Improving Clinical Research Study Initiation and Management: A linked collaborative project proposal from Mayo Clinic Center for Translational Science Activities and Yale Center for Clinical Investigation

SIGNIFICANCE AND RATIONALE

The CTSA Consortium Strategic Goal #1 seeks to improve clinical and translational research management capability. The administrative and regulatory infrastructure supporting clinical research is often a key determinant of the success of funding applications, and is crucial to the efficient implementation of safe and effective protocols.

One of the most commonly expressed frustrations for investigators is the length of time it takes to initiate a protocol. In addition to external regulatory requirements, there are often institutional barriers, inefficiencies and service gaps that create weeks or even months of delay. Areas such as study design, minority inclusion, IRB approval and study coordinator support all offer opportunities to either accelerate or hinder protocol initiation.

In this administrative supplement application, the Mayo Clinic Center for Translational Science Activities [Mayo Clinic CTSA] proposes a two-year linked collaborative project with the Yale Center for Clinical Investigation [YCCI] to develop models for leveraging the strengths in each institution to create best practices for streamlined protocol initiation. YCCI is submitting a complementary supplement application with similar, linked objectives. Furthermore, as a result of the collaboration facilitated by these complementary supplements, Mayo Clinic CTSA and YCCI will disseminate the collaboration model(s) we develop to the rest of the CTSA consortium members.

SCOPE AND SPECIFIC AIDS

While there are many aspects of research management that impact the success of clinical and translational research, this project focuses on administrative, regulatory and research support services involved in the initiation of clinical research protocols. As Mayo Clinic CTSA and YCCI have worked together over the past three years since we joined the first cohort of CTSA institutions, we have discovered that each institution has unique areas of strength in protocol initiation and management – strengths that could complement each other and assist with bridging expertise and service gaps that slow the initiation of studies. This linked collaborative project offers an opportunity to assess the feasibility of “importing and exporting” best practices between institutions and to develop one or several collaboration models that could be used by other CTSA institutions.

In keeping with the overarching NCRR goals of “accelerating the tempo of scientific research/scientific activities” and “advancing basic and translational research and collaborations,” our specific aims are to:

Aim 1: Identify and assess feasibility of potential areas of collaboration that leverage the unique strengths of Mayo Clinic CTSA and YCCI in the initiation and support of research protocols.

Aim 2: Develop and implement a collaboration model(s) for the sharing of specific best practices, expertise and technologies between Mayo Clinic CTSA and YCCI.

Aim 3: Disseminate the collaboration model(s) to CTSA consortium members.

The research project plan discusses possible pilot projects for collaboration and their relationship to the parent CTSA grant in more detail.

RESEARCH PROJECT PLAN

Background

Since launching our CTSAs in October 2006 as part of the first cohort, Mayo Clinic and Yale University have enjoyed a close working relationship. In particular, our administrative directors (Ms. Sheila Olson at Mayo Clinic and Ms. Tesheia Johnson at Yale) have kept in close communication and developed a strong understanding of each other’s institutions. This collaboration has been strengthened by Ms. Olson’s participation on the YCCI External Scientific Advisory Board, and Ms. Johnson’s participation on the Mayo Clinic CTSA External Advisory Committee.

The opportunity to review the inner workings of each organization led to a recognition that Mayo Clinic and Yale each have research management strengths that could benefit the other institution – if those strengths
could be exported in a way that makes them adaptable (customizable) and adoptable (feasible within differing budget and cultural constraints). In some cases, a successful program could potentially be replicated at the other institution; in other cases, it might be more effective for one institution to increase its own staffing levels to offer expert consulting to the other institution, rather than duplicate infrastructure at both sites. The goal of this project is to determine the best model(s) for these interinstitutional collaborations, recognizing that more than one model may be necessary to accommodate a variety of programs, services and best practices.

In the broadest sense, the proposed project is encompassed by Goal 6 of the Mayo Clinic CTSA parent grant: “Continued and Expanded Institutional Support for Clinical and Translational Research, featuring an ‘academic home’ that includes spatially consolidated administrative and regulatory offices to support clinical and translational research.” The proposed project will lead to improved administrative, regulatory and research support for our investigators and study teams as we adopt best practices from YCCI. Furthermore, developing effective collaboration models will position Mayo Clinic CTSA to learn from other institutions and to make new outside resources available to our study teams.

