Tufts | CTSI Tufts Clinical and Translational Science Institute

ANNUAL REPORT 2025

Translating Research into Impact on Health

Tufts | CTSI Tufts Clinical and Translational Science Institute

Our Mission

The mission of Tufts Clinical and Translational Science Institute (CTSI) is to stimulate innovative broadly engaged team science across the translational research spectrum to improve clinical care and health.

We support clinical and translational research: from pre-clinical development to initial human studies (T.5), bench research to the bedside (T1), bedside to clinical practice (T2), clinical practice to widespread clinical practice and care delivery (T3), and public benefit and policy (T4). We help improve clinical care and health by providing education, consultations, services, and direct support.

We are supported by a Clinical and Translational Science Award (CTSA) from the National Institutes of Health (NIH) and the National Center for Advancing Translational Sciences (NCATS). Tufts CTSI was founded in 2008, supported by four sequential CTSA grants, currently NCATS award UM1TR004398.

The Aims of Our Fourth NIH CTSA Grant

Our current grant began in 2023 with the following aims:

Aim 1: Harness the collective impact of Tufts CTSI to advance clinical and translational science (CTS) and improve public health through responsive Hub leadership, a positive and collaborative culture, and continuous improvement of programs and research.

Aim 2: Provide outstanding education, training, and mentoring, tailored to different roles and disciplines, to develop an expert and innovative CTS workforce, and share these resources nationally.

Aim 3: Cultivate broadly engaged team science, with active inclusion of all stakeholders, to promote relevant and impactful translation to achieve health impact.

Aim 4: Create the environment, resources, and services to stimulate and support the full spectrum of CTS by leveraging the multidisciplinary expertise and assets of Tufts CTSI partners.

Aim 5: Foster translation by developing, demonstrating, and disseminating innovations that address significant translational roadblocks and provide generalizable translational insights and solutions.

Our Partners & Collaborators

Tufts CTSI's partners and collaborators include an engaged network of hospitals and medical practices, academic institutions, health sciences institutions, community stakeholders, and industry partners. Each brings unique insights to our support of clinical and translational science and makes major contributions to that work.

Tufts Schools and Centers

- Cummings School of Veterinary Medicine
- Fletcher School of Law and Diplomacy
- Friedman School of Nutrition Science and Policy
- Institute for Clinical Research and Health Policy Studies (ICRHPS) at Tufts Medical Center
- Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA)
- Jonathan M. Tisch College of Civic Life
- Graduate School of Biomedical Sciences
- School of Arts and Sciences
- School of Dental Medicine
- School of Engineering
- School of Medicine
- Tufts Center for the Study of Drug Development

Healthcare Systems

- Kaiser Permanente
- Maine Medical Center
- Newton-Wellesley Hospital
- Tufts Medicine (Tufts Medical Center, Lowell General, Melrose Wakefield)

Academic Institutions

- Brandeis University
- Massachusetts Institute of Technology (MIT)
- Northeastern University
- RAND Corporation
- The Jackson Laboratory
- Tufts University Schools and Centers
- University of Pittsburgh
- Urban College of Boston

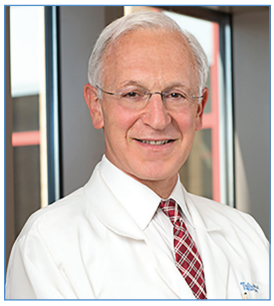
Industry/Non-Profit Partners

- Blue Bridge
- Boston Public Health Commission
- Center for Information and Study on Clinical Research Participation (CISCRP)
- Critical Path Institute
- Massachusetts Biotechnology Education Foundation (MassBioEd)
- Museum of Science, Boston
- Novartis
- Pfizer, Inc.
- Point32Health

Community Organizations

- Asian Community Development Corporation
- Asian Task Force Against Domestic Violence
- Asian Women for Health
- Authentic Caribbean Foundation
- Boston Chinatown Neighborhood Center
- Greater Boston Chinese Golden Age Center
- Louis D. Brown Peace Institute
- National Council of Negro Women Greater Boston Section

Message from the Dean



Dear Tufts CTSI Friends, Partners, and Collaborators,

As we enter our 18th year as an NIH Clinical and Translational Science Award (CTSA) hub, we are pleased to provide this report highlighting some key examples of our work. May 2026 will mark the start of the fourth year of our current seven-year award. We are proud of our continued progress and grateful to our staff, faculty, partners, collaborators, T32 and K12 trainees, Small Grants to Advance Translational Science grantees, and community stakeholders who make it possible.

This past year was marked by Federal Administration and NIH policy shifts and funding reductions that presented real challenges across the translational research landscape. Although Tufts CTSI was not spared a substantial cut in grant funding, we worked diligently to adjust. Through careful stewardship of our resources, we succeeded in preserving the full scope of our programs and initiatives. We remain committed to continuing our efforts to develop the translational workforce, support research, and engage communities to advance health.

Building on these efforts, Tufts CTSI, in partnership with Tufts University, Northeastern University, and MIT, developed and launched the Innovate2Impact program in Fall 2025. The aim of this program is to showcase early-stage health-related innovations and support their transition to making an impact on health. Also in 2025, Tufts CTSI supported a project that illustrates our commitment to the policy phase of translation. The Bridging the Divide gun violence prevention policy development program succeeded in its mission to convene gun owners and gun violence prevention advocates to develop a set of mutually agreed upon policy initiatives to reduce gun violence that is now focused on state-level legislation.

