VCLIC

VANDERBILT CLINICAL INFORMATICS CENTER

VCLIC Annual Report 2025-2026

Director's Welcome

Adam Wright, PhD
Director, Vanderbilt Clinical Informatics Center
Professor, Biomedical Informatics and Medicine

Welcome to VCLIC's sixth annual report. Looking back on this year, I am struck once again by the breadth, energy, and creativity of the VCLIC community. Clinical informatics at Vanderbilt has always been a team sport, and this year was a vivid reminder of what makes our Center special: clinicians, informaticians, researchers, educators, operational leaders, trainees, and staff all working together to make health care better.

Over the past year, VCLIC continued to grow as both a community and an engine for innovation. We brought people together through InformaticCon, member events, workshops, visiting speakers, and educational programs. Education remained central to our mission, from our Clinical Informatics course and the MS in Applied Clinical Informatics, to our Epic and data resource workshops, FHIR training, short courses, and the continued growth of VCLIPS.

This was also a year in which many ideas moved closer to impact. We launched Ideas to Impact: A Clinical Informatics Challenge, helping teams translate promising ideas into implemented solutions. The first cohort reflects exactly the kind of work VCLIC exists to support: practical, clinically grounded projects that use the EHR, data, analytics, and thoughtful design to improve care.

Artificial intelligence remained an important theme, moving from discussion to deployment through projects like PAIGE, an AI-powered assistant that helps patients write better messages to their care teams through My Health at Vanderbilt. And our partnership with HealthIT remained one of VCLIC's greatest strengths, allowing us to move from idea to build, from data to insight, and from pilot to evaluation in the real clinical environment.

As you read this report, I hope you will see the throughline that has shaped VCLIC from the beginning: bringing people together, lowering barriers to innovation, creating shared infrastructure, supporting education and discovery, and helping good ideas become real improvements in care. I am grateful to every member, partner, trainee, staff member, and collaborator who contributed to this year's successes.

Cover photo credit: **Trent Rosenbloom, MD, MPH**

VCLIC by the Numbers

Members
101

Departments Represented
22

Physician Builders
112

VDAWGs Members
36

Core Projects
87

VCLIPS Views
3,413

VDAWGs Queries
101,782

Member Publications
514

VCLIC Programs Enable Research, Implementation, and Evaluation

"VCLIC support has helped me access more data and grow my Epic builder skills to support better patient care in specialty pharmacy. I've also appreciated the opportunity to learn from and share ideas with colleagues across VUMC at educational events and InformaticCon."

Kristen Whelchel, PharmD, CSP
Program Director for Patient Care Improvement, Vanderbilt Specialty Pharmacy

"It's been wonderful to get support from VCLIC for determining the impact of systems interventions, and having both analytic resources as well as manuscript writing expertise has extended what our physician builders are able to do. It is a joy to work with the VCLIC team, and I am deeply grateful for having them at VUMC."

Jon Wanderer, MD, MPhil
Professor, Anesthesiology and Biomedical Informatics

"When I speak at other institutions, two things become clear to me. One, how unique a resource VCLIC is, ranging from building access to data acquisition. Two, how jealous every other institution is of us as a result. There are always interesting projects, and it's exciting to be involved in this community where everywhere you look you see people pushing the limit of what's possible."

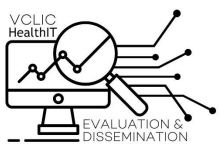
Eddie Qian, MD, MS-ACI
Assistant Professor, Pulmonary and Critical Care and Biomedical Informatics

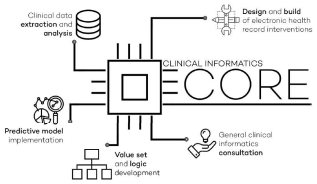
"VCLIC has been instrumental in supporting me, as well as my resident and fellow mentees, in producing meaningful clinical research. The program plays a key role in sustaining trainee engagement in research while also facilitating the dissemination of our important work in informatics. Over the past year alone, our group has achieved five poster abstract presentations at national gastroenterology conferences."

