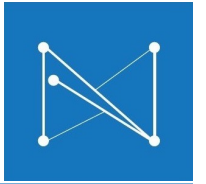


NERv  
T E C H N O L O G Y I N C

Data-driven Patient Recovery | [Amr Abdelgawad](#) Chief Operating Officer



## Problem | Unmet Need with the Standard of Care (SOC)



SURGERY



COMPLICATION  
DEVELOPS



SYMPTOMS  
APPEAR



EXAMINATION



DIAGNOSIS



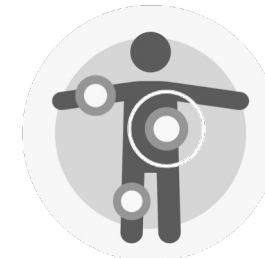
TREATMENT



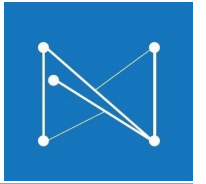
**Impacting  
Quality of Life**



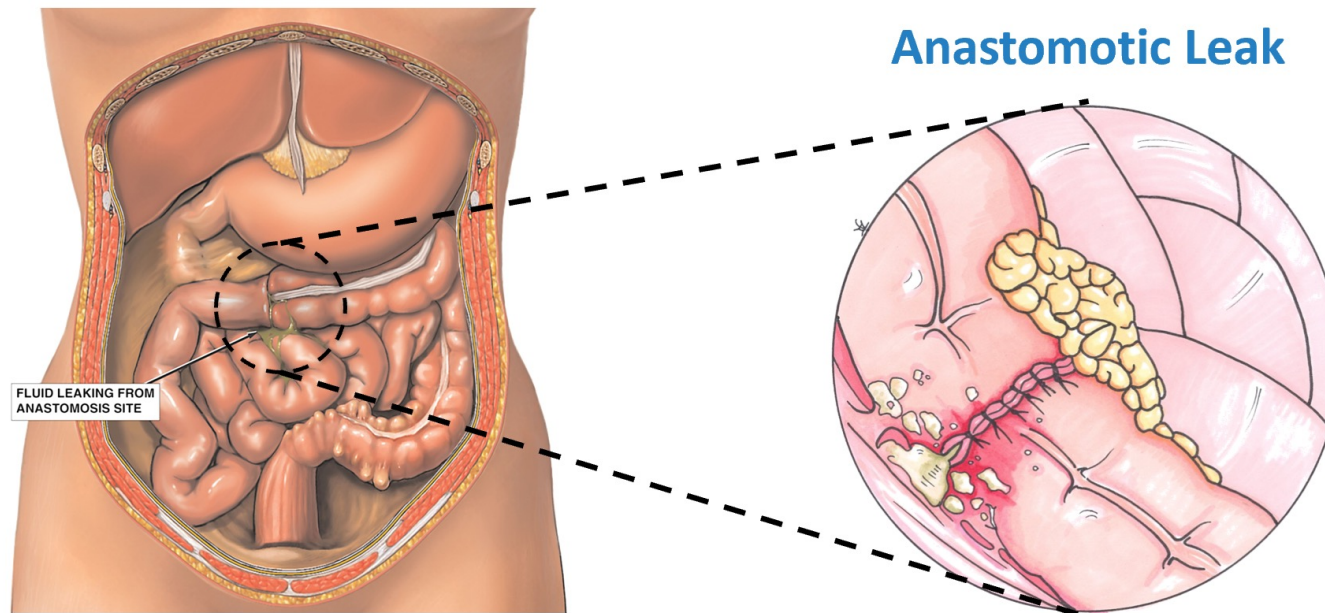
**Costly  
Diagnosis &  
Treatment**



**Delayed and  
Reactive**

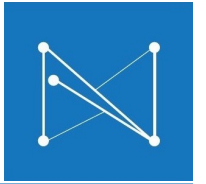


## Critical Need | Anastomotic Leaks (AL) – Bane of Intestinal Surgeries



	8% Avg Incidence
	12% Mortality
	\$48K Increase
	2-3 Days to Detect





### TO DATE, THERE ARE NO DEVICES SPECIFICALLY DESIGNED FOR THE EARLY DETECTION OF POSTOPERATIVE ANASTOMOTIC LEAKS AFTER COLORECTAL, HEPATOBILIARY, ESOPHAGEAL, AND BARIATRIC SURGERY

“Early diagnosis and management of anastomotic leakage are critical to minimizing morbidity and mortality with a positive correlation between the timing of intervention and septic complications.”<sup>1</sup>



