

Tufts | CTSI

Tufts Clinical and Translational Science Institute

COLLABORATE.
INNOVATE.
ACCELERATE.

**ANNUAL REPORT
2013 – 2014**

Translating research into better health

Our Partners

12 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 at Tufts Medical Center
Jean Mayer USDA Human Nutrition Research Center on Aging
Sackler School of Graduate Biomedical Sciences
School of Arts and Sciences
School of Dental Medicine
School of Engineering
School of Medicine
Tisch College of Citizenship and Public Service
Tufts Center for the Study of Drug Development

10 Tufts-Affiliated Hospitals

Baystate Medical Center
Carney Hospital
Lahey Hospital & Medical Center
Maine Medical Center
MetroWest Medical Center
New England Baptist Hospital
New England Sinai Hospital and Rehabilitation Center
Newton-Wellesley Hospital
St. Elizabeth's Medical Center
Tufts Medical Center

3 Academic Partners

Brandeis University
Northeastern University
RAND Corporation

5 Industry/Non-Profit Partners

Blue Cross Blue Shield of Massachusetts
Institute for Systems Biology and P4 Medicine Institute
Minuteman Health Network
Pfizer, Inc.
Tufts Health Plan

9 Community-based Partners

Action for Boston Community Development (ABCD)
Asian Community Development Corporation
Asian Task Force Against Domestic Violence
Asian Women for Health
Boston Chinatown Neighborhood Center
Greater Boston Chinese Golden Age Center
Health Resources in Action
Museum of Science, Boston
New England Quality Care Alliance

Our mission is to identify, stimulate, and expedite innovative clinical and translational research, with the goal of improving the public's health.

Tufts CTSI was established in 2008 with a Clinical and Translational Science Award (CTSA) from the National Institutes of Health (NIH). We are one of more than 60 institutions comprising the national CTSA Consortium, led by the National Center for Advancing Translational Sciences, part of NIH. During the first award we built a robust partnership of 39 organizations and developed a unique identity within the CTSA consortium, with nationally recognized strengths in emergency medicine, large effectiveness clinical trials, clinical trials methods innovations, and translational science education.

In 2013, Tufts CTSI was recognized as a translational science leader by the NIH when we were awarded a second CTSA. This major accomplishment allows us to continue to provide extensive services, resources, education and mentorship to investigators across the partnership until 2018. From bench to bedside, to clinical practice, to care delivery and public health, to health policy and beyond, Tufts CTSI is committed to fostering collaboration and innovation across the translational spectrum. We are honored and delighted to continue this important work.

The Aims of Our NIH CTSA Grant:

Aim 1: Strengthen Tufts CTSI overall by:

- Organizing and leading our partners in their commitment to a shared home for clinical and translational research.
- Expanding efficient access for all partners to a full spectrum of high-quality resources in a way that promotes collaborative clinical and translational research across disciplines and institutions.
- Advancing the field of clinical and translational research through local and national leadership and development of novel methods.
- Providing innovative and targeted education and training across the spectrum of translational research, from bench to bedside (T1), bedside to practice (T2), practice to public health (T3), and practice to public policy (T4).

Aim 2: Operationalize and implement the clinical and translational research home and its infrastructure, services and programs, including its central office personnel, administrative and financial management systems, committees, and other necessary structures.

Aim 3: Sustain and grow innovative resources, services, and policies that support and promote collaborative, cross-disciplinary, full-spectrum translational research.

Aim 4: Develop and broaden the clinical and translational research workforce through education and training across the T1-T4 spectrum, with a specific focus on addressing translational gaps between bench to bedside and from bedside to widespread impact on health.

MESSAGE FROM THE DEAN

Collaborate. Innovate. Accelerate.

Simply stated, these three words describe Tufts CTSI's raison d'être—our role in supporting and furthering translational research. We help researchers from all backgrounds to develop new methods and translate discoveries into practice, break down the barriers that slow the process of determining the effectiveness of those methods, and work together to bring about change that improves human health. This, of course, is easier said than done, but we've made remarkable progress since 2008 when our journey as an NIH Clinical and Translational Science Award (CTSA) consortium member began.



