

The Jacobs Institute Newsletter

A Monthly Dose of Medical Innovation

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Issue: #1

February 2015



Welcome! The Jacobs Institute is proud to introduce our first newsletter. In this issue, we reflect on our successes in 2014.

A Successful Year of Training & Programs

Industry Sends Great Minds to Buffalo

The Jacobs Institute had a successful year of clinical training in 2014. We ran a total of nine clinical training programs including physician training programs, animal-based training programs, and hands-on training programs with a number of various medical device companies. Additionally, the Jacobs Institute developed new programs to further enrich our clinical training offerings for industry.



Industry-sponsored physician training programs provide physicians and medical device sales representatives with training in the safe and effective use of a medical device. The Jacobs Institute increases the value of these programs by providing access to surgeons while they are working in the Gates Vascular Institute directly below us.

In addition, industry attendees can watch the devices being used on real patients in a hospital, with lectures and guidance provided by the surgeons using the devices. After the lectures and observation, attendees try using the devices in medical simulators or in 3D printed models of the

vessels.

We launched two new clinical training programs in 2014: animal-based training and hands-on training programs. Animal-based training programs provide attendees with a more realistic experience than 3D models. Hands-on training allows credentialed, licensed visiting surgeons to hone their skill and participate in surgery using the device alongside a seasoned surgeon. Finally, the Jacobs Institute developed and launched its Clinical Immersion Program (CIP) in 2014. To learn more, see the below article.

Clinical Immersion Program Launched

Providing Value to Industry

The Jacobs Institute recognized its value in stimulating innovation in the vascular device industry and took its clinical training program service offerings to the



next level. Clinical Immersion Programs (CIPs) are aimed at industry sales representatives and industry engineers. While the content is tailored to the specific participants, all CIPs increase participants' understanding of the clinical environment and improve their understanding of treatment decisions. CIPs for sales reps have an additional focus on identifying the value-added characteristics of "good" sales representatives from a physician and hospital point of view. Meanwhile, CIPs for engineers focus on providing them with the opportunity to see, use (in simulators and models) and hear (from the physicians and staff) about their devices and those of their competitors.

Hours spent in a clinical environment observing actual device use and being able to converse with the surgeon helps device sales reps be better clinical partners. For a product development engineer, they can see where surgeons encounter difficulties and successes using the devices they engineer, perhaps inspiring product improvement. One CIP attendee said, "The experience today was incredible. It directly affects how I'll do my job when I walk through the door on Monday."

All Clinical Immersion Programs entail "bootcamp" lectures by the surgeons, detailing everything from vascular anatomy and imaging to devices and techniques. Intermingled with the lectures is the opportunity to observe actual surgical cases and watch the surgeons in action, making treatment decisions.

Additionally, participants receive hands-on learning by working on medical

simulators and vascular flow models meant to simulate the human vessels and various conditions. The flow models allow participants to retrieve artificially-created blood clots and to coil aneurysms using the same imaging equipment available in the Gates Vascular Institute (GVI) angiography suites. Participants get the opportunity to be the "surgeon for the day", and try their hand using the devices they sell or engineer. Program participants noted that they valued this aspect of the Clinical Immersion Program. Participants also practice on the Mentice VIST-Lab endovascular simulator, which mimics actual vascular surgery and imaging.

The diverse experiences the Jacobs Institute offers in its Clinical Immersion Program make this a prime learning opportunity for industry. We already have three CIPs slated for early 2015.

Dedication Wall Installed

Honoring Dr. Lawrence Jacobs and Our Generous Supporters

On December 17, 2014, the Jacobs Institute installed a Dedication Wall at the entrance to our offices, to honor our individual donors and local foundations, as well as Dr. Lawrence D. Jacobs.



The wall is an important milestone to recognize the strong community support that our young Institute has garnered over the past few years. The Jacobs Institute has received over \$2 million in support from James H. Cummings Foundation, Stanford Lipsey Philanthropic Fund, The Dreamcatcher Foundation, The Gerald & Sandra Lippes Foundation, The John R. Oishei Foundation, The Margaret L. Wendt Foundation, and The Seymour H. Knox Foundation. The Institute also received generous gifts from Jeremy M. and Margaret Jacobs and family, Scott and Lisa Friedman, Kim Rich Lupkin, Bryan and Candace O'Mara, Manson and Anne Surdam, and Lippes Mathias Wexler Friedman LLP.

These generous gifts from our first supporters has made it possible for the Jacobs Institute to get on its feet, apply for and receive a \$4 million New York State grant, launch a clinical training program, develop industry

relationships, flesh out its i2R "Idea to Reality" Center, and educate local students about aneurysm and stroke as well as health care career possibilities. We are grateful for these gifts, and look forward to continued relationships with our supporters.

