BIOMEDICAL RESEARCH

Strategic Workforce Planning Needed to Address Recruitment and Hiring Challenges at ARPA-H

Report to Congressional Committees

December 2024
GAO-25-107418
United States Government Accountability Office

Accessible Version

GAO Highlights

December 2024

BIOMEDICAL RESEARCH

Strategic Workforce Planning Needed to Address Recruitment and Hiring Challenges at ARPA-H

Why GAO Did This Study

ARPA-H is a research agency within the Department of Health and Human Services. Congress established ARPA-H to advance biomedical and health research that may not be easily accomplished through traditional research activities for cancer prevention and treatment and other chronic health challenges. The Consolidated Appropriations Act, 2023, permits hiring up to 210 personnel, unless Congress is notified that additional hires are needed.

The act includes a provision for GAO to report on ARPA-H's workforce and use of its hiring authorities. This report examines (1) whether ARPA-H has a workforce planning process to guide its recruiting and hiring efforts for its scientific workforce and (2) challenges ARPA-H has faced in recruiting and hiring its scientific workforce and the extent to which the agency has applied selected leading human capital practices to address the challenges.

GAO analyzed ARPA-H workforce data for the period April 1, 2022, through July 1, 2024. GAO also analyzed data on ARPA-H's use of its hiring authorities and pay flexibilities and interviewed officials about ARPA-H's recruiting and hiring efforts. GAO assessed ARPA-H's efforts against leading human capital practices.

What GAO Recommends

GAO is making three recommendations, including that ARPA-H develop a workforce planning process and assess scientific personnel data to help ensure its recruitment efforts are effective.

ARPA-H concurred with our recommendations.

What GAO Found

Since it was established in 2022, the Advanced Research Projects Agency for Health (ARPA-H) has hired 66 scientific personnel—more than half of its total workforce of 118. The most common scientific positions include program managers, who are generally term-limited to three years, have experience in biomedical sciences and engineering, and direct ARPA-H's funded projects. GAO found that ARPA-H does not have a workforce planning process to guide its recruitment and hiring efforts. GAO's prior work found that a strategic workforce planning process is important for agencies with science and technology missions, which must compete for talent with the private sector, and keep pace with scientific advancements. A workforce planning process would help ensure the agency avoids skills gaps.

ARPA-H Scientific Workforce Demographic Composition, as of July 1, 2024
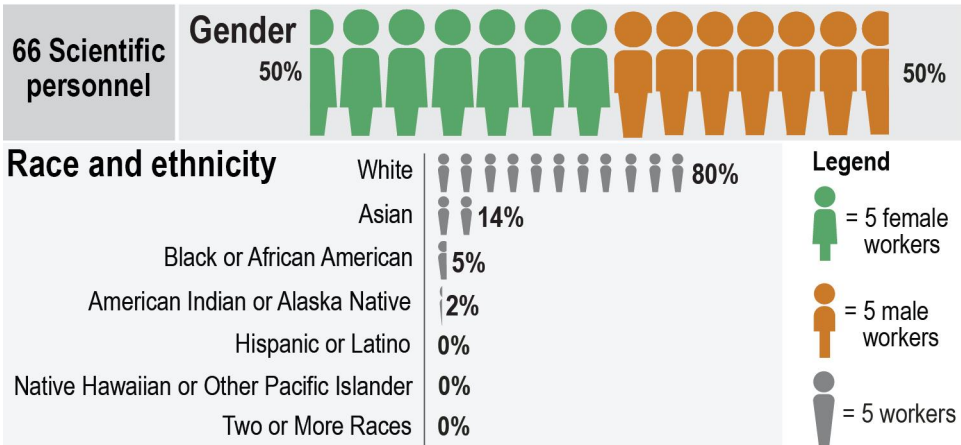
Source: GAO analysis of Advanced Research Projects Agency for Health (ARPA-H) data; GAO (icons). | GAO-25-107418

Accessible Data for ARPA-H Scientific Workforce Demographic Composition, as of July 1, 2024

ARPA-H Scientific Workforce by Demographic Traits

Demographic Variable	N	Percentage
Gender: Male	33	50%
Gender: Female	33	50%
Age: Under 40	15	23%
Age: 40 or over	51	77%
Age: 18-25	0	0%
Age: 26-35	7	11%
Age: 36-45	28	42%
Age: 46-55	23	35%
Age: 56-65	8	12%
Age: Over 65	0	0%
Race: White	53	80%
Race: Native Hawaiian or Other Pacific Islander	0	0%
Race: Black and African American	3	5%
Race: Asian	9	14%
Race: American Indian or Alaska Native	1	2%
Race: Hispanic or Latino	0	0%
Race: Multiracial	0	0%

Source: GAO analysis of Advanced Research Projects Agency for Health (ARPA-H) data. I GAO-25-107418

Note: Due to rounding, the total percentages may not add to 100 percent.

The Consolidated Appropriations Act, 2023, states that ARPA-H shall make efforts to recruit a diverse workforce. ARPA-H officials told GAO that the agency is experiencing challenges recruiting and hiring diverse candidates with highly specialized skills for its scientific workforce because of a small talent pool. The agency has taken steps such as visiting Historically Black Colleges and Universities and Hispanic-serving institutions, but it has not assessed the effectiveness of its recruiting efforts for its scientific workforce. GAO's leading practices on human capital management state that to help achieve an agency's desired

diversity outcomes it is critical to collect data and track progress toward outcomes. Understanding whether the recruitment activities are effective would better position ARPA-H to make additional progress in meeting its workforce goals. ARPA-H officials also cited competing with the higher salaries offered by the private sector as a challenge. While the agency has used multiple hiring authorities to hire scientific personnel, it has not assessed data on the pay incentives it uses. Doing so would be a critical first step in helping the agency use its flexibilities more strategically and effectively to meet its hiring needs.

