



HHS Public Access

Author manuscript

J Acquir Immune Defic Syndr. Author manuscript; available in PMC 2024 October 01.

Published in final edited form as:

J Acquir Immune Defic Syndr. 2023 October 01; 94(2 Suppl): S1–S4. doi:10.1097/QAI.0000000000003258.

Supplemental Issue of the Journal of the Acquired Immune Deficiency Syndromes (JAIDS): The Centers for AIDS Research (CFAR) Diversity, Equity and Inclusion Pathway Initiative (CDEIPI)

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Keywords

CFAR; Diversity; Equity and Inclusion

This supplemental issue of JAIDS presents a broad overview of the first two years of the Centers for AIDS Research (CFAR) Diversity, Equity and Inclusion Pathway Initiative (CDEIPI). The overarching goal of this initiative is to widen the pathway for careers in HIV research for young scholars from racial and ethnic groups underrepresented in HIV science and medicine. This program was developed by leveraging the NIH-funded Centers for AIDS Research (CFAR) network throughout the United States and expanding the decades-long developmental focus of the CFARs on early-stage and new HIV investigators at the faculty level to include high school, undergraduate, graduate, post-baccalaureate and postdoctoral students at earlier stages of their careers. A unique aspect of this initiative was that CFARs

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Conflicts of Interest: None Declared

were encouraged to develop training programs either through existing partnerships, or by developing new partnerships, with Historically Black Colleges and Universities (HBCUs) and other Minority Serving Institutions (MSIs).

This introductory manuscript presents a brief summary of the articles included in the supplement and is coauthored by the Guest Editors and Editorial Staff from the District of Columbia Center for AIDS Research (DC CFAR) and the National Institutes of Health (NIH) who coordinated the development of the supplement. (1) The second article provides a broad overview of the CDEIPI program and is coauthored by the consortium of more than 40 faculty and staff who have led the Program and Evaluation components of CDEIPI since its inception. (2) This paper is *methodological* in nature as it describes the rationale, structure and defining elements of the overall CDEIPI program and its focus on scholars from underrepresented racial and ethnic minority (URM) groups. It includes a U.S. map showing the geographic distribution of the collaborating CDEIPI institutions and a table with information about the CDEIPI programs at the individual sites. This overview article is followed by a *results-focused* evaluation manuscript which presents program-wide quantitative and qualitative data that were collected using uniform data collection instruments across the CDEIPI network. (3) This article provides critical information about the overall scope and reach of the CDEIPI initiative, shares data on the early successes and challenges of the CDEIPI program to date and is coauthored by the Evaluation leads at the CDEIPI sites and Coordinating Center.

Following these three articles which present CDEIPI from the national program-wide perspective, the supplement then continues with 16 site-specific articles that were contributed by individual CDEIPI programs. The sites were asked to summarize the basic features of their programs which varied greatly across the consortium because they were developed independently based on the local needs and resources of the CFARs and their collaborating partners. They were also asked to present any preliminary site-specific local evaluation data that they had collected either through their own evaluation mechanisms or using site-level data extracted from the national CDEIPI evaluation database. Each of these manuscripts was peer reviewed anonymously by two reviewers from other CDEIPI sites and by one of five guest editors from the DC CFAR CDEIPI Coordinating Center and NIH. Authors then revised their manuscripts in response to reviewer and editorial comments.

For this supplement, the site-specific articles were sorted into five groups based on the pedagogical approach of their training programs, common methodological approaches to presenting evaluation data, or the developmental stage of their program. The order of presentation is not hierarchical in any sense, as each manuscript describes a unique and independent program, with the final manuscript being as important as the first.

The first group of six articles summarized below present CDEIPI programs that included both didactic training and mentored research experiences. The nature of the didactic training varied in content and included HIV-focused seminars, general scientific curricula, and professional development sessions. Mentored research experiences varied in length and provided students with the opportunity to conduct HIV research projects with faculty mentors from CFAR institutions. Other training components varied by site including

clinical and community training experiences, participation in scientific conferences and structured mentoring programs.

- The “University of California, San Francisco (UCSF) CFAR Scholars Program” was designed for undergraduate and masters-level URM students from San Francisco State University and featured a 16-week HIV seminar series, a mentored research experience and professional development sessions. Evaluation data were collected through surveys and qualitative interviews with the inaugural class of scholars. (4)
- The “Penn CFAR Scholars Program” selected URM scholars at the high school, undergraduate and medical school levels to participate in one of five existing summer research programs and featured an 8-week HIV seminar series, a mentored research experience and professional skills building activities. Evaluation data were collected via qualitative interviews of program scholars, mentors and leaders. (5)
- The University of San Diego (UCSD) CFAR San Diego “Supporting and Uplifting New and Diverse Scientists in HIV Research” (SUN) project is a 9-month training program for pre- and post-doctoral URM/BIPOC students from University of California San Diego and San Diego State University. SUN featured a core scientific research curriculum, mentored research experience, and pilot grant program with \$6,000-\$10,000 awards. Evaluation data were collected through surveys of program participants using standardized measures developed by the CDEIPI consortium. (6)
- The Tennessee CFAR “High School HIV Research Training Program” based at Vanderbilt University provided mentored HIV research internships for URM students during the academic year and the summer, and the “Undergraduate HIV Research Training Program” based at Meharry Medical College included an intensive virology-focused workshop followed by mentored research internships. The programs also include career development activities and peer to peer mentoring. Student evaluations of the program and mentoring were collected during and upon completion of the program. (7)
- The Johns Hopkins CFAR included URM undergraduate students in its “Generation Tomorrow Summer Health Disparities Scholars Program” (GTSHDS) which was comprised of a lecture series on HIV and HCV, a 10-week summer mentored research project, career advising and community outreach. The Attitudes towards Mental Illness Questionnaire (AMIQ) was administered to students before and after the program to assess whether there were changes in their empathy towards persons who use substances. The GTSHDS compared two cohort of scholars to describe any trends or changes in empathy related to the COVID-19 pandemic. (8)
- The “District of Columbia (DC) CFAR Scholars Program” is based at Howard University and was designed for URM high school students from the DC metropolitan area and URM undergraduate students from Howard, American,

