innofect

Advanced dermal disinfection for more efficient and effective hand sanitization.

Industry
Dermal Disinfection

Company Stage
Pre-clinical Testing

Collaborators
Praxair Corporation
GMI Corporation
Purafil Corporation
Rose Hulman Ventures
BNOAT Oncology LLC
Walsh University
University of PENN

Funds Sought
$1 to $5 million

Use of Funds
Preclinical Studies
Clinical Studies
Design of Alpha Device

Total Capital Raised
$250,000 from Baron Innovation Group

Milestones Complete
Licensed IP from UPENN
Partners: Praxair & GMI
Prototype & Formulation
Proof of Concept

Team
Tim Shaffer
CBO/CEO/President
Michael Poisel – BM
Gary Baron – BM
Dr. Paul Axelsen – Inventor

Legal – Kaplan Stewart
Acct. – Eisen Amper

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Company Overview

Innofect's mission is to make the world a safer and healthier place by stopping the spread of resistant bacteria and microorganisms. Innofect has developed a next generation hand sanitizing product to disinfect hands and stop the spread of hospital acquired infections (HAIs). The proprietary sanitizing solution allows for quick and more efficient killing of microorganisms and bacteria located on the hands.

Market

The initial target market is the Intensive Care Unit of hospitals where Innofect can be deployed in multiple locations throughout the clinical setting to be used by the healthcare personnel.

$13B – Cost to health care system for HAIs spread by hand
100,000 - Number of deaths annually by HAI in the US alone

Problem

The hospital ICU population is composed of people infected with resistant organisms and those most vulnerable to acquiring new infections. As a consequence, hospital-acquired infections, HAIs, transmitted through the hands are increasingly common and lead to high costs for the hospital and high mortality rates. Hospital reimbursement for infection is transforming from a revenue stream to an expense resulting in a focus by hospitals to reduce infection. The reasons for the spread of HAIs are as follows:

- **Staff do not comply with hand sanitizing procedures**
  - Irritation/dryness of hands with too much cleaning
  - Takes too long and is inconvenient
- **Ineffective personal cleaning techniques**
- **Existing techniques do not kill all key organisms**
- **Insufficient number of stations**

Solution

Innofect has developed a nitric oxide disinfection system that solves the main challenge of facilitating and promoting compliance and killing germs more effectively. To do this the Innofect system is simple, quick, and non-irritating. The method works irrespective of personal technique, and is effective against antibiotic resistant organisms. The Innofect advantages are: **(1) Speed: Innofect decreases hand sanitization time from roughly a minute to a few seconds; (2) Not irritating to hands; (3) Kills all key organisms.**

Business Model

We will sell the hand sanitizing system directly to hospitals. Once installed, recurring revenues will be realized via a razor blade model; with the sale of hand sanitizer solution refill containers.

Competition

Traditional hand washing – Takes a long time, does not kill all germs, rough on the skin, promotes non compliance
Alcohol gels – Very rough on the hands, promotes non-compliance, does not kill all germs

GOJO is the leading global producer and marketer of skin health and hygiene solutions including Purell. Steris provides hand sanitizers, sterile processing equipment, and medical device sterilization services. 3M is a manufacturer of hand hygiene and skin care products for health care and professional use including sanitizing gels, antimicrobial soaps, and moisturizing and protecting creams.

Company Overview

Ostiio is developing a novel approach to correct skeletal deformities and deficiencies utilizing a fully implantable, magnetically-driven, bony distraction device.

Problem

Distraction is a form of temporary bony fixation that generates new bone at the site of a surgical bony cut through the gradual separation of the opposing bony fragments. This technique is used across the entire skeleton, and increasingly in cranio-maxillo-facial and spine surgery, to correct a variety of conditions that result in growth restriction or deformation. Though distraction represents a critical tool for surgeons, it has significant limitations and complications that have prevented its widespread adoption.

All currently available distractors have some external component that protrudes through the skin to allow for daily expansion of the distractor with a screwdriver. This external component predisposes patients to a variety of complications, including soft-tissue infections, increased pain and analgesic use, and scarring. Further complicating matters, distraction often occurs in the outpatient setting, with expansion dependent on patient / family compliance. The process can be very unpleasant and imprecise, often resulting in a resource-intensive post-operative course, with weekly clinic visits and x-rays to approximate the distance of expansion. These limitations of current distractors have remained unaddressed for decades, and present an opportunity for Ostiio to bring a completely novel distractor to market and create value for patients, payers, hospital systems, and physicians.

