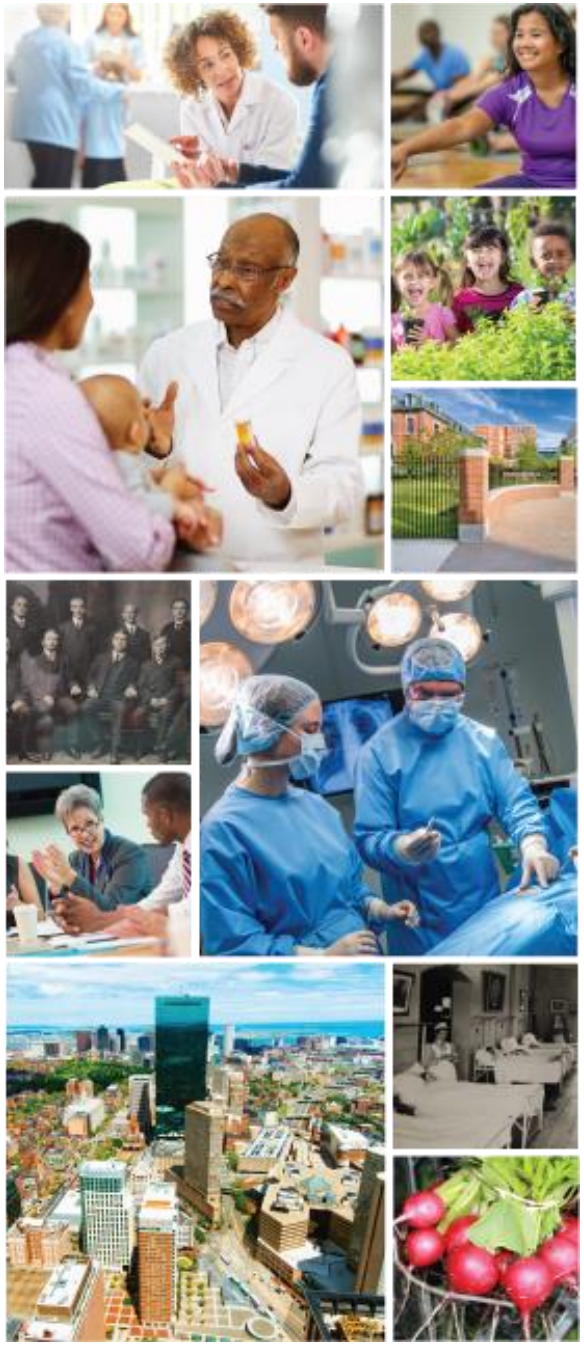


Clinical Research Operations at Boston Medical Center

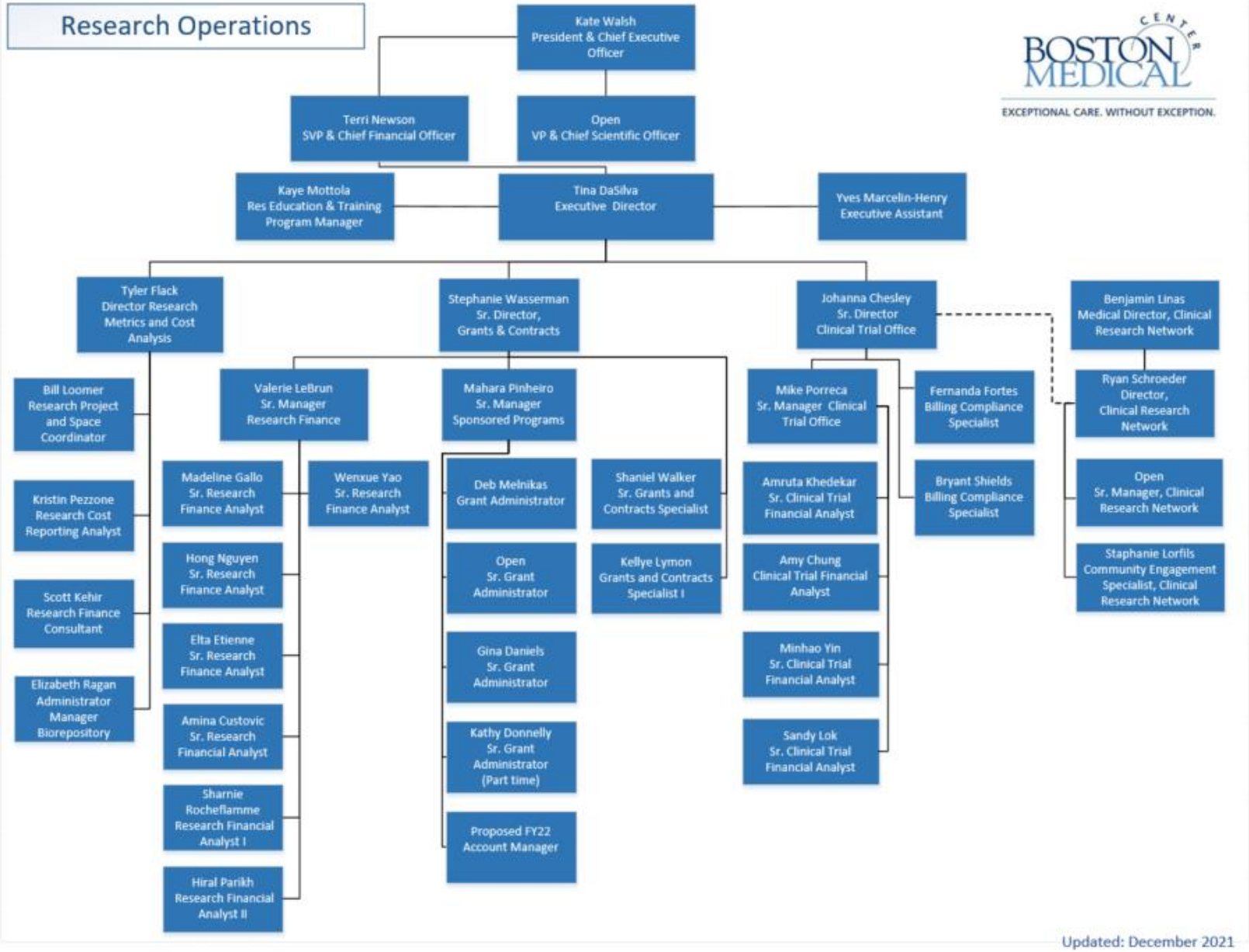
A guide to how the Clinical Trial Office can support successful, inclusive research practices

Jan 12, 2022

Objectives

1. Review CTO's role and responsibilities within the department of Research Operations
2. Discuss study team clinical research workflow
3. Assess CTO's newest customer service offerings
4. Learn about CTO's FY22 goals and initiatives
5. Open discussion

Research Operations



Updated: December 2021

Research Operations scope summary

Grant and Contracts Scope	Clinical Trials Office Scope
1. Government agency, foundation funded, or PI initiated 2. Industry AND basic science/non human research 3. All material transfer agreements (MTAs) 4. All data transfer/use agreements (DTAs, DUAs) 5. All sub awards	1. Industry AND IRB: Expedited, full-board review, or exempt 2. All non-disclosure agreements (NDAs) 3. All confidential disclosure agreements (CDAs)
Crossover Scope	
All research protocols with participant service/item/intervention/space - *CTO Consultation for all protocols with human subject research send to CTO@bmc.org for high level review. If further CTO review is needed, CTFA will be included.* - *If further CTO review is needed CTFA will be assigned and supply budget consultation*	

Research Operations service intake processes

	Research Operations software system data entry flow	
Research Ops lead	**Grants & Contracts**	**Clinical Trials Office**
Protocol funding source and type of research	1. Government agency, foundation, PI initiated w/ external funding (all sponsor types, incl. industry) 2. All basic science	1. industry or internally AND; 2. IRB: expedited, full- board review, or exempt
Participant Service/Item/Procedure?	Contact CTO@bmc.org	Create Velos record
Department action	Create InfoEd record (proposal)	
	Research Operations agreement intake process	
Research Ops lead	**Grants & Contracts**	**Clinical Trials Office**
Agreement type	MTAs, DTAs, DUAs, sub awards	CDAs and NDAs
Department action	InfoEd Record Creation; Grants.admin@bmc.org Research.Finance@bmc.org DUA.MTARequest@bmc.org Subcontract Request Form	CDA/CDA Webform