With the goal of preparing our clinician-scientists to serve as principal investigators for clinical trials, we continue to offer our Blue Star Investigator Certificate program. Over the past year we adapted this program to provide an accelerated version to better fit the needs of our new researchers. Additionally, we developed the Blue Star BRIDGES program to train leaders in the rare disease space in developing and running clinical trials to test promising drugs. The Blue Star program complements efforts by our Informatics team which, in partnership with the Tufts Medicine Clinical Information Systems team, has established access to physiologic and medical device data that is being used to facilitate and accelerate clinical trial recruitment.

The Tufts Medicine Patient-centered Learning Health System continues to mature with Tufts CTSI support. We have partnered with the Behavioral Health team at Tufts Medicine to pilot an early detection curriculum across five primary care sites and guide efforts to ensure effective scaling and sustainability. As our health system evolves in its ability to learn from and scale implementation of successful research-backed initiatives, we will strengthen our reputation as a proactive, cutting-edge, and data-driven academic medical center.

As you read through this report, you will learn about the promise of Community Engagement Studios to positively impact research studies in the planning and implementation phases. You will read a summary of the ADAPT Community Health Symposium and appreciate the profound effect of engaging and partnering with local organizations on work that is meaningful to and led by communities themselves. And we hope you will be inspired by three stories that showcase the impactful work of Tufts CTSI affiliated and supported researchers focusing on neonatal genetic testing and aortic stenosis, as well as a new diagnostic tool for disorders of the eye-brain connection.

This report provides a snapshot of some of the exciting work that has emerged from and was facilitated by Tufts CTSI over the past year. We are grateful for your ongoing collaboration, and we are committed to continuing to facilitate and advance promising new research and researchers in our joint effort to improve health for all.

Very best wishes,

Harry P. Selker, MD, MSPH

Our Programs, Resources, and Services

ADAPT

Biostatistics, Epidemiology, and Research Design (BERD) Center

Center for Clinical Trials (CCT)

Center for Implementation and Research Process Improvement

Clinical and Translational Research Center (CTRC)

CREST

Comparative Effectiveness Research (CER)

Community and Stakeholder Engagement (CSE)

Data Safety and Monitoring Board (DSMB)

Dissemination and Implementation (D&I) Core

Education, Training, and Workforce Development

Evaluation and Continuous Improvement (ECI)

Funding Opportunities

Health Informatics

Human Nutrition Research Center on Aging Metabolic Research Unit (HNRCA MRU)

Kaiser Permanente Biospecimen Repository

Maine Health Institute for Research Community Engagement Core

MIT Center for Clinical and Translational Research

Nutrition Research Consultations

One Health

Program Evaluation

Qualitative and Mixed Methods Service (QMMS)

Service Recruitment and Retention Support Unit (RRSU)

Regulatory Knowledge and Support

Stakeholder Expert Panel

T.5 Capacity in Medical Devices

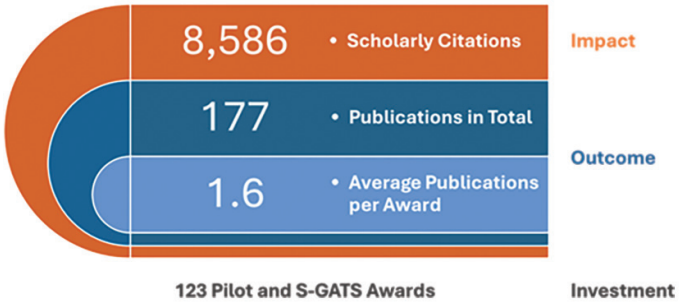
Tufts Analytics Platform (TAP) Discovery

For more information, please visit tuftsctsi.org

Program Highlights and Tufts CTSI 2025-2026 Portfolio

Highlights from Funded Studies

- From 2009-2023, Tufts CTSI funded **123** innovative, interdisciplinary clinical research and translational science studies through our **Pilot Studies** and **Small Grants to Advance Translational Science (S-GATS)** Programs. To date, these studies have generated **$59M** of subsequently funded research, **207** professional presentations, and **177** scientific publications that together have been cited more than 8,500 times.



- Since 2024, the **S-GATS Program** funded an additional **15 projects** designed to solve common roadblocks to translation and develop novel approaches to advancing translational science.

