

The West Virginia Clinical and Translational Science Institute contracts the WVU Program Evaluation and Research Center to staff the WVCTSI Tracking and Evaluation Core and provide external formative and summative evaluation services pursuant to National Institutes of Health Award No. U54GM104942.

West Virginia Clinical and Translational Science Institute (WVCTSI) Tracking and Evaluation Quarterly Report

3rd Quarter of Fiscal Year 2021-2022 (Y10)

Reporting Period: January 1, 2022 – March 31, 2022

Statewide Distribution of WVCTSI Partner Organizations and Practice-Based Research Network Sites



CAMC / WVU Charleston



Marshall University



West Virginia School of
Osteopathic Medicine



WV Veterans Affairs



National Institute for
Occupational Safety and
Health



West Virginia
University



WVU Medicine



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West Virginia Clinical Translational Science Institute

Tracking and Evaluation Quarterly Report

(January 1, 2022 – March 31, 2022)

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WVCTSI Year 10 Dashboard

Category	Y10 Q1	Y10 Q2	Y10 Q3	Y10 Q4	Total	TARGET
CTR-Linked Publications	31	23	11		65	400
Proposals Submitted (#)	40	41	59		140	270
Subcategory: Proposals Submitted by ESIs	6	1	6		13	
Subcategory: Proposals Submitted by Clinicians		22	17		39	
Proposals Funded (#)	55	40	24		119	225
Subcategory: ESIs-Proposals Funded Totals		0	0		0	
Subcategory: ESIs-Proposals Funded Active		0	0		0	
Subcategory: ESIs-Proposals Funded New		0	0		0	
Subcategory: Clinician-Proposals Funded		9	15		24	
Subcategory: Clinician-Proposals Active		8	9		17	
Subcategory: Clinician-Proposals New		1	6		7	
Total External Funding Received (\$)	\$16,207,224.84	\$ 3,292,753.69	\$ 4,172,978.50		\$ 23,672,957.03	\$45 M
Subcategory: Federal	\$11,996,367.00	\$ 1,954,518.00	\$ 1,905,450.00		\$ 15,856,335.00	
Subcategory: State	\$2,804,027.35	\$ 800,000.00	\$ 121,136.50		\$ 3,725,163.85	
Subcategory: Industry	\$919,351.80	\$ 215,401.44	\$ 168,470.00		\$ 1,303,223.24	
Subcategory: Other*	\$487,478.69	\$ 84,834.25	\$ 1,977,922.00		\$ 2,550,234.94	
Disclosures Submitted:	1		4		5	2
Patent Applications	1		4		5	1
Patents Awarded	0		0		0	2
WVCTSI Membership	3,729	3920	4083		4083	3,850
Non-Morgantown	1,319	1430	1518		1518	
Community Membership	515	534	594		594	
Investigators accessing CTSI services or resources (unique # per quarter)	238	237	225		779 (unique # YTD)	

Executive Summary and Key Recommendations

This is the quarterly tracking and evaluation report of the WV Clinical and Translational Science Institute (WVCTSI) for the 3rd quarter (Q3) of fiscal year 2021/2022 (Y10), which covers a reporting period from January 1, 2022 through March 31, 2022. The WVCTSI received Y10 renewal notice of award dated June 30, 2021 with an annual award of \$4,000,000 for the budget period from July 1, 2021 through June 30, 2022 and a total project period from August 15, 2012 through June 30, 2022.

This report prepared by WVCTSI Tracking and Evaluation Core personnel is organized by specific aim within each key component area/core plus information from partner institutions as available. This report does not describe every tracking and evaluation metric in each core, rather key elements and recommendations are summarized and readers are referred to the Quarterly Data Sheet (Excel) distributed with this report for information on all metrics as reported by all cores and partners. At the close of the reporting period, there were 11 peer-reviewed publications including 1 in press that were officially linked¹ to WVCTSI funding, 2 presentations, 59 external funding proposals totaling over \$39.8 million, and 24 funded awards totaling over \$4.1 million for quarter 3 of year 10.

Overall recommendations from Tracking and Evaluation Core

- Close out cycle 2 (years 6-10) funding period by June 30, 2022.
- Develop contingency plans for institutionalization of activities as feasible, and engage in planning activities to “hit the ground running” should renewal funding be awarded.

Key Recommendations to Administrative Core

- Develop process to set annual dashboard targets prior to the start of each fiscal year utilizing patterns of change in overall dashboard metrics across previous funding years.
- Host partner-focused WVCTSI leadership discussions to generate additional ideas and action items to engage each partner and meet their needs better over time. Include at least the following considerations: supporting ORCID ID usage, linking publications, supporting competitive pilot award applications, iLabs utilization, targeted advertising and training related to WVCTSI service utilization by personnel at each partner organization, and regular communications channels through which partners and associated investigators make their needs and preferences known.
- Continue efforts to get all WVCTSI members who generate scholarly publications to have an ORCID ID as part of their WVCTSI membership profile.

Key Recommendations to Clinical Research Design, Epidemiology & Biostatistics Core

- Plan and conduct professional development trainings targeted at increasing service utilization generally by investigators at each partner site. Additionally, consider why no GIS consultations were engaged this quarter and specifically target removing any barriers to that service being delivered / utilized in the future.

¹ Publications are officially linked if they appear in NCBI as published or Epub ahead of print(in press) and are associated with quarterly reporting periods based on their official NCBI publication date. We report all linked publications including any embargoed that do not yet appear on the public facing NCBI list. The number of linked publications for each quarter continues to rise following the end of the reporting period.

Key Recommendations to Clinical Research Resources & Facilities Core

- Consider innovative ways in which CRRF might contribute to linked publications and supporting early-stage PI's.

Key Recommendations to Community Engagement & Outreach Core

- Review all metrics with low or zero activity this quarter, which are mostly in new project/collaboration areas, and determine whether that is appropriate given the approaching end of the funding period or what efforts may be needed to increase activity in preparation for a new funding cycle should renewal funding be awarded.

Key Recommendations to Pilot Projects Core

- Review activity to date and consider whether additional effort should be targeted at supporting funded pilot awardees completing their scope of work by June 30, 2022, as well as how to best prepare for a new funding cycle should renewal funding be awarded.

Key Recommendations to Professional Development Core

- Set core-specific annual targets for year 10.
- Discontinue the CTS Certificate program because there has been no enrollment since Q3Y9 and enrollment headcount has varied from 0-3 students throughout this funding cycle.

Key Recommendations to Technology and Resources for Core Laboratories Core

- Consider whether additional effort should be directed toward WVU and CAMC collecting and utilizing biospecimen samples.

Key Recommendations to Tracking and Evaluation Core

- Review all metrics alignment to specific aims and consider implications for quarterly reporting during the current funding cycle ending 6/30/2022. Conduct similar analysis related to specific aims in renewal application and prepare for evaluation changes beginning 7/1/2022.
- Continue building web-based membership database toward an integrated member service utilization and productivity database.

Key Recommendations to Marshall University, National Institute for Occupational Safety and Health, Veterans Affairs Medical Centers, and West Virginia School of Osteopathic Medicine

- CAMC should set annual targets for year 10
- Work with Administration Core to help ensure partner organization perspectives related to how best to engage investigators and other personnel at each site are made clear.
- Continue efforts to increase WVCTSI membership, awareness, and utilization of WVCTSI core services at each partner institution.