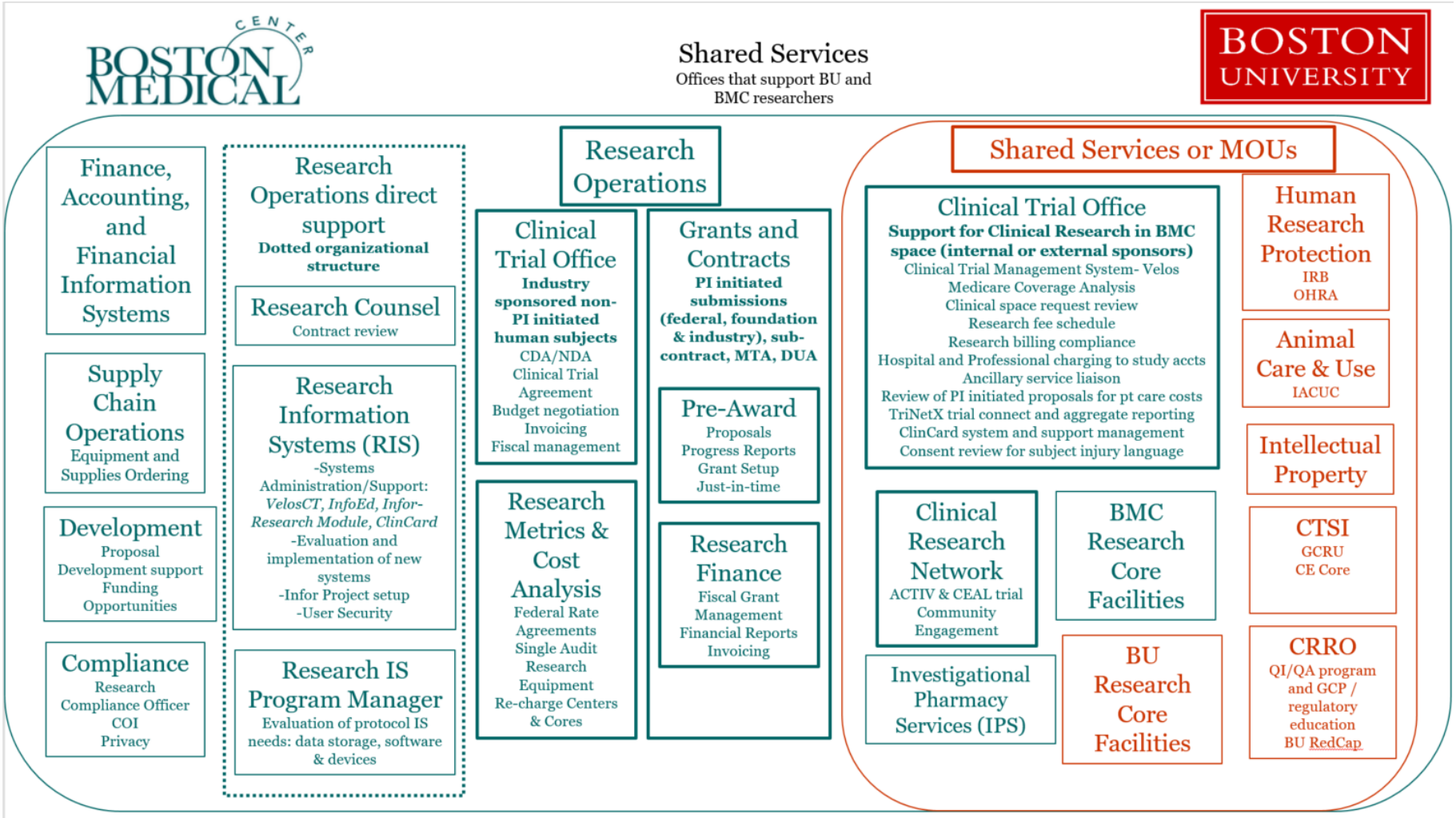
Clinical Trial Office Mission

Welcome! We're here to help support your clinical and human research.

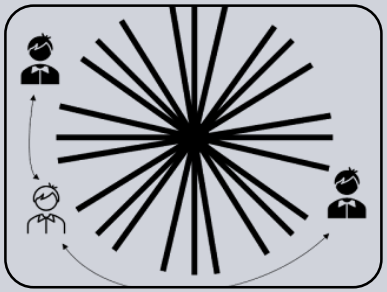
BMC Clinical Trial Office (CTO) serves as a central resource for principal investigators, study staff and departments involved in clinical research and for sponsors seeking to conduct clinical trials at Boston Medical Center. Our CTO pre-award and post-award team(s) supports and advances BMC's mission by providing leadership and expertise in research, finance, and administration. In fulfilling this mission, the CTO's primary functions are to:

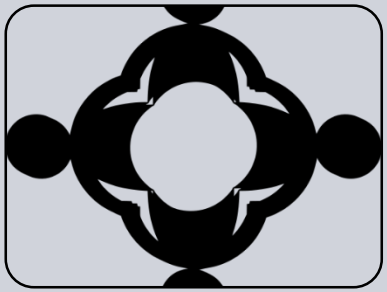
- Review, negotiate, and approve of protocols that are projected to be IRB: approved, expedited, or exempt AND industry or internally funded (Clinical Trial Agreement, CDA, NDA)
- Support Grants & Contracts on protocols that include human subjects (government agency, subaward, foundation award, Boston University)
- Oversee document harmonization before final approvals: Informed Consent, Contract, Budget, and Medicare Coverage Analysis
- Ensure accurate clinical research: billing process, charge routing, and pricing
- Coordinate, educate, and train on clinical research requirements within research community and clinical departments
- Monitor and provide oversight of clinical trial account finances

Research Operations central administration supports research at BMC, compliant research requires many partnerships across BMC and BU campuses



Clinical Trial Office responsibilities





Pre and post award financial and contractual management

1

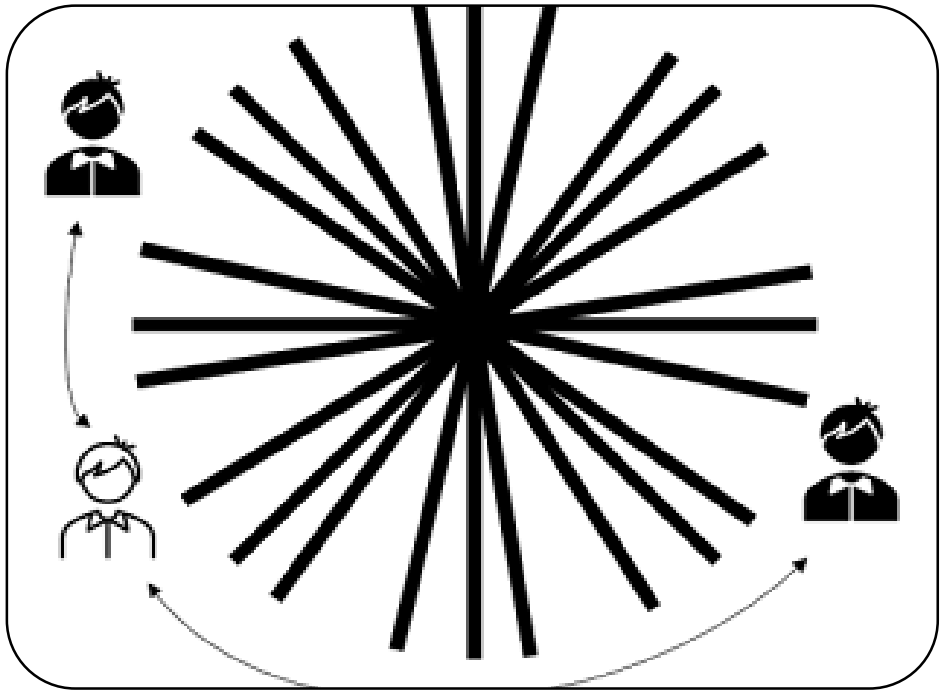
Clinical research operations integration into hospital and clinics