Use of Resources and Services in 2025

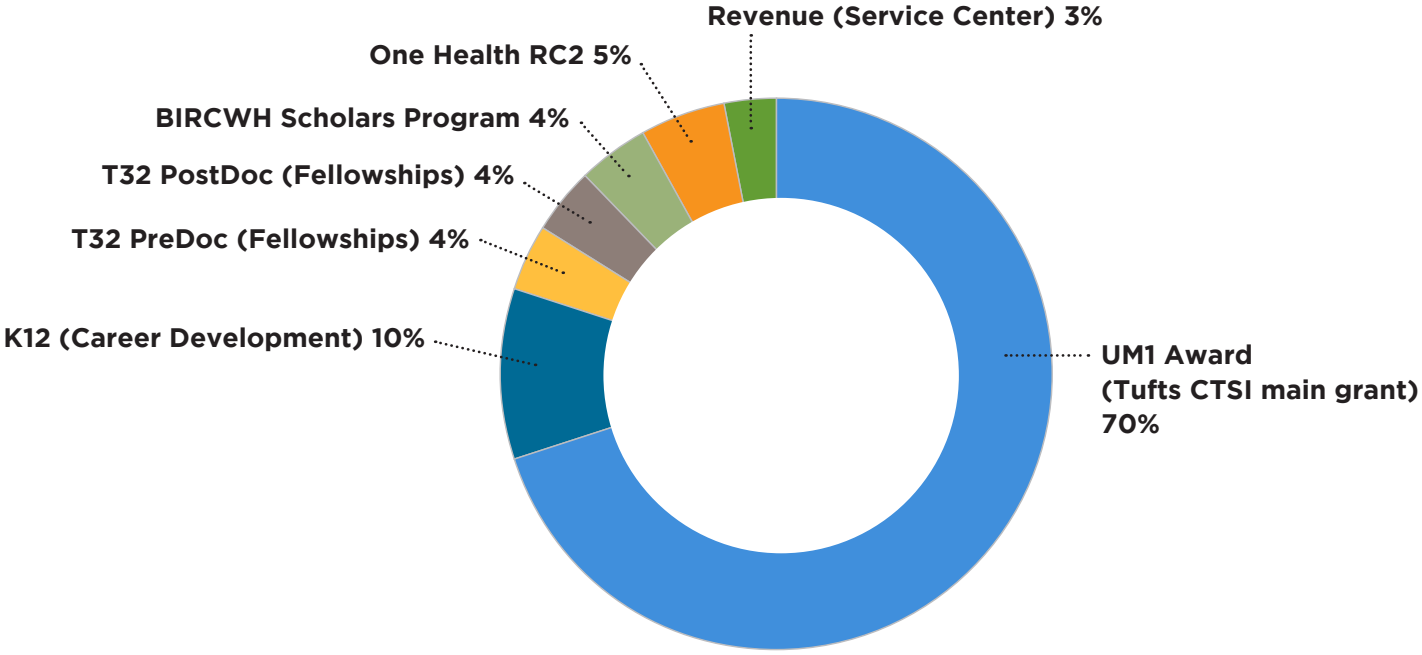
- **Tufts CTSI** engaged **959** investigators, K-award scholars and other junior faculty, T-award trainees, and Clinical and Translational Science Graduate Program students across **96** organizations.
- Our **Navigators** and content experts provided more than **900** research services.
- The **Biostatistics, Epidemiology, and Research Design (BERD) Center** fulfilled **237** service requests and provided their expertise to investigators during **77** Drop-in Sessions.
- Our **Informatics team** delivered **79** services to mine clinical data to determine feasibility and support participant recruitment for specific studies. The team also provided access to data management software for **793** research team members.
- The **Clinical and Translational Research Center (CTRC)** supported **59** clinical studies funded by private industry, the National Institutes of Health, and Tufts internal sources.
- Our **Junior Faculty Research Career Development Forum** mentored **54** early-career researchers, providing K-Scholar funding for **14** of them.
- Our **T32 Fellowship Programs** funded **21** students enrolled in our **Clinical and Translational Science Graduate Program**.

Tufts CTSI Portfolio

4th Grant Period, Year 3

2025-2026

Total $15,610,504



Accelerating Innovation from Discovery to Real-World Impact

Advancing discoveries into real-world health solutions requires more than scientific excellence; it depends on access to expertise, infrastructure, and multidisciplinary partnerships that extend beyond academic settings. In alignment with its mission to connect people, resources, and ideas to accelerate research translation, Tufts CTSI, together with partners at Tufts University, Tufts Medical Center, MIT, and Northeastern University, launched **Innovate2Impact (i2i)** in fall 2025. i2i serves as a hub-wide initiative designed to strengthen translational capacity and support clinical and healthcare innovation across the region.

i2i supports scientists, clinicians, and health researchers in developing promising innovations—including medical products, technologies, or practice improvements—with the potential to improve health outcomes. Moving innovations from concept to implementation presents significant challenges, such as securing funding beyond proof of concept and navigating regulatory, operational, and market considerations. i2i addresses these barriers by convening academic, clinical, and industry partners and integrating resources from across Tufts CTSI's rich innovation ecosystem. This collaborative model reflects the broader CTSA emphasis on breaking down silos and accelerating translation through shared learning and coordinated support.

This initiative launched with an Innovation Expo in October 2025 at Tufts University School of Medicine. Open to researchers, innovators, investors, and the broader public, the Expo showcased a diverse portfolio of health-related innovations through lightning talks and poster presentations and created new opportunities for connection, feedback, and collaboration.

The Expo provided an initial point of engagement for an educational program that followed, which consisted of two hands-on workshop series: the three-week National Science Foundation I-Corps Spark program, and a "Pitch Lab," which was taught by partners at The Auster Center for Applied Innovation and Research and The Gordon Institute, both at Tufts University. Through I-Corps Spark, participants engaged in market exploration to clarify the value of their innovations and identify potential users, customers, and partners. The Pitch Lab strengthened participants' ability to communicate impact by refining messaging and crafting compelling narratives for funders, collaborators, and decision-makers. Together, these activities embedded innovation-focused skills within the translational research process.

"My experience at Innovate2Impact was energizing, a rare space where clinicians, engineers, and founders could engage with ideas and stories openly. I left with meaningful connections and insights that directly influenced our clinical diagnostic strategy."

