**Vision**

TRAIL (Translational Research and Information Lab) is an initiative between the University of Washington Health Sciences Library, the Institute of Translational Health Services, UW Medicine Research Information Technology, and the National Network of Libraries of Medicine, Pacific Northwest Region, to triage and provide consultations on research data management tools and data visualization.

**Mission Statement**

A collaboration accelerating healthcare research through tools, team science, and applications.

**COLLABORATORS**

- **HEALTH SCIENCES LIBRARY**
  UNIVERSITY of WASHINGTON
  University Libraries

- **ITHS**
  Institute of Translational Health Sciences
  ACCELERATING RESEARCH. IMPROVING HEALTH.

- **U.S. National Library of Medicine**
  National Network of Libraries of Medicine
  Pacific Northwest Region

- **UW Medicine**
  UW SCHOOL OF MEDICINE
  BIOMEDICAL INFORMATICS AND MEDICAL EDUCATION
EXECUTIVE LEADERSHIP

**Tania Bardyn, MLIS AHIP**
Associate Dean for University Libraries
Director, Health Sciences Library
Director, National Network of Libraries of Medicine, Pacific Northwest Region

**Carlos De La Peña, MD ‡**
Executive Director, Institute of Translational Health Sciences

**Sean Mooney, PhD**
Chief Research Information Officer, UW Medicine
Professor, Biomedical Informatics and Medical Education

CO-MANAGERS

**Bas de Veer, MS**
Biomedical Services Manager
UW Medicine IT Services

**Emily Patridge, MLS AHIP**
Assistant Director, Clinical Research & Data Services
UW Health Sciences Library

STAFF

**Andrea Ball, MLS VMA MSIM**
Care Management & Population Health Librarian
UW Health Sciences Library

**Ashleigh Lewis**
REDCap Administrator
UW Medicine IT Services

**Adam Garrett**
Assistant Director, Systems
UW Health Sciences Library

**Ann Madhavan, MSLIS**
Nursing and Data Services Librarian
UW Health Sciences Library

**Ann Glusker, PhD MPH MLIS**
Research & Data Coordinator
National Network of Libraries of Medicine, Pacific Northwest Region

**Michael T. Moore, MSt**
Grants Administration & Special Projects Librarian
UW Health Sciences Library

**Julie T. Elworth, PhD**
Director, Evaluation
Institute of Translational Health Services

**Deric Ruhl**
Linux Systems Administrator
UW Health Sciences Library

**Jane Koh**
Program Coordinator
UW Health Sciences Library
Program

Act I, Presented by TRAIL Executive Leadership

1:00 p.m. Arrival and Please Take Your Seats

1:05 p.m. Welcome
Tania Bardyn, MLIS, AHIP
Associate Dean, University Libraries & Director, Health Sciences Library, Director, NNLM, Pacific Northwest Region

Sean Mooney, PhD
Chief Research Information Officer, UW Medicine; Professor, Biomedical Informatics and Medical Education

1:15 p.m. Ribbon Cutting

1:20 p.m. Unveiling of Services
Bas de Veer, MS
Bio-Medical Informatics Services Manager

Emily Patridge, MLS, AHIP
Assistant Director, Clinical Research & Data Services, Health Sciences Library

*Portions of this event will be filmed and photographed.

Act II, Demonstrations

1:25 p.m. Virtual Reality in Medicine
Location: TRAIL (T216)

Edward D. Verrier, MD, FACS, FACC, FAHA
K. Alvin & Shirley E. Merendino Professor In Cardiothoracic Surgery, Division of Cardiothoracic Surgery, Department of Surgery, UW School of Medicine; Former Chief, Division of Cardiothoracic Surgery, UW Medical Center

Beth Ripley, MD, PhD
Acting Deputy Director, Department of Radiology, VA Puget Sound Health Care Administration; Assistant Professor, Department of Radiology, UW School of Medicine

Ryan James
Co-founder & CTO, Pear Med; PhD Candidate, Biomedical and Health Informatics, UW School of Medicine

1:25 p.m. Open Researcher and Contributor ID (ORCID)
Location: Pacific Room (T229)

Elizabeth Bedford, MSI
Scholarly Publishing Outreach Librarian

1:25 p.m. LiveStories
Location: Second Floor Conference Room (T223)

Kelli Yakabu
Master’s Student, UW iSchool; Population Health intern, Health Sciences Library

*Portions of this event will be filmed and photographed.