Contents

Abbreviations

- AD   Administratively Determined
- ARPA-H   Advanced Research Projects Agency for Health
- GS   General Schedule
- HBCU   Historically Black Colleges and Universities
- HHS   Department of Health and Human Services
- NIH   National Institutes of Health
- OPM   Office of Personnel Management
- SRO   Strategic Resources Office

GAO
U.S. GOVERNMENT ACCOUNTABILITY OFFICE

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Washington, DC 20548

December 26, 2024

The Honorable Bernard Sanders
Chair
The Honorable Bill Cassidy, M.D.
Ranking Member
Committee on Health, Education, Labor and Pensions
United States Senate

The Honorable Cathy McMorris Rodgers
Chair
The Honorable Frank Pallone, Jr.
Ranking Member
Committee on Energy and Commerce
House of Representatives

The Advanced Research Projects Agency for Health (ARPA-H) is an extramural research funding agency residing within the Department of Health and Human Services' (HHS) National Institutes of Health (NIH). Congress established the agency to advance high-potential, high-impact biomedical and health research.[1] ARPA-H aims to create the next generation of lifesaving treatments and cures to improve the health and well-being of all Americans. According to its 2023 strategic plan, ARPA-H will operate at the forefront of scientific advancement and will address the most urgent challenges in the health ecosystem, including issues such as escalating rates of chronic diseases, cancer prevention and treatment, novel interventions for neurodegenerative diseases, the continued need for pandemic preparedness, and rising antimicrobial resistance.[2]

ARPA-H is modelled after other federal advanced research agencies in that it is designed to be organizationally flat and nimble, with key positions staffed by tenure-limited program managers.[3] Program managers are expected to drive innovation and work with urgency, efficiency, and speed in developing ideas and solutions while operating with a high degree of autonomy to select and fund research projects. They are responsible for leading programs with measurable outcomes focused on specific, well-defined health challenges that are not easily solvable through existing research activities.

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[1]The Consolidated Appropriations Act, 2023, Pub. L. No. 117-328, § 2331, 136 Stat. 4459, 5770 (to be codified at 42 U.S.C. § 290c) was enacted on March 15, 2022, authorizing the establishment of ARPA-H. The Secretary of HHS formally established ARPA-H on May 24, 2022. Establishment of the Advanced Research Projects Agency for Health, 87 Fed. Reg. 32174 (May 27, 2022). Research supported by ARPA-H is performed by scientists and research personnel working at universities, academic medical centers, and other research institutions who receive grants and other types of federal funding.

[2]Advanced Research Projects Agency for Health, *Advanced Research Projects Agency for Health Strategic Plan Fiscal Years 2024-2026* (Dec. 2023).

[3]Program managers are qualified and experienced in multidisciplinary fields such as biomedical sciences, computational technologies, engineering, medicine, or behavioral sciences. Program managers are hired for an initial term of 3 years and may be renewed for up to an additional 3 years. Consolidated Appropriations Act, 2023, Pub. L. No. 117-328, § 2331, 136 Stat. 4459, 5776 (to be codified at 42 U.S.C. § 290c(j)(1).

As ARPA-H's funded projects will largely be shaped by the agency's program managers and other scientific personnel, questions remain about the agency's ability to recruit the appropriate talent and expertise for such positions, and whether challenges or barriers to recruitment have been identified. Congress has expressed concerns about the ability of the federal workforce to keep pace in emerging scientific and technical fields, and in establishing ARPA-H, authorized the agency to use certain hiring authorities and pay flexibilities to help it attract scientific personnel. In addition, we have previously reported on mission-critical gaps in federal workforce skills and expertise in fields such as science and technology as a high-risk area since 2001.[4] In 2021, we reported on the importance of strengthening and sustaining the federal science and technology workforce, particularly in the areas of strategic workforce planning.[5] Such efforts can help agencies build a diverse, highly qualified, and agile workforce.[6]

The Consolidated Appropriations Act, 2023 includes a provision for us to report on ARPA-H's use of its hiring authorities.[7] This report examines (1) whether ARPA-H has a workforce planning process to guide recruiting and hiring efforts for its scientific workforce;[8] and (2) challenges ARPA-H has faced in recruiting and hiring its scientific workforce and the extent to which the agency has applied selected leading human capital practices to address them.

For the first objective, we collected and analyzed ARPA-H workforce data from April 1, 2022, through July 1, 2024, the most recent and reliable data available at the time of our review. These data included information on the number of positions publicly announced and filled; the occupational series, grades, and types of appointments of such positions; the number of individuals appointed; and aggregated demographic information related to hired employees.[9] We collected information from ARPA-H on how its Director made appointment decisions, how positions relate to advancing the goals and functions of ARPA-H, and a summary of sources

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[4]GAO, *High-Risk Series: An Update*, GAO-01-263 (Washington, D.C.: Jan. 2001) and GAO, *High-Risk Series: Efforts Made to Achieve Progress Need to Be Maintained and Expanded to Fully Address All Areas*, GAO-23-106203 (Washington, D.C.: Apr. 20, 2023).

[5]GAO, *Science and Technology: Strengthening and Sustaining the Federal Science and Technology Workforce*, GAO-21-461T (Washington, D.C.: Mar. 17, 2021). Testimony before the Subcommittee on Investigations and Oversight, Committee on Science, Space, and Technology, House of Representatives.

[6]For purposes of this report, we use the definition of diversity in Executive Order 14035, which is the practice of including the many communities, identities, races, ethnicities, backgrounds, abilities, cultures, and beliefs of the American people, including underserved communities. Exec. Order No. 14035, §2(b), *Diversity, Equity, Inclusion, and Accessibility in the Federal Workforce,* 86 Fed. Reg. 34593 (June 25, 2021).

[7]Consolidated Appropriations Act, 2023, Pub. L. No. 117-328, § 2331, 136 Stat. 4459, 5779 (to be codified at 42 U.S.C. § 290c(k)(3)(C)).

[8]For the purposes of this report, scientific, engineering, medical, and professional personnel are collectively referred to as "scientific personnel" unless otherwise noted. According to ARPA-H officials, scientific personnel are those who use systematic study, research, and experimentation in the sciences to increase knowledge, test hypotheses, and develop new applications. Engineering personnel apply the principles of science and mathematics to imagine or design solutions, processes, components, or systems to solve technical problems. Their expertise allows for the application of scientific discoveries for commercial applications that meet societal and consumer needs. Medical personnel are trained and licensed to practice medicine, including physicians, surgeons, nurses, and other health care professionals involved in the diagnosis, treatment, and prevention of diseases and medical conditions. Professional personnel have specialized knowledge and skills in a particular field, often requiring advanced education and training. This category includes subject matter experts and professionals who contribute to the advancement and application of knowledge in their respective fields. NIH officials added that the Office of Personnel Management (OPM) categorizes federal positions based on the nature of the work performed and knowledge required to perform the work.