A Destination for Learning

Local Students & International Physicians



The Jacobs Institute is a learning destination for a variety of constituents ranging from school children to physicians, industry leaders and government officials.

We are committed to educating students about vascular diseases, such as heart attack, aneurysm, and stroke, along with opening their eyes to health career opportunities. Since 2012, students from all over Western New York have come to the Jacobs Institute to learn about the brain, vascular disease, 3D printing, and medical simulation.

We also highlight the variety of health care-related careers available: medical illustrator, graphic designer, communications, academic researcher, radiology technician, nurse, engineer, surgeon, and the many other careers that support hospitals and research centers. With all the buzz about the Buffalo Niagara Medical Campus, it is a wonderful opportunity to showcase diverse careers available in their hometown of Buffalo.

The Jacobs Institute has hosted students from Bennett High School, Buffalo P.S. #33 Bilingual Center, Elmwood Franklin, Health Sciences Charter School, Lockport High School, Niagara Falls High School, Science Magnet School, South Park High School, and Williamsville North High School. Additionally, the Jacobs Institute hosted similar programs for the Buffalo Urban League and the 2014 class of Leadership Buffalo.

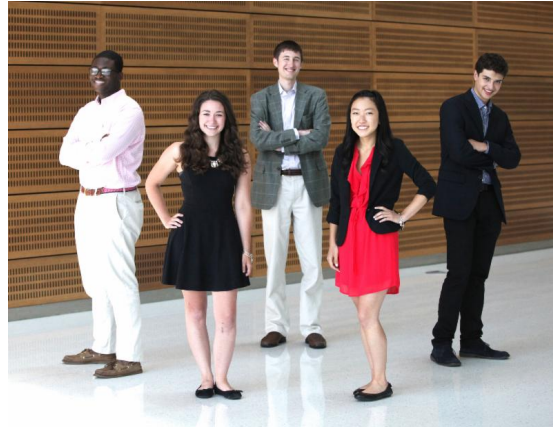
Our reach stretches well beyond the borders of WNY. We also hosted physicians, industry leaders, government officials, and more at our offices and at the Gates Vascular Institute. These guests traveled to Buffalo from other states, as well as other countries. Visitors came from California, Florida, Massachusetts, Michigan, Minnesota, New York, North Carolina, Ohio, Texas, and Washington DC. The Jacobs Institute also hosted guests from Argentina, Brazil, Canada, Chile, China, Colombia, Czech Republic, Japan, Korea, Norway, Singapore, and Sweden.

We will continue to host local students, as well as visitors from all over the country and around the globe in 2015.

Summer Interns Had Big Impact

Five Star Students in Our Midst

We had the good fortune to have five stellar individuals as a part of our 2014 summer internship program.



The interns came to the Jacobs Institute for 9 weeks from Brown University, Harvard University, Pennsylvania State University, Worcester Polytechnic Institute, and St. Anne's High School for the Gifted in Brooklyn. They were assigned projects in the areas of health economics, entrepreneurship, medical simulation, community outreach, and Google glass. Jacqueline Kim, Patrick Siaw-Asamoah, Drew Lang, Erin McConnaghy, and Tynan Couture-Rashid researched their topics and created valuable materials that tie directly to the Jacobs Institute mission.

Jacqueline Kim created a PowerPoint presentation of visually-appealing info graphics about the incidence and prevalence of vascular disease in WNY, along with a white paper detailing the statistics. Patrick Siaw-Asamoah created a database that catalogs the Jacobs Institute's competitors, and establishes how we differ from them. Drew Lang created a medical simulation program and marketing brochure based on the Mentice VIST-Lab simulator located in the Jacobs Institute. Erin McConnaghy designed a cohesive PowerPoint presentation about the Jacobs Institute for use in tours. She also coordinated and hosted a high school visit to our facility, as the culmination of her project. Tynan Couture-Rashid incorporated Google glass into the medical simulation lab and hospital operating rooms, to gauge usability and future utility. He wrote a report on the results, as well as on his research regarding how other hospitals and universities were using Google glass.

On July 29, the Jacobs Institute gained much positive attention, when the interns presented their final projects to an audience of more than 60

friends and collaborators from Kaleida, University at Buffalo, Buffalo Niagara Medical Campus (BNMC), foundations, board members, business partners, Artvoice, Mrs. Jacobs Vogt, and the interns' families.