As outlined in the proposed pilots below, this project is also directly tied to several other goals from our parent CTSA grant.

**Proposed Pilot Collaborations (Aims 1 and 2)**

To simplify the “linked collaborative” aspect of this project, the Mayo Clinic CTSA application contains the best practices, expertise and/or technologies that we could offer to YCCI. Yale’s application contains the elements they could offer to Mayo Clinic. This allows each institution to offer evidence of its expertise in the proposed area to help reviewers assess the merit and feasibility of the proposal.

**Pilot Collaboration 1: Assist YCCI with strengthening its FDA regulatory support to investigators.**

*Connection to parent grant:*

**Goal 3** of the original Mayo Clinic CTSA application focused on compliance and regulatory affairs support for study teams. With grant funding and extensive institutional support, the CTSA has launched a new Office of Research Regulatory Support (ORRS) that provides oversight and consulting services on FDA regulatory issues to the entire Mayo Clinic research enterprise. Key ORRS services include:

- Consultation for IND/IDE initiation, maintenance and reporting
- Development of an IND/IDE tracking database
- FDA audit support
- Education and training on regulatory issues, including updates on new/revised regulations

Medical/scientific leadership for ORRS is provided by Michael J. Joyner, M.D., a co-PI of the Mayo Clinic CTSA and co-chair of the national CTSA Clinical Research Management KFC. His administrative partner is Karen Hartman, RN, MSN, CCRP, a member of the Regulatory Knowledge KFC. Ms. Hartman has been providing FDA/regulatory consulting services through the CTSA Service Center since early 2007, and led the efforts to develop a business plan and administrative structure for the enterprise-wide ORRS. The new ORRS expands the reach of Mayo Clinic’s regulatory consulting services, combining current CTSA services with those offered by the Office for Research Compliance, the Cancer Center Clinical Research Office and other institutional resources.

A top priority of ORRS has been the development of a well-defined process for initiation of INDs and IDEs. Investigators can be overwhelmed by the prospect of navigating the FDA’s IND/IDE application process, creating a barrier to the development of novel therapies and drugs desperately needed by patients. By providing professional guidance and ongoing support, ORRS can encourage investigators to take that important first step toward translating their novel ideas and research findings into real-world treatments.

Working with CTSA-supported programmers and informatics specialists, ORRS has developed an IND/IDE tracking database to allow for better monitoring and reporting. Like many institutions, Mayo Clinic has struggled to keep a current listing of all IND/IDE holders since FDA communicates directly with the PIs, often bypassing the institution. The lack of institutional involvement can create risk for both the institution and the PI, and hinders the ability of the institution to offer critical expertise, training and support to its PIs. With the combination of an up-to-date tracking database and trained regulatory specialists, the Mayo Clinic ORRS is equipped to provide oversight, education and support for current and potential IND/IDE holders. YCCI has expressed interest in implementing similar oversight and consultative services for its investigators.
Proposed collaboration elements:

- Mayo Clinic CTSA will provide assessment, expertise and training to help YCCI launch a similar Office of Research Regulatory Support (0.25 FTE – Regulatory Specialist)
- Mayo Clinic CTSA will share its IND/IDE tracking database with YCCI (programming time included under Pilot Collaboration 3)

Pilot Collaboration 2: Assist YCCI with minority inclusion, health disparities and community engagement efforts.

Connection to parent grant:

Goal 4 of the original Mayo Clinic CTSA application focused on community affairs, including efforts to increase the diversity of our scholars, faculty, staff and research subject base. To accomplish this, Community Engagement became one of the four “pillars” or basic components of the Mayo Clinic CTSA. Within the Community Engagement component, our diversity and health disparities efforts are spearheaded by the Office for Diversity in Clinical Research (ODCR), an existing function that was revitalized and expanded with CTSA grant funding and significant institutional support.

