

# Innovations in Clinical and Translational Research

**D**espite high research expenditures and a substantial health care infrastructure, the United States suffers from poor health outcomes compared to other industrialized nations. Wisconsin ranks among the worst states for general health and maternal/fetal outcomes, and it leads in negative outcomes such as deaths from fall-related injuries.

Over the last half century, the National Institutes of Health (NIH) has made a heavy investment in the discovery and “first-to-human” approaches assuming that many modest investments in moving innovation to patients and communities would be sufficient to improve poor outcomes. Unfortunately, decades of data show that this is not the case. The time from technology discovery to clinical trials (29 years) and final approval by the U.S. Food and Drug Administration (36 years) has inexorably increased.

In response, the NIH established the National Institute for Clinical and Translational Sciences as the home for the Clinical Translational Sciences Award (CTSA)—a highly competitive award supporting 60 elite U.S. academic medical centers to enhance the speed and efficiency of translating scientific innovations into clinical practice. The CTSA consortium has been foundational in advancing translational science as a discipline based on systems thinking, teamwork and proficiency in crossing disciplinary boundaries.

Since 2007, University of Wisconsin-Madison has continuously received the CTSA Award, which supports the UW Institute for Clinical and Translational Research (ICTR). Aimed at advancing innovations in translational science through training, regulatory improvements, pilot funding and infrastructure support, ICTR is a collaboration among the UW Schools of Medicine and Public Health (SMPH), Nursing, Veterinary Medicine, and Pharmacy, the UW College of Engineering and Marshfield Clinic.

Over the past five years, ICTR supported 1,650 investigators engaged in 3,700

projects, and its pilot awards program granted \$3.75 million to highly competitive teams to support innovative approaches to clinical and translational research. Likewise, since its inception, ICTR has directly supported more than 70 early-career faculty members in our KL2 program and 72 pre- and post-doctoral trainees from departments and programs across UW-Madison. Finally, ICTR and the university are nationally renowned for developing evidence-based approaches to research mentorship and disseminating best practices by training 501 facilitators at 51 CTSA sites nationwide.

With its most recent renewal, ICTR is poised to advance several key initiatives:

**Team Science.** It is evident that functional, multidisciplinary, translational teams enhance the application and development of drugs/devices or health care interventions. ICTR’s nationally recognized Team Science Program provides education, training and team-based interventions. A future focus will be how translational teams can improve the culture of reproducibility to make sure scientific discoveries and products are relevant and generalizable.

**Dissemination and Implementation (D&I) Science.** ICTR is working to infuse D&I into all phases of research. The D&I Launchpad provides education, consultations and support for UW-Madison investigators to integrate evidence-based interventions into health care systems. Pilot programs support teams by providing wrap-around services to awardees in marketing, business planning and identification of purveyor organizations.

**Diversity, Equity, Inclusion and Accessibility.** Exacerbated by the COVID-19 pandemic, striking disparities in life expectancy, health and emotional well-being of Black, Latinx and Native American individuals, among others, remain a simmering problem. Approaches include:

- To enhance inclusion and diversity in clinical research, ICTR has developed a “Just Research” training program to equip

research teams with knowledge and skills needed to implement inclusive recruitment and retention methods and engage historically underrepresented populations.

- ICTR is the UW-Madison home for the NIH *All of Us* research program, partnering with historically underrepresented participants to contribute surveys, electronic health record data and biospecimens for genomic research. Among other *All of Us* sites, it leads the nation in participant retention.
- ICTR’s Neighborhood Health Partnerships Program provides information on a variety of health outcomes to local stakeholders. Reports have been delivered statewide to 152 groups and 30 health care systems that promote community engagement.

ICTR’s work depends on many committed partners, including UW Health, UW colleges and schools, and the Wisconsin Partnership Program. Together, we look forward to accelerating clinical and translational research so more lifesaving and well-being-enhancing innovations make it to our patients and communities faster and more equitably.



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