VCLIC

VANDERBILT CLINICAL INFORMATICS CENTER
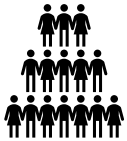
VCLIC ANNUAL REPORT

2022-2023

Vanderbilt

DIRECTOR'S WELCOME

ADAM WRIGHT, PhD
VCLIC Director
Professor of
Biomedical Informatics
and Medicine

The 2022-2023 academic year was an outstanding one for VCLIC! We started several new initiatives, welcomed new members and offered a range of programming. As always, I'm incredibly grateful for your support of our center. We hosted our first ever InformaticCon, which we're now planning to make an annual event, and started VCLIPS, a video-based learning offering for core concepts in clinical informatics, which we paired with some in-person workshops. VCLIC members made strong showings at our major conferences, including the AMIA Annual Symposium and Clinical Informatics Conference and Epic's XGM and UGM meetings — Vanderbilt was a top presenter at each of these meetings. We also had 246 member publications in leading informatics, medical, and quality and safety journals, and hosted top-notch speakers from around the country. The VCLIC core's business grew substantially, and we've now done at least one project for every clinical department at VUMC. We're looking forward to a bright 2023-2024 academic year, and are excited to work with you to bring our center to new heights. Please share your ideas with our team — we're always looking for ways to ensure that VUMC continues to be the best place in the world to practice clinical informatics.

VCLIC BY THE NUMBERS

79
Members

22
Departments
Represented

21
AMIA
Fellows

246
Member
Publications

55
Presentations at
AMIA Symposium/CIC
and Epic UGM/XGM

15
Educational
Programs

76
Core Requests Received

18
VDAWGs
Participants

INFORMATICCON

VCLIC hosted its first ever InformaticCon event on Wednesday, September 28th, 2022 from 12:00-2:00 pm in the VU Student Life Center Board of Trust Room. The event showcased a variety of clinical informatics projects led by people from across VUMC, celebrated our accomplishments and helped foster and grow relationships and community among our members. It was great to see you all in person!

The event featured eight lightning talks and a poster session with 27 presenters. We'll gather together next fall for InformaticCon 2023!

JOIN US FOR VCLIC'S FIRST INFORMATICCON! THIS SPECIAL, TWO-HOUR EVENT WILL INCLUDE LUNCH, A SAMPLING OF SHORT, DYNAMIC TALKS, AND A POSTER SESSION TO SHOWCASE CLINICAL INFORMATICS WORK GOING ON ACROSS VUMC!

WOW!

DATE: 9/28/22
TIME: 12:00 PM-2:00 PM
LOCATION: VU STUDENT LIFE CENTER BOARD OF TRUST ROOM
SIGN UP: EVENTS.VCLIC.ORG

An archive of all of our InformaticCon talks and presentations can be found on our website: vumc.org/vclic/informaticcon-fall-2022

Our Lightning Talk presenters and topics include:

- **Sara Horst**: IBD Care: Epic Clinical Enhancements
- **Kerry Cavanaugh**: Sharing Healthcare Visit Information Using Audiorecording: A pilot study
- **Benjamin Collins**: Attention to the Influence of Race and Ethnicity on Patient Trust in AI for Healthcare
- **Cheryl Gatto**: VICTR's LHS Platform: Supporting Pragmatic Trials with Research Infrastructure
- **Carolynn Nall**: VUMC HealthIT Immersion Program
- **Scott Nelson**: Naloxone Co-Prescribing Alert
- **Cosby Stone**: Informatics Enabled Penicillin Allergy Risk Stratification
- **Jon Wanderer**: The VUMC Physician Builder Program: Oh the thing's You'll Build!

VCLIC PRACTICAL SHORTS (VCLIPS)

In January 2023, we launched VCLIPS: Vanderbilt Clinical Informatics Practical Shorts. These are bite-size instructional videos on practical clinical informatics topics from expert VCLIC faculty.

The videos can be found both on website. The topics we covered so far are:

- Overview of VCLIC and Clinical Informatics at VUMC (**Adam Wright, PhD**)
- Intro to Epic and Build Capabilities (**Aileen Wright, MD, MS and Allison McCoy, PhD**)
- Data Resources (**Bryan Steitz, PhD and Allison McCoy, PhD**)
- Human-Centered Design Principles and Processes (**Thomas Reese, PharmD, PhD and Megan Salwei, PhD**)
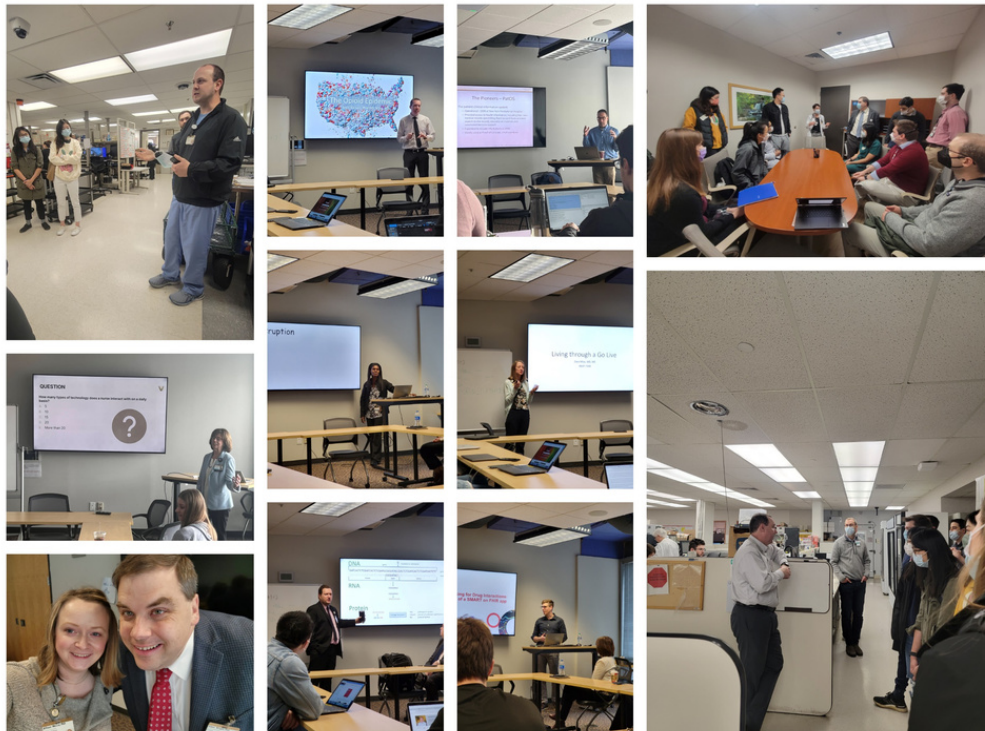- Evaluation and Dissemination of HealthIT Interventions (**Adam Wright, PhD**)

In addition to the videos, we hosted in person workshops (with popcorn!) that covered the material in all of the VCLIPS as well as engaged the audience in hands-on activities where they could build on the skills the videos covered.

We hope to grow the VCLIPS library as well as to continue to host these workshop sessions to apply the material to real-world situations. Let us know if you'd like to record a VCLIP!

CLINICAL INFORMATICS COURSE

In spring semester, VCLIC leaders **Adam Wright, PhD**, and **Allison McCoy, PhD** offered **BMIF 7340: Clinical Informatics** for a second year. Students receive lectures on topics ranging from clinical decision support, standard terminologies, leadership, governance, and project management, many delivered by guest VCLIC members. Students also participate in field trips to inpatient and outpatient clinical areas, the data center, the pharmacy and the lab to observe clinical informatics in action.

Students in the course partnered with clinical departments and HealthIT teams to analyze a current clinical problem and design a solution. This year's projects included:

- Epic-Based Tool for the Improvement of Preoperative High Risk Patient Screening (**Joseph Vento MD, Marco Barbero Mota, MRes, Parker Evans, MD**, Mentor: **Jon Wanderer, MD)**
- Building a Framework for Analyzing eStar-Related Safety Issues (**Victor Borza, Jeerthi Kannan**, Mentor: **Patricia Sengstack, DNP, RN-BC)**
- Newborn Screen Navigator (**Alexa Eby, Sam Jean-Baptiste, MD, Matt Krantz, MD**, Mentor: **Wael Alrifai, MD, MS)**
- Guideline implementation – random urine drug monitoring in patients chronically taking opioid medications (**Lei Wang, MPhil, Julie Kim, PharmD**, Mentor: **Scott Nelson, PharmD, MS)**
- Insulin MAR Overdue Alert (Xinmeng Zhang, Yubo Feng, Mentor: **Gwen Holder, MSN, RN-BC)**

SEMINAR SERIES 2022-2023

Dara Mize, MD, MS, *Exploring the Relationship between the EHR and Burnout*

Lisa Rotenstein, MD, MBA, *Using Data from the EHR to Understand Patterns & Quality of Ambulatory Care*

Julia Adler-Milstein, PhD, *Turning Digital Fumes into Fresh Air*

Bryan Steitz, PhD, *Promoting Engagement through Information Sharing*

Sarah Rossetti, RN, PhD, *National strategies, priorities, and challenges to reducing documentation burden and evaluating impact*

