DIVERSITY PROGRAM CONSORTIUM DATA SHARING AGREEMENT

EFFECTIVE: 09/06/2019

Enhancing the Diversity of the NIH-funded Workforce Overview

The National Institutes of Health (NIH) recognizes the need to diversify the scientific workforce by enhancing the participation of individuals from groups identified as underrepresented in the biomedical, clinical, behavioral and social sciences (collectively termed "biomedical") research workforce. With that in mind, in 2012, it convened the NIH Advisory Committee to the Director (ACD) Working Group on Diversity in the Biomedical Research Workforce to explore strategies to attract, prepare and sustain the interest of individuals in the scientific workforce, including those from underrepresented groups (NIH's Interest in Diversity). In response to the Working Group's recommendations, which were endorsed by the ACD, the NIH established the Common Fund Program "Enhancing the Diversity of the NIH-funded Workforce," also known as the Diversity Program Consortium (DPC). In Phase I, this program allowed for the formation of a national collaborative consisting of three integrated initiatives: (1) Building Infrastructure Leading to Diversity (BUILD), (2) the National Research Mentoring Network (NRMN), and (3) the Coordination & Evaluation Center (CEC). In Phase II, new awardees joined the consortium through the DPC Dissemination and Translation Awards (DPC DaTA).

In partnership with the NIH, DPC awardees employ approaches to strengthen institutional capacity to engage and prepare individuals, including those from underrepresented groups, for successful careers in biomedical research. The interventions focus on infrastructure, faculty development, student engagement, research training and mentorship across the career pathway. A primary goal of the DPC is to provide robust evidence on effective ways to enhance diversity by engaging and sustaining the interest of individuals in the biomedical research workforce and to encourage the dissemination of successful diversity enhancing interventions to a wide variety of institutions across the United States.

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1. PURPOSE

To facilitate the evaluation of the program, a core set of data across the DPC awardee sites is collected at intervals as outlined in the Consortium-Wide Evaluation Plan (CWEP) (see Appendices for details). In addition, individual awardees collect and store site-level data for evaluation and research purposes to meet the goals of the program. This Data Sharing Agreement (DSA), developed in conjunction with DPC's awardees and the Executive Steering Committee (ESC), describes the requirements for data collection, integrity, storage, security, confidentiality, use, sharing, ownership, rights, and responsibilities. The DSA may be modified to meet the evolving needs of the consortium. A revised DSA must be approved by the ESC, which includes representation from each awardee and the NIH.

2. PERIOD OF POLICY

The original DSA developed and implemented during Phase I of the DPC remained in effect from March 16, 2016 until this revised DSA was approved on 09/06/2019. To ensure compliance, the DSA is incorporated into the terms and conditions of each award. This DSA supersedes the original DSA and should be referenced to address topics related to DPC data going forward. This DSA will remain effective until June 30, 2029, 5 years after the end of the funding period.

3. GOVERNANCE, AUTHORITIES, DATA RIGHTS & COMPLIANCE

The CEC is responsible for implementation of the consortium-wide evaluation activities in collaboration with the awardees, the ESC, and the NIH. The NIH will be responsible for oversight and adherence of the DPC awardees to this DSA. These terms apply to each DPC awardee in Phase I (RFA-RM-13-017, RFA-RM-13-016, RFA-RM-13-015) and Phase II (RFA-RM-18-004, RFA-RM-18-003, RFA-RM-18-002, RFA-RM-18-006, RFA-RM-18-005; RFA-RM-19-003). In addition to the DPC awardees, all non-consortium parties granted access to DPC data (see below for access conditions) will adhere to this DSA. Failure to abide by the terms and conditions of this DSA, including data security/disclosure provisions, may result in (i) denial of further access to the DPC data, (ii) denial of access to NIH-funded resources, and (iii) federal or state penalties. Liability will be aligned with data ownership and rights.

The NIH is committed to protecting the rights and privacy of those whose information is collected during the conduct of its funded research, and awardees will be responsible for compliance with this DSA. This DSA is made under the NIH's authority to conduct and fund research; to provide training/training assistance; to collect information as to the practical application of such research and training activities; to assemble accurate data to evaluate research priorities and scientific opportunities; and to maintain records in connection with these or other agency functions (42 U.S.C. §§ 241 and 282, and 44 U.S.C. § 3101). This DSA incorporates by reference the NIH's data sharing policies for research and the Family Educational Rights and Privacy Act (FERPA) guidelines on use or disclosure of student educational records in the conduct of research, when applicable.

As delineated in the Notices of Grant Awards, each *"awardee will retain custody of and have primary rights to site-level data and software developed under these awards, subject to Government rights of access consistent with current DHHS, PHS, and NIH policies. All evaluation-related consortium data will be shared with the NIH upon request and at the conclusion of the award."* During the funding period, the CEC has responsibility for management and oversight of the consortium-wide evaluation BUILD data and long-term NRMN follow-up data as delineated in this agreement, and the individual awardees retain ownership over the use of their site-level data.

4. DATA COLLECTION APPROVALS, CATEGORIES & QUALITY

4A. Data Collection Approvals/Clearance

The CWEP data collection instruments, processes, and schedules for data collection developed on behalf of the DPC adhere to those approved by the UCLA-CEC Institutional Review Board (IRB), or other relevant IRB governing the consortium-wide data collection. All non-CWEP site-level data collection instruments and procedures must adhere to the governance of the local site IRB.

4B. Data Categories

Consortium-wide and site-level data are required to determine the effectiveness of DPC training, mentoring, and research-capacity building interventions on outcomes. The data categories include the following:

1. **Consortium-Wide Evaluation Plan Data:** Data collected to complete the ESC-approved CWEP. The CWEP includes the scheduled collection of both qualitative and quantitative data elements to measure psychosocial factors as well as outcomes. The CWEP is divided into the following broad categories: (1) student/mentee, (2) faculty/mentor, and (3) institutional/site as outlined in the logic models and the associated DPC Hallmarks of Success. The specific CWEP data elements are listed or referenced in the Appendices. Consortium-wide data are collected at defined intervals and include participant rosters for BUILD activities, survey responses, institutional records, and transcripts from CEC case studies.
    a. **BUILD Participant Data.** BUILD awardees submit participant rosters on an ongoing basis through the CEC Tracker, a tool developed by the CEC and utilized by the BUILD awardees to upload, collect, store, and manage consortium participant data. The CEC Tracker assigns each participant a unique nine-digit numeric identification number. This allows the CEC to maintain longitudinal data regarding exposure to BUILD activities as individuals progress through their careers. The CEC Tracker allows authorized site administrators to add identifying elements to the CEC Tracker to assist with longitudinal tracking (e.g., site-level identification numbers). The CEC conducts quality review and risk assessment of the data.
    b. **NRMN Participant Data Phase I.** NRMN data managers from across the NRMN Cores submitted participant rosters on an ongoing basis to the Data Management System (DMS), a tool developed by the UCLA Computer Technology Research Lab (CTRL) and utilized by the NRMN awardees. These data are assembled into a master participant spreadsheet and shared with the CEC for use in conducting the longitudinal follow-up surveys.
    c. **Survey Data.** The CEC administers the consortium-wide surveys. DPC awardees (BUILD and NRMN Phase I) work with the CEC to ensure robust participation. The survey data are cleaned, documented, and de-identified under the management and oversight of the CEC.
    d. **BUILD Institutional Record Data.** Institutional Record (IR) data is essential for accurate tracking of student persistence and graduation, as well as faculty accomplishments. CWEP IR data includes (1) de-identified data for introductory science and mathematics courses, and (2) identifiable data for students and faculty who have provided consent through surveys.
    e. **Transcripts from CEC Case Studies:** The CEC periodically conducts visits to awardee sites to gather qualitative data (protocols are provided in Appendix D). The data are coded and curated under the management and oversight of the CEC.

2. **Site-Level Data – BUILD, NRMN, DPC DaTA:** Data elements collected by individual awardees to evaluate the impact of site-level variables on outcomes. Site-level data includes (1) site-specific data collected by the CEC and (2) non-CWEP data collected and stored by individual awardees. The CEC-equivalent to "site-specific" data are any data being used in analyses that form a component of the NIH-mandated CEC evaluation of the Diversity Program Consortium (see Appendix F for a list of planned evaluation products). CEC case studies data also fall within the category of "CEC-specific data" and cannot be shared due to the inability to appropriately de-identify those data.

3. **Site-Level Third-Party Data:** Data collected from BUILD awardee partner institutions or NRMN sub-awardees, which can include both consortium-wide and site-level data elements. Third-party institutions retain sole ownership of the use of their site-level data unless the data part of the CWEP (see above). Third-party data are subject to the terms of this DSA for all CWEP data, unless otherwise agreed upon in writing between an awardee and the third party that predates any DPC DSA. If such third-party agreement does not allow for the sharing of data as described in this or any other DPC DSA, the awardee shall attempt to secure permission for the sharing of third-party data consistent with the objectives of the DPC.

4C. Consortium-Wide Data Submissions and Quality Review

DPC awardees are expected to work collaboratively with the CEC to meet consortium-defined standards of data completeness and quality. The DPC process for submission of CWEP data includes the CEC providing a description of

data to be submitted, the submission timeline, and access to the secure consortium data repository for the transfer of data. The process includes quality assurance activities to be completed by awardees, as well as quality review, risk assessment, and de-identification to be completed by the CEC. Quality review includes confirmation of identifiers for linking with other consortium-wide data, assessment of valid values, explanations for missing data, and completion of logic or skip patterns. Disclosure risk assessment includes review for sensitive and infrequent (rare) data points that could be used to identify individuals. For both quality reviews and disclosure risk assessments, the CEC works with each institution to resolve any outstanding issues with data quality.

5. DATA SECURITY

To protect the rights and privacy of individuals whose information is collected, all parties under this DSA must agree to adhere to the highest standards for data transfer, storage, and access. The NIH and the DPC recognize that data security in multisite and collaborative research requires compliance with organizational policy, IRB guidelines, as well as local, state and federal laws and regulations to safeguard participant privacy and ensure data protection. To transfer data, awardees must use a secure file transfer service over an encrypted connection. Physical and/or electronic data are to be maintained securely and retained for up to 5 years following the end of the program funding period.

1. **CWEP Data.** All CWEP data management and storage systems operate behind a firewall on a private Internet Protocol (IP) space (i.e., accessible to defined IP addresses and inaccessible to regular internet traffic). The physical security of the data management and storage is maintained at the UCLA CTRL with multiple levels of security compliant with Health Insurance Portability and Accountability Act (HIPAA) data security standards. The UCLA CTRL maintains and manages restricted information that identifies participants (e.g., name, address, student/faculty institutional ID number). Access to files is protected via account and password protocols. Regular review of protocols ensures state-of-the-art network security.
    a. **BUILD Participant Data.** Access to the CEC Tracker requires authentication with a virtual private network (VPN) appliance in addition to CEC Tracker web application account verification. Because of the confidential nature of the data, the participant lists are not available for consortium or third-party use. Sites have ongoing password protected access to their own de-identified tracker data. Identifiable participant information is only provided to authorized educational officials at individual awardee institutions and is subject to their local IRB governance.
    b. **NRMN Phase I Participant Data.** Because of the confidential nature of the data, the participant lists are not available for consortium or third-party use. Identifiable participant information is only provided to authorized educational officials at individual awardee institutions and is subject to their local IRB governance.
    c. **Survey Data.** The CTRL administers each on-line CWEP survey. De-identified CWEP survey data is provided through a secured DPC online repository. Identifiable site-level survey data is only provided to authorized educational officials at individual awardee institutions and is subject to their local IRB governance.
    d. **IR Data**. Awardees must use a secure file transfer service over an encrypted connection to transfer CWEP IR data. Identifiable CWEP site-level IR data is only provided to authorized educational officials at individual awardee institution and is subject to their local IRB governance.
    e. **Case Study Data.** Because of the sensitive and identifiable nature of the data, the case study data is secured as described above and is not available for consortium or third-party use.

2. **Site-Level Data.** All DPC awardees must implement, maintain, and use IRB approved administrative, technical, and physical security measures to preserve the confidentiality and integrity of the data. Storage must be in a secure and locked location and all electronic data collected must be maintained in a password-protected directory behind the institutional firewall with access granted only to approved staff or officials.

6. DATA USE & SHARING

6A. Data Dissemination

The long-term impact of the DPC will be in the broad dissemination of evidence-based effective DPC training, mentoring, and research-capacity building strategies. All DPC awardees are expected to disseminate outcomes to the wider community. Two types of dissemination products include evaluation outcomes and hypothesis-based research findings.

Evaluation outcomes represent the results with respect to the Hallmarks of Success and will inform the community about the overall effectiveness of the training, mentoring, and research-capacity interventions. *Hypothesis-based research* is based in a theoretical framework, tests models or hypotheses, and delineates findings that will inform the biomedical community about what factors influence the outcomes.

During Phase II, the DPC is expected to develop and implement a Dissemination Strategic Plan for both Phase I and Phase II data describing (1) major consortium-wide evaluation themes and hypothesis-driven research areas, (2) the types of dissemination products (e.g., data briefs, presentations, publications), (3) the data required for the analyses, (4) the expertise needed to produce rigorous products, and (5) a realistic timeline for producing the dissemination products, taking into consideration the time required for outcomes. The Dissemination Strategic Plan will be developed by consortium members and approved by the ESC. Additionally, each awardee is responsible for implementing their site-level dissemination plans.

6B. Data Access Approval for Consortium Members

To promote synergies and reduce redundancies, the DPC developed an approval process for DPC awardees to access data for disseminating consortium products. The approval process is described in the Publications and Presentations (P&P) Policy and is managed by the Publications and Presentations sub-Committee (PPsC) of the Executive Steering Committee. The process requires either a notification or an application as described below.

Notification

- **Consortium-Wide Evaluation Outcomes:** The CEC is responsible for disseminating consortium-wide evaluation outcomes (see Appendix F for the complete list). These ESC approved DPC evaluation products follow the site-level notification process for tracking outlined in the P&P Policy.
- **Site-Level Evaluation Outcomes or Hypothesis-Driven Research Findings Using Site-Level Data:** Awardees retain ownership of site-level data and are responsible for the dissemination of site-level evaluation and research findings. Dissemination of the findings using site-level data follows the notification process for tracking outlined in the P&P Policy.

Application:

- **Hypothesis-Driven Research Findings Using Consortium-Wide Data:** All products based on hypothesis-driven research findings using consortium-wide data must go through the approval process described in the P&P Policy. Requests for access to de-identified site-level data requires sponsorship by the Principal Investigator(s) of the site(s). The PPsC will review and approve all meritorious requests. After approval, the CEC prepares and releases the data through a secure data management system. If a consortium product changes in scope, as determined by the PPsC, the authors must obtain a second approval.

6C. Data Access Approval for non-Consortium Parties

During the funded period of the program, access to de-identified data for parties outside of the DPC requires submission of a *Data Request Form* describing the proposed use of the data and identifying an institutional sponsor who is a member of the DPC. Requests for access to de-identified site-level data from an outside party requires sponsorship by the Principal Investigator(s) of that site. Documentation of Human Subjects Ethics training and IRB approval or exemption must be provided with the data request. Outside parties must agree to use the requested data only for the approved use. All such requests will be reviewed by the ESC according to the P&P Policy. In addition, within 24 months of the termination of Phase II funding, de-identified CWEP data will be made available for public use, consistent with the NIH data sharing agreement for NIH funded research, through an open access portal on the CEC public website.

6D. Unauthorized Use of Data

DPC awardees agree not to misuse or disclose DPC data except as permitted under this DSA and/or required by law. Unauthorized use or disclosure of data must be reported to an NIH Program Official within one day of discovery and include both corrective actions to prevent future unauthorized use/disclosure, as well as efforts to mitigate any adverse effect of the unauthorized use/disclosure. The NIH Program Official will implement review procedures within the NIH.

