

Hamilton Health Innovation Check-up: Meeting Minutes

January 2024

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STANDING AGENDA TOPICS:

- **Guest Speaker Discussion**: insights around the experience and expertise of an invited speaker, focusing on a subject that may be of interest to the broader community
- **Communicate**: share recent successes, upcoming events, innovation pipeline and new products, health innovation trends, etc.
- **Collaborate & Accelerate**: welcome new members to community, partnership opportunities, discover programming and resources available to the community, discuss market gaps and challenges, learn about potential funding opportunities, new RFPs issued, etc.

Facilitator & Note Taker	Alex Muggah, Director, Synapse Consortium
Virtual Location	Join Zoom Meeting: <u>https://zoom.us/j/405351918</u>
	Dial in: +1-647-558-0588,,405351918#
	Register here:
	https://us02web.zoom.us/meeting/register/uZQodOyppzoiQnRwfvVuEJ
	<u>tEMUpKPUZPzg</u>

Next Monthly Check-up: November 27th 9:00 – 10:00am | McMaster Innovation Park (via Zoom) Please sign up to our <u>mailing list</u> to receive meeting minutes and other important updates.

Finding collaborative partners for health companies and researchers can be difficult. Synapse has created the <u>Hamilton Health Ecosystem Directory</u> and the <u>Health Innovation Partnership Portal</u> (HIPP) to facilitate finding new partners within Canada's leading health research and educational ecosystem located in in Hamilton, Ontario.

Minutes for our monthly check-up meetings are for reference purposes only. We do our best to ensure all information is accurately portrayed, and that no privileged/private information is inappropriately disclosed. Past meeting minutes can be access <u>online</u>.

For additional information on any subject, to contact a presenter directly, or should you have an adjustment to make to the notes made here, please contact: info@SynapseConsortium.com

Hamilton Health Innovation: Calendar Highlights	
Check out Synapse's <u>online calendar</u>	
January	
• Feb 6: MaRS adMare Therapeutics (Tx) Accelerator Founder Reception (MaRS & adMare)	
Feb 8: Eemtech Canada Monthly Roundtable (Femtech Canada)	
 Feb 13: Evaluating and Implementing AI Systems for Clinical Documentation (Digital Health Canada) 	
 Feb 14-16: Investment Summit 2024 (OBIO) 	
 Feb 21-22: N2 (Network of Networks) Annual Conference (PHRI & PrimeSite Research) 	
Feb 26: Hamilton Health Check-up (Synapse Consortium)	
• Feb 27: Fast Track Health Showcase (Communitech)	
Feb 28: ACT Pan-Canadian Planning Meeting (ACT Canada)	
March & Beyond	
Mar 2: Pump Up the Volume - HHS Foundation Gala (HHS Foundation)	
 Mar 5: Connect to Careers, Hamilton Job Fair (Invest Hamilton + partners) 	
 Mar 7: Ensuring Seamless Product Launch: Testing, ERP and OMS (MegaLab & Communitech) 	
 Mar 11-15: HIMSS Global Health Conference & Exhibition (HIMSS) 	
Mar 14: Femtech Canada Monthly Roundtable (Femtech Canada)	
Mar 14: Biomanufacturing Research Day (McMaster University)	
Mar 20: Synapse Pitch Competition (Innovation Factory)	
Mar 25: <u>Hamilton Health Check-up</u> (Synapse Consortium)	
• Apr 10: 2024 Outstanding Business Achievement Awards (Hamilton Chamber of Commerce)	
Apr 15: Early-Stage Life Sciences Companies and Investors Networking Event in Toronto (Mintz)	
 Apr 16-17: <u>Bloom Burton Healthcare Investor Conference</u> (Bloom Burton & Co.) 	
Apr 17-18: <u>DiscoveryX Conference</u> (OCI)	
 May 9: <u>Building Bridges Symposium</u> (Hamilton Health Sciences) 	
 May 15: <u>LSO Annual Awards Presentation</u> (LSO) 	
 May 26-28: <u>eHealth Conference & Tradeshow 2024</u> (Canada Health Infoway, Digital Health Canada) 	
June 10-12: Impact Health (MaRS)	
Jun 3-6: <u>BIO International Convention</u> (BIO)	
Oct 7-9: <u>Canada SynBio Conference</u> (Ontario Genomics)	
 Oct 15-17: <u>The Medtech Conference</u> (Advamed) 	
f you have an event that you would like listed here, please contact us at: info@synapseconsortium.com	

Looking to engage the Hamilton Health Ecosystem?



Leverage up to \$15,000 in funding to work directly with the Research Administration groups at Hamilton Health Sciences or The Research Institute at St. Joe's Hamilton to create the pre-trial protocols and documents required to undertake a commercialization project or rch bospitals. Learn more about HEALTHL berg

clinical trial in one of Canada's leading research hospitals. Learn more about HEALTHI here



Time allotted | 30 Minutes

Topic: Guest Speaker Discussion

Insights around the experience and expertise of an invited speaker, focusing on a subject that may be of interest to the broader community

Guest Speaker Discussion

Guest Speaker(s):

<u>Rob Fraser</u>, VP Clinical Innovation at <u>Swift Medical</u> [Slides used during the presentation can be accessed <u>here</u>]

Discussion

[the following is a synopsis of the discussion, and has been lightly edited for length and clarity]

Introduction & Background

Hello, my name is Rob Fraser, and I am the VP of Clinical Innovation at <u>Swift Medical</u>. It's great to see the community coming together to bring technology and innovation to healthcare, as this has been the other thread of my work; leveraging tools that can help us do more in the life sciences and the healthcare space.

I'm also a registered nurse, with 13 years of experience in internal medicine, home health, primary care, and mental health addictions. I've seen the challenges of wound care throughout my practice, and I think clinical innovation and the involvement of end users are critical.

My team at Swift Medical is focused on three things. One is accelerating growth. I lead grants and special partnerships, driving conversations with clinicians about how to take their ideas and put them into tools that increase the efficiency of their workflow. Second is working on data-driven insights. As we amass large amounts of data, getting it into a usable form factor is critical, not only for Swift but for those adopting our technology. The third, and final focus of my role is to ensure that evidence-based outcomes are used to demonstrate that we have a workable product that demos well, but also has a positive impact on customers. Today, I'll provide some insights into Swift and how we pull it all together.