Quarterly Reporting Annual Timeline Targets

1st quarter Reporting Period = July 1 – Sept 30

Sept 18	1 st quarter report task assigned to each KCA/Partner via email to key contacts
Oct 1	TEC begins data acquisition from repositories (e.g., iLab)
Oct 7	Quarterly data submission due from key contacts to TEC
Sept-Oct	Pre/post submission meetings (TEC and key contacts)
Oct 28	1 st quarter formative evaluation report and metric data distributed by TEC
Nov-Dec	Steering Committee discusses 1 st quarter formative evaluation

2nd quarter Reporting Period = Oct 1 – Dec 31

Dec 18	2 nd quarter report task assigned to each KCA/Partner via email to key contacts
Jan 1	TEC begins data acquisition from repositories (e.g., iLab)
Jan 7	Quarterly data submission due from key contacts to TEC
Dec-Jan	Pre/post submission meetings (TEC and key contacts)
Jan 28	2 nd quarter formative evaluation report and metric data distributed by TEC
Feb-Mar	Steering Committee discusses 2 nd quarter formative evaluation

3rd quarter Reporting Period = Jan 1 - Mar 31

Mar 18	3 rd quarter report task assigned to each KCA/Partner via email to key contacts
Apr 1	TEC begins data acquisition from repositories (e.g., iLab)
Apr 7	Quarterly data submission due from key contacts to TEC
Mar-Apr	Pre/post submission meetings (TEC and key contacts)
Apr 28	3 rd quarter formative evaluation report and metric data distributed by TEC
May-June	Steering Committee discusses 3 rd quarter formative evaluation

4th quarter Reporting Period = Apr 1 – June 30

June 18	4 th quarter report task assigned to each KCA/Partner via email to key contacts
July 1	TEC begins data acquisition from repositories (e.g., iLab)
July 8	Quarterly report data due to TEC from each core
June-July	Pre/post submission meetings (TEC and key contacts)
July 29	4 th quarter formative evaluation report and metric data distributed by TEC
Aug-Sept	Steering Committee discusses 4 th quarter formative evaluation

Administrative Core

Specific Aim 1. Implement an effective operational structure that facilitates attainment of all proposed WVCTSI Specific Aims and projects.

WVCTSI had 59 external funding proposals (\$39.88 million) and 24 funded awards (\$4.17 million) during Y10 Q3. Of these Admin was directly linked to 19 external funding proposals (\$19.1 million) and 4 external awards (\$667K) this quarter. Figures 1 and 2 show types of external funding proposed and awarded per cores contributing.

WVCTSI Staff numbers in Q3 is 67.



External Funding Proposal Amounts by Core

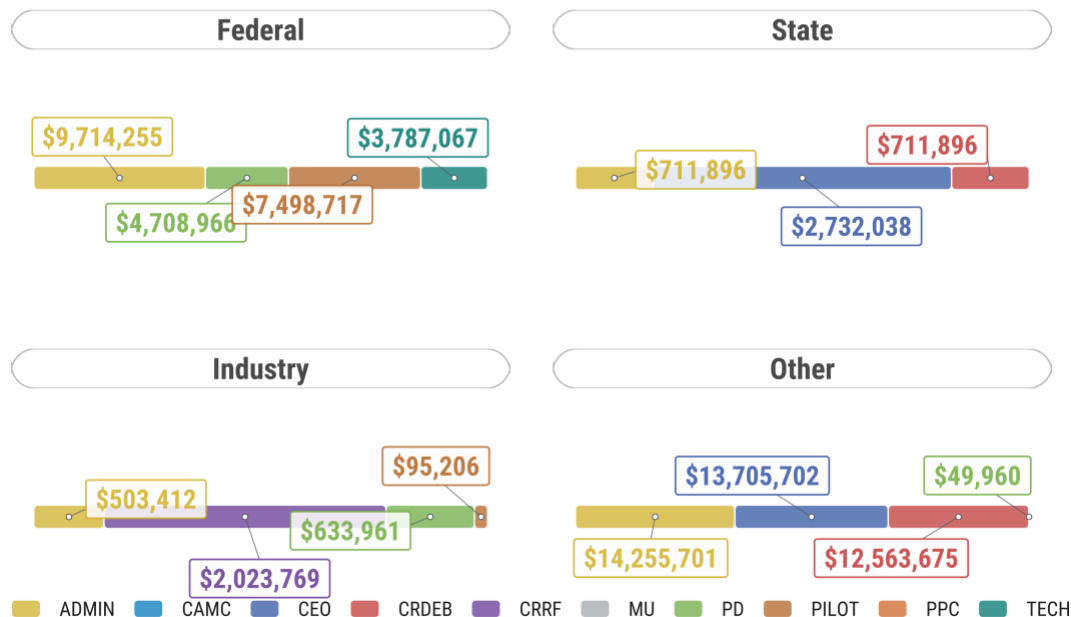


Figure 1. External funding proposals dollar amount requested and category per core

External Funding **Award** Amounts by Core

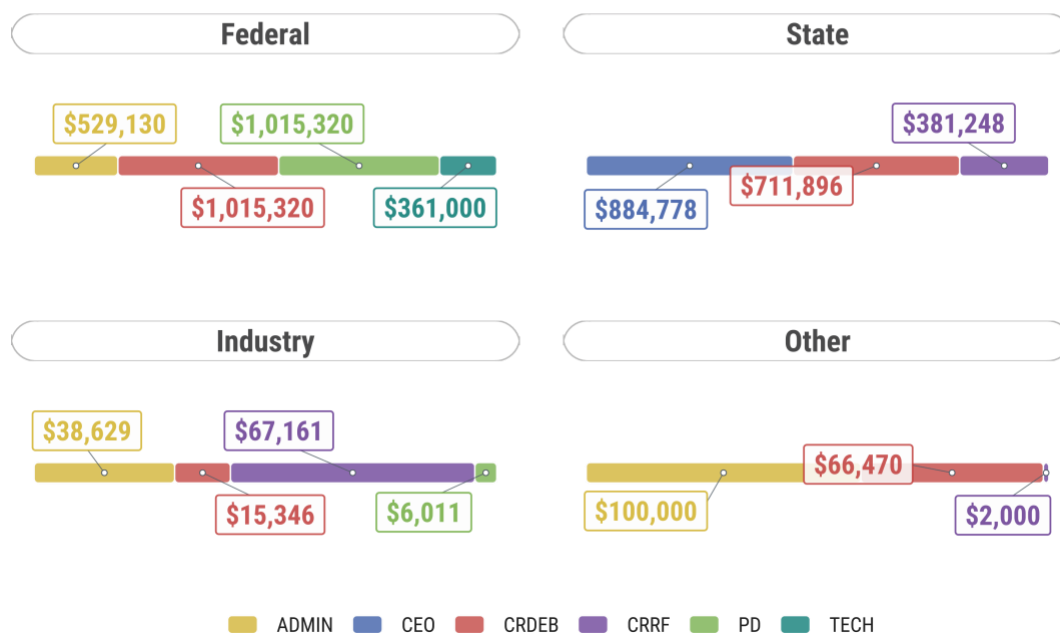


Figure 2. External funding awards dollar amount per core.

Tracking and Evaluation Core pulled linked publications from NCBI utilizing all appropriate grant numbers to accurately identify which publications should be considered linked to the grant in this and all previous quarters. The [WVCTSI Linked Publications Hub](#) displays officially linked publications associated with each quarterly reporting period. “In press” numbers are additional linked publications with a current status of “ahead of print” that are expected to be published at some point and remain linked to the grant.