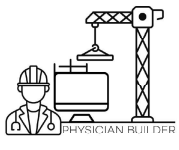
Sara Horst, MD, MPH
Associate Professor, Gastroenterology and Associate Vice Chair for Digital Health Operations, Department of Medicine

"VCLIC has been a fantastic resource helping me connect the front-end users' documentation with the back-end data storage in our work with chaplains. By exploring documentation items frequently used in real-world practice, we've been able to co-create improved documentation systems so that chaplains can focus more on the patients and staff they serve."

Alvin Jeffery, PhD, RN
Assistant Professor, Biomedical Informatics







VCLIC Engages Our Community

InformaticCon

VCLIC hosts several events each year, but the highlight is InformaticCon, our half-day, conference-style event featuring lightning talks and a poster session showcasing clinical informatics projects from VUMC and VU faculty, trainees, students, and staff. It has become the premier gathering of clinical informatics enthusiasts at Vanderbilt, a place to learn, meet collaborators, and engage with the wide range of informatics work happening across the organization.

This year's event took place on September 17, 2025, in Light Hall and featured nine outstanding lightning talks and 29 excellent posters.

The lightning talks were:

- **Christina Grimes, MBA & Joey LeGrand, PharmD, MS** – Emergency Department Velocity Dashboards
- **Jon Wanderer, MD, MPhil** – Intra-Op Oxygenation: Supporting Research as a Physician Builder
- **Jacob Franco, MD, MS-ACI** – Inpatient Population Substructure Effect on CMI-Adjusted LOS (CARLOS)
- **Tonja Sessoms, MSN; Amber Massey, MSN; & Cory Smeltzer, MMHC, RN** – Standardizing PACU Nursing Documentation
- **Eunice Huang, MD, MS** – Surgical Site Infection Prevention Bundle Dashboard: Enhancing Compliance with Timely Antibiotic Administration, Glucose, and Temperature Management
- **Sarah Stern, MD, MS-ACI** – Considerations for Implementation of Automatic System-Generated Endocrinology Consultations for Hospitalized Patients with Insulin Pumps
- **Russ Leftwich, MD** – Training FHIR Ninjas
- **Aviva Mattingly, MD, MS & Donnie Sengstack, MS** – Building a Thyroid Cancer Database at VUMC
- **Aileen Wright, MD, MS** – Fixing the Cracks in the Foundation of Clinical Build: The VCLIC Grouper Analyzer

Six posters were selected by VCLIC expert judges for our inaugural Outstanding Poster Awards:

- **Thomas Reese, PharmD, PhD:** Performance of a Computable Phenotype to Identify Patients with Stimulant Use Disorder
- **Hyunjoon Lee, MS:** Clinical Note-Extracted Psychosocial Factors Enhance Prediction of Suicide Attempt in Emergency Department Patients with Suicidal Ideation
- **Stephen Gradwohl, MD, MSCI, MS-ACI:** Using a Large Language Model (LLM) to Improve the Accuracy of Clinical Decision Support for Foreign Body Ingestion/Aspiration Screening in the Emergency Department: A Retrospective Diagnostic Accuracy Study
- **Michael O'Brien, MD:** Automated Clinical Decision Support Enhances Post-Adenoma Surveillance Tracking in the Electronic Medical Record
- **Gwendolyn Thompson, MS:** NICU WORKLINE 2.0: Expanded Model of Clinical Workload Within the NICU
- **Henry Domenico, MS & Ryan Moore, MS:** From Model to Medicine: Using AI and Pragmatic RCTs to Transform Patient Care