Medical/scientific leadership for Community Engagement/ODCR is provided by David O. Warner, M.D., a co-PI of the Mayo Clinic CTSA and a member of the national CTSA Community Engagement and Evaluation KFCs. The ODCR is directed by Miriam Marquez, Ph.D., a leader in minority inclusion and health disparities efforts. Dr. Marquez and her staff of specialists provide consulting, education and community services in four main functional areas:

- Community Outreach and Partnerships
- Research Recruitment and Retention
- Health Disparities Research
- Data Linkages, Collection and Evaluation

Much of this effort is directed specifically to educate and support investigators in developing and executing effective strategies to ensure that research participants reflect the composition of the surrounding community. YCCI is interested in strengthening its community engagement and diversity efforts, and has expressed interest in replicating the Mayo Clinic CTSA ODCR model at Yale.

Proposed collaboration elements:

- Mayo Clinic CTSA will provide assessment, expertise and consultation to help YCCI establish a similar Office of Diversity in Clinical Research (ODCR Director or equivalent FTE covered by parent grant)
- Mayo Clinic CTSA will provide “train the trainer” educational opportunities to help YCCI staff its new diversity office (RN Study Coordinator FTE covered by parent grant)
- If needs assessment/feasibility analysis shows that establishing a Yale ODCR is not practical, explore establishing a consulting relationship that would allow Mayo Clinic ODCR staff to assist YCCI investigators with minority inclusion, health disparities research, community outreach and data collection/reporting.
- Mayo Clinic will provide on-site consultation for Yale diversity staff (travel expenses)

Pilot Collaboration 3: Assist YCCI with development of web-based tracking and reporting tools.

Connection to parent grant:

Goal 1 of the original Mayo Clinic CTSA application focused on clinical research core services to support the conduct of clinical/translational research. In addition to the scientific/technical cores, the Mayo Clinic CTSA has invested considerable resources into developing tools that allow investigators and program administrators to track, manage and report various aspects of clinical research and management functions. These tools are made available to staff through both the Service Center and Research Resources components of the CTSA.

Dr. Michael Joyner, a Mayo Clinic CTSA co-PI, is currently leading institutional efforts to consolidate and prioritize all research-related IT needs and resources. To accomplish this formidable task, he draws on the expertise of Mayo Clinic’s leaders in biomedical informatics, IT/systems analysis, web analysis and programming. CTSA funding and institutional support have allowed for the doubling of dedicated CTSA IT/programming resources, which has facilitated the development of several custom data collection/reporting tools, including:
Identification and reporting of relevant publications and grants for the Annual Progress Report.

IND/IDE tracking and reporting.

Utilization tracking and reporting of consultative services.

Utilization tracking and reporting for Clinical Research Unit and Core Facility services.

YCCI is interested in using several of these tools to strengthen its tracking and reporting capabilities.

**Proposed collaboration elements:**

- Mayo Clinic CTSA will share its customized tracking/reporting tools with YCCI, and provide programming support for customizing to Yale’s administrative needs and IT platforms (*0.25 FTE programmer/system analyst*).
- Mayo Clinic CTSA will provide on-site training for Yale programming staff (*travel expenses*).

**Pilot Collaboration 4: Assist YCCI with education and training of study coordinators.**

**Connection to parent grant:**

**Goal 2** of the original Mayo Clinic CTSA application focused on career development and educational programs to prepare investigators and support staff for excellence in clinical/translational research. While Mayo Clinic may be better known for its well-established K12 and K30 programs which are now the KL2 and Postdoctoral programs within our CTSA, we also offer one of the few formal degree programs for clinical research coordination in the nation. The Mayo Clinic CTSA administers a unique collaboration between the Mayo School of Health Sciences and Rochester Community and Technical College to provide a two-year Associate in Applied Science (AAS) degree and one-year Diploma in Clinical Research Coordination. Fieldwork takes place in Mayo Clinic research labs, and graduates quickly find positions at Mayo Clinic or other research institutions.

This degree/diploma program is part of the Research Management Programs within CTSA Education Resources. Research Management Programs are directed by Dr. David O. Warner, a CTSA co-PI, with administration provided by Lori Carlson, RN, MBA, an experienced research nurse and educator. The director of Mayo Clinic CTSA Education Resources is Sherine Gabriel, M.D., M.Sc., a CTSA co-PI and national leader in clinical research education. Both the 60-credit AAS degree and 35-credit diploma contain professional, clinical and practical education components.