[WVCTSI Linked Publications Hub](#)

It should be noted that linking publications requires substantial effort and lags real time. While the total number of linked publications typically lags the annual target, it is on-track based on trends observed in past years where the number of publications continues to rise after a reporting period has ended. Accordingly, the number of linked publications at the time the reporting period closed and for which core contributions are reported here will be fewer than those reported in the table above because additional publications continue to be linked daily.

While the current number of linked publications is higher, there were 11 publications linked to the grant at the close of Quarter 3. Cores and partners contributed to the following number of those linked publications each: 2 ADMIN, 6 CRDEB, 1 Pilot, 2 PD, and 3 TECH. These counts do not add up to 11 due to multiple cores being linked with several publications. Core contributions to linked publications are displayed in Figure 3.

Publication Counts by Core or Institution

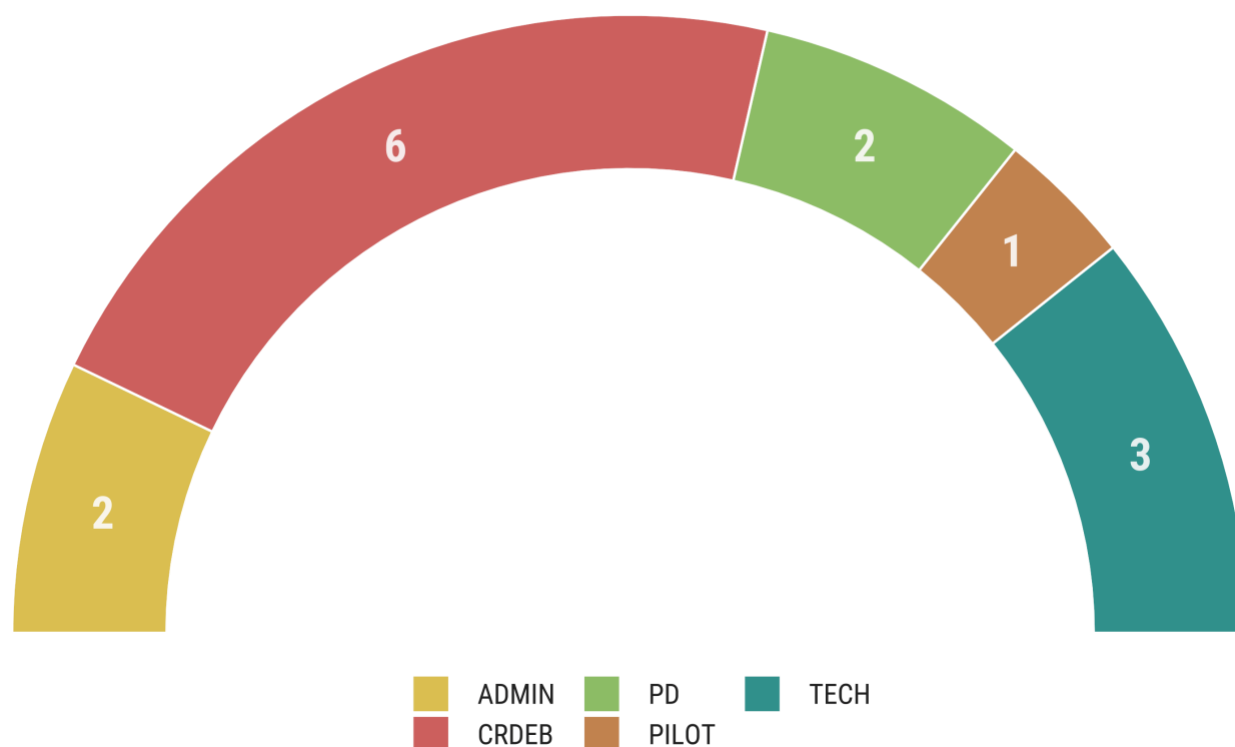


Figure 3. Contributions per core to Y9Q1 WVCTSI linked publications.

In order to address the concern that WVCTSI may be supporting publications that are not being appropriately identified and linked to the grant, TEC pulls publications from appropriate public databases (e.g., PubMed) utilizing ORCID ID's when available and full names on the WVCTSI member list when ORCID ID's are not available then limiting the search to publications during the current funding period. The list from the name-based search is reduced by including only those publications with author institutional affiliations in West Virginia. Core leadership review the list and contact all first authors regarding whether their publication should be linked to the grant. TEC continues to use the quarterly progress report through which publications, among several other types of information, are requested from all individuals who receive WVCTSI services or support.

Specific Aim 2. Create policies and procedures to drive performance, transparency, constructive communication and collaboration among multiple, diverse stakeholders (i.e., investigators, rural providers, community members).

Administration Core reported having 127,114 website visitor hits, with an average of 399.3 website visitors per day during Q3. WVCTSI's social media engagement reported in Q3 includes: 5 New Facebook Likes (with a total of 480 Likes), 7 New Facebook Followers (562 total followers), 11 new Twitter followers (737 followers total), 6 new Instagram followers (146 total), 1.32K YouTube Subscribers with a total of 164.6K views and 105 new General Interest Mailing List subscribers (3806

total).

Specific Aim 3. Provide sound fiscal and resource management, ensuring appropriate resourcing of cores, flexibility to meet changing needs and environments, and sustainability of services.

As noted above, WVCTSI supported 59 external funding proposals and 24 external awards this quarter. Percentage of NIH award expended ranged between 2% and 41% in Q3 with CRDEB being the lowest and TEC being the highest. There were 8 cost transfers/corrections reported this quarter.

Specific Aim 4. Recruit talented, committed investigators addressing research questions relevant to the WVCTSI priority health areas.

No Clinical Translational investigators were reported as hired this quarter, however 2 new WVCTSI staff were reported as being hired in Q3.

Key Recommendations to Administrative Core

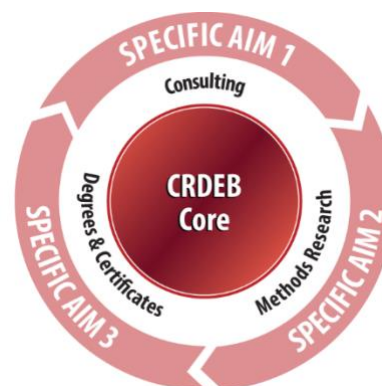
- Develop process to set annual dashboard targets prior to the start of each fiscal year utilizing patterns of change in overall dashboard metrics across previous funding years.
- Host partner-focused WVCTSI leadership discussions to generate additional ideas and action items to engage each partner and meet their needs better over time. Include at least the following considerations: supporting ORCID iD usage, linking publications, supporting competitive pilot award applications, iLabs utilization, targeted advertising and training related to WVCTSI service utilization by personnel at each partner organization, and regular communications channels through which partners and associated investigators make their needs and preferences known.
- Continue efforts to get all WVCTSI members who generate scholarly publications to have an ORCID ID as part of their WVCTSI membership profile.

Clinical Research Design, Epidemiology & Biostatistics Core

Specific Aim 1. Effectively engage investigators throughout WV by providing traditional services in biostatistics and epidemiology.

Investigators engage through the CRDEB core utilizing available resources including the Integrated Data Repository (IDR), REDCap, and TriNetX. There were 106 new REDCap users in Q3 with a total of 2,846 REDCap users to date (803 of which are active users). Of the 2,846 REDCap users, 2,101 were from WVU (565 active), 20 from CAMC (4 active), 18 from WVSOM (6 active), and 707 not affiliated with the above entities (228 active).