2

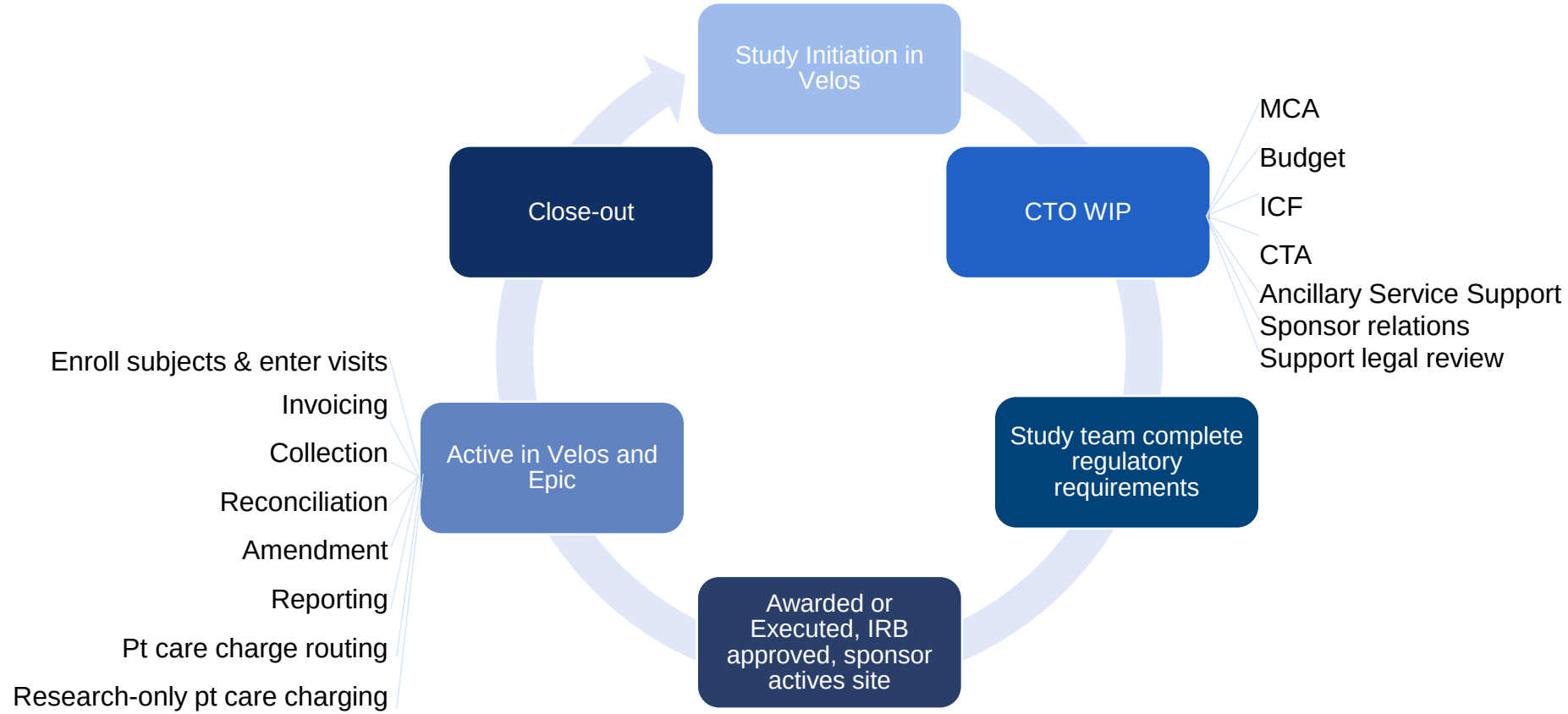
Research must be inclusive to be exceptional

3

1 Pre and post award financial and contractual management



Clinical Trial Finance – Lifecycle



CTO Pre-Award Services

❑ MCA & Budget Negotiation

- ***Blue Print" & Proper Billing*:** MCA is the foundation for the budget, payment terms and research billing compliance. CTO works with Pharmaseek to perform MCA's independent of sponsor to ensure that research billing is done appropriate
- ***Reduce Time:*** CTO negotiates the budget and the finance terms with sponsor in timely manner. The detail review of the budget eliminates the potential of missing budget items and therefore future renegotiations and budget amendments needed
- ***Fair Market Value:*** CTO makes sure that BMC covers its costs.
- ***Reconciles Sponsor vs. Site Prospective:*** CTO reviews both sponsor budget and the actual Institutional costs and builds the counteroffer budget based on the difference
- ***Payment Schedule:*** CTO makes sure that Achievable Milestones are reviewed, negotiated and incorporated on the final agreement
- *Ancillary Services:*

❑ CTA Review & Negotiation

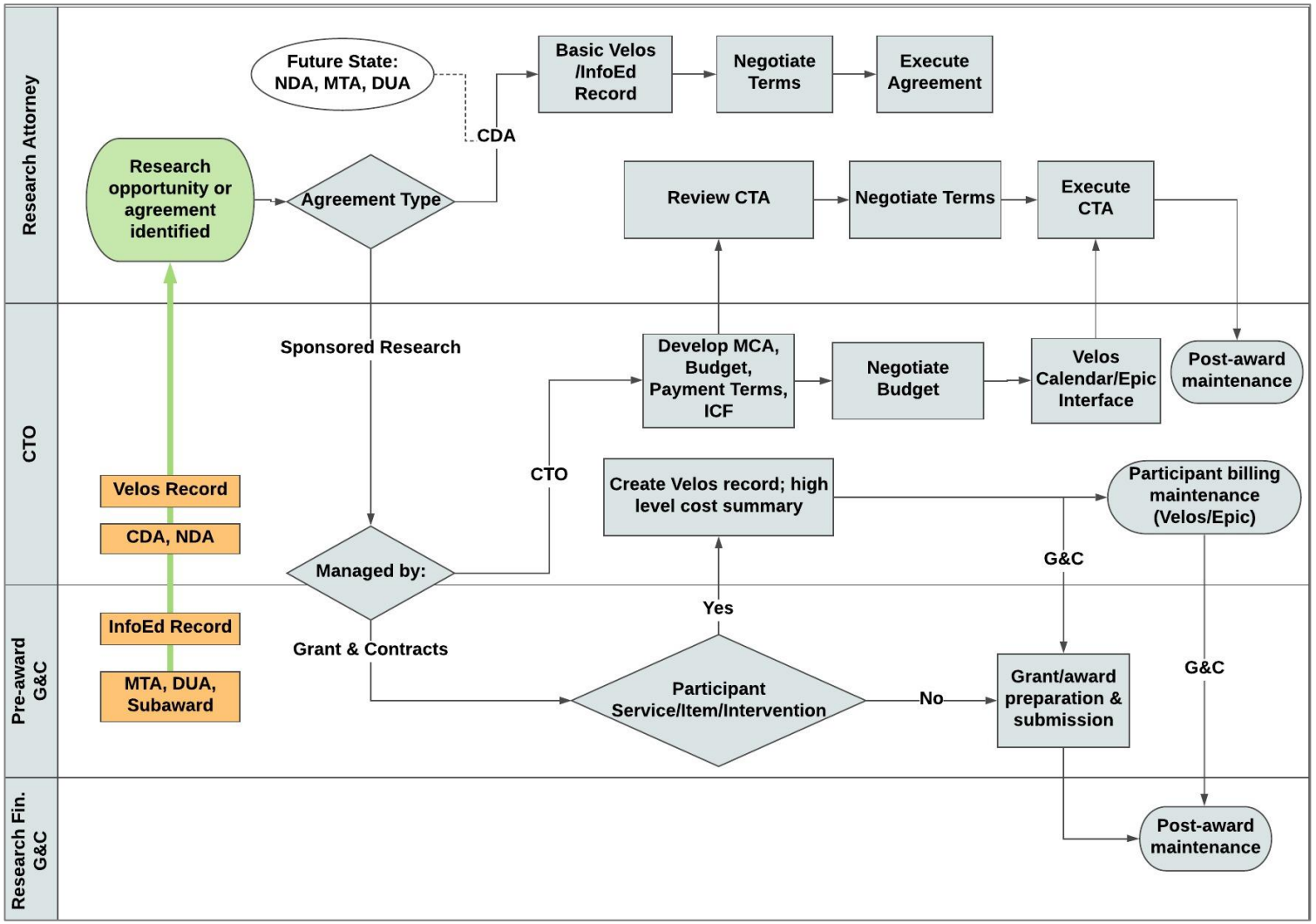
- ***Payment Term Review:*** CTO reviews payment terms in CTA and works with Research Attorneys to finalize CTA
- ***Main Contact:*** CTFA can be the main contact to negotiate CTA with sponsor
- ***Centralize:*** Ancillary service support