Solution

Ostiio is developing a novel distractor that can be fully buried under the patient's skin, and expanded wirelessly and with precision. By eliminating the external protruding component, our device will significantly reduce post-operative infection, pain, and the stigma of distraction. Ostiio's distractor will be engaged magnetically through the use of a computerized external device with a built-in feedback loop to allow for more precise and predictable expansion than with currently available distractors. This design significantly reduces the level of patient / family engagement, and is likely to greatly reduce compliance failures and their sequelae. In bringing its device to market, Ostiio plans to leverage the already favorable regulatory and reimbursement environments surrounding the distractor space.

Founder Information

Dr. Jesse Taylor (jataylor@gmail.com), co-founder of Ostiio, is an Associate Professor of Surgery at the University of Pennsylvania and the Children's Hospital of Philadelphia. He is a thought-leader in the field of craniofacial surgery, with research focused on osteogenesis, craniofacial distraction osteogenesis, and craniofacial surgery.

Ari Wes (arimwes@gmail.com), co-founder of Ostiio, is a medical student at the Perelman School of Medicine at the University of Pennsylvania. He has significant research experience across the field of plastic surgery, with emphasis on osteogenesis, craniofacial surgery, and the expanding role of distraction osteogenesis in surgery.

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Paradigm Surgical

Shifting the paradigm from treatment to prevention.

Industry
Medical device, prophylactic mesh augmentation, incisional hernia prevention

Stage
Pre-clinical

Capital Sought
$1M+

Use of Funds
Product development, growth

Milestones Achieved
Suite of patents filed; four separate devices; prototype for leading device, pre-clinical proof of concept

Funding
NSF STTR

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Member of PCI Ventures Upstart Program

Company Overview

Paradigm Surgical is developing technologies to prevent incisional hernia from occurring in patients that undergo abdominal surgery. The device can repeatedly apply prophylactic mesh faster than current techniques, and has the potential to save billions of dollars in healthcare costs and improve patient quality-of-life.

Market

Abdominal Surgery: 2 million people annually
$7B – healthcare expenditure to treat incisional hernias

Problem

The incisional hernia paradigm is one of treatment, not prevention.
Currently there are no effective tools or techniques for preventing incisional hernias after a patient undergoes abdominal surgery. Of the 2 million people who undergo abdominal surgery annually, 15% experience incisional hernias. 70% of these have recurring hernias, and each subsequent operation is less successful and more costly.

Prophylactic mesh augmentation (PMA) is an ideal candidate for preventing incisional hernias and subsequent operations, however there is no effective technique for implementing the mesh at the time of surgery. The implementation process is lengthy (~1 hour), there are many technical challenges with mesh placement, and there are issues with biomechanical variability.

Solution

Shifting from treatment to prevention.
Paradigm Surgical has developed a device which can affix the PMA over the surgical wound directly after the abdominal surgery. The device is a hand-held, disposable onlay mesh affixing system that obviates the need for time-consuming hand sewing of mesh, standardizes mesh delivery, and eliminates many of the technical intra-operative challenges of mesh placement. The process is:

- ✓ **Fast**
- ✓ **Automated**
- ✓ **Biomechanically stable**

This technology enables the surgeon to implement the mesh directly after an abdominal surgery. This device will transform the treatment paradigm to one of prevention, thus improving patient outcomes and reducing costs to the healthcare system.

Team Information

Dr. John P. Fischer, founder of Paradigm Surgical, is an Assistant Professor of Surgery at the University of Pennsylvania. He's an expert in reconstructive surgery, with a research focus on clinical and economic outcomes in abdominal surgery and incisional hernia.
Rex Peters, CEO of Paradigm Surgical, is a medical device executive and entrepreneur with over 20 years of industry experience. He spent 12 years with Abbott Laboratories, and co-founded six medical device companies, including

The *BUZZ* in Blockages

Industry
Medical device, catheter obstruction, biofilm prevention, ultrasonication

Stage
Pre-clinical

Capital Sought
$500K+

Use of Funds
Product development, growth

Milestones Achieved
Patents filed, pre-clinical prototype, proof-of-concept pre-clinical testing

Funding
Angel Investor
Ben Franklin Tech. Partners
NextFab Studios

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Member of PCI Ventures Upstart Program

Company Overview

SonoSolve aims to eliminate catheter-associated complications using a novel non-invasive method to clear obstructions and biofilms within catheters.

