



UPDATED NOVEMBER 2023

# NIH Diversity Program Consortium

## Technical Report

Evaluation of Post-secondary  
Student Outcomes: Defining  
Well-Represented (WRG) and  
Underrepresented (URG)  
Groups in the Diversity Program  
Consortium's Enhance Diversity  
Study using the November 2019  
NIH Guidelines

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## Introduction

The purpose of this technical report is to describe the coding procedures for well-represented (WRG) and underrepresented (URG) groups of students in the Diversity Program Consortium (DPC) Enhance Diversity Study (EDS) and subsequent consortium-wide analyses. The DPC is determining the effectiveness of innovative approaches to engage individuals from diverse backgrounds and help them prepare for and succeed in biomedical research careers. The DPC supports transformative approaches to student engagement, research training, mentoring, faculty development, and infrastructure development. The Enhance Diversity study is the evaluation of the DPC initiative and is guided by the Consortium-wide Evaluation Plan (CWEP). Consortium-wide data (CWEP data) come from surveys and institutional data.

A combination of surveys was used to measure specific indicators important to the evaluation and to provide national comparisons to those in the study. One set of surveys was conducted by the Higher Educational Research Institute (HERI). It included The Freshman Survey (HERI - TFS) and the College Senior Survey (HERI - CSS), two national surveys of undergraduates at a broad set of institutions. The DPC's Coordination and Evaluation Center (CEC) administered surveys to students at Building Infrastructure Leading to Diversity (BUILD) institutions (2015-2023) and National Research Mentoring Program (NRMN) participants (2015-2019). They included an annual student follow-up survey (CEC - SAFS) and the NRMN mentee survey. Other student data sources included institutional records (IR data) and BUILD participation records (Tracker data), both available from BUILD institutions. The July 2019 Evaluation Implementation Working Group (EIWG) meeting helped identify the need to develop clear guidance on the construction of WRG and URG student groups for analyses involving the Enhance Diversity Study data.

Consistently operationalizing WRG and URG categories in reports and publications ensures greater consistency across local and consortium-wide analyses, thereby increasing the consistency and utility of DPC findings. As such, this technical report details coding recommendations for WRG and URG consistent with groups that the National Institutes of Health (NIH) have identified as underrepresented in the biomedical research enterprise to guide primary DPC analyses. Where appropriate, this technical report also details further refined WRG and URG designations that can be considered for secondary DPC analyses. This report focuses on describing the coding of WRG and URG with existing post-secondary student survey data. URG and demographic flags detailed in this technical report have been made available as an analytic dataset that can be merged with other consortium-wide data. This work aims to promote consistent definitions of the URG categories in publications while allowing for more nuanced analyses of evaluation findings.

## **The Process of Developing Well-represented and Underrepresented Group Designations**

A primary goal of this effort was to establish a consensus on how the Enhance Diversity Study and consortium-wide DPC findings could conceptualize “underrepresented groups.” Conversations regarding definitions of WRG and URG, including individuals from “disadvantaged” backgrounds, took place during the July and October 2019 EIWG meetings. The CEC conducted document and literature reviews to examine NIH designations of URG. We also held discussions with NIH and DPC grantees to clarify the various URG designations. Literature sources included NIH announcements and notices, U.S. Department of Education announcements and publications, Census Data, National Science Foundation (NSF) announcements and publications, and peer-reviewed publications. Our searches targeted definitions used for underrepresented undergraduate student groups in STEM and biomedical research (the primary BUILD student population), with priority given to federal sources. We also consulted with HERI and the CEC to determine the best approaches for operationalizing URG categories using EDS survey sources. We made our final decisions based on the greatest availability of data, the lowest burden on analysts, and the highest level of transferability in the field. Proposed URG and demographic flags were presented at the October 21, 2019, EIWG meeting and then updated for alignment with the November 2019 Notice of NIH’s Interest in Diversity. Technical Report guidance on constructing URG/WRG variables was first published in August 2020. The report was re-published in November 2023 with updated mapping of subsequent student surveys (2021-2023) and final URG coding decisions represented in distributed data sets.

## **Underrepresented Populations in the U.S. Biomedical, Clinical, Behavioral and Social Sciences Research Enterprise**

The NIH Notice of Interest in Diversity (NOT-OD-20-031) identified four examples of groups that are underrepresented in the biomedical research enterprise.

1. Racial/ethnic groups, including:
  - a. Blacks or African Americans; Hispanics or Latinos; American Indians or Alaskan Natives; Native Hawaiians and other Pacific Islanders.
  - b. In addition, it is recognized that underrepresentation can vary from setting to setting; individuals from racial or ethnic groups that can be demonstrated convincingly to be underrepresented by the grantee institution should be encouraged to participate in NIH programs to enhance diversity (see Federal Register, 1997).
2. Persons with physical or mental disabilities that substantially limit one or more major life activities (see Americans with Disabilities Act of 1990, as amended).
3. Individuals from disadvantaged backgrounds. The description of this group was updated in the 2019 notice as those who meet *two or more* of the following criteria (see NIH, 2020):
  - a. Were or currently are homeless

- b. Were or currently are in the foster care system
  - c. Were eligible for the Federal Free and Reduced Lunch Program for two years or more
  - d. Have/had no parents or legal guardians who completed a bachelor's degree
  - e. Were or currently are eligible for Federal Pell grants
  - f. Received support from the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) as a parent or child
  - g. Grew up in one of the following areas: a) a U.S. rural area, or b) low-income and health professional shortage area eligible zip code
4. Women from the above categories (1, 2, and 3) at the graduate level and beyond in scientific fields (or women in general at senior faculty levels in most biomedical-relevant disciplines and some scientific disciplines; see NSF, 2019).

Women have been shown to be underrepresented in doctorate-granting research institutions at senior faculty levels in most biomedical-relevant disciplines and may also be underrepresented at other faculty levels in some scientific disciplines (See data from the National Science Foundation National Center for Science and Engineering Statistics: Women, Minorities, and Persons with Disabilities in Science and Engineering, special report available at <https://www.nsf.gov/statistics/2017/nsf17310/>, especially Table 9-23, describing science, engineering, and health doctorate holders employed in universities and 4-year colleges, by broad occupation, sex, years since doctorate, and faculty rank.)

Upon review of NSF data and scientific discipline or field-related data, NIH encourages institutions to consider women for faculty-level, diversity-targeted programs to address faculty recruitment, appointment, retention, or advancement.

Please note that NIH periodically updates its Notice of Interest in Diversity. The information above reflects the notice published on November 22, 2019. This technical report describes the coding of WRG and URG for the undergraduate student population of the Enhance Diversity study using the November 2019 NIH guidelines.

## **Approach to Analytic Files**

Individual analysts were responsible for constructing URG variables during the DPC - Phase I awards (2014-2019). To facilitate the implementation of common approaches in data analysis, the CEC produced guidance on the construction of URG variables and later distributed data files designating URG and other important demographic variables of interest in the EDS. These data files included the survey linking file (known internally as the Reference File and externally as the Key File) and the URG dataset. One benefit of these files is that they include aggregate demographic

information across data sources over time, minimizing missingness that might be present in any given survey. Using common definitions across multiple analyses supports efforts to evaluate the DPC's impact on increasing URGs in biomedical and behavioral research.

URG indicators were structured as dichotomous flag variables. Missing and unknown responses were excluded from variable construction and were represented with values indicating the specific type of missing information. Table 1 lists the undergraduate student URG flag variables for which there are adequate survey or IR data items in alignment with groups NIH has identified as underrepresented, including race/ethnicity and disability status. In addition, Table 1 lists the undergraduate student disadvantaged background variables considered for URG status using Enhance Diversity Study data: homeless status, foster youth status, first-generation college student status (parent/guardian educational attainment), and Pell Grant eligibility. As described above, the NIH notice includes three additional statuses (3. c., f., and g.) on which the Enhanced Diversity Study has not collected data and is not reflected in calculating the URG flags. Per the NIH Notice of Interest in Diversity, an individual should satisfy two or more disadvantaged background criteria to be considered underrepresented (or meet other URG guidelines). Table 1 also includes additional demographic flag variables (woman, non-binary, sexual minority status, and gender minority status) that may be of interest for analyses, even if not formally recognized as URG groups for undergraduate students. Composite variables have been computed to capture if a student is in a population that NIH has noted is underrepresented or if they fit either/both sexual minority or/and gender minority status at any point in time during data collection.

This report describes in detail the coding of the URG, disadvantaged background, and demographic flag variables (using 2019 survey items for illustrative purposes) and cites literature that supports the URG and WRG coding designations. The appendix lists the survey items used for variable creation across all survey time points and provides response option coding details. While this technical report focuses on the four major EDS student surveys in 2019 (TFS, CSS, SAFS, NRMN Mentee), the appendix describes detailed coding for each flag variable for all student survey items used in the study and information from institutional records when available.

During EIWG meetings, DPC colleagues discussed a range of underrepresented groups at the local level, as well as groups that programs are often designed to serve. These intended student audiences, while important, are not represented in the CEC distributed URG, Reference, and Key files but may be of interest for secondary analyses of CWEP data. Additional student designations mentioned by sites (and often discussed in educational literature) are displayed in Table 2. Enhance Diversity Study student surveys and IR data often captured these variables, as indicated in the table. Analyses using these variables will likely be reserved for secondary analyses and/or research publications using CWEP data.

Table 1. Undergraduate Student URG, Disadvantaged Background, and Demographic Flag Variables for the Enhance Diversity Study and Subsequent Consortium-wide Analyses, using CWEP Data

NIH URG Designations	NIH Disadvantaged Background Designations <sup>b</sup>	Other Demographic Flags
URG_RACEETHNICITY <sup>a</sup>	URG_HOMELESS	WOMAN
URG_DISABILITY	URG_FOSTER	NON_BINARY
	URG_FGCS	SEXUAL_MINORITY
	URG_PELL	GENDER_MINORITY
URG_MEMBER* <sup>c</sup>		SG_MINORITY* <sup>d</sup>

*Note.* The Enhance Diversity Study has data readily available on four of the seven dimensions of the disadvantaged background domain (detailed on pages two and three) referenced in the Notice of NIH’s Interest in Diversity.