7. DISPUTES

As per the Cooperative Agreement Terms and Conditions, “any disagreements that may arise in scientific or programmatic matters (within the scope of the award) between award recipients and the NIH may be brought to Dispute Resolution. A Dispute Resolution Panel composed of three members will be convened. The three members will be a designee of the Steering Committee chosen without NIH staff voting, one NIH designee, and a third designee with expertise in the relevant area who is chosen by the other two. In the case of individual disagreement, the first member may be chosen by the individual awardee. This special dispute resolution procedure does not alter the awardee's right to appeal an adverse action that is otherwise appealable in accordance with PHS regulation 42 CFR Part 50, Subpart D and DHHS regulation 45 CFR Part 16.”

8. APPENDICES

Appendix A: Participating Institutions

Phase I (as of January 2019)

PI Name	Primary Institution Name	Project Title
BUILDING INFRASTRUCTURE LEADING TO DIVERSITY (BUILD)		
Crespo, Carlos J.	Portland State University	Enhancing Cross Disciplinary Infrastructure and Training at Oregon (EXITO)
Foroozesh, Maryam (Contact) Giguette, Marguerite Morgan, Kathleen M.	Xavier University of Louisiana	Building Integrated Pathways to Independence for Diverse Biomedical Researchers
Echegoyen, Lourdes (Contact) Aley, Stephen B Boland, Thomas	The University of Texas at El Paso	BUILDing SCHOLARS
Kamangar, Farin (Contact) Sheikhattari, Payam	Morgan State University	ASCEND Training Model to Increase Diversity in Biomedical Research
Khachikian, Crist Simon (Contact) Chavira, Gabriela Saetermoe, Carrie L. Shiffrar, Margaret M.	California State University Northridge	BUILD@CSUN
Kingsford, Laura (Contact) Urizar, Guido G.	California State University Long Beach	CSULB Building Biomedical Research Program
Snyder, Katherine (Contact) Mathur, Ambika	University of Detroit Mercy	REBUILD Detroit
Márquez-Magaña, Leticia M (Contact) Bibbins-Domingo, Kirsten Estrada, Mica	San Francisco State University	SF BUILD: Enabling Students to Represent in Science
Rous, Philip J (Contact) Lacourse, William Richard	University of Maryland Baltimore County	STEM BUILD@UMBC
Hueffer, Karsten (Contact) Reynolds, Arleigh	University of Alaska Fairbanks	Biomedical Learning and Student Training (BLaST) Program
NATIONAL RESEARCH MENTORING NETWORK (NRMN) Phase I		
Pfund, Christine E (Contact) Ofili, Elizabeth Okuyemi, Kolawole S Vishwanatha, Jamboor K	Boston College	National Research Mentoring Network for a Diverse Biomedical Workforce
COORDINATION AND EVALUATION CENTER (CEC)		
Norris, Keith C (Contact) Seeman, Teresa Wallace, Steven	University of California Los Angeles	NIH Diversity Program Consortium Coordination and Evaluation Center at UCLA

Phase II Participating Institutions (as of July 2019)

PI Name	Primary Institution Name	Project Title
BUILDING INFRASTRUCTURE LEADING TO DIVERSITY (BUILD)		
Chun, Chi-Ah (Contact) Kim, Simon Vu, Kim-Phuong Marayong, Panadda Dillon, Jesse	California State University Long Beach	Building Infrastructure Leading to Diversity (BUILD) Phase II
Crespo, Carlos J.	Portland State University	Enhancing Cross Disciplinary Infrastructure and Training at Oregon (EXITO)
Echegoyen, Lourdes (Contact) Aley, Stephen B Boland, Thomas	The University of Texas at El Paso	Phase II of BUILDing SCHOLARS
Foroozesh, Maryam (Contact) Giguette, Marguerite Morgan, Kathleen M.	Xavier University of Louisiana	BUILD at Xavier, Project Pathways II
Hueffer, Karsten (Contact) Reynolds, Arleigh	University of Alaska Fairbanks	Biomedical Learning and Student Training (BLaST) Program
Kamangar, Farin (Contact) Sheikhattari, Payam	Morgan State University	ASCEND Training Model to Increase Diversity in Biomedical Research
Márquez-Magaña, Leticia M (Contact) Bibbins-Domingo, Kirsten Estrada, Mica	San Francisco State University	SF BUILD: Enabling Full Representation in Science
Rous, Philip J (Contact) Lacourse, William Richard	University of Maryland Baltimore County	STEM BUILD 2.0 at UMBC
Saetermoe, Carrie L. (Contact) Khachikian, Crist Simon Chavira, Gabriela Shiffrar, Margaret M.	California State University Northridge	BUILD PODER II
Snyder, Katherine (Contact)	University of Detroit Mercy	Research Enhancement for BUILDing Detroit (REBUILDetroit)
NATIONAL RESEARCH MENTORING NETWORK (NRMN) Phase II		
Arora, Vineet	University of Chicago	Boosting Mentor Effectiveness iN Training of Research Scientists (MENTORS) Using Social Cognitive Career Theory to Support Entry of Women & Minorities into Physician-Scientist Careers
Byars-Winston, Angela	University of Wisconsin-Madison	Impact of Culturally Aware Mentoring Interventions on Research Mentors and Graduate Training Programs
Cameron, Carrie A.	University of Texas MD Anderson Cancer Center	Building a Diverse Biomedical Workforce Through Communication Across Difference
Estrada, Mica Beth	University of California San Francisco	Studying Inclusive Mentor Networks to Diversify the Biomedical Workforce
Girdler, Susan S.	University of North Carolina Chapel Hill	Peer group mentoring for racially underrepresented early career biomedical researchers: Identifying the unique influence of psychosocial support on personal gains and objective career outcomes
Mishra, Manoj K.	Alabama State University	Intersection of Social Capital, Mentorship and Networking on Persistence, Engagement and Science Identity
Ofili, Elizabeth O.	Morehouse School of Medicine	A Randomized Controlled Study to Test the Effectiveness of Developmental Network Coaching in the Career Advancement of Diverse Early State Investigators
Okuyemi, Kolawole S.	University of Utah	Enhanced Grant Writing Coaching Intervention for a Diverse Biomedical Workforce
Pololi, Linda	Brandeis University	Career Advancement and Culture Change in Biomedical Research: Group Peer Mentoring Outcomes and Mechanisms
Rubio, Doris M.	University of Pittsburgh at Pittsburgh	Building Up
Sood, Akshay	University of New Mexico	Effectiveness of Innovative Research Mentor Interventions

	Health Sciences Center	among Underrepresented Minority Faculty in the Southwest
Pfund, Christine E (Contact)	University of Wisconson-Madison	National Research Mentoring Network (NRMN) Coordination Center
Vishwanatha, Jamboor K.	University of North Texas Health Science Center	NRMNet: A national resource for mentorship and networking to enhance diversity
COORDINATION AND EVALUATION CENTER (CEC)_		
Norris, Keith C (Contact) Seeman, Teresa Wallace, Steven	University of California Los Angeles	NIH Diversity Program Consortium Coordination and Evaluation Center at UCLA

Appendix B: List of Consortium-wide Hallmarks of Success

Approved by the DPC Executive Steering Committee in March 2019. The hallmarks assume there is baseline data on program participants and a similar group not in the program (comparator group). Progress towards hallmarks means that those in the program do better over time than those in the comparator group. The hallmarks are "goals" to achieve or move towards over the course of the program. If the hallmark is already at a high level, then the goal should be maintenance.

In all hallmarks, the term "Biomedical" is defined as "Behavioral and biomedical health-related."

Hallmark ID	Student/ Trainee Hallmarks of Success for DPC Phase II
STU-1	High academic self-efficacy
STU-2	High self-efficacy as a researcher
STU-3	High science identity
STU-4	Satisfaction with quality of mentorship
STU-5	Perceived sense of belonging within the university
STU-6	Perceived sense of belonging within the research community
STU-7	Intent to pursue a career in biomedical research
STU-8	Entry into an undergraduate biomedical degree program
STU-9	Persistence in biomedical degree or other formal research training program
STU-10	Frequent receipt of mentoring to enhance success in the biomedical pathway
STU-11	Participation in mentored or supervised biomedical research
STU-12	Evidence of competitiveness for transitioning into the next phase in the biomedical career pathway
STU-13	Participation in academic or professional organizations related to biomedical disciplines
STU-14	Evidence of excelling in biomedical research and scholarship
STU-15	Strong academic and professional networks
STU-16	Completion of biomedical degree or other formal training program
STU-17	Application and acceptance to a subsequent research training program in a biomedical discipline
STU-18	Entrance into a subsequent research training program in a biomedical discipline
Hallmark ID	**Faculty/ Mentor Hallmarks of Success for DPC Phase II**
FAC-1	High self-efficacy as an instructor in a biomedical field
FAC-2	High self-efficacy as an instructor to a diverse group of biomedical students
FAC-3	High self-efficacy as a mentor to biomedical research trainees

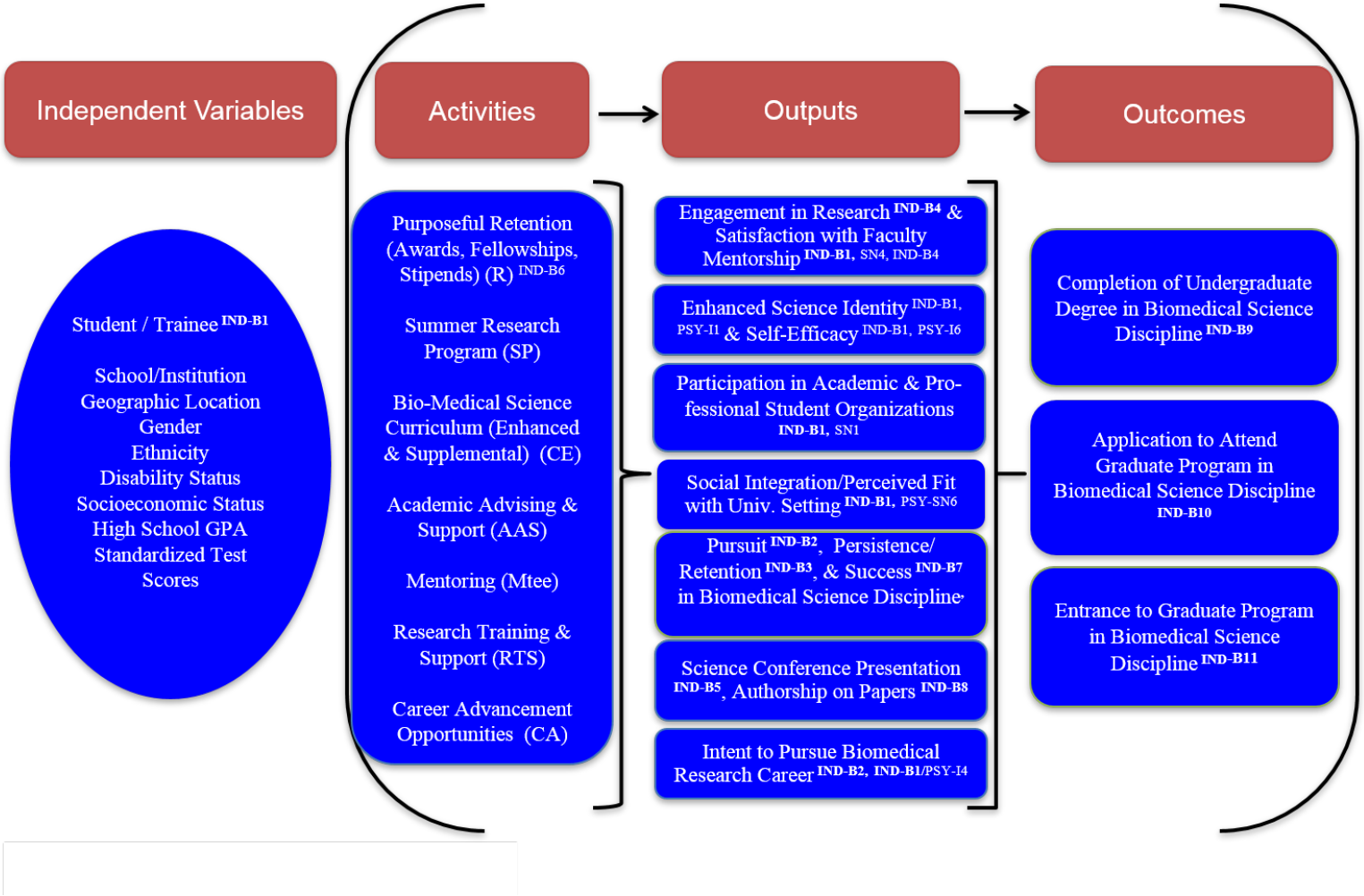
Hallmark ID	Faculty/ Mentor Hallmarks of Success for DPC Phase II
FAC-4	High self-efficacy as a mentor to a diverse group of biomedical research trainees
FAC-5	Frequently mentors students, post-docs, and/or more junior faculty on biomedical-related issues
FAC-6	High self-efficacy as an independent biomedical researcher
FAC-7	High self-efficacy in the ability to secure external funding
FAC-8	Engaged in activities to secure research or research training funding
FAC-9	Securing research or research training funding
FAC-10	Evidence of scholarly productivity
FAC-11	Evidence of professional recognition and service
FAC-12	Strong academic and professional networks
FAC-13	Advancement to next career stage
FAC-14	Advancement to leadership positions in biomedical research and research training
FAC-15	Evidence of receiving training in areas to foster inclusive research training environments
FAC-16	Strong self-efficacy to act as a change agent to enhance diversity in biomedical research and research training environments
FAC-17	Uses evidence-based practices in teaching and mentoring

Hallmark ID	Institutional Hallmarks of Success for DPC Phase II
INST-1	Commitment to efforts that create, enhance, and/or maintain diversity and inclusion at all levels of the institution
INST-2	Evidence of creating, enhancing, and/or maintaining diverse, inclusive, and culturally appropriate research and research training environments
INST-3	Demonstrated institutional commitment to creating, enhancing, and/or maintaining the diversity of the biomedical faculty on campus by recruiting a diverse pool of potential applicants
INST-4	Implementation of sustainable, institutionally supported intra-institutional activities to achieve positive outcomes related to biomedical research capacity building and faculty development
INST-5	Enhanced inter-institutional collaborations to achieve positive outcomes related to biomedical research, research training, and faculty development

