January 2009

MEDICAL INNOVATION CENTER
UNIVERSITY OF MICHIGAN

Creating Healthcare Innovations Through Education and Collaboration

Dear Friend of the MIC,

The Medical Innovation Center is less than a year old.

You will be pleasantly surprised by the impact we have already had in that very short time. Specific, definable, measurable results.

We are investing our seed funding very carefully to make the most significant impact with these resources….just like a start-up would.

Although we have only three full-time employees, through collaborations and friendships, our VIRTUAL TEAM exceeds 100.

A multi-disciplinary, collaborative approach
to medical innovation
leads to better and faster results.

We have proven it !

This is the way our university can change the face of healthcare.

This is how our university can enhance the economic development of our region.

Read the enclosed newsletter, and we think you will agree.

Respectfully yours,

Dr. James Geiger
Executive Director

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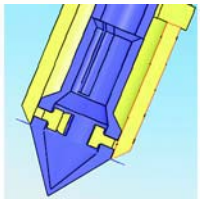



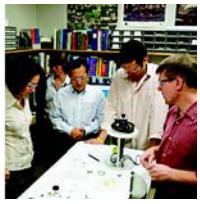

The Fellowship

Fellows Present Ideas to Technical Advisory Group

The Fellows have presented four market opportunities to the Technical Advisory Group for review:

- Blood Clot Detection
- Tissue Morcelator
- Catheter Stabilization
- Anastomosis

The last two opportunities advanced to the next phase. (story at right) The aspect of our program that differs from typical product development is that the Fellows have not jumped to solution development before first validating market need.

The MIC's advisory group includes professionals with expertise in the medical device industry, patent law, venture capital, science and the regulatory environment:

- **Sami Hamade**, Aberdare Ventures, CA
- **Jeff Schox**, Schox LLC, CA
- **Paul McCreadie**, Arboretum Ventures
- **Mike Tarasev**, Frankel Fund
- **Larry Schmitt**, Inovo Technologies
- **Scott Merz**, MC3
- **Tom Porter**, Zell Lurie Institute
- **Robin Rasor**, UofM Tech Transfer Office
- **Dr. Ul Balis**, Professor of Pathology
- **Dr. Dan Teitelbaum**, Professor of Surgery
- **Jim O'Connell**, Coulter Program
- **Kay Fuller**, MICHR

Class of 2009/2010 Recruiting Underway

We have received applications from great candidates for the Fellowship. Final offers will be going out in the March/April timeframe.

Fellows Start Developing Solutions

On January 21, 2009 the Fellows held their first Ideation Session. The session was facilitated by **Larry Schmitt** of **Inovo Technologies**. A multi-disciplinary group was assembled to brainstorm design ideas: Faculty, staff and students from the following areas were represented:

- Office of Tech Transfer
- Health System
- Medical School Faculty
- College of Engineering Students

The next Ideation Session is schedule for Friday, Febuary 6 at 8:30am. The topic is ANASTOMOSIS. We are still recruiting participants. If interested, email surgery-mic-schedule@med.umich.edu

Fellows Now Have Dedicated Prototype Lab

MIC now officially owns the equipment in the lab located at 300 North Ingalls. Our Prototype Specialist, **Toby Donajkowski**, regularly greets visitors from across the campus interested in pursuing the design and development of a prototypes.

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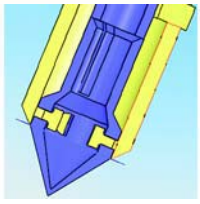



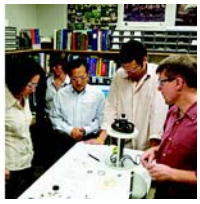

Moving Inventions Forward

Device For Oral Medicine

The analysis of saliva is of increasing interest to researchers throughout the world. **Dr. Carol Anne Murdoch-Kinch, D.D.S.,** needed such a device for her own research but could not find a suitable product on the market. She turned to Prototype Specialist, Toby Donajkowski, who is working with MIC Fellow Alex Kim to develop two collection devices, one for the submandibular gland and one for the parotid gland.