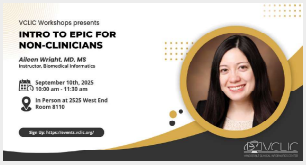
VCLIC Educates the Next Generation

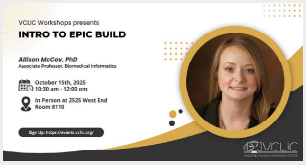
Graduate Clinical Informatics Course

This spring, **Adam Wright, PhD** and **Allison McCoy, PhD** taught BMIF 7340: Introduction to Clinical Informatics for the fifth time. As always, the course blends lectures from VCLIC faculty and invited clinicians and informaticians from across VUMC with tours of clinical and informatics-focused areas of the hospital, making it a unique experience for everyone who participates. Thank you to the many VCLIC members and supporters who make this class a success!

Workshops

This year we continued to offer Intro to Epic for Non-Clinicians (**Aileen Wright, MD, MS**), Intro to Epic Build (**Allison McCoy, PhD**), and Intro to Data Resources at VUMC (**Allison McCoy, PhD, Bryan Steitz, PhD, and Robert Carroll, PhD**). We also revamped our FHIR workshop, cohosted with InterSystems (**Russ Leftwich, MD**), and offered a brand new workshop, Ideas to Impact (**Adam Wright, PhD**, with special presentations from **Cosby Stone, MD, MPH** and **Holly Ende, MD, MS-ACI**), which walked through the full lifecycle of EHR-based interventions at VUMC, from idea to evaluation.



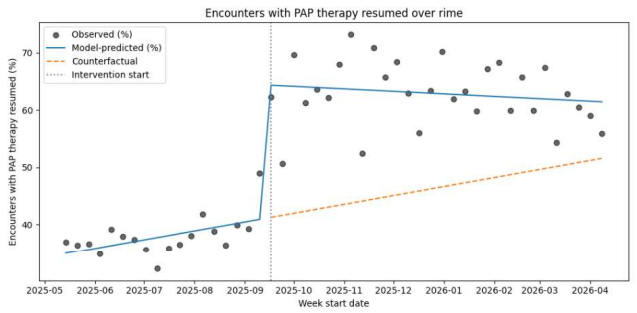


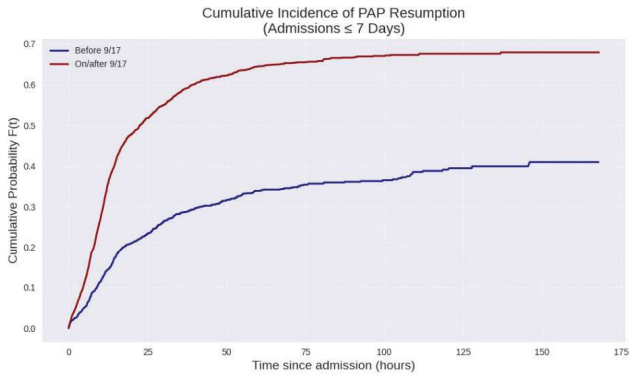
Vanderbilt Clinical Informatics Practical Shorts (VCLIPS)

VCLIPS are short, actionable videos about key clinical informatics topics. This year, we added new VCLIPS on Nursing Documentation (**Brian Douthit, PhD, MS, RN**) and CDS Beyond OPAs (**Sarah Stern, MD, MS-ACI** and **Julian Genkins, MD**). We continue to maintain our full library of clips, available online at https://www.vumc.org/vclic/vclips.

