IMPACT
REPORT
2023-2024

UMASS

CENTER FOR CLINICAL AND TRANSLATIONAL SCIENCE

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Welcome Note from the Director

I am pleased to present this report highlighting the exciting work completed over the fourth year of our NIH Clinical and Translational Science Award (CTSA).

Since its inception in 2008, the UMass Center for Clinical and Translational Science (UMCCTS) has served as a hub that integrates and builds on the collective scientific, educational, and clinical strengths of the UMass system and our clinical partners to accelerate the translation of discoveries to clinical and public health benefit. As Massachusetts' only public university system (UMass) partnered with three of the state's largest health systems (UMass Memorial Health Care, UMMH; Baystate Health; Lahey Health), we share an enduring focus on public engagement and improving the health of Massachusetts' citizens and communities. Our work embraces diverse perspectives, talents, and expertise to create a synergetic environment that cultivates transdisciplinary collaboration to address our goal of speeding the development of evidence-based, equitable, real-world approaches to promoting health, treating disease, and responding to urgent public health needs.

We are proud of the many accomplishments detailed in this report, examples of which include:

- Our UMCCTS Research Informatics Core has developed a robust set of digital tools and informatics systems that promote collaboration, enable actionable insights from large data sets, and that engage diverse populations in home and community settings.

- Community Engagement and Collaboration Core (CECC) has worked with an array of partners to expand the engagement of diverse communities and participants in our research, ensuring that our research is relevant to and benefits the diverse constituencies that we serve.

- The UMCCTS continues to provide cores, resources, and funding for translational science projects that overcome scientific and operational barriers to effective translation of discoveries to the clinic.

- Our Workforce Development program has worked with our UMass campus partners to build out our clinical research internship program; as well as a joint program (BEAM) in biomedical engineering. Our KL2 and TL1 programs continue to foster the development of a diverse, skilled translational science workforce through innovative team-based training and career development programs.

We are grateful to our community partners for informing and enriching our research efforts, our dedicated teams of investigators and collaborators across the UMass system and beyond, our trainees who inspire us with their enthusiasm and energy, and our UMCCTS staff for their tireless efforts. We are also grateful to the National Center for Advancing Translational Science for grant support through the Clinical and Translational Science Award (CTSA). Last and not least, we thank UMass, UMass Chan leadership, and our clinical partners for their unwavering institutional support over the years.

We look forward to continuing our important work with you in the years to come.

Katherine Luzuriaga, M.D.
PI and Director, UMass Center for Clinical and Translational Science
Vice Provost for Research
UMass Memorial Health Care Endowed Chair in Biomedical Research
Professor, Program in Molecular Medicine, Pediatrics and Medicine

MISSION

Advance learning and discovery to solve health challenges and improve health equity by:

1) catalyzing, rigorously testing, and disseminating evidence-driven approaches that remove translational science barriers to efficient, high quality, inclusive, and impactful clinical and translational research

2) building a scientifically and demographically diverse workforce of professional staff and investigators capable of changing paradigms in translational science and clinical and translational research

VISION

Build healthier communities together through translational innovation

Track Record Of Advancing Translational Science

🎓	**Trained 57 KL2 scholars & TL1 pre/post-docs trainees (70% female, 26% URiM)**
$	**Funded 88 pilot grants yielding > $59M of funding (16x ROI)**
📖	**Supported 1717 scientific publications**

PARTNERSHIPS DRIVE OUR SUCCESS

Our clinical partners, UMass Memorial Health (UMMH; Worcester, MA); Baystate Health (Springfield, MA); and Lahey Health (Burlington, MA) are the three largest health systems outside of Metro Boston, serving 57% of Massachusetts population. Our partners provide access to a variety of health center, home, and community settings for clinical and translational science (CTS), clinical trials, and workforce development.
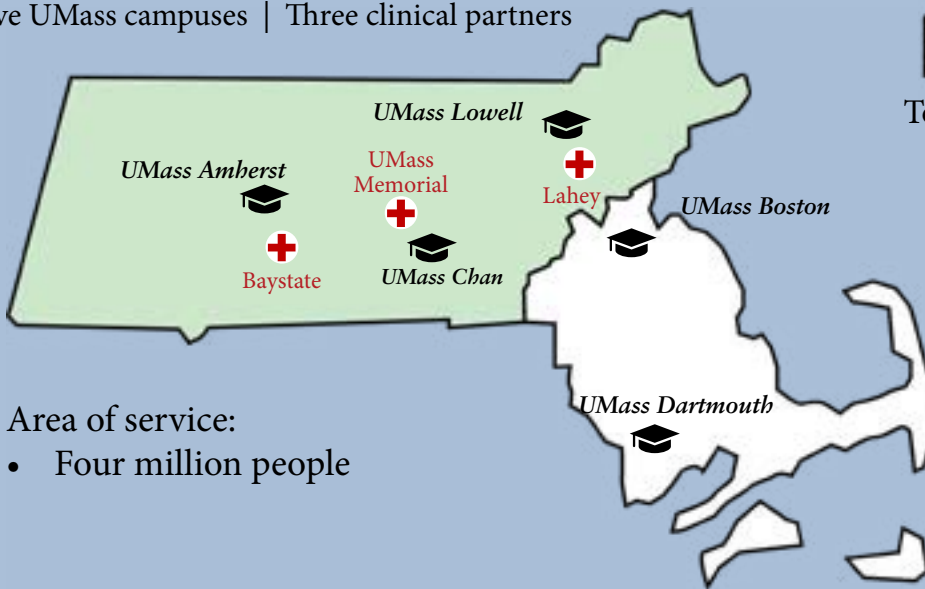
Our partnerships focus on data as a key strategic asset in the creation of Learning Health Systems.

Lahey Health is our newest partner (2023). Joint strategic planning led to the creation of a new UMass Chan-Lahey Institute for Healthcare Delivery Science focused on health services research, implementation sciences, health disparities, and wearable/remote monitoring technology development.