[9]For purposes of this report, the terms appoint, appointed, and appointments, are interchangeable with the human capital processes related to the terms of hire(s), hired, and hiring which are used throughout the report.

used to identify candidates for filling positions, as applicable. We also collected information on the number of personnel the agency plans to hire in fiscal years 2025–2026. We found the data sufficiently reliable for providing information on ARPA-H's workforce composition and hiring efforts. We also applied a selected leading human capital practice on strategic workforce planning to assess ARPA-H's efforts on developing its scientific workforce.[10]

For the second objective, we interviewed ARPA-H officials to identify any challenges, limitations, or gaps related to the use of the agency's authorities for hiring scientific personnel. We also interviewed ARPA-H officials about efforts and plans to recruit and hire scientific personnel. We collected and assessed data on ARPA-H's use of its hiring authorities and pay flexibilities, such as how often incentive payments were made. We reviewed documents from ARPA-H and NIH related to human capital strategic planning and procedures for setting pay levels and recruitment incentives, among other topics. We reviewed Office of Personnel Management (OPM) documents related to salary schedules, pay plans, and occupational series and groups. We assessed ARPA-H efforts to address challenges in recruiting and hiring its scientific workforce by applying selected leading human capital practices on recruitment, diversity management, and pay flexibilities.[11]

For both objectives, we interviewed ARPA-H officials who were involved in managing ARPA-H's workforce and had information on ARPA-H workforce goals and planning and recruitment strategies. We also interviewed ARPA-H officials to obtain information on challenges to achieving diversity in its scientific workforce and how the agency plans to address them.

We conducted this work from February 2024 to December 2024 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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[10]GAO, *FDA Workforce: Agency-Wide Workforce Planning Needed to Ensure Medical Product Staff Meet Current and Future Needs*, GAO-22-104791 (Washington, D.C.: Jan. 14, 2022).

[11]GAO, *Human Capital: Effective Use of Flexibilities Can Assist Agencies in Managing Their Workforces*, GAO-03-2 (Washington, D.C.: Dec. 6, 2002); GAO, *Diversity Management: Expert-Identified Leading Practices and Agency Examples*, GAO-05-90 (Washington, D.C.: January 14, 2005); GAO, *National Institute of Standards and Technology: Improved Workforce Planning Needed to Address Recruitment and Retention Challenges*, GAO-23-105521 (Washington, D.C.: Feb. 28, 2023); GAO, *Federal Workforce: Leading Practices Related to Diversity, Equity, Inclusion, and Accessibility*, GAO-24-106684 (Washington, D.C.: May 23, 2024).

Background

ARPA-H Workforce Goals

ARPA-H Focus Areas to Support the Advancement of Biomedical Science and Innovation

Health science futures—accelerating advances in medical research by targeting innovative tools, technologies, and platforms that can apply to a broad range of diseases that affect large populations, rare diseases, or diseases with limited treatment options.

Scalable solutions—improving health care access and affordability by addressing challenges that include populations in diverse demographic regions as well as distribution, manufacturing, and economies of scale.

Proactive health—developing breakthrough capabilities to mitigate the risk of disease onset and progression, such as through the creation of new capabilities to identify and characterize disease risk and reduce comorbidities.

Resilient systems—driving advances in health systems to create capabilities, develop mechanisms, and accelerate systems integration to enhance health ecosystem stability and reliability to persevere through crises.

GAO analysis of information from the Advanced Research Projects Agency for Health (ARPA-H) | GAO-25-107418

In 2022, the Biden administration appointed ARPA-H's first Director who is responsible for advancing the agency's goals as specified in the Consolidated Appropriations Act, 2023.[12] The goals are:

- fostering the development of novel, breakthrough, and broadly applicable capabilities and technologies to accelerate transformative innovation in biomedical science and medicine that cannot be readily accomplished through traditional federal biomedical research and development programs or commercial activity;

- revolutionizing the detection, diagnosis, mitigation, prevention, treatment, and cure of diseases and health conditions by overcoming long-term and significant technological and scientific barriers to developing transformative health technologies;

- promoting high-risk, high-reward innovation to enable the advancement of transformative health technologies; and

- helping to ensure that the United States pursues initiatives that aim to maintain global leadership in science and innovation and improves the health and well-being of its citizens by supporting the advancement of biomedical science and innovation (see sidebar).[13]

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[12]The ARPA-H Director reports to the Secretary of HHS under the law. According to ARPA-H officials, while the agency was established within NIH, this reporting structure provides a degree of independence from NIH and autonomy over decision-making.

[13]ARPA-H is to achieve its goals by carrying out certain functions, including supporting the discovery, identification, and promotion of revolutionary advancements in science; translation of scientific discoveries into transformative health technologies with potential application for biomedical science and medicine; creation of platform capabilities that draw on multiple disciplines; delivery of proofs of concept that demonstrate meaningful advances with potential clinical application; and development of new capabilities and methods to identify potential targets and technological strategies for early disease detection and intervention, such as advanced computational tools and predictive models; and acceleration of transformational health technological advances in areas with limited technical certainty. Consolidated Appropriations Act, 2023, Pub. L. No. 117-328, § 2331, 136 Stat. 4459, 5775 (to be codified at 42 U.S.C. § 290c(b)(1)-(2)).