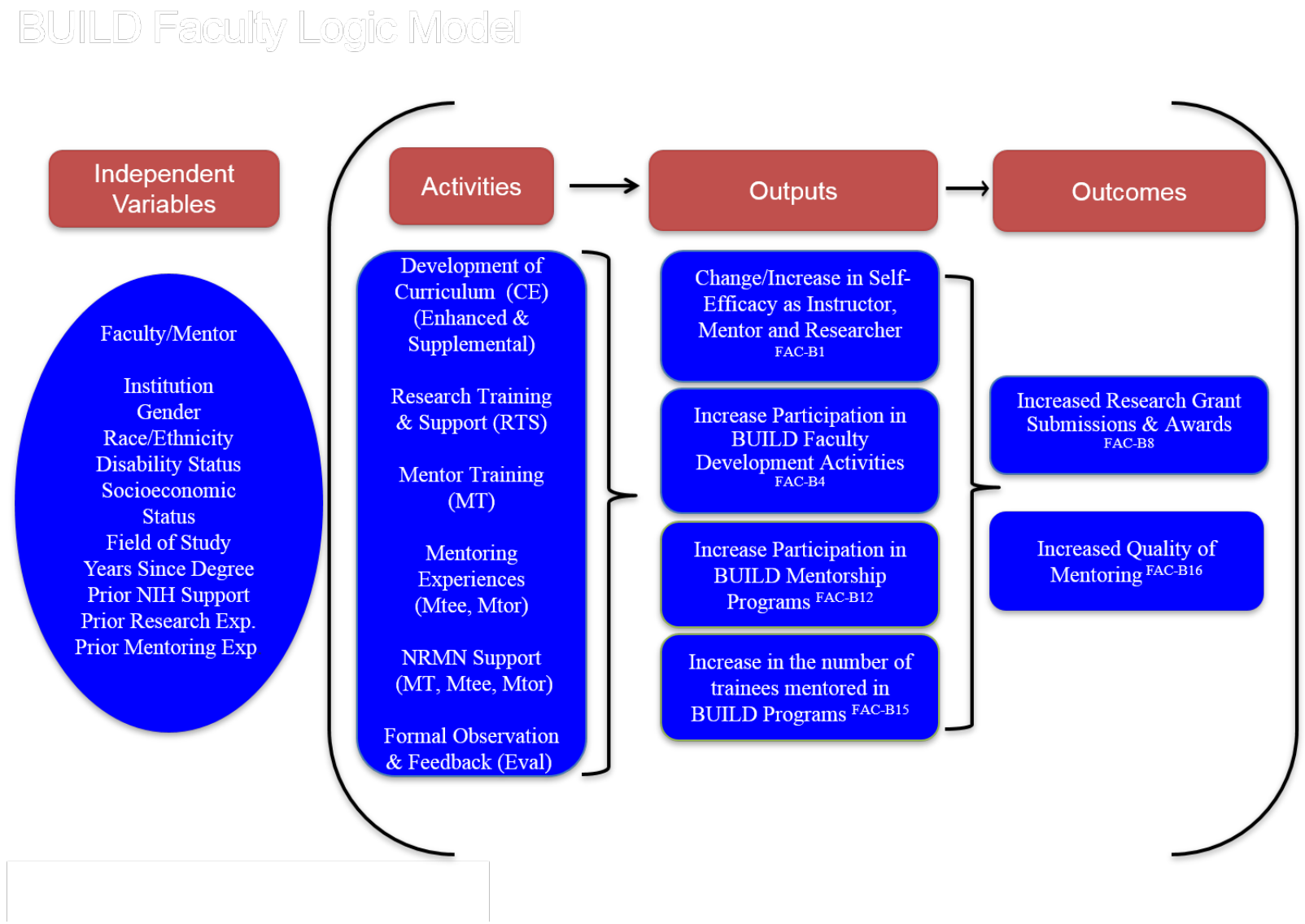
Hallmark ID	Institutional Hallmarks of Success for DPC Phase II
INST-6	Implementation of sustainable, institutionally supported activities to achieve positive outcomes related to biomedical research training
INST-7	Enhancing or maintaining the diversity of students, e.g. those from nationally underrepresented groups, who pursue degrees in biomedical fields
INST-8	Demonstrated institutional commitment to efforts that sustain the interest of trainees from all backgrounds pursuing degrees in biomedical fields that increase persistence
INST-9	Employs evidence-based approaches to establish and attain goals for graduation rates, time-to-degree, and the ability to transition to biomedical graduate and professional degree programs for students from all backgrounds
INST-10	Demonstrated institutional commitment to implementing and sustaining mentoring practices that promote the development of research-oriented students from all backgrounds
INST-11	Institutional infrastructure to track regular reporting of student demographics and outcomes with respect to biomedical fields

Appendix C: Consortium Logic Models

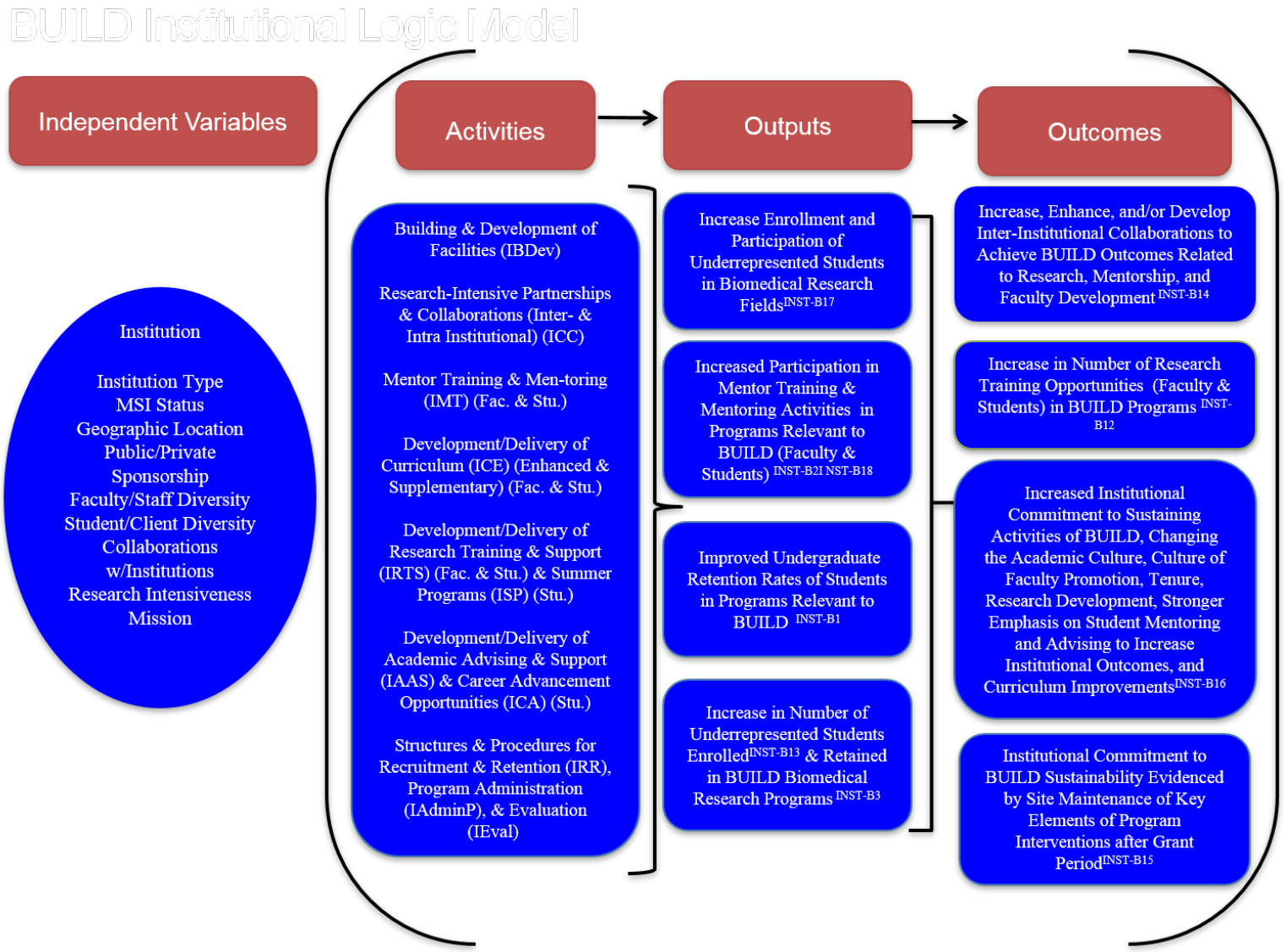
BUILD Student Logic Model



BUILD Faculty Logic Model



BUILD Institutional Logic Model



Phase I NRMN National Research Mentoring Network (NRMN) Simplified Logic Model with 5-Year Cumulative Projections, Key Outcomes,

Most Important Outcomes and Evaluation/Research Questions Being Addressed (version 12/5/2016)

Mission: To promote and provide mentoring to diversify the biomedical workforce
Overarching Goal: To significantly contribute to national efforts of increasing the size, quality, diversity, and research productivity of the biomedical workforce trained to improve human health

<table>
<tr><th colspan="2">Program Components, Goals, and Projected Outputs</th><th>Key Outcomes and Impacts</th><th>Research and Evaluation Questions NRMN Will Address</th></tr>
<tr><th>Key Program Outputs</th><th>Projected 5-Year Participant Totals</th><th>Key Outcomes
*Most Important Outcome (MIO)</th><th>**Requires coordinated NRMN and CEC data</th></tr>
<tr><td colspan="4">MATCHING/ LINKING</td></tr>
<tr><td># participants registered on NRMNet.net</td><td>10,000</td><td rowspan="4">A national network for diverse mentors and mentees who connect virtually and face-to-face*

● Greater career persistence in biomedical sciences among under-represented groups.

● Greater self-efficacy in ability to succeed in biomedical careers.</td><td rowspan="4">● Do mentees who register for NRMNet and access additional mentors through the NRMN Network self-report increased self-efficacy in their ability to succeed in a biomedical career and go on to persist in biomedical science?**
● Do mentees who engage in the NRMN Virtual Guided Mentorship Program or My NRMN activities (e.g. individual networks, groups functions) self-report increased access to mentors and an expanded mentoring network? **

Note that analysis of mentee networks will require social network analysis which neither NRMN or the CEC are funded to conduct.</td></tr>
<tr><td># mentees and mentors engaged in relationships initiated or supported in any way across all NRMN programs</td><td>7,500</td></tr>
<tr><td># mentors and mentees actively networking in MyNRMN</td><td>2,500</td></tr>
<tr><td># mentors and mentees matched through a Virtual Guided Mentorship Program</td><td>1,000</td></tr>
</table>

<table>
<tr><th colspan="2">Program Components, Goals, and Projected Outputs</th><th>Key Outcomes and Impacts</th><th>Research and Evaluation Questions NRMN Will Address</th></tr>
<tr><th>Key Program Outputs</th><th>Projected 5-Year Participant Totals</th><th>Key Outcomes
*Most Important Outcome (MOI)</th><th>**Requires coordinated NRMN and CEC data</th></tr>
<tr><td colspan="4">TRAINING</td></tr>
<tr><td># early career faculty trained in grant writing</td><td>700</td><td rowspan="3">Evidence-based intensive grantsmanship coaching for early career faculty*

Evidence-based training for mentors and mentees across career stages and disciplines*

● Increased skills, knowledge and self- efficacy (confidence) in grant writing
● Increased skills, knowledge and self- efficacy (confidence) in creating and maintaining effectiveness of mentoring relationships.</td><td rowspan="3">● Do early career faculty who engage in intensive grantsmanship coaching self-report increased skills, knowledge, and self-efficacy in grant writing and subsequently submit and receive more grants (compared to the rates in the Ginther report)? (**after 18 months)
● Do mentors who engage in training through NRMN (and in some cases certified) self-report increased knowledge, skills and self- efficacy in their ability to maximize their mentoring relationships in a culturally responsive manner? Do these increases correlate with dosage, mode and topics of training?</td></tr>
<tr><td># mentors trained</td><td>5,000</td></tr>
<tr><td># individuals certified as NRMN or NRMN Master mentors</td><td>200</td></tr>
<tr><td># mentees trained</td><td>1,000</td><td>● Greater advocacy for mentorship
● Increased commitment to cultural awareness in promoting diversity in biomedical research.</td><td>● Do mentees who engage in training through NRMN self-report increased knowledge, skills and self-efficacy in their ability to maximize their mentoring relationships?
● Do mentees rate their relationships with NRMN trained mentors as more effective than mentees working with mentors not NRMN trained mentors?**</td></tr>
</table>

Program Components, Goals, and Projected Outputs		Key Outcomes and Impacts	Research and Evaluation Questions NRMN Will Address
Key Program Outputs	**Projected 5-Year Participant Totals**	**Key Outcomes *Most Important Outcome (MOI)**	****Requires coordinated NRMN and CEC data**
REFERRING			
# organizations and institutions actively partnering with NRMN	100	Resources for mentors and mentees across career stages and disciplines* ● Increased pool of high quality, audience-valued, targeted resources available to diverse individuals across career stages pursuing biomedical careers*	● Do mentees who register on NRMNet and access additional resources through the NRMN Network of organizations and partnering institutions self-report increased self-efficacy in their ability to succeed in a biomedical career and persist in biomedical science?** ● Do mentors and institutional officials who engage in training through NRMN self-report increased efficacy in navigating and referring scholars to mentoring resources on NRMNet?**
# unique resources made widely available on the NRMNet	45		
# of access hits across resources on NRMNet	5,000 page views per week		
PROMOTING			
# faculty trained as grant writing coaches	200	A national organization with a core infrastructure advancing the science of mentoring for research career persistence. * ● Influence on institutional climate and structural barriers to creating an environment supporting diverse populations in the biomedical career pipeline ● Recognition of the value of mentoring for diverse workforce at all career stages at colleges/universities. ● Commitment by institutions nationwide to promote diversity in biomedical sciences	● Do grantsmanship coaches report increased knowledge, skills and self- efficacy in teaching others to be more effective grant writers? Do these coaches expand the impact of NRMN through implementation of their skills within their own institutions/ organizations and beyond? ● Do mentor/mentee training facilitators report increased knowledge, skills and self-efficacy in teaching others to be more effective mentors/mentees? Do these facilitators expand the impact of NRMN through implementation of their skills within their own institutions/ organizations and beyond? Does effectiveness of their training and extent of their impact correlate with level/ type of facilitator training, critical mass of facilitators in their institution/ organization and perceived institutional/ organizational barriers? ● Do institutional change agents (e.g. AAMP Pioneers, Mentoring Academy participants, master facilitators) engage in activities, which increase the attention to/ support for mentoring program at their institution/ organization? *Note: Analysis of barriers and supports for institutional/organization change and national impact is not currently funded and will require additional resources for data collection and analyses.*
# facilitators trained to implement mentor and mentee training	750		
# leaders, institutional change agents and Master Facilitators	100		

Appendix D: Data Elements Included in the Consortium-Wide Evaluation Plan

Source Type	BUILD Students & Faculty	NRMN Phase I
Activity Tracking	Direct upload from sites of names & emails	Export of names, emails, and demographics from NRMN central office
Surveys	1. HERI surveys administered by BUILD institution *Institution gives permission for identifiable data to be shared with CEC for use in evaluation & research* 2. HERI surveys administered for CEC at BUILD institutions *Institution & CEC share administration; both receive identifiable data* 3. CEC surveys *CEC provides identifiable data for institution-specific respondents with institution for use in BUILD evaluation & research* 4. HERI surveys administered at comparison schools *HERI provides data de-identified for CEC evaluation purposes only*	1. CEC surveys *Identifiable data not directly shared with NRMN but could be done if requested*
Institutional Records	1. Identifiable data for students and faculty *Institution provides to CEC for use in evaluation & research* 2. De-identified data for gatekeeper courses *Institution provides to CEC for use in evaluation & research*	Not applicable
Case Studies	Identifiable data collected by CEC *Only summary data provided to institutions and programs*	Identifiable data collected by CEC *Only summary data provided to institutions and programs*
Program-Specific Data	Data from applications and short-term evaluation *Identifiable data not provided to CEC*	Data from applications and short-term evaluation *Identifiable data provided by NRMN Phase I cores to CEC as appropriate consent allows*

The following list presents the surveys, protocols, and links for the Higher Education Research Institute (HERI) surveys that the DPC uses as part of the Consortium-Wide Evaluation Plan.

