Patient Safety
R&D Salons

Stimulating a pipeline of patient safety R&D

✓ Learn about the patient safety priorities and needs of providers, patients, and payers
✓ Explore the applications of technologies
✓ Discover Salon participants’ strengths
✓ Establish connections
✓ Identify opportunities to jointly apply for grants

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SAVE THE DATES

Patient Safety R&D Salons

AUG 23
11 AM - 12 PM

OCT 11
12 PM - 1 PM

DEC 6
12 PM - 1 PM
RAPS Seed Grant Program: Request for Proposals
Establishing Pittsburgh as a Tech Hub for Developing Autonomous Patient Safety Solutions
Awards up to $50K available
José-Alain Sahel, MD

*The Digital Twin Project to Inform Safe, Optimal Treatment Decisions*

Discussion: Applications of Digital Twins to Patient Safety & Pittsburgh’s Potential to Become a Leader

Pitt MEARS Study, Data Sharing Collaboration with CMU IPSR, & ARPA-H
Medication Error Avoidance at Regional Scale (MEARS) Update and Opportunities

Department of Biomedical Informatics Team Leads
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Eugene Sadhu, MD – eugene.sadhu@pitt.edu
Nickie Cappella – nkc7@pitt.edu
Update on the MEARS-Pitt & IPSR-CMU study collaboration

Progress - MEARS (Pitt) – IPSR (CMU) Collaboration

Q2 2023
Groundwork

- Data requirements gathering (data domains, use cases)
- Regulatory requirements (DRU and IRB)
- Submission of a failure modes manuscript to JAMDA

Q3 2023
Data sharing begins

- Implementation of secure data enclave
- Approval of first RAPS data projects
- Establish the dataset as a benchmark
- ARPA-H LOI

Q4 2023
RAPS

- Develop and test predictive and analytic models
- Design of RAPS intervention to be the Y2 focus
- ARPA-H Grant writing
Update on the data sharing infrastructure and how this will equip the CMU IPSR team with Pitt/R3 data and secure computing infrastructure
Initial Data Sharing Infrastructure

- ~600K patients with both hospital and outpatient data
- ~3,000 patients with data from all settings

Hospitals

Outpatient

Post-acute care

Home Health

RAPS Secure Enclave (Pitt hosted)

structured data

Notes

Medications, labs, Minimum Dataset

Evidence for Actionable Decision Support

Autonomous Patient Safety Algorithms

OASIS

Notes, Event Logs
Technical Overview

Pitt Secure Server Zone 1

Data science application server
- Jupyter Hub server
- Rstudio server
- OHDSI tools

Secure programmatic connection (JDBC)

Pitt Secure Server Zone 2

Dataset server
- Structured data
- Clinical notes
- MDS and OASIS
- Event logs (outpatient)

Access using guest Pitt accounts through Global Protect VPN
Hardware & Software

Hardware supports (CPU and GPU):
- Machine Learning (ML)
- Artificial Intelligence (AI)
- Data Exploration

Software, data structure, tools (OHDSI / OMOP):
- Data organized and standardized to facilitate analysis for clinical informatics
- Provide clinical context-aware analysis

Central Processing Unit (CPU) handles main functions of a software analysis for computers, whereas Graphics Processing Units (GPU) is a specialized component that excels at running many complex tasks at once.

Observational Medical Outcomes Partnership (OMOP) Common Data Model allows for the systematic analysis of disparate observational databases. OHDSI - Observational Health Data Sciences and Informatics organization is the home for OMOP Common Data Model.
Collaboration plan which leads to a RAPS Pitt CMU Patient Safety ARPA-H proposal

**July F2F (DBMI)**
Decide the primary focus area
- Proactive Health?
- Resilient Systems?

**August F2F (DBMI)**
Identify the revolutionary idea

**September F2F (CMU)**
Develop concept summary and engage partners

**October F2F (CMU)**
Finalize first draft with proposed work and circulate draft Abstract

**November**
Submit abstract to ARPA-H
Acknowledgments

MEARS Team

- Dr. Richard Boyce, Associate Professor, Department of Biomedical Informatics
- Dr. Eugene Sadhu, Senior Research Scientist, Department of Biomedical Informatics
- Dr. Steven Albert, Professor, Department of Behavioral and Community Health Sciences
- Dr. Sandra Kane-Gil, Associate Professor, Pharmacy and Therapeutics, Biomedical Informatics, Critical Care Medicine and CTSI
- Brian McLay, Lead Datawarehouse Architect, Department of Biomedical Informatics
- Nickie Cappella, Director – Research Informatics, Department of Biomedical Informatics
- John Milnes, Chief Systems Architect, Department of Biomedical Informatics
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