Michael Barnett, MD, MS, *Identifying the Mechanisms of Disparities in Cascades of Cardiovascular Care with EHR Metadata*
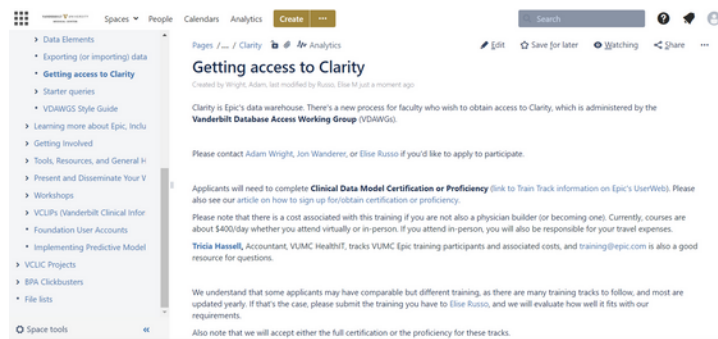

Jesse Ehrenfeld, MD, MPH, *Reducing Provider Burnout and Supporting Provider Well-Being*

Our VCLIC DBMI Seminar series was a great success, kicking off with our own Dara Mize, MD, MS, who spoke to our theme of "Re-envisioning the EHR to Reduce Burnout and Improve Well-Being." We concluded the year with Jesse Ehrenfeld, MD, MPH, the incoming AMA president, who rounded out our annual theme by discussing AMA's work on physician well-being and burnout. Our other distinguished speakers, shown above, addressed these topics from a range of perspectives.

VANDERBILT DATABASE ACCESS WORKING GROUP PROGRAM (VDAWGS)

The Vanderbilt Database Access Working Group (VDAWGs), administered by VCLIC, provides a pathway for faculty to access VUMC's Clarity data warehouse, and acts as a community for exchanging ideas and techniques for data science. VDAWGs attend Epic training and apply for participation through VCLIC. VCLIC establishes safeguards, including a monthly audit of queries, and hosts a monthly workgroup meeting where participants can ask questions and demonstrate best practices for querying Clarity. Information on how to join the program is featured on our Confluence Knowledgebase, also home to several other "how-to" articles that VUMC employees can access.
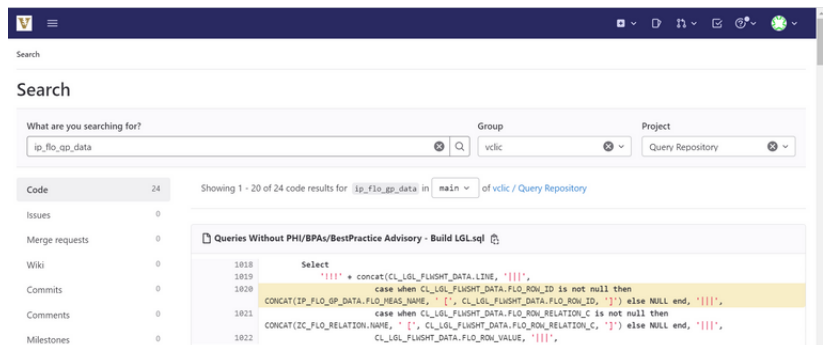

GitLab Query Repository

In addition to the Confluence Knowledgebase, VDAWGs participants may access a repository of queries, maintained securely in GitLab. VDAWGs can search the query repository to find examples from colleagues and determine who they can ask questions of as they move forward with their work.

Program Update

VDAWGs has been live since June 2020, and as of April 15th 2023, we have 18 members, 3 of which are faculty-sponsored staff delegates. We presented on VDAWGs at AMIA CIC in May 2022 and Epic's XGM conference in May 2023. A range of projects, including randomized trials, informatics studies and observational research have been enabled by VDAWGs. Through an informal evaluation, we found that giving faculty members and delegates direct access to our EHR database has increased access to data at our institution and proven valuable to participants.
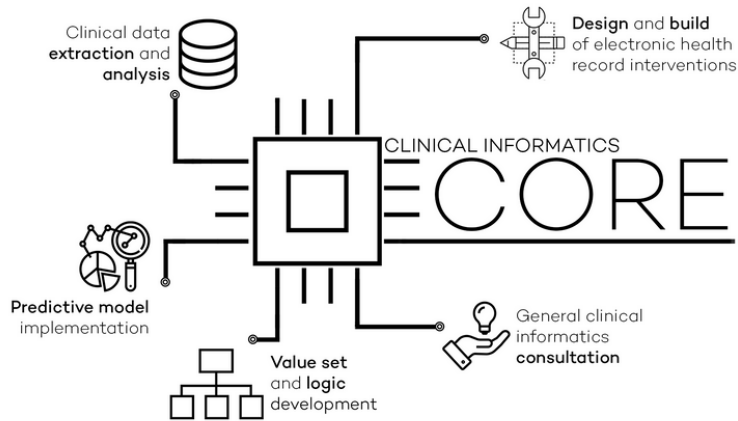