Market

The initial target market is External Ventricular Drain (EVD) catheters inserted in the brain after surgery for draining of fluid.

$1B - annual cost to treat blocked EVD catheters and associated infections

Other market opportunities include all indwelling catheters; urinary catheters, surgical incision drains, pleural catheters/drains, spinal catheters/drains.

Problem

No effective process for clearing catheter blockages.

Indwelling catheters, which are very common in medicine, may become obstructed by biofilms, blood clots, proteinaceous debris, or other bodily contents. For just EVD catheters alone, 48% will fail due to this obstruction and of that, 40% will lead to infection. These complications in result further surgical procedures and prolonged acute care which dramatically increasing healthcare costs, and hospital acquired infections which can lead to death. Furthermore, institutional quality measures and healthcare reimbursements are tied specifically to catheter-associated complications.

Technologies have been developed to address these issues; however, clinical adoption has been limited due to a lack of adaptability with current standards of care. Additionally, these technologies are invasive, making the cost of implementation prohibitive. Current capabilities do not include lysis of clots or proteinaceous debris.

Solution

Non-invasive method for removing blockages.

SonoSolve has developed a non-invasive process to remove blockages in catheters. The technology uses soundwaves to clear all types of blockages safely without flushing. Our device is hand-held, easy to use, external to the patient and tube system, and adaptable to a variety of externally-draining catheters. The device can quickly and easily remove blockages, thus dramatically reducing infections and lowering treatment costs for the healthcare system. SonoSolve process is:

- ✓ Noninvasive
- ✓ Safe
- ✓ Easy to use
- ✓ Applicable to all types of blockages

Company Information

Steve Davis, CEO is a medical device executive with a 20-year career in start-up companies, with expertise in product design/enhancement, process/manufacturing engineering, team building, finance, sales & marketing, regulatory requirements, and quality assurance.
Jay Thawani, MD is a resident in Neurosurgery at the Hospital of the University of Pennsylvania and the Children's Hospital of Philadelphia. He has experience in industry and in the development and translation of novel clinical technologies.
Jared Pisapia, MD is a resident in Neurosurgery at the Hospital of the University of Pennsylvania and the Children's Hospital of Philadelphia. He has experience in translational research and clinical research protocols.
Andrew Tsourkas, PhD is a Professor of Bioengineering at the University of Pennsylvania who has experience in device development and technology transfer.
M. Sean Grady, MD is the Charles Harrison Frazier Professor of Neurosurgery and Chairman of the Department of Neurosurgery at the University of Pennsylvania.

Company Overview

Quantitative Radiology Solutions offers advanced body-wide quantification of medical images for applications in radiology, radiation oncology and surgery. Its unique Automated Anatomy Recognition (AAR) system supports localization and delineation of all major organs in multiple body regions using MRI, CT, and PET/CT images.

Problem

In 2014, nearly 1M new cancer cases in the U.S. will have treatment that involves radiation therapy. Before a patient begins therapy, a trained professional identifies tumor and organ structures on MRI and CT images via contouring to maximize delivery of radiation to the cancer while minimizing exposure of healthy organs. However, contouring is still performed with low levels of automation, yielding a time consuming and error prone process. Reducing the time required to delineate organs will decrease costs associated with radiation therapy planning and allow highly skilled professionals more time with patients. Furthermore, changes occur in tumor and organ anatomy during the course of treatment. If these changes are not taken into account, they can affect the radiation dose delivered to the tumor and surrounding organs. Unfortunately, re-contouring is rarely done due to the time-consuming nature. Therefore, a need persists for technology that can automatically delineate changes in structure anatomy during a course of therapy to allow physicians to re-plan radiation dose delivery accordingly, which will lead to improved patient outcomes with fewer side effects.

Solution

Automatic Anatomy Recognition (AAR) supports localization and delineation of all major organs in multiple body regions. When applied to the field of radiation therapy planning, AAR dramatically reduces the amount of time required for the radiation oncologist and dosimetrist to delineate organs, from several hours to less than 5 minutes. AAR operates on MRI, CT, and PET/CT images, so diagnosis and treatment planning can be performed using images that optimize visualization of the tumor(s). The approach supports learning of information on anatomical positioning and inter-relationships across a population, and uses this knowledge to improve accuracy of results.