Year 2 Ribbon Cutting Ceremony

January 10, 2018

Emily Patridge MLS (Health Sciences Library), Beth Ripley MD PhD (VA Puget Sound Health), Dmitry Levin (Center for Cardiovascular Innovation), Ryan James (Pyrus Medical), Tania Bardyn MLIS (Health Sciences Library), Carlos De La Peña MD (ITHS), and Betsy Wilson, Vice Provost and Dean of Libraries (UW Libraries) officially launch 14 new TRAIL services.

Edward Verrier MD, UW Medicine, leads a discussion on the role of virtual reality in improving anatomical education and clinical practice.
**YEAR 2 GOALS**

**#1 Develop a virtual reality studio with programs and services for clinicians**

HSL will host a planning retreat to design a virtual reality (VR) studio for clinical use in the TRAIL space. To properly support the new studio, existing staff will receive appropriate training on VR hardware and software. HSL staff will write and openly disseminate a “how to” primer to other medical libraries interested in implementing VR.

**#2 Redesign the TRAIL website for improved usability by health sciences researchers**

HSL staff will redesign the TRAIL website to offer a more mobile-friendly, service-focused introduction to TRAIL. TRAIL leadership will identify staff members from across the TRAIL partners who are best positioned to provide support for specific services. HSL will host a ceremony to celebrate the launch of the new services.

**#3 Provide excellence and set up a high standard of support**

TRAIL leadership and staff will implement processes for funneling specific queries and requests to expertise among the partners. TRAIL staff members will receive continuing training and development to support UW’s REDCap instance and other evolving trends and technologies. HSL and NNLM PNR librarians will teach monthly Beginner REDCap and Advanced REDCap classes.

**#4 Develop and teach an online data management course for health sciences researchers**

HSL and NNLM PNR librarians will develop and teach an eight-hour clinical research data management course in Fall 2017 and Spring 2018. Assessment from previous versions of the course will be used to adjust the lessons and course scope. HSL, NNLM PNR, and ITHS staff will serve as data tutors during the courses.

**#5 Advance the Population Health initiative**

HSL will recruit, hire, train, and mentor a Population Health intern to work with the Care Management & Population Health Librarian to evaluate LiveStories. The intern will help develop a Population Health LibGuide and an online module about population health, delivered via the HSL website.

**#6 Introduce initiatives to support the continued success of TRAIL members**

TRAIL leadership will organize, lead, and motivate a team of librarians, business analysts, and IT professionals to meet the clinical research needs of the UW community. These staff members will be mentored in developing skill sets and establishing career paths in clinic research data management. Performance will be reviewed and assessed in context of the larger HSL priorities.
LEAD PARTNER RESPONSIBLE FOR YEAR 2 GOALS

HEALTH SCIENCES LIBRARY
UNIVERSITY OF WASHINGTON
University Libraries

U.S. National Library of Medicine
National Network of Libraries of Medicine
Pacific Northwest Region

Institute of Translational Health Sciences
ACCELERATING RESEARCH. IMPROVING HEALTH.

UW Medicine
UW SCHOOL OF MEDICINE
BIOMEDICAL INFORMATICS AND MEDICAL EDUCATION

UW Medicine
INFORMATION TECHNOLOGY SERVICES

Goal 1
Goal 2
Goal 3
Goal 4
Goal 5
Goal 6
HSL received an IMLS grant to create a virtual reality (VR) studio in TRAIL due to VR's ever-growing popularity and interest. HSL offers guided demos, with the Linux Systems Administrator setting up the VR equipment and guiding users through VR. Fifty-one VR sessions were hosted in TRAIL in Year 2. VR demos are now one of the 14 offered TRAIL services.