THE UMCCTS ECOSYSTEM

Five UMass campuses | Three clinical partners

UMass Lowell

UMass Amherst

UMass Memorial

Lahey

UMass Boston

Baystate

UMass Chan

UMass Dartmouth

Area of service:
- Four million people

CLINICAL CAPACITY

Total beds: **~1,986**

Annual ER visits: **260K**

Annual admissions: **104K**

Annual outpatient visits: **2.1M**
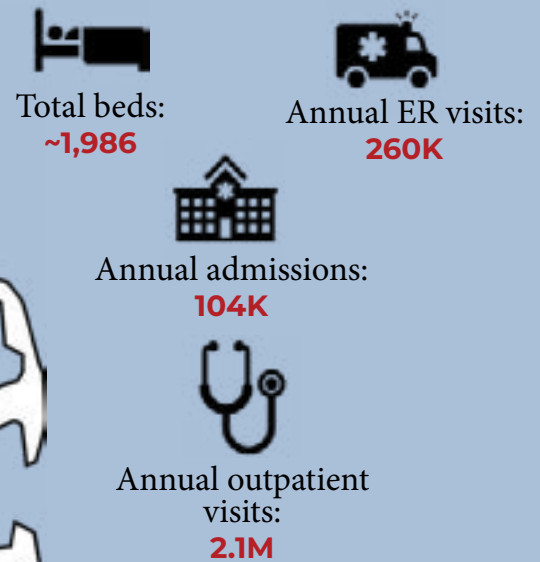
UMass Chan-UMass Lowell collaboration advances Point-of-Care (POC) device innovation for clinical use

M2D2
Massachusetts Medical Device Development (M2D2) Center

CAPCaT
The Center for Advancing Point of Care Technologies (CAPCaT)

RADx
NIH Rapid Acceleration of Diagnostics (RADx) Initiative)

Resources

Incubator facilities and equipment | Business and technical development | Funding | Comprehensive clinical research support

Outcomes

M2D2
Assisted **110** start-up companies, **$183M** raised, hosted **150** interns

CAPCaT
Supported **27** projects, awardees raised **$50M+ (15X ROI)**, **4** on market

RADx
20K+ enrolled, **7** new EUAs, **new FDA/CDC guidance** on POC COVID tests

4

Innovative Collaboration Designed to Catalyze Translational Outcomes

City of Worcester, UMass Chan Medical School, UMass Memorial Health and our Research Informatics Core form partnership to address health disparities

Matilde (Mattie) Castiel, MD, Commissioner for Health and Human Services, City of Worcester

66 This process of combining data would be the first in the state... It will bring awareness to the community, and different groups can use the same data to see what is happening so that we all can work together to lower the numbers. 99

A new Worcester Integrated-Health Data Exchange (WI-HDE) is a partnership between the City of Worcester, UMass Chan Medical School, and UMass Memorial Health. The initiative is led by Dr. Matilde (Mattie) Castiel, Commissioner for Health and Human Services and Adrian Zai, MD, PhD, MPH, UMass Chan Chief Research Informatics Officer and director of the UMass Center for Clinical and Translational Science (UMCCTS) Research Informatics Core.

WI-HDE will utilize the data-sharing platform PLUM to address the most prevalent healthcare concerns in the city. This platform will enable the partnership to surmount barriers that researchers currently face with access to secure data. PLUM will be the major factor in ensuring this initiative's success.

This phased initiative will focus first on the opioid crisis. "We know from state data for opioids that the highest numbers are for communities of color," said Dr. Castiel. "Having our local Worcester data could help bring collaboration and resources to affected neighborhoods."

According to Dr. Zai, "Our plan is to integrate opioid data from all health centers across the city of Worcester, starting sequentially with UMass Memorial and Family Health Center of Worcester. This step-by-step approach allows for a systematic and controlled expansion, significantly impacting public health by deepening our understanding and enhancing our response to the opioid crisis."

DATA SHARING PARTNERSHIP FOCUSED ON IMPACT

In an effort to create a robust framework that facilitates the transfer and utilization of health information between UMCCTS and clinical partners, we have developed standardized data-sharing agreements that offer this framework. Successful integration of health data across the combined clinical enterprise of the three partners (4 million patients) **will significantly expand the scope and impact of our work.**

Adrian Zai, MD, PhD, MPH, UMass Chan Chief Research Informatics Officer and director of the UMCCTS Research Informatics Core

The Learning Health System, *Platform for Learning Health System at UMass (PLUM)* was developed by Adrian Zai, MD, PhD, MPH, Chief Research Informatics Officer and Associate Professor, Population and Quantitative Health Sciences (left) and his team with funding from our CTSA grant. Dr. Zai oversees the Research Informatics Core (RIC) and manages informatics collaborations across clinical partners and campuses.

The Learning Health System Data Cycle in PLUM:

- Data from a variety of sources are consolidated in the Data Lab, prepared and harmonized, then transferred to the Patient Research Record (PRR)
- Workspaces with stringent security (authorized, IRB-approved access) are utilized by research teams to analyze the PRR data, generating valuable insights
- Insights are channeled back to the PRR
- Can now be shared with the electronic health record to inform patient care decisions
- EHR data is continuously integrated into the PRR

Eliminating roadblocks through the application of advanced digital technologies

With its cloud-based infrastructure, PLUM offers scalability and reliability, through efficient resource management and storage options. These enhancements enable a dynamic and adaptable model that supports the nuanced needs of research projects. The Healthy-at-Home project, led by Dr. Apurv Soni, is one example of a research project that fully leverages PLUM.

RESEARCH RESOURCES
Research Informatics Core
Spotlight on a successful Healthy-at-Home feasibility study supported by RIC

The Healthy-at-Home pilot project titled *Feasibility Trial of Home-Based Management of Patients with COPD Using Digital Technology*, awarded in 2022 to Dr. Soni, Laurel O'Connor, MD (KL2 scholar), Assistant Professor, Department of Emergency Medicine and John Broach, MD, MPH, MBA, Associate Professor, Department of Emergency Medicine, wrapped up this past spring,

The study demonstrated the methodological and operational feasibility of a novel integrated digital and mobile intervention that provides comprehensive care in the community and improved participants' quality of life.