❑ ICF Review & Negotiation

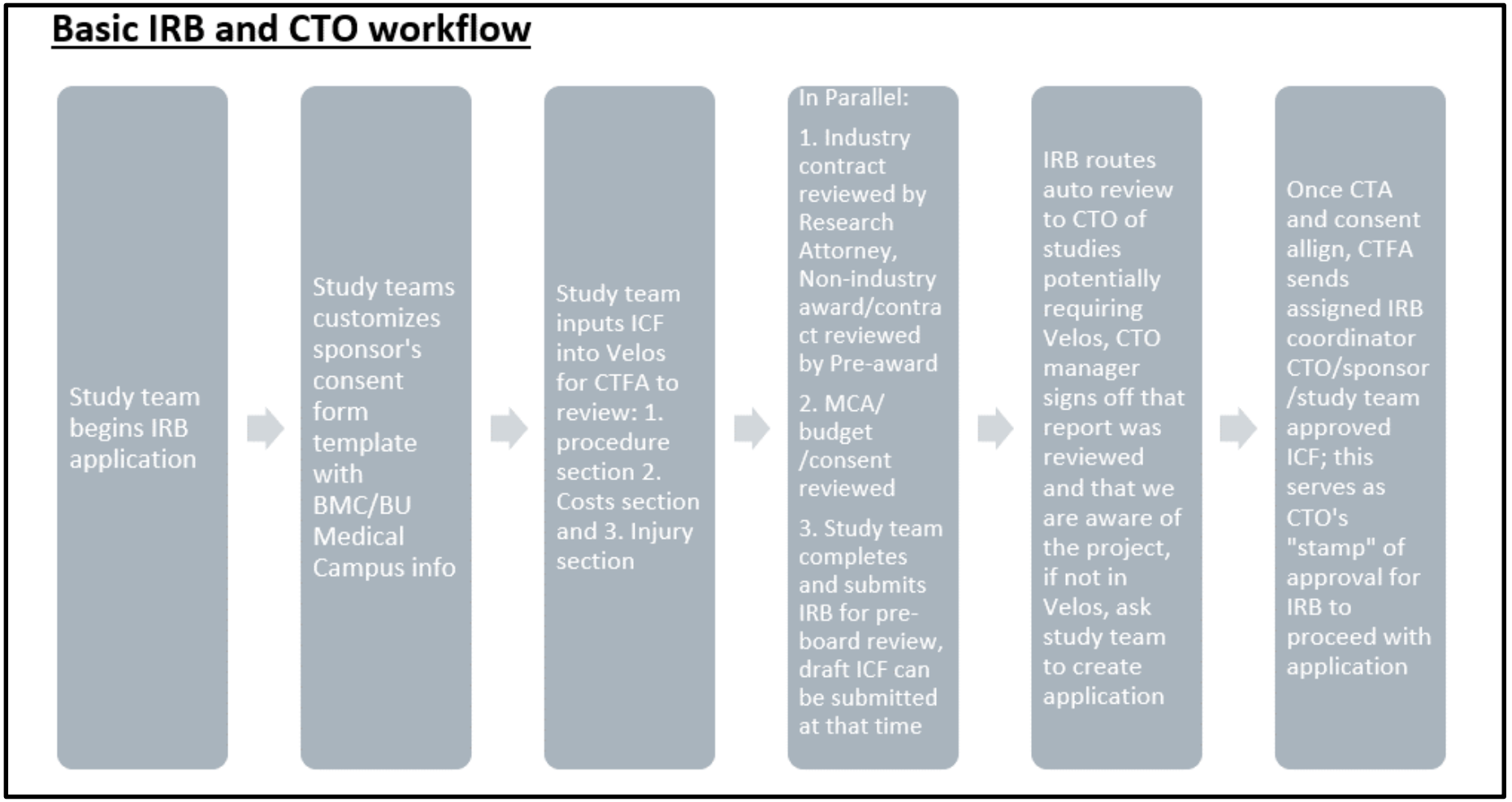
- ***Cost & Injury Review:*** CTO reviews cost and injury parts in ICF to make sure the languages matches CTA and budget.
- ***Main Contact:*** CTFA can be the main contact to negotiate ICF with sponsor

Spotlight: what areas of budget negotiations need to be altered or strengthened to support more inclusive research practices?

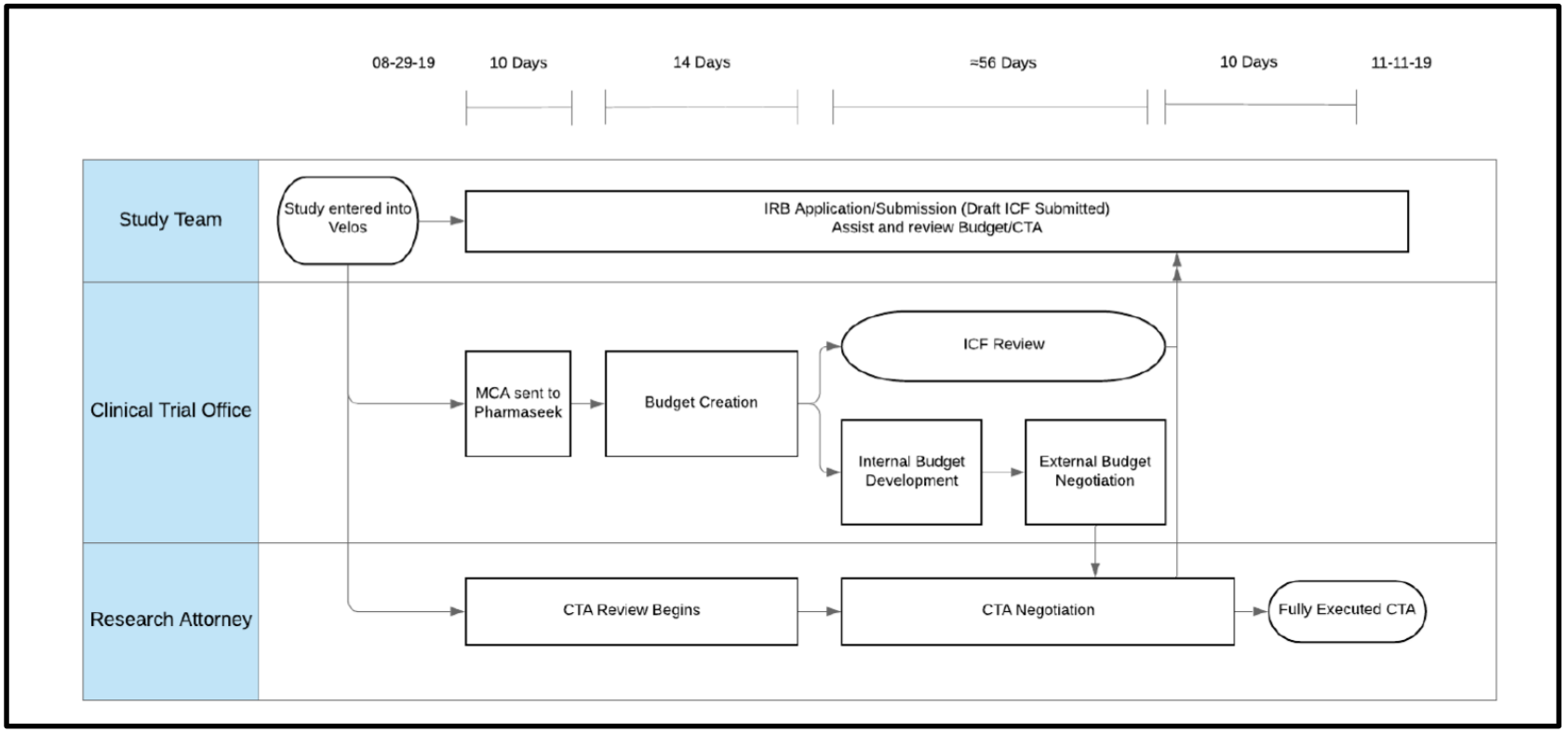
Department Research Operation workflow



Research study teams can perform regulatory, contracting, and financial work in parallel



Workflow timetable example



CTO Post-Award Services

❑ Account Set Up

- Provides quick turn around on account set up
- Confirms Epic and Velos integration when applicable
- Enrolls participants (study team enters within 24 hours) in Velos and visit schedules updates

❑ Account Financial Management

- Invoice to sponsor. Start Up invoices are send with in the time frame stated in the CTA
- Charges IRB , Patient Care, Research Routing, CTO fees to study account

❑ Reporting & Data Analysis

- Provides monthly reporting to PI/Departments
- Facilitate data analysis per PI/Study team request

❑ Account Close Out

- Work on deficit resolution as needed
- Review of projected vs. actual expenses that hit the account- focus on salary
- Complete all the reconciliation and the close out of the account

