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Agenda

Plenary events held in Zoom.

3:00–3:20 Welcome
- Martha Gray, PhD, Director, MIT linQ
- Suzanne Shirley, LCSW, Director of Community Engagement and Fellowship, VHA Office of Healthcare Innovation and Learning

3:20–5:05 Project and guest mini-presentations

5:05 -5:15 Final remarks and transition to project booths

5:15–6:00 Networking *in Gather.Town*
- Project booths, VHA resources, and chats.

All times in Eastern Daylight Time.

Order of Presentations

1. Catalyst Projects

- Left Thumb Pain in Gastroenterologists Performing Endoscopy
- Digital Imagery Rehearsal Therapy for PTSD Patients
- Home Delivery of Battlefield Acupuncture for Pain Treatment
- Improving Veterans' Access to Mental Health
- Automatic Inactivation of Unused Opioids
- Medication Administration
- Barrier
- Obstructive Sleep Apnea
- Hydration

2. Guests

- MIT Sandbox Connections to Catalyst with Mahnaz Maddah
- VHA: Innovators Network with Allison Amrhein
- VHA: New England Center for Innovation Excellence with Leandro DaSilva
- VHA: XR Network with Dr. Anne Lord Bailey and Caitlin Rawlins
- VHA: IRB and Human Studies with Carole Palumbo, PhD
- VHA Innovation Specialists with Samantha Sissel
- VHA and Catalyst: Supporting for Fellows and Projects with Bonnie Charland
- VHA SimLearn – Eric Bruns
- Preview of Commercial Planning Workshop with Nancy Steele

Catalyst Project Descriptions

Left Thumb Pain in Gastroenterologists Performing Endoscopy

Fellows: Zack Buono , Alexandra Buscher, and Aparna Repaka

Description: Left thumb injuries are some of the most commonly reported endoscopy related repetitive strain injuries (RSI) in gastroenterologists. Left thumb activity and force levels required to manipulate the dials on the control section of the colonoscope have been shown to exceed ACGIH HAL-TLV safety limits. Such high physical exposures are associated with repetitive stress injuries such as de Quervain's tenosynovitis (colonoscopist's thumb). With increasing demand for colonoscopy procedures and increasing complexity, there is a need to address these occupational injury concerns. Our solution is an "add-on" device which mechanizes the endoscope dial movements thereby reducing the high physical exposures of the left thumb. This can reduce thumb exertion and pain among physicians currently experiencing pain in the short term, and potentially prevent injuries in others in the long term.

We are looking for:
1. A PI/Advisor who can provide lab space and equipment to prototype
2. Core members: Who can take on project management, help with prototyping
3. Student/Intern who could help with market analysis and business planning
4. Advisor: Industry contacts to help with clarifying FDA clearance pathway
5. Help securing Colonoscope, and or a CAD model of a colonoscope

Digital Imagery Rehearsal Therapy for PTSD Patients

Fellows: Beatriz Garcia, Smitta Patel

Description: In the United States, 70-90% of PTSD patients report sleep disturbances. Clinicians are concerned as sleep problems are associated with worsening PTSD symptoms, longer recovery times, and increased risk of suicide. Providers try to avoid these negative outcomes by prescribing in-person therapy and/or medications. However, this approach fails due to medication side effects and because in-person therapy is not widely available. Imagery Rehearsal Therapy (IRT) is an evidence-based treatment for improving sleep disturbances caused by nightmares associated with PTSD. Digital therapeutics have been shown to deliver cognitive based therapy, and we hypothesize that our solution can build on that success to digitize IR. We expect our solution will have similar effects as in-person IRT and reduce nightmare frequency while increasing sleep quality.

Asks:
Core member with previous experience in digital health product creation (Ideally PTSD and/or VA).
Core member with previous experience in creating MVP for Digital health.
Advisor member(s) with experience in digital therapies (Ideally PTSD and/or VA).