Study outcomes:

- Integrated enrollment program including a Fitbit wearable device, symptom tracking app, home-based acute treatment, and tele-pulmonary rehabilitation
- 100 enrolled, (mean age 66, 52% female)
- 96% completed the study
- Participants wore the Fitbit for a median of 114 days (IQR 183.6) and 16.85 hours/day (IQR 4.05)
- Completion rates of study instruments were 78%-93%. 85% of participants performed COPD ecological momentary assessments, (median 4.85 recordings)
- Two manuscripts in peer review

PLUM facilitates research analytics for Healthy-at-Home project

The Healthy-at-Home Project integrates data from Medicare claims, patient-engaged apps like MyDataHelps, Care Evolution, UMass EMR systems, wearable device metrics, and spirometry data from Wellinks into PLUM for research analytics using virtual workspaces.
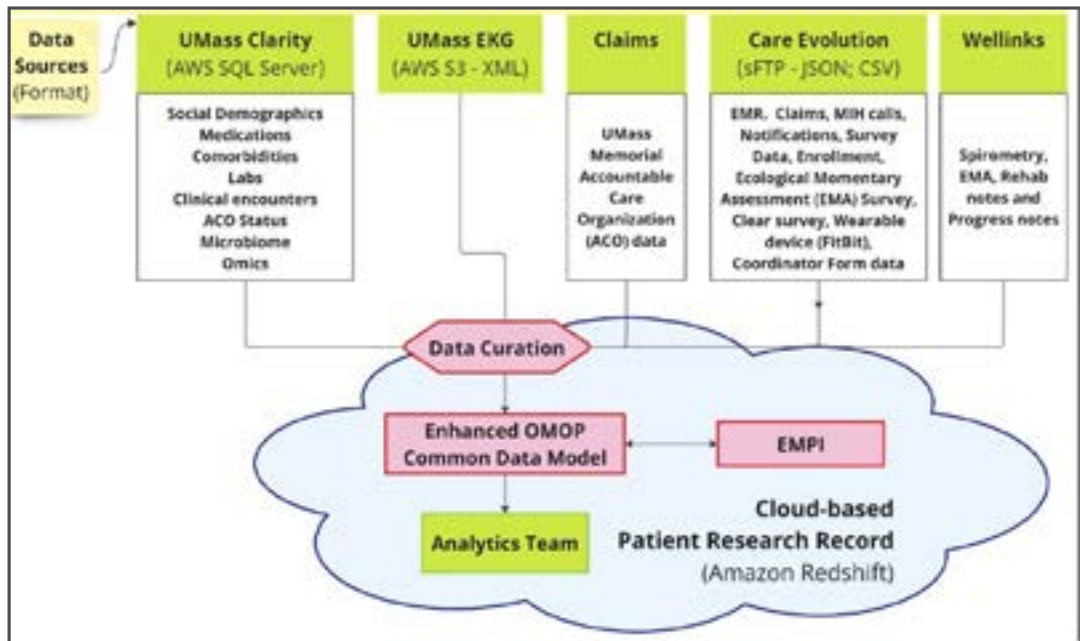
Bioinformatics Core
Leveraging innovation to improve translational science quality, efficiency, and impact

UMass Chan researchers Alper Kucukural, PhD, and Manuel Garber, PhD, developed Foundry, a flexible web-based data processing and analysis platform with a graphical user interface to address challenges inherent in the integration and interpretation of vast data sets produced by high throughput technologies. Foundry speeds insights and facilitates compliance with NIH Data Management Plans.

ROADBLOCK:
Integration and interpretation of vast data sets produced by high throughput technologies requires significant computational expertise and time.

SOLUTION: FOUNDRY PLATFORM Simplifies multiomics processing and analytics, eliminating the need to write code, accelerating insights and ensuring compliance with NIH Data Management Plans.

Via Scientific licensed Foundry and provides it free of charge along with user training to UMass users through the Bioinformatics Core.

Office Of Clinical Research (OCR)

The OCR provides clinical research education & training, budget development, contract negotiation, Medicare coverage analysis, financial management, and related services to advance the quality and efficiency of translational science and clinical transition research. Budget, contracting and coverage analysis staff are centralized in the UMCCTS to save time for investigators.

OCR works closely with the Office of Technology Management to coordinate matters related to intellectual property, licensing and the compliance team to manage potential conflicts of interest, and sponsor compliance.

Process Improvement Impact

25% Investigators opening trials

43% Active trials opened

131% Diverse populations included in active trials

35% Execution time for CTAs
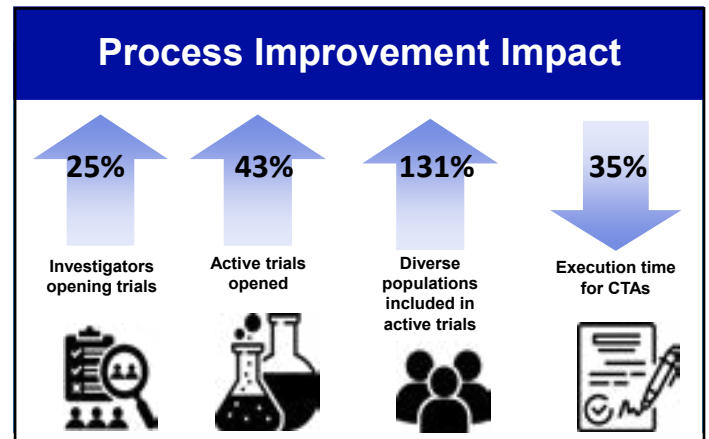
Overall Clinical Research Numbers

539 Studies supported in FY 24
346 Therapeutic   **193** Non-therapeutic

2681 Enrollments
950 Therapeutic   **1731** Non-Therapeutic

204 Principal Investigators supported

31 Departments or Centers Supported

New And Improved Translational Research Accelerator (TRAcs) Portal

In response to user and service provider feedback, the UMCCTS evaluation team worked with UMCCTS TRAcs administration, institutional IT, and stakeholders to migrate the REDCap version of TRAcs to a newly designed TRAcs application using the software platform Salesforce.

The new version of TRAcs, implemented in February 2024 provides the following:

- **Improved tracking of requests**
- **Increased transparency to investigators and staff**
- **Reduced redundancy**
- **Increased efficiency**

TRAcs   **CENTER FOR CLINICAL AND TRANSLATIONAL SCIENCE**

Service providers can communicate with users through the application and users can follow the status of their requests. Initial feedback has been very positive and service providers have been able to respond to requests more efficiently.

Clinical Research Center (CRC)

The UMCCTS Clinical Research Center (CRC) is dedicated to efficient, reliable, and high-quality study support at reasonable cost for UMass clinical investigators.

