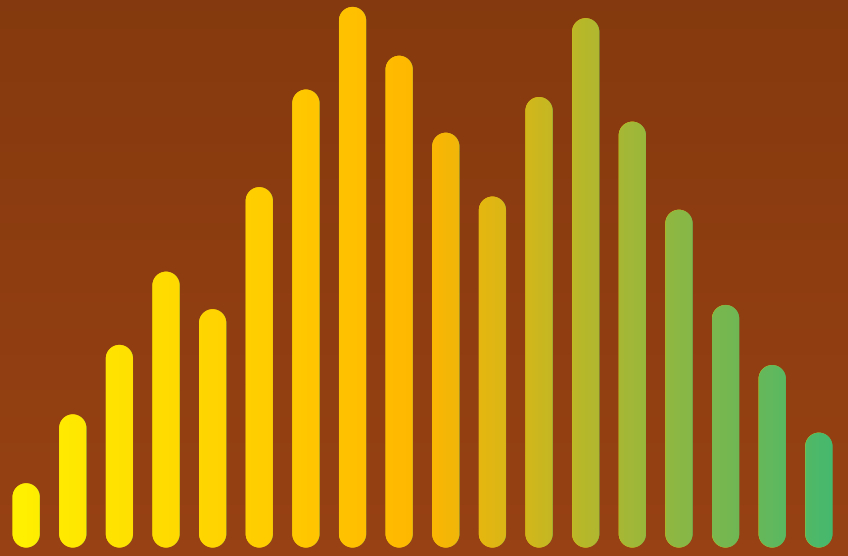
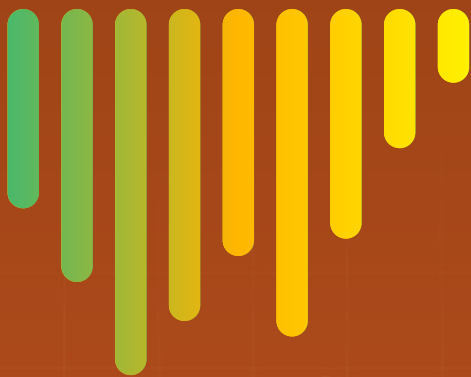


**Sexual & Gender
Minority Research**



PORTFOLIO ANALYSIS



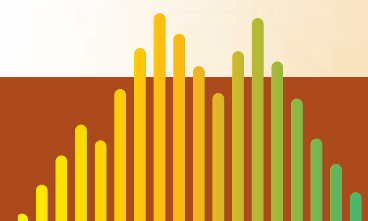
Fiscal Year 2021



National Institutes of Health
Sexual & Gender Minority Research Office

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INTRODUCTION

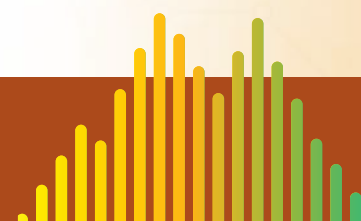
The mission of the National Institutes of Health (NIH) is to seek fundamental knowledge about the nature and behavior of living systems and apply that knowledge to enhance health, lengthen life, and reduce illness and disability. As part of that mission, NIH strives to support a range of biomedical, clinical, behavioral, and social science research to improve and protect the health of all sexual and gender minorities (SGM) (please see [NOT-OD-19-139](#) for more information), and it has a specific interest in the disease areas and health conditions that most disparately affect these individuals. The populations included in the SGM portfolio at NIH are defined as follows:

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.

The NIH [Sexual & Gender Minority Research Office \(SGMRO\)](#) coordinates SGM research and related activities by working directly with NIH's 27 Institutes and Centers (ICs) and the Office of the Director (OD). SGMRO also serves as a resource on SGM health and research for NIH and extramural research and engaged communities. For this reason, SGMRO is located within the OD—the central office responsible for setting NIH policy and for planning, managing, and coordinating the programs and activities of all NIH components—and resides more specifically within the Division of Program Coordination, Planning, and Strategic Initiatives.

In 2015, NIH developed the first agencywide [strategic plan](#) devoted to advancing SGM health research and established SGMRO to help eliminate barriers to conducting SGM-related research. In October 2016, NIH designated SGM as a health disparity population for research. This designation builds upon previous steps taken by NIH to advance SGM health research. The health disparity population designation marked an important step in realizing NIH's mission to advance health research relevant to all Americans. The [NIH Strategic Plan to Advance Research on the Health and Well-being of Sexual & Gender Minorities Fiscal Years 2021–2025](#) details SGM health- and research-related goals.

The *NIH Sexual & Gender Minority Research Portfolio Analysis Fiscal Year 2021* highlights the SGM-related research portfolio and aims to both describe the full portfolio of SGM health research and provide insights into opportunities for continued and expanded focus. This analysis also serves as a central metric that NIH uses to track progress on the SGM Research Strategic Plan.



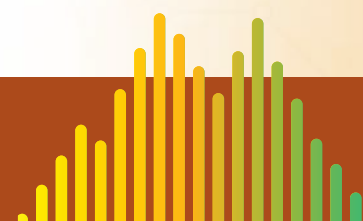
METHODS

The projects included in the *NIH Sexual & Gender Minority Research Portfolio Analysis Fiscal Year 2021* are NIH-funded grants classified under the “Sexual and Gender Minorities (SGM/LGBT*)” [Research, Condition, and Disease Categories \(RCDC\)](#) in the NIH [RePORTER](#) database. In fiscal year 2015 (FY15), “Sexual and Gender Minorities (SGM/LGBT*)” was added to the RCDC system, which currently comprises more than 300 research areas, conditions, and diseases. Funding amounts derived from RCDC are estimated based on the SGM fingerprint—a text-mining approach—and the grant funds attributed to projects in the category. The FY21 estimate of SGM projects and spending constitutes the seventh annual analysis to include those data. RCDC uses text data mining (categorizing and clustering words and multiword phrases) in conjunction with a description called a “fingerprint,” consisting of more than 80 weighted concepts and synonyms selected by NIH scientific experts to define spending categories. It is important to note that some SGM health-related projects are not captured when the specific language used in the fingerprint is not also used in the project application information.

Using this method, the SGM spending category may include projects that focus on a research area, disease, or condition that significantly affects SGM populations, such as discrimination or minority stress. Alternatively, a project may be incidentally related to SGM research, such as a study about mental health that includes SGM participants as a control or comparison. NIH generally uses the terms specific and relevant to distinguish between these two broad categories of relevance. Specific refers to a project focused primarily on a pertinent disease, condition, or population; relevant means that a project pertains to a category, but another disease area, condition, population, or other focus is considered primary.

Of the data downloaded from RePORTER for FY21, 546 projects were included in the SGM spending category. Two of these projects were removed because they were not SGM-related projects and therefore, did not belong in the SGM portfolio. Data from the 544 remaining projects are the basis for all the analyses that appear in the first half of this report. The counts of projects and dollar amounts for the analyses in the first half are all directly from the RePORTER download.

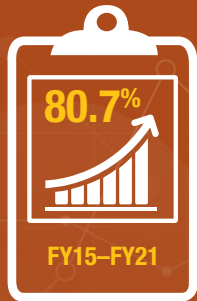
By contrast, for the second half of the FY21 Portfolio Analysis, each SGM-related project title, abstract, and specific aim was reviewed and manually coded on the basis of the variables listed in [Appendix I](#). The curated variables were created because they were noted as being of special interest to SGM health research by SGMRO staff, members of the [SGM Research Coordinating Committee](#), and the [SGM Research Working Group](#) of the [Council of Councils](#). Curators determined the presence or absence of these variables for all FY21 projects, and where two coders agreed, the variable was determined to be present for a given project. In some cases, for projects where only one coder indicated the presence of a variable, another coder reviewed those projects to ensure they were coded correctly. In several instances where there was considerable overlap with an existing spending category, the spending category was used rather than the manual curation, and in select cases, an *ad hoc* curation was performed to ensure that smaller counts were as accurate as possible. Finally, the NIH iCite tool was used for the Relative Citation Ratio analysis.



2021 PORTFOLIO ANALYSIS

The number of SGM projects has increased for seven consecutive fiscal years (FY15 to FY21).

SGM Project Increases



The **total number of projects** has **increased 80.7%** since 2015, from 301 to **544**.

Non-HIV/AIDS Funding

The **total number of non-HIV/AIDS** projects reached an all-time high for the second year in a row in FY21.



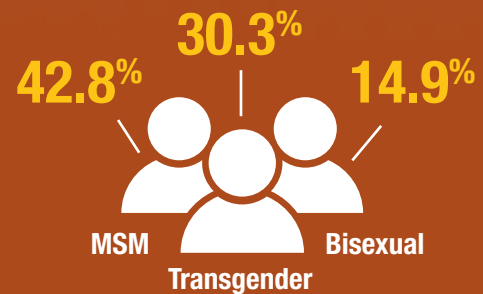
Training Awards

The **total number of training and career-related awards** in **FY21 (109)** has more than doubled since **FY15 (49)**.



Largest Populations Represented

Men who have sex with men (MSM), transgender individuals, and bisexual individuals are the **three largest populations** indicated,¹ accounting for **42.8%, 30.3%, and 14.9%** of the projects, respectively.



SGM-Categorized Projects

In **total, 8.1%** of all **SGM-categorized projects** pertain to **intersex** people and those with **variations in sex characteristics**.



SGM Portfolio Project Increases

The **total number of projects supported by NIH** increased from 51,382 in FY15 to **63,649** in FY21, an increase of 23.9%. The **SGM portfolio, by contrast, increased 80.7%** in the same time frame.

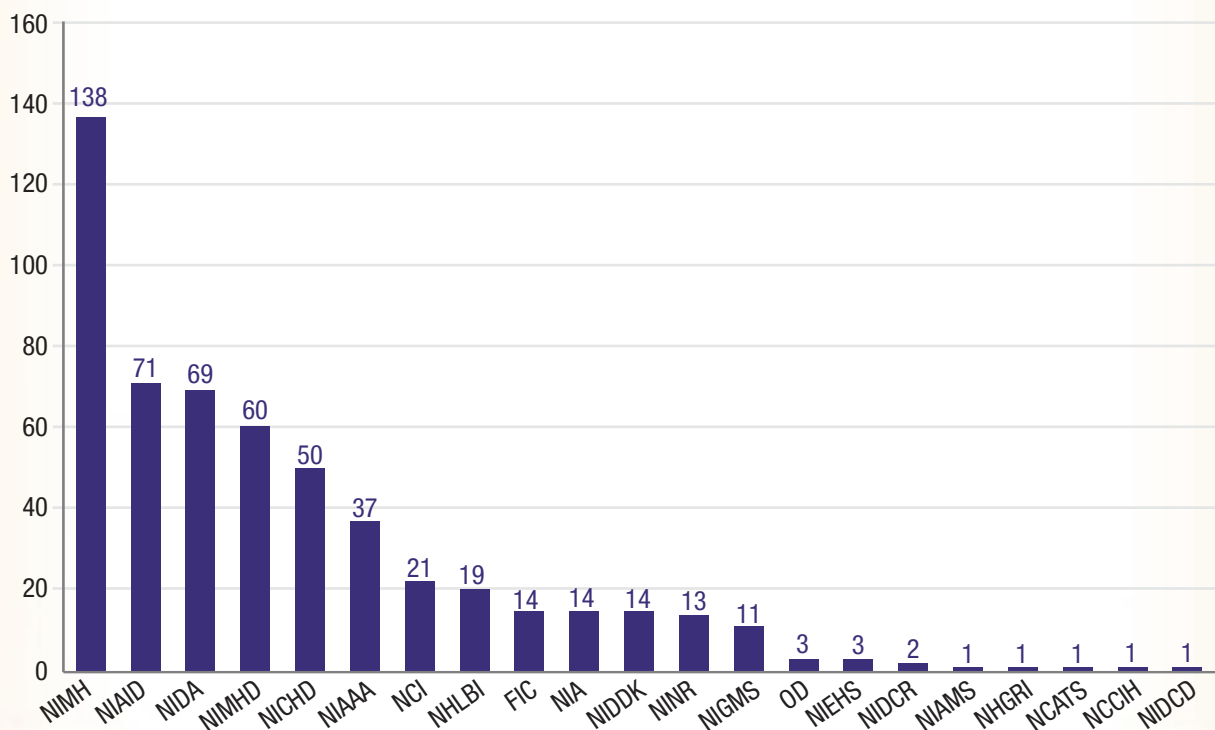


¹ As noted in the Methods section, project inclusion is based on both specific and relevant research, indicating the presence of an element of the project that pertains to the health of a given population; it does not necessarily mean that the project is primarily about that population.