VCLIC's Impact

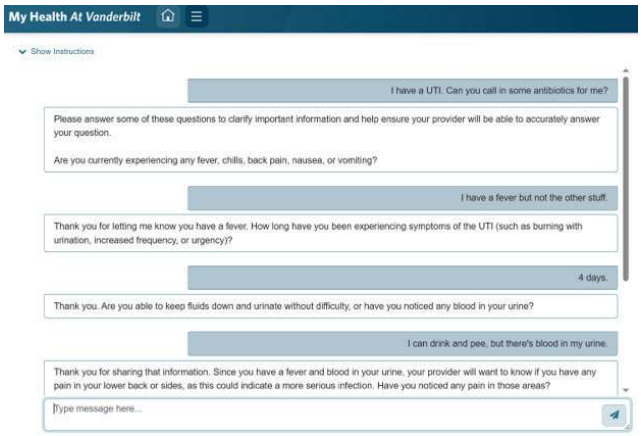
Timely Continuation of CPAP/BiPAP in the Hospital





Patients who use CPAP or BiPAP at home are not always identified when they are admitted to the hospital, and lapses in therapy put patients at risk for apnea, low oxygen levels, and cardiopulmonary complications during their stay. **Sarah Stern, MD, MS-ACI; Dario Giuse, Dr.Ing., MS; Randy Winstead, MSN, RN; Jon Wanderer, MD, MPhil; Craig Rooks, BS, RRT; Aymee Comings, MBA;** and **Natasha Miller, RN,** along with **the HealthIT Systems Intelligence Team,** built a system that closes this gap by automating consult ordering. Because home CPAP and BiPAP use is often mentioned only in free-text notes, the team used natural language processing to extract these concepts from the Vanderbilt Health Data Repository, combining them with structured data like orders and nursing documentation to identify qualifying patients. When a patient is identified, the system automatically places a consult to Respiratory Therapy and pages the primary team, so clinicians know right away and can restart therapy early. Since implementation, CPAP/BiPAP initiation rose from 41% to 68%, and patients are restarting sooner: resumption within the first 24 hours of admission more than doubled, from roughly one in five patients to nearly half.

AI-Guided Patient Messaging



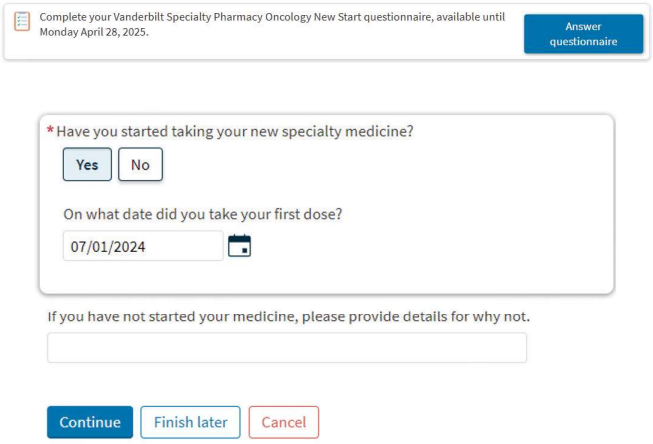
Vanderbilt patients send 2.9 million messages to their care teams through My Health at Vanderbilt every year, but a first message often doesn't include enough information to resolve the patient's issue, leading to back-and-forth that delays answers. **Siru Liu, PhD** and **Adam Wright, PhD** developed Patient Artificial Intelligence Guided E-messages (PAIGE), a tool that asks patients a few brief follow-up questions and drafts a more complete message for their review. PAIGE uses large language models and carefully designed prompts to generate appropriate follow-up questions. Patients can opt to answer the questions or bypass them and send the message at any time.