— ZOE WATSON, Microvitality

Year 1 of the i2i program culminated in the Impact Launchpad in May 2026, where $50,000 in funding was awarded. Selected teams presented their innovations to a panel of academic and industry leaders, implementation experts, and investors who assessed each project's real-world applicability and potential for measurable impact. The winning team, Eye Care, developed eye drops to prevent blindness caused by microbial keratitis. Recognizing that successful translation is an iterative process requiring sustained guidance and partnership, all teams will be eligible for an extended period of customized mentorship from innovation experts.

Collectively, these activities position Innovate2Impact as a strategic platform for building translational capacity and advancing Tufts CTSI's mission to bridge the gap between discovery and real-world application. Looking ahead, we will continue to expand i2i through new collaborations, fundraising efforts, and development of the mentorship network to further support the translation of promising innovations into improvements in health and healthcare.

"I have found it thrilling to apply fundamental research from my own and other labs toward creating an innovative therapeutic platform. Witnessing a bold idea born out of spontaneous discussions with colleagues evolve into something significant has been truly exhilarating."

— CAMMIE LESSER, MD, PhD, Tufts University School of Medicine

Bridging the Divide on Firearm Policy

The **Bridging the Divide on Firearm Policy Project** is an initiative, supported by Tufts CTSI (non-federal funds), that brought together a nationally representative panel of stakeholders from both the gun rights and gun violence prevention communities. Over the course of a year, participants engaged in a series of professionally mediated deliberations with the goal of creating a firearm policy proposal capable of garnering broad support across states.

The project was motivated by a 2022 survey conducted by Michael Siegel, MD, MPH, which identified substantial common ground between gun owners and non-gun owners on a wide range of firearm policies [1]. Despite this overlap, political discourse and media narratives often portray these two groups as diametrically opposed. Gun rights and gun violence prevention stakeholders alike have fallen victim to a perception gap, in which the perceived level of disagreement between these two groups is widely overestimated.

In fact, recent research suggests that political polarization is driven less by policy differences and more by social identity conflict. In his book, *Why We're Polarized*, Ezra Klein explains: "There's only a weak relationship between how much a person identifies as a conservative or liberal and how conservative or liberal their views actually are—to be exact, in both cases it's about a .25 correlation" (pp.73-74). Klein also cites Geoffrey Cohen, whose research shows that individuals are often willing to adopt policy positions endorsed by their political party even when those positions contradict their prior beliefs [2].

Building on these findings, Dr. Siegel hypothesized that polarization around firearm policy is rooted more in identity than in substantive disagreements. To test this, a nationally representative panel of 23 leaders from both gun violence prevention and gun rights sectors convened for a structured, yearlong process aimed at developing an actionable roadmap for all states to reduce gun violence.

This approach draws on research on "minipublics"—forums designed to engage diverse participants in merit-based discussions—which support the assertion that the best way to break through identity-driven polarization is to refocus discussions on ideas [3]. A cornerstone of the *Bridging the Divide Project* was identifying shared principles to guide firearm policy, an element often missing from public debate. Another prerequisite for the project's success was reframing firearm policy from a zero-sum game, in which increased public safety is seen as coming at the expense of freedom and convenience for gun owners, to a positive-sum game, in which all stakeholders benefit. Without clear benefits to gun owners, there is no logical incentive for them to even come to the negotiating table.

During a February press conference attended by approximately 50 members of the media and stakeholders, Dr. Siegel revealed that the project panel had reached consensus on a package of eight state-level firearm policies. These policies aim to protect public safety while safeguarding the rights of gun owners, and all received high levels of approval within the panel (Figure 1). Both the policy and press conference recording are publicly available at BridgeTheDivideNow.org.

The next stage of this project will focus on disseminating the policy package to key stakeholders with the aim of advancing adoption in state legislatures nationwide.

Bridging the Divide
ON FIREARM POLICY

"We are here to deliver a message of hope. It is possible to break through polarization and achieve consensus on contentious policy issues."

— MICHAEL SIEGEL, MD, MPH

Figure 1

Policy	Level of support for policy among panelists
Prohibiting Factors for Firearm Purchase & Possession	95.6% (22 of 23 support)
Background Checks	100% (All 23 support)
Extreme Risk Protection Order	95.6% (22 of 23 support)
Dealer Regulation & Gun Trafficking	95.6% (22 of 23 support)
Child Firearm Access Prevention	91.3% (21 of 23 support)
Firearm Suicide Prevention	100% (All 23 support)
Firearm Injury Prevention Education	91.3% (21 of 23 support)
Community Violence Intervention	86.9% (20 of 23 support)

References:

1. Grene, K., Dharani, A., & Siegel, M. (2024). A Common Ground Gun Violence Prevention Policy Package. *Psychological Reports*, 128(1), 334-349. https://doi.org/10.1177/00332941241248602 (Original work published 2025)
2. Cohen, G. L. (2003). Party Over Policy: The Dominating Impact of Group Influence on Political Beliefs. *Journal of Personality and Social Psychology*, 85(5), 808–822.
3. Fishkin, J., Siu, A., Diamond, L., Bradburn, N. Is Deliberation an Antidote to Extreme Partisan Polarization? Reflections on "America in One Room." *American Political Science Review*. 2021;115(4):1464-1481.

Blue Star Investigator Program Expands Reach to Improve Clinical Trials

Launched in fall 2021, the original **Blue Star Program** is a 10-week blended learning experience that trains junior investigators in the practical skills of developing and running a clinical trial. Responding to the demands of busy clinical schedules, the program team revamped the original curriculum for fall 2025 and offered the Blue Star Investigator Accelerated Training Program.