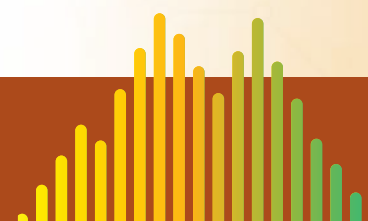
Number of SGM-Related Projects, by NIH Institute, Center, or Office

The 544 SGM projects supported by NIH in FY21 were administered by 21 of the 24 grant-making components of NIH. Almost two-thirds, or 62.1% of all projects (338 of 544), were administered by the National Institute of Mental Health (NIMH), National Institute of Allergy and Infectious Diseases (NIAID), National Institute on Drug Abuse (NIDA), and National Institute on Minority Health and Health Disparities (NIMHD). This is a decrease from 71.6% in FY18 and 65.4% in FY19 and an increase from 61.2% in FY20. The remaining 37.8% of projects were administered by 17 other institutes, centers, or offices (ICOs) in FY21. For a list of abbreviations for all NIH ICOs, please see [Appendix II](#).

Figure 1. Number of SGM-Related Projects, FY21, by NIH ICO (N = 544)



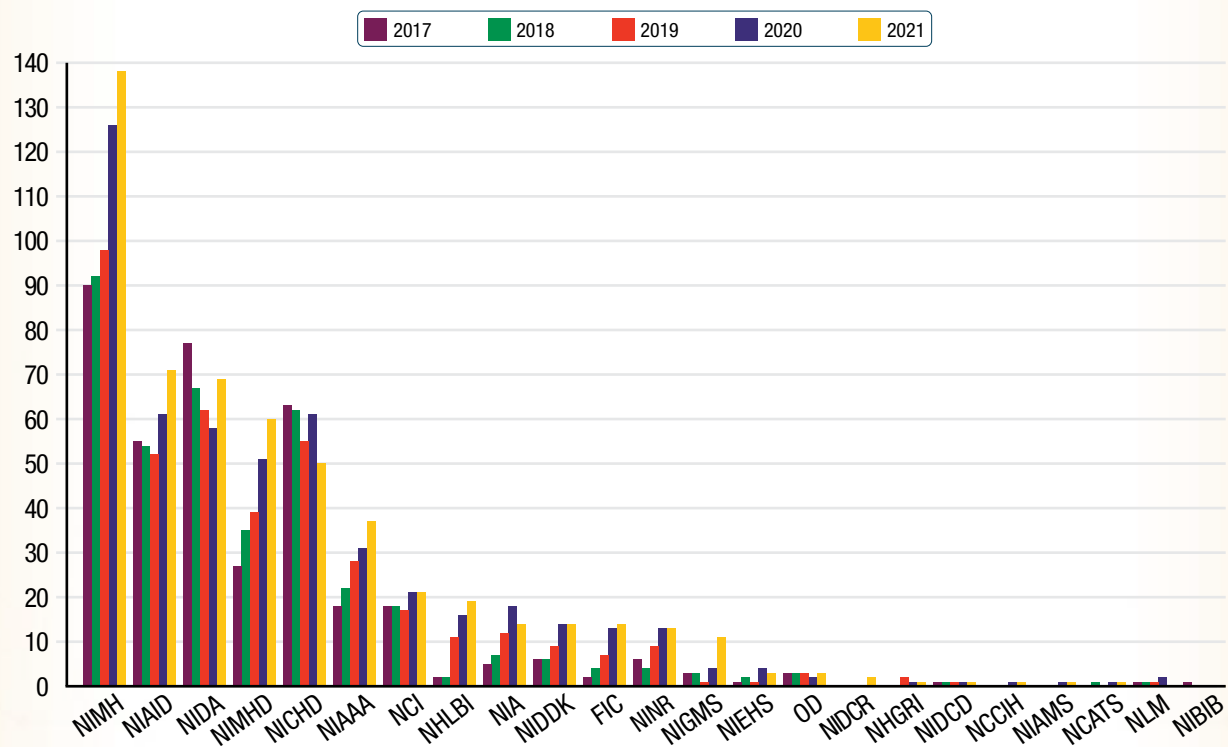
Note: Only ICOs with relevant data are included in this graph.



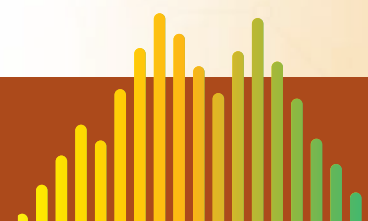
Trends in SGM-Related Projects, FY17–FY21, by ICO

The number of SGM-related projects has increased in the majority of ICOs, indicating that in terms of the number of projects, the portfolio continues to grow NIH-wide. Ten of the 21 ICOs reporting SGM projects for FY21 reported (or showed) an increase in the number of projects compared with FY20. Nine of the ICOs reporting SGM projects for FY21 have more than doubled the number of projects reported since FY17. These data have been compiled since 2015; data for earlier years can be found in previous versions of the [portfolio analysis](#).

Figure 2. Number of SGM-Related Projects, FY17–FY21, by NIH ICO (2017 = 379, 2018 = 384, 2019 = 408, 2020 = 500, 2021 = 544)



Note: The number of SGM-Related Projects by NIH ICO for FY17–FY21 can be found in [Appendix III](#).

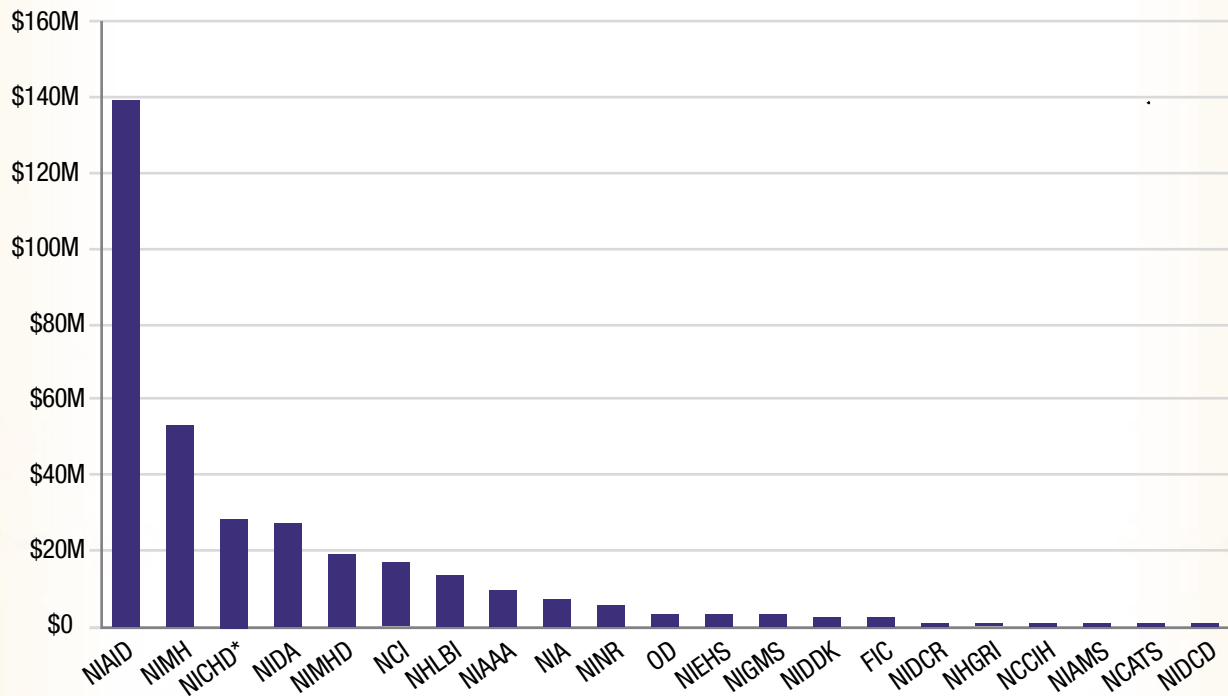


SGM Funding Across NIH

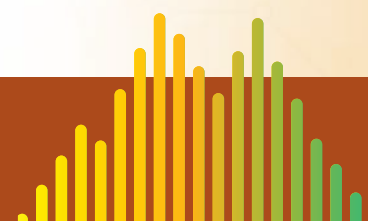
The total amount of funding for SGM-related research in FY21 was \$340,429,796. The same ICOs that fund the largest number of projects also provide the most funding support. Specifically, NIAID, NIMH, NICHD, and NIDA together accounted for 73.3% of NIH SGM funding in FY21 (a total of \$249,560,127).

It is noteworthy that NIAID is the single largest funder of SGM research (totaling \$139,724,008) and contributes more than 2.5 times the amount of the next highest-funding IC. The NIAID HIV/AIDS Clinical Trials Networks are funded annually over a 7-year cycle through five large, multisite, multi-principal investigator (PI) cooperative agreements. Due to the complex nature of tracking and reporting funding allocations to these networks, funding totals for NIAID may fluctuate from year to year. This may result in a large increase or decrease in SGM-related funding that does not correspond with the increase or decrease in projects. For the actual dollar amounts for other ICs, please see [Appendix IV](#).

Figure 3. SGM Research Funding, FY21, by NIH ICO



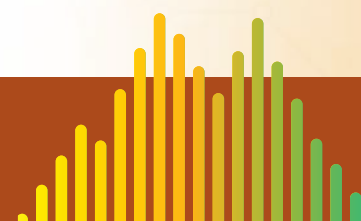
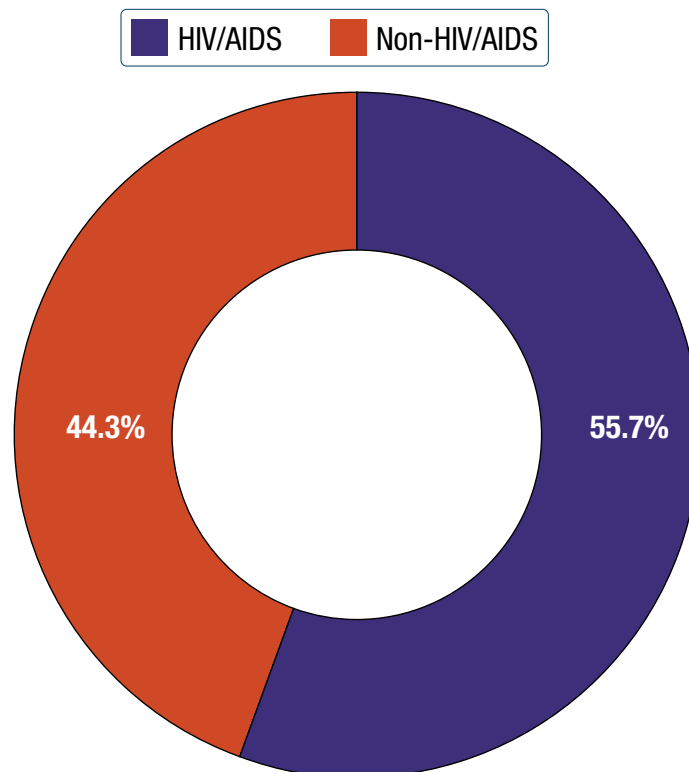
*The dollar amount for NICHD differs from what is in RePORTER because of the exclusion of two projects determined to not be SGM related.



SGM Projects Related to HIV and AIDS Research

The majority of NIH's SGM projects (55.7%, or 303 of 544) focus on HIV/AIDS research and are considered "HIV/AIDS-specific" based on a metric established for the categorization of projects by spending category, meaning the project primarily addresses HIV/AIDS research. Some projects are "HIV/AIDS-relevant," meaning that they pertain in some way to HIV/AIDS research but are not included in the HIV/AIDS category because another methodological, population, or topical focus is primary. The prevalence of HIV/AIDS-related projects (both specific and relevant) reflects the historical and contemporary disproportionate incidence and prevalence of HIV/AIDS among SGM persons, particularly men who have sex with men (MSM) and transgender women. In addition, for decades, people conducting SGM research could more readily obtain funding by conducting HIV/AIDS-related research. The percentage of HIV/AIDS-related projects in the SGM portfolio decreased to 55.7% in FY21, which is the lowest level observed since SGMRO began reporting on this metric in FY15. FY21 marked the second year in a row that this proportion was the lowest observed. The proportions of HIV/AIDS-related projects in the SGM research portfolio in previous years were as follows: in FY20, 59.8%; in FY19, 64.0%; in FY18, 63.0%; in FY17, 67.0%; and in both FY16 and FY15, 73.0%.

