Navigation Sciences

Company Profile
Industry: Image Guided Surgical Navigation
Founded: 2017

Financing
$1.325M Seed

Business Model
Minimally Invasive Surgical Instruments & Software

Addressable Market
$980M
450K Procedures

Patents
2 Utility Applications
2 PCT Applications

Hospital Partnerships
Partners Healthcare,
Brigham & Woman's Hospital

Management
Alan Lucas, CEO
Co-Founder & Director

David Fogel, CPA, CFO

Board of Directors
Raphael Bueno M.D.
Co-Founder & Director
Chief, Thoracic Surgery,
Brigham & Women's Hospital

Giacomo Basadonna M.D., PH.D.
Professor of Surgery,
University of Massachusetts Medical School

Scientific Advisors
Jayender Jagadeesan PH.D.
Co-Founder
Assistant Professor of Radiology, Brigham & Women's Hospital

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Navigation Sciences™ is developing, novel Image-guided Video Assisted Thoracoscopic Surgery (iVATS™) technology for minimally invasive identification and removal of early stage lung tumors and other soft tissue cancers. The technology, which combines intraoperative imaging with Augmented Reality (AR), promises to improve surgical outcomes and increase operational efficiency. There is significant additional potential for image-guided surgery for breast, liver and other cancer types such as thyroid and brain.

Key Unmet Needs in Soft Tissue Surgery

The need for improved soft tissue surgical technology in early stage cancers is large and growing, particularly with the advent of more effective screening techniques. In Navigation Science's lead indication, lung cancer, the demonstrated success of chest CT screening in high risk populations in lowering cancer deaths is creating new opportunities for technology to improve lung surgery. Removal of small tumors deep inside the lung with appropriate surgical margins, however, remains a significant challenge. Insufficient distance between the tumor and the resection margin has been shown over time to be associated with cancer recurrence and death.

iVATS™ Innovative Solution

Navigation's surgical instruments and AR software provide real-time GPS navigation to precisely locate and remove tumors with optimal margins, while preserving lung function. The technology is designed to reduce recurrence and re-operation rates, as well as increase operating room efficiency.
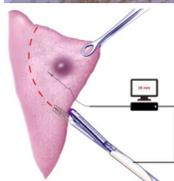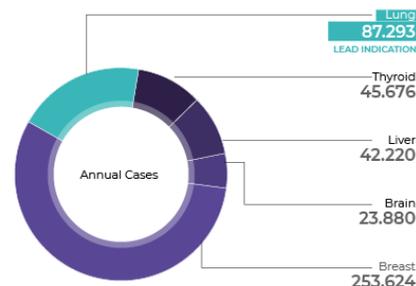

The revolutionary multi-modal technology is used in conjunction with minimally invasive instruments that include: imaging and proprietary, real time navigation algorithms; and tumor cutting devices that allow for surgical precision specific to the patient's anatomy. Radiology images are synchronized with real-time information to enable the clinician to perform procedures with precision guidance.

Technology Proof of Concept

In an initial 25-patient clinical trial in early stage lung cancer, there were no significant complications and all nodules were fully resected with negative margins. The study also demonstrated the technology integrates with surgical workflow. The Phase I-II study was published in the peer-reviewed Journal of Surgical Oncology.

Addressable Market Opportunity

There are more than 450,000 surgeries per year in the US, for soft tissue cancer, where Navigation's technology may benefit. The initial addressable market is the over 87,000 US patients diagnosed with early stage lung cancers. Growing recognition of the value of CT X-ray screening and favorable CMS reimbursement coverage for high risk patients are expected to drive up the number of early stage lung cancer diagnoses. There are significant follow on opportunities in breast cancer surgeries, where an estimated 250,000 US lumpectomies are addressable with the technology, as well as with liver, thyroid and brain tumors.

Lung 87.293 LEAD INDICATION
Thyroid 45.676
Liver 42.220
Brain 23.880
Breast 253.624
Annual Cases

Financial Projections ($000's omitted)								
	2019	2020	2021	2022	2023	2024	2025	2026
Revenue	$ -	$ -	$ -	$ 3,883	$16,398	$32,391	$53,782	$82,743
EBITDA	(535)	(1,808)	(3,918)	(4,847)	(400)	3,964	16,463	35,809
Funding	$ 300	$5,750	$ -	$11,200	$ -	$ -	$ -	$ -