*Note.* Composite variables (\*) include URG\_MEMBER and SG\_MINORITY.

*Note.* To maintain alignment with the Notice of NIH’s Interest in Diversity, an individual should meet two or more aspects of the disadvantaged background criteria in the Enhance Diversity Study to qualify for URG\_MEMBER designation.

<sup>a</sup>Flag variables have been created for each of the broad Race/Ethnicity subgroups. See the URG\_RACEETHNICITY section for further details. Additionally, local analysts are encouraged to consider local context for potentially expanded definitions of racial/ethnic underrepresented groups.

<sup>b</sup>CWEP data does not include information on three additional examples of pre-college disadvantaged backgrounds: eligible for free/reduced-price lunches for two years, receipt of WIC, and grew up in a disadvantaged zip code including rural or health services shortage area.

<sup>c</sup>URG\_MEMBER is computed based upon classification in one or more of the primary URG sub-constructs: race/ethnicity, disability, and disadvantaged background (two or more: homeless, foster youth, FGCS, and Pell recipient).

<sup>d</sup>SG\_MINORITY is computed based upon classification in SEXUAL\_MINORITY and GENDER\_MINORITY variables.

Table 2. Additional Student Designations of Local Interest Appearing in the Enhance Diversity Study

Student Designation	Enhance Diversity Study Data Source
Transfer Student	SAFS, IR Data
Veteran	TFS, SAFS
Delayed Entry to College	TFS, SAFS, IR Data
Part-time Student	TFS, SAFS, IR Data
English as a Second Language	TFS, SAFS

Note. SAFS=Student Annual Follow-up Survey, IR Data=Institutional Records Data, and TFS=The Freshman Survey (HERI)

## Describing the Coding of URG Designations in the Enhance Diversity Study

### *URG through Race and/or Ethnicity*

The Notice of NIH’s Interest in Diversity (National Institutes of Health [NIH], 2019) cited the National Science Foundation (NSF) published reports indicating that Blacks and African Americans, American Indians and Alaska Natives, Hispanics or Latinos, Native Hawaiians and other Pacific Islanders are underrepresented at many career stages in health-related sciences on a national basis (National Science Foundation [NSF], 2015). Diversity of the NIH-funded workforce further validates NSF race/ethnicity underrepresentation findings (Heggeness, Evans, Pohlhaus, & Mills, 2016). The Enhance Diversity Study used the same designations in creating the URG\_RACEETHNICITY variable. All other racial/ethnic groups not listed above were considered well-represented.

Items that captured race/ethnicity on Enhance Diversity Study surveys (using 2019 surveys as an example) and the corresponding WRG and URG designations are displayed in Table 3. Respondents were given the opportunity to select multiple response options in each survey. If a respondent ever indicated any URG racial/ethnic group in their responses, they were coded as a URG for race/ethnicity. For “other” responses with a specified racial/ethnic group, the CEC inspected free entries for further classification. For respondents that only selected “choose not to answer” or “other” with no specificity, no calculation for URG\_RACEETHNICITY was included (response remains “unknown”/“missing”). Please see the appendix for the coding of each response option and notes about how these items might have shifted over time.

Table 3. WRG and URG Designations for URG\_RACEETHNICITY across Enhance Diversity Study Student Surveys, 2019

WRG	URG
<p><b>TFS and CSS:</b> White/Caucasian; East Asian (e.g. Chinese, Japanese, Korean, Taiwanese); Filipina/o/x; Southeast Asian (e.g. Cambodian, Vietnamese, Hmong); South Asian (e.g. Indian, Pakistani, Nepalese, Sri Lankan); Other Asian</p>	<p><b>TFS and CSS:</b> African American/Black; American Indian/Alaskan Native; Native Hawaiian/Pacific Islander; Mexican American/Chicana/o/x; Puerto Rican; South American; Other Latina/o/x</p>
<p><sup>a</sup><b>SAFS:</b> White; Asian; Indian; Chinese; Filipino; Japanese; Vietnamese; Other Asian; Middle Eastern or North African</p>	<p><b>SAFS:</b> Black or African American; American Indian or Alaskan Native; Native Hawaiian; Guamanian or Chamorro; Samoan; Other Pacific Islander; Hispanic, Latina/o/xo/a, or Spanish origin</p>
<p><b>NRMN Mentee :</b> White; Asian; Middle Eastern or North African</p>	<p><b>NRMN Mentee :</b> Hispanic, Latino/a, or Spanish Origin; Black or African American; American Indian or Alaskan Native; Native Hawaiian or Other Pacific Islander</p>

*Note.* TFS=The Freshman Survey (HERI), CSS=The College Senior Survey (HERI), SAFS=Student Annual Follow-up Survey.

<sup>a</sup>Middle Eastern and North African (WRG) response options became available on the SAFS surveys in 2019.

It should be noted that prior research suggests a high level of variance among Asian subgroups in higher education. For instance, 2011 - 2013 U.S. Census estimates indicate that in California, 56% of Koreans, 52% of Chinese, 29% of Vietnamese, 16% of Cambodians, and 10% of Laotians of the population 25 years and older hold a bachelor's degree or higher (The State of Higher Education in California, 2015). Some of the variability in educational attainment can be attributed to the history of different immigration streams, with children of immigrant parents with high levels of education and professional employment (e.g., more common among East and Southeast Asian and Chinese immigrants) being advantaged in college preparation and applications compared to children of refugee parents with low levels of education and unskilled jobs (e.g., more common among Hmong and Cambodian families) (Baum & Flores, 2011). This "bimodal" pattern of education, income, and health status among Asian subgroups is well documented (Lee & Zhou, 2015; Ramakrishnan and Ahmad, 2014; Yi, Kwon, Sacks, & Trinh-Shevrin, 2016) and suggests that local evaluations may want to consider disaggregating Asian subgroups in secondary analyses to better reflect the WRG and URG population at their sites. Programs are encouraged to examine underrepresentation in race/ethnicity within their own institutional context, as NIH acknowledges this can vary from setting to setting (NIH, 2019).



In addition to the WRG and URG designation for race/ethnicity, the CEC created flag variables for each broad racial/ethnic subgroup, coded for “any mention” of identity within the group. Table 4 lists the racial/ethnic subgroup flag variables matched to survey response options. Well-represented broad racial/ethnic sub-groups include Asian, Middle Eastern and North African, and White. Underrepresented broad racial/ethnic sub-groups include American Indian and Alaskan Native, Black and African American, Latinx, and Native Hawaiian and Pacific Islander. Participants' more detailed race/ethnicity selections (e.g., East Asian, South American) can be retrieved from individual and/or stacked survey data files for further analysis.

Table 4. WRG and URG Broad Racial/Ethnic Subgroup Designations across Enhance Diversity Study Student Surveys, 2019

Racial/Ethnic Flag Variable	Survey Response Options
WRG_ASIAN	<p><b>TFS and CSS:</b> East Asian (e.g. Chinese, Japanese, Korean, Taiwanese); Filipina/o/x; Southeast Asian (e.g. Cambodian, Vietnamese, Hmong); South Asian (e.g. Indian, Pakistani, Nepalese, Sri Lankan); Other Asian</p> <p><b>SAFS and NRMN Mentee:</b> Asian Indian; Chinese; Filipino; Japanese; Vietnamese; Other Asian</p>
WRG_MENA	<p><b>SAFS and NRMN Mentee:</b> Middle Eastern or North African</p>
WRG_WHITE	<p><b>TFS and CSS:</b> White/Caucasian</p> <p><b>SAFS and NRMN Mentee:</b> White</p>
URG_AIAN	<p><b>TFS and CSS:</b> American Indian/Alaskan Native</p> <p><b>SAFS and NRMN Mentee:</b> American Indian or Alaskan Native</p>
URG_BLACK	<p><b>TFS and CSS:</b> African American/Black</p> <p><b>SAFS and NRMN Mentee:</b> Black or African American</p>
URG_LATINX	<p><b>TFS and CSS:</b> Mexican American/Chicana/o/x; Puerto Rican; South American; Other Latina/o/x</p> <p><b>SAFS and NRMN Mentee:</b> Hispanic, Latino/a, or Spanish Origin</p>
URG_NHPI	<p><b>TFS and CSS:</b> Native Hawaiian/Pacific Islander</p> <p><b>SAFS:</b> Native Hawaiian; Guamanian or Chamorro; Samoan; Other Pacific Islander</p> <p><b>NRMN Mentee:</b> Native Hawaiian or Other Pacific Islander</p>

### ***URG through Disability***

The Notice of NIH's Interest in Diversity (NIH, 2019) cited the Americans with Disabilities Act (ADA), which "defines an individual with a disability as a person with a physical or mental impairment that substantially limits one or more major life activities" (Sec. 12102). It has been documented that individuals with disabilities have lower educational attainment across science fields of study (NSF, 2012). The Enhance Diversity Study uses the same URG designations to the extent possible in creating the URG\_DISABILITY flag variable.

Items that captured disability status on Enhance Diversity Study surveys (2019) and the corresponding WRG and URG designations are illustrated in Table 5. While the TFS and SAFS captured disability status for an individual, neither survey specifically captured whether or not "a disability substantially limits life activities." The SAFS captured disability impact on life activities through the addition of the "serious" qualifying language for various physical, mental, or emotional conditions one may experience. The lack of alignment between the TFS and SAFS questions with the ADA definition of persons with a disability remains a limitation of the Enhance Diversity Study. Please see the appendix for the coding of each response option and notes about how these items might have shifted over time.

The URG\_DISABILITY flag variable was computed using an "IF EVER" rule for whether a disability was reported. Respondents indicating "other" for disability were coded positively as URG, while a "choose not to answer" response was considered "unknown," and no value for URG\_DISABILITY was assigned.