This year, PAIGE moved from research into practice. After close collaboration with HealthIT, legal, compliance, patient engagement and quality and safety teams, PAIGE went live at Primary Care One Hundred Oaks on April 1, 2026, becoming the first patient-facing AI deployed at scale at Vanderbilt Health. The rollout will expand to additional clinics over the coming months, with the team tracking how patients use the tool and whether it shortens the time to an answer. Major contributors to the project include **Chetan Aher, MD; Dan Albert, MS; Babatunde Carew, MD; Brian Carlson, MHSA, MBA; Jared Cobb, PhD; Julian Genkins, MD; Christina Grimes, MBA; Andrew Guide, MS; Colin Heeke, BS; Allyson Hobbie; Sean Huang, MD, MIDS; Sunil Kripalani, MD, MSc; Yaa Kumah-Crystal, MD, MS, MPH; Joey LeGrand, PharmD, MS; Sarah Marbach, BS; Craig McQuistion, BS; Jenessa Miller, BS; Amanda Mixon, MD, MPH; Dara Mize, MD, MS; Neal Patel, MD, MPH; Josh Peterson, MD, MPH; Neeraja Peterson, MD, MS; Judy Ralph; Danny Roberts, MS; Chris Rockwell; Josh Yarbrough, MS; Kristi Webb, BA; David Shepherd; Kelsey Rodriguez, MPH; Susannah Rose, MSSW, PhD; Trent Rosenbloom, MD, MPH; Peter Samuel, DO; Peter Shave, MBA; Jason Slagle, PhD; Sarah Stern, MD, MS-ACI; Linda Diane Steward, AS; Jeremy Turkett, MS; Mike VanMaanen, BS; Nicole Werner, PhD; Aileen Wright, MD, MS; and Patty Wright, MD.**

VCLIC's Impact

Oral Cancer Medication Monitoring

Patients starting a new oral anticancer medication often experience side effects like nausea and fatigue within the first few weeks of treatment. Left unaddressed, these early side effects can lead to missed doses, treatment interruptions, dose reductions, and even discontinuation of therapy. Reaching patients during this critical window lets pharmacists manage symptoms with education and supportive care before they escalate. In a randomized study at VUMC, patients who completed an early electronic check-in had their first pharmacist intervention more than twice as fast and were 60% less likely to need an emergency department visit or hospitalization in their first 90 days of treatment.



Building on that evidence, **Kristen Whelchel, PharmD, CSP** led work to make early monitoring part of routine care. Patients now automatically receive a questionnaire through My Health at Vanderbilt 7 to 14 days after starting a new oral oncology medication, asking about side effects, missed doses, and barriers to treatment. Specialty pharmacists are alerted only when a patient reports a problem or asks to speak with a pharmacist, so the program adds monitoring without adding workload.


JOURNAL ARTICLE

The impact of early oral anticancer medication monitoring through electronic patient assessments

Brooke Looney, PharmD, CSP, Tiffany Bui, PharmD, Josh DeClercq, MS, Kristen Whelchel, PharmD, CSP, Leena Choi, PhD, Autumn Zuckerman, PharmD, BCPS, CSP

American Journal of Health-System Pharmacy, zxag070, https://doi.org/10.1093/ajhp/zxag070

Published: 07 March 2026 **Article history**

The rollout has exceeded expectations. From August 2025 through April 2026, 93% of eligible patients were assigned a questionnaire, and 58% completed it, beating the 47% response rate from the original study, with completion topping 60% in each of the final three months. **Scott Nelson, PharmD, MS** developed the randomization tool for the study and **Laura Jones, BS** helped design the OPAs.

AI Curriculum for Medical Students

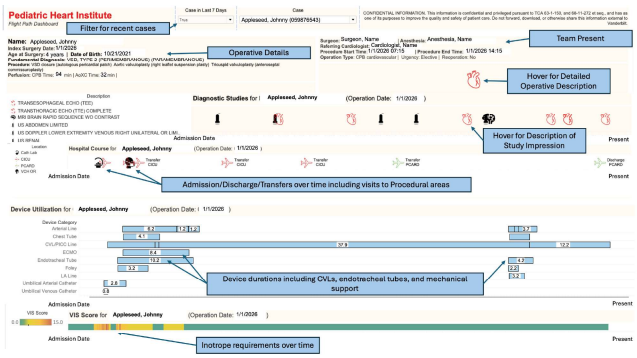
Foundations of Physician Responsibility (FPR) is the longitudinal "doctoring" course that runs through all four years of Vanderbilt University School of Medicine's curriculum. As the Informatics and AI lead for FPR, **Julian Genkins, MD** is weaving clinical informatics into all four years of the MD curriculum, helping students understand how health IT, data, and AI shape modern clinical practice. Over the past year, the informatics thread carried into the second-year clerkship phase, and Dr. Genkins co-led the first two-day Innovation and AI workshop for first-year medical students.