We facilitate collaboration across an interdisciplinary network that includes 39 partner affiliates, and by providing resources and services to support research at every phase of the translational spectrum across the full patient lifespan.

We cultivate innovation by seeing the potential in people and ideas and nurturing their growth through career development awards and training, fellowships and mentoring, and funding for pilot studies.

We accelerate the process of discovery by joining a growing national network of institutions participating in regulatory reliance, and by developing new approaches for clinical trials methods and study design.

While this report highlights some of our impact and success, our work is far from done. Even as I write this, we're launching a program in research process improvement and preparing a website that better connects our stakeholders with all that we have to offer. Now, in year two of our second five-year CTSA grant, we're not slowing down.

Join me in the pages that follow to reflect for a moment on where we've been, who we've helped, and how we've made a difference. Then please, collaborate, innovate, and accelerate your translational work to have an impact on health.

Sincerely,

Harry P. Selker, MD, MSPH
Dean, Tufts CTSI

Our Signature Programs

- Comparative Effectiveness Research
- One Health
- Research Process Improvement
- Stakeholder & Community Engagement

Our Resources & Services

- Clinical & Translational Research Center (CTRC) and Core Laboratory
- Education, Training & Career Development
- Informatics
- Pilot Studies Program
- Regulatory & Research Processes
- Research Collaboration Team
- Research Design Center/ Biostatistics Research Center (RDC/BRC)
- Translational Science Expert Panel

**For more information,
please visit tuftsctsi.org**

How do we measure our success? When we help researchers to connect with stakeholders, make important discoveries, and conduct clinical trials, we know we're on the right track. Here are three examples of the many investigators and teams doing great work this year:

COLLABORATE.



■ Asian Health Symposium Fosters Community-Research Collaboration to Improve Health

How can community-engaged research address local health issues? It often starts with a conversation. In April 2014, Tufts CTSI leaders and organizations comprising the **Addressing Disparities in Asian Populations through Translational Research Program (ADAPT)** sparked that conversation by gathering more than 90 community leaders, neighborhood residents, researchers, clinicians, and students for Together: Strengthening the Health of Chinatown, an Asian Health Symposium. The goal of the event was to discuss access to health care, wellness promotion and disease prevention, mental health, and environmental concerns in light of current and future research projects involving Boston's Asian Community.

"Recent data indicates challenges such as poverty, lack of health insurance, infrequent medical visits, and culture and language barriers threaten the health of many Asian Americans nationwide," said Carolyn Rubin, EdD, MA, Associate Director for ADAPT and Tufts CTSI Navigator. "By bringing people together and forming partnerships, we can find culturally sensitive ways to successfully address these issues that build on the strengths and assets of the community."

The day began with keynote speaker and health disparities research expert Chau Trinh-Shevrin, DrPH, Director of the New York University Center for the Study of Asian American Health. Dr. Trinh-Shevrin explained, "In order to advance a

health equity agenda, we need to have more community-engaged research. Community engagement is really the key."

Doug Brugge, PhD, Professor in the Department of Public Health and Community Medicine at Tufts University School of Medicine then spoke about health concerns related to traffic pollution in Chinatown.

The latter half of the symposium featured group discussions to generate ideas for joint, community-academic research projects and networking opportunities with ADAPT organizations such as the Boston Chinatown Neighborhood Center, Inc. (BCNC).

"We are committed to active learning, and believe this community could greatly benefit from more and better data," said Giles Li, BCNC Executive Director. "In our community, that means more disaggregation, oversampling in underrepresented communities, and culturally and linguistically appropriate methods. BCNC has partnered with a number of researchers to ensure the community has a voice in the way data about our families is collected."