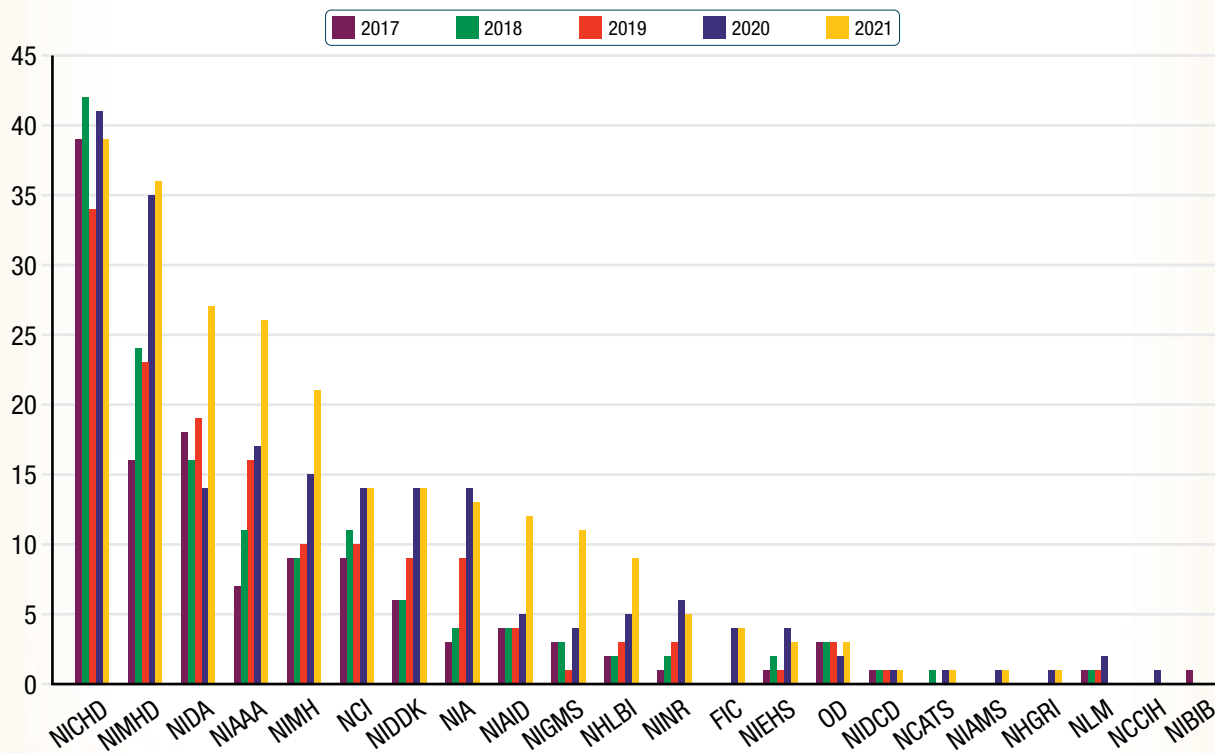
Figure 4. HIV/AIDS Projects in the SGM Portfolio, FY21 (N = 544)



Broader SGM Health Research, FY17–FY21, by ICO

The number of broader SGM-related health projects, or those not focused on HIV/AIDS research, nearly doubled between 2017 and 2021, from 124 to 241, an increase of 94.4%. In that same period, the number of ICOs reporting SGM projects that included a health-related area outside of HIV/AIDS research increased from 17 to 19. These data have been compiled since 2015; data for earlier years can be found in previous versions of the [portfolio analysis](#).

Figure 5. Number of Non-HIV/AIDS SGM-Related Projects, FY17–FY21, by NIH ICO (2017 = 124, 2018 = 142, 2019 = 147, 2020 = 201, 2021 = 241)

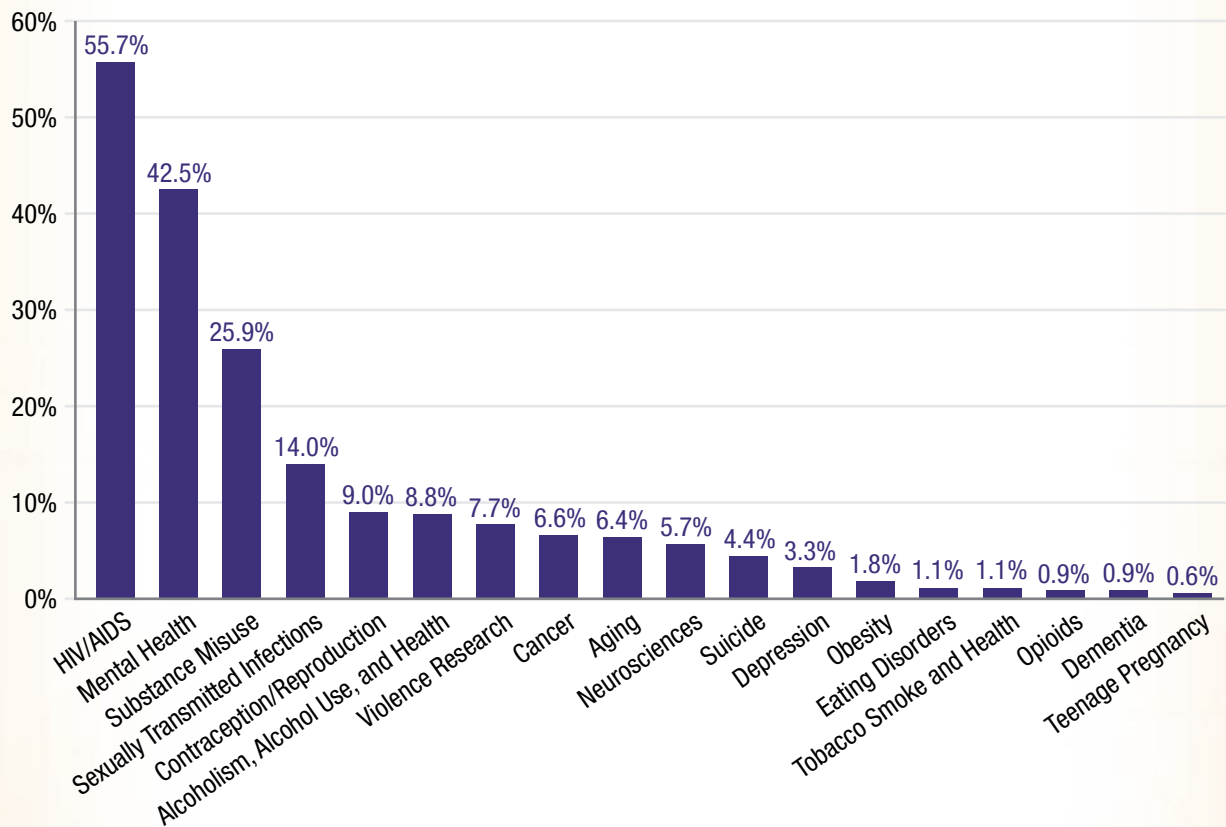


Note: The number of Non-HIV/AIDS SGM-Related Projects by NIH ICO for FY17–FY21 can be found in [Appendix V](#).

SGM Projects, by Research, Condition, and Disease Category

A broad range of RCDC areas was addressed in the SGM-related projects funded in FY21. These projects may focus on the diseases or conditions themselves, associated health care access or utilization, or another topic in the context of specific diseases or risk factors. The graph below illustrates the proportion of projects within a selected number of existing RCDCs. The number of projects in fields outside the HIV/AIDS category has increased in each of the past 5 years. For FY21, other than the HIV/AIDS category, the most common areas included Mental Health; Substance Misuse; Sexually Transmitted Infections; Contraception/Reproduction; and Alcoholism, Alcohol Use, and Health. Additional projects addressed the following: Violence Research, Cancer, Aging, Neurosciences, Suicide (including suicide prevention), Depression, and Obesity. A small number of projects (fewer than 10 each) focused on Eating Disorders, Tobacco Smoke and Health, Opioids, Dementia (including Alzheimer’s Disease), and Teenage Pregnancy. The categories reported below are not mutually exclusive because a project can focus on more than one disease area or health condition; therefore, percentages sum to more than 100%.

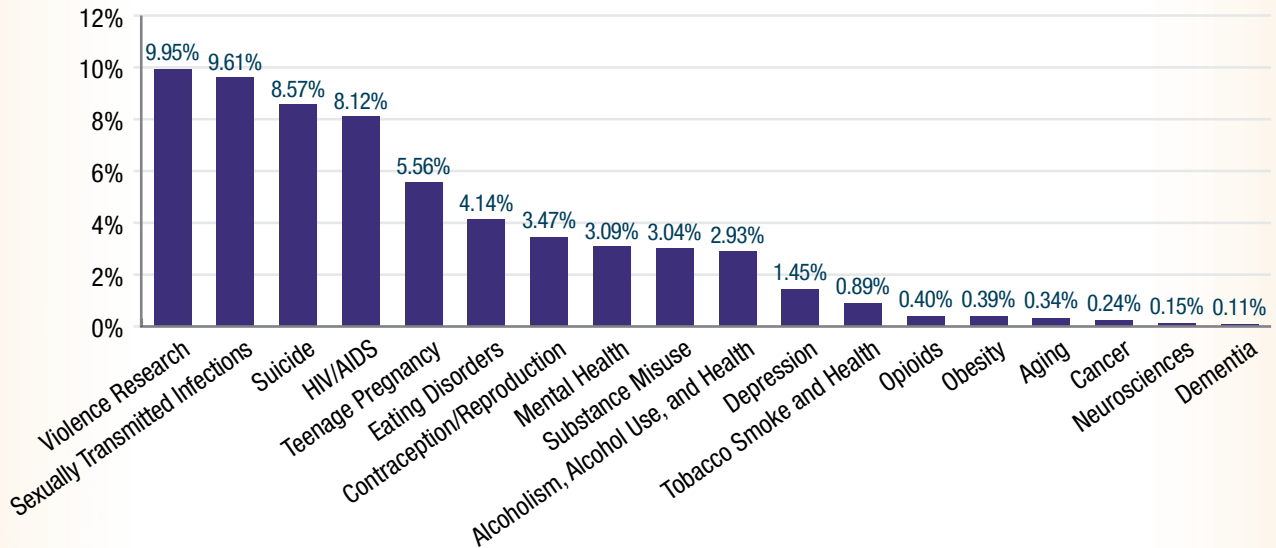
Figure 6. Proportion of SGM Projects, FY21, by Research, Condition, and Disease Category (N = 544)



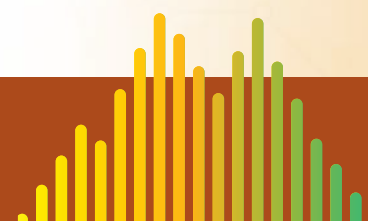
SGM Projects as a Percentage of All NIH Projects for Selected RCDC Categories

The number of SGM projects as a proportion of all NIH projects within an RCDC provides a broader context for the SGM health research portfolio. In 5 of the 18 selected categories presented below—Violence Research, Sexually Transmitted Infections, Suicide, HIV/AIDS, and Teenage Pregnancy—SGM health research was 5% or more of all NIH-funded research. All remaining categories had a proportion of SGM projects between 0.11% and 4.14% of the overall NIH projects. Some of the categories that fall below 3% of the NIH portfolio include Depression (1.45%), Aging (0.34%), and Cancer (0.24%).

Figure 7. SGM Projects as a Percentage of All NIH Projects for Selected Research, Condition, and Disease Categories, FY21 (N = 544)



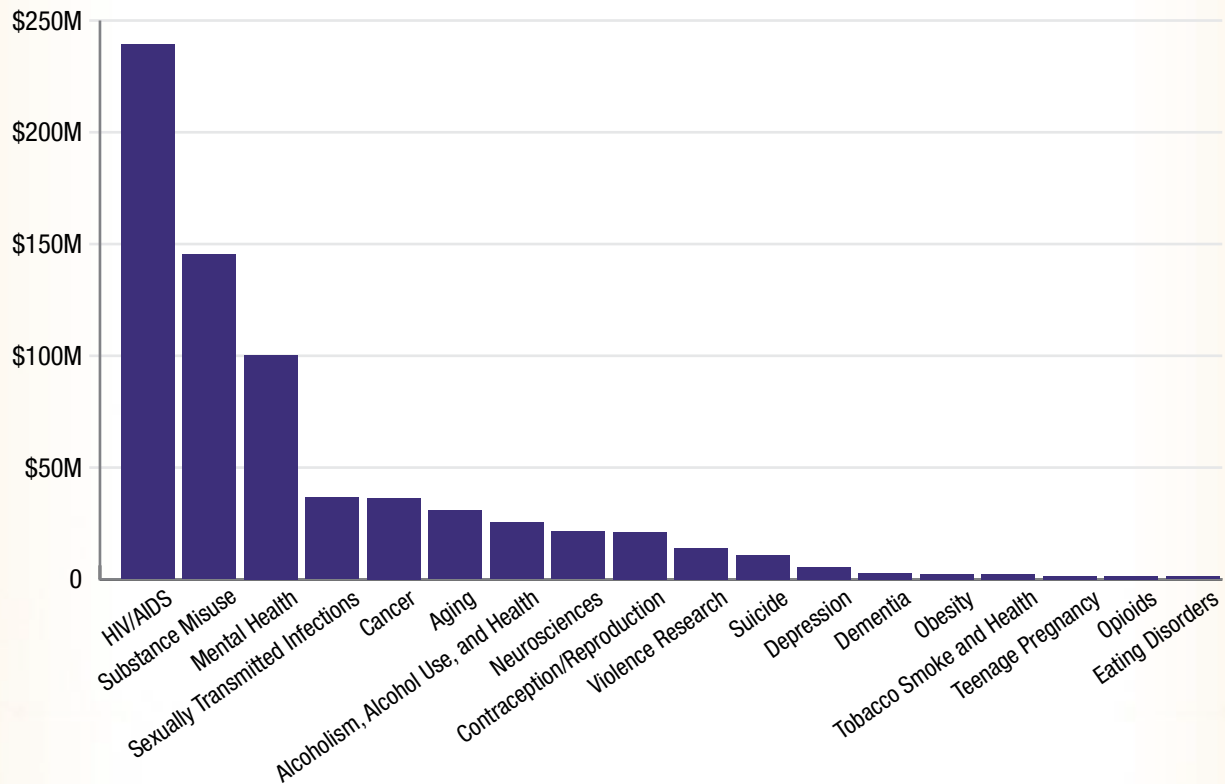
Note: The number of all NIH projects can be found in [Appendix VI](#).



