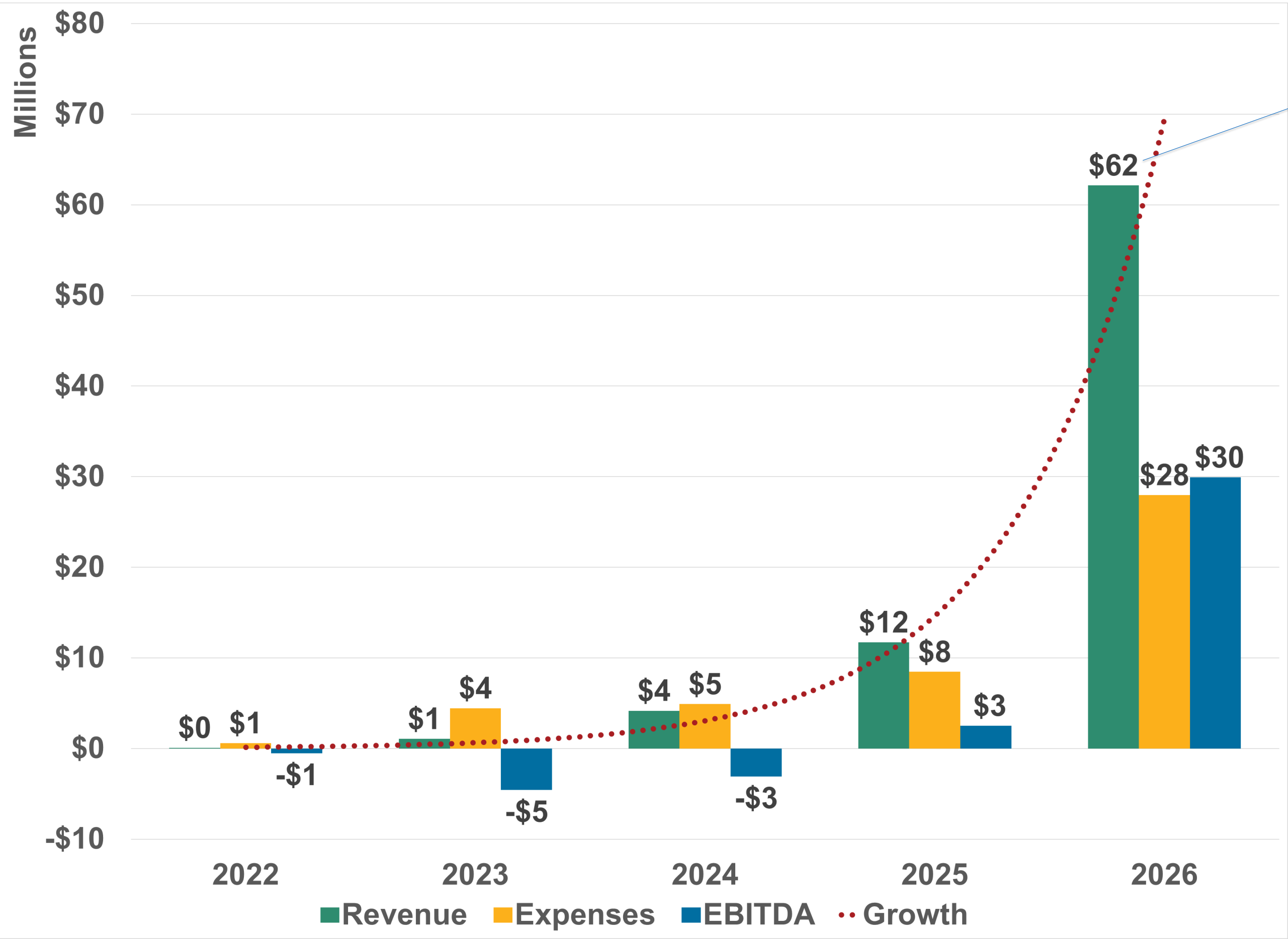
Initial Launch

Licensing Roadmap

TAM \$6.4Bn



PROJECTED FINANCIAL: US DIRECT SALES MARKET



Capturing
0.15% of US surgical procedures
1.0% of US surgical suites

~82k disposables
360 control units placed out of 35,000 US
Surgical Suites

Global TAM \$6.4 Bn, US~40%		
Supplier	Sales (\$Bn)	Share (%)
Ethicon	\$1.02	40%
Medtronic	\$0.72	28%
Olympus	\$0.18	7%
Smith &	\$0.20	8%
Maquet	\$0.15	6%
Erbe	\$0.08	3%
ConMed	\$0.05	2%
Others	\$0.15	6%
Total (\$Bn)	\$2.56	100%