Swift Medical Adoption in Canada & United States

Swift is the number one digital wound care solution – ranked by <u>HealthTech Insider</u> – as seen by its adoption and growth. We were founded in 2016, and we've had the opportunity to work with some of the top healthcare providers and EMRs to help scale and push our growth.

Today, Swift is being used in +4,000 organizations across North America; covering all 50 states in the U.S. and seven provinces in Canada. There are +200,000 patients being monitored monthly. Our image dataset is growing at a rate of +500,000 images per month, allowing us to amass +45 million patient encounters and +23 million wound images. This adoption is backed by +20 peer-reviewed articles demonstrating the impact of inter-rater reliability, validity, accuracy, and clinical outcome.

Our team is located in Canada and the United States, and I'm based in Toronto. In Canada, we are deployed at University Health Network, William Osler, and Home and Community Care Support Services. We want to continue to see more adoption in Canada. We were very happy this fall to be awarded OCI grant funding to partner with William Osler Hospital to try to bring these tools to Canada. This is an important stepping stone because we've seen a large amount of adoption in the United States. In the United States, we work with CenterWell one of the top



home health companies (a Fortune 50 healthcare payer) as well as Genesis Healthcare, the largest skilled nursing organization in the country.

While procurement in the U.S. is a bit more straightforward, but we're excited about seeing wound care significantly improved in Canada. This is why I enjoy presenting at groups like the Health Checkup, because even though it's a little bit more complex in some of the ways here in Canada, it's important that we penetrate the systems here.

Wound Care Challenge

Wound care is a pervasive problem across the healthcare system. Over 1 in 500 Canadians will develop a non-healing wound in their lifetime. Nationally, Canada spends ~\$4 billion annually on direct cost associated with wound care. A big challenge is that it's a hidden cost that often gets masked between different comorbidities, and it's passed from acute care to home health.

In long-term care, where more people are entering, there is a greater risk of pressure injury development. Additionally, we see the Ontario government working on trying to prevent limb amputation. Diabetes is on the rise, and one of the unfortunate consequences of diabetes is neuropathy, which results in a lack of feeling and changes in the feet that develop into ulcers, which can lead to amputation. The government is working on lower-limb preservation programs. We're happy to be partnering with Hamilton Health Sciences on one of those projects this year.

Unfortunately, wound care is not seen as a big issue compared to other conditions, like chronic obstructive pulmonary disease (COPD) and cancer, even though wound care costs aggregate up to the size of the top five types of cancer spending. In the United States, those numbers go up significantly. The US is spending over \$68 billion on wound care, and that number is growing. As a high-growth company we're well aware of this fact.

Market Problem

There is a lack of formal education in wound care. Most clinicians report under 10 hours of training for nurses and physicians in this specialty. There is a disproportionate number of patients with wounds to wound care specialists. In Canada and the United States, there is no wound care medical specialty. For example, if you have renal or kidney failure, you know the type of referral that you're going to get. But wound care can be in an internal medicine unit or the cardiac unit, and it's cared for by specialists that are going between these areas. There is also a measurement error.

Unfortunately, the current standard of care is using a paper ruler, which has a 44% measurement error rate. It doesn't measure the wound surface area; it measures a rectangle around it, which is not accurate. In homecare, the results show that the number one risk factor for rehospitalization is having a wound. This is what Swift is trying to address in our solution: providing better visibility into more accurate tools and ways for clinicians to wrap around this problem so that they can manage it.

Adaptation Leveraging Software and Automation

Although there are many challenges in healthcare, organizations are moving towards software and automation. Bain Consulting recently put out a study surveying CTOs and their intention to increase investment in software to address the current human resource challenge. At Swift, we're thinking deeply about how we can support automation to enable better decision-making, making workflows easier to help address clinical challenges.



The Swift Solution

There are three key components that fit together as part of the Swift Solution.

The first is the Swift Helix, which is a fudicial marker that is placed in the field of view of an imaging system that can the be used as a point of reference or measurement. A fancy way of saying it's a sticker. The helix is a biomedicalcompatible adhesive you can put on the skin next to a wound. This allows us to calibrate for the colour, size, area, and depth of that wound. Especially when you're taking photography in different areas, it can distort how the wound presents, which is important when you're reviewing remotely doing things such as tele-wound care and involving team specialists for more efficient care.

That helix pairs with our digital application. The clinician application captures all the wound care documentation, allowing clinicians to effectively go through the care process and provides support to explain what that documentation is showing. We've also been testing having patient do this with a simplified workflow; the patient takes an image and shares it with their healthcare specialist.

Finally, we've created a dashboard (web-based portal) to allow an administrator to remotely review and observe what's going on within the entire wound care population. This provides visibility to where the challenges are, as well as allow immediate consultation to a clinician or a patient who's in need.

Enabling Coordinated Care from Patient to Provider

It's easy to think about distinct products, but it is when workflows come together that we start to make change. Other competitors on the market do wound measurement and wound imaging. For Swift, it's the flow, the whole solution, and how it changes not just at the point of care – that image that captures the measurement – and solving that one solution. That image and measurement tells the clinician if the wound has deteriorated, preventing them from saying "let's give it a few more weeks to see if this is changing" when they're relying on narrative notes.

Instead of waiting weeks, months, and unfortunately, sometimes even years, pur solution speeds up decisionmaking, allowing for speedy referrals. These can be made within a matter of hours or days, allowing for a response from a specialist with more detailed recommendations about how to proceed, including advanced changes to the treatment.

In one case study from our Ontario project, we observed a woman in home care for five years with chronic nonhealing wounds. In those five years, she was seen by a specialist twice; they barely changed the treatment orders, and there was no follow-up by either specialist. After getting into the Swift program, her wounds were healed within six months. This is because every two weeks the clinician would measure the wound, and if it wasn't changing they would adjust the treatment plan. If it didn't improve in two weeks, it was escalated to the regional wound clinician for further feedback and additional proposed changes to care. That feedback loop, and changes to how the operation worked at multiple levels, created significant changes in the outcomes for wound patients.