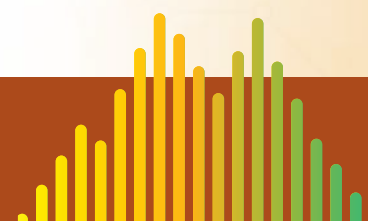
SGM Funding, by RCDC

The amount of funding in each of the RCDC areas listed below corresponded roughly to the number of grants in those areas. Funding in the HIV/AIDS category totaled \$239.3 million. Funding for SGM research related to Substance Misuse and Mental Health both exceeded \$100 million, while funding for Sexually Transmitted Infections and Cancer both exceeded \$36 million. The categories reported below are not mutually exclusive and represent multiple areas of research within the RCDC system. Therefore, dollars may be counted toward more than one disease area, health condition, or research topic.

Figure 8. Total Grant Dollars, FY21, by SGM Research, Condition, and Disease Category



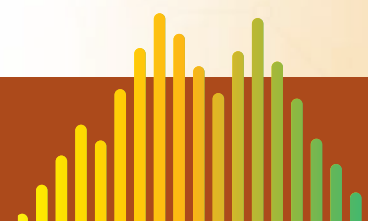
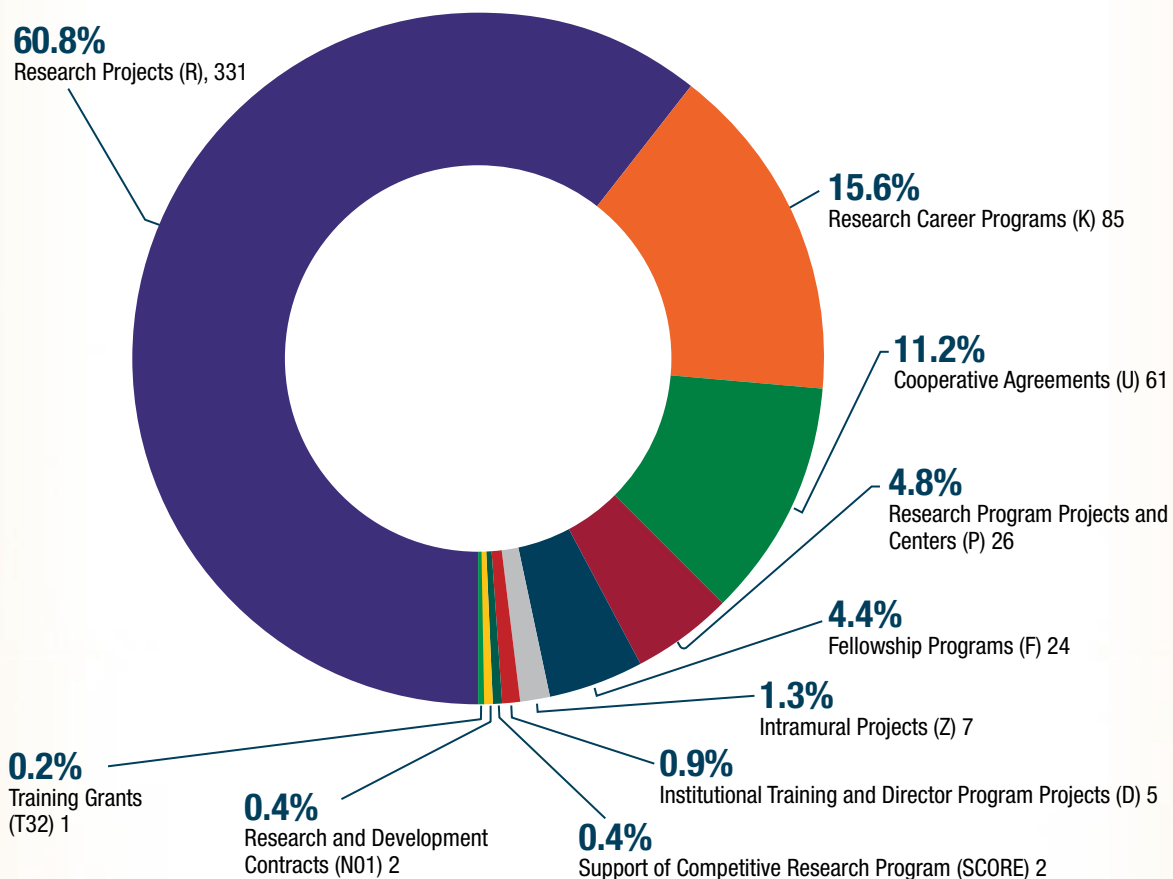
Note: Actual dollar amounts appear in [Appendix VII](#).



Proportion of SGM-Related Projects, by NIH Grant Mechanism

The distribution of projects by grant mechanism allows comparison of the percentages going to research projects, career development awards, research centers, and other activities. The Research Project (R) mechanism constituted the majority of grants (R; 60.8%), followed by Research Career Programs (K; 15.6%) and Cooperative Agreements (U; 11.2%). Research Program Projects and Centers (P; 4.8%), Fellowships (F; 4.4%), and Intramural Projects (Z; 1.3%) accounted for 10.5% of the portfolio. Institutional Training and Director Program Projects (D), Support of Competitive Research Program (SCORE), Research and Development Contracts (N01), and Training Grants (T32) each accounted for <1% of total funding and together totaled 10 projects, or 1.8% of the total SGM portfolio.

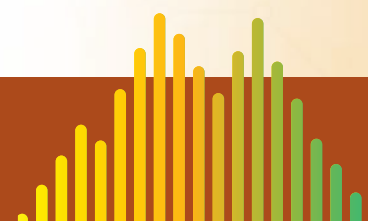
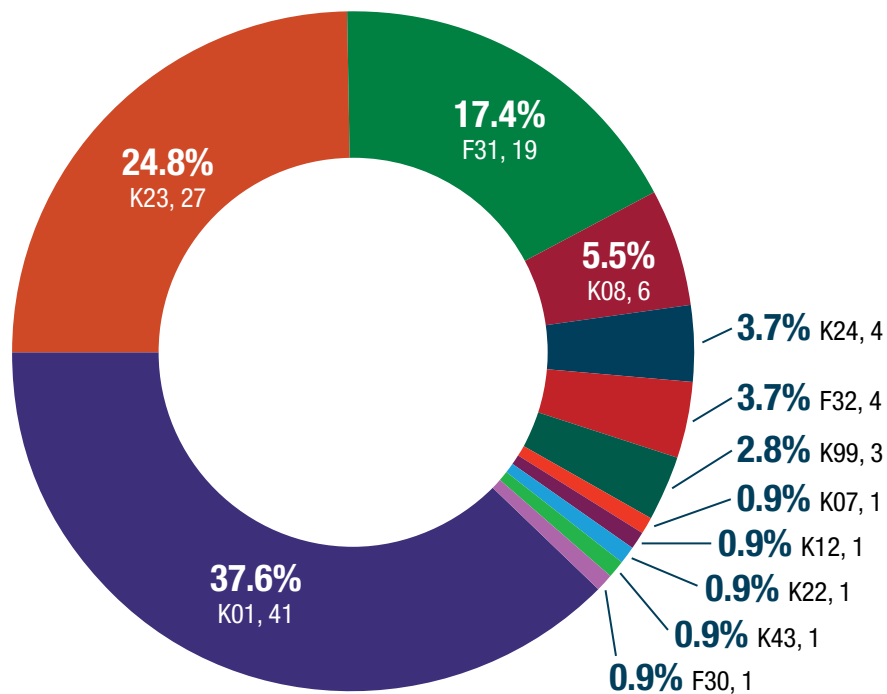
Figure 9. Proportion of Projects, FY21, by Grant Mechanism (N = 544)



Proportion of SGM-Related Projects, by Type of Training/Career Funding Mechanism

The data below provide insight into progress made toward the NIH strategic goal of fostering a highly skilled and diverse workforce. The total number of training- and career-related awards in FY21 was 109, which is more than double the number of these types of grants made in FY15 (49). Research Scientist Development Awards (K01), Mentored Patient-Oriented Research Career Development Awards (K23), and Predoctoral Fellowships (F31) accounted for more than three-quarters (79.8%) of projects pertaining to training and career development in FY21.

Figure 10. Proportion of SGM-Related Projects, FY21, by Type of Training/Career Funding Mechanism (N = 109)

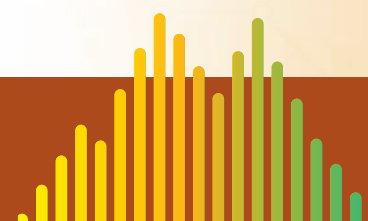
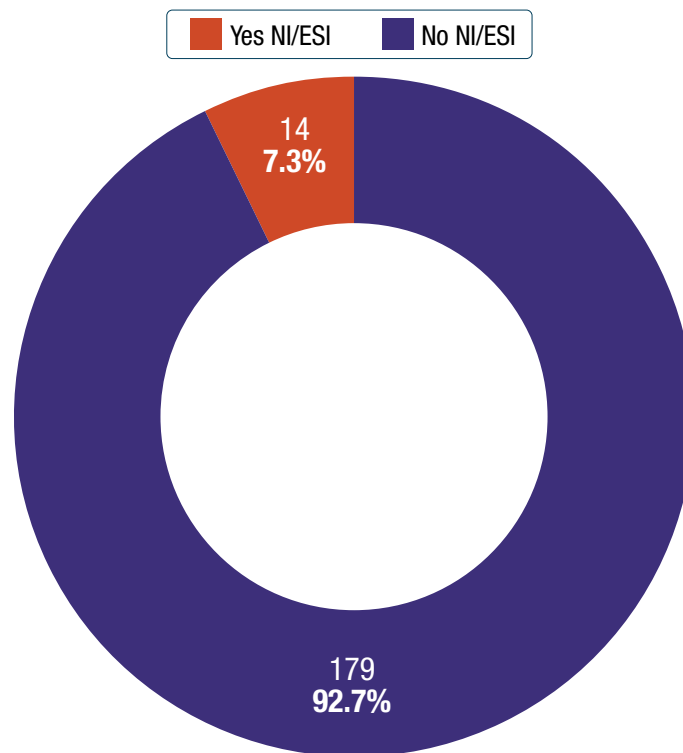


Proportion of R01 Projects With New or Early Stage Investigators

Of the 193 R01 grants in SGM health research awarded in FY21, 14 (7.3%) were awarded to applications with either new investigators (NI), who had not received substantial NIH funding prior to this award, or early stage investigators (ESI), who had received their terminal degree within the last 10 years but had not yet been the PI on an R01.

Note that this statistic illustrates new or early stage investigator (NESI) status at the time of the initial application and reflects the status of only the PI, not other members of the investigative team. An increase in the number of NIs and ESIs from year to year may indicate progress in advancing rigorous research on the health of SGM populations in the extramural community and fostering a highly skilled and diverse workforce. For additional information on NIH policies and how NIH support for ESIs helps promote the growth, stability, and diversity of the future biomedical research workforce, visit <https://grants.nih.gov/policy/early-stage/index.htm>.