- BUILD Student Annual Follow-up Survey
- BUILD Faculty Annual Follow-up Survey
- BUILD Site Visit and Case Studies Protocol
- BUILD Institutional Records and Program Data Requests
- BUILD Implementation Reports
- NRMN Phase I Data Warehouse Baseline Data
- NRMN Phase I Faculty/Mentor Follow-up Survey
- NRMN Phase I Student/Mentee Follow-up Survey
- NRMN Phase I Institutional Context Module
- NRMN Phase I Site Visit & Case Studies Protocol
- NRMN Phase I Modules

    - Mentee Mentor Assessment
    - Mentor Skills
    - Research and Grant-writing
    - Coaching Training
- HERI Freshman Survey, Online Version
- HERI Transfer Student Survey
- HERI Your First College Year
- HERI College Senior Survey
- HERI Faculty Survey

Appendix E: Table with Demographic /Background Variables

Sources include: HERI surveys and IR data for BUILD and NRMN Phase I Data Warehouse for NRMN Phase I participants.

Demographic/Background Variables (Student, Faculty, and Institution)	
Student	School/Institution
Student	Geographic Location
Student	Gender
Student	Ethnicity
Student	Disability Status
Student	Socioeconomic Status
Student	High School GPA
Student	Standardized Test Scores
Faculty/Mentor	Institution
Faculty/Mentor	Gender
Faculty/Mentor	Race/Ethnicity
Faculty/Mentor	Disability Status
Faculty/Mentor	Socioeconomic Status
Faculty/Mentor	Field of Study
Faculty/Mentor	Years Since Degree
Faculty/Mentor	Prior NIH Support
Faculty/Mentor	Prior Research Experience
Faculty/Mentor	Prior Mentoring Experience
Institution	Institution Type
Institution	Minority Serving Institution (MSI) Status
Institution	Geographic Location
Institution	Public/Private Sponsorship
Institution	Faculty/Staff Diversity
Institution	Student/Client Diversity
Institution	Collaborations with Institutions
Institution	Research Intensiveness
Institution	Mission

Appendix F: CEC Consortium-Wide Evaluation Products

On September 25, 2015, the Consortium-Wide Evaluation Plan (CWEP) was presented to and approved by the Diversity Program Consortium Executive Steering Committee (ESC). The evaluation topics were presented in broad terms (see **2015 CWEP Plan Final**) with the understanding that the data would be used to compare outcomes for BUILD vs. non-BUILD participants at BUILD institutions and comparator institutions (with additional analysis focusing comparing outcomes for students from historically **underrepresented** and well-represented groups in the biomedical sciences), and assess the impact of BUILD on grantee institutions.

This document describes the CEC CWEP Dissemination Products in more detail, tying the evaluation questions and potential positive findings to the associated Hallmark of Success (**2019 ESC approved version**). For reference, the Evaluation Questions from the 2015 CWEP presentation are listed in the first column and mapped to the updated 2019 Hallmarks to demonstrate the continuity in the CWEP and reflect that although the Hallmarks have been updated, the intent and themes of the consortium-wide evaluation have remained consistent throughout the process. Tables are presented for the BUILD Student, Faculty, and Institution-level products.

Topics listed in these tables are evaluation products and will be produced by the CEC, providing a framework for hypothesis-driven research by any member of the consortium. After submitting a proposal to the Publications and Presentations Subcommittee (PPsC; see P&P Guidelines), consortium members may develop hypothesis-based research to look more closely at these evaluation topics. For additional consortium and research topics open for consideration by consortium writing groups, see the PPsC **Master list of Research Topics spreadsheet**.

Because of the significant updates that have been made to the NRMN structure, logic model and evaluation plan, evaluation products for NRMN will be outlined and presented at a later time.

BUILD Student

2015 CWEP Evaluation Question	**CWE Hallmark (2019)**	**Updated Evaluation Questions** **For BUILD and non-BUILD students at BUILD and comparator institutions:**	**Potential Positive Findings*** **BUILD students, compared to non-BUILD students at BUILD and comparator institutions, and for underrepresented versus well-represented students across those categories:**
1) Are BUILD under-represented group (URG) students more likely to show increased early predictors (hallmarks) of success in pursuing a biomedical science career when compared to non-BUILD students at the same institution (URG and non-URG) and non-BUILD students at other similar institutions (URG and non-URG)?	High academic self-efficacy (STU-1)	What is the change in academic self-efficacy (SE) over time?	Have a greater increase in academic self-efficacy over time; *note, academic SE commonly declines in the first year – we will see if BUILD students have less decline and later have overall higher SE*
	High self-efficacy as a researcher (STU-2)	What is the change in self-efficacy as a researcher over time?	Have a greater increase in research self-efficacy over time.
	High science identity (STU-3)	What is the change in science identity over time?	Have a greater increase in science identify over time.
	Satisfaction with quality of mentorship (STU-4)	How does satisfaction with faculty mentorship change over time?	Are more satisfied with faculty mentorship.

2015 CWEP Evaluation Question	CWE Hallmark (2019)	Updated Evaluation Questions For BUILD and non-BUILD students at BUILD and comparator institutions:	Potential Positive Findings* BUILD students, compared to non-BUILD students at BUILD and comparator institutions, and for underrepresented versus well-represented students across those categories:
	Perceived sense of belonging within the university (STU-5)	What is the change in perceived sense of belonging within the university?	Have a greater increase in perceived sense of belonging within the university over time.
	Perceived sense of belonging within the research community (STU-6)	What is the change in perceived sense of belonging within the research community?	Have a greater increase in perceived sense of belonging within the research community over time.
	Intent to pursue a career in biomedical research (STU-7)	How does the intent to pursue a career in biomedical research change over time?	Are more likely to express an intent to pursue a biomedical research career over time.
2) Are BUILD URG students compared to non-BUILD students (URG and non-URG) and students at non-BUILD institutions (URG and non-URG) more likely to show increased: - Completion of undergraduate degree in biomedical sciences - Intent to apply to graduate program in biomedical sciences - Application, acceptance, & enrollment in a graduate program in a biomedical sciences	Entry into an undergraduate biomedical degree program (STU-8)	What is the likelihood that intent to pursue a biomedical major results in entering a biomedical major?	Are more likely to enter a biomedical major after reporting their intent to pursue a biomedical major.
	Persistence in biomedical degree or other formal research training program (STU-9)	What is the persistence in biomedical science disciplines over time?	Are more likely to persist in a biomedical science discipline over time.
3) What is the student experience of BUILD activities and how does that impact program goals?	Frequent receipt of mentoring to enhance success in the biomedical pathway (STU-10)	How frequently do trainees receive mentoring in areas that are related to the biomedical pathway, and has the frequency changed over time?	Are more likely to receive frequent mentoring in areas that are related to the biomedical pathway (e.g. research and career mentoring).
	Participation in mentored or supervised biomedical research (STU-11)	What are the rates of participation in mentored or supervised biomedical research, and do they change over time?	Are more likely to participate in mentored or supervised biomedical research.

2015 CWEP Evaluation Question	CWE Hallmark (2019)	Updated Evaluation Questions For BUILD and non-BUILD students at BUILD and comparator institutions:	Potential Positive Findings* BUILD students, compared to non-BUILD students at BUILD and comparator institutions, and for underrepresented versus well-represented students across those categories:
	Evidence of competitiveness for transitioning into the next phase in the biomedical career pathway (STU-12)	What is the change in indicators of competitiveness for admission to graduate school over time?	Are likely to be more competitive for admission to graduate school (e.g. GPA and research experience).
	Participation in academic or professional organizations related to biomedical disciplines (STU-13)	How does participation in academic & professional organizations change over time?	Are participating more in academic & professional student organizations.
	Evidence of excelling in biomedical research and scholarship (STU-14)	How does evidence of excelling in biomedical research and scholarship change over time?	Are more likely to demonstrate evidence of excelling in biomedical research and scholarship change over time, e.g. conference presentations and biomedical related awards/honors).
	Strong academic and professional networks (STU-15)	What is the change in academic and professional networks over time?	Are more likely to have strong academic and professional networks (e.g. number of different coauthors on publications, number of research and career mentors).
2, part 2) Are BUILD URG students compared to non-BUILD students (URG and non-URG) and students at non-BUILD institutions (URG and non-URG) more likely to show increased: - Completion of undergraduate degree in biomedical sciences - Intent to apply to graduate program in biomedical sciences - Application, acceptance, & enrollment in a graduate program in a biomedical sciences	Completion of biomedical degree or other formal training program (STU-16)	Is there a difference in completion of undergraduate degree in biomedical sciences? (medium-term outcome)	Are more likely to complete a biomedical science degree over time.
	Application and acceptance to a subsequent research training program in a biomedical discipline (STU-17)	Is there a difference in application and acceptance in a subsequent research training program in a biomedical science program? (medium-term outcome)	Are more likely to apply and to be accepted in a research-oriented biomedical post-bac or graduate program over time.
	Entrance into a subsequent research training program in a biomedical discipline (STU-18)	Is there a difference in entrance (matriculation) into a subsequent research training program in a biomedical discipline? (medium-term outcome)	Are more likely to enter (matriculate) in a research-oriented biomedical post-bac or graduate program over time.

BUILD Faculty

2015 CWEP Evaluation Question	CWE Hallmark (2019)	Evaluation Questions For BUILD and non-BUILD faculty at BUILD and comparator institutions:	Potential Positive Findings BUILD faculty, compared to non-BUILD faculty at BUILD and comparator institutions:
3) What is the faculty experience of BUILD activities and how does that impact program goals?	High self-efficacy as an instructor in a biomedical field (FAC-1)	What is the level of instructor self-efficacy in a biomedical field, and how does it change over time?	Are more likely to show high, or increased, instructor self-efficacy over time.
	High self-efficacy as an instructor to a diverse group of biomedical students (FAC-2)	What is the level of instructor self-efficacy to a diverse group of biomedical students, and how does it change over time?	Are more likely to show high, or increased, instructor self-efficacy in teaching to a diverse group of biomedical students over time.
1) Are BUILD faculty compared to non-BUILD faculty and faculty in non-BUILD institutions more likely to show increased mentor self-efficacy, mentoring, and quality of mentoring?	High self-efficacy as a mentor to biomedical research trainees (FAC-3)	What is the level of self-efficacy as a mentor to biomedical research trainees, and how does it change over time?	Are more likely to show high, or increased, mentor self-efficacy over time.
	High self-efficacy as a mentor to a diverse group of biomedical research trainees (FAC-4)	What is the level of mentor self-efficacy in working with diverse groups of biomedical research trainees, and how does it change over time?	Are more likely to show high, or increased, mentor self-efficacy to a diverse group of biomedical students over time.
	Frequently mentors students, post-docs, and/or more junior faculty on biomedical-related issues (FAC-5)	What is the frequency of mentoring, and does it change over time?	Are more likely to engage in mentoring, and to report increases over time.
2) Are BUILD faculty compared to non-BUILD faculty and faculty at non-BUILD institutions more likely to show increased research self-efficacy, research, and scholarly productivity?	High self-efficacy as an independent biomedical researcher (FAC-6)	What is the level of self-efficacy as an independent biomedical researcher, and how does it change over time?	Are more likely to show high, or increased, self-efficacy as independent biomedical researchers over time.
	High self-efficacy in the ability to secure external funding (FAC-7)	What is the level of self-efficacy in securing external funding, and how does it over time?	Are more likely to show high, or increased, self-efficacy in securing external funding over time.
	Engaged in activities to secure research or research training funding (FAC-8)	What is the level of activity to secure research or research training funding, and how does it change over time?	Are more likely to show high, or increased, activity to secure research or research training funding over time.

2015 CWEP Evaluation Question	CWE Hallmark (2019)	Evaluation Questions For BUILD and non-BUILD faculty at BUILD and comparator institutions:	Potential Positive Findings BUILD faculty, compared to non-BUILD faculty at BUILD and comparator institutions:
	Securing research or research training funding (FAC-9)	What is the level of success in securing external funding, and how does it change over time?	Are more likely to show high, or increased, success in securing external funding.
	Evidence of scholarly productivity (FAC-10)	What is the level of scholarly productivity, and how does it change over time?	Are more likely to show increased scholarly productivity over time.
	Evidence of professional recognition and service (FAC-11)	What is the level of professional recognition and service, and how does it change over time?	Are more likely to show increased professional recognition and/or service over time.
3, part 2) What is the faculty experience of BUILD activities and how does that impact program goals?	Strong academic and professional networks (FAC-12)	How robust are their professional and academic networks, and how does it change over time?	Are more likely to have expanded their professional and academic networks over time (e.g. numbers of coauthors on publications, presenting at scientific conferences, holding office in professional organizations, providing service to federal or other agencies).
2, part 2) Are BUILD faculty compared to non-BUILD faculty and faculty at non-BUILD institutions more likely to show increased research self-efficacy, research, and scholarly productivity?	Advancement to next career stage (FAC-13)	What promotions and/or career advancements have taken place over time?	Are more likely to have advanced in their career (e.g., promotions, tenure)
3, part 3) What is the faculty experience of BUILD activities and how does that impact program goals?	Advancement to leadership positions in biomedical research and research training (FAC-14)	What administrative or leadership roles have they held over time?	Are more likely to have held administrative and/or leadership roles over time.
	Evidence of receiving training in areas to foster inclusive research training environments (FAC-15)	What trainings to foster inclusive research training environments have individuals received over time?	Are more likely to have received trainings to facilitate inclusive research training environments over time
	Strong self-efficacy to act as a change agent to enhance diversity in biomedical research and research training environments (FAC-16)	What is the level of self-efficacy to act as a change agent to enhance diversity in biomedical research and training environments, and how does this change over time?	Are more likely to show high, or increased, activity self-efficacy to act as a change agent to enhance diversity over time.

2015 CWEP Evaluation Question	CWE Hallmark (2019)	Evaluation Questions For BUILD and non-BUILD faculty at BUILD and comparator institutions:	Potential Positive Findings BUILD faculty, compared to non-BUILD faculty at BUILD and comparator institutions:
1, part 2) Are BUILD faculty compared to non-BUILD faculty and faculty in non-BUILD institutions more likely to show increased mentor self-efficacy, mentoring, and quality of mentoring?	Uses evidence-based practices in teaching and mentoring (FAC-17)	How frequently are evidence-based practices used in teaching and mentoring, and how does that change over time?	Are more likely to use evidence-based practices in teaching and mentoring, and to report increases over time.

BUILD Institutional

2015 CWEP Evaluation Question	CWE Hallmark (2019)	Evaluation Questions In comparison to pre-BUILD baseline:	Potential Positive Findings When compared to the pre-BUILD baseline, BUILD institutions are currently more likely to:
2) How have BUILD institutions embraced organizational changes that promote institutional commitment to diversity?	Commitment to efforts that create, enhance and/or maintain diversity and inclusion at all levels of the institution (INST-1)	What efforts have been made to create, enhance and/or maintain diversity and inclusion at all levels of the institution changed over time?	Demonstrate increased commitments to institutional efforts to create and enhance diversity and inclusion at all levels of the institutions. If institutions were initially at a high level, they will have maintained these efforts.
1) How have BUILD and partner institutions developed the capacity for biomedical science research training and mentoring and in what ways is this sustainable?	Evidence of creating, enhancing, and/or maintaining diverse, inclusive and culturally appropriate research and research training environments (INST-2)	What evidence is there of creating, enhancing and/or maintaining diverse, inclusive and culturally appropriate research training environments over time?	Show evidence that they have created and enhanced diverse, inclusive and culturally appropriate research training environments. If institutions were initially at a high level, they will show evidence of maintaining these environments.
2, part 2) How have BUILD institutions embraced organizational changes that promote institutional commitment to diversity?	Demonstrated institutional commitment to creating, enhancing and/or maintaining the diversity of the biomedical faculty on campus by recruiting a diverse pool of potential applicants (INST-3)	Has the institution taken steps to recruit a diverse pool of potential applicants for biomedical faculty?	Have taken steps to recruit a diverse pool of potential applicants for biomedical faculty.
	Implementation of sustainable, institutionally supported intra-institutional activities to achieve positive outcomes related to biomedical research capacity building and faculty development (INST-4)	What sustainable, intra-institutional activities have been implemented to achieve positive outcomes related to biomedical research capacity building and faculty development over time?	Have implemented sustainable, intra-institutional activities and to demonstrate progress toward achieving positive outcomes related to biomedical research capacity building and faculty development.
	Enhanced inter-institutional collaborations to achieve positive outcomes related to biomedical research, research training, and faculty development (INST-5)	How have new inter-institutional collaborations been developed to achieve positive outcomes related to biomedical research, research training, and faculty development? If applicable, how have pre-existing inter-institutional collaborations been leveraged to achieve positive outcomes related to	Have developed and/or enhanced inter-institutional collaborations to demonstrate progress toward achieving positive outcomes related to biomedical research, research training, and faculty development.

