CTSA Steering Committee Meeting Summary
Zoom Conference
September 11, 2023; 2:30-3:30 PM ET

Steering Committee Members:

Michael Kurilla, Co-Chair
Arleen Brown
Stephan Bour
Daniel Ford
Tesheia Johnson
Karen Johnston
Jessica Kahn
Don McClain
David McPherson
Ruth O'Hara
Muredach Reilly
Steven Reis
Doris Rubio
Larry Sinoway
Randy Urban
Rosalind Wright
Ted Wun

Steering Committee Regrets:

Duane Mitchell, Co-Chair; Melissa Haendel; Laura James

NCATS Attendees:

Audie Atienza
Heather Baker
Kris Bough
Patrick Brown
Penny Burgoon
Soju Chang
Jennie Conroy
Pablo Cure
Jamie Doyle
Sarah Dunsmore
Stephanie Ezequiel
Josh Fessel
Stacia Fleisher
Gallya Gannot
Ken Gersing
Brittany Gibbons
Rashmi Gopal
Chris Hartshorn
Greg Jarosik
Rebecca Katz
Francisco Leyva
Andrew Louden
Carol Merchant
Marilyn Moore-Hoon
Thomas Radman
Anna Ramsey-Ewing
Erica Rosemond
Joni Rutter
Clare Schmitt
Meredith Temple-O'Connor
Amanda Vogel
Robin Wagner
Ken Wiley

Invited Guests:

Peter Elkin, Bernadette Capili, Alison Norful

Support Center:

CCOS: Cindy Mark, Kerry James, Lauren Fitzharris, Beck Lazelle

Welcome and Announcements (Slides 2-5)

Speakers: Michael Kurilla and Duane Mitchell

M. Kurilla welcomed the members of the Steering Committee (SC) and facilitated the call. He stated D. Mitchell would be unable to attend the meeting and shared a few general announcements.

- **SC Member Recruitment**: NCATS is seeking 5 UL1 principal investigators (PIs) to serve on the SC from 2024-2027. Eligibility criteria include: (1) the PI must be officially named in the Notice of Grant Award of an active CTSA Program Hub; (2) the PI's Hub award must have at least 3 years remaining during the project period; (3) the PI cannot have served on the SC since December 2017. To self-nominate or nominate others, please complete a nomination form to include PI name, institution, and brief recommendation by Wednesday October 18, 2023.
- **Working Group Proposal Submission Information:** The SC encourages the consortium to create Working Group (WG) proposals that could align within the key areas listed below. Submission timeline: (1) submit between September 1st and 30th; (2) SC review will occur at the December SC meeting; (3) January 1st is the earliest WG start.
    - Learning health and research systems
    - Artificial Intelligence
    - Best practices for navigating the Science of Translation
    - Causes of rising midlife mortality in America (Case & Deaton, PNAS, 2015)
    - Climate change and health
    - National training curricula in CTS
    - Diversity, equity, inclusion, and accessibility
    - Enhancing the impact of clinical trials
- **Fall Program Meeting Proposed Agenda:** M. Kurilla shared a slide displaying the SC meeting agenda that lists the proposed topics, allotted times, and presenters.

Clinical Research Workload and Study Complexity Assessment WG (Slides 6-24)

Speakers: Candy Capili & Allison Norful

Presentation Summary:

C. Capili (Rockefeller University) and A. Norful (Columbia University) provided an overview of their project, which assessed the complexity of clinical research projects, noting dimensions, attributes, and processes via a systematic method. They began by noting various barriers often encountered in clinical research – including complex regulatory requirements, restrictive eligibility criteria, tight timelines, limited funding, and staffing challenges – they wished to overcome. An initial literature search to identify available tools for assessing clinical research study complexity found that the few available mostly pertain to oncology research, which is not necessarily relevant to other clinical research projects.

Their project goals include: (1) identifying clinical research complexity dimensions and attributes; (2) developing a scoring rubric to scale clinical research study complexity; and (3) establishing initial psychometric properties of an instrument to measure clinical research study complexity. They identified common dimensions and processes, which include: (1) feasibility; (2) regulatory protocol approval; (3) cross-disciplinary collaboration; (4) participant management (recruitment, screening, study visits, follow-ups); and (5) communication with sponsors, team members, and study participants. To track this information, they adapted the NCI Trial Complexity Elements Model, used primarily in oncology and clinical trials, and re-named it as the Heilbrunn Research Complexity Index. They then revised the language of the elements to allow for broader application across multiple study designs.