Figure 11. Proportion of R01 Projects With a New or Early Stage Investigator, FY21 (N = 193)

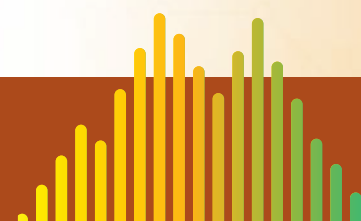
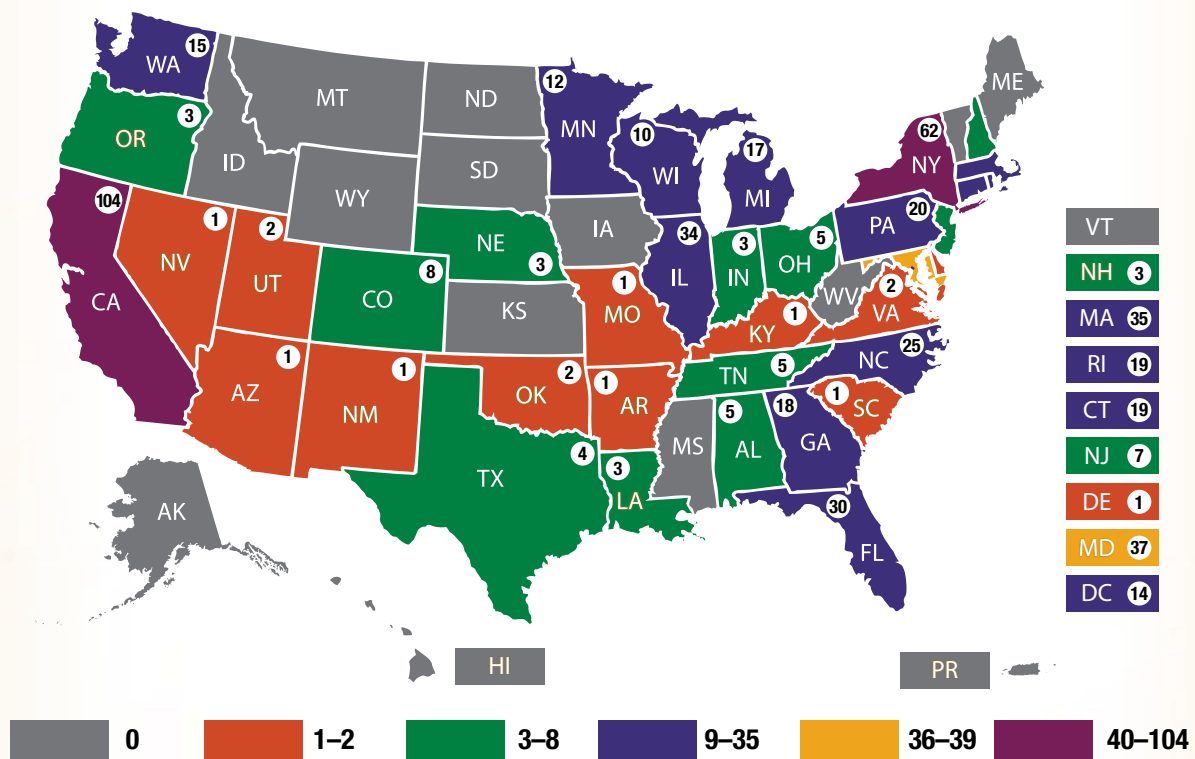


U.S. Funding of SGM Research, by Location of Administering Institution

The majority of projects (534) in the SGM portfolio were awarded to organizations within the United States. SGM-related research funding was provided to institutions in 37 states and the District of Columbia. This represents an increase of nine new states with SGM health research funding since this analysis was first conducted in FY17. In FY21, nearly three-quarters (74%) of the states in the United States were home to institutions that received SGM-related funding from NIH.

In FY21, the states with the largest number of projects (30 or more projects each) were California, New York, Maryland, Massachusetts, Illinois, and Florida. More than half (56.4%, or 301) of funded SGM projects were administered by organizations in these six states. The map below indicates the location of the institutions receiving funding for SGM research in FY21 and not necessarily where the project activity was conducted.

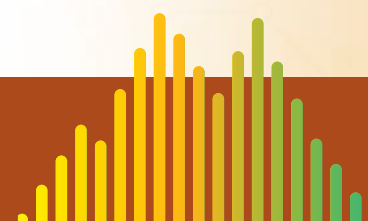
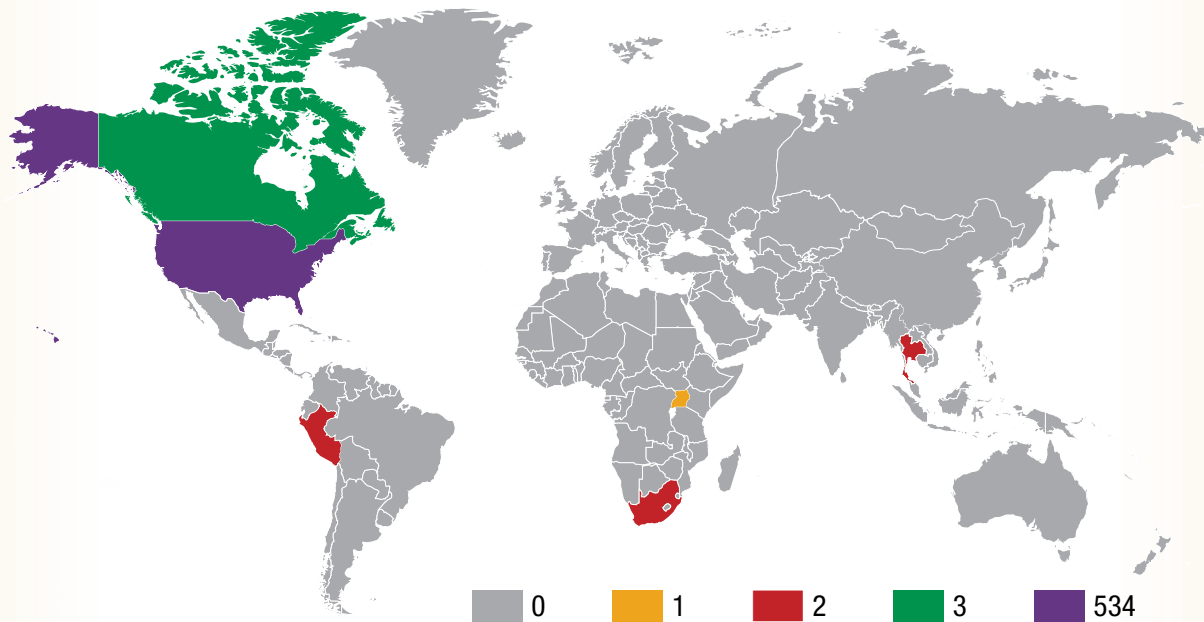
Figure 12. SGM Projects, FY21, by Location of Administering U.S. Institution (N = 534)



Funding of International SGM Research, by Country of Administering Institution

Funding for 10 SGM-related research projects was awarded directly to foreign organizations in five nations outside the United States (Canada, Peru, South Africa, Thailand, and Uganda). Four of these countries had more than a single funded research grant. This contrasts with FY19, when only Thailand had more than one funded project. Outside of North America, Africa is the continent with the most NIH-funded SGM projects, with three total, followed by South America and Asia, each with two.

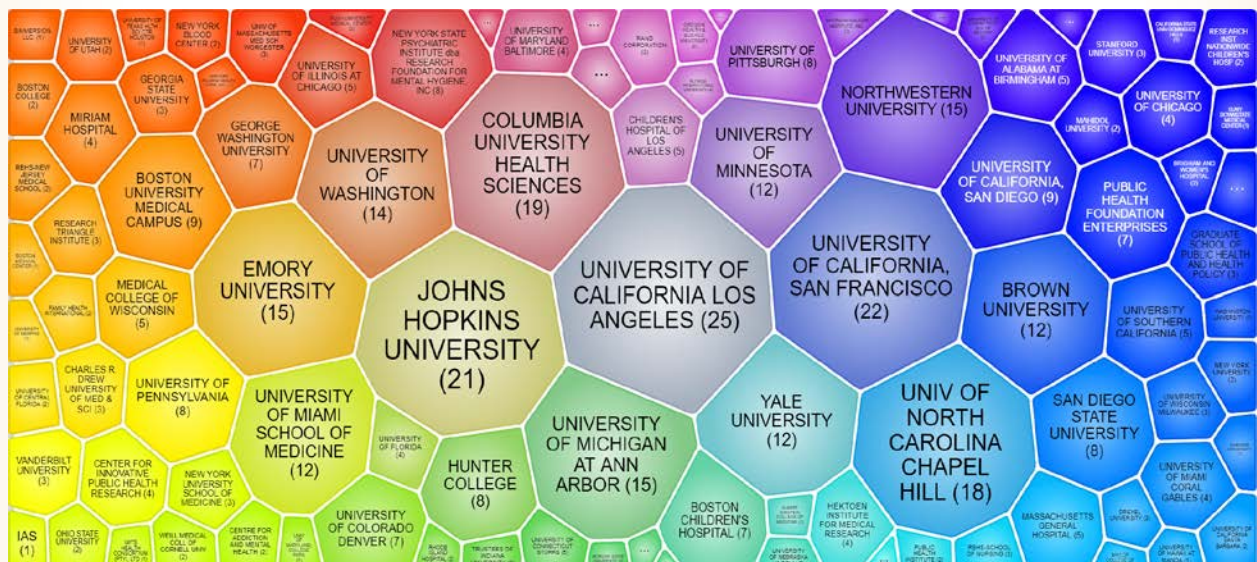
Figure 13. SGM Projects, FY21, by Country (N = 544)



SGM Projects, by Institution

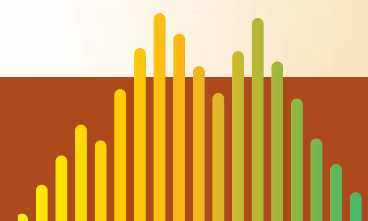
NIH awarded funding for projects on SGM health research at institutions across the country and around the world. The illustration below provides a visual representation of the domestic and global institutions with the largest number of funded SGM projects. The visualization algorithm identifies and clusters projects by the location of the primary institution of the project grant. The area of the polygon is proportional to the number of awards at the institution. The projects in this visualization are unique and are counted only once.

Figure 14. Proportional Representation of SGM Projects, FY21, by Institution



Note: The small size of some polygons around the edge of the image precludes displaying data. Contact SGMRO for more information.

The second half of the report highlights analyses that resulted from the manual curation of the SGM portfolio as defined using the SGM spending category for FY21. As previously noted, only the title, abstract, and specific aims were reviewed during this process. As such, the values presented tend to be minimums. The projects presented in this portion of the report are from a full-year curation for all FY21 projects, and each project was reviewed by three coders for all curated variables.

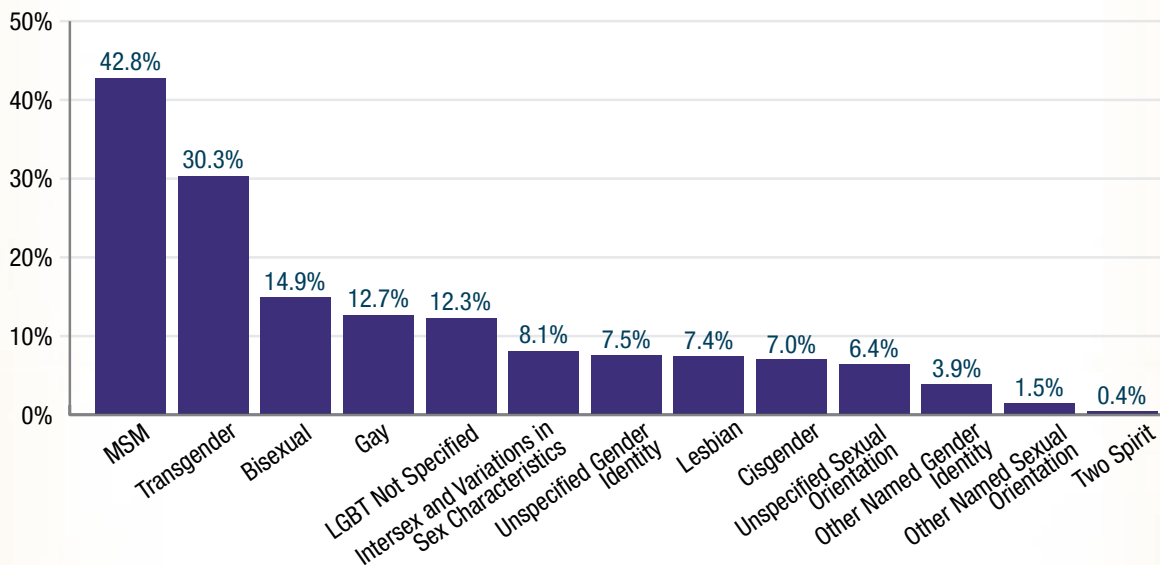


Populations

Each project was assigned at least one population that is included under the SGM umbrella through manual curation, and each project was assigned to all relevant populations. Definitions of these populations appear in the graph key. More than two-fifths (42.8%) of the SGM portfolio consists of projects with a focus on or relevance to MSM, which is the largest single group. More than 3 in 10 projects in the portfolio pertain to transgender individuals (30.3%). The third largest population category is bisexual, representing 14.9% of the projects. Gay is the fourth largest population, identified in 12.7% of the projects in the portfolio. More than 1 in 10 projects (12.3%) do not identify specific LGBT populations but indicate that sexual orientation and/or gender identity are being studied in the project. The categories of lesbian, intersex, cisgender, and unspecified gender identity pertained to fewer than 1 in 10 projects each. Sexual orientation categories not previously mentioned and conceptual investigation of sexual orientation pertained to fewer than 1 in 20 projects. Two projects pertained to Two-Spirit individuals.