Table 5. WRG and URG Designations for URG\_DISABILITY across Enhance Diversity Study Student Surveys, 2019

WRG	URG
<p><b>TFS:</b> “No” for at least one item (Learning disability, ADHD, Physical disability, Chronic illness, Psychological disorder, Other) and NOT “Yes” for any other item</p> <p><b>SAFS:</b> “No, none of these statements are true for me” (I am deaf or have serious difficulty hearing; I am blind or have serious difficulty seeing, even when wearing glasses; I have serious difficulty concentrating, remembering, or making decisions because of a physical, mental, or emotional condition; I have serious difficulty walking or climbing stairs; I have difficulty dressing or bathing; I have difficulty doing errands alone such as visiting a doctor’s office or shopping because of a physical, mental, or emotional condition)</p>	<p><b>TFS:</b> “Yes” for ANY item (Learning disability, ADHD, Physical disability, Chronic illness, Psychological disorder, Other)</p> <p><b>SAFS:</b> “Yes, at least one of these statements is true for me” (I am deaf or have serious difficulty hearing; I am blind or have serious difficulty seeing, even when wearing glasses; I have serious difficulty concentrating, remembering, or making decisions because of a physical, mental, or emotional condition; I have serious difficulty walking or climbing stairs; I have difficulty dressing or bathing; I have difficulty doing errands alone such as visiting a doctor’s office or shopping because of a physical, mental, or emotional condition)</p> <p><b>SAFS:</b> “Yes” I have registered with my school’s Office of Disability/Student Accessibility</p>

*Note.* TFS=The Freshman Survey (HERI), SAFS=Student Annual Follow-up Survey

*Note.* To be assigned a *yes value* for URG\_DISABILITY, “Yes” would have been reported at any point in time.

*Note.* While “Yes, I have registered with my school’s office of Disability/Student Accessibility” can be used to assign a *yes value* for URG\_DISABILITY, a response of “No,” should be treated as “unknown,” as it is completely feasible for an individual to meet the definition of persons with a disability, while choosing not to register with the Office of Disability (assuming one even exists). It is important that both SAFS disability status items are inspected for computation of the URG\_DISABILITY flag.

### ***URG through Disadvantaged Backgrounds***

The U.S. Department of Education’s report on Advancing Diversity and Inclusion in Higher Education (2016) pointed to adverse childhood experiences and family resources playing a significant role in an individual’s progress throughout the higher education-to-employment pipeline. NIH acknowledged that students from low socioeconomic status (SES) backgrounds obtain bachelor’s and advanced degrees at significantly lower rates than individuals from higher SES backgrounds, leading to underrepresentation in biomedical research (NOT-OD-20-031). NIH outlined seven

ways an individual could be considered from a disadvantaged background (see p. 2-3, #3. a.-g.), and noted that two or more of the seven criteria should be met for designation as URG (apart from other URG criteria). Four of the disadvantaged background aspects, measured in at least one of the Enhance Diversity Study student surveys (homeless, foster youth, parent/guardian education level, and Pell grant receipt), were considered for URG designation, as displayed in Table 6. Supporting literature and considerations in variable construction and usage are detailed under each of the disadvantaged background sub-sections.

Table 6. Disadvantaged Background Variable Flags Considered (two or more) for Designation as URG across Enhance Diversity Study Student Surveys, 2019

<b>Disadvantaged Backgrounds Variable</b>	<b>Considered for WRG</b>	<b>Considered for URG</b>
<b>URG_HOMELESS</b>	<b>TFS:</b> “No” for, In your lifetime, have you been homeless for at least one month?	<b>TFS:</b> “Yes” for, In your lifetime, have you been homeless for at least one month?
<b>URG_FOSTER</b>	<b>SAFS:</b> “No” for, At any time since you were 13, were you in foster care or were you a dependent of the court?	<b>SAFS:</b> “Yes” for, At any time since you were 13, were you in foster care or were you a dependent of the court?
<b>URG_FGCS</b>	<b>TFS and SAFS:</b> “Yes” EITHER parent/guardian has obtained a College degree, Some graduate school, Graduate degree	<b>TFS and SAFS:</b> “No” NEITHER parent/guardian has obtained a College degree, Some graduate school, Graduate degree
<b>URG_PELL</b>	<b>TFS:</b> “No” to received Pell Grant financial aid  <b>SAFS:</b> “No” to received Pell grant funding for financial aid	<b>TFS:</b> “Yes” to received Pell Grant financial aid  <b>SAFS:</b> “Yes” to received Pell Grant funding for financial aid

*Note.* TFS=The Freshman Survey (HERI), SAFS=Student Annual Follow-up Survey.

*Note.* To be assigned a positive value (Considered for URG) for any of the disadvantaged backgrounds items, “Yes” would have been reported on any survey to date at any point in time.

*Note.* To be designated as URG through disadvantaged backgrounds, an individual should meet two or more of the four criteria measured in the Enhance Diversity Study and indicated by NIH.

### *Experienced Homelessness (3.a.)*

During the 2014-2015 school year, 2.5% of U.S. public school children were considered homeless (National Center for Educational Statistics [NCES], 2017), meaning they lacked a “fixed, regular, and adequate nighttime residence” (ESSA: McKinney-Vinto Homeless Assistance Act, 2015, Subtitle VII-B). School experiences and educational attainment are negatively impacted by the host of health, safety, and emotional well-being challenges that homeless children face (Buckner, 2008). Additionally, homeless youth are more likely to have characteristics that are also associated with negative schooling experiences and lower educational attainment, such as undocumented migrant status, English Language Learner status, and foster youth status (NCES, 2017).

A single item on homelessness began appearing on Enhance Diversity Study surveys (TFS and CSS) in 2018, “In your lifetime, have you been homeless for at least one month?” (TFS), or “Since entering college, have you been homeless for one month or more?” (CSS). Respondents who indicated “Yes” for experienced homelessness were coded positively for the URG\_HOMELESS disadvantaged backgrounds flag variable. The SAFS added the item for 2021-2023 surveys. A known limitation in the Enhance Diversity Study is that the survey items on the CSS and SAFS are limited to experiencing homelessness *while in college*, vs. NIH’s definition of “were or currently are homeless,” likely resulting in an undercount of the disadvantaged backgrounds flag variable in the data files. Please see the appendix for the coding of each response option and notes about how this item might have shifted over time.

### *Foster Youth Status (3.b.)*

In 2017, there were 442,995 children in foster care (Child Welfare Information Gateway, 2019). Research suggests that former foster youth experience lower levels of retention and graduation in higher education, being more likely to drop out of college by the end of their first year (21% vs. 13%) and before bachelor’s degree attainment (34% vs. 18%) than their non-foster care peers (Daw, Dworsky, Fogarty, & Damashek, 2011). Financial, academic, socio/emotional, and logistical challenges have been cited as reasons for lower degree completion for former foster youth (Dworsky & Perez, 2009).

A single item regarding foster youth status in the Enhance Diversity Study was included on the TFS 2016-2018 and the SAFS 2019-2023, “At any time since you were 13, were you in foster care or were you a dependent of the court?” Respondents who indicated “Yes” for foster care/dependent of the court were coded positively for the URG\_FOSTER disadvantaged backgrounds flag variable. Respondents who indicated “I do not know” or “I choose not to answer” for foster care/dependent of the court were considered “unknown,” and no value for URG\_FOSTER was assigned. CSS and NRMN Mentee surveys did not capture foster youth status.

The foster youth item is an imperfect measure as it prompted respondents to answer from a frame of reference of “since you were 13,” which is more restrictive than

the NIH guideline of “were or currently are.” Surveys tended to bound responses at 13 or older due to financial aid implications, with students in foster care, aged out of foster care, or adopted from foster care/orphanage after 13 being considered automatically independent on the Free Application for Federal Student Aid (FAFSA), thereby qualifying for the maximum value of Pell Grants. Given the median age of foster youth in 2017 was 7.7 years (Child Welfare Information Gateway, 2019), foster youth numbers are likely undercounted in the data files, a study limitation. Please see the appendix for the coding of each response option and notes about how this item might have shifted over time.

### *Parent/Guardian Educational Attainment (3.d)*

A widely used approach in operationalizing disadvantaged educational backgrounds utilizes parent/guardian educational attainment. At the most basic level, a first-generation college student (FGCS) is one who is enrolled in postsecondary education and whose parents do not have any postsecondary education experience. Compared to their continuing-generation college student peers, who have at least one parent with some postsecondary education experience, first-generation college students face increased challenges in higher education (Redford, Hoyer, & Ralph, 2017). The field of educational research often examines the challenges that first-generation college students face in navigating college attendance and graduation and in identifying the needed support for educational success (Cataldi, Bennett, & Chen, 2018; Martinez, Sher, Krull, & Wood, 2009).

There is a continuum of parental experiences with higher education that can influence a student’s educational social capital. In addition to both parents/guardians having no postsecondary experience, one or both parents may have applied (but not attended), attended (but not graduated), or graduated with an Associate’s Degree (versus a Bachelor’s). For a complete picture, the highest degree(s) attained must also be considered. The various educational experiences within families are connected with differences in social networks and family resources, which impact student success in higher education (Thorngren, 2017).

Prior research has assessed how the operationalization of FGCS status shapes educational outcomes (Toutkoushian et al., 2018; Toutkoushian et al., 2019). For instance, Toutkoushian et al. (2018) examined eight different ways to operationalize *first-generation college student* (looking at differential effects on student application and college enrollment (2-yr. and 4-yr.) based on whether one or both parents had only a high school diploma, started an Associate’s degree, finished an Associate’s degree, or started (but did not complete) a Bachelor’s degree. The relationship between FGCS status and three outcomes (e.g., took a college entrance exam, applied to college, and enrolled in college) varied by first-generation student definitions. Ultimately, students with parents with little to no post-secondary education did more poorly than those who had parents with more higher education experience and/or higher education degree attainment (Toutkoushian et al., 2018). The study’s findings suggest that students who reported both parents with no college education fare worse than all other groups on application and enrollment measures.