The Consolidated Appropriations Act, 2023, authorizes the Director of ARPA-H to, among other things, hire scientific and non-scientific personnel for the purposes of carrying out the agency's duties.[14] The act specifies that no more than 210 personnel are to be hired by ARPA-H unless the Director notifies Congress that additional personnel are required.[15]

The Director may appoint (which may include temporary or term-limited appointments) and remove scientific, engineering, medical, and professional personnel to fulfill ARPA-H's mission. In addition, according to the act, personnel appointments are not subject to Title 5, United States Code requirements that govern appointments and removals under civil service laws. ARPA-H's Director may determine base pay compensation for ARPA-H personnel up to the amount of annual compensation for the President.[16] Moreover, the Director may hire administrative, financial, clerical, and other staff necessary to support ARPA-H goals and functions; and may contract with private recruiting firms for assistance in identifying highly qualified candidates for technical positions.[17]

The act states that when appointing personnel, the ARPA-H Director must make efforts to recruit a workforce that is diverse. This includes individuals with a variety of professional experiences or backgrounds as well as individuals underrepresented in science, engineering, and medicine, such as racial and ethnic minorities, provided such efforts do not conflict with applicable federal civil rights law.[18] Furthermore, ARPA-H must recruit and appoint program managers who have demonstrated expertise in a wide range of scientific disciplines and management skills.

ARPA-H Workforce Composition

According to ARPA-H officials, the agency's overall workforce planning strategy has involved establishing core functions and hiring personnel to carry out scientific advancement. As a result, their hiring strategy focused first on hiring administrative and managerial staff, followed by an increased focus on hiring program managers and other scientific personnel. As the number of ARPA-H scientific personnel has grown, a considerable amount of administrative support has also been needed to allow program managers to successfully fulfill their responsibilities.

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[14]Consolidated Appropriations Act, 2023, Pub. L. No. 117-328, § 2331, 136 Stat. 4459, 5775 (to be codified at 42 U.S.C. § 290c(i)(1)). This appointment authority was first granted to the Director under the Consolidated Appropriations Act, 2022, Pub. L No. 117-103, 136 Stat. 49, 465 (42 U.S.C. § 241 note), and it was made permanent under the Consolidated Appropriations Act, 2023. See also, Consolidated Appropriations Act, 2023, Pub. L. No. 117-328, § 2331, 136 Stat. 4459, 5776 (to be codified at 42 U.S.C. § 290c(i)(1)).

[15]Consolidated Appropriations Act, 2023, Pub. L. No. 117-328, § 2331, 136 Stat. 4459, 5775 (to be codified at 42 U.S.C. § 290c(i)(3)).

[16]The maximum base salary compensation for the President is $400,000 annually. 3 U.S.C. § 102. ARPA-H has the authority to determine base pay only for excepted service hiring authority granted by the Consolidated Appropriations Act, 2023, Pub. L. No. 117-328, § 2331, 136 Stat. 4459, 5775 (to be codified at 42 U.S.C. § 290c(i)(1)(B)), and all other hiring follows applicable pay setting regulations.

[17]ARPA-H officials told us that administrative personnel include general legal services and administrative officer roles, and that other positions support leadership and research and development.

[18]Consolidated Appropriations Act, 2023, Pub. L. No. 117-328, § 2331, 136 Stat. 4459, 5776 (to be codified at 42 U.S.C. § 290c(i)(5)(B)).
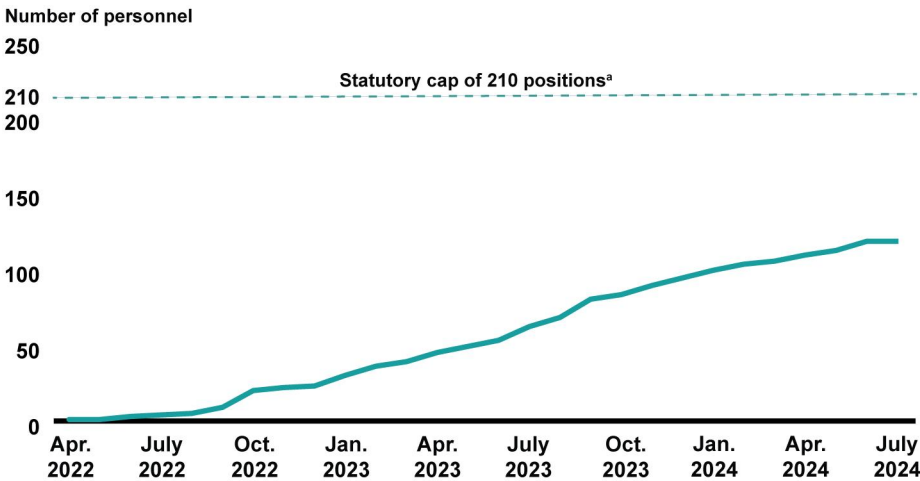
As of July 1, 2024, ARPA-H had hired 118 personnel, representing about 56 percent (118 of 210) of its total allowable workforce level, as shown in figure 1.

Figure 1: Total ARPA-H Workforce as of July 1, 2024

Source: GAO analysis of Advanced Research Projects Agency for Health (ARPA-H) data. | GAO-25-107418

[a]The Consolidated Appropriations Act, 2023, authorized the Director of ARPA-H to hire no more than 210 personnel unless the Director notifies Congress that additional personnel are required. Prior to its enactment, ARPA-H was not subject to this statutory personnel cap.

Accessible Data for Figure 1: Total ARPA-H Workforce as of July 1, 2024

Date	Count	Total
Jan 2022	0	0
Feb 2022	0	0
Mar 2022	0	0
Apr 2022	1	1
May 2022	0	1
Jun 2022	2	3
Jul 2022	1	4
Aug 2022	1	5
Sep 2022	4	9
Oct 2022	11	20
Nov 2022	3	23
Dec 2022	1	24
Jan 2023	7	31
Feb 2023	6	37
Mar 2023	3	40
Apr 2023	6	46
May 2023	4	50
Jun 2023	4	54
Jul 2023	10	64

Date	Count	Total
Aug 2023	7	71
Sep 2023	12	83
Oct 2023	3	86
Nov 2023	6	92
Dec 2023	5	97
Jan 2024	6	103
Feb 2024	4	107
Mar 2024	1	108
Apr 2024	0	108
Total N	108	