2015 CWEP Evaluation Question	CWE Hallmark (2019)	Evaluation Questions In comparison to pre-BUILD baseline:	Potential Positive Findings When compared to the pre-BUILD baseline, BUILD institutions are currently more likely to:
		biomedical research, research training, and faculty development?	
	Implementation of sustainable, institutionally supported activities to achieve positive outcomes related to biomedical research training (INST-6)	What sustainable, institutionally supported activities to achieve positive outcomes related to biomedical research training have been implemented over time?	Have implemented sustainable, institutionally supported activities and made progress toward achieving positive outcomes related to biomedical research training.
3) Does the number and/or diversity of students graduating in biomedical sciences in BUILD institutions increase over time?	Enhancing or maintaining the diversity of students, e.g., those from nationally underrepresented groups, who pursue degrees in biomedical fields (INST-7)	What changes are there in the numbers and demographics of students enrolled in biomedical science majors over time?	Have enhanced demographic diversity among students pursuing degrees in biomedical fields (or maintained if initially at high level). These changes will be greater than changes seen at comparator institutions.
	Demonstrated institutional commitment to efforts that sustain the interest of trainees from all backgrounds pursuing degrees in biomedical fields that increase persistence (INST-8)	How have the numbers and demographics of students enrolled in majors/ minors in biomedical sciences changed over time?	Have enhanced the number and diversity of students graduating in biomedical sciences (or maintained if initially at a high level).
	Employs evidence-based approaches to establish and attain goals for graduation rates, time-to-degree, and the ability to transition to biomedical graduate and professional degree programs for students from all backgrounds (INST-9)	What evidence-based approaches have been employed to attain goals for graduation rates, time-to-degree, and the ability to transition to biomedical graduate and professional degree programs for students from all backgrounds?	Will have employed evidence-based approaches to attain institutional goals for graduation rates and time-to-degree for students from all backgrounds. In addition, students from all backgrounds who graduate will have improved abilities to transition to biomedical graduate and professional degree programs.
1, part 2) How have BUILD and partner institutions developed the capacity for biomedical science research training and mentoring and in what ways is this sustainable?	Demonstrated institutional commitment to implementing and sustaining mentoring practices that promote the development of research-oriented students from all backgrounds (INST-10)	What commitments to implement and sustain mentoring practices that promote the development of research-oriented students from all backgrounds have been implemented?	Demonstrate increased commitment to implement and sustain mentoring practices that promote the development of research-oriented students from all backgrounds.

2015 CWEP Evaluation Question	CWE Hallmark (2019)	Evaluation Questions In comparison to pre-BUILD baseline:	Potential Positive Findings When compared to the pre-BUILD baseline, BUILD institutions are currently more likely to:
3, part 2) Does the number and/or diversity of students graduating in biomedical sciences in BUILD institutions increase over time?	Institutional infrastructure to track regular reporting of student demographics and outcomes with respect to biomedical fields (INST-11)	How has the institutional infrastructure to track regular reporting of student demographics and outcomes with respect to biomedical fields been improved over time?	Demonstrate a structured way to track and regularly report on student demographics and outcomes with respect to biomedical fields (e.g., well-staffed Institutional Records office)

Note: Case studies will be the primary method for evaluating the BUILD institutional-level hallmarks. Data from Institutional Records requests and the National Center for Science and Engineering Statistics (NCSES) can be used to supplement these data. The CEC will use the case studies of BUILD institutions to identify areas of institutional change that contributed to positive outcomes. The case studies will identify the challenges in achieving institutional change as well as the conditions that made change possible. *BUILD Case Study Data cannot be anonymized, it will only be available for use by the CEC; it is not be accessible to consortium members through data requests.*

Appendix G: Mapping Data Elements to Hallmarks of Success

The CEC has mapped the data elements to the Hallmarks of Success. Because the mapping document is frequently revised as survey question numbers change over time, the resource is provided in the format of a link to the DPC intranet.

Appendix H: Academic Self-Efficacy

Source: HERI

Rate yourself on each of the following traits as compared with the average person your age. We want the most accurate estimate of how you see yourself. (Mark one in each row)

[5-item scale: 1=Highest 10%, 2=Above Average, 3=Average, 4=Below Average, 5=Lowest 10%]

1. Academic ability
2. Drive to achieve
3. Mathematical ability
4. Self-confidence (intellectual)

Appendix I: Scientific Self-Efficacy

Source: Estrada

Indicate to what extent you are confident that you can complete the following tasks:

[5-item scale: 1=not at all confident, 2= a little confident, 3=somewhat confident, 4=very confident, 5=extremely confident]

1. Use technical science skills (use of tools, instruments, and/or techniques)
2. Generate a research question to answer
3. Figure out what data/observations to collect and how to collect them
4. Create explanations for the result of the study
5. Use scientific literature and/or reports to guide research
6. Develop theories (integrate and coordinate results from multiple studies)

Appendix J: Science Identity

Estrada Items:

To what extent are the following statements true of you:

1. I have a strong sense of belonging to the community of scientists
2. I derive great personal satisfaction from working on a team that is doing important research
3. I have come to think of myself as a 'scientist'
4. I feel like I belong in the field of science

HERI Items:

Indicate the importance to your personally of each of the following:

[4-item scale: 1=not important, 2=somewhat important, 3=important, 4=very important]

1. Obtaining recognition from colleagues for contributions to my special field
2. Making a theoretical contribution to science
3. Becoming an authority in my field

Appendix K: Current Position

SCHOOL

Last year, you told us you were _____[level] at _____ [institution]. Has that changed?

-No (skip to Employment item below)
-Yes, and I am still in school (go to a-d)
-Yes, but I am not in school (go to e)

a. Level
   - Undergraduate
   - Graduate or other post-baccalaureate
   - Expected completion date (year): _____

b. Status
   - Full Time
   - Part Time

c. Institution: _____

d. Major: _____

e. Please tell us your current status
   - I graduated from my previous institution
   - I did not graduate but do have plans to attend school in the next 2 years
   - I did not graduate and do NOT have plans to attend school in the next 2 years

EMPLOYMENT

Now we would like to ask you about any employment or internships. Last year, you told us you were _____ [at ___]. Has that changed? If yes, go to a-f:

a. Please review the list below and check all that apply
   - Working (including internships and significant volunteer positions)
   - Retired
   - Unemployed, looking for work
   - Otherwise not in the labor force
   - Other (specify): _____

b. Paid Employment (check all that apply):
   - Full Time
   - Part Time
   - Internships or student placement
   - No paid employment

c. Is this paid position related to research?
   - No
   - Yes

d. Is this new job/position considered a promotion or advancement?
   - No
   -Yes

e. Volunteer
   - Position
   - Company
   - No volunteer position

a. Is this volunteer position related to research?
   - No
   -Yes

Appendix L: Degree/Certificate Completion Items

During the past year, did you complete any degree or certificate program? No/Yes
If yes, please indicate the following:

a. Degree/certificate
b. Major/area of study
c. Awarding institution
d. Date awarded: MM/YR

Appendix M: Degree/Certificate Application Items

During the past year, did you apply to any degree or certificate program? No/Yes
If yes, please indicate the following:

a. Degree/certificate the program awards: _____
b. Major area of study: _____
c. Institution: _____
d. Date applied: MM/YR
e. Status of Application
- Accepted and will attend
- Accepted and will not attend
- Waitlisted
- Pending
- Not accepted

Appendix N: Scholarship/Grant Items

During the past year, did you receive any scholarships or grants for education expenses that you do not need to repay?
No/Yes
If yes, please indicate the following:
a. Name of scholarship/grant: _____
b. Amount (total value including value of any fee/tuition waivers):
- Less than $1,000
- $1,000 - $4,999
- $5,000 -$ 9,999
- $10,000 or more
c. Period of award: MM/YYYY to MM/YYYY
d. Was this award based on:
- Need
- Merit
- Need and Merit
- Other (specify)

Appendix O: Mentor Skill Assessment

Please rate how skilled you feel your mentor was in the following areas:

[7-item scale: 1=not at all and 7=extremely]

a. Active listening
b. Providing you constructive feedback
c. Establishing a relationship based on trust with you
d. Identifying and accommodating different communication styles
e. Employing strategies to improve communication with you
f. Coordinating effectively with other mentors with whom you work
g. Working with you to set clear expectations of the mentoring relationship
h. Aligning his/her expectations with your own
i. Considering how personal and professional differences may impact expectations
j. Working with you to set research goals
k. Helping you develop strategies to meet goals
l. Accurately estimating your level of scientific knowledge
m. Accurately estimating your ability to conduct research
n. Employing strategies to enhance your understanding of that research
o. Motivating you
p. Building your confidence
q. Stimulating your creativity
r. Acknowledging your professional contributions
s. Negotiating a path to professional independence with you
t. Taking into account the biases and prejudices s/he brings to your mentor/mentee relationship
u. Working effectively with mentees whose personal background is different from his/her own (age, race, gender, class, region, culture, religion, family composition, etc.)
v. Helping you network effectively
w. Helping you set career goals
x. Helping you balance work with your personal life
y. Understanding his/her impact as a role model for you
z. Helping you acquire resources (e.g., grants, etc.)

Appendix P: Mentor Assessment

Please respond to the following statements about your primary mentor that you have worked with in the past year:

[4-item scale, 1=my mentor did not do this, 2=my mentor tried to do this, 3=my mentor did this sometimes and was effective, 4=my mentor did this frequently and was effective]

a. My mentor gave me an overview of how my research fit into an overall research project
b. My mentor helped me develop my research skills
c. My mentor showed interest in my research project
d. My mentor was available to me when I had problems or questions about my research
e. My mentor offered constructive feedback when necessary
f. My mentor and I developed a relationship based on trust
g. My mentor understood how I learn best
h. My mentor created an environment that allowed me to achieve my goals
i. My mentor seemed so busy that I was afraid to interrupt her/him
j. My mentor had an effective mentoring style
k. My mentor acted as a positive role model
l. My mentor showed interest in me as a person
m. My mentor fostered my independence
n. My mentor fostered confidence in my skills
o. My mentor appreciated my contributions
p. My mentor encouraged me to be creative
q. My mentor made me enthusiastic about my project
r. My mentor helped me feel curious about my project
s. My mentor treated me as a colleague
t. My mentor helped me decide on a career path
u. My mentor communicated his/her expectations of me
v. My mentor respected my goals
w. My mentor allowed me to take ownership in my research
x. My mentor created an environment where I felt safe to make mistakes
y. My mentor made me feel included in the lab
z. My mentor regularly assessed skills and knowledge that I gained in the lab

Appendix Q: Mentor Skill Self-Assessment

Please rate how skilled you feel you are in each of the following areas

[7-item scale, 1=not at all and 7=extremely]

a. Active listening
b. Providing constructive feedback
c. Establishing a relationship based on trust
d. Identifying and accommodating different communication styles
e. Employing strategies to improve communication with mentees
f. Coordinating effectively with your mentees' other mentor
g. Working with mentees to set clear expectations of the mentoring relationship
h. Aligning your expectations with your mentees'
i. Considering how personal and professional differences may impact expectations
j. Working with mentees to set research goals
k. Helping mentees develop strategies to meet goals
l. Accurately estimating your mentees' level of scientific knowledge
m. Accurately estimating your mentees' ability to conduct research
n. Employing strategies to enhance your mentees' knowledge and abilities
o. Motivating your mentees
p. Building mentees' confidence
q. Stimulating your mentees' creativity
r. Acknowledging your mentees' professional contributions
s. Negotiating a path to professional independence with your mentees
t. Taking into account the biases and prejudices you bring to the mentor/mentee relationship
u. Working effectively with mentees whose personal background is different from your own (age, race, gender, class, region, culture, religion, family composition, etc.)
v. Helping your mentees network effectively
w. Helping your mentees set career goals
x. Helping your mentees balance work with their personal life
y. Understanding your impact as a role model
z. Helping your mentees acquire resources (e.g. grants, etc.)

Appendix R: Mentoring Self-Assessment

Please respond to the following statements regarding your primary mentee, you have worked with in the past year.

[4-item scale, 1=This is not one of my mentoring objectives, 2= I have considered how to include this in my mentoring, 3= I have tried to do this in my mentoring, 4=I have evidence I have done this effectively in my mentoring]

a. My mentor gave me an overview of how my research fit into an overall research project.
b. My mentor helped me develop my research skills.
c. My mentor showed interest in my research project.
d. My mentor was available to me when I had problems or questions about my research.
e. My mentor offered constructive feedback when necessary.
f. My mentor and I developed a relationship based on trust.
g. My mentor understood how I learn best.
h. My mentor created an environment that allowed me to achieve my goals.
i. My mentor and I discussed diversity issues.
j. My mentor seemed so busy that I was afraid to interrupt her/him.
k. My mentor had an effective mentoring style.
l. My mentor acted as a positive role model.
m. My mentor showed interest in me as a person.
n. My mentor expressed consideration for her/his cultural background as well as my own.
o. My mentor fostered my independence.
p. My mentor fostered confidence in my skills.
q. My mentor appreciated my contributions.
r. My mentor encouraged me to be creative.
s. My mentor made me enthusiastic about my project.
t. My mentor helped me feel curious about my project.
u. My mentor treated me as a colleague.
v. My mentor helped me decide on a career path.
w. My mentor communicated his/her expectations of me.
x. My mentor respected my goals.
y. My mentor allowed me to take ownership in my research.
z. My mentor created an environment where I feel safe to make mistakes.
aa. My mentor made me feel included in the lab.
bb. My mentor valued and respected cultural differences.
cc. My mentor regularly assessed skills and knowledge that I gained in the lab.