To better understand how four-year public institutions were defining first-generation college students, Thorngren (2017) surveyed 562 colleges and found over half (55%) were using the definition of at least one or more parents/guardians having attended college but neither earning a degree. There was a multitude of other definitions, with the second most common being both parents/guardians having completed high school but neither parent having ever enrolled in college. The variety of approaches in defining first-generation college students heightens the importance of defining the approach in a given research study.

Two well-recognized approaches in determining whether an individual has first-generation student status were used to create flag variables for the Enhance Diversity Study. The primary approach to determining first-generation college student status focused on whether either parent or guardian has *graduated from college* with a bachelor's degree. If neither parent/guardian had a bachelor's degree, a student was considered first generation (Redford, Hoyer, & Ralph, 2017). Studies suggest that students who fit this definition face significant hurdles for college entrance (Toutkoushian et al., 2018) and are less likely to obtain a college degree relative to counterparts with at least one parent or guardian who had a college degree (Toutkoushian et al., 2019).

The TFS (and SAFS for first-time survey responders) included the item, "What is the highest level of formal education obtained by your parents/guardians?" Ordinal response options for each parent/guardian included "Junior high/Middle school or less, High school graduate, Postsecondary school other than college, Some college, College degree, Some graduate school, and Graduate degree." These responses were used to define the first-generation college student flag variable (URG\_FGCS). When students responded that *neither parent/guardian has obtained a college degree or higher*, they were coded positively for first-generation college student status. Respondents who indicated "I do not know" or "I choose not to answer" for both parent/guardian education levels were considered "unknown," and no value for URG\_FGCS was assigned. This first approach most closely follows the Notice of NIH's Interest in Diversity (NOT-OD-20-031) and is the most commonly used approach in four-year public institutions (Thorngren, 2017). A known limitation in the Enhance Diversity Study is that the survey response option "college degree" does not distinguish between Associate's and Bachelor's degree attainment, with Bachelor's degree attainment being the guidelines used by NIH. Please see the appendix for the coding of each response option and notes about how these items might have shifted over time.

A more conservative approach, used by the U.S. Department of Education, classifies a student as first-generation only when neither parent or guardian has *attended college*. Students who fit this definition are likely to face the greatest amount of educational hurdles (Toutkoushian et al., 2018). This conservative approach is used in HERI analyses and publications (e.g., Eagan et al., 2016). To allow researchers flexibility in analysis independent of NIH guidelines, the CEC included a second flag variable (URG\_FGCSATTEND) that indicates that the student reported *neither parent has some college or higher*. Please see the appendix for the coding of each response option and notes about how these items might have shifted over time.



In the CEC's preliminary analyses of a subset of Enhance Diversity Study data, changing from a strict (no parent/guardian college attended) to a broader (no parent/guardian college graduated) definition of a first-generation student, the percentage of students fitting the first generation designation increases from 20% to 33%. Both versions of first-generation student status were provided to enhance comparisons with other literature on EDS findings. However, URG\_FGCS was the only FGCS variable used in calculating the composite URG\_MEMBER variable (further described below), maintaining alignment with NIH criteria. Researchers should explain which definition of FGSC they use in all DPC-affiliated publications.

### *Pell Grant Receipt (3.e.)*

Another approach to operationalizing disadvantaged backgrounds is using Enhance Diversity Study data on Pell Grant recipient (vs. eligibility) status. Pell Grant status is often a proxy for low family income (e.g., in the 2014 and 2019 BUILD RFAs - see references). One of the challenges with using the Pell Grant as a proxy for disadvantaged backgrounds is that it undercounts the percentage of low-income students enrolled in institutions of higher education (Delisle, 2017). In the United States, to access financial aid, students must complete the Free Application for Student Federal Aid (FAFSA), which includes documentation of family income. Studies show many eligible students do not submit FAFSA applications (King, 2004; Kofoed, 2015). The trends, which are more pronounced for lower-middle-income students, show that independent students apply at lower rates than dependent students, with up to 24% of independent students with incomes under \$10,000 not applying for financial aid (King, 2004). The unclaimed aid totals are estimated to be \$24 billion annually (Kofoed, 2015). Changing Pell Grant take-up rates, as well as changing eligibility requirements and maximum award amounts over time (Delisle, 2017; Executive Office of the President, 2014), pose challenges with using the measure.

One of the reasons that Pell Grant recipient status continues as a proxy for family socioeconomic status is because awards go to low-income students. In 2011-2012, the median Pell Grant family income was \$17,300 (Delisle, 2017). A second reason the use of the measure continues is that it is publicly and widely available, with the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS) requiring higher education institutions to submit data on Pell Grant awards (Delisle, 2017). The number of students receiving Pell Grants and the amount of awards may be the only financial information available across colleges and universities, continuing to make it of interest to researchers (Delisle, 2017). Despite the known limitations of the measure, Pell Grant *recipient status* is the best proxy for 3.d. disadvantaged backgrounds using Enhance Diversity Study data.

The flag variable, URG\_PELL, indicates a student reported ever receiving a Pell Grant on TFS or SAFS. Respondents who indicated "I choose not to answer" for Pell Grant receipt are considered "unknown," and no value for URG\_PELL was assigned. CSS and NRMN Mentee surveys did not capture information on Pell Grant receipt. A known limitation in the Enhance Diversity Study is that the Pell Grant survey items did not capture *current or earlier eligibility* for a Pell Grant, as NIH criteria suggest, likely resulting in an undercount of disadvantaged backgrounds, a limitation common in

similar studies (Delisle, 2017; King, 2004; Kofoed, 2015). Please see the appendix for the coding of each response option and notes about how the item might have shifted over time.

## **Disadvantaged Background Items Unavailable for Flag Variable Creation**

Disadvantaged background items not adequately covered in the Enhance Diversity Study included eligibility for Free or Reduced Lunch (3.c.), receipt of Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) (3.f.), and residential zip code that would indicate a rural area or low-income and health professionals shortage area (3.g.).

The Federal Notice for Poverty Guidelines is used to determine financial eligibility for specific federal programs, including free and reduced-price lunch (FRPL) and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) (U.S. Department of Health and Human Services [HHS], 2019). The Food and Nutrition Service (FNS) of the USDA sets eligibility for free lunch at 130% and for reduced-price lunch at 185% of the federal income poverty guidelines (\$32,630 and \$46,435, respectively, for a family of four in the year 2018-2019) (Child Nutrition Programs: Income Eligibility Guidelines, 2019). Eligibility for WIC includes incomes up to 185% of the FPL (USDA, FNS, 2019). These thresholds are updated yearly according to the poverty thresholds established by the U.S. Census Bureau and adjusted by the Consumer Price Index.

TFS gathered family income estimates from survey respondents. The survey asked students to indicate the “best estimate of [their] parents’/guardians’ total income last year” (before taxes). Students could choose from 12 ordinal response options, including “Less than \$15,000,” “\$15,000 to \$24,999,” ... “\$259,000-\$499,000,” and “\$500,000 or higher.”

Several challenges were identified with using student-reported family income and the federal poverty guidelines to determine eligibility for the FRPL or WIC. First, the Enhance Diversity Study did not ask students about their “family size,” a necessary variable to identify federal poverty levels (FPL), which vary by household size. While imperfect, HERI typically handled this by designating a reported income below the FRPL for a family of four (default) as “low-income” (K. Eagan, personal communication, 2019). Second, survey response options shifted over time on TFS versions, and the ranges provided did not fall squarely above or below federal poverty lines, making the classification of responses imprecise. Third, federal poverty guidelines were higher in Alaska (where one of the BUILD sites is located) and Hawaii, with family-of-four levels (2019) ranging from \$25,750 in 48 states to \$29,620 in Hawaii to \$32,190 in Alaska. The TFS response options \$25,000-\$29,000 and \$30,000-\$59,999 proved difficult to classify each student into 130% and 185% FPL across sites. Fourth, given family income was only asked on the TFS and the item was restricted to *last year*, we were missing the bigger picture of childhood/adolescence (K-12 school lunch program) and early childhood (WIC eligibility includes pregnant women, infants, and children up to age five (FNS, 2019) SES. Fifth, we would have dealt with missing data for the study participants who entered the sample after their first year in college. The final challenge

in utilizing past family income to identify FRPL or WIC eligibility was the limitation inherent in student-report of parental income. Students tend to have difficulty providing accurate estimates of family income since they are often unaware of their parents' and other family members' incomes (Betts, 1996; Soria, Weiner, & Lu, 2014). It should also be noted that NIH guidelines specify *the receipt of support from WIC as parent or child* and not just family eligibility for WIC, further complicating the use of income as a determinant of disadvantaged backgrounds. Given the challenges in identifying FRPL and WIC eligibility/receipt through family income data, the CEC did not create either flag variable.

High school zip code, which was collected during some survey waves and may be available from institutional student records, could be used as a proxy for residential zip code with an unknown level of error. Given the risk of inaccurate student assignments and the extensive resources needed for coding, the CEC did not create a flag variable based on zip code data.

### **Defining Additional Demographic Flag Variables in the Enhance Diversity Study**

In addition to the primary WRG and URG designations described above, the CEC provided flag variables for important demographic variables that may be included in primary and/or secondary analyses involving Enhance Diversity Study data at both the national and local levels: woman, non-binary, sexual minority status, and gender minority status. In addition, a SG\_MINORITY composite variable was included to facilitate analyses. Table 7 lists the demographic flag variable names and indicates survey responses assigned 0/1 values (with corresponding labels) across Enhance Diversity Study surveys.