To further foster community involvement in research, Tufts CTSI and ADAPT issued a post-Symposium summary and a Community Members' Guide to Submitting a Research Federal Grant Application. With these tools and the ongoing commitment of Symposium attendees, the conversation to improve Asian health in Boston will continue.

■ Accelerating Research through IRB Reliance

What's the key to speeding the process of discovery and development of solutions that improve human health? One critical element is multi-site collaboration to quickly enroll subjects into clinical research studies; however, the traditional Institutional Review Board (IRB) review process to establish these studies can be complex and time-consuming. Harvard Catalyst (the Harvard Clinical and Translational Science Center), in partnership with Tufts CTSI, found a way to hasten this process: the Harvard Catalyst Common Reciprocal Reliance Agreement.

Rather than having each site's IRB review and approve a study protocol and its associated changes, the Reliance Agreement allows researchers to request that all institutions involved with a multi-institutional study rely on a single IRB to make sure the research is conducted safely, ethically, and without harm to human participants. This ceded review reduces duplicative work of multiple IRBs, takes less time for approval, and promotes collaboration across institutions participating in the agreement—allowing investigators to begin their multisite research sooner. Since Harvard instituted the Reliance Agreement in 2009, IRBs have ceded review nearly 90% of the time.

"Tufts Medical Center and Tufts University were the first institutions outside the Harvard system to join the Reliance Agreement, and many of our affiliated institutions have joined or will join within the next year," says Jonathan M. Davis, MD, Tufts CTSI Regulatory Director.

Nearly 30 institutions have signed on to the Reliance Agreement, and ten more are considering whether to join. This network stretches across New England all the way to California.

"The Reliance Model remains a very high priority for NIH with a strong belief that it has the ability to streamline one of the most important aspects of the clinical trials system," Dr. Davis says. "We are convinced that widespread adoption of this approach is moving ahead quickly, which should accelerate efforts in drug and device development."

How does the Reliance Agreement work for researchers? Dual principal investigators (PIs) **Karen M. Freund, MD, MPH**, of Tufts CTSI, and **Phyllis L. Carr, MD**, of Massachusetts General Hospital, put the system to the test by

requesting single IRB review for their two-institution project, a Longitudinal Follow-up to the National Faculty Survey.

The process of adding the second site went smoothly: Dr. Freund estimates the single IRB sped her protocol's review

INNOVATE.

by about three months. For studies with more than two sites, she believes IRB reliance could speed the process even more—saving especially valuable time for 12-month pilots or other short-term projects. "It was amazing," Dr. Freund says. "Because we were able to do things so quickly, we're now in the analysis phase of our study. IRB reliance accelerated our ability to do the research."

■ Innovative Patient-Centered Research Begins with Funding from Tufts CTSI

How can a physician launch a successful career in clinical research? For some, like **JoAnna K. Leyenaar, MD, MPH, MSc**, it starts with a Tufts CTSI KM1 Career Development Award.

"The KM1 was an amazing opportunity to develop advanced research skills and receive mentorship from faculty whose work I admire tremendously," says Dr. Leyenaar, a pediatric hospitalist at the Floating Hospital for Children at Tufts Medical Center.

In 2011, Dr. Leyenaar's KM1 project studied the comparative effectiveness of treatments for children with pneumonia, a study she published in *Pediatric Infectious Disease Journal* this year. Her KM1 work inspired her to look more closely at children admitted to hospitals because of pneumonia. She examined the risk of adverse outcomes for these children, the effectiveness of direct hospital admission and access to outpatient care, and hospital re-admission rates. These studies led Dr. Leyenaar to study hospital-to-home transitions of care.

She then applied for, and received, a Tufts CTSI Pilot Studies Program award, and in 2014 began a project to develop methods for incorporating patients' perspectives into the discharge record.

"We're giving families a real voice to express their priorities and preferences, and this generates new knowledge about patients who may benefit most from particular treatments or processes," says Dr. Leyenaar.