The curriculum emphasizes practical clinical informatics skills, responsible use of AI, EHR-based care delivery, digital health equity, cybersecurity, real-world data, clinical decision support, and the sociotechnical context in which technology is implemented. The goal is to prepare future physicians not just to use today's health IT tools effectively, but to evaluate, adapt, and improve technology-enabled care systems.

VCLIC's Impact

Pediatric Heart Institute Performance Review Dashboard

The Pediatric Heart Institute Performance Review Dashboard, built by **Andy Smith, MD, MSCI, MMHC**, visualizes a surgical patient's entire hospital course, helping multidisciplinary teams identify opportunities to improve care. Built in Tableau and refreshed nightly from Clarity queries of flowsheet, ADT, and diagnostic study data, the dashboard reflects each patient's evolving trajectory in near real time, with tooltips that surface granular operative and diagnostic findings on demand.

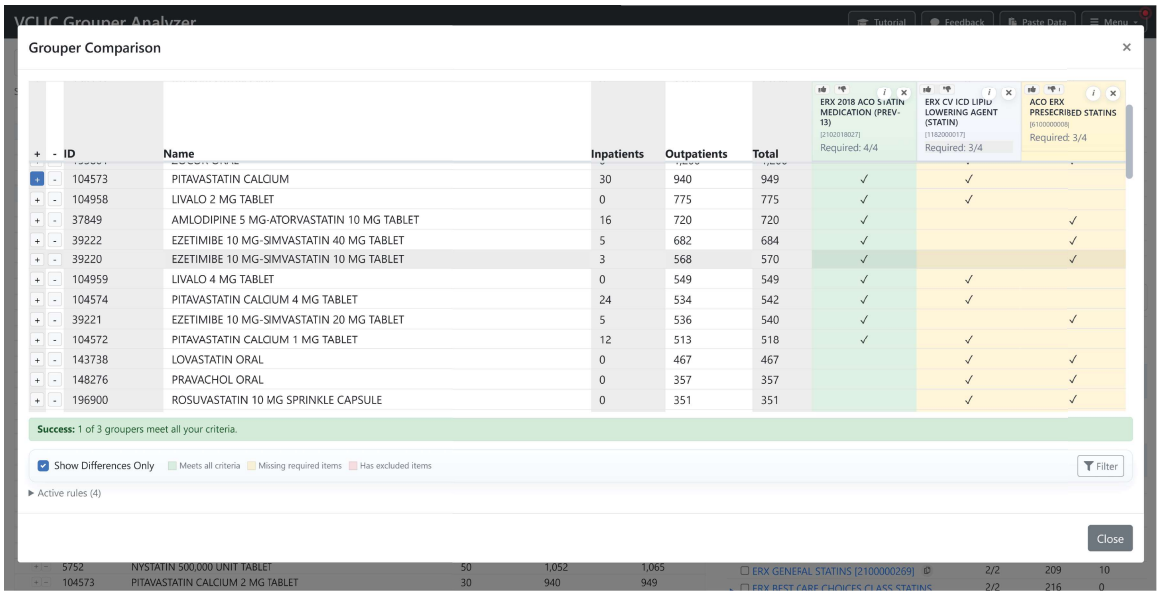


The dashboard is now the centerpiece of a weekly peer review conference, where 15 to 30 clinicians review recent cases together. That adds up to more than 1,500 person-hours of multidisciplinary discussion over the past year, and those discussions have led to new work groups on topics like interdisciplinary team communication and reducing unnecessary variation in postoperative anticoagulation strategies. **Scott Nelson, PharmD, MS** helped with the Clarity query to derive vasoactive-inotropic scores that Dr. Smith used, and **Adam Wright, PhD** assisted with the query build as well.