Table 7. Additional Demographic Flag Variables across the Enhance Diversity Study Student Surveys, 2019

<b>Demographic Variable</b>	<b>Value=0</b>	<b>Value=1</b>
<b>WOMAN</b>	<p><b>“Not Woman”</b></p> <p><b>TFS and CSS:</b> Man/Trans Man, Gender queer</p> <p><b>SAFS and NRMN Mentee:</b> Man, Trans Man, Gender queer</p>	<p><b>“Woman”</b></p> <p><b>TFS and CSS:</b> Woman/Trans Woman</p> <p><b>SAFS and NRMN Mentee:</b> Woman, Trans Woman</p>
<b>NON_BINARY</b>	<p><b>“Not Non-Binary”</b></p> <p><b>TFS and CSS:</b> Man/Trans Man, Woman/Trans Woman</p> <p><b>SAFS and NRMN Mentee:</b> Man, Trans Man, Woman, Trans Woman</p>	<p><b>“Non-Binary”</b></p> <p><b>TFS:</b> Gender queer/Gender non-conforming, Identity not listed above</p> <p><b>CSS, SAFS, and NRMN Mentee:</b> Gender queer/Gender non-conforming, Different identity (w/ free response on CSS)</p>
<b>SEXUAL_MINORITY</b>	<p><b>“Sexual Majority”</b></p> <p><b>TFS and CSS:</b> Heterosexual/Straight</p>	<p><b>“Sexual Minority”</b></p> <p><b>TFS and CSS:</b> Gay, Lesbian, Bisexual, Queer, Pansexual, Asexual, Not listed above</p>
<b>GENDER_MINORITY</b>	<p><b>“Gender Majority”</b></p> <p><b>TFS and CSS:</b> “No,” identify as transgender <u>AND</u> <b>TFS and CSS:</b> Man/Trans Man, Woman/Trans Woman</p> <p><b>SAFS and NRMN Mentee:</b> Man, Woman</p>	<p><b>“Gender Minority”</b></p> <p><b>TFS:</b> “Yes,” identify as transgender</p> <p><b>TFS:</b> Gender queer/Gender non-conforming, Identity not listed above</p> <p><b>CSS, SAFS, and NRMN Mentee:</b> Gender queer/Gender non-conforming, Different identity (w/ free response on CSS)</p>

*Note.* TFS=The Freshman Survey (HERI), CSS=College Senior Survey (HERI), and SAFS=Student Annual Follow-up Survey.

*Note.* For individuals who were designated as either a sexual or gender minority or both, a composite flag variable (SG\_MINORITY) was created.

### ***Demographic Flag Variable for Woman and Non-Binary***

Women, as a binary gender category, have received the majority of biomedical undergraduate degrees for some time (Valantine, Lund, and Gammie, Life Sciences Education, 2015). At the same time, the Notice of NIH's Interest in Diversity notes that women from underrepresented racial/ethnic groups, women with disabilities, and women from disadvantaged backgrounds "face particular challenges at the graduate level and beyond in scientific fields" (NOT-OD-20-031, 2019). Further, NIH "encourages institutions to consider women for faculty-level, diversity-targeted programs to address faculty recruitment, appointment, retention or advancement" (NOT-OD-20-031, 2019). Given the career progression focus of the DPC and considering gender is an important variable in many primary and secondary analyses using Enhance Diversity Study data, a flag variable for women was created.

Research shows women from underrepresented minority (URM) backgrounds are less likely than men and women from well-represented backgrounds, and less likely than men from URM backgrounds, to report employment interest in research universities after completing their doctoral training (Gibbs, McGready, Bennett, & Griffin 2014). Based on a sample of 1,500 recent biomedical science PhD graduates, women from URM backgrounds are most likely to report higher interest in non-research careers relative to men and women from well-represented backgrounds and men from URM backgrounds (Gibbs et al., 2014). Moreover, rates of faculty representation for women in Science, Technology, Engineering, and Math (STEM) are low in the U.S. (Li & Koedel, 2017). Based on a sample of faculty from 40 selective public universities ranked highly by the 2016 U.S. News & World Report, across universities, women comprised 18% to 31% of faculty in STEM fields, compared to 47% to 53% of faculty in non-STEM fields (Li & Koedel, 2017). These disparate career trends by gender highlight the importance of examining gender in the Enhance Diversity Study.

All four of the 2019 Enhance Diversity Study student surveys captured gender identity: TFS, CSS, SAFS, and NRMN Mentee. Responses including "Woman" and "Trans Woman" were coded as Woman. Respondents who indicated "Man/Trans Man," "Gender queer/Gender non-conforming," or "different identity" for gender identity were coded "not woman." A non-binary gender variable was also provided, with those who identified as Gender Queer, Gender Non-Conforming, Different Identity, or Identity not listed coded as "non-binary" and those who identified as Man or TransMan or Woman or TransWoman coded as "not non-binary." Please see the appendix for the coding of each response option and notes about how these items might have shifted over time.

### ***Demographic Flag Variables for Sexual Minority and Gender Minority***

In August 2019, the Sexual and Gender Minority Research Office (SGMRO) issued a notice regarding Sexual and Gender Minority (SGM) Populations in NIH-Supported Research. The notice states: "SGM populations include, but are not limited to, individuals who identify as lesbian, gay, bisexual, asexual, transgender, two-spirit, queer, and/or intersex. Individuals with same-sex or -gender attractions or behaviors

and those with a difference in sex development are also included. These populations also encompass those who do not self-identify with one of these terms but whose sexual orientation, gender identity or expression, or reproductive development is characterized by non-binary constructs of sexual orientation, gender, and/or sex” (NOT-OD-19-139).

SGM individuals face unique health challenges. As such, the National Institute on Minority Health and Health Disparities (NIMHD) and the Agency for Healthcare Research and Quality (AHRQ) designated SGM populations as a health disparity population (Sexual and Gender Minority Research Office, 2019). There is currently inadequate research on SGM representation in biomedical research to determine whether they are underrepresented. Providing an analysis flag in the Enhance Diversity study facilitates needed research on SGM students in biomedical research.

Enhance Diversity Study student surveys that captured sexual orientation included TFS, CSS, and SAFS (with items on SAFS from 2021-2023). Responses of “gay, lesbian, bisexual, queer, pansexual, asexual, and not listed above” were coded positively for sexual minority status. Please see the appendix for the coding of each response option and notes about how these items might have shifted over time.

All four Enhance Diversity Study student surveys captured gender minority status: TFS, CSS, SAFS, and NRMN Mentee. Responses including “Trans Man,” “Trans Woman,” “Different identity” (with further inspection), and “Gender queer/Gender non-conforming” were coded positively for gender minority status. Please see the appendix for the coding of each response option and notes about how these items might have shifted over time.

## **Composite Flag Variables for URG\_MEMBER and SG\_MINORITY**

In addition to the primary flag variables described above, composite flag variables were created for individuals belonging to an underrepresented group and/or individuals belonging to sexual and gender minority (SGM) populations. The URG\_MEMBER flag variable captures underrepresented group membership in any form at any point in time. URG\_MEMBER was computed based on classification in one or more of the primary URG sub-constructs: race/ethnicity, disability, and disadvantaged backgrounds (two or more: homeless, foster youth, FGCS, and Pell receipt). If, at any point in time during the Enhance Diversity Study, an individual’s responses were coded positively for any primary URG designation, a value “Yes, URG” was assigned to the URG\_MEMBER flag variable.

For individuals who were designated as either a sexual or gender minority or both, a flag variable (SG\_MINORITY) was created. SG\_MINORITY is a composite variable computed based on classification in GENDER\_MINORITY and/or SEXUAL\_MINORITY variables. If, at any point in time during the Enhance Diversity Study, an individual’s responses were coded positively for sexual or gender minority, a value “Yes, SGM” was assigned to the SG\_MINORITY flag variable.

## Considerations for Future Studies

This technical report details recommendations for WRG and URG designations consistent with populations NIH has identified as underrepresented in the US biomedical research enterprise to guide primary DPC analyses. Those involved in future research and evaluation efforts should consider explicitly using survey items that capture demographic characteristics useful in categorizing individuals into URG or WRG categories, namely race/ethnicity, gender, physical and mental disability, and disadvantaged background experiences (homeless, foster care, parent/guardian education level, zip code (rural area or low-income and health professional shortage area), receipt of Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and eligibility for Federal Free and Reduced Lunch and/or Federal Pell grants). Particular attention should be paid to the use of qualifying phrases in the formatting of survey items to ensure that data has been collected in a way that accurately operationalizes URG categories (e.g., “*were or currently are homeless*,” “*eligible for Federal Free and Reduced Price Lunch for two years or more*,” “*grew up in a U.S. rural area*,” “*a disability that substantially limits one or more major life activities*”). Researchers and evaluators are encouraged to describe and operationalize definitions of WRG and URG used in all DPC-affiliated publications. The CEC hopes this technical report helps promote consistent definitions of the URG categories in DPC publications while allowing for more nuanced analyses of evaluation findings.

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## Suggested Citation for the Technical Report:

Maccalla, N.M.G., Gutierrez, A., Zhong, S., Wallace, S.P., McCreath, H.E., & Eagan, K. (2023). Updated *TECHNICAL REPORT: Evaluation of Post-secondary Student Outcomes: Defining Well-Represented (WRG) and Underrepresented (URG) Groups in the Diversity Program Consortium’s Enhance Diversity Study using the November 2019 NIH Guidelines*. Los Angeles, CA: Diversity Program Consortium Coordination and Evaluation Center at UCLA.

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## Appendix - Enhance Diversity Study Student Survey Items with Coded Response Options (2015-2023)

For all flag variables described, coding for Under-represented Group (URG) and Well-represented Group (WRG) unless otherwise noted:

**0 = WRG**

**1 = URG**

**98 = Missing value – individual participated in at least one survey with item(s) but did not respond to the item(s)**

**99 = Missing value – individual did not participate in any survey with item(s)**

### 1. URG\_RACEETHNICITY

Coding for WRG or URG is indicated next to each survey response option (0, 1, or missing value).