Concurrently, she received funding from the Deborah Munroe Noonan Memorial Research Fund to work with the parents of hospitalized children and their health care providers on goals and communication relating to hospital-to-home transitions.

She hopes this research will generate knowledge that improves transitions of care and the quality of life of the children.

"Comparative effectiveness and patient/family engagement are changing health care," Dr. Leyenaar says. "Tufts CTSI has been incredibly supportive of my research career, with faculty providing invaluable mentorship in study design and grant preparation, and in providing funding to allow me to pursue this work."



ACCELERATE.

Innovation through Collaboration: Exemplar Activities

Why do we do what we do? We believe the quality and speed of innovation is greatly enhanced by assembling teams from across disciplines, stakeholders, and organizations, focused on addressing important translational research problems. By streamlining processes, improving services, and better working together, we can help researchers to make important discoveries that will ultimately improve human health. Just a few of our recent activities in this arena include:

Advancing New Methods for Clinical Trials

Tufts CTSI is an innovator in clinical trials process improvement. This past year, we published our Efficacy-to-Effectiveness (E2E) approach to clinical trial design in *Nature Clinical Pharmacology and Therapeutics*. The study was the product of a Tufts CTSI Regulatory Knowledge project, and recommends a seamless transition from efficacy trials (trials of how treatments work with highly selected patients in ideal settings) to effectiveness trials (trials done among usual and diverse patients in the usual care settings). The ultimate goal is to improve the accuracy of patient selection for treatments and to better determine how those treatments work on different groups of people.

Currently, efficacy and effectiveness trials are conducted separately, with effectiveness trials done years later, or not at all. In the E2E model, an effectiveness trial starts immediately after the efficacy trial is completed (or as soon as possible, depending upon a predetermined approval process).

The article was written by a multidisciplinary team led by Harry Selker, MD, MSPH, Tufts CTSI Dean. The team includes members from academia (Tufts University Center for the Study of Drug Development, MIT, Harvard University School of Public Health, Boston University), research and health care (Tufts CTSI, Institute for Clinical Research and Health Policy Studies at Tufts Medical Center, Tufts Cancer Center, Harvard Clinical Research Institute), government (European Medicines Agency, U.S. Food and Drug Administration), and industry (Merck & Co. and AstraZeneca). This collaborative approach led the authors to design an approach beneficial to many stakeholders.

“The E2E approach represents a fundamental shift in a drug development model that has remained basically unchanged for over fifty years,” suggests Kenneth Kaitin, PhD, Director of the Tufts Center for the Study of Drug Development and research professor at Tufts University School of Medicine. “Although adoption of the approach is not without its challenges, there are likely to be many winners: industry, who will gain better understanding of a drug’s utility, enabling differentiation from competitors; regulators, who will have greater understanding of the drug’s safe and effective use in heterogeneous populations; payers, who will be able to make more informed reimbursement and coverage decisions; and of course physicians and patients, who will benefit from real-world data on the benefits and risks of new medicines.”

Providing Clinical Trial Support across the Full Patient Lifespan

We made great strides toward our goal of providing research support as a “center without walls” when we merged the Pediatric Clinical Trials Office within Tufts Medical Center’s Floating Hospital for Children with the Clinical and Translational Research Center (CTRC) to form a cohesive, collaborative, cost- and service-efficient group within Tufts CTSI. For the first

time since our inception, we are able to provide both industry and non-industry clinical trial support across the full patient lifespan, from birth to death.

Our new CTRC team is delighted to offer assistance with neonatal, pediatric, and adult clinical trials for in- and out-patient studies that impact health.

Their expanded CTRC services include all phases of around-the-clock nursing, from vital signs to drug infusion; study coordination including screening, enrollment, informed consent, data entry and storage, budget development and negotiation, and site visits; regulatory submissions (Institutional Review Board and Food and Drug Administration) and reporting; protocol amendments, renewals, and closings; Core Laboratory assays, specimen processing, storage, and shipping; and state-of-the-art facilities.