Evaluation and Feedback

- 9 VDAWGs responded to an evaluation survey
- Average satisfaction was 1.22 (1–5 scale with 1 being highest)
- 6 out of 9 respondents said they use Clarity 5 times per week or more

The program has enabled participants to "Support substantially more research across the institution"
-VDAWGs participant

CLINICAL INFORMATICS SERVICES

Clinical Informatics Core

The mission of the Clinical Informatics Core is to enable Vanderbilt University Medical Center researchers to design and implement electronic health record (EHR)-related tools, functionalities, and interventions with input and assistance from clinical informatics experts, as well as to gain access to and analyze EHR-based data. The Core is directed by **Allison McCoy, PhD,** and supported by project manager **Elise Russo, MPH, PMP,** and analyst **Donnie Sengstack, MS.**
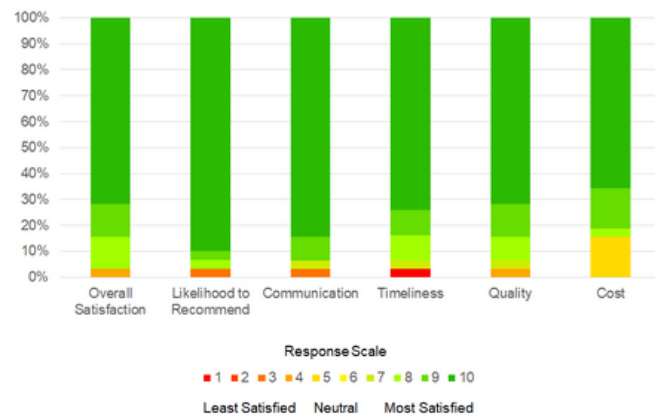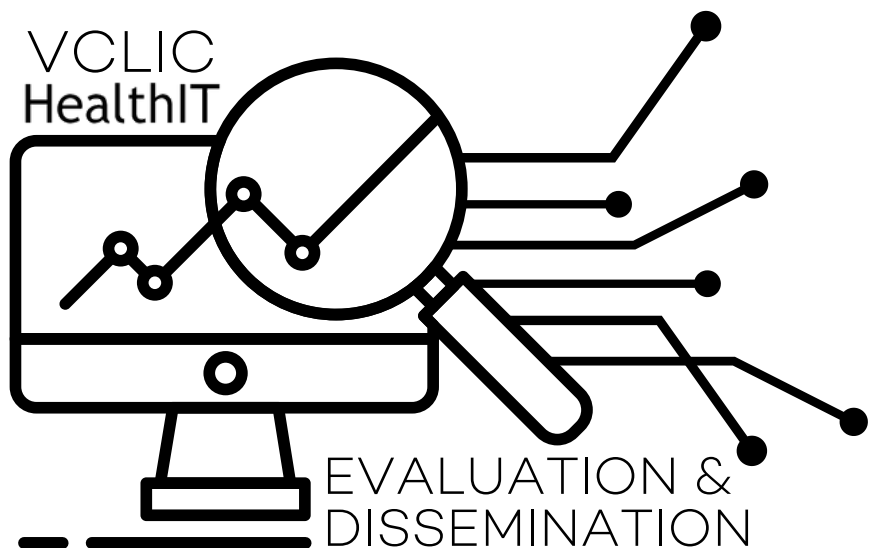

VCLIC + HealthIT Evaluation and Dissemination Program

Led by **Allison McCoy, PhD** and supported by **Laura Zahn, MS**, this program ensures that we effectively evaluate innovative HealthIT initiatives across VUMC, and disseminate our findings widely. We pair VCLIC informaticians with HealthIT staff to complete evaluations by providing methodologic expertise, data extraction and analysis. We also support abstract and manuscript preparation to facilitate conference participation and publication. If you would like VCLIC's help with evaluation and dissemination, visit redcap.link/VHEDP

PROJECT SPOTLIGHTS

Siru Liu, PhD, worked with **Aileen Wright, MD, MS; Barron Patterson, MD; Jon Wanderer, MD; Robert Turer, MD, MS; Scott Nelson, PharmD, MS; Allison McCoy, PhD**; Dean F. Sittig, PhD and **Adam Wright, PhD**, to assess the value of ChatGPT for CDS optimization. Dr. Liu fed the logic VUMC's CDS alerts into ChatGPT and it provided suggestions for reducing alert firing rates by magic logic more specific. She compared ChatGPT's results to human generated suggestions, with humans rating the accuracy of each suggestion. Of the 20 best-scoring suggestions, 9 were generated by ChatGPT. These suggests were found to offer unique perspectives and were evaluated as highly understandable and relevant, with moderate usefulness, low acceptance, bias, inversion, redundancy. ChatGPT shows great potential for using large language to improve CDS alert logic and may have additional applications in informatics.