There were 1.75 hours reported in the category of updating existing REDCap projects and providing project follow-up meetings in Q3. 1 REDCap projects were made for WVCTSI-funded investigators and 5 REDCap projects were made for non-WVCTSI investigators. There was a total of 77 REDCap projects and 119 data instruments, 121 new REDCap service inquiries, and 0 hours of REDCap consultations reported



in Q3. The total number of current TriNetX users was 545 in Q3 and there were 3,511 new TriNetX inquiries, with 33 new TriNetX logins and 15 data set requests. CRDEB reported 0 practice/policy changes in Q3 and no professional development events.

By the Numbers: Clinical Research Design, Epidemiology & Biostatistics Core Services

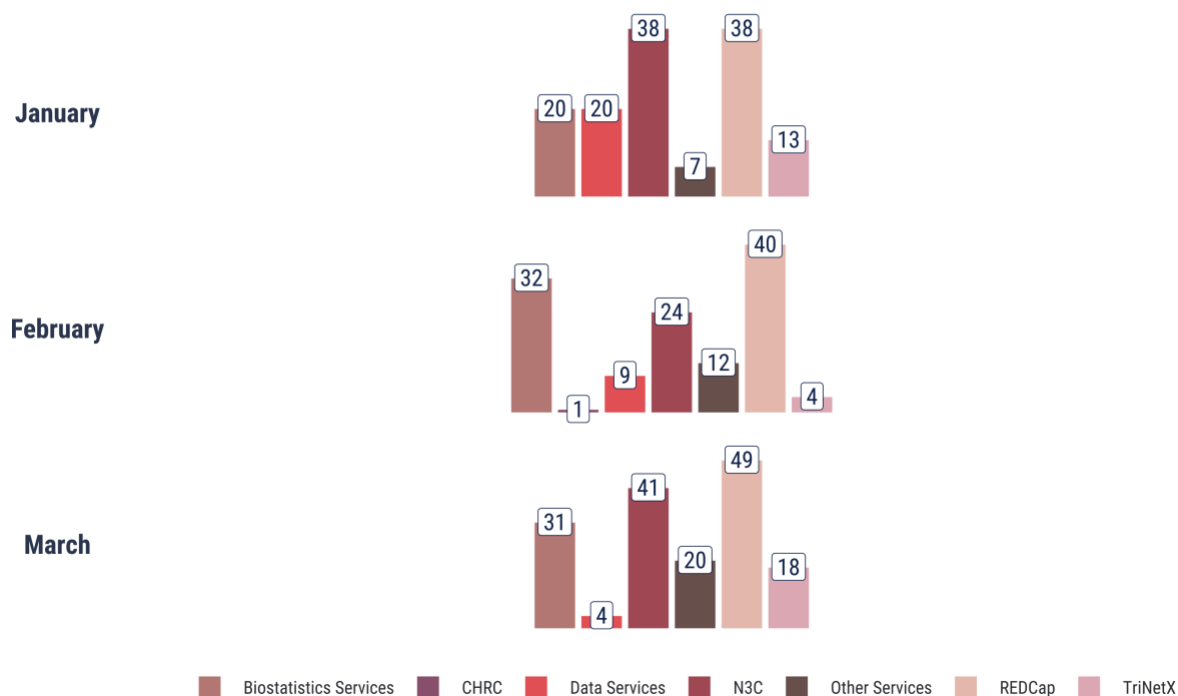


Figure 4. CRDEB iLab Core Management System services logged by month and service type.

Specific Aim 2. Implement cutting-edge tools and methods in biostatistics and epidemiology, with a particular focus on the needs of WV researchers.

CRDEB reported 52 BMIR-related inquiries, 28 new unique CRDEB consultations, 2 sample size/power consultations, 23 new statistical analysis consultations, and 11 new clinical study design consultations in Q3. Additionally, 440.25 hours were dedicated to biostatistics consultations. Zero GIS analysis consultations were reported for Q3.

Specific Aim 3. Disseminate current and classical information in biostatistics and epidemiology.

There were 6 linked publications supported by CRDEB, where 3 were standalone and 3 were supported in collaboration with other cores: ADMIN (1) and PD (2). CRDEB contributed to 1 external funding proposals for \$2.3 million in Q3. CRDEB supported 5 external funding awards (totaling \$1.8 million in Q3), 4 of which were standalone and 1 in collaboration with PD.

Specific Aim 4². Leverage the newly enhanced Integrated Data Repository (IDR2) and partnership through the Appalachian Research Consortium (ARC) to facilitate outcomes research, predictive modeling, and geospatial analysis.

There were 13 new custom IDR dataset requests, 4 requests for updates to previous IDR datasets, and 16 IDR projects reported as completed in Q3. There were 166.25 hours spent on new data requests, 16 hours on updates to previous data sets and 0 hours data request consultation. CRDEB did not report any activity related to the Appalachian Research Consortium (ARC).

Key Recommendations to Clinical Research Design, Epidemiology & Biostatistics Core

- Plan and conduct professional development trainings targeted at increasing service utilization generally by investigators at each partner site. Additionally, consider why no GIS consultations were engaged this quarter and specifically target removing any barriers to that service being delivered / utilized in the future.

Clinical Research Resources & Facilities Core

CRRF did not contribute to linked publications in Q3. CRRF did contributed to 30 external funding proposals (totaling \$10.1 million) in Q3, of which 22 were standalone and 6 collaborations with other cores (6 Admin, 1 with PD, 1 with Admin & PD). CRRF received 11 external funding awards (\$450,409), all of which were standalone. CRRF services monthly across Q3 by category and the number of OnCore studies by month are displayed below in Figure 6.



Registration Counts for Clinical Research Resource Facilities

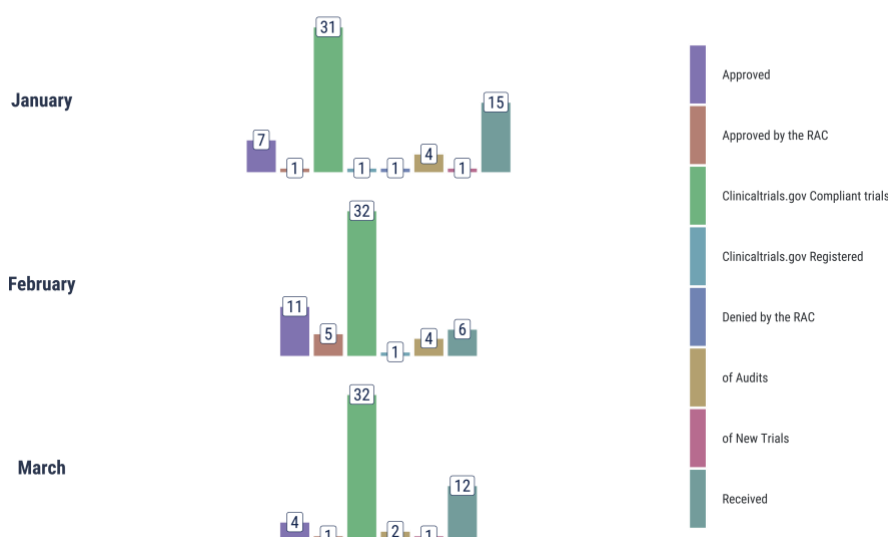


Figure 5. CRRF services by month and service type.