The positive buzz around the presentations served two purposes. First, the Jacobs Institute created ambassadors who returned to their own universities and shared their unique summer experiences with their colleagues and professors. Additionally, inviting our community partners to the final presentation helped to tell the Jacobs Institute story of what we are working on and how we thoughtfully and effectively ran our first summer internship program.

Summer 2015 Application Deadline Now Open!

We received tremendous positive feedback from attendees who are interested in replicating our program. As every program at the Jacobs Institute evolves, the same is true for the internship program. We are currently soliciting 17 universities and community colleges for our 2015 summer interns. The internship program announcement was posted to individual schools' job and internship boards in late December, as well as our web site at <http://www.jacobsinstitute.com/index.php/2014-12-18-00-07-16/applying-for-a-summer-internship> The deadline for applications is March 2, 2015.

Attracting Toronto Entrepreneurs

Co-Hosted 'Canada Day' with BNMC, MaRS Center, and HTX in December

On December 16,th the Jacobs Institute and the Buffalo Niagara Medical Campus (BNMC), hosted over 20 health care start-ups from the Toronto,



Ontario area from the MaRS Center and Health Technology Exchange (HTX) to see all that Buffalo offers burgeoning entrepreneurs. Being only a two-hour drive away from Toronto, Buffalo is a natural place for Canadian start-ups to get a foot in the U.S. market.

Toronto entrepreneurs came by caravan to Dig at the BNMC's Innovation

Center, to hear from a variety of experts well-versed in all the benefits Buffalo provides for early and late-stage start-ups. Vic Nole, BNMC Director of Business Development, discussed Ignite--BNMC's full complement of resources designed to identify, evaluate, and support new business opportunities for creating and incubating all types of companies and jobs in Buffalo. The Canadian entrepreneurs then heard from Alan Rosenhoch, Business Development Manager at Buffalo Niagara Enterprise, about Buffalo's economic development, as well as tax and other incentives. Next, Jennifer Brady who is responsible for Marketing, PR and Digital/Creative with the InVentures Group, spoke about the entrepreneurship lifecycle and how IVG's services could be useful at various stages.

Attendees toured the BNMC Innovation Center, University at Buffalo's Center of Excellence in Bioinformatics and Life Sciences (CBLS), and the Jacobs Institute with an eye toward equipment, expertise, and networking available to them. Start-ups also learned more about the current work and goals of BNMC, UB CBLS, and the Jacobs Institute.

Canadian start-ups were also inspired by seeing fellow Canadian, Niall Wallace of Infonaut, at his office within the Jacobs Institute. Infonaut, which is based in Hamilton, Ontario, reaped the benefits of have a second office in the U.S., which taps into the clinical expertise and location of the Jacobs Institute, as a formula for success. To learn more about Infonaut, please visit: <http://infonaut.ca/> .

The visit culminated in a bustling networking reception of more than 50 people, where Canadians had lively conversations with U.S. experts in a variety of fields. BNMC and the Jacobs Institute invited other BNMC entrepreneurs, legal counsel specializing in start-ups, UB technology transfer specialists, the Canadian consulate, ties to venture capitalists, and more. The event was covered by *The Buffalo News* and it highlighted the opportunities and connections made that night.

The Jacobs Institute will continue the momentum of the event, and is in talks with MaRS and HTX.

Staff and Board Members of the Jacobs Institute

Who's Who

Dr. L. Nelson "Nick" Hopkins, III, is the Founder of the Jacobs Institute and the visionary behind its inception. Dr. Hopkins was recently named a SUNY Distinguished Professor, the highest faculty ranking in the SUNY system. Dr. Hopkins was Professor and Chairman of the Department of Neurosurgery, School of Medicine and Biomedical Sciences at the University at Buffalo for 24 years. Dr. Hopkins pioneered endovascular neurosurgery; a subspecialty dedicated to minimally invasive treatment of vascular diseases of the brain and spine and has trained a new generation of neurosurgeon leaders skilled in catheter-based technology for minimally invasive neurosurgery.



Bill Maggio is an Entrepreneur in Residence at the Jacobs Institute. Bill is also the president and CEO of IMMCO Diagnostics, a global manufacturer of autoimmune and esoteric diagnostics.

Mike Springer is the Director of Operations and Entrepreneurship. Mike was hired in June of 2013, and oversees daily operations, business development, contract management, and industry relations.

Pam Marcucci, hired in September of 2013, is Director of Program Development and Outreach. She works to develop the various JI programs with industry and oversees communications and community outreach, as well as philanthropy.

Allison Kupferman, who was hired in September of 2011, is Communications & Outreach Manager, focusing on communications, web site management, social media, Brain Boot Camp for students, and the summer internship program.