Inspired by adaptations developed in collaboration with our partners at MaineHealth, the Accelerated program focuses on the skills needed to serve as a site-PI on an industry-sponsored clinical trial. Using the case study approach that is the hallmark of the Blue Star curriculum, learners follow the arc of a trial, from assessing feasibility, to site implementation, adverse event assessment, audit readiness, and study close-out. Eleven learners from Tufts Medical Center, Tufts University School of Medicine, and Lowell General Hospital completed the online didactic pre-work and participated in two full-day, hands-on, in-person learning sessions. All participants reported an increase in their overall confidence in running a clinical trial and in their proficiency across all 14 program competencies.

Additionally, in summer 2025 the team collaborated with Sharon Terry, MA, Director of the Recruitment and Retention Support Unit, to pilot a new five-week version,

One participant said, *"[T]he program was well organized and the time flew productively by! The modules and interactive breakouts were well thought out and executed."*

Blue Star BRIDGES (Building Research & Innovation for Drug Effectiveness & Safety). The Blue Star BRIDGES pilot brought together eight lay leaders from patient advocacy communities to explore the operational skills of developing and running clinical trials focused on repurposing drugs within the rare disease space.

One of the key elements across all versions of the Blue Star program is the mandatory live sessions, where learners apply the skills and knowledge gained in the online didactic content. These hands-on activities are consistently called out by participants in all programs as one of the most important elements to the Blue Star Program.

Strengthening Dementia Screening Through Implementation Science and Learning Health Systems

Over the past year, Tufts CTSI partnered with **Tufts Medicine Behavioral Health** to support the implementation of dementia screening in primary care, with a focus on strengthening the system's capacity to learn from real-world practice. This reflects Tufts CTSI's role in applying implementation science to bridge research, clinical operations, and continuous improvement within a learning health system.

Tufts CTSI worked with Behavioral Health leaders on implementation-focused evaluation and planning related to the Centers for Medicare & Medicaid Services' GUIDE dementia care model. The team developed an implementation research logic model that articulated key determinants of implementation, including workflow complexity, readiness for change, reimbursement constraints, and provider and caregiver engagement. The logic model also specified implementation strategies related to reach, adoption, fidelity, and maintenance. Although Tufts Medicine chose not to move forward with GUIDE, this work engaged clinical and operational stakeholders in an assessment of feasibility and implementation readiness, strengthening the system's foundation for future dementia care initiatives.

Building on this, Tufts CTSI is partnering with Behavioral Health on the Davos Alzheimer's Collaborative Healthcare System Preparedness Early Detection Fellowship Expansion. This initiative aims to pilot an early dementia screening program across five sites, refine implementation strategies based on real-world experience, and generate mixed-methods data to inform sustainability. Tufts CTSI supported the application by introducing implementation science framing and is currently working to translate that framing into a practical implementation plan.

Tufts CTSI is currently focusing on workflow mapping, identification of core components of dementia screening, planning for site-specific adaptations, and aligning screening processes with existing primary care roles. We are also supporting Behavioral Health in planning for the collection of implementation outcomes required by the grant, with an emphasis on using data to guide learning and improvement.

A Novel Portable Platform for Assessing Disorders of the Eye–Brain Connection

A Tufts **CTSI pilot award** given to a team of biomedical engineers at Northeastern University and clinicians at Tufts Medical Center has advanced the development of an improved technology for diagnosing and monitoring disorders that affect the eye–brain connection, such as macular degeneration, glaucoma, multiple sclerosis, and optic neuritis.

The device, NeuroVEP, is a portable headset that detects and analyzes visual evoked potentials (VEPs), the electrical signals generated in the brain's visual cortex in response to visual stimuli. Developed by a team led by **Srinivas Sridhar, PhD**, Distinguished University Professor of Physics at Northeastern, NeuroVEP addresses an unmet need in neuro-ophthalmology for a practical alternative to current VEP measurement systems, which are cumbersome and rely on patients' active participation over 30–45 minutes. Using electric field encephalography—a technique for brain activity monitoring the team developed through earlier DARPA-funded work—NeuroVEP testing can be completed in as little as half the time of conventional EEG-based VEP testing.

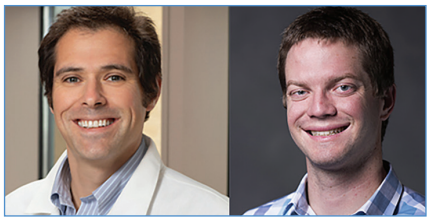
Tufts CTSI's pilot award supported initial validation of NeuroVEP. The study was led by neurologists at Tufts Medical Center whose partnership with Dr. Sridhar had previously been facilitated by Tufts CTSI's Research Collaboration Team. The pilot study's success helped advance NeuroVEP toward commercialization and has provided the foundation for a 2025 Small Business Innovation Research award from the National Eye Institute (NEI) to evaluate the technology in a larger patient sample.

Improving Detection of Aortic Stenosis with Machine Learning

Aortic stenosis (AS) is a serious heart condition in which the aortic valve is narrowed, impairing the flow of blood out of the heart. Because symptoms appear slowly and are difficult to detect through routine physical examination, diagnosis frequently occurs late in the disease's progression, when risks of heart failure and mortality are sharply increased.