Resources
- Exam rooms or infusion spaces for study visits
- Touchdown space with computers for visiting researchers, study teams, and external monitors
- An in-unit BSL-2 laboratory
- A pneumatic tube system to the hospital's Rapid Response Lab

Services
Adult and pediatric clinical research nurse services for:
- Study drug administration
- EKGs
- IVs
- Phlebotomy
- PK studies

The CRC is staffed with experienced clinical research coordinators who provide full or partial coordination of studies, lab processing and shipping, and regulatory support with guidance from our Regulatory Team.

Support garners results
CRC staff members pictured below worked together to coordinate enrollment of 107 study participants for Dr. Kovell's clinical study, "RESILIENT: Rehabilitation at home using mobile health in older adults after hospitalization for ischematic heart disease.

Lara Kovell, MD
KL2 Scholar,
Principal Investigator

Bethany Trainor
RN, BSN, CCRP
Nurse Mgr., CRC

Rafael Fernandes, MS
Sr. Clinical Research
Coordinator, CRC

CRC Reports Impressive Numbers

68 Studies Supported

14 Departments Supported

35 Principal Investigators Supported

Information dissemination is key

Our website averages > 75,000 unique page views annually. It is our major portal for information and supports registration for UMCCTS membership, which currently includes 3,376 individuals across our five campuses and clinical partners.

Members receive email updates for educational, funding opportunities and event items, plus a monthly email newsletter. Annual survey-based feedback on programs, cores, and services guides annual planning.

UMASS CCTS
BECOME A MEMBER!
Click Here to Join

COMMUNITY ENGAGEMENT and COLLABORATION CORE (CECC)

Dr. Stephenie Lemon is the director of the CECC. Her team is comprised of individuals with extensive expertise with community engaged research and health equity research. During this past year, they have conducted seminars and workshops including a three-part series on Housing, Homelessness and Health organized by the four Massachusetts Clinical Translational Science Institutes' Community Engagement Programs representing Boston University, Harvard, Tufts, UMass Chan, and co-sponsored by the Massachusetts Public Health Association (MPHA).

The collaborative effort for the series "Housing, Homelessness and Health: Evidence, Policy, and Impact" reached an impressive number of researchers.

Stephenie Lemon, PhD, MS, Director of the CECC, Director and Professor and Chief of the Division of Preventive and Behavioral Medicine in the Department of Population and Quantitative Health Sciences at UMass Chan Medical School.

[CECC Workshop Recordings](#)

Over 1,000 attendees

Partnerships promote equitable opportunities for research participation and extend reach to underrepresented populations.

Through the CECC, researchers can readily access expertise in community engagement, and innovative approaches to promote inclusive communications and community health partnerships.

Resources utilized during this past year include:

- Hiring patient consultants

- Providing sample materials for development of advisory board and advisory board recruitment
- Providing resources or recruitment and community outreach
- Suggesting methods to obtain community expertise
- Help in shaping a community engagement approach

CECC enhances the diversity of All of Us and RADx Tech study participants

UMass Chan All of Us ◀ **UMCCTS-ENABLED PARTNERSHIPS** ▶ **RADx Tech**

...Enhance the diversity of clinical study participants

COMMUNITY ENGAGED APPROACHES TO...

...Increase diverse enrollment to studies testing SARS-CoV 2 point-of-care devices

7,384 participants
37% under-represented in research
~75% higher than the national rate of 21%

7 studies
10,769 participants
40% under-represented in research

PILOT PROJECT PROGRAM (PPP)

A Generalizable Approach of Mutant-Specific Knockdown Towards the Development of Therapeutics for Dominant Diseases

Pilot Project Awards

Total Awards Given	Number of Departments
201 (11 Programs)	43
$13.9 M Total Dollar Amount	$93.9 M Follow-on Funding

PI: John E. Landers, PhD

Professor of Neurology, University of Massachusetts Chan Medical School

Matrikine Regulation of Skin Inflammation

PI: Sarah K. Whitley, MD, PhD

Assistant Professor, Department of Dermatology, University of Massachusetts Chan Medical School; Investigator, Autoimmune Therapeutics Institute and Co-Director, Hidradenitis Suppurativa Center

Development of a Novel RNA Interference as a Therapeutic Agent for Rheumatoid Arthritis

PI: Jae-Hyuck Shim, PhD

Associate Professor, Department of Medicine, University of Massachusetts Chan Medical School

Co-PI: Julia Alterman, PhD

Assistant Professor, RNA Therapeutics Institute, University of Massachusetts Chan Medical School

Maternal Investigation for a Comprehensive Review of MicroBiome in PreEclampsia (MICROBIOME Study)

PI: Heidi K. Leftwich, DO (right)

Associate Professor, Department of Obstetrics and Gynecology, UMass Memorial Health/University of Massachusetts Chan Medical School

Co-PI: Ana Maldonado-Contreras, PhD (left)

Assistant Professor, Department of Microbiology and Physiological Systems, University of Massachusetts Chan Medical School

Pilot Project Program (PPP) Spotlight
QurAlis Corp and UMass Chan partnership facilitates further study for 2022 PPP awardee, Dr. Joel Richter, in his quest for therapy for Fragile X Syndrome (FXS).

Joel Richter, PhD the Arthur F. Koskinas Chair in Neuroscience and professor of molecular medicine, received a PPP award for his project titled "Correction of Defective Splicing in Fragile X Syndrome (FXS)with Therapeutic Potential".

Recently, UMass Chan Medical School and QurAlis Corporation have formed a collaboration to investigate an antisense oligonucleotide (ASO) technology for the potential treatment of fragile X syndrome.

This partnership facilitates further study further study of the biology of fragile X syndrome to determine and confirm relevant targets that could enable antisense oligonucleotide-mediated correction of the syndrome.

Altogether, this work provides novel insights into FXS disease mechanisms, identifies aberrantly spliced proteins in blood as potential biomarkers, and suggests that ASO may offer a therapeutic approach.

(See related story on page 18, "Impact in the News")

"QurAlis' translational knowledge and clinical trial experience in antisense oligonucleotide splicing for neurodegenerative disorders is an important component for bridging the gap between biomedical discoveries made in the laboratory and delivering therapies to patients in the clinic. With their help, we are hopeful that one day we may be able to offer patients with Fragile X meaningful treatment options."

JOEL RICHTER, PHD

WORKFORCE DEVELOPMENT (WFD) PROGRAMS

Our training activities emphasize Translational Science (TS) competencies and the responsible conduct of research. Our approach to WFD is founded on the principles of TS, recognizing the need for evidence-informed, experiential training rooted in team science, as well as the value of a diverse workforce.