The proportion of projects belonging to each category are depicted in the figure below. As noted previously, population is an indication in the project title, abstract, or specific aims that an element of the project pertains to the health of a given group; it does not necessarily mean that the project is primarily about, only about, or specific to that population. Population categories are not mutually exclusive; therefore, percentages add up to more than 100%.

Figure 16. Proportion of SGM Projects, FY21, by Population (N = 544)



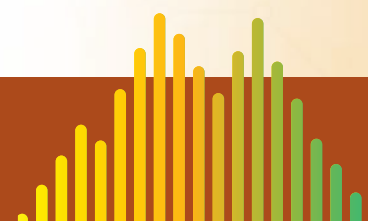
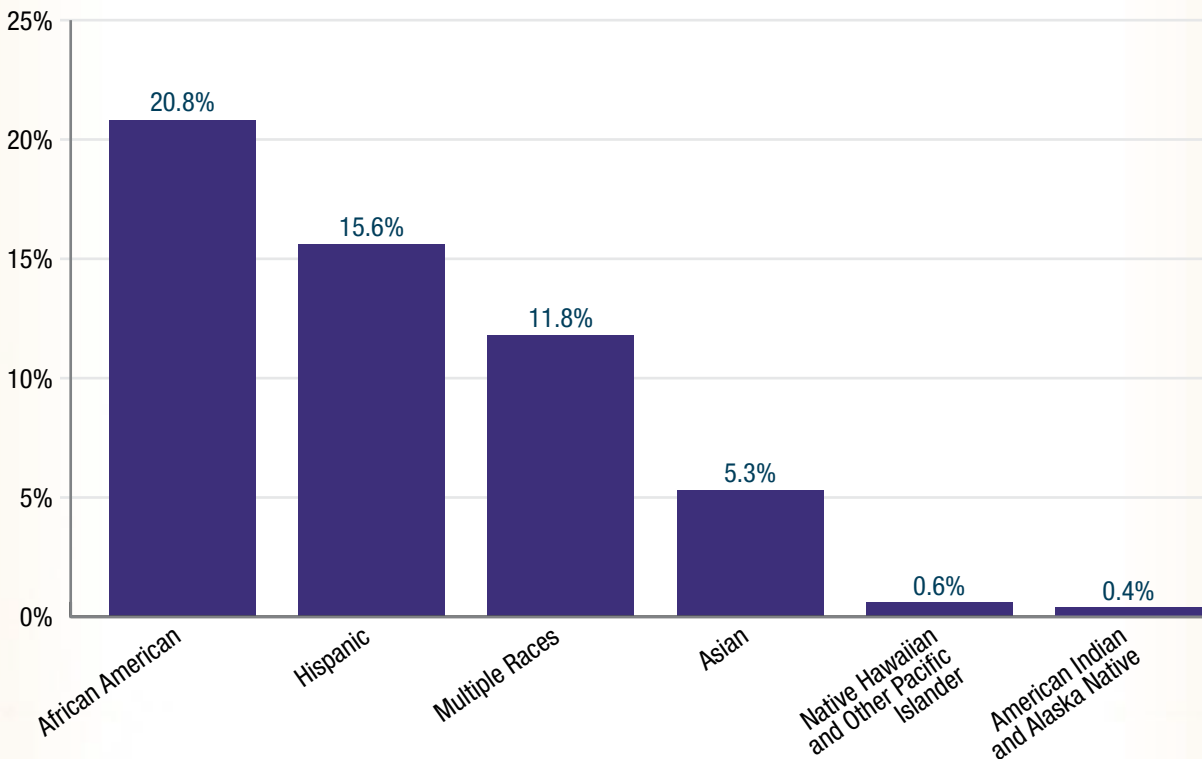
Key:

Cisgender = gender identity that aligns with sex assigned at birth. **Intersex and variations in sex characteristics** = intersex and all related conditions and interventions. **LGBT Not Specified** = an LGBT population is included, but none is specified. **MSM** = men who have sex with men. **Other Named Gender Identity** = named gender identity other than transgender (e.g., non-binary, gender nonconforming). **Other Named Sexual Orientation** = named sexual orientation categories not previously listed (e.g., queer, pansexual). **Unspecified Gender Identity** = gender identity as a construct. **Unspecified Sexual Orientation** = sexual orientation as a construct.

Race and Ethnicity

A majority of projects (347 of 544, or 63.7%) did not identify focusing on a specific racial or ethnic group. However, for those projects that specified inclusion of racial or ethnic groups, African Americans were included at the highest rate (20.8%). Hispanics were included somewhat less frequently (15.6%). Multiple races, which consists of projects with people of multiple racial or ethnic categories or indicated with language such as “people of color” or “other races,” accounted for more than 1 in 10 (11.8%) of the portfolio. Asian was specified in 5.3% of projects. Native Hawaiian and Other Pacific Islanders (0.6%) and American Indian and Alaska Native (0.4%) were included at the lowest rates.

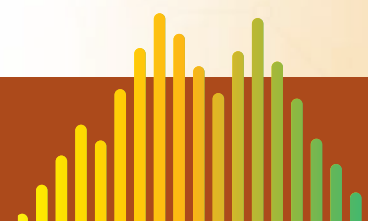
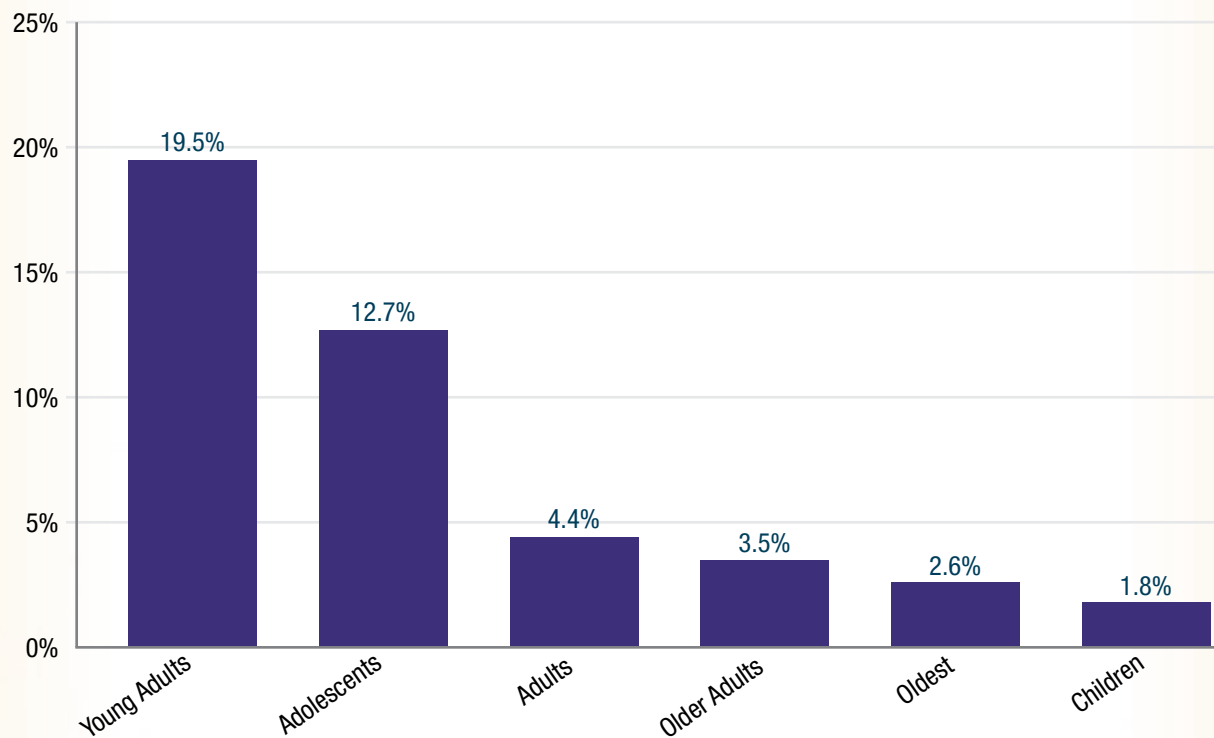
Figure 17. Proportion of SGM Projects, FY21, by Race and Ethnicity (N = 544)



Age

A total of 153 (28.1%) projects in the SGM portfolio specified an age group. Some projects identified more than one age group. The following age groups are used: children (12 years and younger), adolescents (13–17 years), young adults (18–35 years), adults (36–55 years), older adults (56–64 years), and oldest (65 years and older). The age group with the largest proportion of projects in the SGM portfolio was young adults (19.5%), followed by adolescents (12.7%), adults (4.4%), older adults (3.5%), oldest (2.6%), and children (1.8%).

Figure 18. Proportion of SGM Projects, FY21, by Age Group (N = 544)

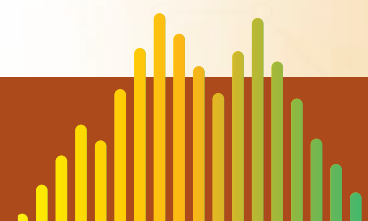


Populations of Focus

Below is a list of additional categories used to classify the 544 projects included in the curation analysis for FY21. These categories are based on feedback from SGMRO staff, the NIH SGM Research Coordinating Committee, and the NIH SGM Research Working Group about variables of particular interest. The categories reflect an increased interest in the intersection of multiple communities and identities with sexual orientation and gender identity. However, due to small numbers, only the total number of relevant projects in each category, and not the proportion, is presented in Table 1. Notably, for the third year in a row (FY18–FY21), no projects focused on children involved in the foster care system or people who have served in the armed forces. Fourteen projects focused on people who live in rural areas. Twelve projects looked at lower socioeconomic status, and seven looked at those involved with the criminal justice system. These numbers are minimums, because some projects may have included a population of focus but not have that information in the portion of the project description used for curation.

Table 1. Populations of Focus in the SGM Portfolio, FY21 (N = 544)

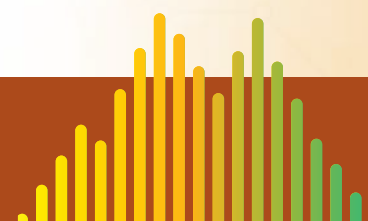
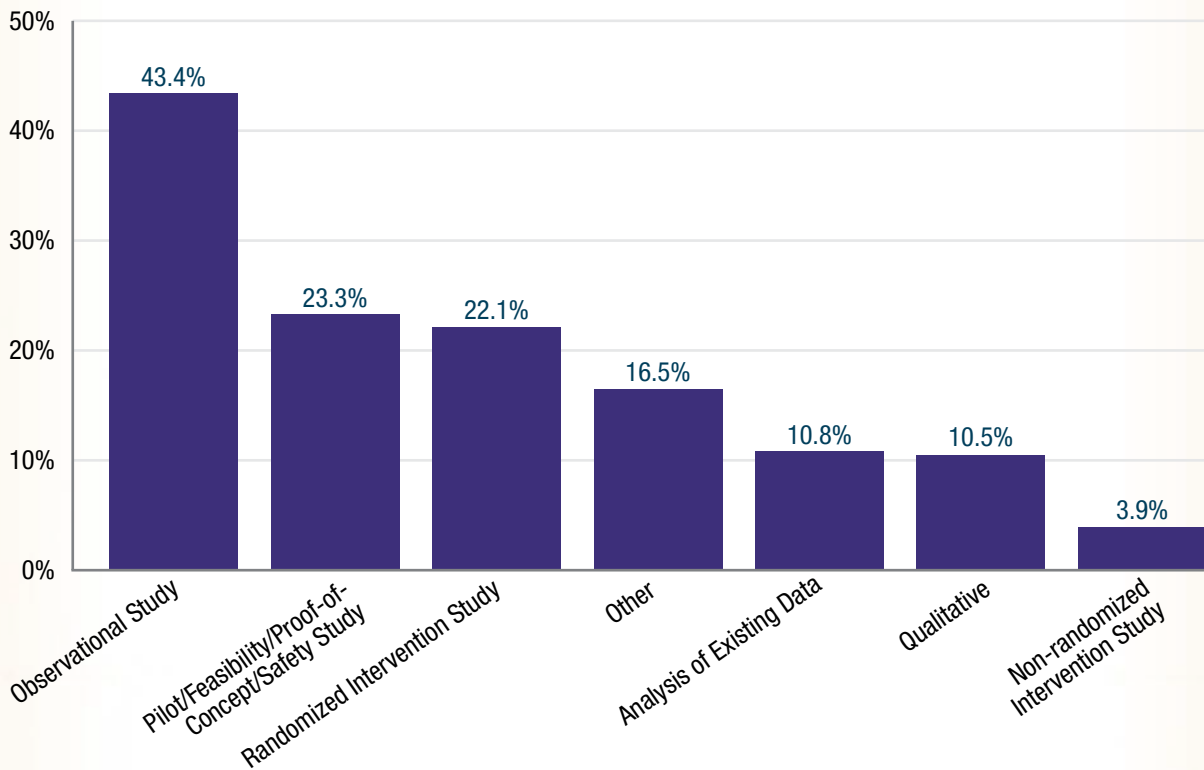
Population of Focus (N = 544)	Number of Projects
People who live in rural areas	14
People identified as low socioeconomic status	12
People involved with the criminal justice system	7
People who have immigrated from other countries	6
People experiencing homelessness	3
People living with disabilities	2



Research Methods

Each project was curated for the research methods used in the study. Two-thirds of the projects (66.7%) were either observational studies (43.4%) or a pilot, feasibility, proof-of-concept, or safety study (23.3%). More than one-fifth of projects (22.1%) were randomized intervention studies. One in six projects (16.5%) employed a research method classified as Other, meaning methods other than those listed below, while 10.8% involved the analysis of existing data. One in 10 (10.5%) employed a primarily qualitative research method. Additionally, 3.9% of the projects were non-randomized intervention studies. The same project can appear in more than one category; therefore, the total percentage across categories exceeds 100%.