Helping a Clinician Realize His Vision

Dr. Rob Davenport, Associate Professor of Pathology, described his clinical need to the MIC -- an aspiration needle that could function more like a pencil instead of requiring two hands to operate. We contacted **Professor Steve Skerlos**, the faculty member in charge of Mechanical Engineering 450. The class provides an environment where engineering students design a medical device prototype to fulfill a clinical need. The MIC submitted an application for Dr. Davenport's product idea to be designed in the class, and it was approved. Now the engineers are helping Dr. Davenport provide a better standard of care for his patients.

MIC Innovation Licensed to Karl Storz Co.

Karl Storz, Germany-based medical device/instrument company, has signed a University licensing agreement for the manufacture and sale of a product developed by **Dr. James Geiger** and a Mechanical Engineering 450 class taught by **Professor Albert Shih**.

Typically, pyloromyotomies have been performed with open surgery to relieve an obstruction of the pyloric muscle in children. In an attempt to reduce the size of the incision and healing time, surgeons have begun performing the operation laproscopically. However, with this approach the surgeon's cannot support the pyloric muscle with his/her fingers. Without this manual support, the procedure is takes longer and sometimes results in complications. With the Storz product, a surgeon can support the muscle while performing the operation laproscopically.

This particular innovation drove Professor Albert Shih and Dr. James Geiger to start working together to form the MIC.

The dream has now come true!

The ME450 students will benefit from the licensing agreement negotiated by the **Office of Tech Transfer**. And, one of them decided to go to medical school after her experience on the project !

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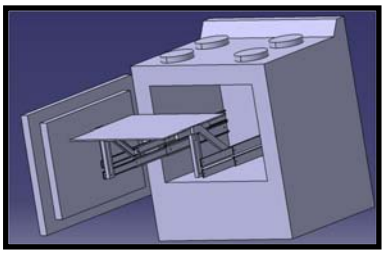
Moving Innovations Forward

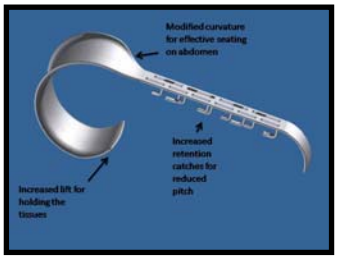
More to Come…

The previous page is just a small sample of the innovations that have resulted from the cross-campus collaborative efforts of the MIC and its leadership. In future newsletters, we will cover some of the others shown on this page. Even beyond the innovations shown here, there are others "in process" that we cannot yet publish.

Muraszko Lift

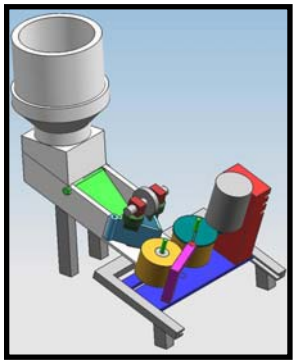


Oven for Disabled

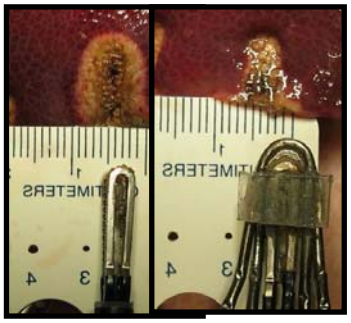


Abdominal Retractor

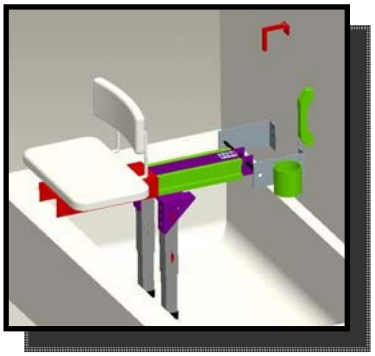
Partial Weight Bearing Exercise Device



Automatic Pill Dispenser



Surgical Thermal Management Device



Shower Seat

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University Collaboration

Human Factors and Ergonomics Society

Healthcare & Life Science Club

MHEAL
Volunteering
At Detroit's
World Medical
Relief Program

Student Group Introductions

The MIC sponsored a social event for members of four groups from across the campus:

- **Business School** HLSG (Heath and Life Sciences Group)
- **Medical School** MDIG (Medical Device Innovation Group)
- **College of Engineering** MHEAL (Health Engineered for All Lives)
- **College of Engineering** HFES (Human Factors and Ergonomics Society Chapter)

The event was so useful for the students, that they have expressed great interest in continuing this type of interaction. Two members of the MHEAL group, Pratik Rohatgi (MD '11) and Anna Mitsak (PhD '11) won a $500 business design award in the **Zell Lurie Institute's** "Dare to Dream" contest. They designed a surgical lamp to run off building power with a backup to prevent frequent grid outages

New Associate Director Joins MIC Leadership

We are pleased to announce that **Dr. Jeffrey Myers**, A. James French Professor and Director, Division of Anatomic Pathology, has agreed to join our team as an Associate Director.

Business Student Project in Pathology

MIC's **Dr. Jeffrey Myers** is mentoring a team of students at the **Ross School of Business** as they perform a market assessment of two product ideas that have resulted from collaboration between the pathology department and the College of Engineering. This is just one of many interactions with students at the business school that offers them an opportunity to apply what they have learned in marketing and business development to real-life situations.

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University Collaboration

MIC Sponsors Entrepreneur Lecture

MIC sponsored and arranged a speaker for the Entrepreneurship Lectures Series put on by the Center for Entrepreneurship. **Jan Baird**, CEO of **Accuri Cytometers** spoke to an audience of students, faculty and staff. In her speech she provided real-life advice on issues to consider when joining a start-up---entitled **"TO BOLDLY GO….."** Accuri, a University startup, recently won Ann Arbor Business Review's best Health Care Deal award in recognition of a recently closed $15 million funding round.

Collaboration With BME Design Class

"I am so glad you are here!" was the parting remark from **Professor Aileen Huang-Saad** after working out an arrangement to have her Biomedical Engineering graduate students receive support from the MIC Prototype Lab. Professor Huang-Saad teaches a year-long BME design course that draws on real-life clinical needs and develops prototypes to meet those needs. The students will first receive design guidance from MIC's Prototype Specialist, **Toby Donajkowski.** They will then be able to use the prototype equipment either at our lab or one of the many labs throughout the university with which we maintain relationships.

1000 Pitches Contest

The MIC sponsored the Health category prize for the 1000 Pitches contest run by the **Center for Entrepreneurship**. Faculty, staff and students from across the campus submitted short video clips describing their innovative ideas. A $1,000 prize was given in several categories. The health category prize was provided by Ann Arbor-based venture capital firm **Arboretum Ventures**. The winner was **John Sidhom**, a Biomedical Engineering undergraduate student, designed a magnetically-assisted artificial joint. John and his team also won a $1,500 Assessment Grant in **Zell Lurie Institute's** "Dare to Dream" business competition.

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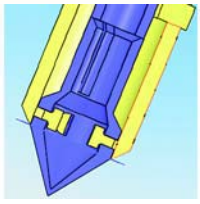



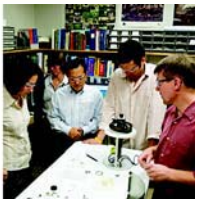

Collaboration Beyond the University

MIC Helps Device Company

A Michigan-based medical device company approached the MIC to arrange an interaction with clinicians for a new line of endotracheal and tracheotomy tubes. The company was thrilled with the information received and is pursuing other forms of collaboration with us.

MIC Fellow Impacts Brace Company

MIC Fellow **Elyse Kemmerer** found out about a local company needing help with a clinical trial while interacting with Ann Arbor SPARK. Alice Brown of In-the-Groove was looking for a way to get a clinical trial done for her knee brace product. In a social setting, Elyse told the story to **Amy Harms** of **MICHR** who then contacted **Dr. Steve Goldstein** who then contacted **Dr. Edward Wojtys**. Dr. Wojtys is now working with Alice Brown to complete her clinical trial !!

This did not happen by chance.