Home Delivery of Battlefield Acupuncture for Pain Treatment

Fellows: Zack Buono, Alexandra Buscher, Martha Duffy, and Amos Raymond

Description: Between 60-80% of veterans with chronic pain who have utilized a procedure called Battlefield Acupuncture (BFA), an ear-only type of acupuncture for pain treatment, experience clinically meaningful reduction in pain immediately. Pain relief wanes gradually and subsequent repeated treatment is required. The main failure is these repeated clinic visits which necessitate frequent travel to clinics, lost productivity away from work, and failure to rapidly treat this chronic pain condition. Our device provides an on demand, at-home pain management treatment via in-ear nerve stimulation utilizing BFA concepts

We're looking for:

1) Principal Investigator (PI) with previous experience in pain-related clinical intervention studies to join team

2) Expert Advisor in Bioelectricity/Biostimulation willing to provide feedback on optimizing electrical stimulation settings for our design. Is not required to join team.

Improving Veterans' Access to Mental Health Services

Fellows: Lola Baird, Mark Drinkwater, and Natrina Johnson

Description: Currently in the VA, when a consult is ordered for mental health services, the intake coordinator invests an immense amount of time gathering the necessary information to schedule the Veterans with the most appropriate mental health clinic. This often results in delayed care for veterans, and veterans' sometimes don't get connected to mental health. The goal of the MH Access project is to develop a clinical decision support tool that will collect relevant information from EHR, referring provider, about the veteran being referred so the intake coordinators can more efficiently triage patients and get Veterans seen for mental health as soon as possible.

Asks:
We are asking for support with engaging primary care staff in meetings to gauge stakeholder acceptability of our clinical support decision tool.

Automatic Inactivation of Unused Opioids

Fellows: Mark Drinkwater, Alison, Quinn, Jason Ramirez, and Taylor Wahlig

Description: Low participation in drug disposal results in the accumulation of millions of unused opioid pills in the community, putting people at risk of addiction and adverse events. Our project aims to develop a pill bottle that automatically inactivates unused opioids, reducing the amount of unused opioids available for misuse, abuse, and diversion.

Asks:

1. We are entering a phase in our project where we will be frequently reaching out to segments to ask for meetings and would like to develop a simple animated presentation of our project concept that can be inserted into documents and emails and live on a website. We do not have technical skills in developing this sort of media and we would like access to a resource that can help.

2. As our team stretches across organizations and geography we would like to have a common platform/workspace that allows us to maintain a calendar, store, and edit documents in real time. We would like to have access to a platform like google workspace so we can obtain these functions for our team.

3. We may require the ability to perform binding assays to assess the function of our slurry solution. We would like assistance in finding space in a lab to perform this testing and a mentor with knowledge of medicinal chemistry.

4. Our next iterations of our product concept will require the development of a novel degradable film. We would like assistance in finding a mentor with material science or active packaging design experience.

Medication Administration

Fellows: Rey Johnson and Lars Lofgren

Description: We are building a hardware system to automatically detect and document the administration of IV infusion drugs in an emergency department setting. This project has two aims: to decrease the time nurses spend on documentation and to increase patient safety. Nurses today face a high administrative burden of documenting the care they provide, including the medications administered. We hope to save them time by automating part of this process. Additionally, our solution will provide an additional safety layer which can prevent medication errors from occurring.

Asks:
1. We are interested in expanding the team and potentially bringing on students. Are there any smaller grants that can be used to fund students? (Outside of UROP, which we are aware of)
2. The team is looking at potential partnerships for moving the project forward. Does anyone have contacts in the smart infusion pump space who could provide feedback regarding our project?

Barrier

Fellows: Ravi Rasalingam & Tarsha Ward

Description: Unintended pregnancies and sexually transmitted infections (STIs) are increasing, despite public awareness campaigns. Condom use, shown to be an effective response, is hampered by negative perceptions of decreased pleasure and sexual performance. To increase condom use, the Barrier team focused on behavioral and user experience considerations and is developing a novel condom applicator that facilitates efficient, effective application and penile stimulation during condom placement.