TRACTION AND ROADMAP



2014 - 2016

Formation

- Founded 2014 by Stuart Mitchell
- Licensed from University of Washington
- \$3.2M NIH Grants
- 4 Patents Issued
- \$2.63M Series A

2017 - 2020

Validation

- PCT Filed
- Conducted **Pre-Meeting w/ FDA**
- Validating Pre-clinical

500+ *Ex Vivo* “Bench” Studies
500+ *In Vivo* Treatments (35 Animals)

2017 - 2019

- FDA Sealing and Burst Pressure Met
- Capital Raise (\$1.0M Closed)
- Strategic Partnerships

2020

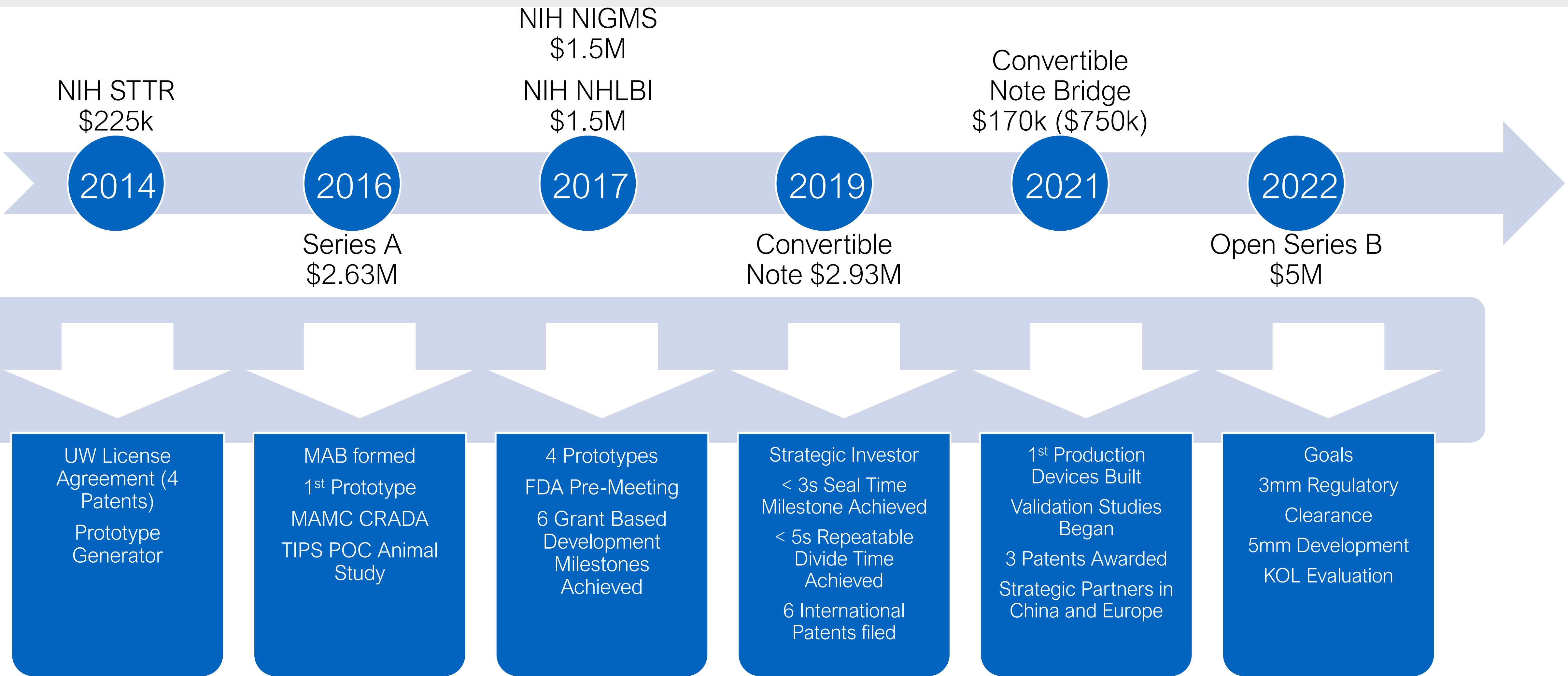
- \$2.0M Convertible Note Closed
- Commercial value proposition demonstrated