Georgetown and George Washington Universities. Activities included weekly scholar meetings on scientific and career development topics, 9-month mentored research experiences with investigators at DC CFAR collaborating institutions, and near-peer mentoring with URM graduate student leads. Evaluation was conducted using individual surveys and focus groups of student participants. (9)

The second group of four site articles summarized below present CDEIPI programs that were focused primarily on didactic and experiential HIV research training and that included summer programs, workshops and lecture series.

- The University of Washington (UW)/Fred Hutch CFAR developed the “Building Indigenuity, Generating HIV Science: HIV/AIDS Research Training Program” (BIG HART) for undergraduate and graduate Indigenous scholars which included a seminar series in HIV research, various networking opportunities and linking scholars with Indigenous CFAR mentors. (10)
- The Duke CFAR developed the “Evidence2Practice (E2P)” program, a 3-day interactive workshop for undergraduate and graduate students which has been held at six HBCUs in South Carolina to date. The workshop included lectures on HIV epidemiology and prevention, and an exercise in which scholars developed HIV prevention strategies for their own campuses. Program evaluation was conducted with a mixed method study design using pre- and post-program surveys and interviews. (11)
- The Chicago-based Third Coast CFAR launched the “Summer Intensive Program in Intersectional BIPOC SGM-focused HIV Science” for BIPOC SGM graduate and postdoctoral students in collaboration with the Southern AIDS Coalition. The program included professional development and networking opportunities at the National LGBTQ Health Conference followed by an intensive 2-week summer program with instructional sessions in HIV and intersectionality, research methods, and career development. Evaluation data were collected through post-session surveys, participant observation, facilitated group discussion and post-program evaluation. (12)
- The “Texas Developmental CFAR CDEIPI Program” partnered with two large Texas high schools in Houston and the Rio Grande Valley and implemented a seminar series for URM high school students which included presentations on HIV and SARS-CoV-2-related research and career paths. The program also included mentoring workshops for graduate students in the biologic sciences. Program evaluation data will be collected through post-session and post-program surveys and semi-structured interviews with student participants. (13)

The third group of two articles present CDEIPI programs that were focused primarily on mentored research experiences.

- The University of North Carolina (UNC) CFAR developed the “North Carolina Diversity and Inclusion Pathway Program”, a 1-year mentored research paid internship program for undergraduate and graduate students from two

HBCUs, North Carolina Central University and North Carolina Agricultural and Technical State University. Evaluation data were collected through semi-structured interviews with program interns and leaders, and questionnaires administered to mentors. (14)

- The Miami CFAR developed the “Miami CDEIPI” program for URM graduate students from Florida State University which provided mentored HIV research experiences in the laboratories of Miami CFAR investigators. The program included proposal design, access to Miami CFAR laboratory facilities, conduct of research projects, and participation in Miami CFAR seminars, conferences and workshops. (15)

The fourth group of two articles describe qualitative findings from evaluation projects in which interviews were conducted with students and faculty from URM groups.

- The University of Alabama at Birmingham (UAB) CFAR “Strengthening Training and Advancement in Research” (STAR) program conducted formative work to inform the development of their CDEIPI Program. An environmental scan of health science pathway programs for URM high school, undergraduate and graduate students in the Birmingham area was conducted using a mixed methods approach. To evaluate existing pathway programs, focus groups and online surveys were conducted with program participants. (16)
- The Providence/Boston CFAR conducted focus groups and interviews with early and mid-career URM faculty to assess the impact of structural, institutional, and inter- and intra-personal factors on promoting diversity among scientific researchers to inform the development of their CDEIPI training programs. (17)

The fifth and final group of two articles present exciting new programs that joined the CDEIPI consortium more recently in its second year.

- The Harvard CFAR developed the “Harvard University CFAR DEI Working Group” to focus on the recruitment, inclusion and retention of URM in HIV research using the intersectionality framework. Existing diversity training programs for high school, undergraduate and graduate students throughout the Harvard system are being leveraged using CDEIPI resources. (18)
- The Rustbelt CFAR (Case Western Reserve University and the University of Pittsburgh) launched the “Rustbelt Investigators for the Next Generation (RING) Program” and recruited undergraduate and masters URM students from four University of Puerto Rico campuses. The 10-week summer program will include mentored HIV research experiences and weekly research seminars at Case Western Reserve University and the University of Pittsburgh. Pre- and post-program assessments will be conducted to assess program impact on scholar attitudes towards an HIV research career. (19)

Collectively, the articles that are presented in this supplement describe the launch of the national CDEIPI training program that is intended to help illuminate and widen the pathway for young URM scholars pursuing careers in HIV science and medicine. These articles provide an early evidence base to support the continued development of CDEIPI,

as well as share collective experiences that could inform the development of diversity training initiatives in areas well beyond HIV. It is our intent that the unifying mission and collaborative spirit of CDEIPI will endure while the innovative approaches described in this supplement continue to mature through ongoing evaluation, collective learning, modification and improvement.

Source of Funding:

National Institutes of Health (NIH)

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