Award Winning Technology

One of the things I'm quite proud of is the clinician satisfaction rate. As a nurse, I was often given tools that I did not want to use, struggled to use, and was frustrated with. That our clinicians are telling us they enjoy using our software, that it is improving their decision-making. It's helping with team collaboration; they feel it's better than the traditional practices, indicating that we're going in the right direction.



Last year, Swift was <u>awarded McKnight's Gold Technology Partner of the Year</u> (the largest long term care publication in the US). The year-over-year results we've achieved in the skilled nursing area were recognized because we've been successful at helping with outcomes and the phenomenal feedback we've received from adopting organizations about us as a technology partner.

In a Bains & Company report, Swift Medical is becoming a technology that CTOs and CIOs say they want to invest in. In the Q3 earnings call of Humana, a Fortune 42 payer in the United States that owns CenterWell, they talked about the fact that they have "had an 18% improvement in visit efficiency from adopting an AI-powered wound care solution", which was a hat-tip to us. These outcomes are what's driving adoption.

Innovation Fueled by World-Classs Data

Since Swift's founding in 2016, we've seen year-over-year growth in the volume of images and data we're collecting. We've been fortunate through our partnerships with channel partners (e.g., electronic medical records, PointClickCare, and others) that when we work with them, we scale out quickly.

We've been thoughtful about how we use this information to improve the technology from where we started with the image capture and measurement. We are layering on things like artificial intelligence and advanced wound imaging; that's where our <u>CAMEDA project</u> with Cortex Design comes in.

Future Feature Focus: Smart Tissue, HealingIndex and SmartProgress

This year, we're very focused on smart tissue. There are ways to just colour code images, but at Swift we are using machine learning to label tens of thousands of images with different tissue types. These tissue types are indicative of healing, granulation tissue is the rebuilding of the angiogenesis of that tissue, coming back and laying the foundation for the skin to go over top of necrotic tissue slough and ash are dead or decaying tissue that feeds bacteria. Smart tissue can automate the estimation of these tissue types for clinicians. This is valuable as clinicians have difficulty performing this task as you need specialized knowledge and skills to performing it – and because we're not great at counting pixels and estimating sizes.

Another feature that we're focused on is the HealingIndex and SmartProgress. Using our large data set, we've looked at the key factors that help us identify which wounds have a worse severity. This allows us to determine if they're going to be prolonged in their healing type or not. We can determine how long we think it might be until the wound resolves, as well as help determine the progress, which, can trigger escalation in clinical care.

Swift's solution can do perform more accurately, instead relying on subjective humans that might not have time, might not have the full wound information, and might review the right documentation. We can suggest what progress should be, triggering escalation pathways more effectively. When we work with our biggest partners, they see thousands of wounds per week. There's no way that someone can double-check the work of their clinicians, to make field staff are providing care that correctly. Al can do this in a matter of seconds, and flag concerns to managers for review and follow-up.

Innovating Hardware: Swift Ray 1

The <u>Swift Ray 1</u> is our hardware device, and we are working through CAMEDA to improve the first generation that we launched. This is a portable hyperspectral imaging device that you can attach to the camera on your smartphone and add things to be assessed that the clinician cannot see with their eye. This makes for more objective observations, and there are many interesting possibilities that emerge from this capability.



We can currently do thermal imaging, capturing information objectively, looking for temperature differences can be indicative of inflammation and potential infection. I recently spoke with a clinician who works at Home Health, who shared that nowhere else in the world are they capturing multiple advanced wound images; its Swift's portable device that has allowed them to scale up to their team. She described capturing and reviewing where she's seeing inflammation of a patient's toe, triggering the use of compression wraps (been had not been tried before) and leading to the first positive impact on the patient's pain level in months.

Looking forward, we know that with bacterial fluorescence, which when present at a significant level will fluoresce when hit with ultraviolet light. Similar to glow-in-the-dark bowling, shining certain violet light can reveal where there is a lot of bacteria, which we know delays healing. We're working with CAMEDA program to ensure we have more durability and can connect with more devices to scale how care is being done.

It's not a one-plus-one equals two situation, this is one plus one equals five. One of our partners put out a paper describing their algorithm where they looked at the outputs of these images. They could, with 74% accuracy, identify wounds as inflamed, non-infected, or infected. This is quite significant, especially if we can bring it to all clinicians, regardless of their knowledge, skill, and education. This is a potentially transformative technology for wound care practice and scaling out the assessment and the consistency that happens there.

Driving Growth Through Outcomes

At Swift we are thinking deeply about how we drive growth, a big thing in the startup world, You can have cool technology in a great demo, which gets us in the door because we're competing with paper rulers. The competition is not particularly hard, but we have to show positive outcomes to be renewed year after year and grow into larger customers. We've looked closely at the ways that organization benefits from using Swift's technology thinking about issues like clinical optimization. What is the staffing mix? Can they provide care and optimize your staffing ratios with the availability of registered practical nurses and registered nurses that they have available? And many similar questions.

In Ontario, it's challenging to recruit in home health due to the pay discrepancy between home health and acute care. We're reflecting on how we can have an effective wound care program so organizations can sustain themselves with available staffing. Visit utilization is a big thing, driving down the actual number of visits that are required because wounds are healing faster. This can create significant organizational savings where they're paid per episode of care. We're thinking about the Ontario health team's value-based care and what the future might look like. Rehospitalizations are a big thing, and home health is a big risk for rehospitalization. Emergency room diversion is something that we've looked at, often reducing prevalence in skilled nursing and long-term care.

Questions & Answers

Question: How do you juggle the tension, where people may want you to try and solve the entire process around a standard of care – granted one that is cumbersome and paper based – versus offering a really crisp value proposition that resolves a specific, and focused, issue?

Answer: It's a big challenge. My experience is that a company must be very clear on what it will and will not do. This may result in losing deals, but you're going to avoid getting deals that you don't want. For example, we are clear Swift is not going to be an EMR. And when we come across features and functions that are EMR-based (e.g., tracking allergies and medication lists), we say "we're not building that, sorry." Our customers know where to go for those pieces.