Team Information

Jayaram K. Udupa, PhD – Founder. Dr. Udupa, Chief, Medical Imaging Section and Professor of Radiological Sciences at University of Pennsylvania, has over 35 years of experience developing algorithms and software systems in medical imaging analysis.

Drew Torigian, MD, MA, FSAR – Founder and CMO. Dr. Torigian, Clinical Director, Medical Image Processing Group and Associate Professor of Radiology at University of Pennsylvania, is a physician and research scientist with experience in oncologic, torso, and extremity imaging.

Joe Camaratta, MS – President and CEO. Mr. Camaratta specializes in medical technology innovation and commercialization. He has over 20 years of executive experience with GE Healthcare and Siemens Healthcare.

Steve Owens – CTO. Mr. Owens is an experienced leader in research, product development, software engineering and IT operations in pharmaceutical and medical device industries. He has built and led software development teams at Siemens Healthcare ad Forest Laboratories.

Brian Posner – CFO. Mr. Posner has experience in fundraising and building strategic partnerships. He is a strategic and financial leader with over 25 years of experience working on both public and private companies of various sizes.

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VIFANT

COMPANY OVERVIEW

Vifant™ is committed to delivering simple, affordable, rapid and reliable solutions for the identification of vision impairments without the need of any communication between patient and tester for a broad spectrum of patients.
Our solutions leverages the power of mobile platform and the reflexive, innate eye movement response to moving visual targets; that reflex is called optokinetic nystagmus (OKN). IP called "Methods and Systems for Testing OKN" was filed in November, 2015 for US and international markets under PCT /US15/61900.

LEADING PRODUCT

Vifant™leading product identifies vision impairment in pre-verbal children. That product is a mobile app that harnesses the power of an internet enabled iPAD, communicating with a remote HIPPA compliant server for storage and visual acuity evaluation.

Our proprietary algorithm analyzes and compares the patient's response with the range of normal response from age-matched subjects. The system generates a report that provides quantitative, and thus objective, assessment of the vision clarity that is more accurate and reproducible than currently possible for pre-verbal children thus, allowing for a better call to action from practitioners. Our platform allows for multiple iPads access sharing to records and study results to the server, making the system scalable for institutional deployments.

Vifant™ broadens access of vision screening to 24 million pre-verbal children in the US. It will be available to pediatricians and family practitioners who have frequent and early contact with children during customary well-baby visits recommended by the American Academy of Pediatricians (AAP). Its simplicity, rapidity and scalability enable mass screening of preverbal children to identify visual impairment early, while still treatable.

Vifant™has initiated proof-of-concept studies at Children's Hospital of Philadelphia (CHOP) and is poised to initiate those studies at Salus University as well.

FUTURE MARKET OPPORTUNITIES

Potential future product introductions and markets are: international markets, vision impairment in speech impaired adults and seniors; identification of impaired drivers by law enforcement and, identification of vision impairment due to traumatic brain injury (TBI).

LEADERSHIP TEAM

Dr. Monte Mills, Founder, is the Director of Ophthalmology and Mabel E. Leslie Endowed Chair of Pediatric Ophthalmology at The Children's Hospital of Philadelphia. He is also Clinical Professor of Ophthalmology at the Scheie Eye Institute and the University Of Pennsylvania Department Of Ophthalmology.

Beth DeSouza, CEO, is an experienced executive in the life sciences industry with roles of increasing responsibility at Johnson & Johnson, GSK and Pfizer. She is also a board member of the Mid Atlantic Diamond Ventures (MADV). Beth earned her MBA at The Wharton School.

Det Ansinn, CTO, has been involved in software development for three decades. He is BrickSimple's founder and one of the earliest developers writing FDA and HIPAA compliant software application solutions.

Dr.Elise Ciner, Advisor, is a well-established pediatric optometrist and educator whose research interests include preschool vision screening and pediatric vision assessment. She has been an investigator for NIH supported Vision in Preschoolers Study.

Snapshot

Industry
Digital Health

Company Stage
Proof of Concept
Prototype-ready

Funding Sought
$250K

Use of Funds
Proof- of-Concept validation studies
Enhance functional prototype

Capital Raised
$50k (Angel Investment)
$50K (PPDC Grant)
$225K (NSF Phase I Grant)

Team
Dr. Monte Mills – Founder
Beth DeSouza – CEO
Det Ansinn – CTO
Dr. Elise Ciner – Advisor

Legal – Morgan Lewis

Acct – Stephano Slack

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