

utilizing a participatory evaluation approach. **METHODS/STUDY POPULATION:** We co-designed a logic model and evaluation plan with community partners for the Great Plains IDEa-CTR 2024 CEnR Institute. The day-long institute amplified community voices through sessions on trust building, co-creation of research, and equity in evaluation. The agenda for the institute was collaboratively developed with community and academic partners. Participants included 54 in-person and 29 virtual attendees representing researchers, community organizations, and practitioners. Using mixed methods, we administered a pre, post, and 6-month follow-up survey to assess knowledge, skills, and engagement; collected qualitative partner feedback; and conducted sROI analysis using stakeholder-defined indicators to estimate broader social impact. **RESULTS/ANTICIPATED RESULTS:** Post-institute surveys showed significant gains in self-reported CEnR knowledge (+22.4%) and skills (+13.9%), along with the formation of 20 new partnerships among attendees. Six-month follow-up ($n = 29$) indicated 99.4% retention of knowledge and skills, as well as 3 newly funded community-academic collaborations averaging \$135,000. Qualitative feedback highlighted strengthened partnerships and multidirectional learning between community and academic participants. sROI analysis estimated a social return of approximately ten dollars (\$9.61) for every dollar invested in the training, demonstrating substantial social value generated relative to cost. **DISCUSSION/SIGNIFICANCE OF IMPACT:** We present a scalable framework combining participatory methods, logic modeling, and sROI to capture the social impact of community-engaged programming. The institute generated a 9.61:1 social return, demonstrating that thoughtfully co-designed programming can measurably strengthen participant capacity and sustainable partnerships.

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Building implementation science research capacity: Assessing facilitators and barriers at a midwestern Clinical and Translational Science Institute (CTSI)

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OBJECTIVES/GOALS: As the field of implementation science (IS) enters its “teenage” years, most published examples describing capacity-building efforts within the field rely on quantitative methods and are retrospective. Very few of these studies engage in prospective, rigorous qualitative research to assess the needs of their local networks in building IS capacity. **METHODS/STUDY POPULATION:** Individual, semi-structured interviews were conducted with local investigators who had indicated prior interest in implementation science research and had been engaged with local CTSA resources at varying levels. The interview guide was informed by the Consolidated Framework in Implementation Research (CFIR) domains, and interviews were conducted via Zoom. Interviews were mostly hand transcribed, while the Zoom Transcribe feature was used for some interviews. Transcribed interviews were uploaded into

Dedoose 10, and an inductive, iterative coding approach was taken for analysis. This study received exempt IRB approval from the University of Kansas Medical Center. **RESULTS/ANTICIPATED RESULTS:** A total of seven faculty members, spanning the early to late career stages, participated in the interviews. They represented three of the major research institutions in the network, and the interviews lasted 24 to 58 minutes. The themes that emerged related to facilitators included mentorship, feedback opportunities, and dedicated funding. Themes related to barriers included a lack of methodological support, limited opportunities for collaboration, and a perceived exclusivity in the field of implementation science. From these, three recommendations were given: provide a dedicated IS funding opportunity locally, facilitate mentorship and collaborations, and promote leadership inclusiveness. **DISCUSSION/SIGNIFICANCE OF IMPACT:** The study findings directly influenced the development of IS activities within the CTSI renewal. By applying IS's best practices, utilizing qualitative assessments of implementation science networks can help the field address specific gaps in capacity building and respond more effectively to the needs of our investigators.

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Listening to the translational workforce: Using survey insights to strengthen engagement and address unmet needs

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OBJECTIVES/GOALS: To showcase a survey tool designed to assess awareness, engagement, satisfaction, and unmet research needs across a six-institution CTSA. To demonstrate how findings can inform strategic planning, resource allocation, and continuous quality improvement (CQI). **METHODS/STUDY POPULATION:** The Institute for Translational Medicine (ITM) is a partnership of six Chicago-area institutions led by the University of Chicago and Rush University. Since 2023, the ITM has conducted an annual online survey assessing engagement, satisfaction, and unmet research needs related to ITM-sponsored activities. Administered via Qualtrics to faculty and staff over a four-week period, the 12-minute survey includes 1) questions to assess engagement and referral to ITM resources; 2) a Net Promoter Score (NPS) to measure satisfaction and likelihood of recommending the program, with scores above 0 interpreted as positive; and 3) a clinical and translational research needs inventory with a “top 3 pain points” ranking to identify unmet needs. Responses were analyzed by institution and translational research stage. **RESULTS/ANTICIPATED RESULTS:** Response rates were 26% in 2023 and 20% in both 2024 and 2025. Familiarity with the ITM increased each year from 68% in 2023, to 73% in 2024, and 79% in 2025, though about one-fifth of respondents remain unfamiliar. Participation in at least one ITM-sponsored activity varied by respondent pool, from 59% in 2023 to 35% in 2024, and 38% in 2025. Referral rates to ITM-sponsored activities ranged from 11 to 45% depending on the activity across the three years. NPS scores were consistently higher among