The other part is to grow strategies where you can expand beyond that concrete kind of box. A majority of our large customers are on integrations. So they only get the elements of our solution that integrates directly with their software. There are other features that I want to be working on that don't yet have a path to integration, but I need to do projects to validate them, show them and then eventually solve where they may or may not go into an integrated solution. I do have some innovation projects that I know don't necessarily fit our kind of prototypical mould for 80% of the clients. But one day I see a pathway that they do accelerate our growth.

Question: Where are you seeing the most success? Is it a demand pull where frontline physicians and nurses are hearing about your solution, and then advocating up for it? Or is it at an enterprise level where CTOs and administrators look to push down the solution to the front line?

Answer: A successful sales pathway has to very quickly get to the decision-makers who hold the budget. Our sales conference efforts often resonate very quickly with clinicians, but we have to help them find the right people at their organization to actually open the doors to the CTO and the chief clinician executive who might greenlight a project.

There are multiple pathways. Product development is very focused on the clinician user and making sure they're happy. We're fortunate that we took a very design-heavy emphasis and built beautiful products that are easy to use. When we do the demo, clinicians get excited. My job is to think like an executive because it's not enough to have a beautiful demo that clinicians want to use – if the product is not going to pay for itself. I've been in organizations where we healed wounds 11% faster, but when they did a comparison to their other implementation site it didn't affect the business model enough to justify renewing the license. You need to really understand the drivers around renewal of your product so that you can map that outcome out and prove it to keep that revenue coming.

Question: Does the microvascular environment close to the wound change when the wound is especially nonhelix?

Answer: In advanced wound imaging, the thermal is analogous to circulation; it does not measure oxygen content but in theory, our device can measure oxygen to see differences and that will be an important assessment to add. There are devices that are the size of suitcases that cost \$50,000 and are not widely adopted. We want to eventually bring this to a pocketable device that any clinician can have because if you are not getting oxygen to the wound, it will not heal. Therefore, circulation is a critical assessment for wound healing.

Question: Is this reflected in the images that you acquire or any other signals?

Answer: Thermal would be a proxy for circulation but not for oxygenation as there are other factors that are involved. That would be the closest that we currently capture and then oxygenation would be a future roadmap.

Question: Are there ways to reference other tools within their software, such as an index, that would suggest talking to Swift Medical if there are problems with long term wound care?

Answer: I used to think the biggest problem was solving the paper ruler standard of care and changing that over a couple of months. Since then, I've come to believe that the "let's wait and see" approach is the biggest killer in wound care. People are putting the same dressing over a wound and giving it a couple more weeks and seeing if it is effective. There needs to be an objective assessment of the patient which can include circulation, medication or



compressions that can get them back on a healing trajectory. I agree that there should be better solutions out there and Swift Medical is one of them.

Question: What do you see in the next 6-12 months in terms of your research agenda? Are there things that we can do as a community to support or to facilitate that?

Answer: The biggest thing for us right now, in the short term, is the shifting political roadmap around the validation of the AI solutions. I'm talking about an audit of the smart tissue healing index to outcomes base.

We have papers out showing that smart tissue is more effective and accurate in millions of retrospective images, so we need to incorporate them into projects and then show what is the impact on healing rates and visits per episode, so that those features then get connected. The sustainability of revenue rate, makes it more than just an interesting clinical tool. That's what my next year is focused on. Then similarly, with Swift Ray One, it's demonstrating the validity because it's in a later stage than the AI work.



Time allotted | 15 Minutes Topic: **Communicate**

Discussion	Presenter
FedDev invests \$3.5 million for Fero to bring modular medical infrastructure to market	Sabrina
On February 2 nd The Honourable Filomena Tassi, Minister responsible for the Federal Economic Development Agency for Southern Ontario (FedDev Ontario), along with Chad Collins, Member of Parliament for Hamilton East–Stoney Creek; and Lisa Hepfner, Member of Parliament for Hamilton Mountain, announced an investment of over \$3.5-million towards the growth of Fero International Inc Fero is a woman-led manufacturing company based in Stoney Creek that provides cost-effective and rapidly deployable modular solutions for the healthcare, housing, long-term care and educational sectors, among others.	(Fero)
With this support from the Government of Canada, Fero will increase its in-house manufacturing capabilities to grow production of its modular infrastructure for the healthcare and life-sciences sector. These modular buildings can be used as labs, outpatient clinics, operating rooms, long-term care centres, and healthcare-related housing, among others, to help meet the additional space demands outside of hospital settings.	
As a result, Fero will provide quick and sustainable alternatives to brick-and-mortar medical infrastructure that will reduce delivery times and support vulnerable populations in Canada and abroad. In addition, the project will also boost local supply chains and create 50 skilled jobs in the region.	
Read the full release here	
Introducing Femtech Canada - A New Era in Women's Health Innovation Femtech Canada, a women's health network initiative operated by Innovation Factory, celebrated its official launch today at a gathering in Toronto, Ontario. Signalling a milestone in women's health technology, Femtech Canada is the first organization in the country dedicated to advancing women's health innovation, commercialization and investment in an effort to address a global market estimated to exceed \$4.8 trillion by 2025.	Karen Linesman (Innovation Factory)
Femtech Canada represents and supports companies with technologies that cater to the health and wellness needs of women, girls, non-binary individuals, trans people, and those assigned female at birth – thereby shaping a more inclusive and effective healthcare landscape. The team provides strategic networking, training, and business advisory support including fundraising and mentorship. Playing a crucial role in nurturing and strengthening the community, Femtech Canada has assembled a strong ecosystem with over 120 Canadian women's health start-ups and scale-ups, industry partners, investors, accelerators, and service providers.	
press release here	
Hamilton life sciences startup, Allarta, receives \$800k award from JDRF to advance its work in creating a functional cure for type 1 diabetes	Harald Stover (Allarta Life Science)
Allarta Life Science, a regenerative medicine company using novel hydrogels to enable cell- based therapies for type 1 diabetes (T1D), today announced it has received an award from JDRF,	