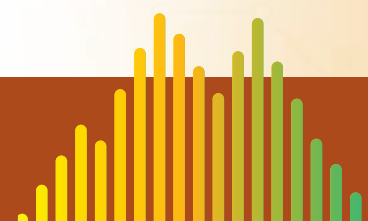
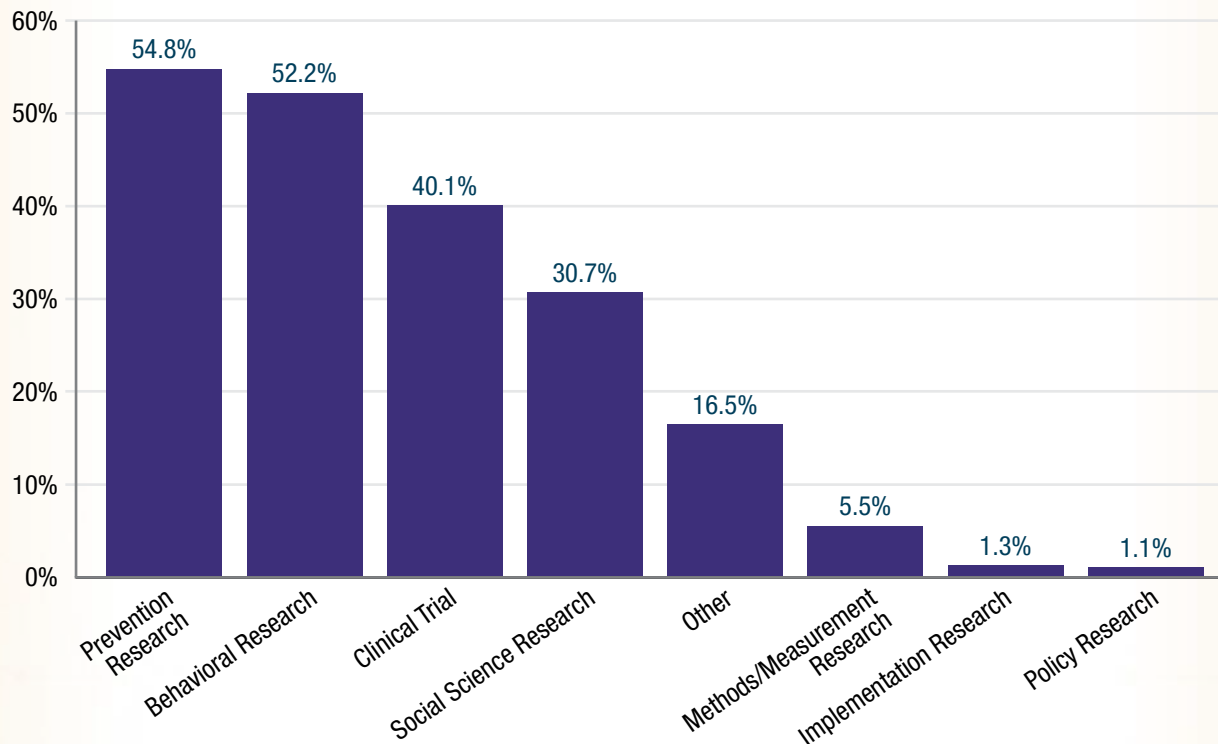
Figure 19. Proportion of SGM Projects, FY21, by Research Methods (N = 544)



Type of Study

Each project was also curated based on the type of study. Seven study categories were coded. The majority of projects were coded as prevention research (54.8%). Behavioral research was conducted in more than half of all projects (52.2%). Two-fifths of projects (40.1%) also were categorized within the clinical trials and supporting activities spending category, while social science research represented roughly one in three projects (30.7%). Smaller proportions of the projects in the portfolio fell under methods/measurement research (5.5%), implementation research (1.3%), and policy research (1.1%). The same project may appear in more than one category; therefore, the total percentage across categories exceeds 100%.

Figure 20. SGM Projects, FY21, by Type of Study (N = 544)

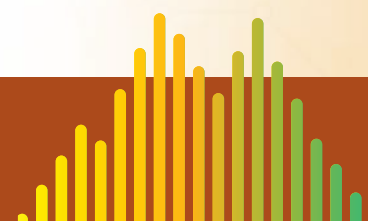
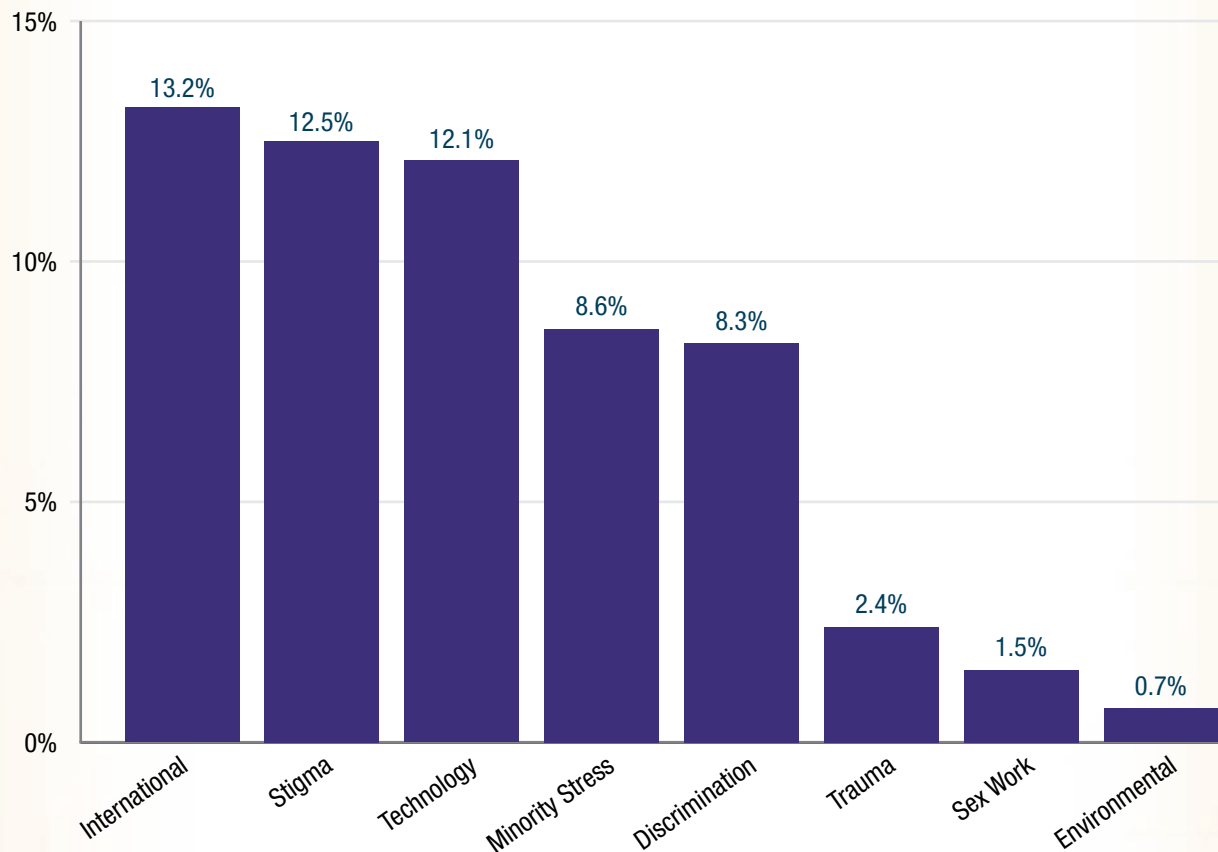


Special Topic Categories

Other topics of interest in SGM health research detailed below were curated because of a scientific or administrative interest in tracking them over time. More than 1 in 10 projects (13.2%) had an international component, meaning that some portion of project activity occurred outside of the United States. One in eight studies (12.5%) looked at stigma as a construct under study. A further 12.1% of projects had a technological component, such as a website, mobile phone application, or computer. These studies often involved health information, medication tracking and reminders, interventions, or social networks. Minority stress and discrimination pertained to 8.6% and 8.3% of projects, respectively.

Smaller percentages of projects related to trauma (2.4%), sex work (1.5%), or the environment (0.7%). Note that all projects were curated, but not all projects included a special category of interest.

Figure 21. Proportion of SGM Projects, FY21, by Special Topic Category (N = 544)

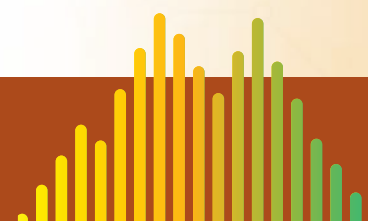
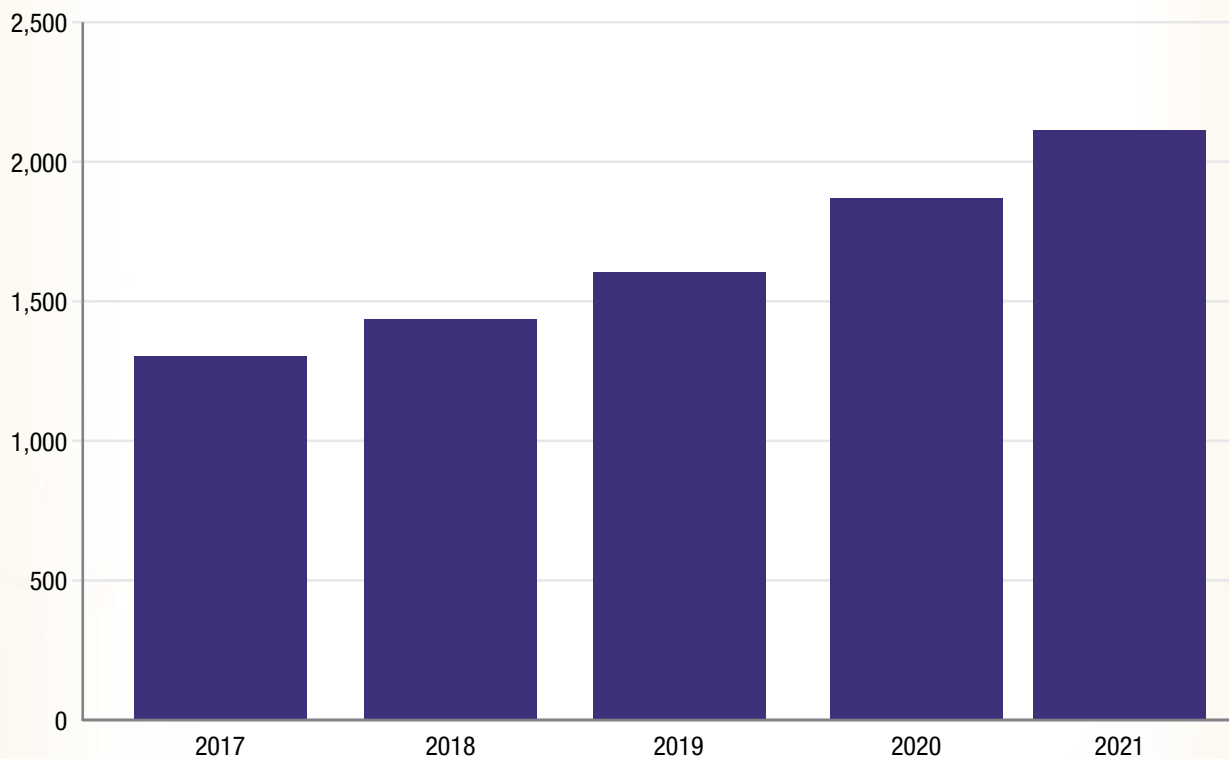


Relative Citation Ratio

The Relative Citation Ratio (RCR) measures the scientific influence of each paper resulting from SGM-funded grants by field- and time-adjusting the citations it has received and benchmarking to the median for NIH publications (1.0). An [article from 2016](#) describes in detail how the RCR for this section of the report was calculated using the iCite tool. Not all published papers reference the related NIH grant, so these numbers are minimums.