#### HERI Survey Item(s)

**TFS: (2019 #12; 2018 #11; 2017 #11; 2016 #10; 2015 #38\*)**

**YFCY: (2016 #2)**

**Interim: (2016 #2)**

**CSS: (2023 #6; 2022 #6; 2021 #6; 2020 #6; 2019 #3; 2018 #2; 2017 #2)**

Are you: (Mark all that apply)

White/Caucasian = **0**

African American/Black = **1**

American Indian/Alaskan Native = **1**

East Asian (e.g., Chinese, Japanese, Korean, Taiwanese) = **0**

Filipina/o/x = **0**

Southeast Asian (e.g. Cambodian, Vietnamese, Hmong) = **0**

South Asian (e.g., Indian, Pakistani, Nepalese, Sri Lanka) = **0**

Other Asian = **0**

Native Hawaiian/Pacific Islander = **1**

Mexican American/Chicana/o/x = **1**

Puerto Rican = **1**

South American = **1**

Central American = **1**

Other Latina/o/x = **1**

Other = **missing value**

\*Filipina/o/x is classified as Southeast Asian in 2015 surveys

\*South American is only available in 2019 through 2023 surveys

\*Central American is only available in 2021 through 2023 surveys

## **CEC Survey Items Prior to 2019**

### **SAFS: (2018 #71; 2017 #49) (for first-time survey respondents)**

Are you Hispanic, Latino/a, or of Spanish origin?

No (Response option = 1 on survey) = **0**

Yes (Response option = 2 on survey) = **1**

Choose not to answer (Response option = 3 on survey) = **missing value**

### **SAFS: (2018 #72\*); 2017 #50) (for first-time survey respondents only)**

Select all boxes that apply and/or enter details in the space below.

What is your race? Check all that apply

White = **0**

Black or African American = **1**

American Indian or Alaskan Native = **1**

Asian Indian = **0**

Chinese = **0**

Filipino = **0**

Japanese = **0**

Vietnamese = **0**

Other Asian = **0**

Native Hawaiian = **1**

Guamanian or Chamorro = **1**

Samoan = **1**

Other Pacific Islander = **1**

\*Other (Specify) = **inspect for further classification; missing value if left blank**

## **CEC Survey Items Since 2019**

**SAFS: (2023 #29; 2022 #38; 2021 #38; 2020 #41 for first-time survey respondents only; 2019 #44 for first-time survey respondents only)**

**NRMN Mentee: (2019 #58)**

For each endorsed item below, additional follow-up items are provided for detail.

Are you: (Mark all that apply)

White – For example, German, Irish, English, Italian, Polish, French, etc. = **0**

Hispanic, Latino/a, or Spanish Origin – For example, Mexican or Mexican American, Puerto Rican, Dominican, Salvadoran, Peruvian, Mestizo, Chicano, etc. = **1**

Black or African American – For example, Jamaican, Haitian, Nigerian,

Ethiopian, Somali, Creole, Caribbean, etc. = 1

*Wording for SAFS 2019 and 2020:* American Indian or Alaskan Native – For example, Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Quechua, Native Village of Barrow Inupiat Traditional Government, Nome Eskimo Community, etc. = 1

*Wording for SAFS 2021 through 2023:* Native American, Indigenous, First Nations, American Indian or Alaska Native – For example, Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Quechua, Native Village of Barrow Inupiat Traditional Government, Nome Eskimo Community, etc. = 1

Asian – For example, Chinese, Filipino, Asian Indian, Vietnamese, Korean, Japanese, etc. = 0

Native Hawaiian or Other Pacific Islander – For example, Native Hawaiian, Samoan, Guamanian or Chamorro, Tongan, Fijian, Marshallese, etc. = 1

Middle Eastern or North African – For example, Lebanese, Iranian, Egyptian, Syrian, Moroccan, Algerian, Armenian, etc. = 0

Some other race, ethnicity, or origin (Specify: \_\_\_\_\_) = **inspect for further classification; missing value if left blank and no other answers provided**

Note. Table 4 lists in detail survey response options for Enhance Diversity Study student surveys (2019) that should load to each of the broad racial/ethnic subgroup reference file flags: WRG\_ASIAN; WRG\_MENA; WRG\_WHITE; URG\_AIAN; URG\_BLACK; URG\_LATINX; and URM\_NHPI.

### **Institutional Records Data**

Information from institutional records was used to populate race/ethnicity flags for an individual if all values were missing from survey data (98 or 99). Categories used by institutions varied but were matched in accordance with the survey coding noted above.

## **2. URG\_DISABILITY**

**Note. Survey items addressing disability status were not included in the CSS surveys.**

**TFS: (2019 #49; 2018 #47; 2016 #49)**

**Interim: (2016 #40)**

**WRG: No (response option = 1 on survey) for ALL items or No for any item with skipped/missing data for ALL other items = 0**

**URG: Yes (response option = 2 on survey) for at least ONE item = 1**

Do you have any of the following disabilities or medical conditions? (Mark Yes or No for each item)

Learning disability (dyslexia, etc.)

Attention deficit hyperactivity disorder (ADHD)

Autism spectrum disorder

Physical disability (speech, sight, mobility, hearing, etc.)

Chronic illness (cancer, diabetes, autoimmune disorders, etc.)

Psychological disorder (depression, etc.)

Other

**SAFS: (2023 #27; 2022 #36; 2021 #36; 2020 #39; 2019 #41)**

Are any of the following statements true for you?

- I am deaf or have serious difficulty hearing
- I am blind or have serious difficulty seeing, even when wearing glasses
- I have serious difficulty concentrating, remembering, or making decisions because of a physical, mental, or emotional condition
- I have serious difficulty walking or climbing stairs
- I have difficulty dressing or bathing
- I have difficulty doing errands alone, such as visiting a doctor's office or shopping because of a physical, mental, or emotional condition

No, none of these statements are true for me (response option = 1 on survey) = **0**

Yes, at least one of these statements is true for me (response option = 2 on survey) = **1**

I choose not to answer (response option = 3 on survey) = **missing value**

**SAFS: (2023 #28; 2022 #37; 2021 #37; 2020 #40; 2019 #42)**

Have you registered with your school's Office of Disability/Student Accessibility?

No (response option = 1 on survey) = **missing value (cannot affirm/deny with this response option alone – must look at a secondary item)**

Yes (response option = 2 on survey) = **1**

I choose not to answer (response option = 3 on survey) = **missing value (cannot affirm/deny with this response option alone – must look at a secondary item)**

**SAFS (2018 #70; 2017 #48)**

**NRMN Mentee: (2016 #37; 2018 #53)**

**WRG: No (response option = 1 on survey) for ALL items or No for any item with skipped/missing data for ALL other items = 0**

**URG: Yes (response option = 2 on survey) for at least ONE item = 1**

Please indicate Yes or No for each of the following:

Are you deaf, or do you have serious difficulty hearing?

Are you blind, or do you have serious difficulty seeing, even when wearing glasses?

Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions?

Do you have serious difficulty walking or climbing stairs?

Do you have difficulty dressing or bathing?

Because of a physical, mental, or emotional condition, do you have difficulty doing errands alone, such as visiting a doctor's office or shopping?

### **3. URG\_HOMELESS**

**Note. Survey items addressing homelessness status were included in the following surveys: TFS 2018-2019, CSS 2018-2023, and SAFS 2021-2023.**

**CSS: (2023 #31; 2022 #35; 2021 #32; 2020 #27; 2019 #27; 2018 #16)**

Since entering college, have you: (Mark Yes or No for each item)

**Been homeless for one month or more**

No (response option = 1 on survey) = 0

Yes (response option = 2 on survey) = 1

**TFS: (2019 #30; 2018 #28)**

In your lifetime, have you been homeless for at least one month?

No (response option = 1 on survey) = 0

Yes (response option = 2 on survey) = 1

**SAFS: (2023 #32; 2022 #42; 2021 #42)**

Since entering college, have you been homeless for one month or more?

No (response option = 1 on survey) = 0

Yes (response option = 2 on survey) = 1

I choose not to answer = **missing value**



#### 4. URG\_FOSTER

**Note. Survey items addressing foster youth status were included in the following surveys: TFS 2016-2018 and SAFS 2019-2023.**

**TFS: (2018 #20; 2017 #21; 2016 #22)**

**SAFS: (2023 #33; 2022 #43; 2021 #43; 2020 #10 for first-time survey respondents only; 2019 #11 for first-time survey respondents only)**

At any time since you were 13, were you in foster care, or were you a dependent of the court?

No (response option = 1 on survey) = **0**

Yes (response option = 2 on survey) = **1**

I do not know, or I choose not to answer = **missing value**

#### 5. URG\_FGCS (primary construct – neither parent or guardian graduated with a bachelor's degree)

**Note. Survey items addressing the educational attainment of parents/guardians are not included on the CSS, NRMN Mentee, or YFCY surveys.**

**TFS: (2019 #36; 2018 #34; 2017 #35; 2016 #36; 2015 #36)**

**SAFS: (2022 #44; 2021 #44; 2020 #12; 2019 #13; 2018 #16) (for first-time survey respondents only)**

**Interim: (2016 #18\*)**

**WRG: Yes, EITHER parent/guardian has obtained a College degree (6), Some graduate school (7), or Graduate degree (8) = 0**

**URG: Yes, EACH/BOTH parent/guardian has obtained, or one parent guardian has obtained (and data is missing for the other), Junior high/Middle school or less (1), Some high school (2), High school graduate (3), Postsecondary school other than college (4), or Some college (5) = 1 = First-generation College Student (FGCS)**

What is the highest level of formal education obtained by your parents/guardians?

Parent /Guardian 1

Parent/Guardian 2

Junior high/Middle school or less (response option = 1 on survey)

Some high school (response option = 2 on survey)

High school graduate (response option = 3 on survey)

Postsecondary school other than college (response option = 4 on survey)

Some college (response option = 5 on survey)

College degree (response option = 6 on survey)

Some graduate school (response option = 7 on survey)

Graduate degree (response option = 8 on survey)

I choose not to answer (response option = 9 on survey)

\*No "I choose not to answer" option in Interim 2016

### **Institutional Records Data**

Information from institutional records was used to populate the FGCS flag for an individual that had missing values from survey data (98 or 99).