Chris Randby is Manager of Training. He was hired in June of 2012 and is responsible for executing clinical training programs, including hands-on training, animal-based training, as well as Clinical Immersion Programs.

Courtney Ferron was hired in March of 2014, and serves as Office Manager. She is responsible for event management, administrative duties, and serving as a welcoming ambassador for Jacobs Institute guests.

Paul Dressel, medical illustrator and graphic design artist for UB Neurosurgery for 25 years, plays a significant role in design at the Jacobs Institute. His work has appeared in numerous peer-reviewed neuroscience journals and textbooks. Paul has extensive knowledge of the latest multi-media presentation technologies and built a broadcast studio within the Gates Vascular Institute specifically for transmitting live surgeries and teleconferencing to academic institutions around the world.

Karen Meess, a biomedical engineer, is a CUBRC staff member who is embedded at the JI in order to further JI/CUBRC collaborations. CUBRC is a non-profit research, development, testing and systems integration organization with expertise in big data analytics.

For Jacobs Institute staff biographies please visit the web site <http://www.jacobsinstitute.com/index.php/about-us/staff> and click on individual staff members for more information.

BOARD OF DIRECTORS

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Partners in Innovation

Strategic Collaborations

The Jacobs Institute's key innovation partners strengthen our ability to undertake activities that further our goal to improve treatment of vascular disease in Western New York and beyond. Critically, our unique location between the University at Buffalo's Clinical and Translational Research Center and the Gates Vascular Institute promotes ongoing dialogue and the development of joint activities.

University at Buffalo Clinical and Translational Research Center (UB CTRC)

The Jacobs Institute works with University at Buffalo (UB) to identify and recruit high-level faculty that will benefit both institutions using the \$10 million gift that was given to the UB Foundation by Jeremy and Margaret Jacobs and family for this purpose. We also collaborate with faculty and staff at UB's Clinical and Translational Research Center (CTRC) Toshiba Stroke and Vascular Research Center on training programs and joint research projects. The Jacobs Institute also co-mentors one of the School of Engineering and Applied Science's student senior design teams with the Toshiba Center staff. Finally, the President of UB, Satish K. Tripathi, also sits on the Jacobs Institute Board of Directors.

Kaleida Health

The Jacobs Institute and Kaleida Health work closely to identify mutually beneficial areas of collaboration that will contribute to better patient care and outcomes. The Jacobs Institute's Clinical Immersion Programs (CIP) have benefited greatly from the interest and involvement of the Kaleida

Health staff in their planning and execution. We, in turn, are playing a growing role in Kaleida Health's stroke training outreach and educational programs, using the Jacobs Institute's unique audiovisual capabilities including live case broadcasting and video conferencing. Additionally, the Jacobs Institute continues to promote collaboration between Kaleida Health and the University at Buffalo. Finally, Kaleida Health's Chief Executive Officer and President, Jody L. Lomeo, sits on the Jacobs Institute's Board of Directors.

Buffalo Niagara Medical Campus (BNMC)

BNMC, a consortium of health care, life sciences research, and medical education institutions located on the BNMC campus, has been an important partner since the we opened our doors in 2012. In addition to organizing joint activities as illustrated in the article on Canada Day, the Jacobs Institute and BNMC meet regularly and exchange information in a variety of areas (entrepreneurial environment, government affairs, communication).

Infonaut

Infonaut Inc., a Canadian infection control company, has its US research and development operation based at the Jacobs Institute. In addition to space, we provide Infonaut with clinical access and develop proposals for joint programming.

CUBRC

The Jacobs Institute has been collaborating with CUBRC, an independent, scientific not-for-profit corporation since 2013. CUBRC has embedded a staff member, Karen Meess, at our offices to explore joint projects that leverage CUBRC's expertise in data sciences and information fusion.

Vascular Expert Team

(Drs. Adnan H. Siddiqui [JI Training Director], Elad I. Levy, Kenneth Snyder, John Pollina, Vijay S. Iyer, Sonya Noor, Chee H. Kim, Kishor Phadke, William Morris, and David Zlotnick)

The Jacobs Institute's Vascular Expert Team provides multi-disciplinary clinical input in the design and execution of all of its training and clinical immersion programs and projects. The team will also play a critical role for the clinical validation of new medical device ideas that come to the Jacobs Institute's idea to Reality (i2R) Center.

We Are Hosting Beakers N' Beer on February 26, 5-7pm

RSVP at www.bnmc.org/beakers

Buffalo Niagara
Medical Campus

BEAKERS & BEER




FREE FOOD, DRINKS & NETWORKING 5-7 PM!