Discussion	Presenter
the leading global T1D research and advocacy organization, that could amount to US\$800,000 upon completion of research and development milestones.	
Allarta, co-founded in 2019 by McMaster Chemistry Professor Dr. Harald Stover and Maria Antonakos, uses polymer science to advance cell therapies for T1D. Founding investors include McMaster University, Mark Krembil and Ian Delaney. The award will directly fund Allarta's ongoing work to increase durability and avoid the need for systemic immune suppression in current islet and beta cell transplantations to cure T1D.	
FluidAI announces \$15M in Series-A Funding FluidAI Medical (FluidAI), a pioneer in leveraging artificial intelligence (AI) for postoperative patient monitoring, today announced that it has raised \$15 million in Series A funding, led by SOSV and Graphene Ventures with participation from Boutique Venture Partners, Threshold Impact, Cur8 Capital, Leva Capital, Kyto Technology & Life Science Inc., Juno Pharmaceuticals, and a number of esteemed angels, funds and government funding organizations. The investment will allow FluidAI to develop deeper medical record integration, expand into existing and new global markets, grow its dynamic team, and introduce novel AI-driven solutions catoring to a broader range of postoporative complications	Amr Abdelgawad (Fluid AI)
 FluidAl Secures \$1.4M in Gov't Support as part of \$25M Investment in Manufacturing Capacity The Ontario government is welcoming an investment of over \$25 million by local medical technology company, FluidAl Medical. In support of FluidAl's investment, Ontario is providing over \$1.4 million in funding through the Advanced Manufacturing and Innovation Competitiveness stream of the Regional Development Program. "Through our Regional Development Program, our government is helping growing Ontario manufacturers like FluidAl Medical innovate and create good-paying jobs," said Vic Fedeli, Minister of Economic Development, Job Creation and Trade. "We are proud to support a company that is doing groundbreaking work in Ontario's world-class medical technology sector. Thank you, FluidAl Medical, for investing in Ontario." FluidAl Medical has developed an Al-powered monitor that detects post-operative gastrointestinal leaks, preventing complications that can arise from their late detection. The company's investment will be used to research product improvements and build an automated assembly line to meet growing international demand and will create 38 new, good-paying jobs. 	Amr Abdelgawad (Fluid AI)
 Third Round of McMaster Seed Fund investments bring total to \$2.7 million since inception Three additional McMaster startup companies – including life science startups A.I. VALI Inc. and Esphera SynBio – have each received \$256,000 in the third round of McMaster Seed Fund investments. To date, "the McMaster Seed Fund has invested over \$2.7 million in eight companies to date, driving the transformation of University research into products and services that have made a positive impact on society. We are proud to support the latest Seed Fund recipients as they transfer their innovative technologies to businesses, clinicians and researchers in the Hamilton region and beyond," he says. 	Leigh Wilson (MILO)



Discussion	Presenter
Medical device startup A.I. VALI Inc. – cofounded by McMaster professor of medicine and gastroenterologist, David Armstrong – has developed AIDREA, an AI platform that uses interactive machine learning to document and analyze endoscopy videos in real-time.	
Esphera's platform technology generates exosomes that deliver defined payloads to targeted cells in the body. The technology can target several kinds of cells, including tumour cells and immune cells, and deliver a variety of therapeutic payloads, including enzymes and RNAs. It is designed to enhance existing immunotherapy and vaccine technologies and aid in gene therapy, enzyme replacement therapy and cancer immunotherapy.	
Launched in September 2021, the McMaster Seed Fund (MSF) is an early-stage investment vehicle designed to foster innovative startup companies coming out of McMaster research with the potential for significant economic and societal impact on Canada and the world.	
Read the full release <u>here</u> Innovation Factory celebrates Hamilton's growing life sciences network and SOPHIE program	Dave Carter
recipients	(Innovation Factory)
Innovation Factory hosted 'Molecules and Masterpieces', an exclusive networking event that celebrated recipients and partners of the Southern Ontario Pharmaceutical & Health Innovation Ecosystem (SOPHIE) Program. The event brought the program's community together to foster connections and partnerships and drive success in the life science sector for innovative start-ups.	
The Molecules and Masterpieces event was the ideal showcase of the SOPHIE program's role as a catalyst for fostering partnerships and bridging commercialization services with innovation in the Hamilton life science sector. The evening included speakers such as David Carter, CEO of Innovation Factory; Sarah Howe, Executive Director of Research at St. Joe's representing St. Joseph's hospital; and Maria Antonaskos, Founder & COO of Allarta Life Science. Taking place at Earls Court Gallery, the event also featured one-of-a-kind art pieces from local artists with each piece being raffled off to attendees.	
David Carter, CEO of Innovation Factory shared, "Hamilton's life sciences community, bolstered by the SOPHIE program and Synapse Consortium's initiatives, has cultivated an ecosystem rich in innovation and collaboration. The SOPHIE program exemplifies our mission to create lasting partnerships that drive scientific advancement and economic growth. The Molecules and Masterpieces event illustrated the dynamic relationship between entrepreneurs, and the life science network in Hamilton, all contributing to a robust ecosystem that's propelling Hamilton to the forefront of life science innovation."	
AmacaThera, CloudDx and Qidni amongst 6 companies splitting \$2M in funding support by ACT Consortium	
ACT received 30 applications that underwent a targeted peer review process where each application was reviewed by a total of 10 independent reviewers – 5 reviewers with experience in clinical trials and 5 reviewers with experience in biotechnology. In total almost \$2,000,000 CAD was awarded to support Canadian biotechnology clinical trials. Many thanks to those who submitted applications and to those who were involved in the peer review process.	