YCCI is interested in exploring collaboration opportunities with its local community college to establish a similar degree/diploma program. In the short term, YCCI would also like to participate in Mayo Clinic CTSA one-week research practicums for study coordinators, and access some of the excellent online modules that CTSA Education Resources has developed for study coordinator continuing education.

**Proposed collaboration elements:**

- Mayo Clinic CTSA will send its CRC program director to assess feasibility and share expertise regarding collaboration between Yale and its local community college (*Education Operations Manager, FTE covered by parent grant*).
- Mayo Clinic CTSA will offer study coordinator practicum opportunities to YCCI study coordinators.
- Mayo Clinic CTSA will share online coursework (study coordinator modules, CME modules) with YCCI.
- Mayo Clinic will provide on-site consultation for Yale coordinator education staff (*travel expenses*).

**Ideas/Programs From YCCI To Be Implemented by Mayo Clinic CTSA**

**Pilot Collaboration 5: Transform CTSA Service Center per the model of YCCI Office of Research Services (ORS).**

- Conduct needs assessment/survey of Mayo Clinic investigators to identify service gaps.
- Expand staffing and services to address known gaps: navigating the IRB process; identifying funding sources for junior investigators; increased assistance with protocol development, study design, informatics.

**Pilot Collaboration 6: Assess need/feasibility of developing a study coordinator pool.**

- Conduct needs assessment/survey of Mayo Clinic investigators and study teams to determine unmet demand for study coordinator services.
- Work with YCCI consultants to develop a shared resource model for study coordinator services

**Pilot Collaboration 7: Develop a Community Research Site Toolkit based on YCCI model.**
- Create new position – Community Based Participatory Research (CBPR) Coordinator – to work with YCCI consultants and community research partners (.8 FTE RN Study Coordinator)
- Develop a toolkit of processes, training, forms and templates to assist community partners in setting up fully compliant clinical research operations
- Explore methods for community outreach to identify and launch productive, compliant, diverse and representative community-based research sites

**ACCELERATING THE TEMPO OF SCIENTIFIC RESEARCH**
Mayo Clinic CTSA and YCCI believe that this linked collaborative proposal would accelerate the tempo of scientific research at both institutions by:
- Removing procedural and administrative barriers to protocol development and initiation
- Streamlining the progression of protocols through the IRB and other regulatory oversight processes
- Providing professional development and training for study team members to help them in the conduct, monitoring and reporting of research
- Expanding potential sites for community-based clinical/translational research

**JOB CREATION AND RETENTION**
It is anticipated that this proposal will create new FTEs at Mayo Clinic (see budget justification for details).

**EVALUATION (Aim 2)**
Because this is a linked collaborative project, there are two distinct areas requiring evaluation:
- The effectiveness of the methods/programs/services adopted by each institution
- The effectiveness of the collaboration model(s) developed and used by the two institutions

Evaluation of the adopted programs/services is fairly straightforward. Each institution will use its existing metrics and evaluation methods to evaluate the new programs (e.g., improved review cycle time, less rework, increased investigator satisfaction, etc.). Evaluation of the collaborative model(s) may be more challenging; it must focus on the **perceived mutual benefit** of the collaboration: i.e., does Yale feel that it has gained enough knowledge, methodology and tools to make its efforts in exporting its expertise to Mayo Clinic an equitable and sustainable investment -- and vice versa? And is the model reproducible by other institutions, such that they would also gain mutual benefit?

Mayo Clinic CTSA and YCCI will jointly develop a survey tool to be used with PIs, administrators and program directors at both institutions to measure quality, effectiveness and satisfaction with the collaborative process. The survey will be administered at the end of the first grant year, and results will be used to adjust the collaboration model as needed for Year 2. The same survey will be administered at the end of the project period to assess the effectiveness of midstream adjustments.

**DISSEMINATION (Aim 3)**
Mayo Clinic CTSA and YCCI intend to disseminate the collaboration model(s) developed during the project period to the rest of the CTSA consortium. Because the research plan calls for the two institutions to explore different collaboration models (e.g., comparing the effectiveness of contracting for consulting services vs. replicating a successful service/program), it is not yet certain which model(s) will be shared with the consortium.

Dissemination methods will include a joint presentation at a future Administration KFC face-to-face meeting; presentations as requested at other KFC meetings; and articles and/or white papers for NCRR/CTSA publications as requested.