Clinical Research Professional Education & Training	Clinical Research Professionals Group (CRPG)	Clinical Research Internship	Preparing Engineers for Professional Practice (PEPP)
PROFESSIONAL DEVELOPMENT Annual participants = 336	PROFESSIONAL DEVELOPMENT Annual participants = 267	DIDACTICS, MENTORSHIP & EXPERIENTIAL Annual participants = 12	MENTORSHIP & EXPERIENTIAL Annual participants = 10
✔	✔	✔	✔

Projects in Process Seminar Series(PiPSS)	Master of Science in Clinical Investigation (MSCI)	Clinical and Translational Research Scholars (CTRS)	Postdoctoral Fellowship in Innovation & Business Development (BRIDGE)
EXPERIENTIAL Annual participants = 55	DIDACTICS, MENTORSHIP & EXPERIENTIAL Annual participants = 12	DIDACTICS & EXPERIENTIAL Annual participants = 11	MENTORSHIP & EXPERIENTIAL Annual participants = 2
✔ ✔ ✔ ✔	✔ ✔ ✔ ✔	✔	✔

Predoc ✔ Staff ✔ Postdoc ✔ Faculty ✔

EXcellence in Clinical Research and Education and Leadership: Undergraduate Summer Clinical Research Internship (EXCEL-UP)

2024 SUMMER UNDERGRADUATE RESEARCH INTERNS

Pictured above from L-R: Top row students are Mirabella Paolucci, Evelyne Nibitanga, Claire Schwartz, and John Ferreira. Middle row students are Annabell Victor, Stephanie Benavides, and Basim Naeem. Bottom row students are Kim Nguyen, Mayank Amrohi, Makenna Sheehan and Brianna Bergin. Interns unavailable for photo: Angeli Franz and Rochell Luciano.

" This experience has been transformative, bridging my understanding of clinical research and practical applications. Working closely with research professionals exposed me to the integration of rehabilitation concepts with human subjects research in pediatrics. It has reinforced my passion for the potential of a research career. "

Evelyne Nibitanga, UMass Amherst 2024 undergrad intern, Department of Psychiatry, is pictured above right with Lindsay Cincotta, CRC III & primary mentor on the left.

Now in its third year, this program has hosted 34 students from all four UMass campuses.

	2022	2023	2024	Cumulative
TOTAL INTERNS	9	13	12	34
Female	7 (70%)	11 (85%)	9 (75%)	26 (76%)
URiM	1 (11%)	8 (62%)	9 (75%)	18 (53%)

	2022	2023	2024
CAMPUS			
UMass Amherst	6	3	6
UMass Boston	-	4	3
UMass Dartmouth	-	1	-
UMass Lowell	3	5	3

2022 intern, Benjamin Weitz, is first-author on publication in the American Journal of Health Behavior

With guidance from Dr. Dan Amante, and additional support from Dr. Ben Gerber, Dr. Feifan Liu, and Dr. Jung Ae Lee, Ben authored the manuscript, "*Examining Coping Behaviors Associated with Depression among People with Type 2 Diabetes from May-July 2020*". He had the opportunity to present a poster of their work at the Society of Behavioral Medicine, and a seminar for the Projects in Process Seminar Series. These experiences, organized under Dr. Amante's mentorship, offered opportunities to discuss his results and connected him with leaders in the field.

Their work sought to investigate potential vulnerabilities observed in those with Type-2 Diabetes (T2D) and co-morbid depression during the early COVID-19 pandemic (lockdowns). A new initiative from the NIH, *All of Us*, provided data with a near-nationally representative cohort of possible participants. Conclusions confirmed that among adults with T2D, those with depression reported coping behaviors more likely to affect self-management plans negatively during the early pandemic.

Ben is now working on his MS in Environmental Health at Harvard T.H. Chan School of Public Health.
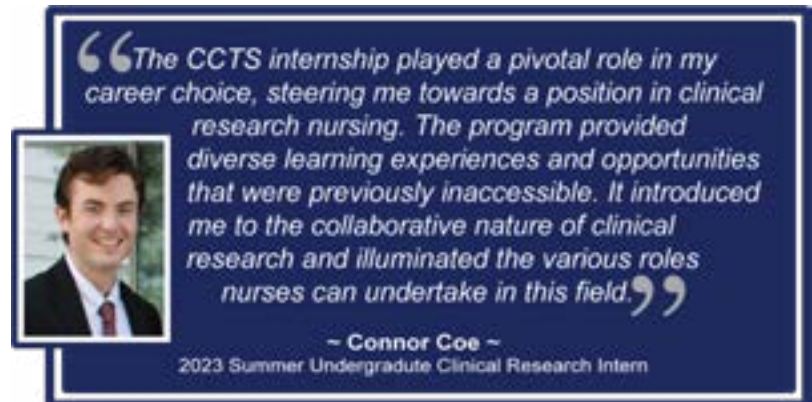
> *"The internship not only prepared me for a career in research, it also provided a foundation to begin working on the manuscript. I greatly value what I learned, specific to the kind of work done in the division of Health Informatics and Implementation Science."*
>
> **Benjamin Weitz**

2023 Interns Join UMass Chan Research Teams

Connor Coe, a 2023 intern from UMass Boston, worked in the Pediatric NICU during his internship. He was mentored by Dr. Lawrence Rhein, MD, MPH, Neonatal-Perinatal Medicine/Pediatric Pulmonology and Lindsay Simoncini, Research Project Director, during his time in the program.

Connor was hired by UMass Memorial Health Neonatal ICU team in 2024 after graduating from nursing school.

> *"The CCTS internship played a pivotal role in my career choice, steering me towards a position in clinical research nursing. The program provided diverse learning experiences and opportunities that were previously inaccessible. It introduced me to the collaborative nature of clinical research and illuminated the various roles nurses can undertake in this field."*
>
> ~ Connor Coe ~
> 2023 Summer Undergradute Clinical Research Intern

Sophia Nosek (UMass Amherst, '23)
Mentor Team: William Walsh, MD; Cara Gregoire, RN, BSN, MHA (Cancer Research Office)
2022 Intern: Hired by BU as a Research Program Manager

Grace White, MPH (UMass Amherst, '23, '24 (Grad.)
Mentor Team: David McManus, MD; Edith Mensah Otabil, CRC III (Medicine)
2023 Intern: Hired by McManus team after graduation

I-CORPS

Launched in 2018, this short course is designed to help faculty, postdocs, and students understand the commercial potential of their inventions. This approach helps to accelerate the translation of biomedical innovations from the lab to clinical practice.