Discussion	Presenter
AmacaThera has developed a novel injectable, local sustained release drug delivery technology, called AmacaGel, which is composed of a physical blend of hyaluronan and methylcellulose. AmacaThera has developed a 3-day release formulation of ropivacaine using AmacaGel that is designed to deliver 3 days of post-operative pain control, to enable a reduction of opioid usage associated with the current standard of care. To date, AmacaThera has shown human safety of AmacaGel alone in a Phase 1a study, but not yet studied AmacaGel in combination with an active drug. The study proposed here aims to show safety and efficacy of AMT-143 in humans, allowing advancement to surgical pain indications in future trials.	
Qidni developed a novel dialysis system that is portable and requires only two litres of normal saline (rather than a reverse osmosis filtration unit requiring 500 litres of water per treatment). This technology was successfully trialed in animals for multiple treatments and single treatments of humans with kidney failure. Whether the Qidni system is similarly effective and safe over repeated treatments to conventional hemodialysis is not established. This will determine whether the Qidni system can be used as a simple replacement for conventional dialysis. The Evaluation of Qidni Urea And metabolite cLearance in maintenance Dialysis (EQUAL Dialysis) is a randomized crossover trial of patients receiving chronic hemodialysis. It will evaluate the clearance of small and middle molecules as well as the safety of hemodialysis with the Qidni dialysis system compared to conventional dialysis over a period of three months.	
ventureLAB Announces HardTech Summit Gala Pitch Competition Winners	VentureLab
ventureLAB proudly unveiled the winners of its first-ever Pitch Gala during an exclusive gala dinner on Day 2 of the HardTech Summit. HardTech Summit, Canada's premiere technology and innovation focused summit, featured a highly-anticipated Pitch Competition offering participants a chance to claim a collective \$50,000 cash prizes. With more than 250 attendees and 8 visionary founders taking the stage to present their groundbreaking innovations to an expert judging panel, HardTech summit was a resounding success.	
the Siemens Software Award valued at \$33,000. Able Innovations is using robotics to solve healthcare's most labor-intensive tasks: patient transfers, a challenge that many people in the audience could relate to. They have developed an intelligent and automated robotic patient	
transfer technology, the ALTA Platform [™] , to conduct safe, effortless and dignified patient handling that only requires a single operator.	
AmacaThera Closes \$4M Series A Extension to Advance Clinical Development AmacaThera, a leader in the development of novel injectable, localized therapeutics based upon its AmacaGel delivery platform, announced the closing of a CAD\$4.0 million financing round, with a new lead investor, supported by existing investors; BDC Capital's Women in Technology Venture Fund, Inveready, Lumira Ventures, StandUp Ventures, and MaRS IAF. The proceeds will be used to accelerate the clinical development of the lead clinical candidate, AMT-143, and also to advance multiple pipeline programs targeting the local, injectable, sustained release market.	Shannon Graszat (Innovation Factory)
The Company's unique, injectable, hydrogel AmacaGel platform is effective for the delivery of a wide range of therapeutics, from small molecules to antibodies to lipid nanoparticles to stem cells, as demonstrated in over 40 peer-reviewed publications. With the demonstrated safety in humans, the funding will also be used to expand the application of the platform and to develop additional products for the pipeline.	



Discussion	Presenter
Application for CABHI's Mentorship, Capital, Continuation Program is open.	Shannon Graszat
Apply now to receive up to \$500,000 CAD in investment and acceleration services from CABHI to validate or grow your business.	(Innovation Factory)
Plus, eligible companies may access additional investment up to \$250,000 from Invest Nova Scotia, \$150,000 from Greyhill Capital Partners, commercialization and funding support from Ontario Bioscience Innovation Organization, and business financing from Clearco. Companies can also access additional investment opportunities through CABHI's investor community.	
<u>Multiplex Construction Canada and McMaster Innovation Park Celebrate the OmniaBio Project</u> <u>Delivery</u>	McMaster Innovation Park
One year following the initiation of construction on the OmniaBio B Building at McMaster Innovation Park (MIP), the Multiplex Construction Canada team is pleased to announce the successful delivery of the OmniaBio B Base Build. Executed under the innovative Integrated Project Delivery (IPD) method, this project showcases an on-time and on-budget project delivery, providing the core and shell infrastructure for accessibility to MIP and its partners, OmniaBio. The IPD approach facilitated efficient communication and cooperation among all stakeholders, resulting in the punctual delivery of the world-class building.	
OmniaBio, planned at 400,000 square feet, will be the largest CDMO exclusively manufacturing for cell and gene therapies in Canada. MIP has now delivered the core and shell of the first phase, 90,000 SF. The building's occupancy is projected for summer 2024.	
Check out <u>video</u> showing how OmniBio is bringing maturity to cell and gene therapy in Hamilton	
Cloud DX wins \$1.3W remote monitoring deal in PEL Cloud DX has signed a contract worth over \$1.3 million with Health PEI, the Provincial Health Authority for Prince Edward Island. It is Cloud DX's second win after becoming the exclusive vendor for Remote Patient Monitoring (RPM) services through Mohawk Medbuy, a pational	(Synapse)
not-for-profit shared services organization.	
The Cloud DX-MMC master agreement, unveiled in June 2023, enables the company to address crucial healthcare priorities within Prince Edward Island. Cloud DX is now the exclusive vendor for RPM services under four Provincial-level agreements, including Alberta Health Services, Alberta Primary Care Network (PCN), Yukon Health, and now Health PEI.	
Read full Canadian Healthcare Technology piece <u>here</u>	
Four New Companies Join Ontario Genomics BioCreate Program Four new start-ups have been welcomed into <u>BioCreate</u> , Ontario Genomics' \$11.6-million accelerator program providing financial and business support to biotechnology companies creating game-changing solutions in the health, food and agriculture, and cleantech industries.	Elizabeth Grey (Ontario Genomics)
BioCreate is funded by Ontario Genomics and a Government of Canada investment of over \$5.6 million, through the <u>Federal Economic Development Agency for Southern Ontario</u> (FedDev Ontario). The program connects highly vetted companies with \$150,000 in non-repayable funding, 18 months of business mentorship and access to critical infrastructure. They'll also get the opportunity to pitch to investors for further funding. Here are this round's recipients:	