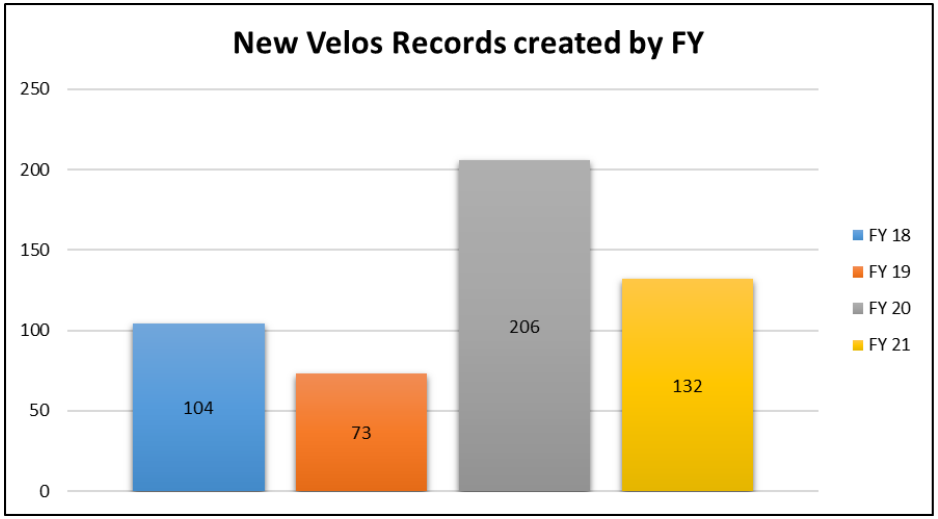
Monthly research department meetings

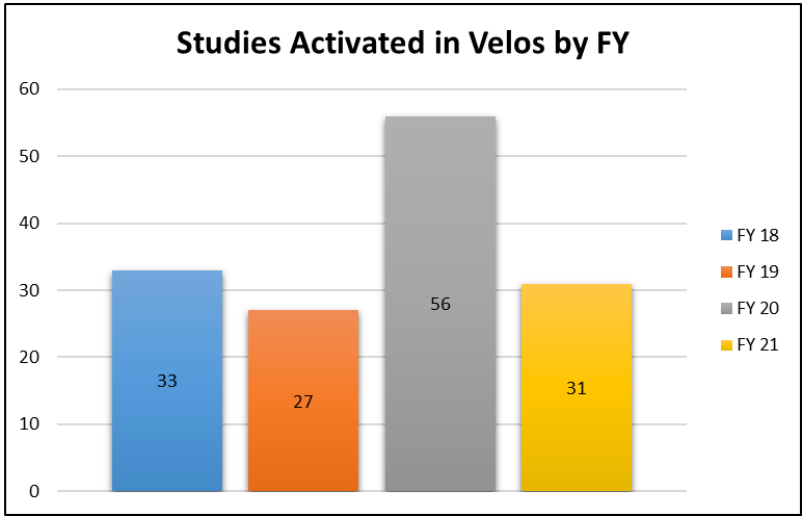
- Provide one email from Research Operations to department admins containing:
  - CTO and G&C account balance reports
  - CTO invoicing/milestone checklist per study
- Improve agenda
  - Include pre-award for statuses G&C and CTO
  - Discuss lessons learned in pre and post award
  - Review financial analysis reports
  - Review invoices/milestones met
  - Discuss outstanding AR (>120 days)
  - Review CTO projects effort allocation by personnel and study
  - Discuss newly awarded accounts, and allocation of related expenses
  - FFRs and final invoices
  - Send standard follow-up email with action items listed and deadlines for completion
- Due to received feedback these meetings will be looking at 1 month in arrears to ensure all entries have been entered and there is adequate time to review them

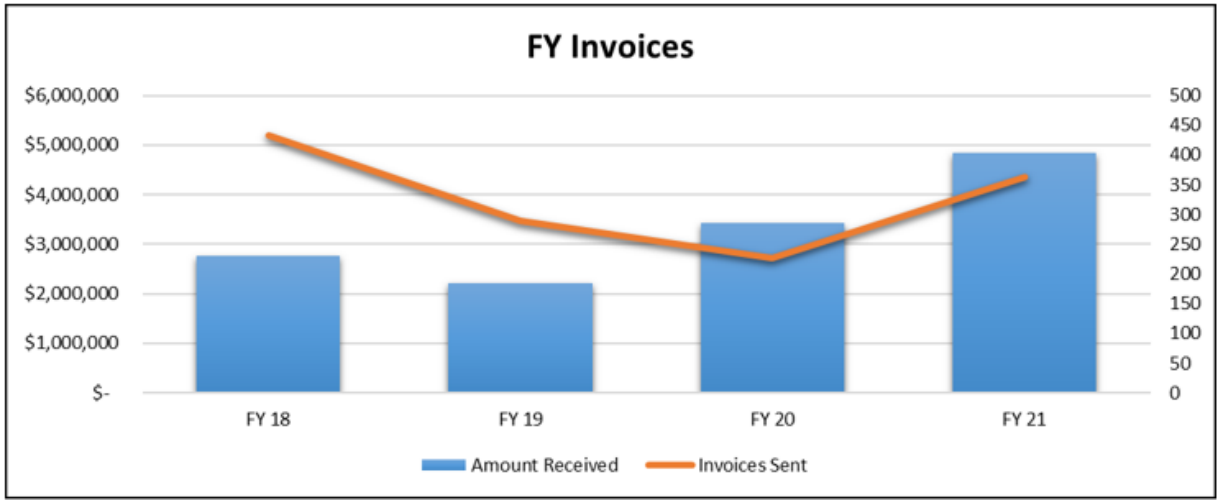
CTO appreciates your feedback and is always thinking about process improvement

- Infor Upgrade
  - Conversion resolutions
  - New abilities to track milestones and AR
  - Overhaul of SOPs
- Pre-Award Report for Industry Clinical Trials
- Improved Fee Schedule Template
- Centralized IRB/IPS Invoicing
- Internal Updates
  - Weekly reporting from Velos
  - RNA/AR workflow improvements
- TriNetX Support

CTO Metrics

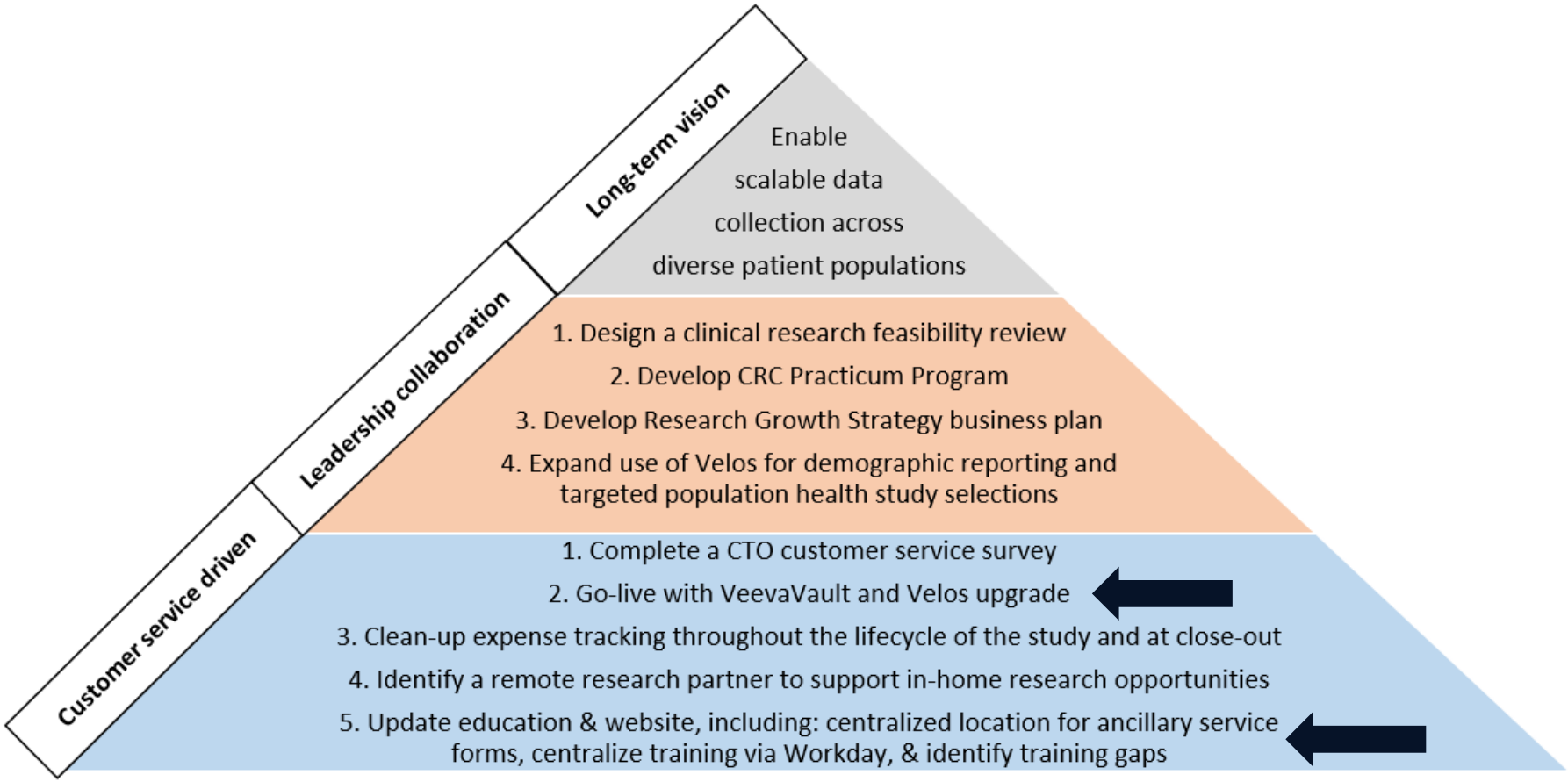

New Velos Records created by FY
250
200
150
100
50
0
104
73
206
132
FY 18
FY 19
FY 20
FY 21


Studies Activated in Velos by FY
60
50
40
30
20
10
0
33
27
56
31
FY 18
FY 19
FY 20
FY 21


FY Invoices
$6,000,000
$5,000,000
$4,000,000
$3,000,000
$2,000,000
$1,000,000
$-
500
450
400
350
300
250
200
150
100
50
0
FY 18
FY 19
FY 20
FY 21
Amount Received
Invoices Sent

2 Clinical research operations integration into hospital and clinics

CTO's FY22 Strategic Overview



Veeva SiteVault summary

Veeva SiteVault is a cloud solution that provides research sites with a Part 11 compliant eRegulatory system to replace the physical regulatory binder.