² CRDEB Specific Aim 4 was previously CRRF Specific Aim 2. This revision was specified by letter to NIH dated November 27, 2017 and subsequently approved.

Study Counts for Clinical Research Resource Facilities



Figure 6. CRRF OnCore studies by month.

Specific Aim 1. Create a Clinical Trials Center of Excellence (CTCOE) with connection to rural communities and practitioners, thereby providing access to cutting-edge trials addressing health disparities affecting West Virginians.

In Q3, CTCOE provided 138 unique instances of support to non-WVCTSI studies in the form of regulatory assistance (44), study coordination (38), accounting (56), and quality assurance audits (0). Within the expanded activities by CTCOE (established Q3Y8) which included Registration, a Risk Assessment Committee, and an Appeals Committee; there were 22 trials approved, 7 trials reviewed, and 7 approved by the risk assessment committee. CRRF supported 0 new Early-Stage PI's. CTCOE supported 0 WVCTSI-initiated trials in new research areas. 136 participants were enrolled, with 23 more completing a study. CRRF had 12 TriNetX study offers and 4 accepted at WVU, with 1 study activated in Q3. CRRF reported 1 PI Academy events and 6 new PI Academy members.

Specific Aim 2. Establish the Environmental Exposures Unit to stimulate environmental health research in collaboration with the National Institute for Occupational Safety and Health (NIOSH).

While there has been some activity with NIOSH personnel, there have been no data reported on the Environmental Exposures Unit since the beginning of this funding cycle (2016).

Key Recommendations to Clinical Research Resources & Facilities Core

- Consider innovative ways in which CRRF might contribute to linked publications and supporting early-stage PI's.

Community Engagement & Outreach Core

Specific Aim 1. Actively engage patients and other community stakeholders as research partners.

There were 112 WVPBRN and 254 ECHO sites reported in Q3. This included 46 new ECHO sites: (1) AbbVie pharmaceuticals (IL), (2) Community Education Group, (3) WVU Tech, (4) WVU OHSR, (5) WVU Institute of Technology, (6) WVU College of Business and Economics, (7) WV Collegiate Recovery Network, (8) WV Prevention Solutions, (9) Wheeling University, (10) West Virginia Wesleyan College, (11) West Virginia University Institute of Technology, (12) West Virginia University – Parkersburg, (13) West Virginia University – PSC, (14) West Virginia State University, (15) West Virginia Northern Community College, (16) West Virginia Higher Education Policy Commission, (17) West Virginia Drug Intervention Institution, (18) West Liberty University, (19) University of Charleston, (20) The Jed Foundation (CT), (21) Southern West Virginia Community and Technical College, (22) Shepherd University, (23) SELF, (24) Potomac State College of WVU, (25) Northwestern Medicine (IL), (26) New River Community and Technical College, (27) Fairmont State University, (28) Davis and Elkins College, (29) Concord University, (30) Center for Learning, Advising, and Student Success, (31) WVU Carruth Center, (32) Bridge Valley Community and Technical College, (33) Bluefield State University, (34) Blue Ridge Community and Technical College, (35) Alderson Broaddus University, (36) West Virginia University, (37) Annex Kanawha City Health Care, (38) Hampshire County Pathways, (39) Garrett County Health Department - Early Care Programs (MD), (40) West Virginia Sober Living, (41) River Valley Child Development Services, (42) New River Parents as Teachers, (43) St. Mary's Women and Family Care, (44) Stonebelt/RCA (IN), (45) Peak Health, and (46) The Marvel Center. There were 2 new partner organizations reported in Q3: (1) WV Sheriff's Association and (2) Mountaineer Health Clinic.

During Q3, there were 0 new CEO (non-ECHO) projects and 3 new ECHO projects reported. There was 1 Community Advisory Board meeting and 1 ECHO superhub immersion organization was trained (WV Cancer Institute 21 trainees), and 3 CAB related services reported.

Specific Aim 2. Transform community-identified research questions into externally-funded projects that improve health outcomes in WVCTSI health priority areas.

There were 11 new, 41 ongoing, and 3 completed WVPBRN projects as well as 0 new, 1 ongoing, and 0 completed CEO projects. 14 WVPBRN projects were reviewed and 11 accepted in Q3. There were, 20 Community Engagement and Training services, 356 Project Implementation services, 124 Project Development and Success services, 1 new Design Studio service, 13 Consultation services, 17 WVPBRN Activities, 1 funding opportunity identified, 214 ECHO services, and 16 services for products reported during Q3. CEO didn't contribute to any publications in Q3. CEO contributed to 4 external funding proposals (totaling over \$2.289 million) in Q3, all of which stand alone, and contributed to 3 standalone funding awards for \$884,778.

Specific Aim 3. Translate and disseminate research results to inform West Virginia health policy and practice.



In Q3, there were 40 Research Translation and Dissemination services, 1 internal and 1 external practice changes, and 0 policy changes or policy project briefs reported.

By the Numbers: Community Engagement & Outreach Services

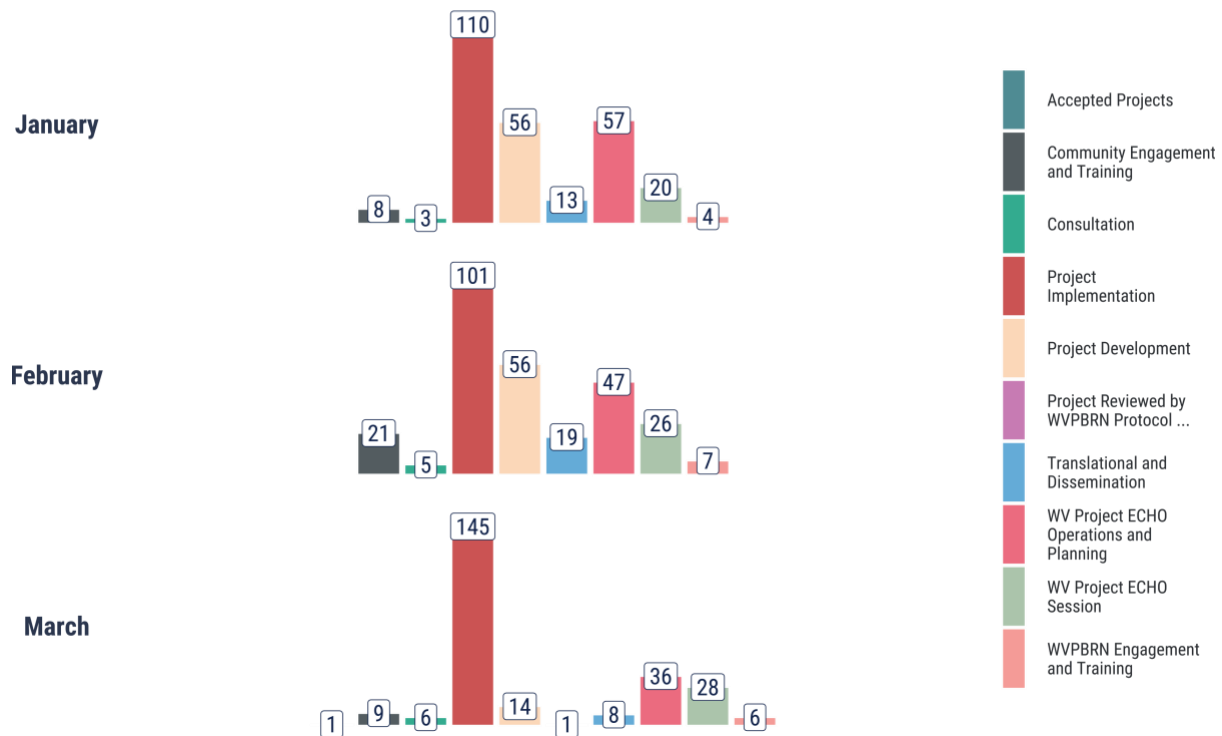


Figure 7. CEO core services logged by service type with drill down into services for services.