To address the need for improved detection of AS, a multidisciplinary team at Tufts has developed an ML–enabled method to diagnose AS using handheld ultrasound imaging. The team, which is co-led by **Benjamin Wessler, MD**, a Tufts Medical Center cardiologist, and **Michael Hughes, PhD**, a Tufts University computer scientist, recently received an R01 grant from the National Heart, Lung, and Blood Institute to test the system at Tufts Medicine primary care clinics. "We are trying to improve the detection of this life-threatening condition upstream of traditional echocardiogram laboratories," says Dr. Wessler. "Our goal is to leverage machine learning to automate the interpretation of hand-held cardiac ultrasound imaging to improve detection and ultimately treatment of this condition."

The project builds on the team's 2021 Tufts CTSI Pilot Award (now known as the Small Grants to Advance Translational Science, or **S-GATS Program**) to develop machine learning algorithms for detecting AS using images from limited-view scans, such as can be acquired by nonspecialists using an abbreviated imaging protocol. Although comprehensive echocardiography at an imaging center remains the diagnostic gold standard, the team's AI models have demonstrated high accuracy on images from commercially available, low-cost handheld machines. These results suggest a viable pathway for integrating reliable screening into routine clinical encounters, potentially enabling the earlier identification of high-risk patients.



Tufts CTSI support has been catalytic in ways that precede and extend beyond the pilot funding initially provided. Dr. Wessler's research career began with a Tufts CTSI Fellowship, while Dr. Hughes participated in our **Junior Faculty Research Career Development Forum** soon after joining the Tufts faculty. Presently, our Dissemination and Implementation Core is helping guide plans for implementing their technology in typical primary care settings.

"Dr. Wessler and Dr. Hughes' work on early aortic stenosis detection is a perfect example of how Tufts CTSI nurtures translational scientists and accelerates innovative solutions."

— AVIVA MUST, PhD, Director, S-GATS Program

ADAPT Looks Back to Leverage Community and Research for the Future

Shifting socio-political landscapes remind us that local leaders and organizations have always worked in the face of adversity to build healthy, futures for our neighborhoods. To uplift these stories, the ADAPT coalition hosted its **9th Annual ADAPT Community Health Symposium**, "Rooted in Resilience: Looking Back to Look Forward," in Boston on October 3, 2025. Nearly 70 community leaders, researchers, and clinicians convened to discuss past and present examples of community resilience and advocacy.

Looking Back: Grassroots Movement Building. Moderator Angie Liou (Executive Director, Asian Community Development Corporation) opened the discussion with ACDC's history of creating and preserving affordable housing in Chinatown. Local community leaders and change agents, Jean Wu, PhD, Michael Liu, PhD, Leverett Wing, and Sothea Chiemruom, shared success stories from past coalition movements statewide. These movements built visibility for Asian American communities and enabled collective action in politics, academia, and public health.

Looking Forward: Innovative Strategies. Co-moderator Ben Hires (CEO, Boston Chinatown Neighborhood Center) shared BCNC's origins in community advocacy and its responsiveness to local needs like problem gambling and gaps in mental health care. Co-moderator Alice Tang, PhD (Professor, Tufts University School of Medicine) underscored the importance of community-engaged research and trust-building. Multidisciplinary panelists Pata Suyemoto, PhD, Cindy Liu, PhD, Wilson Cole, PhD, and Rev. Dieufort Fleurissaint, DMin, MDiv, ThM, shared challenges impacting their work and communities and what resilience looks like in response.

ADAPT aims to carry these lessons forward as our partners engage in a variety of priority areas, including data equity, mental health, environmental justice, women's health, language justice, and more.

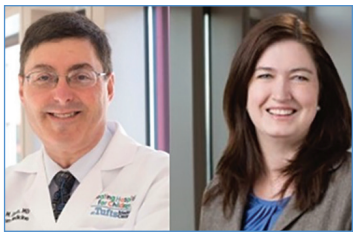
"As the world continues to face challenges, the conference and all of the speakers remind us that we can learn from the past to make better decisions for the future."
— BEN HIRES, CEO, BCNC

Advancing NICU Diagnosis: Genome Sequencing Delivers Clinical and Economic Benefits

Among the most important benefits of genomic sequencing technologies is their potential to speed the diagnosis of critically ill infants suspected to have a genetic disorder.

Because many genetic diseases present with non-specific symptoms in early life, establishing a diagnosis is challenging and often relies on stepwise testing of specific genes. Studies such as the Genomic Medicine in Ill Infants and Newborns **(GEMINI) Study**, co-led by Tufts CTSI Associate Director **Jonathan Davis, MD**, show that clinical genomics can have high diagnostic utility in the NICU. Although these findings are helping make whole genome sequencing (WGS) a first-line diagnostic tool in advanced centers, further evidence is needed to guide its broader adoption and optimal use.

Addressing this translational challenge remains a priority for Dr. Davis, the Vice Chair of Pediatrics at Tufts Medical Center, and his collaborators. A recent study he co-led with **Tara Lavelle, PhD**, Assistant Professor of Medicine at Tufts University School of Medicine, adds an economic evaluation to GEMINI's clinical findings. GEMINI was the first study to address key uncertainties in neonatal genomic evaluation by comparing a WGS strategy, which identifies variants in all 20,000 genes, with a targeted neonatal gene-sequencing panel. Supported by a CTSA Collaborative Innovation Award from NCATS—and Tufts CTSI biostatistical, clinical-study, and informatics services—GEMINI enrolled more than 400 newborns and infants with undiagnosed conditions at six CTSA-affiliated NICUs. The study found that WGS had a diagnostic yield nearly twice that of the targeted panel (49% vs 27%), though with a slightly longer median time to return of results (6.1 vs. 4.2 days).