Date	Count	Total
Jan 2022	0	0
Feb 2022	0	0
Mar 2022	0	0
Apr 2022	1	1
May 2022	0	1
Jun 2022	2	3
Jul 2022	1	4
Aug 2022	1	5
Sep 2022	4	9
Oct 2022	11	20
Nov 2022	2	22
Dec 2022	1	23
Jan 2023	7	30
Feb 2023	6	36
Mar 2023	3	39
Apr 2023	6	45
May 2023	4	49
Jun 2023	4	53
Jul 2023	9	62
Aug 2023	6	68
Sep 2023	12	80
Oct 2023	3	83
Nov 2023	6	89
Dec 2023	5	94
Jan 2024	5	99
Feb 2024	4	103
Mar 2024	2	105
Apr 2024	4	109
May 2024	3	112
Jun 2024	6	118
Jul 2024	0	118
Aug 2024	0	118
Total N	118	

Source: GAO analysis of Advanced Research Projects Agency for Health (ARPA-H) data. I GAO-25-107418

ARPA-H Hiring Plans

According to documentation provided to us during our review, ARPA-H expects to hire another 40 personnel in fiscal year 2025 and 30 personnel in fiscal year 2026, as shown in figure 2.

Figure 2: ARPA-H Workforce Hiring Targets, Fiscal Years 2025-2026
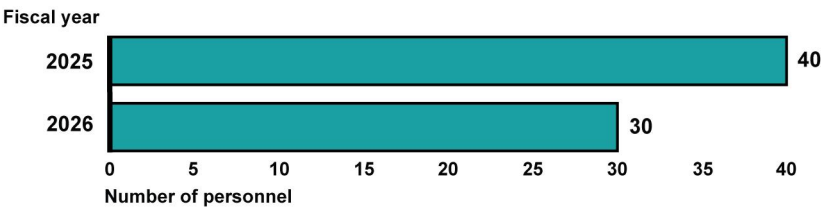
Source: GAO analysis of Advanced Research Projects Agency for Health (ARPA-H) data. | GAO-25-107418

Accessible Data for Figure 2: ARPA-H Workforce Hiring Targets, Fiscal Years 2025-2026

Table 1. ARPA-H Workforce Hiring Targets, Fiscal Years 2025-2026

Category	FY25	FY26	Total
Hiring	2	0	2
Vacant	38	30	68
Total	40	30	70

[1] The "hiring" category reflects prospective ARPA-H employees who have been identified as candidates or accepted ARPA-H offers.

Source: GAO analysis of Advanced Research Projects Agency for Health (ARPA-H) data. I GAO-25-107418

ARPA-H documentation indicates that the agency plans to hire a total of 205 personnel—126 scientific and 79 administrative—by the end of fiscal year 2026, slightly under the statutory cap of 210 total personnel.

ARPA-H Scientific Workforce Hiring is Not Guided by a Strategic Workforce Planning Process

As of July 1, 2024, ARPA-H had hired 66 scientific personnel—more than half of the agency's total hired workforce level.[19] ARPA-H has established a process for identifying and hiring scientific personnel, but it lacks a strategic workforce planning process to guide these efforts.

ARPA-H Has Hired More than Half of Its Planned Scientific Workforce

According to our review of agency workforce data, as of July 1, 2024, about 56 percent of ARPA-H personnel hired are designated as scientific (66 of 118). The most common scientific positions ARPA-H has filled are program managers (15 out of 66) and program analysts (13 out of 66).

Our review identified several characteristics of ARPA-H's scientific workforce as of July 1, 2024:

[19]As of July 1, 2024, the agency has hired over half (about 52 percent) of the total scientific workforce (126) that it expects to hire by the end of fiscal year 2026.

- **Scientific personnel represent multiple occupational series.** ARPA-H uses the OPM occupational groups and series for categorizing its scientific workforce.[20] ARPA-H scientific personnel fall into eight occupational groups. The top three occupational series with the most scientific personnel are general medical and healthcare (25); management and program analysis (13); and information technology management (7). Table 1 shows ARPA-H's occupational groups and series for its scientific workforce, as of July 1, 2024.

Table 1: ARPA-H Scientific Workforce as Categorized by Office of Personnel Management Occupational Groups and Series, as of July 1, 2024

Occupational group	Series code	Number of personnel hired
Medical, hospital, dental, and public health: General medical and healthcare	0601	25
Medical, hospital, dental, and public health: Physician	0602	2
Medical, hospital, dental, and public health: Public health program specialist	0685	3
General administrative, clerical, and office services: Management and program analysis[a]	0343	13
Information technology: Information technology management	2210	7
Business and industry: General business and industry	1101	3
Business and industry: Contracting	1102	1
Natural resources management and biological sciences: General natural resources management and biological science	0401	3
Mathematical sciences group: General mathematics and statistics	1501	1
Mathematical sciences group: Computer science	1550	2
Mathematical sciences group: Data science	1560	1
Engineering and architecture: Nuclear engineering	0840	2
Engineering and architecture: Computer engineering	0854	1
Engineering and architecture: Chemical engineering	0893	1
Legal and kindred: General attorney	0905	1
Total		**66**

Source: GAO analysis of ARPA-H workforce data as of July 1, 2024. | GAO-25-107418

Note: Individuals hired in scientific, engineering, medical, and professional fields are referred to as 'scientific personnel'.

[a]Employees in this occupational series were categorized by ARPA-H officials as professional staff with scientific expertise. According to agency officials, per OPM guidelines program analyst positions are categorized under administrative work, and the position does not require a degree. These positions provide direct support to the scientific work.

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[20]OPM defines occupational group as a major subdivision of the General Schedule (covering white-collar occupations), including a group of associated or related occupations. Examples of such groups include Accounting and Budget, GS−0500; the Engineering and Architecture, GS−0800; General Administrative, Clerical, and Office Services, GS−0300. OPM defines an (occupational) series as a subdivision of an occupational group similar as to specialized line of work and qualification requirements. Series are designated by a title and number. Examples of such series include Accounting, GS-0510; Secretary, GS-0318; and Microbiology, GS-0403. OPM, *Introduction to the Position Classification Standards*, TS-134, (July 1995, Revised 2009).