Appendix S: Grants and Application Submissions

For undergrad and grad students
FIRST TIME ADMINISTRATION
Since you started college, have you applied for or received funding to support your own research? Please do not include fellowships or scholarships that primarily pay for tuition, fees, or living expenses. Also, please do not include service projects unless they include a research component.
No/Yes

ONLY RETURNING RESPONDENTS
Below is a list of all research funding support you have provided to us in the past. Have you applied for any additional funding to support your own research that is not on the list (either as the lead investigator, with a faculty advisor as the lead, or for another paid position) OR has the status of previous submissions changed?
No/Yes

[If yes]
Please complete or update information for each grant or proposal:

a. Funding Agency Type
   - Your university
   - Federal agency (e.g., NIH, NSF)
   - Nonfederal government
   - Nonprofit (e.g., foundations)
   - For-profit
   - Other (specify)
b. [If NIH or Other Federal] Full grant number if available
c. [If Nonfederal, Nonprofit, For-Profit, Other] Agency/Foundation/Company Name
d. Role
   - Principal Investigator
   - Co-PI
   - Investigator
   - Other (specify)
e. Submission status:
   - Submitted (first time for this proposal) (skip to j)
   - Re-submitted with revisions (skip to j)
   - Not funded (skip to j)
     NIH Impact score (if applicable)
   - Funded (skip to j)
     NIH Impact score (if applicable)
f. Project Title
g. Amount (total across all years):
   - Less than $50,000
   - $50,000 - $99,999
   - $100,000 - $249,999
   - $250,000 - $499,999
   - $500,000 or more
h. Start Date (e.g., 07/08/2015)
i. End Date (e.g., 07/08/2015)
j. What was the main purpose of the funding?
   - Research

-Training of other (e.g., students, peers, workforce)
-Your career development
- Other (specify)

Appendix T: Research Not Covered by Grants Items

Have you conducted research that is not covered by the grants listed above?
No/Yes
If yes, please answer the following questions:
a. What type of research was this?
- Literature review, synthesis of existing knowledge, and/or conceptual
- Analysis of existing (secondary) data
- Analysis of data you collected (primary analysis)
b. What was the research for?
- A class or degree requirement
- Part of a paid job (e.g., research assistant), internship, or training program
- Related to your role as an independent researcher
c. What was your role?
- PI/Co-PI or Project Lead
- Investigator
- Research Assistant
- Other (Specify): _____

Appendix U: Peer-Reviewed Publications

FIRST TIME ONLY
Do you have any peer-reviewed publications accepted, in-press, or published in the past year?
No/Yes
RETURNING RESPONDENTS
Below is a list of publications you have provided to us in the past. Do you have any peer-reviewed publications that you have had accepted to add to this list?
No/Yes

If yes, please answer the following questions:
a. PMID#: _____ (if provided, skip to question #29)
b. List of all Authors (Last FM, comma separated): _____, _____, _____, _____
c. Title: _____
d. Journal Name: _____
e. Year Published (or indicate "in press" or epub ahead"): _____
f. Volume: _____
g. Issue: _____
h. Page Numbers: _____
i. DOI or URL or epubs: _____

Appendix V: Other Scientific Publications

Are there other scientific publications (e.g., book chapters, books, reports, non-peer reviewed journal articles, working papers, other) to add to this list?

No/Yes

a. Publication Type:
- Chapter
- Book
- Other, specify: _____

b. List all Authors (Last FM, comma separated): _____, _____, _____, _____,

Complete the applicable information below depending on publication type:

c. [If Book or Chapter] Book/ Anthology Title: _____
d. [If Chapter] Chapter Title: _____
e. [If Chapter] Editors: _____
f. Year Published: _____
g. [If Book or Chapter] Edition: _____
h. [If Book or Chapter] Publisher: _____
i. City: _____
j. State: _____
k. [If Book or Chapter] Page Numbers: _____
l. DOI or URL for epubs: _____

Appendix W: Teaching Self-Efficacy Assessment Items

How confident are you that you can do the following:

[5-item scale, 1=Extremely Confident, 2=Very Confident, 3=Somewhat Confident, 4=Slightly Confident, 5=Not at all Confident]

a. Setting learning goals
b. Selecting reading materials
c. Designing assignments
d. Planning class activities
e. Using various teaching strategies
f. Engaging students in learning
g. Providing students opportunities to practice skills
h. Promoting student collaboration
i. Encouraging students to ask questions
j. Encouraging students to express ideas
k. Encouraging participation from women and minorities
l. Accurately assessing students' knowledge
m. Grading assignments using criteria
n. Providing students constructive suggestions
o. Providing students prompt feedback
p. Fostering students' independent thinking
q. Addressing sensitive issues in ways that help students to deal with them maturely
r. Fostering students' confidence in ability to learn
s. Providing students an overview of discipline
t. Demonstrating passion for teaching
u. Staying current in subject knowledge
v. Helping students understand the relevance of learning
w. Enriching teaching with research

Appendix X: Faculty Research and Grant Writing Self-Assessment Items

We would like to know how confident you are <u>today</u> that you can successfully perform the tasks listed below.

Using a 0-10 scale, indicate your level between No Confidence (0) and Total Confidence (10) in your current abilities in these general areas of research and grant writing. Use NA when a task statement does not seem appropriate for your training.

a. Select a suitable topic area for study.
b. Refine a problem so that it can be investigated.
c. Develop a logical rationale for a particular research idea.
d. Organize your proposed research ideas in writing.
e. Articulate a clear purpose for the research.
f. Place your study in the context of existing research and justify how it contributes to important questions in the area.
g. Relate specific questions of interest to underlying theory.
h. Convince grant reviewers your proposed study is worth funding.
i. Choose an appropriate research design that will answer a set of research questions and/or test a set of hypotheses.
j. State the purpose, strengths, and limitations of each study design.
k. Determine the universe, population, and appropriate sample for a given study.
l. Determine an adequate number of subjects for your research project.
m. elect methods of data collection appropriate to the study population and variable(s) of interest.
n. Determine how each variable will be measured
o. Design the best data analysis strategy for your study.
p. Identify appropriate funding sources (local, state, national) to support a study.
q. Speak with a person at the funding agency regarding your project or project ideas.
r. Describe a major funding agency's (e.g., NIH, foundation) proposal review and award process.
s. Write a competitive grant application.
t. Write up research findings for publication in a peer-reviewed journal.
u. Conduct the appropriate statistical analyses to answer your research questions.
v. Summarize research findings in a traditional research report.
w. Summarize and highlight research findings for publication in a peer-reviewed journal.
x. Communicate key research findings to a wide audience of stakeholders.
y. Submit paper and/or poster presentations to conferences related to your topic area.
z. Present research findings at conferences related to your topic area.

Appendix Y: Campus Assessment Items

Below are some statements about your college or university. Indicate the extent to which you agree or disagree with each of the following:

[4-item scale, 1=Disagree Strongly, 2=Disagree Somewhat, 3=Agree Somewhat, 4=Agree Strongly]

a. Faculty are interested in students' personal problems.
b. Racial and ethnic diversity is reflected in the curriculum.
c. Most students are well-prepared academically.
d. This institution has effective hiring practices and policies that increase faculty diversity.
e. This institution takes diversity of faculty into consideration as part of the promotion process.
f. Student Affairs staff have the support and respect of faculty.
g. Faculty are committed to the welfare of this institution.
h. Faculty are strongly interested in the academic problems of undergraduates
i. There is a lot of campus racial conflict here.
j. My research is valued by faculty in the department.
k. My teaching is valued by faculty in the department.
l. My service is values by faculty in the department.
m. This institution takes into consideration quality mentoring efforts by faculty as part of the promotion process.
n. Faculty are sufficiently involved in campus decision making.
o. This institution takes responsibility for educating underprepared students.
p. The criteria for advancement and promotion decisions are clear.
q. Most of the students I teach lack the basic skills for college level work.
r. There is adequate support for faculty development.
s. This institution successfully educates students in remedial/developmental education.
t. Faculty are not prepared to deal with conflict over diversity issues in the classroom.

Appendix Z: DPC Publication/ Presentation and Proposal (P&P) Guidelines

Enhancing Diversity of the NIH-funded Workforce Program:
Diversity Program Consortium Publication/Presentation and Proposal Guidelines (PPG)
Approved 12/20/2016

1.0 Introduction

In response to recommendations from the NIH Advisory Committee to the Director (ACD) Working Group on Diversity in the Biomedical Research Workforce, the Enhancing the Diversity of the NIH-funded Workforce Program was established in 2014. The program, which comprises three initiatives funded through a NIH cooperative agreement mechanism: (1) Building Infrastructure Leading to Diversity (BUILD); (2) National Research Mentoring Network (NRMN) and (3) Coordination and Evaluation Center (CEC), is envisaged as a national collaborative through which program awardees would work collectively as the NIH Workforce Diversity Program Consortium (DPC). The goal of the DPC is to enhance diversity in the biomedical research workforce through development, implementation, evaluation, and dissemination of innovative and effective approaches to (a) student outreach, engagement, training, and mentoring, (b) faculty development, and (c) institutional research training infrastructure.

Each BUILD awardee has proposed, designed, and implemented unique interventions and partnerships with NRMN to achieve the consortium goals. In general, there is a common set of interventions aimed at increasing undergraduate participation in biomedical research and progression of students and post-doctoral researchers to biomedical research careers. In specifics, the interventions at each site can be viewed as unique.

Consistent with the RFA requiring "three highly integrated initiatives (BUILD, NRMN, CEC), in which awardees will work together as the Diversity Program Consortium", this document represents a structured approach to combine consortium-wide data into analyses that would enhance the generalizability of DPC findings at a national level. To facilitate this combined analysis, a Data Sharing Policy (DSP) was developed to align their data collection procedures and to share that data within the Diversity Program Consortium (DPC). All data collected by an awardee of the consortium remains the property of that institution; however, the use of DPC Executive Steering Committee (ESC) defined consortium wide-data is subject to guidelines agreed to by all members.

The outcomes and lessons learned from DPC activities will be disseminated to the broader research training and mentoring communities through many channels, including but not limited to scholarly publications and presentations in professional peer-reviewed journals and scientific meetings. The PPG is meant to provide structure for the management, use, and dissemination of data and results stemming from consortium-wide activities and foster development of collaborations on specialized topics within the consortium, all while recognizing academic and scientific freedom at the individual institutions. In addition, they provide for a repository of all consortium-related published and presented material, to be used for reporting purposes. Finally, the PPG will serve as the DPC subcommittee to vet requests for use of consortium wide data for grant proposals using the same general principals and collaborative spirit of equity for vetting publication proposals.

2.0 Research Classification and General Recommendations Based on DPC Data Definitions

The success of the DPC will be judged in part on the number and quality of its scientific publications and presentations. The purpose of the policies established herein is to encourage and facilitate important analyses while providing guidelines that assure appropriate use of the DPC data, timely completion of projects, and adherence to the principles of authorship.

The PPG recognizes three general classifications of research by DPC members with different guidelines for each category: consortium-wide research, institutional research, and sub-consortium research:

2.1 Consortium-Wide Research: Research in which part or all of the data are consortium-wide data as defined in the Data Sharing Policy approved by the DPC Executive Steering Committee 3/14/16 (See Appendix A for details).

Publications/Presentations and potential grant Proposals of this research would present major outcomes of consortium-wide studies or other comparative studies that include unpublished analyses of consortium-wide data. These data could also be used in secondary analyses at the level of a single site or groups of sites (see section **2.3**).

For research in this category, the PPG proposes:

2.1.1 Maintenance of a shared Master List of consortium-wide topics for collaborative publications. This Master List will allow the DPC to develop priorities, identifying both topics for expedited publication as well as topics for longitudinal studies. This list and priorities should minimize duplication of effort by DPC members and ensure appropriate publication of longitudinal data.

2.1.2 Recruitment or registering of Writing Groups for the topics identified in the Master List. These Writing Groups will self-form and be constituted with the expectation that the most appropriate data analyses are conducted and include broad representation across the DPC so that all awardees are aware of and have the opportunity to participate in the development of publications and presentations.

2.1.3 Development of best practices for authorships and acknowledgments to ensure equitable and appropriate attribution of credit to all participating individuals across the DPC.

2.1.4 Development of an oversight and review process to monitor the progress of Writing Groups and to provide consortium-level review of materials prior to abstract or article submission for publication. This oversight process is designed to ensure that each Writing Group is making progress toward timely publication. Pre-submission publication review will ensure that the scope of the manuscript is consistent with the original manuscript proposal.

2.1.5 Development of a process through which final versions of all published or presented materials should be archived in a CEC repository (under development) for sharing within the DPC and for consortium-wide reporting purposes. Importantly, archiving of publications will inform DPC institutions that a consortium-wide topic is now available for site-level publications, and will now be treated as institutional research (see section **2.2**).

2.1.6 Development of best practices for approval of consortium-wide data for use in grant proposals to ensure equitable and appropriate opportunities to all participating individuals across the DPC.

2.1.7 Development of a process through which final approvals of all grant submissions using DPC consortium-wide data will be archived in a CEC repository for sharing within the DPC and for consortium-wide reporting purposes.

2.2 Site-Level Research: Any research conducted by a DPC institution related to the scope of the BUILD/NRMN/CEC awards as defined in the Data Sharing Policy approved by the DPC Executive Steering Committee on 3/14/16 (See Appendix A for details).

There are no pre-publication requirements for review of Site-Level Research.

For research in this category, the PPG proposes that final versions of all published or presented materials in areas of Site-Level Research should be archived with the CEC for sharing within the DPC and for consortium-wide reporting

purposes, and will be shared with the communications working group.

2.3 Sub-Consortium Research: **Research and/or pre-existing or proposed collaborations on consortium-related topics that include two or more DPC institutions but are not consortium-wide collaborations.**

In Sub-Consortium Research, part of the data are consortium-wide data and site-level data, and/or third party data as defined in the Data Sharing Policy (3/14/16). Because of the wide variety of possibilities of research in this category, the PPG accede that these cases will be handled on an individual basis and some guidelines and examples are presented below.

For instance, reports of data derived from a subset of centers by members of the DPC (i.e., sub-studies) or reports of investigations initiated outside the DPC, where the investigators may be members of the consortium, but the source of the ideas and funding are derived from outside the consortium, and data from the collaborating institutions is used.

Thus, the guidelines for research in this category relate to the communication of such efforts:

2.3.1 Existing collaborations, either between DPC members or among DPC members and partner institutions of another consortium site, should be reported to the DPC ESC and the collaborations and topics should be annotated on the Master List described above (**2.1.1**).

2.3.2 Proposed new collaborations among DPC members that are based on topics from the Master List should be submitted to the ESC for review and comment as well as to update the status of that topic on the Master List.

2.3.3 Proposed collaborations among DPC members on topics not originally included on the Master List are invited to be submitted to the ESC for review and comment. Such collaborations should be annotated on the Master List, to avoid duplication of effort. By mutual agreement, such collaborations could request access to consortium data and thereby become subject to the PPG for consortium-wide research.

2.3.4 In all pre-existing or proposed collaborations described above (**2.3**), DPC members are encouraged to make suggestions to the collaborators on ways to strengthen the publication or proposal by broadening participation of the consortium (e.g., by adding additional data or analytical expertise).

2.3.5 Publication of any unpublished consortium-wide data in the context of collaborative Sub-Consortium Research (e.g., a comparison figure or control for the broader study), must be approved as outlined above for the Consortium-Wide Research category (**2.1**).

2.4 Exception for Marketing Materials

The PPG does not oversee promotion and outreach related to DPC activities, which includes preparation of materials for non-peer-reviewed publications, press releases, and presentations of DPC activities conducted at one or more consortium sites. There are no pre-publication or pre-presentation requirements for review of any such materials. Such materials are regarded as marketing material; it is anticipated that they may include background descriptions of the DPC and outcomes or findings previously published or presented, but they should not include discussion of any aggregate CWEP outcomes or findings that have not yet been published or presented by the DPC. These materials will be shared with the NIH Program Official and Project Scientist as part of their role in each awardee's cooperative agreement. Final versions of all published or presented materials should be archived with the CEC for sharing within the DPC and for consortium-wide reporting purposes.

3.0 Specific Recommendations

The PPG provides ten specific recommendations, **3.1** through **3.10** below.

3.1 Establishment of a Publications and Presentations Repository by the CEC. To facilitate communication of DPC accomplishments among members and to meet annual reporting requirements, all consortium members will submit final versions of all published or presented information to the CEC. In addition, abstracts of awarded grants will be submitted to the CEC. The CEC will be responsible for the archiving, communicating, and reporting of all such documents. They will also be responsible for confirming that all publications have PMCID numbers and appropriately cite any NIH support. The CEC will also be the primary contact for reprints of consortium-wide publications.

Citation of grant support must be used in all publications reporting results of DPC activities. (In the case of ancillary studies, additional sources of support should be cited as appropriate).