By the Numbers: Community Engagement & Outreach Products

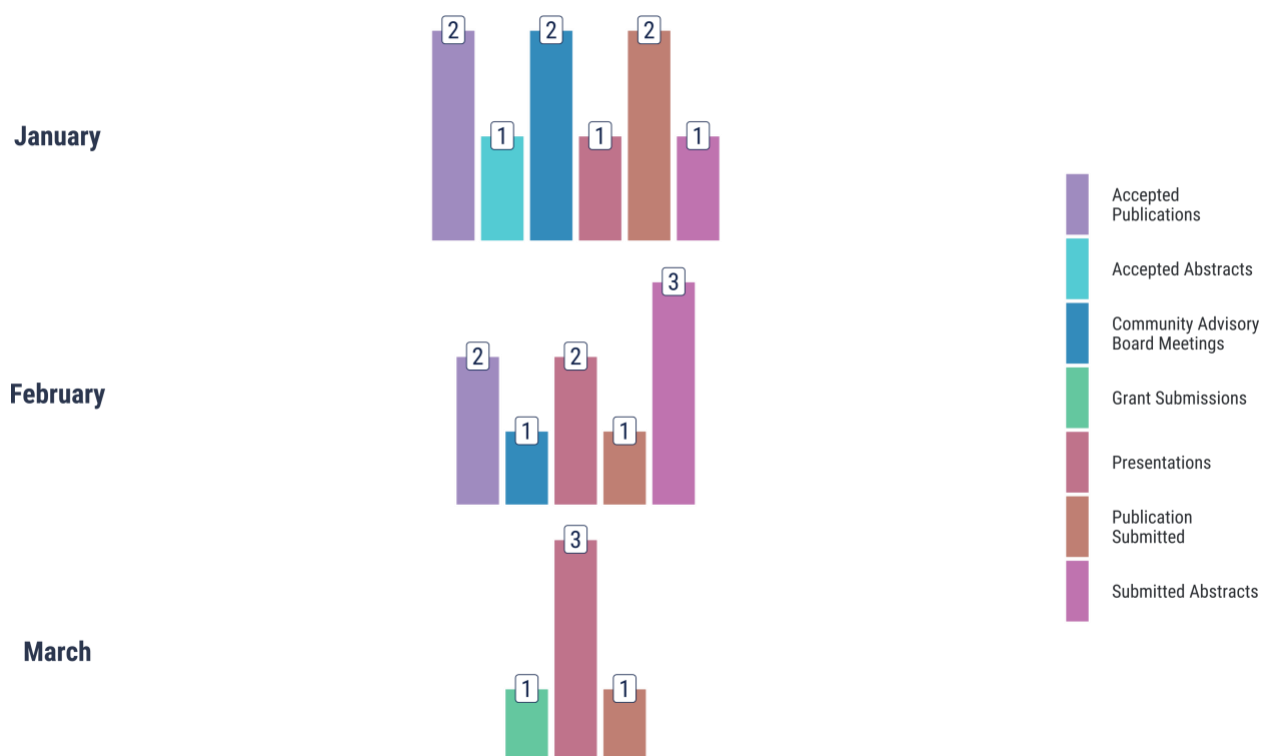


Figure 8. CEO core services logged by service type with drill down into services for products.

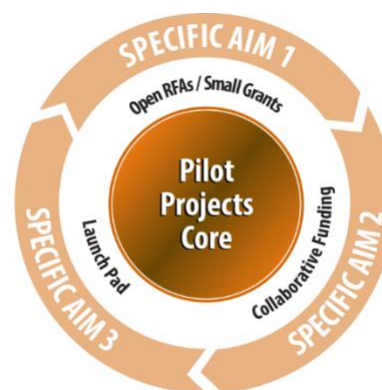
Key Recommendations to Community Engagement & Outreach Core

- Review all metrics with low or zero activity this quarter, which are mostly in new project/collaboration areas, and determine whether that is appropriate given the approaching end of the funding period or what efforts may be needed to increase activity in preparation for a new funding cycle should renewal funding be awarded.

Pilot Projects Core

Specific Aim 1. Provide infrastructure supporting competitive pilot funding opportunities for early stage (ESI) and new investigators (NI) with subsequent mentored progression to project completion, publication, and external funding application.

Pilot core did not receive any letters of intent or grant applications in Q3, and there were 0 awarded pilot projects in Q3. Pilot core provided 0 workshops and had 18 requested services. They contributed to 1 linked publication.



Specific Aim 2. Advance collaborative research endeavors to address WVCTSI priority health areas within WV as well as throughout the Appalachian region.

There are 20 active Pilot projects in Q3. Additionally, the Pilot Core contributed to 4 external grant proposals (totaling over \$2.7 M): standalone (3) and PD (1). Pilot did not contribute to external funding awards this quarter.

Specific Aim 3. Implement the Launch Pad Pilot Program to maximize opportunities for commercialization of novel science.

There was no activity related to Launch Pad Pilot projects this quarter.

Key Recommendations to Pilot Projects Core

- Review activity to date and consider whether additional effort should be targeted at supporting funded pilot awardees completing their scope of work by June 30, 2022, as well as how to best prepare for a new funding cycle should renewal funding be awarded.

Professional Development Core

The Professional Development Core is piloting Editorial Services. During Q3, 9 publication consultation, 1 proofreading, 7 copy editing, 1 substantive editing, and 0 one-on-one manuscript coaching services were requested. 3 publications were accepted.

Specific Aim 1. Create the Scientific and Career Success (SACS) program to provide access to formal mentoring for C/T researchers of all career stages.

There were 225 individuals who requested 400 services in Q3. There were 36 new investigator development service requests logged through iLab. There were 4 reported orientation or consultation provided to investigators new to WVCTSI. Additionally, there were 38 active mentors in the SACS program, as well as 4 female clinician scientists being mentored in Q3. There were 5 special events/programs for women in science: 3 Women at Work - Podcast Listening Events and 2 FACTS Book Club sessions.

Specific Aim 2. Develop formal programs that serve as “on-ramps” to introduce C/T research to early or new investigators and trainees at different career stages.

There were 0 CTS Certificate students enrolled, 0 new students, and 0 applications received. WVU MS in CTS had a total enrollment of 30, with 4 applications received, 3 accepted or offers extended and 0 students completed the program in Q3. MU did not submit information for their MS in CTS. CTS PhD program had 6 current enrollments, 8 applications received or reviewed, 1 accepted, and 0 degree conferred during Q3. Education programming reported no new academic courses, 1 research workshops/short courses, 10 C/T research seminars, 432 unique participants in educational programming from WVU (141), MU (13), CAMC (0), SOM (0), and Eastern Campus (0).

Specific Aim 3. Develop educational opportunities to support and retain externally funded C/T researchers statewide.