2014-2015 SCHEDULE

SEPTEMBER 26: Ulrich's Tavern at 674 Ellicott St.	NOVEMBER 20: NYS Center of Excellence in Life Sciences & Bioinformatics at 701 Ellicott St.	FEBRUARY 26: Jacobs Institute at 675 Ellicott St. (5th floor)
OCTOBER 23: dig at the Innovation Center, 640 Ellicott St.	DECEMBER 11: dig at the Innovation Center	MARCH 26: Coco
	JANUARY 22: Coco at 888 Main St.	APRIL 23: Hauptman-Woodward Medical Research Institute at 700 Ellicott St.
		MAY 21: Ulrich's Tavern

These networking socials are free and open to employees who work on the BNMC and members of the community.

Let us know you're coming! RSVP at www.bnmc.org/beakers

What's Ahead for 2015

Already Underway

As pleased as we are about our growth in 2014, we are even more excited about new developments in 2015 that we will cover in subsequent issues of *The Jacobs Institute Newsletter*. We will just touch on two here.

The Jacobs Institute Needs Identification Program

While continuing to run its training and clinical immersion programs, the Jacobs Institute, has developed a new program - the Clinical Needs Identification Program (CNIP) - that is modeled on the Stanford Biodesign process. The CNIP will help participating medical device companies become more innovative by providing their teams with the methodological tools and guidance needed to identify clinical problems that require the invention of new medical devices or improvements in existing devices.

The five-day program includes:

- Pre-work by attendees to familiarize them with the biodesign process and the program's organization and environment
- Clinical observation in the endovascular cath lab and operating room (OR)
- Educational sessions led by physicians on diseases and treatments
- Training in the use of methodological tools for identifying clinical problems and needs
- Clinical consultation with physicians and other medical staff
- Group activities including role playing, case study assignments and group debates
- Guided discussions

We will hold our first CNIP in April.

The Jacobs Institute idea to Reality (i2R) Center

In 2015, we will create the processes and infrastructure that lay the groundwork for our idea to Reality (i2R) Center. The i2R will accelerate the development and commercialization of new and better medical devices and technologies to treat heart disease, stroke, and other types of vascular disease by breaking through a critical bottleneck in the med tech innovation process known as product validation.

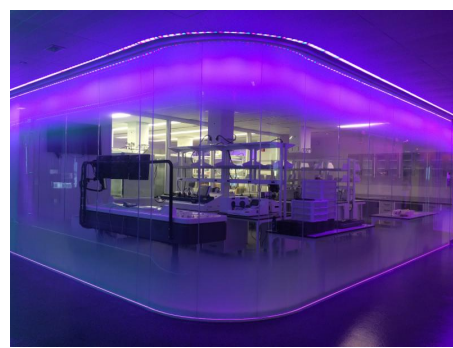
Physicians and medical professionals are a frequent and strong source of medical innovation because they have first-hand knowledge of the technical barriers to a successful procedure. While some of them choose to develop their ideas themselves, most do not have the resources, technical skills, or time to fully evaluate and test an idea, let alone successfully commercialize an innovation. Another layer of complexity for inventors is market uncertainty and an increasingly rigid regulatory environment, making early-stage funding difficult to obtain. The result? Thousands of ideas arising every year in the minds of brilliant physicians, researchers, entrepreneurs, and medical staff around the world are not being developed.

To address this issue, the Jacobs Institute i2R will shorten the product validation timeline for medical devices by moving them quickly through the proof-of-concept process and placing them with trusted partners who have proven experience in bringing new products to market. Use of physician input throughout the product design process is a unique and strategic advantage that the Jacobs Institute provides through the i2R. We believe these advantages create a formula for successful innovation.

This is an exciting new year for the Jacobs Institute and we look forward to sharing our developments with you each month.

The Jacobs Institute mission is to create the next generation of medical technology to improve the treatment of vascular diseases--such as heart attack and stroke--in Western New York and beyond.

The institute was named in memory of the late Lawrence D. Jacobs, MD. Located in the heart of the Buffalo Niagara Medical Campus (BNMC) in downtown Buffalo, the Jacobs Institute is positioned between University at Buffalo's Clinical and Translational Research Center (CTRC) and Kaleida Health's Gates Vascular Institute (GVI).



As such, the Jacobs Institute is uniquely positioned to foster collaborations of the best minds and collisions of new ideas.

We invite you to **come innovate with us, where ideas improve lives.**

Please visit <http://www.jacobsinstitute.com>

Sincerely, The Jacobs Institute

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