- **Some scientific personnel are classified under three salary grades.** The agency follows OPM's General Schedule (GS) classification standards in grading some scientific positions.[21] As shown in table 2, of the 66 scientific personnel, 19 are classified as GS-12 or higher, 46 are Administratively Determined (AD) and 1 is a Special Consultant.[22]

Table 2: ARPA-H Scientific Personnel Salary Grades, as of July 1, 2024

Pay Plan	Grade	Number of personnel hired
General Schedule	12	3
General Schedule	14	9
General Schedule	15	7
Administratively Determined	na	46
Special Consultant[a]	na	1
Total		**66**

Source: GAO analysis of ARPA-H workforce data as of July 1, 2024. | GAO-25-107418

[a]The Director of ARPA-H was hired under the Special Consultant (RF) OPM category. The authority to hire "special consultants" is granted by 42 U.S.C. §209(f) Special Consultants. According to HHS, appointments under 42 U.S.C. § 209(f) may only be used to fill scientific positions.

- **Most scientific positions were publicly announced.** The agency announces scientific job vacancies through multiple public channels. These include ARPA-H's website; LinkedIn Recruiter; HHS Careers website; USA Jobs; and internal or cross-federal transfers where certificates of eligible candidates are shared throughout HHS operating divisions. Fifty-two of the 66 scientific positions ARPA-H filled were publicly announced or posted.

- **Demographic information for scientific personnel shows some variation.** Aggregated ARPA-H scientific workforce demographic data on employee race, gender, and age show variations across these categories.[23] According to ARPA-H workforce data, the agency's scientific workforce is 80 percent White, 14 percent Asian, 5 percent Black or African American, and 2 percent American Indian or Alaska Native. Most of the scientific workforce—79 percent (52 of 66 personnel)—is between 36 and 55 years old. The scientific workforce is evenly split between male and female. Five of the 66 scientific personnel received

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[21]Classification standards are issued by OPM to relate the grade level definitions in Title 5 to specific work situations, thereby providing the basis for assigning to each position the appropriate title, series, and grade. The General Schedule is the broadest subdivision of the classification system covered by Title 5 and includes a range of levels of difficulty and responsibility for covered positions from grades GS−1 to GS−15. It is designated by "GS" for positions at all these grade levels. OPM, *Introduction to the Position Classification Standards*, TS-134 (July 1995, Revised 2009).

[22]According to OPM, some pay plan codes, such as Administratively Determined (AD), may be used by any agency with an independent authority to administratively determine the rates of pay for any group or category of employees. Each agency must follow its own unique statutory pay authority when setting and adjusting pay under an AD pay system. See OPM, Fact Sheet: Pay Plans, available at https://www.opm.gov/policy-data-oversight/pay-leave/pay-administration/fact-sheets/pay-plans/. Pay plans such as RF is the authority to hire "special consultants" is granted by 42 U.S.C. §209(f) Special Consultants. The Director of ARPA-H was hired under this pay plan referred to by OPM as (RF). Appointments under 42 U.S.C. § 209(f) may only be used to fill scientific positions. The authority will be used only when recruitment or retention efforts under other available and applicable personnel systems, including Title 5 of the United States Code, the Senior Biomedical Research Service (SBRS), and the PHS Commissioned Corps, have failed to yield candidates that possess critical scientific expertise. This instruction does not apply to any other excepted service appointments, including Special Government Employees (SGEs), Expert and Consultants, the SBRS, or those covered by 42 U.S.C. § 209(g).

[23]An employee may choose not to disclose some, or all the demographic information requested in the questionnaires provided during the hiring process.

veterans' preference in the recruitment process.[24] Seven of the 66 scientific personnel self-reported having a disability.[25] Figure 3 shows the demographic composition of ARPA-H's scientific workforce.

Figure 3: Demographic Composition of ARPA-H Scientific Workforce, as of July 1, 2024
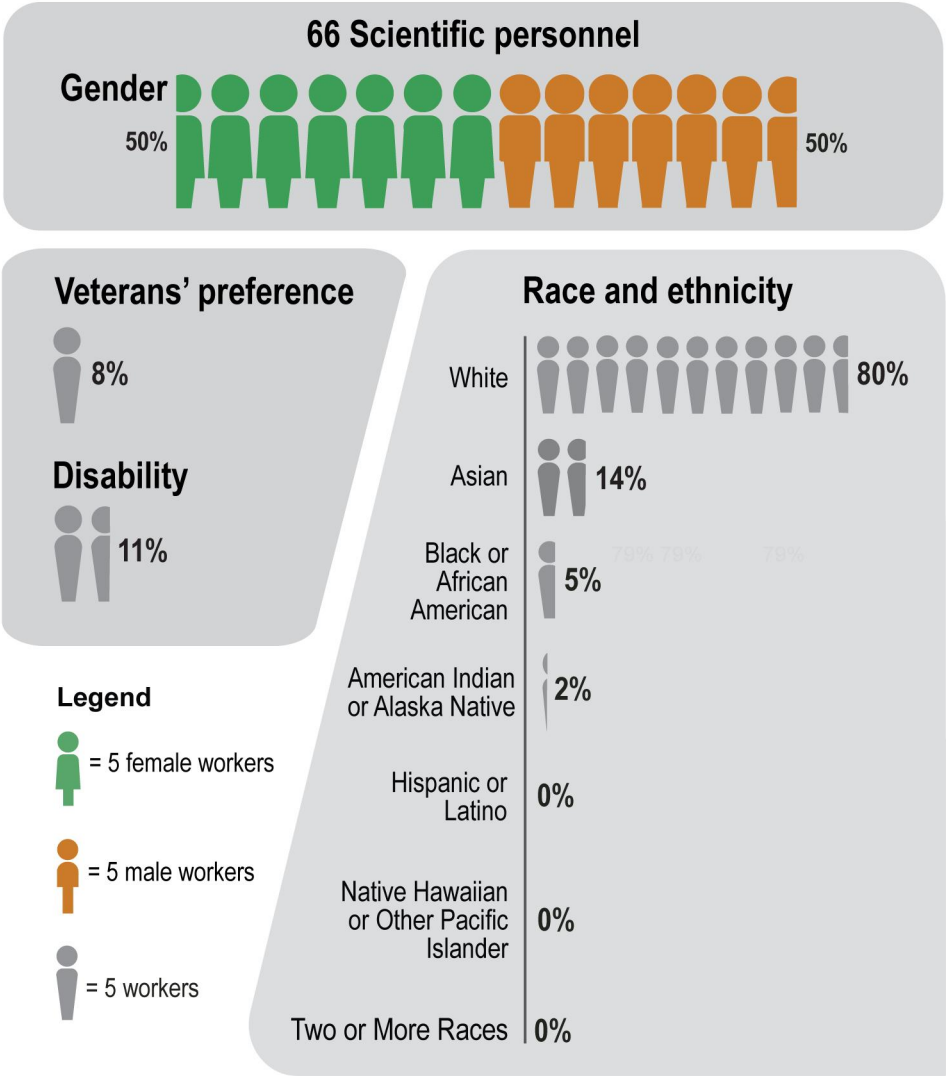
Source: GAO analysis of Advanced Research Projects Agency for Health (ARPA-H) data; GAO (icons). | GAO-25-107418