Postpartum hemorrhage (PPH) is a leading cause of maternal morbidity and mortality. Data on pregnancy complications from the United States' Centers for Disease Control and Prevention indicate that the incidence of PPH requiring blood transfusion has been increasing steadily for the past two decades, contributing significantly to adverse maternal outcomes. Rapid recognition and early intervention are important in reducing these adverse maternal outcomes, as the majority of hemorrhage-related mortality in the United States has been shown to be preventable. **Holly Ende, MD**, and other researchers, using data on vaginal and cesarean deliveries occurring 2018-2022, have developed and validated a prediction model for the occurrence of PPH requiring transfusion. With the help of **Allison McCoy, PhD** and **Jon Wanderer, MD**, this model has been implemented into Epic, where it can automatically capture pertinent risk factor data, calculate risk scores, and display relevant risk predictions to clinicians. Future work will focus on a pragmatic randomized controlled trial to test the new model prospectively and assess its impact on patient outcomes.

Adults with suspected sepsis frequently receive empiric antibiotics such as cefepime or piperacillin-tazobactam, but the safest and most effective treatment is not known, and both options have side effects, such as kidney injury and neurotoxicity. The ACORN trial (led by VCLIC member **Edward Qian, MD, MS** with the guidance of **Adam Wright, PhD**) is the first randomized trial to compare cefepime and piperacillin-tazobactam in acutely ill adults. When either antibiotic is ordered, our EHR assesses the patient's eligibility for the trial, offers enrollment to the physician and, if accepted, randomizes the antibiotic choice. Dr. Qian took advantage of both the Physician Builder and VDAWGs programs to run the trial, enabling rapid completion, a large sample and very low cost.

MS IN APPLIED CLINICAL INFORMATICS

The MS in Applied Clinical Informatics (MSACI) program is offered by the Department of Biomedical Informatics and provides innovative clinical informatics education for working professionals in the health care field. Graduates assume leadership roles in the application and innovation of clinical informatics nationally, applying their skills and knowledge to make a tangible difference for individuals and systems in health and biomedicine. We are recruiting now. If you are interested in applying or learning more, visit the website or contact **Scott Nelson, PharmD, MS**.

The spring 2023 cohort of MSACI students has successfully completed their capstone projects and are pictured here with their DBMI mentors. Congratulations to the graduates: **Holly Ende, MD;, MS Beau Mack, MD, MS; Casey Distaso, MD, MS; Jason Chen, MD, MS; Edward Qian, MD, MS; Anirban Bhattacharyya, MD, PhD. MS**

PHYSICIAN BUILDER AWARD

The eStar Physician Builder Program supports VUMC physicians, nurses, pharmacists, informaticians and others in devising and implementing new content and tools for VUMC's health IT system, eStar. The program is directed by **Jonathan Wanderer, MD**, professor of Anesthesiology and Biomedical Informatics and medical director of Perioperative Informatics at VUMC.

VUMC's Physician Builder program has 83 participants — the largest program, per capita, of any Epic customer, and our builders are empowered to build across many different aspects of eStar.

For the third year, VCLIC has helped the Physician Builder Program recognize two Builders who have contributed significant and impactful service through work that develops and/or supports operational usage of eStar.
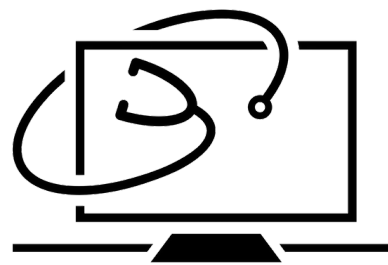

This year's awardees are **Aileen Wright, MD, MS**, and **Julie Bauml, MD.** Dr. Bauml streamlined clinical workflows in radiology, and Dr. Wright directed a departmental Physician Builder group within the Department of Medicine, and helped design and build several effective enhancements, including an innovate tool to encourage statin prescribing.

Congratulations to Drs. Bauml and Wright!

CENTER MEMBERS

VCLIC