The CTRC is led by two Co-directors, Linden Hu, MD and Cody Meissner, MD; Associate Director Tamsin Knox, MD; the CTRC Manager of Clinical Services Melahat Samali, MBA; and the CTRC Manager of Research Coordination Karen Murray.

Building a Strong Translational Research Community

A key project for this year, and throughout the current grant cycle, is called relational coordination. Relational coordination promotes communication for the purpose of task integration. Increased relational coordination positively correlates with efficacy, quality, safety, customer and stakeholder engagement, and worker outcomes.

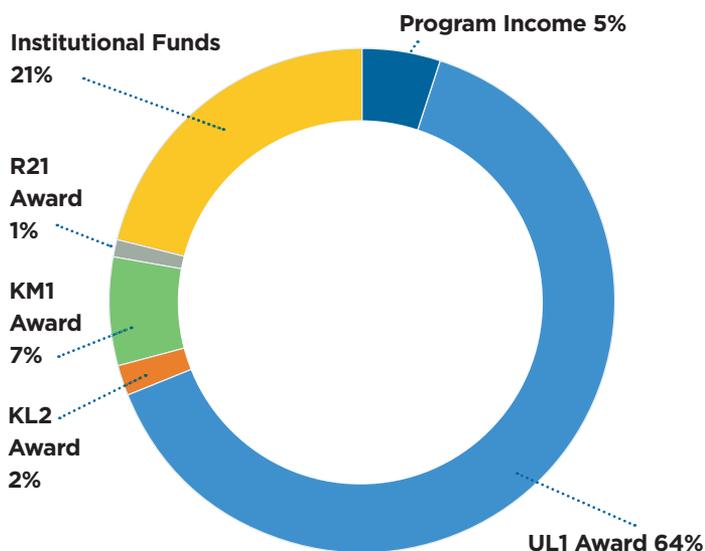
We are working in partnership with Brandeis University’s Jody Hoffer Gittell, PhD and Anthony Suchman, MD, MA, FACP of the University of Rochester to foster stakeholder collaboration, improve communication, share goals and knowledge, and coordinate work across our 39 partners. Our ultimate goal is to build a stronger, more effective research community.

To accomplish this, our entire CTSI is exploring and addressing the barriers to effective collaboration through workshops, surveys, interviews, and cross-cutting working groups, focusing on provision of services, education, and clinical trial infrastructure and support. Relational coordination has been used to improve many facets of the criminal justice system, medical care, and the aviation industry, among others.



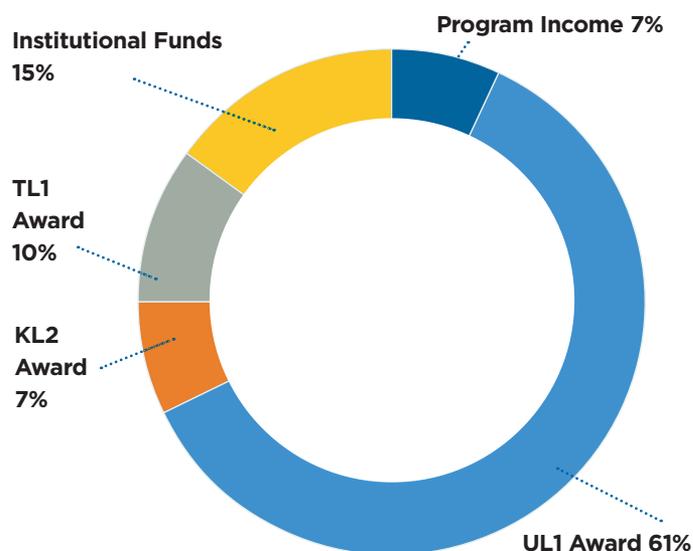
INSTITUTE FUNDING BY SOURCE 1ST GRANT PERIOD May 2008 - October 2013

Total \$36,134,939



INSTITUTE FUNDING BY SOURCE 2ND GRANT PERIOD Year 1 September 2013 - April 2014

Total \$4,022,023



Tufts CTSI Program Highlights

Assisting investigators with every phase of research:

- *Each month*, our Clinical and Translational Research Center (CTRC) averages **282** hours of use and **172** participant visits.
- The CTRC and Core Laboratory currently provide support for nearly **100** clinical trials.
- Our Research Design Center/Biostatistics Research Center (RDC/BRC) fields an average of **25** investigator requests every month. They also host weekly drop-in sessions.
- Our REDCap™ (Research Electronic Data Capture) website has **962** registered users.