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[24]OPM describes veterans' preference as giving eligible veterans preference in appointment over many other applicants. Veterans' preference applies to all new appointments in the competitive service and many in the excepted service. Veterans' preference does not guarantee veterans a job and it does not apply to internal agency actions such as promotions, transfers, reassignments, and reinstatements. There are three types of preference eligibility: sole survivorship (0 point preference eligible), non-disabled (5 point preference eligible), and disabled (10 point preference eligible).

[25]Among the ARPA-H scientific personnel, 5 of 66 declined to report any declaration of a disability.

Accessible Data for Figure 3: Demographic Composition of ARPA-H Scientific Workforce, as of July 1, 2024

ARPA-H Scientific Workforce by Demographic Traits

Demographic Variable	N	Percentage
Gender: Male	33	50%
Gender: Female	33	50%
Age: Under 40	15	23%
Age: 40 or over	51	77%
Age: 18-25	0	0%
Age: 26-35	7	11%
Age: 36-45	28	42%
Age: 46-55	23	35%
Age: 56-65	8	12%
Age: Over 65	0	0%
Race: White	53	80%
Race: Native Hawaiian or Other Pacific Islander	0	0%
Race: Black and African American	3	5%
Race: Asian	9	14%
Race: American Indian or Alaska Native	1	2%
Race: Hispanic or Latino	0	0%
Race: Multiracial	0	0%

Source: GAO analysis of Advanced Research Projects Agency for Health (ARPA-H) data. I GAO-25-107418

Notes: Demographic information on employees is collected by the agency during the hiring process. This information is self-reported by the applicant. Due to rounding, the total percentages may not add to 100 percent.

ARPA-H Has Not Established a Strategic Workforce Planning Process to Guide Its Recruitment and Hiring Efforts

According to ARPA-H officials, the agency uses a multifaceted approach for identifying and hiring scientific personnel. The approach includes

- leveraging existing networks to seek some employees with private sector experience;

- posting open positions on ARPA-H's website and social media platforms and using LinkedIn Recruiter;

- contacting attendees who present interesting and relevant concepts at scientific conferences and have backgrounds that demonstrate clear subject matter expertise; and

- establishing an advisor position to help ARPA-H identify, recruit, and hire high-caliber talent when competing with the private sector and other organizations.

ARPA-H officials explained that they receive a list of scientific applicants from NIH for GS candidates and then complete the screening process. ARPA-H collaborates with NIH and relies on its human resources capabilities

and infrastructure for screening and other administrative functions, according to officials.[26] Specifically, NIH forwards GS candidate lists to an ARPA-H hiring manager, after which they are reviewed and scored. Potential job candidates are vetted against requisite qualifications and are typically interviewed by multiple leaders in ARPA-H, after which offers are made. For scientific positions requiring specialized skills, no offers are made until NIH's human resources office has cleared a candidate and checked credentials, such as transcripts or certifications. ARPA-H officials explained that they are in the process of simplifying their interview questions to ensure the agency obtains the necessary information efficiently to make informed hiring decisions more quickly.

In addition, ARPA-H officials noted they are working to streamline the program manager recruitment process by leveraging recruitment data and insights to enhance the quality and diversity of program manager applications and to reduce the average time to process such applications. Program manager candidates undergo a lengthy screening and application process prior to hiring. Candidates must answer technical questions modelled after other federal advanced research agencies and their applications are reviewed at ARPA-H's executive level. If qualified, the applicant will be invited to interview over the course of 2 to 3 months, during which time a candidate presents and defends research program ideas to ARPA-H leadership and a technical team that includes doctors and scientists. After this process has concluded, a decision on whether to recommend the program manager for a position is sent to ARPA-H's Director.[27]

However, we found the agency does not have a strategic workforce planning process to guide these efforts. ARPA-H officials told us that while they do not have a human capital workforce plan, their Strategic Resources Office (SRO) works on a variety of human capital administrative functions. They further noted that the SRO works with NIH's human resources office to execute personnel actions. When we asked about workforce planning documents or strategies, ARPA-H officials directed us to the agency's 2023 strategic plan, which mentions ARPA-H's overall workforce goals.[28] For example, among other things, the strategic plan states that ARPA-H will sustain a workforce of talented operational staff and program managers that demonstrate diversity of lived experience, geography, and scientific, technical, and management expertise from government, industry, academia, and think tanks. However, the strategic plan does not detail how the agency would achieve its workforce goals and objectives.

Our prior work identified a strategic workforce planning process as a leading practice. Such a process is particularly important for agencies with science and technology missions such as ARPA-H, which must compete for talent with the private sector and universities and keep pace with scientific advancements.[29] Strategic workforce planning aligns an organization's human capital program with its current and emerging mission and programmatic goals. It also develops long-term strategies for acquiring, developing, and retaining

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[26]Additionally, according to NIH officials, NIH's Office of Human Resources is also responsible for collecting new employee data at the point of onboarding and submits it for processing within their human capital management system on a rolling basis.

[27]ARPA-H uses a memorandum to document the Director's decision for hiring a program manager. This memo includes information on term limitations and duties, the curriculum vitae of a candidate, and the reasons for the recommendation to hire an individual. It also includes the salary recommendation, an approval date, and signature of the Director.