In 2021, a total of 2,113 published articles were linked to those core grants/projects in the SGM portfolio for FY21, with a mean RCR of 2.63. Publications are not linked at the application level. For context, included below is a graph of all SGM health-related articles ($N = 8,321$) published from 2017 to 2021 with NIH funding indicated (mean RCR = 2.13).

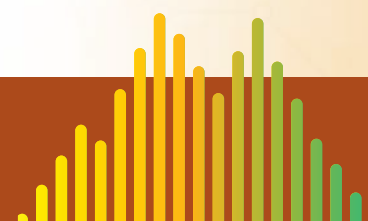
Figure 22. Supporting Data for RCR: Distinct Count of PubMed IDs (PMID), 2017–2021



CONCLUSION

The number and breadth of projects in the NIH SGM health research portfolio has increased incrementally since FY15. The increased investment in a broad array of health projects over the past 7 years has contributed to more than a doubling of the number of diverse SGM health-related projects. Additionally, the total number of training- and career-related awards in FY21 has more than doubled since FY15. These trends are indicative of the long-term NIH commitment to support SGM health research and the SGM health research workforce and demonstrate the long-term capacity of the health care infrastructure to sustain growth in SGM health research.

The FY21 NIH SGM portfolio is the largest to date, funded in more states and covering more topics by more NIH ICOs than ever before. At the same time, additional research across the spectrum of disease areas and health conditions and in new locations, communities, and groups is needed to construct the SGM research portfolio. These data underscore the opportunities that abound in SGM health research.



APPENDIX I

CURATION VARIABLES

Population

Bisexual
Cisgender
Gay
Gender Identity Other
Lesbian
LGBT, not specified
MSM
Other Named Sexual Orientation
Transgender
Unspecified Sexual Orientation

Race/Ethnicity

African American
American Indian and Alaska Native
Asian
Native Hawaiian or Other Pacific Islander
Hispanic Ethnicity
Multiple Races

Sex

Male
Female
Intersex and Variations in Sex
Characteristics (IVSC)

Age

Children (12 and under)
Adolescents (13 to 17)
Young Adult (18 to 35)
Adult (36 to 55)
Older Adult (56 to 64)
Oldest (65 and above)

Other Research Categories

People identified as low socioeconomic status
People who live in rural areas
People experiencing homelessness

People involved with the criminal justice system
People living with disabilities
People who have served in the U.S. Armed Forces
People who have immigrated from other countries

Research Methods

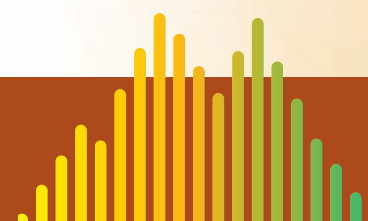
Analysis of Existing Data
Non-randomized Intervention Study
Observational Study
Pilot/Feasibility/Proof-of-Concept/Safety Study
Randomized Intervention Study
Qualitative Measures
Methods Research
Mixed Methods
Other Research Method/s

Type of Study

Clinical Trial
Prevention Research
Methods/Measurement Research
Behavioral
Social Science Research
Policy
Other Type of Study

Other

Environmental
Sex Work
Hormones
Trauma
Human Papillomavirus (HPV)
Health Disparities
International
Technology
Stigma
Minority Stress
Discrimination



APPENDIX II

NIH INSTITUTES, CENTERS, AND OFFICES

NIH Institutes

National Cancer Institute (NCI)
National Eye Institute (NEI)
National Heart, Lung, and Blood Institute (NHLBI)
National Human Genome Research Institute (NHGRI)
National Institute on Aging (NIA)
National Institute on Alcohol Abuse and Alcoholism (NIAAA)
National Institute of Allergy and Infectious Diseases (NIAID)
National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
National Institute of Biomedical Imaging and Bioengineering (NIBIB)
Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)
National Institute on Drug Abuse (NIDA)
National Institute on Deafness and Other Communication Disorders (NIDCD)
National Institute of Dental and Craniofacial Research (NIDCR)
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
National Institute of Environmental Health Sciences (NIEHS)
National Institute of General Medical Sciences (NIGMS)*
National Institute of Mental Health (NIMH)
National Institute on Minority Health and Health Disparities (NIMHD)
National Institute of Neurological Disorders and Stroke (NINDS)
National Institute of Nursing Research (NINR)
National Library of Medicine (NLM)

NIH Centers

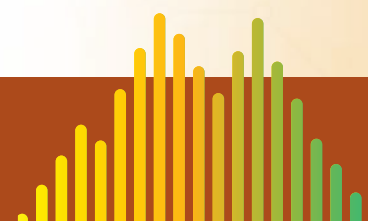
Clinical Center (CC)[†]
Center for Information Technology (CIT)[†]
Center for Scientific Review (CSR)[†]
Fogarty International Center (FIC)*
National Center for Advancing Translational Sciences (NCATS)*
National Center for Complementary and Integrative Health (NCCIH)

NIH Offices

Office of the Director (OD)

* Indicates no intramural program.

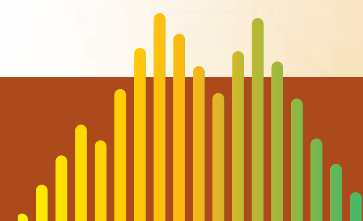
† Indicates no grant-making authority.



APPENDIX III

NUMBER OF SGM-RELATED PROJECTS, BY NIH ICO, FY17–FY21

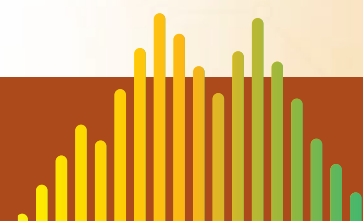
NIH ICO	FY17	FY18	FY19	FY20	FY21
NIMH	90	92	98	126	138
NIAID	55	54	52	61	71
NIDA	77	67	62	58	69
NIMHD	27	35	39	51	60
NICHD	63	62	55	61	50
NIAAA	18	22	28	31	37
NCI	18	18	17	21	21
NHLBI	2	2	11	16	19
NIA	5	7	12	18	14
NIDDK	6	6	9	14	14
FIC	2	4	7	13	14
NINR	6	4	9	13	13
NIGMS	3	3	1	4	11
NIEHS	1	2	1	4	3
OD	3	3	3	2	3
NIDCR	0	0	0	0	2
NHGRI	0	0	2	1	1
NIDCD	1	1	1	1	1
NCCIH	0	0	0	1	1
NIAMS	0	0	0	1	1
NCATS	0	1	0	1	1
NLM	1	1	1	2	0
NIBIB	1	0	0	0	0
Total	379	384	408	500	544



APPENDIX IV

SGM RESEARCH FUNDING, BY NIH ICO, FY17–FY21

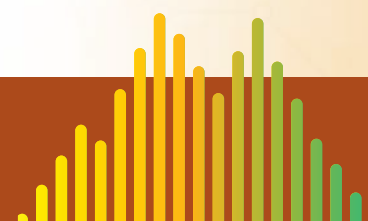
NIH ICO	FY17	FY18	FY19	FY20	FY21
FIC	\$461,067	\$655,891	\$1,178,950	\$2,480,830	\$2,597,169
NCATS	—	\$8,757,478	—	\$78,250	\$78,250
NCCIH	—	—	—	\$168,370	\$168,370
NCI	\$8,464,477	\$7,905,839	\$13,909,205	\$8,134,573	\$17,272,664
NHGRI	—	—	\$354,635	\$212,500	\$234,000
NHLBI	\$892,597	\$1,284,043	\$8,146,375	\$10,612,408	\$14,215,152
NIA	\$2,848,625	\$3,513,115	\$7,800,079	\$9,237,383	\$7,582,547
NIAAA	\$4,640,697	\$6,353,760	\$7,718,038	\$8,716,238	\$9,769,491
NIAID	\$99,922,189	\$156,276,560	\$97,513,633	\$111,671,498	\$139,724,008
NIAMS	—	—	—	\$157,788	\$157,788
NIBIB	\$265,500	—	—	—	—
NICHD	\$29,602,401	\$27,169,305	\$24,490,244	\$25,771,034	\$28,509,566
NIDA	\$30,099,799	\$29,762,873	\$25,845,455	\$28,070,462	\$27,872,820
NIDCD	\$97,802	\$30,257	\$30,749	\$179,842	\$72,609
NIDCR	—	—	—	—	\$899,429
NIDDK	\$1,540,040	\$1,776,864	\$2,177,743	\$2,777,761	\$2,995,178
NIEHS	\$2,127,583	\$2,568,759	\$2,088,356	\$3,412,689	\$3,130,248
NIGMS	\$4,919,606	\$4,906,869	\$640,596	\$979,363	\$3,032,536
NIMH	\$30,643,798	\$33,429,012	\$38,088,241	\$45,252,929	\$53,453,733
NIMHD	\$14,092,073	\$17,219,873	\$18,588,261	\$20,224,436	\$19,168,806
NINR	\$2,128,327	\$1,655,638	\$2,991,475	\$4,075,788	\$5,687,063
NLM	\$218,102	\$173,778	\$134,732	\$201,653	—
OD	\$1,298,752	\$655,988	\$1,473,786	\$1,635,888	\$3,808,369
Total	\$234,264,435	\$304,095,902	\$253,170,553	\$284,051,683	\$ 340,429,796



APPENDIX V

NUMBER OF NON-HIV/AIDS SGM-RELATED PROJECTS, BY NIH ICO, FY17–FY21

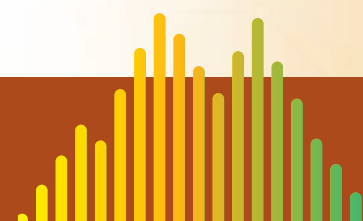
NIH ICO	FY17	FY18	FY19	FY20	FY21
NICHD	39	42	34	41	39
NIMHD	16	24	23	35	36
NIAAA	7	11	16	17	27
NIMH	9	9	10	15	26
NIDA	18	16	19	14	21
NCI	9	11	10	14	14
NIDDK	6	6	9	14	14
NIA	3	4	9	14	13
NINR	1	2	3	6	12
NIAID	4	4	4	5	11
NHLBI	2	2	3	5	9
NIGMS	3	3	1	4	5
NIEHS	1	2	1	4	4
FIC	0	0	0	4	3
OD	3	3	3	2	3
NLM	1	1	1	2	1
NIDCD	1	1	1	1	1
NCATS	0	1	0	1	1
NIAMS	0	0	0	1	1
NCCIH	0	0	0	1	0
NHGRI	0	0	0	1	0
NIBIB	1	0	0	0	0
Total	124	142	147	201	241



APPENDIX VI

SGM PROJECTS AS A PERCENTAGE OF ALL NIH PROJECTS FOR SELECTED RESEARCH, CONDITION, AND DISEASE CATEGORIES, FY21

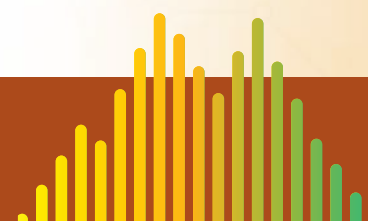
Research, Condition, and Disease Category	Number of SGM Projects	Total Number of Projects at NIH	SGM as a Percentage of All NIH Projects
Violence Research	42	422	9.95%
Sexually Transmitted Infections	76	791	9.61%
Suicide	24	280	8.57%
HIV/AIDS	303	3,732	8.12%
Teenage Pregnancy	3	54	5.56%
Eating Disorders	6	145	4.14%
Contraception/Reproduction	49	1,411	3.47%
Mental Health	231	7,468	3.09%
Substance Misuse	141	4,632	3.04%
Alcoholism, Alcohol Use, and Health	48	1,639	2.93%
Depression	18	1,240	1.45%
Tobacco Smoke and Health	6	675	0.89%
Opioids	5	1,238	0.40%
Obesity	10	2,580	0.39%
Aging	35	10,336	0.34%
Cancer	36	14,817	0.24%
Neurosciences	31	21,009	0.15%
Dementia	5	4,620	0.11%



APPENDIX VII

TOTAL GRANT DOLLARS, BY SGM RESEARCH, CONDITION, AND DISEASE CATEGORY, FY21

Research, Condition, and Disease Category	Funding Amount
HIV/AIDS	\$239,279,270
Substance Misuse	\$145,266,517
Mental Health	\$100,388,434
Sexually Transmitted Infections	\$36,603,745
Cancer	\$36,298,682
Aging	\$30,834,773
Alcoholism, Alcohol Use, and Health	\$25,425,427
Neurosciences	\$21,405,372
Contraception/Reproduction	\$21,080,729
Violence Research	\$13,879,363
Suicide	\$10,897,561
Depression	\$5,489,794
Dementia	\$2,773,201
Obesity	\$2,373,681
Tobacco Smoke and Health	\$2,310,459
Teenage Pregnancy	\$1,628,118
Opioids	\$1,591,891
Eating Disorders	\$1,293,270





National Institutes of Health
Sexual & Gender Minority Research Office