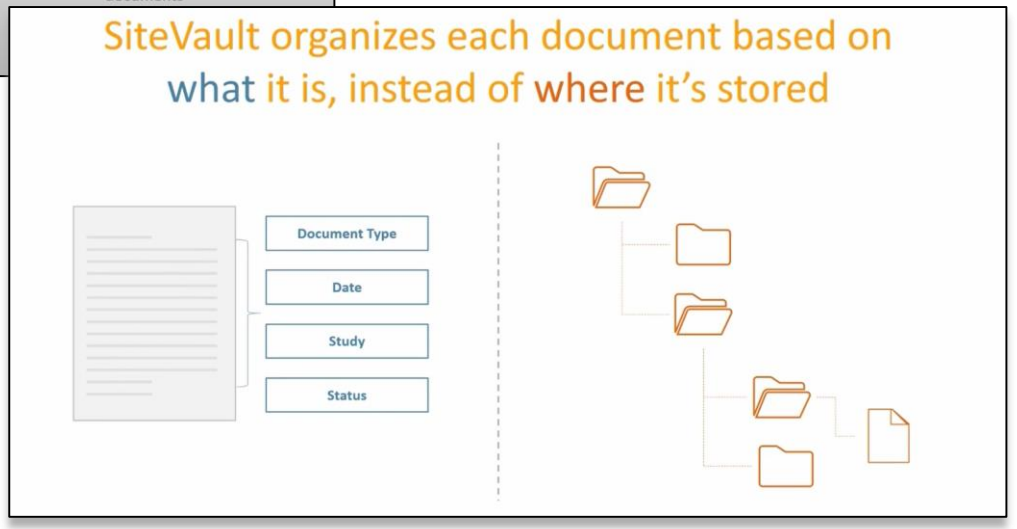
SiteVault supports the ability to:

- Streamline operations
- Collaborate more easily with sponsors
- Focus more on the work of treating patients

SiteVault highlights the following features:

- Regulatory documentation
- Source documentation development
- Remote monitoring
- Patient recruitment management
- eConsent
- eSignature routing

SiteVault Free encourages remote, compliant work



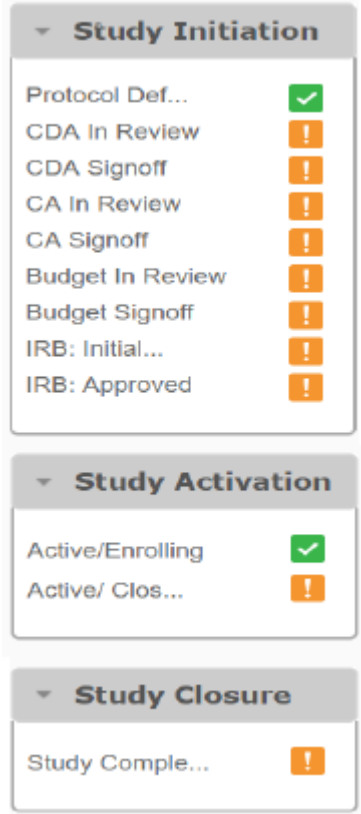
https://www.youtube.com/watch?v=23WKYUxA9lo

VeevaVault process review, current status, and next steps

- Review process
  - Compiled review group made up of: CRRO, CTO, Research Compliance, HRPP, BMC & BU: Legal and ITS teams, Chief Medical Officer, and Chief Financial Officer
  - Reviewed three eRegulatory systems to confirm functionality, and Veeva determined to be equal to or better than alternatives
  - Research Information Systems (RIS) at BMC to serve as central IT contact
  - Listened to research community and worked diligently for one shared instance between BMC and BU to simplify workflow
- Current status
  - Execute VeevaVault contracts and BAAs for BMC and BU- currently routing for review
- Next steps
  - Brainstorm list of departments/admins/divisions/study groups
  - Request “super users” to serve as new adopters and identify gaps / successes in workflow
  - Create training materials
  - Host information sessions for departments on Veeva technology and ask for site admin recommendations
  - Send Veeva sites and site admins to create in BMC/BU instance
  - Develop education plan for research community
  - Ensure on and off boarding processes are in place through RIS

Velos upgrade

- Incorporate budgets into the Velos calendar
- Adding a separate administrative calendar and budget
  - This will be particularly valuable for invoiceable items such as monitoring visits, pre screening, and IRB actions.
- New functionality to track the overall study activation/closeout
- We are looking into this version's ability to interface the Velos calendar into Epic



Ancillary forms centralization project

- Goal: To simplify the process of communicating with and budgeting for ancillary services
  - Stage 1: Developing online forms for all ancillary services (Radiology; IPS; Pathology; Ophthalmology; Interpreter Services)
  - Stage 2: Using smart form logic to harmonize all online forms into one clear process with status updates
  - Stage 3: Centralized location for all forms we create, and external forms (GCRU, Marketing, CDW)
- Progress
  - CTO has met with all ancillary services and compiled their forms and needs
  - IPS form is now live and being used
  - Radiology form is nearing completion with an ETA of February
  - Other groups are finalizing form information

New Budget Template

- Goal: Increase cost accuracy, feasibility, and develop comprehensive understanding
- Summary of changes
  - Effort focus
  - Service location
  - Increased detail

Items and Services - Effort	PI		CRC/SC		Total Cost	Visit 1
	Hourly Rate	$185.00	Hourly Rate	$70.00		Day -21 to -2
	Hrs	Total $	Hrs	Total $		Screen
Informed Consent/HIPAA Authorization	1.0	$185.00	2.5	$175.00	$360.00	$ 360.00
Inclusion/Exclusion	0.5	$92.50	2.5	$175.00	$267.50	$ 267.50
Demographics	0.0	$0.00	0.5	$35.00	$35.00	$ 35.00
Interview/Interim: Medical History, Concomitant Drugs, etc.	0.5	$92.50	2.5	$175.00	$267.50	$ 267.50
Registration/Enrollment	0.0	$0.00	0.5	$35.00	$35.00	
Quality of Life	0.0	$0.00	0.5	$35.00	$35.00	
Dispense Study Diary	0.0	$0.00	0.5	$35.00	$35.00	
Collect Study Diary	0.0	$0.00	0.5	$35.00	$35.00	
Collect Assigned Study Drug(s)/Compliance Assessment	0.0	$0.00	0.5	$35.00	$35.00	
Safety Assessment/AE Monitoring	0.0	$0.00	0.5	$35.00	$35.00	
CRC Data Management	0.0	$0.00	0.0	$0.00	Varies - TBD CRF Template/Queries	$ 225.00
PI Administrative Oversight	0.0	$0.00	0.0	$0.00	Varies - TBD CRF Template/Queries	$ 92.50
Subtotal	**2.0**	**$ 370.00**	**11.0**	**$ 770.00**	**$ 1,140.00**	**$ 1,247.50**

Clinical Procedures	Service Location	Clinic Space	Confirmed?	CPT	Total Cost (incl. Res. Discount)	Visit 1
Physical Exam	Local (Epic)			99212	$166.80	SOC
HIV Diagnostic Test	Local (Epic)			86701, 86702, 86703	$48.00	$48.00
G6PD Deficiency Test	Local (Epic)			82960	$16.80	$16.80
Hgb A1C	Local (Epic)			83036	$28.80	$28.80
Echocardiogram (93306)	Local (Epic)			93306	$1,675.80	$1,675.80

BMC's clinical research growth strategy

Department of Research Operations is comprised of vast skillsets and prepared to support leadership's strategic vision on how to build our research program