#### **6. URG\_FGCSATTEND (secondary construct - neither parent or guardian entered/attended college)**

**Note. Survey items addressing the educational attainment of parents/guardians are not included on the CSS, NRMN Mentee, or YFCY surveys.**

**TFS: (2019 #36; 2018 #34; 2017 #35; 2016 #36)**

**SAFS: (2022 #44; 2021 #44; 2020 #12; 2019 #13; 2018 #16) (for first-time survey respondents)**

**Interim: (2016 #18\*)**

**WRG: Yes, EITHER parent/guardian has obtained Some college (5), College degree (6), Some graduate school (7), Graduate degree (8) = 0**

**URG: EACH/BOTH parent/guardian has obtained, or one parent guardian has obtained (and data is missing for the other), Junior high/Middle school or less (1), Some high school (2), High school graduate (3), or Postsecondary school other than college (4) = 1 = (FGCS\_ATTEND)**

What is the highest level of formal education obtained by your parents/guardians?

Parent /Guardian 1

Parent/Guardian 2

Junior high/Middle school or less (response option = 1 on survey)

Some high school (response option = 2 on survey)

High school graduate (response option = 3 on survey)

Postsecondary school other than college (response option = 4 on survey)

Some college (response option = 5 on survey)

College degree (response option = 6 on survey)

Some graduate school (response option = 7 on survey)

Graduate degree (response option = 8 on survey)

I choose not to answer (response option = 9 on survey)

\*No "I choose not to answer" option in Interim 2016

### **Institutional Records Data**

Information from institutional records was used to populate the FGCSATTEND flag for an individual that had missing values from survey data (98 or 99).

## **7. URG\_PELL**

**Note. Survey items addressing Pell Grant receipt are included in the following surveys: TFS 2018-2019 and SAFS 2019-2023.**

**TFS: (2019 #28; 2018 #26; 2017 #27; 2016 #28; 2015 #29)**

Did you receive any of the following forms of financial aid? (Mark Yes (response option = 2 on survey) or No (response option = 1 on survey) for each item)

Military grants

Work-study

**Pell Grant (No = 0; Yes = 1)**

Need-based grants or scholarships

Merit-based grants or scholarships

**SAFS: (2023 #34; 2022 #45; 2021 #45; 2020 #13 for first-time survey respondents only; 2019 #14 for first-time survey respondents only)**

Have you received any Pell Grant funding for financial aid?

No (response option = 1 on survey) = **0**

Yes (response option = 2 on survey) = **1**

I choose not to answer (response option = 3 on survey) = **missing value**

## **8. URG\_MEMBER\***

URG\_Member is a composite variable, computed based upon classification in primary URG sub-constructs: URG\_RaceEthnicity, URG\_Disability, and disadvantaged background (two or more: URG\_Homeless, URG\_Foster, URG\_Pell, and URG\_FGCS) (1-5 and 7, above).

**WRG: IF NO to ALL of the primary URG designations at ALL times = 0**

**URG: IF YES to ANY of the primary URG designations at ANY point in time = 1 (URG\_RaceEthnicity + URG\_Disability is equal to or greater than 1 = 1, or URG\_Homeless + URG\_Foster + URG\_Pell + URG\_FGCS is equal to or greater than 2 = 1)**

**Missing: If all sub-constructs = 98 or 99**

**Note: If some primary designations = 98 but other designations = 0, URG\_MEMBER = 0**

## **9. WOMAN**

**Woman = 0 = Not Woman (i.e., man, non-binary, other)**

**Woman = 1 = Woman**

### **TFS: (2019 #2)**

What is your current gender identity?

Man/Trans Man (response option = 1 on survey) = **0**

Woman/Trans Woman (response option = 2 on survey) = **1**

Gender queer/Gender non-conforming (response option = 3 on survey) = **0**

Identity not listed above (response option = 4 on survey) = **0**

### **TFS: (2018 #1)**

What is your current gender identity?

Man (response option = 1 on survey) = **0**

Woman (response option = 2 on survey) = **1**

Trans Man (response option = 3 on survey) = **0**

Trans Woman (response option = 4 on survey) = **1**

Gender queer/Gender non-conforming (response option = 5 on survey) = **0**

Different identity (response option = 6 on survey) = **0**

### **TFS: (2017 #1; 2016 #1; 2015 #1)**

#### **CSS: (2017 #1)**

#### **YFCY: (2016 #1)**

#### **Interim: (2016 #1)**

Your sex

Male (response option = 1 on survey) = **0**

Female (response option = 2 on survey) = **1**

### **CSS: (2023 #5; 2022 #5; 2021 #5)**

What is your current gender identity?

Man (response option = 1 on survey) = **0**

Woman (response option = 2 on survey) = **1**

Non-binary (response option = 3 on survey) = **0**

Gender queer/Gender non-conforming (response option = 4 on survey) = **missing value**

Identity not listed above (please state): [Free response] (response option = 5 on survey) = **0 (inspect free response to refine classification, if needed)**

**CSS: (2020 #5)**

What is your current gender identity?

Man/Trans Man (response option = 1 on survey) = **0**

Woman/Trans Woman (response option = 2 on survey) = **1**

Non-binary (response option = 3 on survey) = **0**

Gender queer/Gender non-conforming (response option = 4 on survey) = **0**

Identity not listed above (please state): [Free response] (response option = 5 on survey) = **0 (inspect free response to refine classification, if needed)**

**CSS: (2019 #2)**

What is your current gender identity?

Man/Trans Man (response option = 1 on survey) = **0**

Woman/Trans Woman (response option = 2 on survey) = **1**

Gender queer/Gender non-conforming (response option = 3 on survey) = **0**

Different identity (please state): [Free response] (response option = 4 on survey) = **0 (inspect free response to refine classification, if needed)**

**CSS: (2018 #1)**

What is your current gender identity?

Man (response option = 1 on survey) = **0**

Woman (response option = 2 on survey) = **1**

Trans Man (response option = 3 on survey) = **0**

Trans Woman (response option = 4 on survey) = **1**

Gender queer/Gender non-conforming (response option = 5 on survey) = **0**

Not listed above (response option = 6 on survey) = **0**

**SAFS: (2023 #30; 2022 #40; 2021 #41; 2020 #43 for first-time survey respondents only)**

What is your current gender identity?

Man (response option = 1 on survey) = **0**

Trans Man (response option = 2 on survey) = **0**  
Woman (response option = 3 on survey) = **1**  
Trans Woman (response option = 4 on survey) = **1**  
Gender queer/Gender non-conforming (response option = 5 on survey) = **0**  
Different identity (response option = 6 on survey) = **0**  
I choose not to answer (response option = 7 on survey) = **missing value**

**SAFS: (2019 #45; 2018 #73) (for first-time survey respondents)**

**NRMN Mentee: (2019 #59)**

What is your current gender identity?

Man (response option = 1 on survey) = **0**  
Woman (response option = 2 on survey) = **1**  
Trans Man (response option = 3 on survey) = **0**  
Trans Woman (response option = 4 on survey) = **1**  
Gender queer/Gender non-conforming (response option = 5 on survey) = **0**  
Different identity (response option = 6 on survey) = **0**  
I choose not to answer (response option = 7 on survey) = **missing value**

### **Institutional Records Data**

Information from institutional records was used to populate the WOMAN flag for an individual that had missing values from survey data (98 or 99).

## **10. NON\_BINARY**

**Man or TransMan = 0 = Not Non-Binary**

**Woman or TransWoman = 0 = Not Non-Binary**

**Gender Queer, Gender Non-Conforming, Different Identity, or Identity not listed above = 1 = Non-Binary**

**TFS: (2019 #2)**

What is your current gender identity?

Man/Trans Man (response option = 1 on survey) = **0**  
Woman/Trans Woman (response option = 2 on survey) = **0**  
Gender queer/Gender non-conforming (response option = 3 on survey) = **1**  
Identity not listed above (response option = 4 on survey) = **1**

**TFS: (2018 #1)**

What is your current gender identity?

Man (response option = 1 on survey) = **0**

Woman (response option = 2 on survey) = **0**

Trans Man (response option = 3 on survey) = **0**

Trans Woman (response option = 4 on survey) = **0**

Gender queer/Gender non-conforming (response option = 5 on survey) = **1**

Different identity (response option = 6 on survey) = **1**

**TFS: (2017 #1; 2016 #1; 2015 #1)**

**CSS: (2017 #1)**

**YFCY: (2016 #1)**

**Interim: (2016 #1)**

Your sex

Male (response option = 1 on survey) = **0**

Female (response option = 2 on survey) = **0**

**CSS: (2023 #5; 2022 #5; 2021 #5)**

What is your current gender identity?

Man (response option = 1 on survey) = **0**

Woman (response option = 2 on survey) = **0**

Non-binary (response option = 3 on survey) = **1**

Gender queer/Gender non-conforming (response option = 4 on survey) = **1**

Identity not listed above (please state): [Free response] (response option = 5 on survey) = **1 (inspect free response to refine classification, if needed)**

**CSS: (2020 #5)**

What is your current gender identity?

Man/Trans Man (response option = 1 on survey) = **0**

Woman/Trans Woman (response option = 2 on survey) = **0**

Non-binary (response option = 3 on survey) = **1**

Gender queer/Gender non-conforming (response option = 4 on survey) = **1**

Identity not listed above (please state): [Free response] (response option = 5 on survey) = **1 (inspect free response to refine classification, if needed)**

**CSS: (2019 #2)**

What is your current gender identity?