The TRAIL website was redesigned to focus on the 14 services and offer ease of reserving the space or a consult. The 14 services are a representation of the consultations offered by the TRAIL partners. A goal for Year 3 is to connect the website to a redesigned optimized intake process.

The joined implementation of the ticketing system used for REDCap and room reservations was a Year 1 success. In Year 2, TRAIL continued to make strides in the utilization of the ticketing system and training. This is signified by the fact that even though REDCap’s active user base has grown by 40% in the last two years, the absolute number of tickets has stayed roughly the same.

Kelli Yakabu was hired as the HSL Population Health intern, with a primary role to become an expert user of the LiveStories “data storytelling” platform, providing training and other presentation to staff and patrons through TRAIL. Based on her demos, the National Network of Libraries of Medicine’s Evaluation Office purchased licenses and is exploring offering data visualizations on this platform.

Training was a focus of TRAIL in Year 2. Several TRAIL members were trained on REDCap technical support, data wall support, and virtual reality consult support. Senior Computing Specialist Paul Ludecke was trained to be a REDCap agent in Year 2. These new skills helped establish HSL employees with new career paths in clinical data management. Training will continue being a theme of Year 3.
Figure 1: Number of TRAIL reservations by month

Figure 2: Percentage of TRAIL reservations by organization

- Health Sciences Library (41%)
- School of Medicine (29%)
- School of Nursing (8%)
- Institute of Translational Health Sciences (8%)
- National Network of Libraries of Medicine, Pacific Northwest Region (6%)
- Other (8%)
GOAL 1: DEVELOP A VIRTUAL REALITY STUDIO WITH PROGRAMS AND SERVICES FOR CLINICIANS

The Health Sciences Library partnered with surgeons, nurses, radiologists, research scientists, and software developers to expand TRAIL to support a library-based virtual reality (VR) studio to host pre-surgical consultations for cardiothoracic surgery. The project was designed to allow the UW cardiothoracic surgery team to use static, two-dimensional MRI and CT images to create patient-specific and fully interactive three-dimensional models that could be viewed using virtual reality hardware and software. The project team conducted full- and half-day retreats on October 27, 2017, and January 26, 2018, to test and demonstrate software, identify core requirements for implementation into the clinical workflow and pre-surgical consultations, and map future clinical and educational uses for VR. A design architect provided feedback and best practices for selecting and renovating TRAIL to host VR.

TRAIL is now equipped with a VR-capable laptop, three VR headset packages—an HTC Vive, an Oculus Rift, and an Acer Windows Mixed Reality headset—and multiple medical-focused VR applications, including Pyrus Medical’s Bosc and 3D Organon.

Seated (from left): Adam Garrett; Emily Patridge, MLIS; Gili Meerovitch; Tania Bardyn, MLIS; Beth Ripley, MD; Dmitry Levin; Ryan James; Edward Verrier, MD. Standing (from left): Mary Kay Voss; Deric Ruhl; Michael Moore, MIST; Chris Burke, MD; Francisco Gensini, MD; Kevin Koomalsingh, MD; Mark Reisman, MD; Nicole Walker, RN; Aaron Daub, MD; Margrethe Søvik; Kara McDonald; Sandeep Napa, MBBS; Hendeke Araya, MS.
GOAL 2: REDESIGN THE TRAIL WEBSITE FOR IMPROVED USABILITY BY HEALTH SCIENCES RESEARCHERS

At the end of Year 1, TRAIL Executive Leadership and Co-Managers assessed the services offered by TRAIL to ensure they aligned with the needs of the clinical research community at UW and partnering institutions and harnessed the expertise and resources available within TRAIL. Lesser used services were sunsetted, and new innovative offerings introduced. The TRAIL website was redesigned to improve accessibility to these new services, with individual landing pages crafted to describe each one.