Phase 1 of the project pertained to establishing content, face, and cognitive validity. This phase targeted 6 experts in the field who:

- had been engaged in clinical research for more than 4 years;
- had experience in preparing, directing, or coordinating clinical studies sponsored by industry, foundations, or government;
- had Good Clinical Practice certification; and
- had completed training in research, ethics, and compliance.

Participants rated instrument elements on a 4-point relevancy scale in a RedCAP assessment, describing their interpretation of instrument language. The team assessed expert agreement via a content validity index that determined whether revisions were necessary. Participants then discussed instrument elements and response options with study staff during face-to-face, one-on-one interviews. The team revised the instrument through an iterative process until they were confident instrument content was valid and accurately understood by participants. After completing cognitive interviews, the instrument's elements grew from 10 to 25. Additions made related to vulnerable populations, data collection procedures, participant safety, adverse event reporting, and mandatory compliance reporting.

Phase 2 of the project involved pilot testing to establish reliability. Participants scored 2 clinical research projects using the instrument in RedCAP. Eligibility criteria for this phase were the same as for Phase 1. The data analysis plan included examining percent agreement across the 31 included participants using the Fleiss Kappa statistical measure for assessing reliability of agreement between a fixed number of raters. Findings indicated that for both protocols, the same 4 items lacked reliability or inter-rater agreement: (1) access to a target population; (2) study team composition; (3) data collection procedures; and (4) statistical analysis. Those questions might merit further revision or removal from the instrument. Otherwise, the project yielded a novel instrument for assessing study complexity that has high cognitive validity and inter-rater reliability.

Phase 3 of the project will include a larger sample size, perhaps 300 participants. The instrument will be potentially useful for grant and budget planning, personnel and resource allocation determinations, and individual study protocol effort evaluations. Dissemination plans include outreach via presentations at a CTSA webinar on September 27, 2023, and at the International Association of Clinical Research Nurses meeting on October 17, 2023. Additionally, a manuscript is planned for the *Journal of Clinical Translational Science*.

Questions and Discussion:

- D. Ford asked the presenters to explain their definition of "complexity." C. Capili responded, stating they are still working on it but will include it in their manuscript. A rough definition would be the various factors and variables that contribute to intricacies and difficulties associated with conducting clinical research studies, including nature of intervention, novel drug development, complex study procedures, type of study design, disease outcomes evaluated, regulatory requirements, and data management and analysis needs. D. Ford advised establishing a clear definition will be important to avoid subjective disagreement.
- L. Sinoway asked whether it would be useful to compare study complexity scores gathered from their tool with scores obtained otherwise. A Norful responded, stating the Phase 2 effort of rating 2 protocols and comparing results was a similar effort but acknowledged more testing of reliability would be helpful.
- D. McPherson suggested a larger forum for dissemination beyond CTSA since many IRB protocol reviewers might find the instrument helpful. C. Capili agreed they need wider dissemination and stated they will investigate additional opportunities, especially after completing Phase 3. She invited recommendations for additional forums for dissemination.

Informatics EC (Slides 25-44)

Speakers: Peter Elkin & Jomol Mathew

Presentation Summary:

P. Elkin (University of Buffalo) provided an update from the Informatics Enterprise Committee (EC). He began by defining the field of biomedical informatics as a combination of the fields of computer science, information science, engineering, mathematics, biological and physical sciences, cognitive and social science, and humanities. Their EC represents all CTSA sites and provides interoperable data sharing and coordination assistance to help all groups accomplish their mission of advancing clinical translational science. He shared a slide listing himself and J. Mathew (University of Wisconsin) as co-chairs, the voting members of the Lead Team, and the remaining non-voting members of the EC.

CTSA program goals for the EC include: (1) training the translational science workforce; (2) engaging participants and communities in translational research; (3) promoting the integration of underserved populations in translational research; (4) innovating processes to improve the quality and efficiency of translational research; and (5) advancing the use of cutting-edge informatics. The EC's goals include: (1) advising the SC about informatics priorities on a more regular basis (quarterly); (2) setting interoperability standards for data sharing across Hubs; (3) providing consultation assistance to help Hubs achieve informatics goals; (4) highlighting informatics achievements of all Hubs; (5) advising NCATS on informatics research priorities; and (6) ensuring all Hubs have inclusion in the EC via open discussions.