Asks:
Small seed funding; $3000 for prototyping materials and designer time
Packaging expert with experience in adhesives used to hermetically seal packages

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Obstructive Sleep Apnea

Fellows: Ravi Rasalingam & Tarsha Ward

Description: Obstructive sleep apnea (OSA), a common, chronic health condition that is prevalent and underdiagnosed, lead to daytime fatigue and drowsiness and are associated with serious health consequences such as hypertension, heart failure, motor vehicle accidents and premature death. Current treatments are underutilized because they're cumbersome and uncomfortable. The OSA team is developing a novel, comfortable solution that will make compliance easier and more effective.

Asks:
Dentist collaborator able to volunteer time during working hours to perform intraoral scans
Volunteers with OSA willing to have a home sleep study and trial the device

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Hydration

Fellow: Ian Butterworth

Description: Staying hydrated is critical for everyone, and it gets harder with age. The consequences of poor hydration are severe and surprisingly common, especially among the elderly. The Hydration team is designing a technology to help the elderly and their caregivers track hydration status, helping to prevent problems and intervene swiftly when necessary.

Asks:

As we move into the next stage of human studies, we are also expanding our team and looking for:

1. People with potential time commitment of 8 hours/week to join the team
    *   Someone who would like to help conduct the upcoming human study
    *   Someone who likes building and tinkering with electronics (raspberry pi, sensors, etc.)
2. Volunteers to participate in the human study, the interest form can be filled in here:
    https://forms.gle/ZiZzr8jK8wBXxTLCA

In attendance, but not presenting

Improving Mental Health Support for Women in Fertility Clinics

Fellows: Tracy Bruen, Lars Logren, Samantha B. Miles, Ritu Raman, and Fatima Shazhad

Description: Women who seek treatment from a fertility clinic experience high levels of anxiety and depression and barriers in accessing mental health support, and high physical and psychological burden of treatment. Today, access to mental health support is not always offered in the fertility clinic, and when it is, it can take many weeks to see a counselor. Our solution is a digital health platform that provides mental health care in tandem with physicians to reduce time-to-access mental health care and improve patient satisfaction.

Guide to Gathertown

Catalyst Gathertown Guide – September 2023

Following the Catalyst Showcase presentations and plenary event, participants are invited to join us virtually in [Gathertown](https://app.gather.town) for a poster and networking session. Please use this link:
https://app.gather.town/invite?token=GSn4kWf4RJu73Zj80eYT

Gathertown is available as via browser or the Gather desktop app. It is not optimized for mobile devices or tablets. If using a browser, **Chrome or Firefox are recommended** (and Safari is only available in beta).

When you begin, you can customize your avatar **(Edit Character)** and check your audio, video, and mic settings, then **Join the Gathering!**

Interacting with Others by Proximity
Once others are present, you will be able to virtually mingle with the participants. As avatars get close together, the video tiles appear in each other's windows. You can have conversations with one or several event guests.

Chat
Gather.town has a chat function, much like other virtual conference services. When you click on the chat icon (bottom left of your window), the chat will pop out. You can select to chat with "nearby" participants, everyone in the space, or a specific guest.

Project Booths
While you are exploring and mingling, please check out the project booths. These areas are mapped out, so that participants can find team members and guest speakers easily. Each area is a "private area" to enable group conversations, that do not interfere with nearby discussions. Press the X key on your keyboard to see the "posters".

Please refer to the Map of Gathertown to easily find those with whom you would like to speak.

A- Left Thumb Pain in Gastroenterologists Performing Endoscopy

B- Digital Imagery Rehearsal Therapy for PTSD Patients

C- Home Delivery of Battlefield Acupuncture for Pain Treatment

D- Improving Veterans' Access to Mental Health

E- Automatic Inactivation of Unused Opioids

F- Medication Administration

G- Improving Mental Health Support for Women in Fertility Clinics

H- Barrier

I- OSA

J- Hydration

1- VHA: SimLearn

2- VHA: IRB and Human Studies

3- VHA and Catalyst: Supporting Fellows and Projects

4- VHA: XR Network

5- VHA: Innovators Network

6- MIT Sandbox Connections to Catalyst

7- VHA Innovation Specialists

8- VHA: New England Center for Innovation Excellence

Map of Gathertown