The more recent analysis used patient-level data on diagnostic yield and healthcare utilization from the GEMINI Study to model one-year healthcare costs for each strategy. Although WGS had a higher upfront cost than the targeted panel ($12,297 vs. $2,449), it was found to reduce overall costs by $150,000 per patient, as the targeted approach often required additional testing when no diagnosis was initially identified and led to longer hospital stays.

How Community Engagement Studios are Building Trust in Science

Incorporating patient and interest holder voices into study planning can help shorten the gap between research and its translation into practice. Engaging communities improves the relevance and feasibility of research while strengthening trust, understanding, and the reach of research dissemination. Although many investigators recognize the value of integrating patient and community perspectives into study development, they often lack the time, resources, and experience needed for meaningful engagement.

To help address these barriers, we launched **Community Engagement (CE) Studios** in 2025. Adapted from a model developed by the Vanderbilt Institute for Clinical and Translational Research, our CE Studios service is designed to provide investigators with a structured and easily accessible mechanism for engaging patients and community members at key points in the research lifecycle.

CE Studios prioritize providing timely feedback related to either study planning or addressing challenges to ongoing projects. Staff from our community engagement and research collaboration programs work with investigators to curate a one-time consultative session, refining key questions and identifying, recruiting, and preparing a panel of individuals from relevant patient populations or interest holder groups. During the facilitated session, panelists serve as experts involved in dialogue, rather than as research participants. The perspectives they share, based on firsthand knowledge and lived experience, can help researchers gain a better understanding of community priorities and inform important elements of study design and implementation.

Keren Ladin, PhD, MSc
Director, Community and Stakeholder Engagement

Since rolling out this service, we have conducted six CE Studios, bringing together more than 60 panelists to consider projects involving patient-focused clinical interventions and community-based public health studies. Investigators have credited the feedback they received with changes ranging from improved recruitment language to the surfacing of practical concerns that led one to rethink an intervention. As indicated by post-studio evaluation survey responses, nearly all panelists also felt positive about their participation.

Tufts CTSI Informatics is Helping Tufts Medicine Scale Research Efforts

Researchers often ask, *"Why did my cohort change?"* Clinical data evolves over time, and in research settings it can be difficult to explain those changes or to reliably reproduce a prior data extraction. Historically, access to high fidelity physiologic and medical device data was limited, and collaboration between Tufts CTSI Informatics and Tufts Medicine Information Systems was inconsistent. These challenges slowed study startup and made it more difficult to scale research efforts.

The team—including Brian Gross, MSc, BSEE, RRT, SMIEEE, Kyrylo Simonov, PhD, Jack Bold, and Ashlin Harris, PhD—has strengthened the **Tufts Research Data Warehouse (TRDW)** into a dependable, user-friendly research platform. Researchers can now identify which data were used for each study and understand when and why those data changed. This transparency enables consistent reproducibility of results and eliminates unexpected or disruptive data updates.

Tufts CTSI has expanded and enhanced the clinical data available for research by incorporating additional high-quality data sources and establishing clear traceability from clinical systems into the TRDW. Improvements in system reliability, security, and patient privacy protections further ensure that research is conducted responsibly and in full compliance with regulatory requirements. In parallel, Informatics shifted from ad hoc solutions to delivering stable, reusable, innovation services that better support research operations. High-fidelity physiologic, medical device, and alarm data are now accessible in a sustainable and scalable way.

These advancements enable earlier and more efficient identification of potential study participants. Working closely with Tufts Medicine, Informatics implemented automated eligibility tools integrated with Epic. These tools reduce manual effort, improve recruitment reliability, and support greater scalability. This collaboration embedded these capabilities into routine operations while ensuring strong alignment with clinical care.

2025 Tufts CTSI Funding Recipients

Tufts CTSI offers funding for innovative, high impact, translational science pilot projects and for the career development of junior faculty affiliated with our partners and collaborators. Congratulations to our recent recipients.

K12 Career Development Award Program

Tufts CTSI offers NIH-supported K12 Career Development Awards for highly qualified junior faculty to conduct multi-disciplinary clinical/patient-oriented research for two or three years. This NIH-funded program is designed to foster collaborative research across Tufts-affiliated hospitals/campuses and across disciplines. We also offer a K12 Career Development Award for junior faculty to conduct research in sex differences and/or women's health.

Our current K12 Scholars are:

- **Seda Babroudi**, MD, MS, Tufts Medicine
- **James Bohnhoff**, MD, MS, Maine Medical Center
- **MyDzung Chu**, PhD, MSPH, Tufts Medicine
- **Rachel Criswell**, MD, MS, Tufts University School of Medicine, Redington-Fairview General Hospital, Maine
- **Jessica DiSilvestro**, MD, Tufts Medicine
- **Kap Sum Foong**, MD, Tufts Medicine
- **Ryan Kilpatrick**, MD, MHS, Tufts Medicine
- **Ruggero Spadafora**, MD, Tufts Medicine
- **Richard Travers**, MD, PhD, Tufts Medicine
- **James Watson**, MD, Maine Medical Center
- **Liana Woskie**, PhD, MSc, Tufts University Department of Community Health

T32 Research Training Fellowship Program

The NIH-supported T32 Research Training Fellowship Program offers research training for scholars and clinicians with an interest in clinical and translational research. These prestigious, NIH-funded programs provide stipends and full tuition for the Clinical and Translational Science (CTS) Graduate Program for predoctoral and postdoctoral fellows. Fellows earn a Certificate or MS in CTS, with the possibility of a PhD.