Discussion	Presenter
We'll develop new drugs in months, not decades (McLean's Magazine)	Jonathan
Humanity has relied on antibiotics for the better part of 100 years. Most of the ones we currently use in clinical and agricultural settings were discovered between the 1940s and 1960s by looking for antibacterial molecules produced by microbes living in soil. Eventually, this method led to the discovery of the same antibiotics over and over again, and our rich well seemingly dried. More recently, researchers assembled libraries of millions of synthetic chemicals and individually tested which ones kill pathogenic bacteria. This process—called high-throughput screening—is time-consuming and expensive. Unfortunately, we've discovered zero clinically used antibiotics with this approach. Our antibiotic pipeline is now alarmingly lean.	Stokes (McMaster University)
In 2019, there were approximately 1.3 million deaths due to drug-resistant bacterial infections. By 2050, that number is expected to increase to 10 million per year, at which point it will surpass cancer as a cause of death. Antibiotics uphold all of modern medicine. If we can't control infection, we can't perform a lot of the medical interventions that we take for granted, such as routine surgeries and cancer chemotherapy.	
For AI to help us discover new antibiotics, we need to train models to understand what these drugs look like. This is the process in a nutshell: first, we test roughly 10,000 different molecules in the laboratory to see which are antibacterial and which are not. Then, in the computer, we can train the AI model to recognize the chemical structures of molecules that are antibacterial and the ones that are not. Once we have the model trained, we can show it brand new chemicals it has never seen before and it can tell us which molecules might have antibacterial potential. We can use an AI model to run predictions on 100 million chemicals in about a week. In the lab, screening that many chemicals would take us more than 20 years.	
Jonathan Stokes is an assistant professor of biochemistry and biomedical sciences at McMaster University. Read the full article here	
Ten Early Career Researchers win PHRI's 2023 internal grant competition	Alex Muggah
PHRI is excited to announce the winners of its 2023 internal grant competition, celebrating ten early career researchers who have secured full funding for their proposed research. From a pool of 16 competitive proposals, 32 external reviewers carefully assessed the submissions, resulting in the selection of ten projects for funding after a thorough review process.	(Synapse)
McMaster continues to be one of Canada's most research-intensive universities	Gay Yuyitung
McMaster continues to rank among Canada's top research universities in the annual ranking published by Research Infosource.	(McMaster MILO)
McMaster placed ninth among Canada's medical/doctoral schools, with a total sponsored research income of \$369.8 million, according to the 2023 rankings released Dec. 7.	
The ranking is determined by research income and intensity, as well as the number, intensity and impact of publications in leading journals.	
McMaster maintains its second-place position for faculty research intensity, averaging \$407,300 per faculty member, and places third among its peers for graduate student research intensity, with an average of \$68,500 per graduate student.	



Discussion	Presenter
A celebration of McMaster's dynamic innovation ecosystem	Andy Knight (McMaster)
An event at Enedym — a McMaster startup located at McMaster Innovation Park — celebrated the many people who contribute to McMaster's growing research enterprise, and its resounding impact in the community and the world.	
Insight Medbotics uses robotic imaging for breast cancer diagnostics. A.I. VALI uses interactive machine learning for real-time endoscopy analysis. 20/20 OptimEYES Technologies is transforming eye health. The researchers behind these and many other McMaster-based startups joined other entrepreneurs and industry partners at McMaster Innovation Park (MIP) this week to celebrate the achievements and transformative impact of McMaster's robust innovation ecosystem.	
Read the full article <u>here</u>	
 NRC Cell & Gene Therapy Challenge program - collaborations sought The National Research Council of Canada's (NRC) Disruptive Technology Solutions for Cell and Gene Therapy Challenge program is launching a call for proposals to create collaboration opportunities between the NRC and the broader research community. Collaborations would unify the value chain for engineered cell and gene therapies, from discovery to commercialization. Disruptive Technology Solutions for Cell and Gene Therapy Challenge program - National Research Council Canada. There are 3 calls for proposals currently open – deadline to apply is January 8, 2024. These are open to Canadian SMEs, as well as academic and research institutions. 	Joon Kim (NRC-IRAP)
Next-generation solid tumour cell therapies	
Establishment of a good manufacturing practice human amniotic fluid cell seed bank	
Interested parties can register for these calls and the Q&A session (one per call, in early December) by sending an email to NRC.HealthProgram-ProgrammeSante.CNRC@nrc-cnrc.gc.ca	
Startup Canada Announces Startup Global Pitch Competition 2023 Winners	Lianna Genovese
Startup Canada announced the 2023 winners of the Startup Global Pitch Competition Grand Finale. Amidst the full house crowd of the final Startup Canada Tour stop in Brampton, Hamilton-based startup ImaginAble Solutions was named the first-place winner, taking home \$30,000.	(ImaginAble)
Founded by Lianna Genovese, ImaginAble Solutions is a social impact venture creating assistive technology to improve the quality of life for people with disabilities. Lianna is on a mission to improve the quality of life for people with disabilities.	
New CEO Selected for Hamilton Health Sciences Foundation	
The Board of Directors of Hamilton Health Sciences Foundation (HHSF) is pleased to announce the appointment of Anissa Hilborn as the Foundation's next CEO. Anissa was appointed after a	



Discussion	Presenter
comprehensive search and selection process which was anchored in the principles of equity and inclusion to ensure fair and equitable treatment of all candidates.	
Anissa will assume the role on February 5, 2024, succeeding Pearl Veenema who retires in January after leading the Foundation for more than 16 years.	
Three of The Clinic alumni earn top spots at Startup Survivor pitch competition	Riley Moynes (The Forge)
The three winners of The Forge's Startup Survivor pitch competition this year, Shania Bhopa, Ibrahim Iftikhar, and Mann Parikh, credit the coaching and mentoring they received through The Clinic's Health Innovation Bootcamp and Residency as essential to their success. The programs provided core knowledge about business and commercialization, and their mentors connected them to networks and gave them confidence and motivation to grow their companies.	
Startup Survivor is a four-month program led by The Forge business incubator, in which students complete a series of entrepreneurship challenges to advance their business idea, culminating in a competition to pitch their company to venture capitalists. Together, the three winners split \$30,000 to help catalyze the next generation of their startup journey.	
Founders Fast Track (applications open until Dec 10)	Evan McDonald
Accelerate your business in 6 weeks. Innovation Factory's Founders Fast Track is an intensive training program designed to equip your start-up as you embark on your first fundraise with the essential tools, resources, and skills you need to succeed.	(Innovation Factory)
The top 10 best-performing start-ups will be offered an exclusive invitation to pitch for cash prizes and more at Innovation Factory's flagship competition, <u>LiONS LAIR</u> , in front of an audience of 300+ people. Applications are currently open until December 10, 2023.	
Life Sciences Critical Technologies & Commercialization (LSCTC) Centre of Excellence	Christina Yeh (OBIO)
The LSCTC Centre will accelerate the health science industry's use of critical technologies: 5G and advanced networks, ethical artificial intelligence, blockchain, cybersecurity, quantum computing and robotics. The LSCTC Centre provides infrastructure, commercialization, technology adoption and talent programming to Ontario small and medium enterprises (SMEs) and emerging ventures to drive intellectual property creation and advance innovative made-in-Ontario technologies, including but not limited to therapeutics, diagnostics, medical devices and digital health.	
Interested companies should review the program description, non-dilutive funding streams & eligibility criteria, and <u>submit an expression of interest</u> . Submissions are reviewed on a rolling basis.	
Health Science Technology Training for Software and Data Professionals	Christina Yeh (OBIO)
OBIO [®] is proud to launch the Health Science Technology Training for Software and Data Professionals Program in partnership with Upskill Canada [powered by Palette Skills] and the Government of Canada.	
This new training opportunity is available to support individuals with a background in software development, engineering, computer science, data science or business who are interested in enhancing their skills to land a role in the health technology sector. Participants will have the	