1. Develop a unique national model to provide excellent clinical care to an under-served community built on trust and infused with broad clinical research opportunities
   - What can the academic enterprise do to be trust worthy?
   - Improve clinical research population health reporting
     - Centralize data collection to attract funding opportunities
     - Ensure inclusion of wise-spread of patient participation

2. Match institutional resources to meet the needs of the research community
   - Centralize clinical research space to develop a full picture of the on-going research in the hospital to be included in F&A rate negotiation, expanding institutional buffer
   - Develop and support Cores/Re-charge centers
   - Invest in central research administration resources and systems through growth periods and compliance assessments

3. Identify other leadership strategies for BMC research growth

BMC patient voices are being included to advance medicine, growth persists

From intervention to market

- On average it takes 12 years for an intervention to go from bench to FDA approval
- 5 in 5000 drugs in preclinical testing progress to human testing
- 1 of the 5 drugs tested in humans receives FDA approval

Chance for a new drug to make it to market is ONLY 1 in 5,000

COVID sped up the process

- Pharma and NIH resources hyper focused during COVID, most other research was temporarily stopped
- COVID vaccines developed and EUA approved in less than 1-year
- 52 repurposed INDs tested to treat COVID in less than 1-year

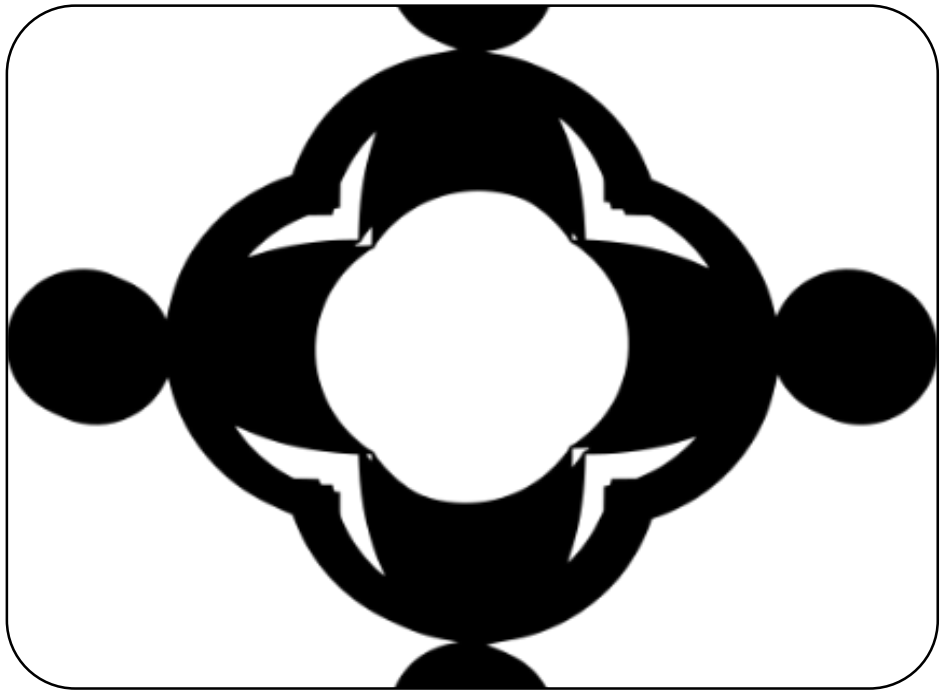
BMC selected as a site for 19 out of 52 repurposed INDs

BMC site for trials proven effective

- Adult Pfizer COVID Vaccine Trial
  PI: Dr. Elizabeth Barnett
- Enoxaparin Anticoagulant Trial
  PI: Dr. Naomi Hamburg
- Regeneron Monoclonal Antibody
  PI: Dr. Michael Paasche-Orlow

BMC continues to be selected as a site, now focused on NIH ACTIV and Pfizer COVID vaccines trials

3 Research must be inclusive to be exceptional



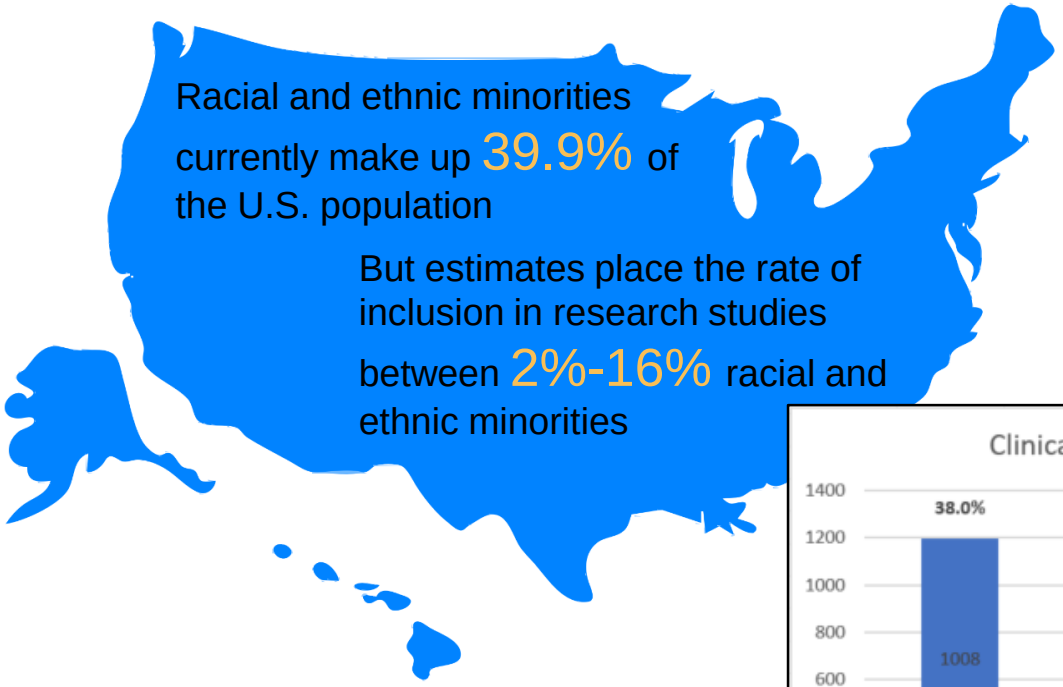
Health equity and clinical research can make BMC unique national model

- BMC is positioned to offer exceptional clinical care, without exception which includes all people in the advancement of medicine

- BMC will become a premier center for health equity when clinical research is imbedded into the institutional mission; sponsors and donors will want to partner with our patients, faculty, and institution at large

- A commitment to research requires dedicated clinical research space to support growth and perform a variety of visit types across all medical specialties; encourages clinic equity for those that may not be able to perform research in expanding clinics or cannot support the safety profile of the protocol

Precision medicine: focus on the patient population we serve and offer opportunities for inclusive medicine

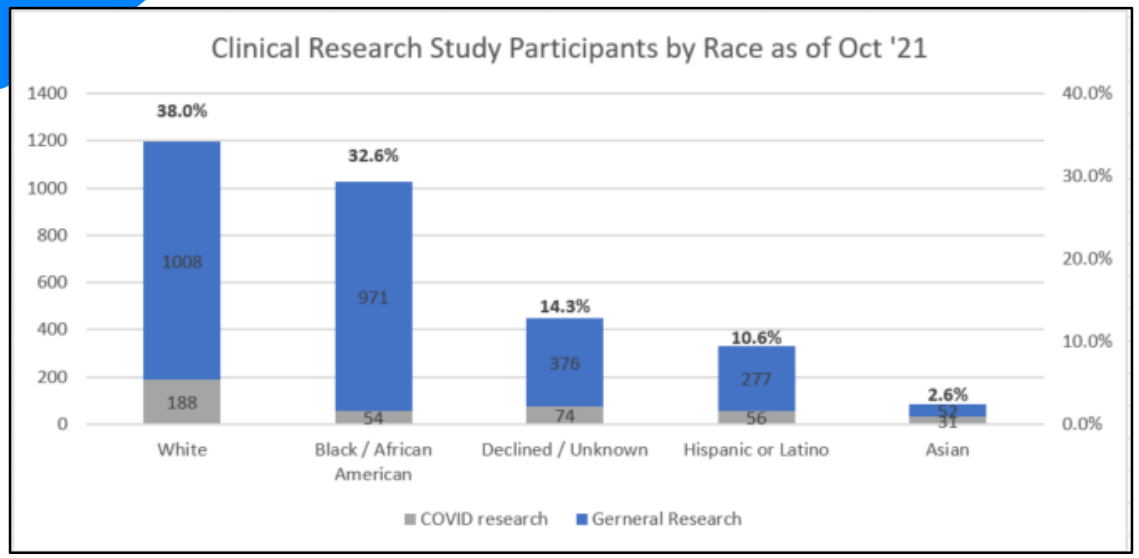


Racial and ethnic minorities currently make up 39.9% of the U.S. population

But estimates place the rate of inclusion in research studies between 2%-16% racial and ethnic minorities