2021-2022

Market Viable Product

- 2021
 - 3 Patents Awarded
 - Production Validation Prototype Completion and Testing
 - Prepared for 510k Validation Testing
 - \$750k Bridge Round Opened
- Q1 '22
 - Close Lead Investor for Series B (\$10M)
 - Licensing and Strategic Investors in China
- Q4 '22
 - File 510k
 - User Evaluation
 - Begin Development of 5mm
- Q2 '23
 - File India, Japan, China, Korea
 - Launch in USA
 - 510k – 5mm UltraStat
 - Build Out Platform - Licensing

MILESTONES



INTELLECTUAL PROPERTY



BakerHostetler



1) **Structural Design**

- a) Mechanism
- b) Transducer
- c) Materials

2) **Performance**

- a) Energy Delivery Algorithms
- b) Feedback Algorithms
- c) Biological Mechanism

3) **Methods**

- a) Surgical Procedures
- b) Tissue Effects
- c) Processes

4) **System**

- a) Control Unit
- b) Applicator Unit
- c) AI

Number	Independent Claims
UW Patents	
8,414,494	3
9,198,635	11
8,500,643	4
8,900,145	1
Novuson Patents	
11,259,831	3
10,925,628	3
10,925,629	3
17/683,91	
International Filed	
WO 2019/055870 A1	
China	
Korea	
Japan	
EU	
India	
Hong Kong	



IN DILIGENCE FOR \$10.0 MILLION SERIES B

TERM SHEETS FROM 2 STRATEGICS AND 1 NY VC



Novuson Surgical Inc.
Soundly Simplifying Surgery

JUST LAUNCHED!

Get the opportunity to invest
in the **NOVUSON** crowdfunding
campaign on **start engine**

CLICK HERE TO INVEST NOW

Use of Funds

- ▶ Clinical system completion
- ▶ Validation & verification testing
- ▶ 510K clearance
- ▶ User evaluation
- ▶ Soft product launch

5-8 months to FDA Submission

www.startengine.com/novuson

Value Inflection Point:

Regulatory
~\$24 Million → ~\$50 Million
~6X Return



EXIT VIA ACQUISITION 2024-2026

ETHICON
PART OF THE Johnson & Johnson FAMILY OF COMPANIES

Medtronic

Medtronic

HOLOGIC



HOLOGIC

Company	founded	Acquisition Price	Acquirer	Years
SurgRx	2001	\$285,000,000	Ethicon	7
Peak Surgical	2005	\$120,000,000	Medtronic	6
Salient Surgical	1999	\$525,000,000	Medtronic	12
Interlace Medical	2006	\$125,000,000	Hologic	5
Domain Surgical	2008	Unkown	Omniguide	8
Justright Surgical	2010	\$160,000,000	Hologic	11
Average		\$243,000,000		8

NOVUSON

Acquired \$50 - \$100 million in 2 Years

HOYA

ETHICON
a Johnson & Johnson company

OLYMPUS

Medtronic

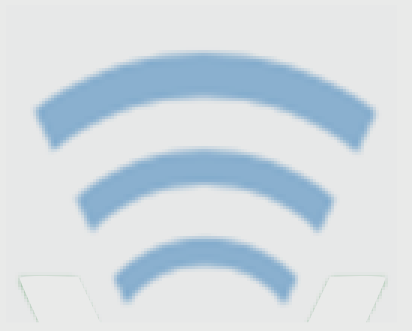
 **CONMED**

AESCULAP

 **Apeiron**
SURGICAL

 **MicroPort**
MedBot

SUMMARY



- ▶ Novel, first in class, disruptive technology
- ▶ Clear value proposition: Faster, Safer, Reduces Complications, Precise
- ▶ Clear regulatory path: Exceeds regulatory requirements
- ▶ Experienced executive team and advisory boards

- ▶ Currently have one strategic investor
- ▶ Exit Via acquisition in 2 to 3 years, >6X return for investors
- ▶ In strategic discussions with several surgical device manufactures
- ▶ 2 term sheets received for investment and licensing in China
- ▶ Term sheet for US venture fund
- ▶ \$750k to finalize V&V

- ▶ Join me in improving the safety and efficacy of surgeries

THANK YOU!



STUART B MITCHELL

FOUNDER AND CEO

SBMITCHELL@NOVUSON.COM

(425) 238-6227