participants (2023: -20; 2024: -5; 2025: 0) versus non-participants (2023: -53; 2024: -49; 2025: -45). Across three years, respondents have indicated that “analyze data” is the number one greatest unmet research need, though needs and pain points vary by site over time. DISCUSSION/SIGNIFICANCE OF IMPACT: NPS findings suggest that greater engagement with ITM resources is associated with higher satisfaction and likelihood of referral. Most participants report positive experiences, demonstrating program value. Challenges remain in reaching unfamiliar researchers, highlighting opportunities to expand awareness and address unmet research needs.

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Content and bibliometric publication analysis to assess academic impact of CTSA Programming

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OBJECTIVES/GOALS: Relevant publications serve as a comprehensive longitudinal data source that reflects the priorities, partnerships, and training a CTSA program supports. A content analysis of the publications was conducted to identify the specific areas where our CTSA program has the most impact and provides the most support. METHODS/STUDY POPULATION: A content and bibliometric analysis was conducted for the Frontiers CTSA. Articles were identified by searching for all current and previous grant numbers in Google Scholar and PubMed and identifying relevant publications through ERACommons. We utilized Covidence to facilitate the screening and coding process. Articles were included if they were published after the grant initiation (2011), attributed support to the grant, and were peer reviewed. Articles were then double coded for variables such as member institutions, CTSA collaboration, awardee type, disease area, and study type, etc. Bibliometric outcomes were retrieved from NIH iCite and Web of Science. Descriptives, t-test, and linear models were used to assess associations. RESULTS/ANTICIPATED RESULTS: A total of 941 publications from 2011 to April 2024 were included for analysis. When examining collaboration between Frontiers and other CTSA hubs, 40% of publications had authorship representing multiple hubs, with 95% of the CTSA hubs represented. Most publications were directly supported by Frontiers: 44% from TL1 & KL2 scholars and 56% from past pilot awardees. The primary disease area supported was neurology, with 60% of publications describing T2: clinical research studies. The main output of interest, the NIH's relative citation ratio (RCR), has an average of 1.64 over 13 years. Publications with collaborations between Frontiers and another CTSA hub were associated with higher RCRs. DISCUSSION/SIGNIFICANCE OF IMPACT: This analysis provides us with a snapshot of frontiers CTSA's activities and impact while also highlighting areas where our support can be strengthened. Next, we plan to incorporate altmetric data to create a more holistic view of our CTSA's impact and collaborations.

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Bridging the gap: Aligning community and state public health goals with CTSA hub activities through indicator mapping

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OBJECTIVES/GOALS: To assess the feasibility and utility of using the community-informed Healthy North Carolina 2030 (HNC 2030) goals as a framework to evaluate CTSA-supported research; identify where NC CTSAs align with state health priorities; and enhance evaluation, planning, and communication of impact. METHODS/STUDY POPULATION: Three North Carolina CTSA hubs (UNC-Chapel Hill, Duke University, and Wake Forest University) collaboratively examined how the HNC 2030 indicators could be applied as an impact evaluation framework. Each hub independently identified projects with demonstrated or potential alignment to one or more HNC 2030 goals using institutional databases, project records, and stakeholder input. The feasibility and utility of this approach were assessed through structured reflections on practicality, appropriateness, and usefulness. Representative cases illustrate how alignment decisions were applied across clinical and public health domains. RESULTS/ANTICIPATED RESULTS: Findings indicate that mapping CTSA activities to state health priorities is feasible, minimally burdensome, and adaptable across institutional contexts. The process identified both areas of strong engagement (e.g., maternal health, adolescent reproductive care) and opportunities for further investment (e.g., social determinants of health). Challenges included defining alignment boundaries, addressing cross-cutting indicators, and distinguishing between demonstrated and potential impact. This approach could strengthen communication of translational impact and inform strategic planning, helping CTSA hubs demonstrate the relevance of their work to statewide health goals. DISCUSSION/SIGNIFICANCE OF IMPACT: Using community-driven state public health goals as an organizing framework enhances the relevance, transparency, and accountability of translational research. This exploratory mapping approach offers a scalable model for other CTSAs seeking to evaluate and communicate population-level impact.

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An AI-driven, Translational Science Benefits Model (TSBM) approach to assess the real-world impacts of NCATS' CTSA Collaborative and Innovative Acceleration Award Initiative

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OBJECTIVES/GOALS: The goal of the NCATS CTSA Collaborative and Innovative Acceleration (CCIA) Award Initiative is to advance