I-CORPS 2018 - 2024

76 PARTICIPANTS

38 TEAMS

14 INSTITUTIONS

Clinical Research Staff Training

Courses for new and established clinical research professionals enhance skills and enable networking.

Orientation to Clinical Research at UMass Chan

60 participants in **11** sessions

Research Coordinator Training

- **Introductory 39** participants, **7** sessions
- **Intermediate 22** participants, **4** sessions
- **Advanced 9** participants, **1** session

Phlebotomy

19 participants in **2** sessions

Preparing Engineers for Professional Practice (PEPP)

This program pairs engineers with clinicians to develop innovative solutions to complicated health issues.

The photo below taken this past April during the PEPP capstone event shows students displaying their poster and prototype design.
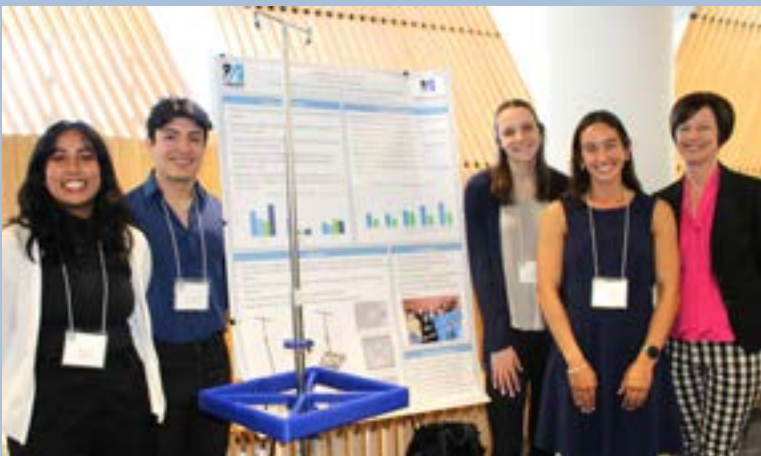
Pictured above L-R: UMass Lowell students Natisha Soni, Chris Molina, Erin Jensen, Ali Grasso and Lindsey Tulipani, PhD, assistant teaching professor, UMass Lowell and team mentor, proudly displaying their capstone project - a prototype device to address fall prevention in hospitalized patients.

Projects in Process Seminar Series (PiPSS)

The Projects in Progress Seminar Series (PiPSS) provides a forum for scholars and trainees from across career stages and geographical locations to come together to learn together, practice presentation skills, and network.

19 session dates with 2-3 speakers at each session

41 speakers total (**7** TL1, **6** KL2, **8** MSCI & **10** T32)

Up to **27** attendees at each seminar

TL1 PROGRAM

TL1 Trainee Program

Trainees	Publications	New Grant Funding (R01, R21, F30, F31, R36)
33	400	$29 Million

58% Female	22 Pre-doctoral	11 Post-doctoral	30% Under-represented Persons

CURRENT TL1 TRAINEE HIGHLIGHT

Pryce Michener
MD/PhD Student
Dept. of Population and Quantitative Health Sciences
Mentor: Peter Friedmann, MD
Project Title: Implementation of Medications for Opioid Use Disorder in Massachusetts Jails

Foundational work in treatment implementation for opioid use disorder continues with support from follow-on funding

In 2022 Pryce Michener, MD/PhD student, department of Population and Quantitative Health Service received a TL1 award. Earlier this year, he successfully applied for a Ruth L. Kirschstein National Research Service Award Individual Predoctoral Fellowship to further his research on substance use and medications for opioid use disorder.

Pryce's work with his mentor, Peter Friedmann, PhD, division of population & quantitative health sciences at UMass Chan-Baystate has been to study the implementation of medications for opioid use disorder in Massachusetts jails and improve access to these medications. **Their work will provide information to clinicians, legislators, and criminal-legal policymakers about the advantages, challenges, and best practices associated with the provision of medications for opioid use disorder in carceral settings.**

"Through my TL1, I have been able to conduct both quantitative and qualitative research with the goal of improving care for people with substance use disorders who experience incarceration, and reducing the mortality risk of untreated opioid use disorder. The TL1 program prepared me well to conduct this research and to pursue future grant opportunities to support my career and educational goals."

Pryce Michener, MD, PhD student/TL1 trainee

TL1 Trainees Funded Through 2024

Stephen Diggs, PhD
Post Doctoral Associate
RNA Therapeutics Institute
Mentors: Andrei Korostelev, Ph.D. and Nikolaus Grigorieff, Ph.D.
Project Title: Elucidating the molecular basis of ALS using high-resolution in situ cryo-EM

Harris T. Feldman, MD
Postdoctoral Fellow
Program in Digital Medicine
Mentor: Apurv Soni, MD, PhD, Assistant Professor and Director of the Program in Digital Medicine
Project Title: Characterization of Inflammatory Bowel Disease Flares using Electronic Medical Record and Home-based Collection of Data and Identifying Multimodal Predictors of Flares

Deborah Mack, MPH, PhD
Postdoctoral Fellow
Mentor: Jennifer Tjia, MD, MSCE & Kate Lapane, PhD, MS
Project Title: Statin Pharmacotherapy in US Nursing Homes

Sydney Griger
PhD Student
Department of Biomedical Engineering, UMass Amherst
Mentor: Stacyann Bailey, PhD
Project Title: Predicting Risk of Spine Fractures in Patients with Breast Cancer Bone Metastasis

Carly Herbert
MD/PhD Student
Dept. of Medicine
Mentor: Apurv Soni, MD, PhD
Project Title: Optimizing Use of Rapid Antigen Diagnostics for COVID-19

Laël Ngangmeni, MBS
MD/PhD Student
Dept. of Population and Quantitative Health Sciences
Mentor: Kristin Mattocks, PhD, MPH
Project Title: Racial/Ethnic Differences in Provider Referrals and Perceptions of Prenatal Care among Pregnant Veterans