Our current predoctoral fellows are:

- **Abrielle DeVeaux**, MS, Tufts University
- **Jacob Fischmann**, BS, Tufts University School of Medicine
- **Jonathan Huang**, BS, Tufts University
- **Nicole St Clair Knobloch**, MSc, Cummings School of Veterinary Medicine, Tufts University
- **Mei-An Nolan**, BS, Tufts University
- **Jainith Patel**, BS, Tufts University School of Medicine
- **Pratik Reddy**, BS, Tufts University

Our current postdoctoral fellows are:

- **Kara Button**, DO, Maine Medical Center
- **Isaac Gendelman**, MD, Tufts Medicine
- **Sungshin Na**, MD, Tufts Medicine
- **Dena Parsa**, PharmD, Tufts Medicine
- **Amir Satani**, MBBS, Tufts Medicine

Tufts CTSI Small Grants to Advance Translational Science (S-GATS) Program

The Tufts CTSI S-GATS Program seeks to address fundamental obstacles commonly encountered in translational science across various diseases and health conditions, while also encouraging the exploration of novel opportunities and pathways. The primary goal of an S-GATS project is to advance translational science by addressing common barriers to translation and/or exploring novel opportunities. **2025 awardees include:**

- **Chiara Bellini**, PhD, Associate Professor, Department of Bioengineering, Northeastern University College of Engineering

  Project: **Translational Research on Wildland Fire Smoke Exposure: Health Risks and Protective Strategies for Firefighters**

  This project aims to identify early indicators of cardiopulmonary effects from wildfire smoke exposure in wildland firefighters to inform occupational protection strategies.

- **Karen Errichetti**, DrPH, MPH, Assistant Professor, Department of Public Health and Community Medicine, Tufts University School of Medicine

  Project: **Finding the Uncoded Needle in the Haystack: An Observational Medical Outcomes Partnership (OMOP) Common Data Model Approach to Identifying Hidden Diseases in Electronic Medical Records**

  This project aims to improve rare disease detection by leveraging natural language processing and the OMOP Common Data Model to identify hard-to-diagnose conditions hidden within electronic medical records.

- **Gat Rauner**, PhD, Research Assistant Professor, Department of Developmental, Molecular, and Chemical Biology, Tufts University School of Medicine

  Project: **Biomimetic Extracellular Matrix (ECM) for Translational Modeling of Breast Tumor Organoids**

  This project aims to develop a more accurate breast cancer organoid model using a biomimetic extracellular matrix that mimics key human tissue components and tumor-microenvironment interactions.

- **Hannah Rowe**, PhD, Assistant Professor, Department of Communication Sciences and Disorders, Northeastern University College of Health Sciences

  Project: **Predicting Communication Outcomes in Neurodegenerative Populations Using a Novel Acoustic-Based Framework**

  This project aims to address a critical gap in predicting speech deterioration in individuals with neurodegenerative diseases by applying a validated acoustic-based framework to longitudinal data.

Tufts CTSI Events Gallery

Each year, Tufts CTSI hosts educational seminars, workshops, symposia, and an annual research conference. Here are some images from our most recent offerings.

27th Annual Clinical and Translational Science (CTS) Graduate Program Symposium *(May 2, 2025)*

◀ **David M. Kent**, MD, MSc, David M. Kent, MD, MSc Director of the Graduate Program in Clinical and Translational Science, delivered the day's welcome remarks and provided an overview of the program's history and impact.

◀ **Shana Birly**, MS, presents, "Bridging research and practice: investigating the barriers and facilitators in the translational journey of Transcranial Magnetic Stimulation."

▶ **Jonathan Rosand,** MD, MSC, Co-Founder of the Henry and Allison McCance Center for Brain Health, delivers the Medical Grand Rounds Lecture.

▶ The symposium poster session is always a great opportunity for networking and knowledge sharing, plus an opportunity to get a group shot of our students, faculty, staff, and leadership!

Innovate2Impact Innovation Expo *(October 21, 2025)*

▲ **More than 100** researchers, clinicians, investors, students, and faculty convened at Tufts University School of Medicine to discover emerging innovations and explore transformative health-related research.

▶ **Tao Sun**, PhD, MS, presents his Lighting Talk, "Multi-modal Imaging and Ultrasound Immunomodulation of Engineered Macrophages for Brain Cancers."

◀ Lighting Talk presenters received feedback and advice from a team of innovation experts, including **Kevin Oye**, MS, Executive Director of the Tufts Gordon Institute.

▶ **Kirk Taylor**, MD, President and CEO of the Massachusetts Life Sciences Center, provides feedback to **Zoe Watson**, MS, on her Lightning Talk, "Microvitality: Setting a New Standard in Gut Health Through Non-Invasive Precision Microbiome Sampling."

▶ The **Poster Session** and a **Networking Reception** featured more than 20 poster presentations and five resource tables.

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