Professional Development reported contributing to 2 linked publications, both in collaboration with CRDEB. The Professional Development core contributed to 10 external funding proposals (totaling over \$10.5 million): 5 of which were standalone and 5 of which were collaborative with other cores: Admin (2), Pilot (1), CRRF (1), and CRRF & Admin (1). The Professional Development core supported 2 external funding awards (totaling \$1.02 million) in collaboration with ADMIN (1), and CRDEB (1).

By the Numbers: Investigator Development Services

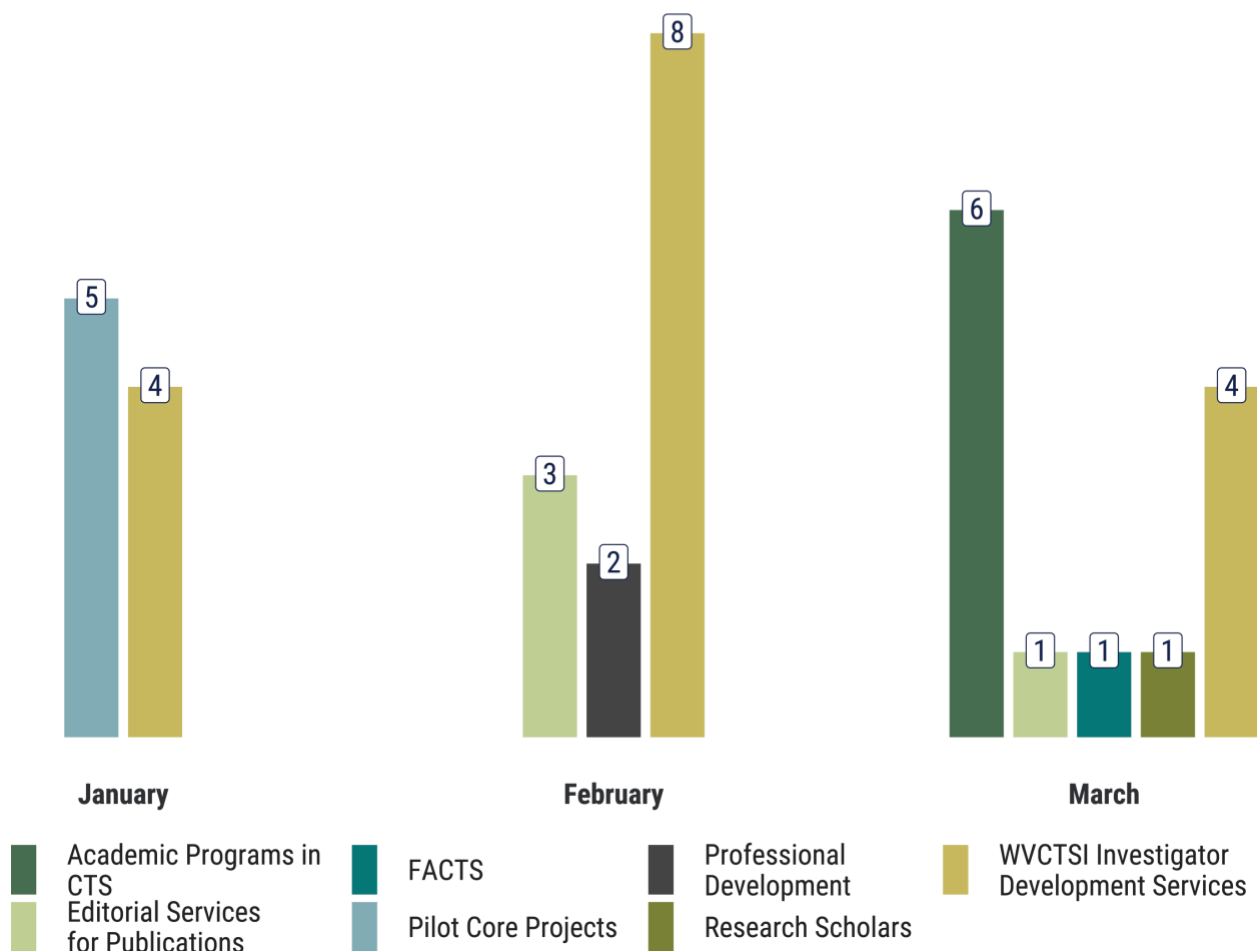


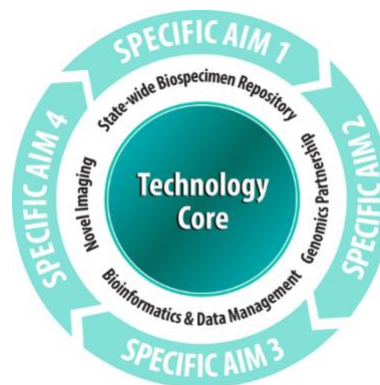
Figure 9. Investigator development services per service category as logged in iLab.

Key Recommendations to Professional Development Core

- Set core-specific annual targets for year 10.
- Discontinue the CTS Certificate program because there has been no enrollment since Q3Y9 and enrollment headcount has varied from 0-3 students throughout this funding cycle.

Technology and Resources for Core Laboratories Core

The Technology and Resources for Core Laboratories (TRCL) core contributed to 3 publications (all standalone) during Q3. TRCL core contributed to 4 external funding proposals totaling \$3.48M: 3 standalone and 1 in collaboration with ADMIN. TRCL contributed to 1 standalone external funding award (\$361,000) in Q3.



Specific Aim 1. To establish a statewide biospecimen repository that collects patient and study participant samples in WVCTSI priority health areas (addiction and resultant emerging epidemics, cancer, cardiovascular disease, and chronic lung disease).

TRCL reported 1 WVCTSI-supported projects, 1 open projects, and no new projects in Q3. Biospecimen data shows WVU collecting and utilizing 0 samples, MU collecting 15 samples and utilizing 0 samples, and CAMC collecting and utilizing 0 samples.

Specific Aim 2. To establish a statewide West Virginia University (WVU) - Marshall University (MU) genomics shared research facility for the efficient generation of genomic and related data for C/T studies that address WVCTSI priority health areas.

There were 1 WVU and 1 MU genomics studies, 32 Illumina projects (24 WVU, 8 MU), and 39 Illumina runs (12 WVU, 27 MU) reported in Q3. There were 17 educational sessions provided to WVU and MU including Bioinformatics, with 21 total attendees for educational sessions including Bioinformatics at WVU and MU.

Specific Aim 3. To establish a statewide WVU-MU shared Bioinformatics and Data Management (BDM) Facility for C/T studies that address WVCTSI priority health areas.

TRCL provided 8 training sessions to 20 unique individuals.

Specific Aim 4. To establish state-of-the-art imaging in support of biologically relevant modeling of disease.

21 investigators were served with 171 hours for MicroCT across 5 projects, and 12 hours of MRI across 3 projects. No disclosures or patents were reported.

Key Recommendations to Technology and Resources for Core Laboratories Core

- Consider whether additional effort should be directed toward WVU and CAMC collecting and utilizing biospecimen samples.

Tracking and Evaluation Core

Specific Aim 1. Develop Investigator Tracking and Support System (ITSS) utilizing quantitative and qualitative approaches to identify factors contributing to success or providing barriers to productivity.

The Tracking and Evaluation Core (TEC) identified all publications linked to WVCTSI grant numbers directly from NCBI. The [web-based table](#) displaying publication information publicly is automatically updated daily and was augmented with the number of citations per linked publications each year. [Social Network Analysis visualizations](#) show collaboration among authors on linked publications.