To officially launch the new services and redesigned website, a Year 2 ribbon cutting ceremony was held in TRAIL on January 10, 2018. The ceremony included presentations by VR project team members Edward Verrier, MD, Beth Ripley, MD, and Ryan James; UW iSchool Population Health intern Kelli Yakabu; and Librarian Liz Bedford.
GOAL 3: PROVIDE EXCELLENCE AND SET UP A HIGH STANDARD OF SUPPORT

REDCap (Research Electronic Data Capture), a secure, HIPAA-compliant, online data collection and management first launched at UW in 2011, remains TRAIL’s most used service and a key part of the University’s clinical research structure. REDCap servers are hosted by ITHS, and staff from ITHS, the Health Sciences Library, and NNLM PNR provided technical support through an online ticketing system since December 2016.

Ashleigh Lewis (ITHS) was hired in early 2018 as REDCap Administrator, serving as the Level 2 support lead, teaching beginner, intermediate, and advanced classes, providing one-on-one consultations, and serving as a representative of the UW REDCap instance and TRAIL.

**Figure 3: Total UW REDCap users**

- **2,358** new REDCap users
- **8,731** REDCap support tickets
- **277** REDCap class attendees
Figure 4: REDCap questions answered by month

Figure 5: REDCap total class attendance and times taught
GOAL 4: DEVELOP AN ONLINE HEALTH SCIENCES RESEARCH DATA MANAGEMENT (RDM) COURSE

The Health Sciences Library Research Data Management Workshop (HSL RDM) is a biannual online course held in conjunction with UW Libraries. Content from broader research data management offerings were repurposed to focus on health sciences-specific issues, with topics addressing a wide range of questions about HIPAA compliance, NIH open data access policies, metadata schemas and best practices, and data collection and management options.

Two versions of the course were held in FY2018:
- Fall 2017 — August 14-17 (41 participants)
- Winter 2018 — April 2-5 (57 participants)

A total of 14 NNLM PNR and Health Sciences Library librarians and ITHS staff served as workshop tutors, engaging participants in asynchronous discussions, answering data management questions, and linking to additional resources throughout the two four-day event.

Figure 5: Participation by UW Colleges, Schools, Institutes, and Departments

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<th>Colleges / Schools</th>
<th>Institutes</th>
<th>Departments</th>
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<td>Applied &amp; Computational Math Sciences</td>
<td>Alcohol &amp; Drug Abuse Institute</td>
<td>Atmospheric Sciences</td>
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<td>Bioengineering</td>
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<td>Human Centered Design &amp; Engineering</td>
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<td>Library &amp; Information Science</td>
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<td>Integrated Social Sciences</td>
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<td>Materials Science &amp; Engineering</td>
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<td>Urban Design &amp; Planning</td>
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GOAL 5: ADVANCE THE UW’S POPULATION HEALTH INITIATIVE

UW iSchool undergraduate student Kelli Yakabu was hired as the Health Sciences Library Population Health intern for the 2017-18 academic year. In her role, Yakabu tested and became an expert user in the LiveStories “data storytelling” platform, providing training and other presentation to staff and patrons throughout TRAIL. To demonstrate the software, Yakabu created a series of five TRAIL-related visualizations based on TRAIL room reservation and REDCap usage and support data.

Yakabu presented at the TRAIL Ribbon Cutting Ceremony, at a Health Sciences Library Liaison Librarian meeting, and during Data Week. Based on her feedback and demos, the National Network of Libraries of Medicine’s National Evaluation Office purchased licenses to visualize its data.


GOAL 6: SUPPORT THE CONTINUED SUCCESS OF TRAIL MEMBERS

Training was a focus of TRAIL in Year 2, with several TRAIL members receiving training on REDCap technical support, data wall support, and virtual reality consult support. These new skills helped establish employees with new career paths in clinical data management.

Year 3 training will focus on Leaf, an online cohort discovery and statistical analysis tool for querying live, up-to-date UW Medicine electronic health records.