70% of BMC pts identify as person of color, which means we are 26% under-represented in our clinical research

Boston Medical Center



Need to drive clinical research engagement <u>with</u> and <u>for</u> the community

Source: MedCityNews https://medcitynews.com/2019/07/as-precision-medicine-grows-so-does-the-importance-of-clinical-trial-diversity/?rf=1

Triple Aim – BMC is looking for partners who encourage change

BMC: Improve operations and infrastructure, build long-term dialogue between our researchers, our underserved community, and industry partners to address disproportionate enrollment in research through understanding barriers, building trust, and co-identifying areas of engagement opportunity

Industry Partners: Obtain hands-on exposure to barriers and challenges patients and sites face when considering enrolling a diverse population

BMC Community: Help shape the research priorities at BMC, engage in dialogue about research trustworthiness, and in time co-develop a program that advances medicine for all people

Image Source: https://coolwallpapers

CLINIAL RESEARCH NETWORK

Our goal is to embed clinical research into prevention and treatment for all people, regardless of race or socioeconomic status—*without exception*

VISION

All people, regardless of race, ethnicity, language, socioeconomic status, sexual orientation, gender identification, insurance coverage, or national origin, are provided the opportunity to participate in exceptional clinical research

MISSION

To drive and share world class science discovery and innovation through the conduct of community-based participatory clinical research and clinical trials that are responsive to cultural and linguistic differences and inclusive of all

Clinical Research Network Team

“Quality” in clinical trials is defined by the strategic selection of leading-edge research, efficiency in activation, diversity of enrollment, compliant oversight and risk containment.

Clinical Research Network (CRN) 2021-2022: develop a community engagement and clinical trial support structure to ensure BMC is a world class research organization and is inclusive of our diverse patient population.

Scope of the CRN:

- Oversee lifecycle of ACTIV COVID-19 Research Trials
- Build trial oversight and implementation infrastructure
- Develop partnerships to expand research venues within and outside of BMC
- Engage with community to expand research opportunity and awareness

Ryan Schroeder

Clinical Research Director

Open position

Senior Program Manager

Stephaie Lorfils

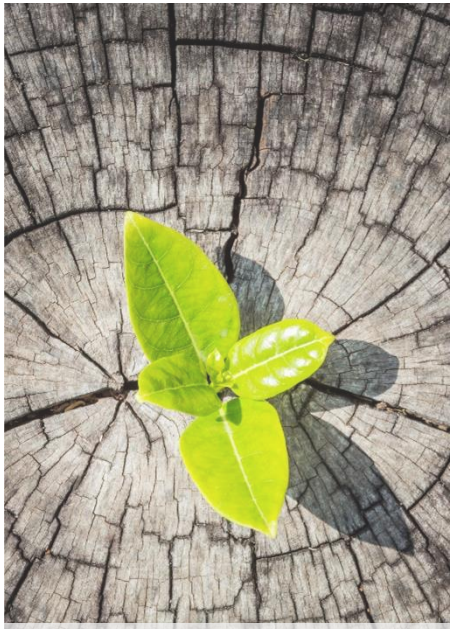
Community Engagement Recruitment Specialist

Main Objectives

Earn the trust of a community network for engaged dialogue, research education, and workforce development

Create a research program shaped by our community

Deepen partnerships with industry sponsors who share our vision for change



Planting the seeds for growth through focused efforts and resources

CLINICAL RESEARCH NETWORK

PILLARS OF SERVICES

Community Engagement

Center of Excellence

- Partner with CTSI to establish research-focused Community Advisory Board
- Build a network of trusting relationships with key community partners throughout the Boston area to serve as our community-to-research "*nerve center*"
- Research Education Outreach and Events (both internally and externally)
- Partner with MDs and Residents of color to answer questions and deliver trustworthy information
- Design symposium with CHCs to become a national thought leader in diversity and inclusion in science

Community Health Center

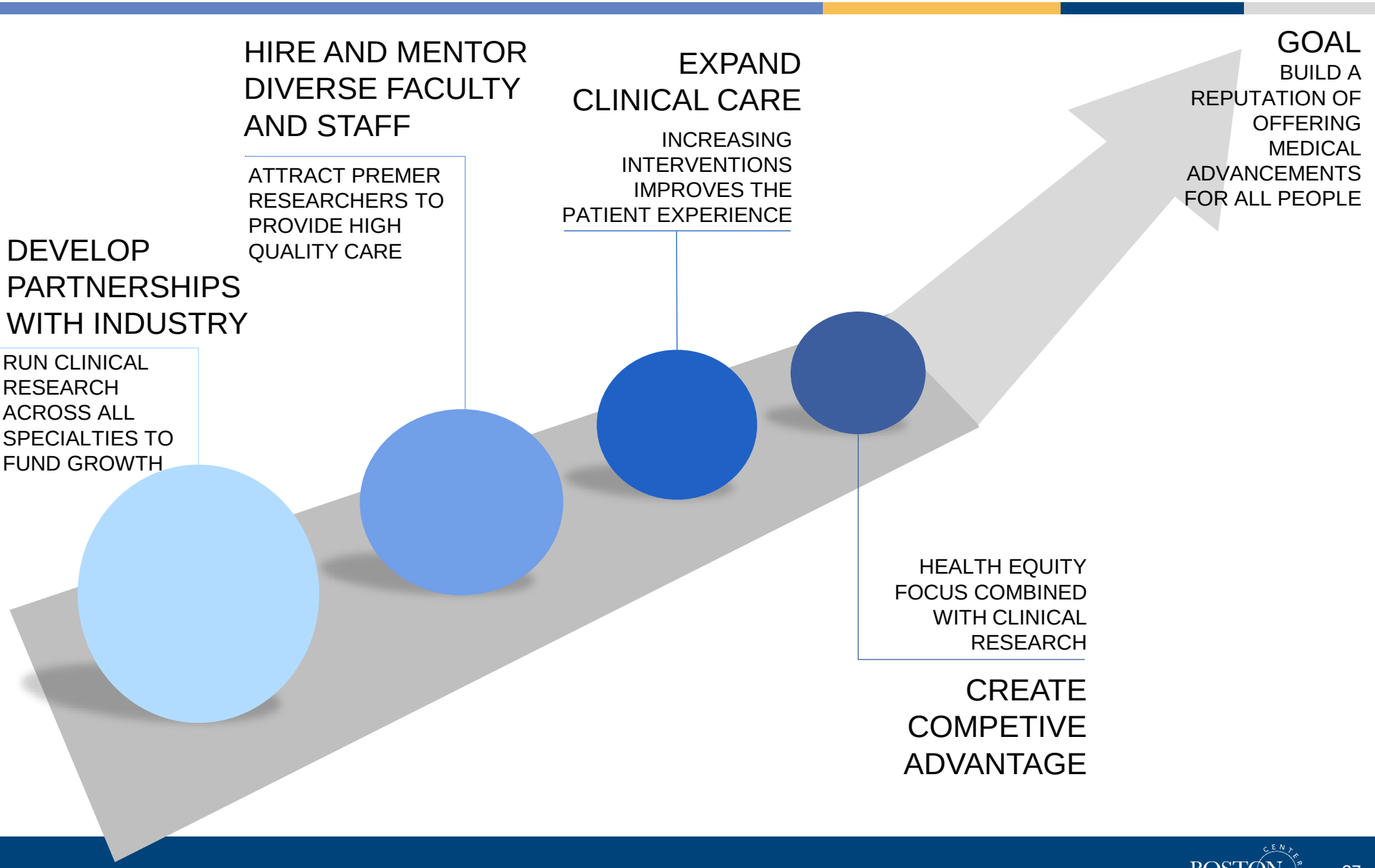
Research Network

- Gather and assess BMC affiliated CHC site-specific research interests, needs and barriers
- Establish CHC site-specific research proposal workflows, review committees, and establish a network of CHC researchers
- Encourage general participation in health research across CHCs to improve diversity, equity and inclusion in research
- Assess staffing needs and available funding to build the infrastructure needed to mobilize the CHC Research Network

Clinical Research Oversight

- Feasibility assessment of high priority trials with diversity and inclusion aims
- Develop study-specific DEI recruitment strategy, leveraging resources within the "CRN Community Engagement Center of Excellence"
- Collaborate with department staff and/or CTSI/GCRU to ensure quality driven data collection
- Provide financial management and high-level regulatory and compliance oversight
- Partner with researchers and our network of Community Partnerships to deliver study-specific results back to the community

Clinical research is a pillar for the advancement of inclusive medicine



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Comments or Questions welcome, thank you for your time today.