VCLIC Grouper Analyzer

Value sets, curated lists of codes representing medical concepts like diagnoses and medications, are a hidden but foundational component of clinical decision support tools and reports in the EHR. In Epic, value sets are called groupers. Finding the best grouper to use in a build can be time-consuming, and choosing the wrong one can lead to patient harm, such as an alert inappropriately suggesting a medication.

VCLIC members **Aileen Wright, MD, MS; Adam Wright, PhD;** and **Tanner Thurman, BS** created the VCLIC Grouper Analyzer to make it easier for builders and informaticians to find, inspect, compare, and select high-quality Epic groupers before using them in clinical build. Users can search by desired items or grouper name, compare candidate groupers side by side, review grouper contents and descriptions, identify similar groupers, and use GPT analysis to flag possible erroneous inclusions, missing items, and clinical controversies or considerations. Early user feedback has been promising, and development continues, with new "like" and "dislike" buttons and support for searching laboratory components. In the last 90 days, users have run over 500 searches in the tool.



Partnerships and Outreach

HealthIT Headlines

Dara Mize, MD, MS
Chief Medical Information Officer

This was a year of growth for VUMC, and HealthIT was at the center of it: new buildings, new hospitals, new systems, and continued improvement of the tools our clinicians and scientists use every day. I'm proud of what our teams accomplished in FY26, including:

Supporting Growth: The first patients moved into VUMC's Jim Ayers Tower in October. Every room features interactive screens and digital boards, along with a two-way video system that connects patients to a dedicated virtual nursing team. We also went live with our first Community Connect site, Heritage Medical Associates, and are hard at work preparing for the eStar go-live at Vanderbilt Clarksville Hospital.

Clinical Decision Support Excellence: Our clinical decision support has never performed better: VUMC now ranks in the 93rd percentile of all Epic customers for successful OurPractice Advisories. VCLIC members serve on HealthIT's CDS team, act as subject matter experts, and build tools that monitor our alerts, evaluate feedback and suggest improvements using AI. To maximize reliability, we've also started using "instant orders" to automatically order appropriate consults, therapies and even take-home food boxes for families facing food insecurity.

Analytics: VUMC's Data Lake and enterprise analytical environment continue to grow. The Lake now contains over 1.5 PB of data from 200+ sources and supports 530 VUMC Databricks users. New AI capabilities, including a "Genie" to help analysts and clinicians write accurate queries have been introduced. VCLIC supports clinician and faculty use of VUMC's analytics platform through the VDAWGs program.

Beaker Laboratory System Go-Live: On May 9, pathology, laboratory, and HealthIT teams launched Beaker for anatomic pathology, genetics and genomics. In the first five weeks, teams processed more than 31,000 orders, successfully resulting every Beaker specimen, and supported a 15% increase in laboratory volume. Clinical pathology will follow this year.

Support for Research: VUMC is a leader in EHR-enabled pragmatic trials, and this year we've added additional capabilities for randomization and predictive models to support new kinds of trials, including trials of oxygen targets in ICU patients and oxygen concentrations in the OR. VUMC now routinely leads multi-site EHR trials, and has developed "Turbocharger" packages to share trial interventions with medical centers across the US.

Our partnership with VCLIC makes this work stronger, and I'm grateful for another year of tackling these challenges together.

Clinical Informatics Community of Practice

Building on six years of success with VCLIC, **Adam Wright, PhD** and **Elise Russo, MPH** launched a nationwide Clinical Informatics Community of Practice this year. The community's goal is to connect clinical informatics leaders across the country, identify and spread best practices, and advocate for the field. VCLIC has built something special at Vanderbilt, and this community gives us a chance to share what we've learned with peers nationally while bringing home new insights from others doing similar work.