TEC continues to refine the quarterly progress report through which all individuals who receive support/ services from WVCTSI are requested to report information on activity and products generated. TEC updates the [user-friendly data portal](#) quarterly through which stakeholders can utilize progress report data. TEC met with the PD and CRRF cores during this quarter to streamline the quarterly reporting process. TEC is assisting the PD core with updating their iLab profile, have gained access to COE data through KC, and are supporting PD core with targeted evaluations of specific activities described below.

TEC utilizes an ORCID ID survey to gather WVCTSI member ORCID ID's to be added to membership list. We currently have ORCID ID for 578 individuals following a recent quality control cleaning of duplicates and inaccurate entries. TEC developed a method of identifying member publications and pulling author ORCID ID from those publications to augment those provided to us by WVCTSI members. This also allows more accurate searches for publications by members that should be linked to the grant.

TEC worked with the PD core to evaluate several current projects. The INTRO survey report was finalized this quarter and they began work on the Fellows Research Academy evaluation. Phase I of the Fellows Research Academy evaluation was to conduct interviews with the directors and advisors of this group. Five interviews were conducted and transcribed, with a report to follow. Phase II which includes information collected from the fellows began this quarter with the creation of a survey. The survey will be distributed next quarter with a report to follow. TEC began conceptualizing the evaluation of 2 future events for PD, Creating Connections: An Introduction to the Alda Method and Nature Master Classes. Those surveys will be distributed during quarter 4.

TEC continues work on the new membership database. Once completed this database will house member information, services received, and outputs (i.e., publications, grant proposals, funded awards). This database will be made available to all WVCTSI staff to allow verification of membership and a record of services/outputs.

Specific Aim 2. Create and implement systematic set of tools and measurements to drive continuous quality improvement and demonstrate impact of community stakeholder participation and engagement.

In collecting information through the quarterly progress report mentioned above, we were able to identify additional publications that should be linked to the WVCTSI grant numbers. TEC will continue to work with PD and Admin to make improvements and increase efficiency in analyzing such data. TEC continues to make updates to the [website](#) that houses a) all tracking and evaluation reports years 6 through current (password protected), b) an automated [linked publications hub](#) with counts, full references, and abstracts (publicly available), c) social network [visualizations](#) of linked publication author networks (publicly available), and d) the quarterly progress report data portal (password protected).

Specific Aim 3. Build focused research and evaluation demonstrating WVCTSI impacts on health outcomes in West Virginia.

The Tracking and Evaluation Report for the 2nd Quarter of Y10 was disseminated in Q3.

Key Recommendations to Tracking and Evaluation Core

- Review all metrics alignment to specific aims and consider implications for quarterly reporting during the current funding cycle ending 6/30/2022. Conduct similar analysis related to specific aims in renewal application and prepare for evaluation changes beginning 7/1/2022.
- Continue building web-based membership database toward an integrated member service utilization and productivity database.

Marshall University (MU)

MU, located in Huntington, WV in Cabell County, partners with the WVCTSI and is engaged in activities primarily related to research and investigator development. The Joan C. Edwards School of Medicine at MU is a community-based, Veterans Affairs-affiliated medical school dedicated to providing high quality medical education and postgraduate training programs to foster a skilled physician workforce to meet the unique healthcare needs of West Virginia and Central Appalachia. The Joan C. Edwards School of Medicine focuses on developing centers of excellence in clinical care, including primary care in rural underserved areas, focused and responsive programs of biomedical science graduate study, biomedical and clinical science research, academic scholarship, and public service outreach. MU houses WVCTSI Associate Director, Dr. Gary Rankin.

For Q3, MU reported 1 publication, 26 external funding proposals (6 submitted by ESI's and 3 by clinicians), and 5 externally funded awards (1 submitted by ESI and 3 by clinicians). MU had 4 ESIs accessing WVCTSI services or resources in Q3 and 83 WVCTSI members.

West Virginia School of Osteopathic Medicine (WVSOM)

WVSOM, located in Lewisburg, WV in Greenbrier County, partners with the WVCTSI in activities related to research and community engagement. WVSOM focuses on educating students as lifelong learners in osteopathic medicine and complementary health related programs, supporting graduate medical education training, advancing scientific knowledge through academic, clinical, and basic science research, and promoting patient-centered, evidence-based medicine.

In Q3, WVSOM reported 4 publication, 10 presentations supported by CTR Award, 0 proposals submitted, and 3 funded awards. They held 4 workshop/course/seminar/retreat, and 1 poster/exhibits/promotional events. WVSOM had 7 community participatory research projects, 8 open collaborative CTS projects outside the WVPBRN, 1 trainee in community-engaged research curriculum, and 0 current alliance CTS collaboration. WVSOM had 106 WVCTSI members in Q3.

Charleston Area Medical Center (CAMC)

CAMC is a nonprofit 908-bed regional referral and academic medical center of four hospitals and home to one of the largest cardiac programs in the US, the only kidney transplant center in WV, and a level I trauma center. CAMC Health Education and Research Institute (CHERI) provides continuing medical education and research support to physicians and allied medical professionals. CHERI operates a nurse anesthesia school with MU and 13 graduate medical education residency/fellowship programs. CAMC sponsors pharmacy residency programs and psychology internships.

In Q3, CAMC supported 5 publications, 6 presentations, and 0 funding proposals or awards connected to WVCTSI. CAMC personnel attended 5 journal clubs, 3 biostatistics consults, and 14 iLab users. 8 clinicians and staff participated in the WVCTSI sponsored research training program, and they held 3

workshops/courses/seminars/retreats. CAMC had 6 open collaborative CTS projects outside WVPBRN. CAMC has 68 WVCTSI members at CAMC in Q3.

National Institute for Occupational Safety and Health (NIOSH)



NIOSH reported 14 WVCTSI members, 1 of which was accessing services in Q3. NIOSH contributed 4 publications, 2 related to masking and 2 related to toxicology of inhaled particles. NIOSH continues various collaborations between NIOSH and WVU, including: Inhalation study development and design. Maternal effects following a pulmonary exposure (WVU collaborator on funded R01); Maternal effects following an engineered nanomaterial exposure (WVU collaborator submitted revised K-grant noted above); Mechanisms driving mixed exposure pulmonary toxicity (WVU collaborator on funded ONE's Award [R01 level funding for investigators within 10 years of PhD]); Study the effect of stress and night shiftwork on ion channels in the cardiac myocytes.

Veteran Affairs Medical Centers (VAMC)

Veteran Affairs Medical Center (VAMC) reported a briefing on WVCTSI to VAMC Martinsburg, Nursing Evidence-based Practice



Council by LaNette Hunter, WVCTSI eastern partner coordinator. Additionally, VAMC has made efforts throughout Q3 to foster opportunities for training and professional development by sharing information and continuing to encourage participation in PD events, trainings, and workshops. Limitation on face-to-face interactions and the number of people allowed to gather continued to be barrier during Q3 however the end of the quarter showed improvement in COVID-19 rates.

Key Recommendations to Marshall University, National Institute for Occupational Safety and Health, Veterans Affairs Medical Centers, and West Virginia School of Osteopathic Medicine

- CAMC should set annual targets for year 10
- Work with Administration Core to help ensure partner organization perspectives related to how best to engage investigators and other personnel at each site are made clear.
- Continue efforts to increase WVCTSI membership, awareness, and utilization of WVCTSI core services at each partner institution.