Discussion	Presenter
opportunity to engage with potential employers and will receive job placement support throughout the program.	



Time allotted | 15 Minutes

Topic: Collaborate & Accelerate

Partnership opportunities, programming and resources available to the community, market gaps and challenges, learn about potential funding opportunities, discuss new RFPs issued, etc.

Discussion	Presenter
Want to Connect with your Ecosystem: Check out the Synapse Health Ecosystem Directory	Alex Muggah (Synapse)
Synapse has created a Director of +200 private- and public-sector organizations in the Hamilton (and regional) health innovation ecosystem which work alongside the Synapse Consortium to support of the commercialization of health innovation. Learn more about what others are up to, and identify potential collaborative partners at: www.synapseconsortium.com/directory	(•::•)
 Engaging Mohawk College's IDEAWORKS IDEAWORKS projects in general (of which, MEDIC is one area) which was provided and may help with identifying if Mohawk College can support our companies with projects. This might be a refresher for some or all of us, but highlighting nonetheless: Tips for Innovation Factory Referrals to IDEAWORKS Our four innovation centres (MEDIC for Digital Health, AMIC for 3D printing, EPIC for energy efficiency related projects and MTIC for Medical Technologies related challenges) are active during this time- but note that due to existing commitments, are often looking at projects one month to three months in the future. Other areas of expertise are on a case by case basis, especially this year, with a number of our faculty committed to teaching and revamping courses The ideal applied research partner is one that is in the scaling stage; they have some revenue and can meet a lot of the funding agencies criteria for funding or want to self-fund a research project. Typically what we look for is 2+2; two years in business with two employees We recommend working with us on projects that aren't mission critical but can help the company explore an innovative idea. What about start-ups? If they require a few tips or advice, we can normally chat with them (or if there is a critical mass click five or six commanies in a space, we can do a webinar type 	Andrea Johnson (Mohawk College)
 discussion). They can see about the availability of capstone projects, where students generally work on projects for a four month period, for free, in order to get course credit. It may help with MVPs. 	
Contact Andrea Johnson for more information: andrea.johnson4@mohawkcollege.ca	
The CONNECTION - McMaster University Online Partnerships Portal!	Gay Yuyitung (MILO)
The Connection is a new program offered by McMaster's Office of Community Engagement (OCE) designed to facilitate online, mutually beneficial partnerships between campus and local Hamilton community organizations. As communities look for ways to adapt and rebuild in response to COVID-19 The Connection will make the process of addressing Hamilton community and University identified needs easier by providing online tools and resources. It's a way for everyone who sees themselves as part of a collective community-campus effort to connect and respond to COVID-19 locally	



Discussion	Presenter
Collaborating with McMaster Institute for Infectious Disease Research (New Intake Form)	Gay Yuyitung (MILO)
In addition to our ongoing COVID-19 research initiatives at McMaster, the Michael G. DeGroote Institute for Infectious Disease Research is mobilizing its strong research community to assist Canadian researchers and businesses in their attempts to find solutions to the international crisis. The IIDR teams have the capacity to assist with the testing of anti- viral compounds and products, as well as the testing of products or devices aimed at sterilization. This includes new methods for sterilizing personal protective equipment. They are able to offer services in the following areas:	(
 BSL2 cell culture infection with representative human coronaviruses; Testing of methods or products that are designed to inactivate the virus; Biochemical/enzyme studies with anti-viral agents. 	
Cell culture and small animal models of SARS-CoV-2 infection can be performed in McMaster's secure biosafety level 3 facility. Availability for BSL3 testing is very limited, and projects requiring this type of work will be screened and prioritized by an internal committee.	
If you have a product or innovation that you are interested in pursuing further and feel that we could be of assistance to you, please <u>reach out to us through the online form</u> . Each project will be evaluated to determine if McMaster has the capabilities and capacity to perform the required testing.	
Hamilton-based technologies available for licensing	Glen Crossley (MILO)
Each year researchers at McMaster, <u>Hamilton Health Sciences</u> , and <u>St. Joseph's Healthcare</u> <u>Hamilton</u> make new discoveries that lead to new products, services, or process improvements to help companies expand their pipeline or increase their productivity. The business development team at <u>MILO</u> is here to help you tap into and access these discoveries as efficiently as possible. MILO's objective is to support effective transfer of these technologies to companies for social and economic benefit and enable the continued growth of research excellence at the institutions.	
Please contact <u>Glen Crossley</u> , <u>Associate Director</u> , <u>Business Development and IP</u> or search the list to see some of the technologies currently available for licensing or further R&D	
Hamilton Innovation Partnership Portal	Alex Muggah (Synapse)
Synapse has created the Hamilton Innovation Partnership Portal (HIPP) to make the process simpler and more streamlined to find new partners within Canada's leading health research and educational ecosystem. It is a way for companies to interact with the Hamilton community. A streamlined approach, to have Synapse represent everyone. We've set up an intake form for companies to direct request to the portal. Portal is online through the Synapse website: http://synapseconsortium.com/partner/	(•::•)
Submit Community Events on the Innovation Factory Calendar Our calendar is home to Innovation Factory workshops and networking events as well as events from the community which help support our local entrepreneurs and businesses. If you have an event which may a fit, please submit it and we will review it within five business days.	Annie Horton (Innovation Factory)