For site/award level publications authors should cite their DPC grant funding and any additional relevant funding support:
E.g. FOR BUILD sites: Work reported in this publication was supported by the National Institutes of Health Common Fund and Office of Scientific Workforce Diversity under three linked awards RL5GM1189XX, TL4GM1189XX, 1UL1GM1189XX administered by the National Institute of General Medical Sciences

For NRMN: Work reported in this publication was supported by the National Institutes of Health Common Fund and Office of Scientific Workforce Diversity under NRMN U54GM119023 administered by the National Institute of General Medical Sciences

For CEC: Work reported in this publication was supported by the National Institutes of Health Common Fund and Office of Scientific Workforce Diversity under CEC U54GM119024 administered by the National Institute of General Medical Sciences

For consortium-wide publications authors should use the following: Work reported in this publication was supported by the National Institutes of Health Common Fund and Office of Scientific Workforce Diversity under three linked awards RL5GM1189XX, TL4GM1189XX, 1UL1GM1189XX, NRMN U54GM119023 and CEC U54GM119024 administered by the National Institute of General Medical Sciences. The work was conducted by members of the Diversity Program Consortium of the Enhancing the Diversity of the NIH-funded Workforce Program. The work is solely the responsibility of the authors and does not necessarily represent the official view of the National Institutes of Health. Additional support was provided by the (list any industrial or other support). A special thanks to the students/trainees and/or faculty who participated in this NIH Diversity Program Consortium study.
XYZ was supported in part/in entirety by….

The following information regarding reprint requests should be included in all publications of consortium-wide studies.

Requests for reprints or electronic copies should be addressed to:
Diversity Program Consortium Coordinating and Evaluation Center
University of California-Los Angeles
10940 Wilshire Blvd- The Tower Suite 900
Los Angeles, CA 90024

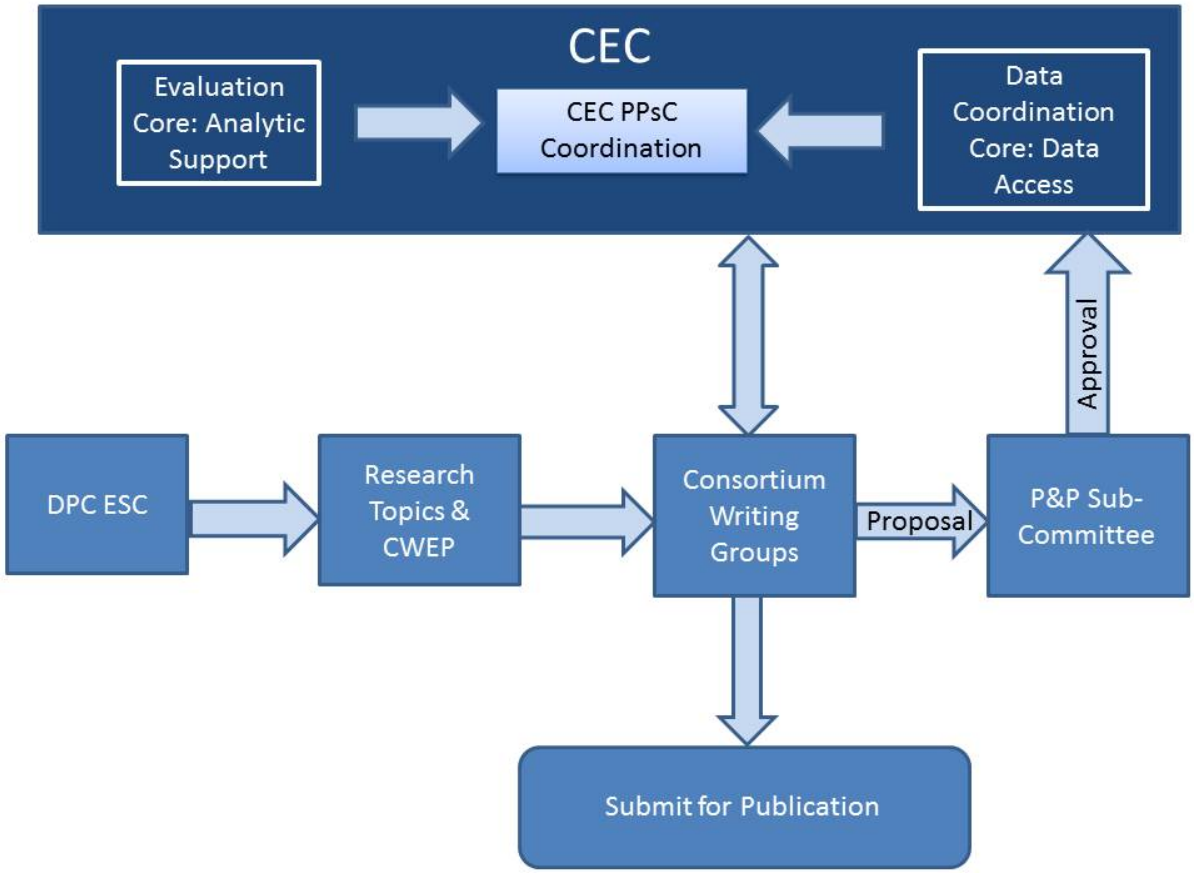
3.2 Formation of the Publications and Presentations Subcommittee. The Publications/Presentations and Proposal Subcommittee (PPsC) will be appointed by the DPC Executive Steering Committee and tasked with all organization, communication, and review functions listed in this document. The PPsC should have representation from each

consortium site, with members ideally serving for at least one year but ultimately membership duration will be at each site's discretion. The PPsC can have an advisory board of ex officio members and may invite ad hoc ex officio members as needed. While sites may be represented by more than one member, each site has one vote when committee members have unresolvable disagreement on an issue under to purview of the PPsC. Quorum for voting is two-thirds of sites in the DPC, and the outcome of a vote is determined by simple majority of the number of votes cast. The Chair and Associate Chair will rotate annually with the Associate Chair becoming the Chair and a new Associate Chair being named. Thus, each PPsC Chair will always have two years of leadership experience in the PPsC, bringing continuity to the leadership endeavor. All decisions by this committee may be appealed to the ESC.

3.3 CEC Structure and Function to Support Publication/Presentation and Proposal sub-Committee (PPsC) and Consortium Writing Groups (CWG).

Figure 1 shows the CEC Coordination Center structure and function to support the PPsC and the Consortium Writing Groups. The structure promotes ongoing bi-directional communication between the Executive Steering Committee (ESC), PPsC, CWG and the CEC.

Figure 1. CEC structure and function to support PPsC



The DPC ESC has appointed the P&P sub-committee to oversee presentation and publication policy and procedures outlined in these guidelines.

3.3.1 Consortium Writing Groups (CWG) Proposal Review and Approval. Consortium Writing Groups and similar interested faculty groups (CWG) may communicate directly with the CEC PPsC Coordinator to obtain information on the P&P guidelines and to access application forms for forming writing groups and proposing research and evaluation studies. Specifically the CWG will submit proposals for research and evaluation studies to the CEC. Proposals are reviewed by the PPsC to approve proposed studies. Approved proposals are reviewed by the PPsC in collaboration with the CEC to determine priorities for data access and analytic consultation. **The CEC proposes three functional areas to support PPsC and the CWG:**

- Coordination Function
- Data Coordination Core (DCC): Data Access
- Evaluation Core (EC): Analytic Support

3.3.2 PPsC coordination function. The CEC Coordinator collaborates to develop P&P guidelines and procedures and ensures they are carried out effectively and efficiently and revised where appropriate based on operational experience. The coordinator maintains the Master List of Consortium-wide topics for publications and presentations and periodically reviews and updates the master list based on input from the ESC and Consortium members. The Coordinator maintains the archive of P&P forms, abstracts, manuscripts, and publications. He/She organizes the PPsC committee meetings with the Chair and Associate Chair, and oversees the reporting of minutes, actions, and follow-on activities. Additionally to ensure effective and efficient daily operations, the CEC Coordinator will: (i) Coordinate and collaborate with DCC Data Access function, monitors status of approved requests and timeline for data sharing and follow-up, (ii) Consult with EC faculty to prioritize and monitor EC Analytics support, (iii) Ensures consistent communication with CWG investigators to monitor activity and progress pre/post-submission and publication, (iv) Prepares monthly reports on CEC activity and CWG progress, (v) Tracks progress for each study, and (vi) Ensures continuous improvement of CEC/PPsC/CWG processes and research products.

CWG applicants submit a manuscript/grant proposal form to (i) Request a DCC dataset to analyze data at the initial author's home institution for proposed research, evaluation, and/or exploratory study, or (ii) Request CEC analytic support to co-create analysis plan and process, analyze, and report the data and co-develop the manuscript.

3.3.3 DCC Data Access. Figure 1. shows the CEC Data Coordination Core (DCC) data and material sharing function. The DCC will model the data exchange system on successful long running consortia models that have been in operation for decades (e.g., Cardia and Mesa). The DCC team will monitor P&P processes from initial study application through publication and promotion of journal articles. The DCC will de-identify data as needed and provide secure access through the Consortium Data Exchange with CWG. If needed the DCC will develop data and materials distribution agreement and Confidentiality Certification Form, create forms for dataset request, and prepare analytic datasets that will be distributed to requesting investigator(s) or data center(s). DCC will provide ongoing consultation to CWG to ensure high quality, high impact research products.

3.3.4 EC Analytic Support. The CEC Evaluation Core reviews CWG proposals approved for analytic support. The EC team will designate relevant CEC faculty and staff to provide ongoing statistical and analytical consultation to CWG. In some instances the EC research staff will provide database searching and when needed

literature review to CWG, assist in preparing methods sections and analytic tables for manuscripts, and review results sections. The EC faculty will provide ongoing advice to CWG to develop high quality, high impact manuscripts and other research products.

3.3.5 Consortium Writing Groups (CWG) Final Manuscript Review and Approval. Completed manuscripts/grants are submitted by the CWG and reviewed by the same PPsC/Reviewers who approved the initial proposal to ensure they adhered to the proposal. Manuscripts/Grants are approved by the PPsC and the corresponding author submits for publication/funding. The CEC coordinator monitors progress with the submission. The CEC/Consortium Communication Committee monitors and supports promotion of published articles through various media.

3.4 Development and maintenance of a Master List of Consortium-Wide Research Topics appropriate for the preparation of research studies and manuscripts using consortium-wide data. This list should:

3.4.1 Primarily emphasize the proposed analyses in the Consortium-wide Evaluation Plan (CWEP);
3.4.2 be comprehensive;
3.4.3 Reflect data requests for Consortium-Wide Research studies, which shall include:

A) Data requests for studies utilizing entire consortium-wide dataset
B) Data requests for studies addressing a specific topic within the consortium-wide dataset
C) Data requests for studies utilizing multiple sites within the consortium, but not the complete consortium-wide dataset.

3.4.4 Outline potential hypotheses that can be tested using data collected from multiple consortium sites and include annotation as to whether the topics are consortium-wide or better suited to a subset of consortium members;
3.4.5 Recommend priority on the topic for publication or extended longitudinal study;
3.4.6 Annotate whether there is a Writing Group or collaboration currently working on the topic;
3.4.7 Indicate the current status (to be updated quarterly) and timeline to submission for all active Writing Groups.

The PPsC will be responsible for the generation, with the input from consortium members, and maintenance of the Master List with current information. The updated list should be provided to the ESC on a quarterly basis.

3.5 Recruitment of Consortium Writing Groups (CWGs). To facilitate the timely publication of studies based on consortium-wide data, the PPsC will assist in the development of Writing Groups, groups of individuals formed to collaborate on a specific topic of study from the Master List. The Writing Groups will include members from the DPC (non-consortium members can participate/publish if they are nominated by a committee member and approved by a majority of the consortium members on the Writing Group). Each Writing Group will have a Chair, and as many co-authors as deemed appropriate. Writing Groups should be carefully constructed to include all expertise needed to ensure the appropriate analyses of data and intellectual contribution from the consortium. It should be noted that groups may form de novo with interest in publications or developing grant proposals. For these guidelines these are also considered consortium writing groups.

The process for developing Writing Groups is described below:

3.5.1 Using the Master List of topics developed by the PPsC (with input from consortium members), the PPsC

will then circulate the topics to the PIs of all BUILD sites, NRMN, CEC, and the NIH. These groups are requested to nominate potential authors. These names will be collated and reviewed by the PPsC, to ensure appropriate equity and limitation in authorship to form Writing Groups for each topic area.

3.5.2 If a topic is suggested by a DPC member and approved, the Writing Group will be formed as described above, except that the person making the suggestion will be considered as the potential Writing Group Chair.

3.5.3 Designation of Writing Group Chairs should recognize the unique contributions of each member of the DPC. Any dispute about authorship will be resolved by the PPsC after consultation with the ESC.

From time to time it may be expedient for the Chair position of a Writing Group to be reassigned to another member of that group, or for members to be dropped from or added to a Writing Group. The PPsC and the Writing Group are authorized to make such changes and will inform the members of the Writing Group. Such changes will be made in collaboration.

3.6 Timeline Governing Writing Group Activities When each Writing Group is constituted, the PPsC will work with the group to establish a timeline for the completion of the writing assignment. The CEC will monitor this timeline and the summary of the progress of the Writing Group on that timeline will be regularly reported to the PPsC. This report should include an updated general outline of the proposed publication to permit early identification of any overlap with the assignments of other Writing Groups. Where overlaps are detected, the PPsC will attempt to resolve these informally with the Chairs of the involved Writing Groups. In the event that this effort at mediation fails, the issue will be resolved by the ESC.

The PPsC will report at each meeting of the ESC on the progress of the various Writing Groups. Ensuring timely publication of consortium-wide research outcomes is a primary purpose for these reports. If a Writing Group's progress is consistently behind its timeline, members of the writing team will be queried for potentially appointing a new chair. If no member of the writing team is willing or able to assume that role the opportunity will be opened to the DPC. No person can lead more than one consortium-wide paper at a time.

3.7 Authorship and Acknowledgement of Support The authorship policy of the DPC must achieve two somewhat conflicting goals. First, it is recognized that the findings of consortium-wide studies are derived from the efforts of the entire consortium. Thus, all consortium-wide reports, of whatever type, must give recognition to all members of the DPC.

On the other hand, it is recognized that the preparation of a manuscript places special demands on the assigned Writing Group, especially on the Chair of the Writing Group. Further, recognition of special effort and achievement is important in the professional careers of the study staff and specific listing as an author is a significant motivating factor that will help assure prompt completion of writing assignments and timely publication of the results of consortium-wide studies. The DPC authorship policy attempts to recognize each of these goals. Authors of DPC publications will be listed as detailed below for each type of publication. The name of the last author should be followed by "on behalf of the NIH Workforce Diversity Program Consortium"

3.8 Authorship: Listing in the DPC Participant Box A DPC Participant Box must be included in all publications of consortium-wide outcomes. The DPC Participant Box will list all professionals that have participated in the consortium-wide study for a minimum of one year. The participants for each consortium site will be listed together, with the site Principal Investigator listed first, and identified as "P.I." or multiple P.I., followed by the other site staff listed alphabetically. Each participant will be listed only by his/her professional and academic degrees, not by the specific position that she/he held in the study. The sites will be listed in the following order:

BUILD sites (the name of the awardee institution, in alphabetical order)

NRMN
CEC
NIH

Key study staff from each site should also be listed in the DPC Participant Box along with a statement of recognition to the students who participated in the study. Prior to any consortium-wide publications in this category, each site will be asked to confirm and approve the listing of the personnel from that site in the DPC Participant Box.