Natalia Nielsen, MPH
PhD Student
Department of Population and Quantitative Health Sciences, UMass Chan
Mentors: Kate Lapane, PhD; Maira Castañeda-Avila, PhD and David Dosa, MD
Project Title: Spanish-speaking Hispanics/Latinos in US Nursing Homes: The Role of Language in Mental Health Status and Pain Management

Gretchen Weaver, MPH
PhD Student
Department of Population and Quantitative Health Sciences, UMass Chan
Mentor: Sarah Forrester, PhD, MS
Project Title: Investigation of COVID-Related Discrimination and Racial Bias Experiences of Black and Latinx Research Participants and Recruitment into Subsequent COVID-19 Studies

KL2 PROGRAM

KL2 scholars funded through 2024

Raquel Binder, PhD
Department of Medicine, Division of Infectious Disease
Primary mentor: Ann Moormann, PhD, MPH
Other mentors: Timothy Kowalik, PhD; Ana Maldonado-Contreras, PhD; Andrés Colubri, MFA, PhD
Project Title: Unraveling Respiratory Virus Transmission Dynamics among Latinx and Black Communities in MA

Maira Castañeda-Avila, PhD
Department of Population and Quantitative Health Sciences
Mentors: Kate Lapane, PhD; Mara Epstein, ScD; Sarah Forrester, PhD and Johnggyu Baek, PhD
Project Title: Multiple Chronic Conditions and Colorectal Cancer in Older Hispanic Adults: A Mixed Methods Approach

Nisha Fahey, DO
Department of Pediatrics, Population and Quantitative Health Sciences
Mentors: Jeroan Allison, MD, MS; Arvin Garg, MD, MPH
Project Title: Enabling Community-Based Kangaroo Care to Mitigate Health Inequities Among Preterm Infants

Ayorkor Gaba, Psy.D.
Department of Psychiatry
Mentor: David Smelson, Psy.D.
Project Title: Advancing Behavioral Health Equity for Justice-Involved Adults

Sohye Kim, PhD
Department of Psychiatry
Mentor: Jean Frazier, MD
Project Title: Establishing Novel Neural Markers that can Detect Individual Differences in the Developing Brain's Capacity to Respond to Social Cues

Laurel O'Connor, MD
Department of Emergency Medicine
Mentor: Edwin Boudreaux, MD
Project Title: A mobile Integrated Health Intervention for the Management of Acute-Phase Exacerbation of Congestive Health Failure and Chronic Obstructive Pulmonary Disease
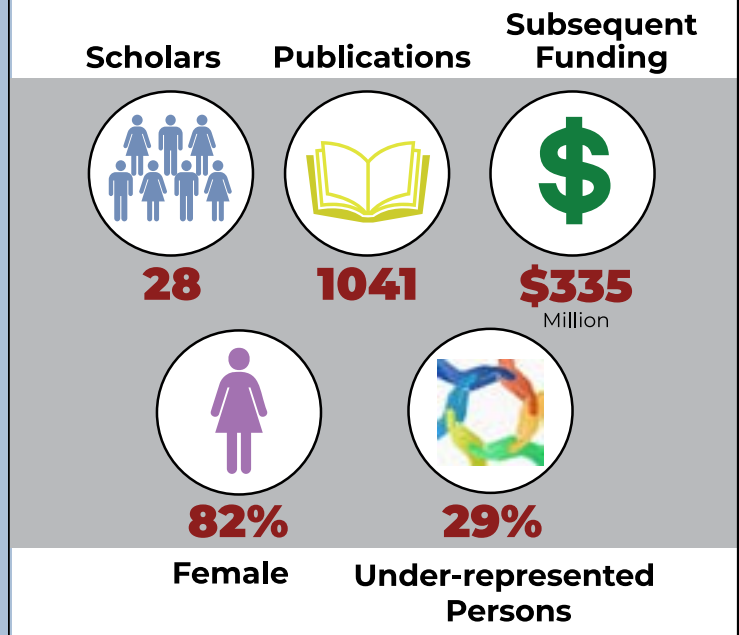
Anna Whelan, MD
Department of Obstetrics and Gynecology
Primary mentor: Tiffany Moore Simas, MD, MPH
Other mentors: Nancy Byatt, DO, MBA, MS; Emily Miller, MD, MPH; Kristin Mattocks, PhD; Martha Zimmermann, PhD
Project Title: Adapting a Health at Every Size Intervention to Obstetric Care

Martha Zimmermann, PhD
Department of Psychiatry
Mentor: Nancy Byatt, DO, MBA, MS, DFAPA, FACLP
Project Title: Developing a Scalable Intervention to Prevent Perinatal Anxiety in Obstetric Settings

KL2 Scholars Program

Scholars	Publications	Subsequent Funding
28	1041	$335 Million

Female	Under-represented Persons
82%	29%

Current KL2 Scholar Highlight

Lara Kovell, MD
Department of Medicine, Division of Cardiology
Mentor: David McManus, MD, ScM
Project Title: Development of a Mobile Health Intervention for Blood Pressure Management in Pregnancy

Dr. Kovell's work holds promise for reducing clinical events in high-risk pregnancies

KL2 scholar, Lara Kovell, MD, a physician-scientist and associate professor of medicine in the Division of Cardiovascular Medicine, is the inaugural director of the Women's Pregnancy and Heart Disease Clinic at UMass Memorial Health.

With the goal of improving quality and cultural relevance of hypertension care, Dr. Kovell will examine the effects of the digital health approach, Moms@Home, on home blood pressure monitoring in a diverse population of pregnant women with hypertension.

By facilitating more timely diagnosis and potentially better blood pressure control with home blood pressure monitoring, digital health interventions like Moms@Home hold promise to reduce the risk of preventable and devastating clinical events for women with high-risk pregnancies and their children.

> *"It has truly been career changing to be a part of the KL2 program, to immerse myself in the world of prenatal and hypertension research and spend the past year training in qualitative and community-based participatory research. Through my KL2 studies, we have worked with many incredible women in the Worcester community. Their selfless and tireless support of our research has really inspired me to continue this work and improve the care of hypertension in pregnancy."* Lara Kovell, MD/KL2 scholar

KL2 SCHOLAR AND TL1 TRAINEE FIRST AUTHOR PUBLICATIONS

Pediatric high blood pressure follow-up guideline adherence in a Massachusetts health care system

Melissa Goulding, PhD, MS - New KL2

Full Article in Academic Pediatrics

"Few children received guideline adherent blood pressure (BP) follow-up and most differences in adherence were related to clinic resources. System-level interventions are needed to improve BP follow-up."