We launched the community with a kickoff and planning meeting at the AMIA Amplify conference in Denver, gathering a group of clinical informatics leaders from across the country to help define the community's topics, membership, and practices. The consensus was clear: a community of practice is needed in our field, and there was real enthusiasm to invest time and energy in it. Members converged on three core activities that form a natural continuum: informal community discussions where we present successes, share challenges, and learn from each other; working groups to tackle important problems; and dissemination of what we learn through panels and white papers. Early topics include coordinating evaluation across informatics research and operations, accelerating learning health system cycles, and organizing clinical informatics functions in academic medical centers. As the community develops, we'll share opportunities for VCLIC members to get involved.

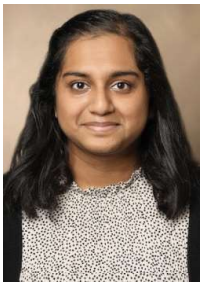
Awards

Physician Builder Award:


This year's Physician Builder Award went to **Ashley Spann, MD, MS-ACI** and **Stephen Gradwohl, MD, MSCI, MS-ACI**. Dr. Spann was recognized for her MASLD clinical decision support MStool, which more than doubled guideline-concordant management in a primary care pilot and is scaling into a funded randomized trial, and for RecruitEHR, which characterized over 1,300 patients for trial candidacy in four months. Dr. Gradwohl was honored for his pediatric ED handoff workflow, now used daily across two emergency departments, and for his work bringing ambient documentation into near real-time use in eStar.

Student Project Award:

VACRE: Vanderbilt Ambient CDS for alerting and Risk Evaluation



This year's outstanding project in BMIF 7340 went to **Nikita Amanna, MS, Mert Sekmen,** and **Jasleen Gandhi, MS** for VACRE, a tool that fills a gap created by ambient documentation. Tools like Dragon Ambient eXperience (DAX) reduce clinicians' documentation burden by drafting notes from the visit conversation, but they don't deliver clinical decision support during the visit itself like a screen-based EHR would. VACRE streams the visit conversation in real time to a large language model, which evaluates it against predefined clinical logic and generates alerts, called vOPAs, that can be set as informational, urgent, or emergent. Relevant notifications appear on screens visible to both the clinician and the patient, bringing consistent, tailored decision support back into the ambient documentation workflow.

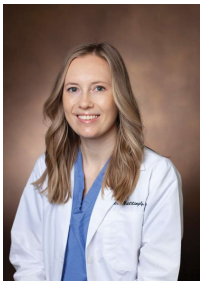
Core Implementation Project Award:

Assessing the Performance of a Model Designed to Predict Inpatient Readmissions


The Clinical Informatics Core recognizes **Leon Scott, MD** and **Sahar Takkouche, MD, MBA** for their project, "Assessing the Performance of a Model Designed to Predict Inpatient Readmissions." The team developed and implemented a predictive model in Epic's Nebula platform that estimates an inpatient's risk of 30-day readmission across Vanderbilt's community hospitals. They designed and validated the algorithm, identified the clinical and operational requirements for deployment, and partnered with technical teams to integrate the model into the health system's analytics and EHR infrastructure.

Core Data Project Award:

Thyroid Cancer Surgical Database

The Clinical Informatics Core recognizes **Sarah Rohde, MD, MMHC** and **Aviva Mattingly, MD, MS** for their work developing a comprehensive thyroid cancer surgical database at VUMC to better understand factors associated with disease recurrence and patterns of postoperative management. As the incidence of thyroid cancer continues to rise and treatment becomes increasingly individualized, this database creates a valuable resource linking clinical, surgical, pathologic, and follow-up data across thyroid cancer cases. It supports investigations into recurrence risk, informs evidence-based decision-making for surgical treatment and surveillance strategies, and establishes a foundation for future thyroid cancer research aimed at improving patient outcomes.

VCLIC Members

www.vclic.org