“Early recognition of postoperative pancreatic fistula might decrease the risk of subsequent life threatening complications.”<sup>2</sup>



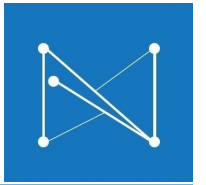
“Gastrointestinal leak remains a significant cause of morbidity and mortality after bariatric surgeries. Post laparoscopic sleeve gastrectomy leaks can be misdiagnosed, resulting in delayed management and catastrophic consequences ”<sup>3</sup>



1. Hirst, N. A., Tiernan, J. P., Millner, P. A., & Jayne, D. G. (2014). Systematic review of methods to predict and detect anastomotic leakage in colorectal surgery. *Colorectal disease : the official journal of the Association of Coloproctology of Great Britain and Ireland*, 16(2), 95–109. <https://doi.org/10.1111/codi.12411>

2. Smits, F., Molenaar, I., Besselink, M., Borel Rinkes, I., van Eijck, C., Busch, O., & van Santvoort, H. (2020). Early recognition of clinically relevant postoperative pancreatic fistula: a systematic review. *HPB*, 22(1), 1-11. doi: 10.1016/j.hpb.2019.07.005

3. Al Zoubi, M., Khidir, N., & Bashah, M. (2021). Challenges in the Diagnosis of Leak After Sleeve Gastrectomy: Clinical Presentation, Laboratory, and Radiological Findings. *Obesity surgery*, 31(2), 612–616. <https://doi.org/10.1007/s11695-020-05008-y>



## Standard of Care | Reactive, Delayed, and Subjective

### Physical Examination



- Vital Sign Assessment
- Abdominal Examination
- Monitoring of Drainage

### Laboratory Tests



- Complete Blood Count
- Blood Gas Analysis
- Serum Chemistry
- Drainage Amylase & Lipase Level

### Radiographic Imaging

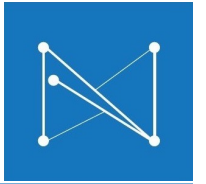


- CT Imaging
- Ultrasound
- MRI

### Intervention



- CT-Guided Drainage
- Intravenous Antibiotics
- Reoperate



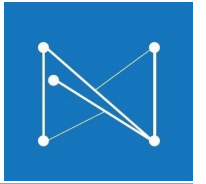
### Data-Driven Analytics

- Real-time continuous analysis
- Precision guided intervention
- Adaptable to multiple medical fields
- Minimal training needed
- Remote monitoring

### Novel State of the Art Sensors

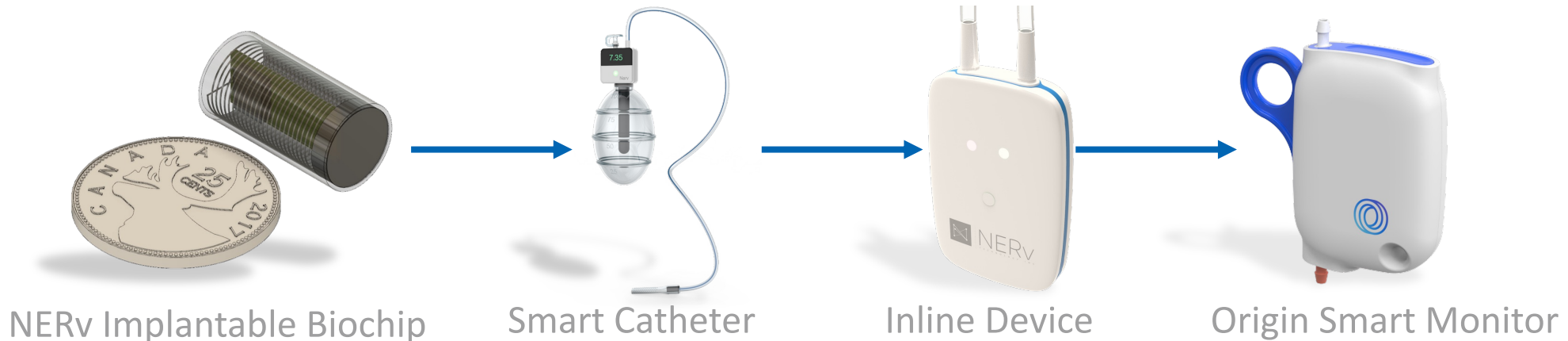
- Miniature Sensors to fit in  $\mu$ -channels
- Electrochemical sensing
- Biofouling-resistant & long shelf-life
- Monitoring inflammatory biomarkers