Can psychological interventions prevent or reduce risk for perinatal anxiety disorders? A systematic review and meta-analysis

Martha Zimmermann, PhD - KL2

Full Article in Science Direct

"Interventions developed for perinatal anxiety were more effective than interventions to prevent perinatal depression. Psychological interventions show promise for reducing perinatal anxiety symptom severity, though interventions specifically targeting anxiety are needed."

Examining racial/ethnic inequities in treatment participation among perinatal individuals with depression

Esther Boama-Nyarko, MPH - TL1

Full Article in PubMed

"Perinatal mental healthcare inequities are associated with disparities in treatment referrals. Interventions focusing on referral disparities across race and ethnicity are needed."

Racial and ethnic disparities in use of colorectal cancer screening among adults with chronic medical conditions: Behavioral Risk Factor Surveillance System (BRFSS) 2012–2020

Maira A. Castañeda-Avila, PhD, MS - KL2

Full Article in CDC Preventing Chronic Disease

"Our findings have important implications for health care providers and policy makers aiming to improve screening rates and prevent colorectal cancer (CRC) deaths. We identified access to health care as a crucial factor in screening rates: people who lacked health care coverage or a primary care provider (vs people who had both) or people who reported financial barriers to care (vs people who had no such barriers) were less likely to be up to date with CRC screening."

Minding the margins: Evaluating the impact of COVID-19 among Latinx and Black communities with optimal qualitative serological assessment tools

Raquel A. Binder, PhD - KL2

Full Article in PubMed

"To reveal the impact of COVID-19 and vaccine uptake among diverse communities and to develop rigorous serological downstream evaluation methods, we engaged racial and ethnic minorities in Massachusetts in a cross-sectional study"

IMPACT IN THE NEWS

ENGAGE, SHARE AND PREPARE
Funded ($21 million PCORI grant) study on mental health equity aims to ensure that researchers engage with obstetric practices that are in greatest need, test the effectiveness of the partnership and prepare to spread what the study team learns to other obstetric practices.

(Nancy Byatt, DO, MS, MBA - KL2 & PPP Awardee)

Full Story

SUPPORT FOR POLICY CHANGE
Study designed to support the policy change needed to enhance access and funding to food support and screening programs in pregnancy, in order to improve food security and health outcomes for pregnant individuals with risk factors for cardiovascular disease.

(Lara Kovell, MD, MSCI - KL2 Awardee)

Full Story

COMMUNITY PARTNERSHIPS ARE KEY
$3.8 million NIH grant supports study that will partner with 14 pediatric practices, schools and families in Massachusetts to serve children with difficult-to-control asthma symptoms in grades K-8.

(Michelle K. Trivedi, MD, MPH - KL2 Awardee)

Full Story

SUBSTANTIAL CLINICAL RELEVANCE FINDING
TL1 trainee's COVID work featured in New England Journal of Medicine

(Carly Herbert, MD/PhD student - TL1 Trainee)

Full Story

FIRST NATIONWIDE STUDY FOR DEAF
The first nationwide therapeutic clinical trial with the goal of being a fully powered, randomized control trial focused on therapy in the Deaf community.

(Melissa Anderson, PhD - KL2 Awardee)

Full Story

STUDY CONNECTS DISCOVERIES
Partnership facilitated by BRIDGE Innovation and Business Development bridging the gap between biomedical discoveries made in the laboratory and delivering therapies to patients in the clinic.

(Joel Richter, PhD - PPP Awardee)

Full Story

STUDY SHOWS SYMPTOM IMPROVEMENT
This clinical study indicates programs modeled on MCPAP for Moms, where patients served by obstetric practices that use the model experience showed an improvement in depression symptoms.

(Tiffany Moore Simas, MD & Nancy Byatt, DO, MS, MBA - PPP Awardee)

Full Story

RAPID TESTS PROVE EFFECTIVE
Study of COVID-19 rapid tests indicates they still work against new variants.

(Apurv Soni, MD, PhD - TL1 Trainee & Nate Hafer, PhD)

Full Story

Connecting researchers to resources and collaborators

Our Research Navigator Program, led by Nate Hafer, PhD, UMCCTS Director of Operations, has directly linked **>425** investigators in **40** departments to collaborators, resources, educational programs, and funding opportunities.

PROGRAMS AND RESOURCE SUPPORT

WORKFORCE DEVELOPMENT PROGRAMS

- Clinical Research Professionals Group
- Clinical Research Training Course Program
- Clinical/Translational Research Pathway Program
- Clinical and Population Health Research PhD Program
- High School Health Careers Program (HSHCP)
- Human Research Protection Program (HRPP) Quality Assurance/Quality Improvement
- I-Corps Program at the UMCCTS
- Master of Science in Clinical Investigation Program
- Junior Faculty Development Program
- "K-Club" - Research Career and Writing Group
- MD/PhD (MSTP) Program
- Mentored Career Development (KL2) Training Program
- Millennium PhD Program
- Morningside Summer Undergraduate Research Program (Lab Research)
- Pre- and Post-doctoral Fellowship (TL1) Training Program
- R Club
- Summer Enrichment Program (SEP)
- Summer Undergraduate Research Internship Program (Clinical & Translational Science)
- Worcester Pipeline Collaborative

RESEARCH SUPPORT INFRASTRUCTURE

- Bioinformatics
- Biorepository & Tissue Bank
- Biostatistics, Epidemiology, and Research Design (BERD)
- Clinical Research Center
- Clinical Research Implementation Support
- Research Informatics Core
- Investigational Drug Services
- M2D2
- Pilot grants
- Proteomics/OLink (BioMarkers) Facility
- Recruitment support
- Research Navigator
- Small Molecule Screening Facility
- Science Participation Research Center (SPRC)
- Umbilical Cord Blood Facility

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Katherine Luzuriaga, MD
PI & Director

Terry Flotte, MD
Co-Director

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Jeroan Allison, MD, MSc | Director
Joanne Calista, MSW | Co-Director

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Catarina Kiefe, PhD, MD, Melvin S. and Sandra L. Cutler Chair in Biomedical Research; Founding Chair Emerita and Professor, Population and Quantitative Health Sciences, UMass Chan

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