Providing learning opportunities in the classroom and online:

- **33** students are currently enrolled in the Clinical and Translational Science Graduate Program.
- **846** people from **40** states and **17** countries use I LEARN (ilearn.tuftsctsi.org), a comprehensive online library of educational courses including our groundbreaking, internationally renowned survey course in Comparative Effectiveness Research (one of our signature programs).

Since we began in 2008:

- Cited in **222** publications.
- Simulated innovative research through **58** Pilot Studies Program grants to researchers representing **17** CTSI partner institutions; **12** career development awards; and **9** fellowships.
- Graduated **60** students from the Clinical and Translational Science Graduate Program.
- Educated **5,814** attendees of our professional development seminars and workshops.

TUFTS CTSI FACULTY

Our diverse faculty members represent 17 partner institutions: Baystate Medical Center, Blue Cross Blue Shield of Massachusetts, Brandeis University, Cummings School of Veterinary Medicine, Friedman School of Nutrition Science & Policy, Jean Mayer USDA Human Nutrition Research Center on Aging, Maine Medical Center, New England Quality Care Alliance, Northeastern University, RAND Corporation, Sackler School of Graduate Biomedical Sciences, St. Elizabeth's Medical Center, Tufts Center for the Study of Drug Development, Tufts Medical Center, Tufts University School of Dental Medicine, Tufts University School of Engineering, and Tufts University School of Medicine. Many have faculty appointments at more than one institution.

David Adler, MD	Paul K.J. Han, MD, MA, MPH	Robin Ruthazer, MPH
Jeffrey N. Agar, PhD	Richard Hermann, MD, MS	Dana Gelb Safran, ScD
Sawkat Anwer, DMVH, PhD	Dominic Hodgkin, PhD	Pradeep Sathyanarayana, PhD
Lynn M. Babington, PhD	Andrew M. Hoffman, DVM, DVSc, DACVIM	John R. Schreiber, MD, MPH, TM
Ethan M. Balk, MD, MPH	Linden T. Hu, MD	Johanna M. Seddon, MD, ScM
Peter W. Bates, MD	Gordon S. Huggins, MD	Harry P. Selker, MD, MSPH
Evan M. Benjamin, MD, FACP	John P.A. Ioannidis, MD, PhD	Matthew Siegel, MD
Diana W. Bianchi, MD	Bertrand L. Jaber, MD, MS, FASN	Amy R. Simon, MD
Rebecca Dorothy Blanchard, PhD, MEd	Graham B. Jones, PhD	David R. Snyderman, MD, FACP, FIDSA
Carla E. Brodley, PhD	Kenneth I. Kaitin, PhD	Gail Sonenshein, PhD
Peter Brooks, PhD	Anne V. Kane, MD	Donald L. St. Germain, MD
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Thomas W. Concannon, PhD	Jeffrey I. Lasker, MD, MMM	Calvin Vary, PhD
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Lluis Ferrer, DVM, DECVD, PhD	Peter J. Neumann, ScD	Don M. Wojchowski, PhD
Roger A. Fielding, PhD	Jose M. Ordovas, PhD	John B. Wong, MD
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Nicholas Frank, DVM, PhD, DACVIM	Stephen G. Pauker, MD	Jeong Kyo Yoon, PhD
Lisa M. Freeman, DVM, PhD, DACVN	Jessica K. Paulus, ScD	
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