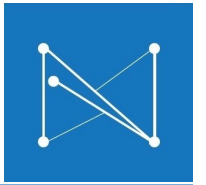




## NERv Origins | Need Identified by Surgeons

- Founder's mother (surgeon) has been **worried** about the health of her patients
- The current **standard of care** system is **reactive**.
- Team of Engineers utilizing **novel technologies** to disrupt postoperative care
- **Versatile solution** that can be used across the medical spectrum
- **Design** inspired by **simplicity** to boost **adoption**
- Solution driven by **healthcare trends**
- Years of **technology and Innovation**
- **Value Based Healthcare** – better **clinical outcomes** at an **affordable** cost



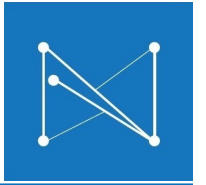


# NERv System Benefits | NERv Benefits All Stakeholders

Patients	Surgeons	Provider	Payers	Country / Economy
Improved outcomes  Awareness to AL risk could lead to patients seeking surgeons who use NERv  Less AL anxiety  Reduce reoperation risk	Attract risk-conscious patients  Improved outcomes  Less AL anxiety  Inform real-time interventions  Reputation as an innovator  Prevent litigation	Improved outcomes  Marketing benefits increase patient draw  Lower overall cost of care  Decreased mortality  Decreased readmission  Increased patient turnover / OR utilization  Reputation as innovator	Lower overall cost of care (OR time, manpower, bed turnover, processing)  Improved outcomes	Reduce time off work, productivity loss  Improved disability adjusted quality of life



## Traditional Feasibility Study | Site Investigators



Dr. Pablo Serrano



Dr. Joao Rezende-Neto



Dr. Shiva Jayaraman



Dr. Emre Gorgun



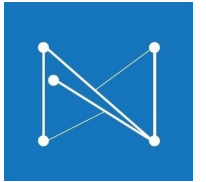
Dr. Mohamed Husein



Dr. Khayal Al-Khayal



# Supportive Ecosystem



## Pilot Sites

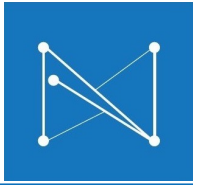


## \$5M+ Awards / Government Funding



## Partners/Incubators





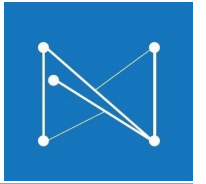
## Post COVID-19 Opportunities | Building a Bio-manufacturing Hub



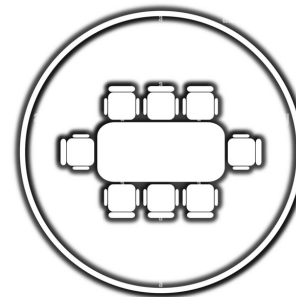
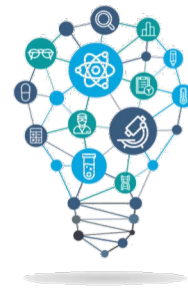
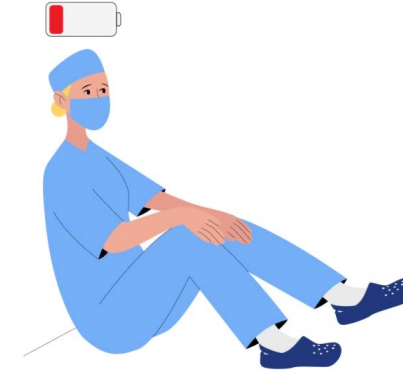
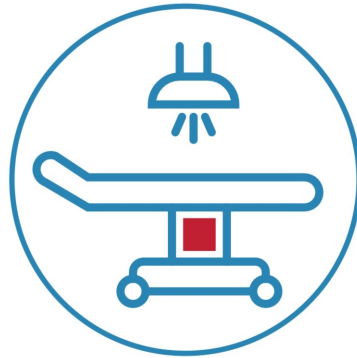
### ONTARIO TOGETHER FUND :

\$50M fund providing immediate support to businesses, organizations and communities to team up with our province.

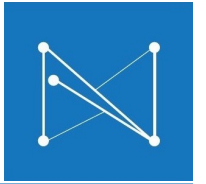




# Post COVID-19 Opportunities | Improving our healthcare system







## Reimbursement and local adoption





Exciting announcements in the near future. Follow us and stay tuned!

Thank you!

 [www.ne-rv.com](http://www.ne-rv.com)

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