The MIC curriculum PURPOSEFULLY exposes the Fellows to individuals across the campus so that they can leverage the unique resources here. The MIC PURPOSEFULLY selects individuals with proactive personalities and encourages them to reach out and impact the university community and beyond. It is working.

Cleveland Clinic Innovations

Reaching Out to Ohio

In addition to attending Cleveland Clinic's annual **Innovation Summit**, MIC has begun a dialogue with the **Innovations Group**, the hospital's tech transfer arm, to share best practices concerning effective assistance to inventors, well-researched evaluation of commercialization value, etc. While in Cleveland, we also met with **BioVentures**, a state-financed business incubator that has enjoyed incredible success attracting venture capital from across the country to biomedical companies in Ohio.

nurture

Steelcase at UMHS ICUs

As part of the partnership between MIC and Steelcase, **Jennifer Stovall**, MIC Project Coordinator, provided a carefully orchestrated week for several members of **Steelcase's Nuture Division** (focusing on healthcare work environments). For a week they visited several ICUs and made observations that will be used to improve current products or develop new ones. The Nurture team shared their observation techniques with our Fellows (who accompanied them during the week long observation exercise). Nuture has also invited the Fellows to participate in the creative process that incorporates their observations into product development .

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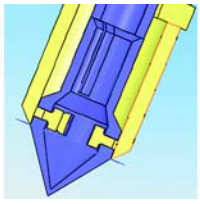



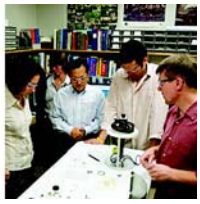

Operations

Operating Like a Startup

We continue to closely manage the $1.975M seed funding provided by

- Department of Surgery
- College of Engineering
- Medical School
- Dental School and
- Office of the VP for Research
- MICHR (Michigan Institute for Clinical Research)

As you can see in this newsletter, this initial funding has enabled us to make a **significant impact already. Imagine what the future holds !**

Fellows Get a Home

The Fellows are now comfortably moved into their work space in Lobby M at Dominos Farms after being without a real working space for a few months. The space, designed by **Steelcase**, features collaborative tools designed for teams like ours.

MIC in the News

2008

Spring -- Michigan Engineer

October -- Applause! Online magazine

2009

February -- Ann Arbor Business Review

March -- Surgery Newsletter Front Page

MIC Selected as Pilot Project for IT Platform

MIC was selected by as a pilot project for the **Bluestream** technology platform. With this tool, we will be able to capture, store, manage and distribute our pictures, videos, curriculum. As an example, many of the training modules delivered to the Fellows this year were recorded using AdobeConnect, a web conferencing software product. The resulting recordings can now be repurposed for use by a wider audience. We are thankful to be receiving assistance from the **Digital Media Commons** and Medical School's **Enablihg Technologies** efforts on this and other endeavors of the MIC.

Sustainability Plan In Full Gear

Now that we have proven out the concept of the MIC, we must ensure that we continue to have the same impact for years to come. We have already started to act on ideas provided at our October 2008 **Executive Council** meeting. With respect to grants, we are currently pursuing T32, MIIE and NCIIA opportunities. We have also been identifying foundations with missions in line with ours. And, of course, Mia Axon continues to help us reach out to individual donors who would have an interest in supporting an effort like ours.

We invite you to share any ideas or suggestions with respect to sustainability strategies.

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Fellows 2008/2009

Steve White
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University of Michigan
MSE, Mechanical Engineering,
University of Michigan, 2004
BSE, Mechanical Engineering,
University of Michigan, 2003

Alex Kim
MBA, University of Chicago, 1997
BIE, Georgia Institute of Technology, 1989

Dr. Elyse Kemmerer
PhD, Neuroscience,
University of Michigan, 2005
BS, Behavioral Neuroscience,
Lehigh University, 1998

Merrell Sami MD
Medical Degree,
George Washington University, 2006
BS, Neuroscience, UCLA, 2001

Adrienne Harris
MSE, Biomedical Engineering,
University of Michigan, 2008
BSE, Biomedical Engineering,
University of Michigan, 2006

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