New accomplishments since the EC's last report to the SC include: (1) collaborations at a half-day, in-person meeting of informatics leaders and PIs in Washington, DC; (2) plans to expand

that meeting to an entire day in 2024 to allow for increased discussions; (3) leadership representation in the AMIA and ACTS to develop synergy across the informatics forum through paired presentations and other collaborations (P. Elkin, AMIA; both chairs, ACTS); and (4) development of updated language in response to new NIH call for a mission statement that incorporates informatics and explains its role in translational research.

He next discussed emerging important research areas in the field of biomedical informations, which include: (1) increased use of artificial intelligene (AI) to streamline research an assist with recruitment of underreprsented populations in research; (2) use of geocoding to achieve geographically diverse recruitment; (3) targeting recruitment efforts to those most likely to not withdraw from a study; and (4) utilizing Clinical Notes via NLP to augement clinical data warehouses.

He noted data sharing for translational research requires: (1) comparable interoperable data collection and sharing; (2) common data models; (3) data governance and provenance; (4) indexing via standardized ontologies; (4) strong study designs to ensure effective data aggregation; (5) providing common data access methods; and (6) common methods for data cleaning and quality assurance assessments. The EC recently worked with NCATS and the NIH Office of the Director to create example Data Sharing and Management Plans for use by Hubs.

The most important challenges facing the informatics community's ability to contribute to NCATS goals are related to funding. The EC recommends NCATS issue a strong position statement encouraging investment in informatics and focus funding efforts on grants to support infrastructure development across Hubs to encourage synergy, interoperability, and high-quality data warehousing. The EC also encourages greater NCATS funding to academic medical centers (AMCs), which should help AMCs prioritize the NCATS/CTSA agenda.

The EC has been using Shareware Talks as a way to help disseminate knowledge about informatics tools and methods used at Hubs, further discussion relating to best practices for translational informatics, facilitate sharing and implementation across the consortium, decrease duplication of effort, and meet CTSA informatics needs. He shared details about 20 Shareware Talks held since September 2022 where EC members discussed software, tools, methods, protocols, models, platforms, and projects related to informatics. He also noted the EC recently hosted a free summar informatics and data science bootcamp that had 411 attendees representing 46 Hubs.

He concluded by encouraging greater collaboration across CTSA to strengthen informatics capabilities in support of translational research. Future topics of interest to the EC include developing new trial designs using real-word evidence, ethical use of large language models in AI to recruit diverse participants, and use of social determinants of health as a driver for clinical trial recruitment.

Questions and Discussion:

- Direct questions for the Informatics EC to Peter Elkin.
- M. Kurilla asked whether the EC has kept pace with fast developments related to IA and large language models. P. Elkin stated the EC is actually leading efforts to ensure

reliability when using AI and shared an anecdote about AI errors in a colleague's curriculum vitae.
- J. Rutter noted in the Chat her interest in the focus on social detrminants of health for clinical trials recruitment, especially those extending beyond the usual considerations of sex, gender, age, race, and ethnicity.

Considering NCATS supported data platforms: What do the hubs need? (Slide 45, plus 2 separate slides)

Speakers: Karen Johnston, Melissa Haendel, Steven Reis, & Josh Fessel

Presentation Summary:

J. Fessel shared discussion points related to the question of what Hubs need for NCATS-supported data platforms. He suggested a need for common terminology and definitions for such terms as "platform," "data," and "science." He acknowledged needs vary widely but noted many agree on the need for standardization of resources and for increased training, retraining, and workforce development. He also suggested the development of a frequently asked questions (FAQ) document might be helpful for those less technologically experienced in terms of assessing data assets needs. He shared a draft FAQ document and encouraged attendees to review it, think about ways to answer the question posed, and share their input to help finalize a response.

Questions and Discussion:

- S. Reis noted PIs might answer this question differently than the researchers and suggested focusing on what is needed by PIs.
- M. Reilly mentioned team training is a popular notion among Pods and Hubs and suggested scaling the capacity to train teams of individuals. J. Fessel acknowledged via the Chat the importance of scaling training efforts.
- M. Kurilla stated this discussion will continue at the SC Fall Program meeting.

Next Steering Committee Meeting: Monday, October 23, 2023, at 2:30-3:30 PM ET