3.9 Pre-Submission and Review of Abstracts and Presentations To expedite review of abstracts, oral presentations, and any other presentation material for which there is a request for consortium data and an explicit deadline for submission, the following procedure will be used:

3.9.1 The Writing Group interested in submitting an abstract, giving a talk, or submitting other material for which there is an explicit submission deadline shall contact the Chair of the PPsC. In the event that the Chair is unavailable, the Associate Chair may be contacted. The Chair (or Associate Chair) will designate a PPsC member to review the submitted material and will inform the submitter and the subcommittee of their appointment. The submitted material should be sent by the submitter (and received by the reviewer) no fewer than 14 days prior to the deadline for submission. The reviewer will have 7 days to complete their review, unless there is an urgency.

3.9.2 The designated reviewer shall notify the Chair (or Associate Chair) of their approval or disapproval. The Chair (or Associate Chair) shall inform the submitter whether or not s/he has approval for the submission. In the event of a disagreement, the issue will be reviewed by the ESC whose decision will be binding.

3.9.3 All materials submitted for approval in this fashion will be distributed by electronic mail, together with notice of the disposition. All approved materials will also be forwarded to the CEC for record purposes who will inform the NIH Program Official.

3.9.4 Approval for submission of an abstract or oral presentation does not automatically grant approval of the material ultimately to be presented. This material must also be submitted for review and approval in accordance with the above rules at least 14 days prior to the scheduled oral or poster presentation. Normally this review will be done by the same PPsC member who reviewed the initial abstract and again within 7 days of receiving material. In the event of a disagreement, the issue will be reviewed by the ESC whose decision will be binding.

A) In the case of an oral presentation, an outline of the talk and a copy of any slides to be used must be submitted for review.

B) In case of a poster presentation, the content of the poster material must be submitted for review.

3.10 Review of Consortium-wide Publications or Grant Proposals by the Publications/Presentations and Proposals Subcommittee

For all proposed Consortium-wide publications/grant proposals and prior to the release of any Consortium-wide data, the Consortium writing group (CWG) must submit a manuscript/grant proposal for review and approval by the PPsC. This review will be conducted as follows:

3.10.1 The Chair of the PPsC will appoint a panel of three primary reviewers, two of whom must be subcommittee members and one of whom may be any consortium member with appropriate expertise. The Chair shall distribute the manuscript/grant proposal to all members of the review panel and to the Principal Investigator of each DPC site participating in the study. The three members of the review panel shall each prepare and send the Chair a written critique of the submitted proposal for distribution to the entire subcommittee. The P.I.s of the sites will be given a two-week deadline by which any comments or critiques must be received by the PPsC Chair. This

mechanism will ensure that each consortium member will have an opportunity to review any materials that will be submitted for publication/grant bearing his/her name as a participant and co-author. If the proposed manuscript/grant will identify individual sites, the review panel and the PPsC Coordinator will seek permission from each sites PI.

3.10.2 The PPsC Chair shall schedule a meeting of the reviewers and P.I.s (generally by conference call), including reviews of the proposal and other non-time critical materials as agenda items. The reviews of the panel members and any comments received from the site P.I.s will be distributed to the committee with the agenda.

3.10.3 While discussion of the proposal and other materials will be led by the three appointed reviewers, all meeting participants will be invited to participate and all shall vote on final disposition.

3.10.4 There are two possible dispositions: approval of the proposal to proceed as submitted (possibly with some recommendations for revision that do not require re-review) and non-acceptance of the proposal as submitted but with recommendations to the authors for revisions and resubmission.

3.10.5 The PPsC Chair shall be responsible for communicating the review decision to the authors, together with a summary of suggestions for revision, if any. If the review decision recommends non-acceptance of the proposal as submitted but with suggestions for revision and resubmission, s/he and the Writing Group may agree not to proceed with a report to the ESC at that time, but wait for revision and resubmission.

3.10.6 If there is a recommendation for revision that is contested by the author(s), the PPsC Chair shall report this outcome in writing to the ESC for final action. In such a case a copy of the proposal and a summary critique shall be provided to ESC, and the Chair of the Writing Group shall be given an opportunity to submit a rebuttal.

3.10.7 The CWG will submit the final manuscript/grant to the PPsC for a final review prior to submission for publication. This review will be conducted by the same panel that approved the initial proposal and is intended only to confirm that the manuscript adheres to the original proposal. If the manuscript identifies individual sites the PPsC Coordinator will distribute the final manuscript to the PIs of each site to confirm final approval. Upon both these confirmations the manuscript/grant is approved for submission for publication.

3.10.8 If the manuscript deviates significantly from the original proposal, the review panel will provide a written critique with suggestions for revisions to the CWG, the Site PIs and the PPsC Chair who will convene a conference call with all parties to determine next steps.

3.10.9 The authority to grant final approval for a formal scientific publication/grant proposal of the DPC consortium-wide data rests with the PPsC, or the ESC in cases of conflict.

A listing of publications will be updated at least every six months and will be distributed to the P.I.s of each DPC site participating in the study, together with reprints or copies of any papers, chapters, or abstracts accepted for publication since the last update. This is intended to facilitate updating of curricula vitae and timely submission of reports as needed.

4.0 Distribution of Diversity Program Consortium Publication/Presentation and Proposals Committee Guidelines

Each P.I. will be provided with a final version of this document. It is the responsibility of that P.I. to be sure that all professionals at their site who are involved with the DPC have read and understood these guidelines.

Appendix

Data Definitions as specified in the Diversity Program Consortium Data Sharing Policy approved 3/14/16

The Diversity Program Consortium is composed of awardees funded under one of the Enhancing the Diversity of the NIH-funded Workforce Program's initiatives [BUILD, NRMN, CEC; Appendix B: Participating Institutions].

4A. Data Categories:

a. **Consortium-wide Data:** Data elements collected from each awardee to provide information required to complete the Consortium Wide Evaluation Plan (CWEP), and reflecting the goals articulated in the cooperative agreement funding opportunity announcement[1] to enable evaluation of intervention effects on outcomes defined by the Hallmarks of Success. Consortium-wide data will also include secondary data, including but not limited to institution records, demographic data, or other existing resources that are collected from all awardees as outlined in the ESC approved CWEP. Consortium-wide data elements will be submitted by all Member Institutions to the CEC, who will conduct quality review and risk assessment, de-identify data, and provide data for consortium use. Consortium-wide data, when submitted to the CEC, aggregated, and de-identified, is under management and oversight of the CEC on behalf of the ESC (hereafter referred to as DPC Data)[2]. DPC data is accessible to all members of the consortium and is subject to the terms of this Data Sharing Policy. The Publications/Presentations and Proposal (P&P) Policy, developed by the P&P subcommittee and approved by the ESC, outlines the procedures for consortium-wide data use. [3] See Appendix C for a detailed listing of Consortium-wide data elements.

b. **Site-Level Data:** Data elements collected by individual sites to evaluate the impact of site-level variables on outcomes of interest to the site. Site-level data includes both consortium-wide data elements (defined by the Hallmarks of Success and the consortium-wide evaluation plan as the data elements collected across all consortium sites) and non-consortium-wide data elements (defined as data collected only at individual sites). Member Institutions retain ownership of the use of site-level data and the publication of site-level analyses. Analyses and publications of site-level data will follow the process for tracking and review outlined in the Publications/Presentations and Proposal Policy. Once the site-level data is *aggregated with data from all sites and de-identified*, it becomes classified as consortium-wide data for consortium use (see above), and subject to the terms of this Data Sharing Policy.

c. **Third Party Data:** Data collected from BUILD site partner institutions or NRMN Phase I sub-awardees, which can include both consortium-wide data elements and non-consortium-wide data elements. Third party institutions retain ownership of the use of their data unless and until the data is de-identified and aggregated as consortium-wide (see above). Third party data are subject to the terms of this Data Sharing Policy for all consortium-wide data elements, unless otherwise agreed upon in writing between a Member Institution and the Third Party that predates this Data Sharing Policy. In the event that such Third Party agreement does not allow for the sharing of data as described in this Data Sharing Policy, the Member Institution shall attempt to secure permission for the sharing of Third Party Data consistent with the objectives of the Diversity Program Consortium.

4B. Consortium-Wide Data Description

Consortium-wide data, under the following broad categories, will be collected during the funding period by the Diversity Program Consortium: (a) student/mentee, (b) institutional/site, and (c) faculty/mentor [see Appendix C for details regarding data elements to be collected].

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[1] BUILD (RFA-RM-013-16), NRMN (RFA-RM-013-017), CEC (RFA-RM-013-15)

[2] DPC data refers to the comprehensive data set comprised of consortium-wide data across all awardee institutions

[3] The Publications/Presentations and Proposal Policy will articulate a **separate and unique process** for tracking and review of each type of data (which can range from no review or simple notification, to comprehensive review). Further discussion is needed among the ESC, to define the process for tracking and review for each category of data (site-level, and consortium-level data), and therefore is still under development.

a. Student/mentee: data elements collected by sites/awardees to enable evaluation of intervention effects on student/mentee-level hallmarks and outcomes
b. Institutional/site: data elements collected by sites/awardee to enable evaluation of impact of interventions on institutional-level hallmarks and outcomes.
c. Faculty/mentor: data elements collected by sites/awardees to enable evaluation of impact of activities on faculty/mentor-level hallmarks and outcomes.

Consortium-wide data may include, for example, student-participant characteristics (e.g. information from education records), faculty/mentor characteristics (e.g. time elapsed since degree completion, authorship/publication record, history of NIH vs. other sources of grant funding) and institution characteristics (e.g., geographic location, diversity of faculty/student population, number of grants submitted vs. funded, summary data on trainees enrolled in STEM majors vs. completed degrees in STEM fields) as well as interview and survey-derived data (e.g. demographics). It may also include tracking of student/participant and faculty/mentor participation in online and face-to-face services/resources (e.g., faculty e-mentorship training modules, student e-mentoring sessions).

Appendix AA: Institutional Records Data Request Memo

March 14, 2019

To: DPC Evaluation and Implementation Working Group (EIWG)
From: Coordination and Evaluation Center (CEC)
Re: Summary of Research Questions and Analytic Approaches using IR data

Components of the IR Data Request:

There are two components to the IR data request. One involves deidentified data on participation and grades of students and characteristics of faculty in gatekeeper courses and identifiable data from all CWEP students and faculty (who have consented) for gatekeeper and novel courses. Second, we are asking for some background and academic summary data on all consenting CWEP students and faculty. IR data is essential for accurate tracking of student persistence and graduation, as well as faculty accomplishments.

Gatekeeper courses are a particular focus since those courses are often prerequisites for entry into a major that can end up deterring students from pursuing the major based on low grades. A classic example of a gatekeeper course is organic chemistry, which often ends students' aspirations for medical school. In the natural sciences, calculus (or pre-calculus) often serves a similar broad role. Disciplinary gatekeeper courses are often large, lecture style classes with lower than average success rates. For some majors, a first introductory course or sequence designed for majors works to deter those who do not do well. Students' performance in these core introductory courses has been found to be a key factor associated with whether students leave STEM majors during college (Chang et al., 2008; Seymour & Hewitt, 1997). The CEC's October 15, 2018 memo on gatekeeper courses provides a more complete explanation and citations on this issue (see https://intranet.diversityprogramconsortium.org/intranet/core_a/documents/?folder_id=2151 70).

Whether or not a BUILD program has any focus on changing gatekeeper courses, all BUILD programs provide a range of resources and supports for their scholars and others that would be expected to help those students do better than similar students not in BUILD in gatekeeper courses. In addition, some institutions have initiatives to improve the instruction and success of all students in some of the gatekeeper courses, often independent of BUILD. These institutional-level initiatives need to be accounted for in order to conduct an unbiased evaluation of the impacts of BUILD. Thus, IR data on gatekeeper courses are needed for all BUILD schools to be able to investigate the effect of BUILD participation on student performance as well as the impact of gatekeeper course on student persistence and success.

Research Questions and Analytic Approaches:

Identifiable IR data will be the primary source of complete information about the impact of BUILD participation on student persistence through graduation, as well as on faculty accomplishments.

The specific research questions which rely on IR data include:

1. Course level rates of DFWs (grades of D and F, and withdrawals) from the deidentified data for gatekeeper courses will be used to create contextual variables for assessing BUILD versus nonBUILD student performance in gatekeeper courses and hence persistence in biomedical majors. Since persistence in a major relies on passing and doing well in gatekeeper courses, the course-level pass rates, and in sensitivity analyses of the pass rates by

race/ethnicity and gender, will be used as contextual variables in assessing whether BUILD students (in the identified data) are more successful than similar nonBUILD CWEP students in these courses. **We hypothesize that (a) being a BUILD student improves the odds of passing gatekeeper courses and (b) in gatekeeper courses with high DFW rates, being a BUILD student improves the odds of passing even more (i.e. BUILD supports are the most important in gatekeeper courses with the most DFWs).** We will use the DFW rate per course from the deidentified data to construct a pass rate for each gatekeeper course taken by students in the identified data. We will then model a dichotomous outcome (student receives DFW) in gatekeeper courses and use as predictors female, race/ethnicity, transfer status, class standing, year, field (math, biology, etc.), class size, FT vs. PT instructor. In a mixed-effects logistic regression model with university as the random effect and the student variables as fixed effects, we will assess the impact of BUILD exposure on student success. We will examine an interaction of BUILD by race/ethnicity and gender to see if the BUILD effect varies by race/ethnicity or gender.

2. Deidentified faculty data will be control variables, as noted, in the above analyses. The literature shows that rank and appointment type (full, part time) can influence the extent of faculty engagement and student success in these introductory courses (Eagan 2008). As a result, changes in student success could be a function of changing faculty assignments rather than course redesign or supplemental BUILD assistance to students.

3. Grades in gatekeeper courses from identified data will be included as control variables in key hallmarks, including the analyses of **student persistence** in biomedical majors as well as analyses of **intent to pursue a biomedical research career** and to **matriculate into biomedical graduate programs**.

4. The characteristics of students and faculty in gatekeeper courses from deidentified data by field by institution will be assessed over the time period to provide data on the **institutional context** regarding student success as part of the institutional analysis. We will track the student success by race/ethnicity and gender in gatekeeper courses over time at the institutional level to assess whether there is a campus-level change in this area. We will also track the full-time/part-time status, race/ethnicity and gender of faculty in those courses over time to assess any change at the institutional level in the diversity of its teaching staff in these key courses.

5. Participation and potentially grades in novel courses in the identified data will be used as covariates in key hallmark analyses as components of the "BUILD exposure" analysis. **The hypothesis is that completion of, and higher grades in, novel courses designed by BUILD programs will increase the likelihood of attainment of individual hallmarks (e.g., persistence in biomedical major, science identity, graduation in biomedical field, intent to pursue biomedical research career).**

6. Demographics from IR data for identified students are **important control variables** for all analyses (e.g. transfer student flag, first generation flag, college entrance scores [SAT/ACT/high school GPA]) or essential data to enable us to follow up with students over time (telephone, permanent address).

7. Identified IR data on student progression by term (enrollment status, class level, GPA) are needed to have data on all students with CWEP data, both because some information is not collected directly from students (e.g. GPA) and other information will not be available for students who fail to respond to relevant follow-up surveys for any reason (e.g. enrollment status). This information will be used to reliably track persistence/progression in biomedical major and graduation. These data are essential to reliably test the **hypothesis that involvement in**

BUILD increases the likelihood of attainment of individual hallmarks (persistence in biomedical major, graduation in biomedical field).

8. Identified data on faculty funding is needed to provide accurate data on all faculty in the CWEP on their grant success, even if they fail to input the information on the surveys or fail to respond on some surveys. This will provide the best data to assess the **hypothesis that involvement in BUILD (and more specifically, research-related activities) increases the likelihood of obtaining extramural research grants.** Data on course loads and class sizes are important control variables in the analysis of research and grant productivity.

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