Man/Trans Man (response option = 1 on survey) = **0**

Woman/Trans Woman (response option = 2 on survey) = **0**

Gender queer/Gender non-conforming (response option = 3 on survey) = **1**

Different identity (please state): [Free response] (response option = 4 on survey) = **1 (inspect free response to refine classification, if needed)**

**CSS: (2018 #1)**

What is your current gender identity?

Man (response option = 1 on survey) = **0**

Woman (response option = 2 on survey) = **0**

Trans Man (response option = 3 on survey) = **0**

Trans Woman (response option = 4 on survey) = **0**

Gender queer/Gender non-conforming (response option = 5 on survey) = **1**

Not listed above (response option = 6 on survey) = **1**

**SAFS: (2023 #30; 2022 #40; 2021 #41; 2020 #43 for first-time survey respondents only)**

What is your current gender identity?

Man (response option = 1 on survey) = **0**

Trans Man (response option = 2 on survey) = **0**

Woman (response option = 3 on survey) = **0**

Trans Woman (response option = 4 on survey) = **0**

Gender queer/Gender non-conforming (response option = 5 on survey) = **1**

Different identity (response option = 6 on survey) = **1**

I choose not to answer (response option = 7 on survey) = **missing value**

**SAFS: (2019 #45; 2018 #73) (for first-time survey respondents)**

**NRMN Mentee: (2019 #59)**

What is your current gender identity?

Man (response option = 1 on survey) = **0**

Woman (response option = 2 on survey) = **0**

Trans Man (response option = 3 on survey) = **0**

Trans Woman (response option = 4 on survey) = **0**

Gender queer/Gender non-conforming (response option = 5 on survey) = **1**



Different identity (response option = 6 on survey) = 1  
I choose not to answer (response option = 7 on survey) = missing value

### **Institutional Records Data**

Information from institutional records was used to populate the NONBINARY flag for an individual that had missing values from survey data (98 or 99).

## **11. SEXUAL\_MINORITY**

**Note. Survey items addressing sexual orientation have not appeared on the NRMN Mentee or Interim surveys.**

**Sexual Majority (No, not a Sexual Minority) = 0**

**Yes, a Sexual Minority = 1**

**TFS: (2019 #3; 2018 #2)**

**CSS: (2019 #8; 2018 #7)**

What is your sexual orientation?

Heterosexual/Straight (response option = 1 on survey) = 0

Gay (response option = 2 on survey) = 1

Lesbian (response option = 3 on survey) = 1

Bisexual (response option = 4 on survey) = 1

Queer (response option = 5 on survey) = 1

Pansexual (response option = 6 on survey) = 1

Asexual (response option = 7 on survey) = 1

Not listed above (response option = 8 on survey) = 1

**TFS: (2017 #46; 2016 #47; 2015 #48)**

**CSS: (2017 #8)**

What is your sexual orientation?

Heterosexual/Straight (response option = 1 on survey) = 0

Gay (response option = 2 on survey) = 1

Lesbian (response option = 3 on survey) = 1

Bisexual (response option = 4 on survey) = 1

Queer (response option = 5 on survey) = 1

Other (response option = 6 on survey) = 1

**CSS: (2023 #8; 2022 #8; 2021 #8; 2020 #8)**

What is your sexual orientation?

Heterosexual/Straight (response option = 1 on survey) = 0

Asexual (response option = 2 on survey) = 1  
Bisexual (response option = 3 on survey) = 1  
Gay (response option = 4 on survey) = 1  
Lesbian (response option = 5 on survey) = 1  
Pansexual (response option = 6 on survey) = 1  
Queer (response option = 7 on survey) = 1  
Not listed above (response option = 8 on survey) = 1

**SAFS: (2023 #31; 2022 #41; 2021 #41)**

What is your sexual orientation?

Heterosexual/Straight (response option = 1 on survey) = 0  
Asexual (response option = 2 on survey) = 1  
Bisexual (response option = 3 on survey) = 1  
Gay (response option = 4 on survey) = 1  
Lesbian (response option = 5 on survey) = 1  
Pansexual (response option = 6 on survey) = 1  
Queer (response option = 7 on survey) = 1  
Not listed above (response option = 8 on survey) = 1  
I choose not to answer = **missing value**

**12. GENDER\_MINORITY**

**Gender Majority (No, not a Gender Minority) = 0**

**Yes, a Gender Minority = 1**

**TFS: (2017 #2; 2016 #48; 2015 #49)**

**YFCY: (2016 #4)**

**CSS: ( 2017 #2)**

Do you identify as transgender?

Yes (response option = 2 on survey) = 1  
No (response option = 1 on survey) = 0

**TFS: (2019 #1 (& #2))**

**CSS: (2023 #4 (& #5); 2022 #4 (& #5); 2021 #4 (& #5); 2020 #4 (& #5); 2019 #1 (& #2))**

Do you identify as transgender?

Yes (response option = 2 on survey) = 1  
No (response option = 1 on survey) = **see gender identity item on survey**

**TFS: (2019 #2)**

What is your current gender identity?

Man/Trans Man (response option = 1 on survey) = **0 (ONLY if answer to #1 on same survey = "No")**

Woman/Trans Woman(response option = 2 on survey) = **0 (ONLY if answer to #1 on same survey = "No")**

Gender queer/Gender non-conforming (response option =3 on survey) = **1**

Identity not listed above (response option = 4 on survey) = **1**

**CSS: (2019 #2)**

What is your current gender identity?

Man/Trans Man = **0 (ONLY if answer to #1 on same survey = "No")**

Woman/Trans Woman = **0 (ONLY if answer to #1 on same survey = "No")**

Genderqueer/Gender non-conforming = **1**

Different identity (please state): [Free response] = **inspect for further classification; most likely = 1**

**CSS: (2020 #5)**

What is your current gender identity?

Man/Trans Man = **0 (ONLY if answer to #1 on same survey = "No")**

Woman/Trans Woman = **0 (ONLY if answer to #1 on same survey = "No")**

Non-binary = **1**

Genderqueer/Gender non-conforming = **1**

Different identity (please state): [Free response] = **inspect for further classification; most likely = 1**

**CSS: (2023 #5; 2022 #5; 2021 #5)**

What is your current gender identity?

Man (response option = 1 on survey) = **0**

Woman (response option = 2 on survey) = **1**

Non-binary (response option = 3 on survey) = **1**

Genderqueer/Gender non-conforming (response option = 4 on survey) = **1**

Identity not listed above (please state): [Free response] (response option = 5 on survey) = **inspect for further classification; most likely = 1**

**TFS: (2018 #1)**

What is your current gender identity?

Man (response option = 1 on survey) = **0**

Woman (response option = 2 on survey) = 0  
Trans Man (response option = 3 on survey) = 1  
Trans Woman (response option = 4 on survey) = 1  
Gender queer/Gender non-conforming (response option =5 on survey) = 1  
Different identity (response option = 6 on survey) = **inspect for further classification; most likely = 1**

**YFCY: (2016 #5)**

What is your current gender identity?

Man/Trans Man (response option = 1 on survey) = 0 (**ONLY if answer to #1 on same survey = “No”**)

Woman/Trans Woman (response option = 2 on survey) = 0 (**ONLY if answer to #1 on same survey = “No”**)

Non-binary (response option = 3 on survey) = 1

Gender queer/Gender non-conforming (response option =4 on survey) = 1

Identity not listed above (please state): [Free response] (response option = 5 on survey) = **inspect for further classification; most likely = 1**

**CSS: (2018 #1)**

What is your current gender identity?

Man (response option = 1 on survey) = 0

Woman (response option = 2 on survey) = 0

Trans Man (response option = 3 on survey) = 1

Trans Woman (response option = 4 on survey) = 1

Gender queer/Gender non-conforming (response option =5 on survey) = 1

Not listed above (response option = 6 on survey) = 1

**SAFS: (2023 #30; 2022 #40; 2021 #41; 2020 #43 for first-time survey respondents only)**

What is your current gender identity?

Man (response option = 1 on survey) = 0

Trans Man (response option = 2 on survey) = 1

Woman (response option = 3 on survey) = 0

Trans Woman (response option = 4 on survey) = 1

Gender queer/Gender non-conforming (response option = 5 on survey) =1

Different identity (response option = 6 on survey) = 1

I choose not to answer (response option = 7 on survey) = **missing value**

**SAFS: (2019 #45; 2018 #73) (for first-time survey respondents only)**  
**NRMN Mentee: (2019 #59)**

What is your current gender identity? (SAFS 2019 #45)

Man (response option = 1 on survey) = **0**

Woman (response option = 2 on survey) = **0**

Trans Man (response option = 3 on survey) = **1**

Trans Woman (response option = 4 on survey) = **1**

Gender queer/Gender non-conforming (response option =5 on survey) = **1**

Different identity (response option = 6 on survey) = **1**

I choose not to answer (response option = 7 on survey) = **missing value**

**Institutional Records Data**

Information from institutional records was used to populate the GENDER\_MINORITY flag for an individual that had missing values from survey data (98 or 99).

**13.SG\_MINORITY\***

SG\_MINORITY is a composite variable computed based on classification in GENDER\_MINORITY and SEXUAL\_MINORITY (11-12, above).

**No, SGM: NO to BOTH SEXUAL\_MINORITY and GENDER\_MINORITY at ALL times = 0**

**Yes, SGM: IF YES to EITHER SEXUAL\_MINORITY or GENDER\_MINORITY at ANY point in time (SEXUAL\_MINORITY + GENDER\_MINORITY is equal to or greater than 1 ) = 1**



The authors prepared this manuscript on behalf of the Diversity Program Consortium. Work reported in this publication was supported by the Office of The Director, National Institutes of Health Common Fund and Office of Scientific Workforce Diversity awards UL1GM118979, UL1GM118976, UL1GM118973, UL1GM118964, UL1GM118985, UL1GM118991, UL1GM118982, UL1GM118988, UL1GM118970, UL1GM118967, and U54GM119024 administered by the National Institute of General Medical Sciences. The work is solely the responsibility of the authors and does not necessarily represent the official view of the National Institutes of Health.

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