[28]Advanced Research Projects Agency for Health, *Advanced Research Projects Agency for Health Strategic Plan Fiscal Years 2024-2026* (Dec. 2023).

[29]GAO, *Science and Technology: Strengthening and Sustaining the Federal Science and Technology Workforce*, GAO-21-461T (Washington, D.C.: Mar. 17, 2021) and GAO, *FDA Workforce: Agency-Wide Workforce Planning Needed to Ensure Medical Product Staff Meet Current and Future Needs*, GAO-22-104791 (Washington, D.C.: Jan. 14, 2022).

staff to achieve those goals. ARPA-H officials said they do not have such workforce planning strategies and plan to develop them after HHS approves ARPA-H's reorganization.[30] A workforce planning process—in conjunction with identifying skills and competencies and analyzing gaps—enables an organization to be agile, resilient, and responsive to current and future demographic and technological trends, as well as other demands.[31] Instead of waiting for the reorganization to be approved by HHS, initiating a process now that aligns with the agency's strategic goals would help managers ensure the agency's workforce has needed skills and avoids program disruptions that can occur when skills gaps exist.

ARPA-H Faces Scientific Workforce Challenges but Has Not Fully Applied Selected Leading Practices to Assess the Effectiveness of Its Efforts

ARPA-H officials stated that the agency is experiencing challenges with recruiting and hiring diverse candidates for its scientific workforce and competing with the private sector. While the agency has taken steps to build a diverse scientific workforce, it has not fully implemented a leading practice for assessing data to determine the effectiveness of its efforts. The agency also has not fully implemented a leading practice to assess the effectiveness of its use of available pay flexibilities such as recruitment incentives.

ARPA-H Cites a Small Talent Pool as a Challenge to Hiring a Diverse Scientific Workforce

According to ARPA-H officials, the agency is facing challenges in recruiting and hiring diverse candidates for its scientific workforce primarily because the pool of diverse qualified candidates with science, technology, engineering, and mathematics experience is small. As previously noted, according to ARPA-H workforce data, 5 percent of the scientific workforce are Black or African American, 2 percent American Indian or Alaska Native, and there are no Hispanic or Latino, Native Hawaiian or other Pacific Islander, or scientific personnel with two or more races at ARPA-H.

Leading practices state that agencies can cultivate a pool of diverse talent by building formal relationships with schools such as Historically Black Colleges and Universities (HBCUs), Hispanic-serving institutions, women's colleges, and schools with international programs.[32] Agencies can also consider partnering with multicultural professional organizations and speaking at their conferences to communicate their commitment to diversity.

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[30]According to the Consolidated Appropriations Act, 2023, ARPA-H shall have no more than 8 program offices, and special project offices as established by the Director. Consolidated Appropriations Act, 2023, Pub. L. No. 117-328, § 2331, 136 Stat. 4459, 5770 (to be codified at 42 U.S.C. § 290c(a)(2)(A)). According to ARPA-H officials, the agency had established 14 offices when it was authorized in 2022. In September 2024, these officials noted they have plans for reorganizing the office structure from 14 offices to 8, as required, but are waiting for approval from HHS.

[31]Workforce planning includes determining the critical skills and competencies that will be needed to achieve current and future programmatic results and developing strategies that are tailored to address gaps in number, deployment, and alignment of human capital approaches for enabling and sustaining the contributions of all critical skills and competencies. For additional information see GAO-04-39 and GAO-23-105521.

[32]GAO, *Diversity Management: Expert-Identified Leading Practices and Agency Examples*, GAO-05-90 (Washington, D.C.: January 14, 2005).

ARPA-H has implemented some of these leading practices. For example, as of June 6, 2024, ARPA-H officials had:[33]

- visited six HBCUs and Hispanic-serving institutions to establish relationships;

- hosted four events such as summits, immersive experiences, and symposiums, to establish partnerships with minority-serving institutions;

- participated in seven events to strengthen relationships with multicultural organizations; and

- established a partnership with the Emerging Leaders in Biosecurity Fellowship at Johns Hopkins Bloomberg School of Public Health.

The agency also took steps to assess some employee data for its workforce, which included all personnel, for fiscal years 2023 and 2024. For example, in a 2024 presentation for the Secretary of HHS, ARPA-H provided information on aggregate employee data on gender, disability, and veterans' preference for all its workforce. The presentation also noted plans to improve outreach efforts with additional minority-serving institutions. ARPA-H, however, has not assessed such data specifically for its scientific personnel to determine whether additional or different recruiting activities are needed to attract candidates with specialized skills and competencies. ARPA-H officials explained that the initial demographic data available did not distinguish between scientific and administrative personnel. ARPA-H and NIH officials told us that beginning on October 1, 2024, HHS's Office of Equal Opportunity, Diversity and Inclusion—responsible for collecting and managing the agency's workforce demographic data—will provide this information to ARPA-H, as well as other support, such as helping with diversity, equity, inclusion, and accessibility planning.

As we previously reported, hiring a specialized workforce will require targeted efforts in conjunction with identifying skills and competencies and analyzing gaps.[34] These efforts will enable an organization to be agile, resilient, and responsive to current and future demographic and technological trends, as well as other demands.[35] Leading practices state that, to help achieve an agency's desired diversity outcomes, it is critical to collect data and track progress toward those outcomes using a variety of measures, such as demographic data.[36] Further, ARPA-H is already required by law to establish and maintain records regarding this information, for its annual reports to Congress, but ARPA-H officials told us they were still in the midst of recruiting and hiring their scientific workforce and that the agency has not conducted such assessments.[37]

According to ARPA-H's strategic plan, the agency is to recruit leading talent and sustain a workforce that demonstrates diversity of lived experience, geography, and scientific, technical, and management expertise. In

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[33]ARPA-H officials told us that the agency conducted such activities to address diversity in recruitment from the period of October 25, 2022, through June 4, 2023.

[34]GAO, *National Institute of Standards and Technology: Improved Workforce Planning Needed to Address Recruitment and Retention Challenges*, GAO-23-105521 (Washington, D.C.: Feb. 28, 2023).

[35]GAO-23-105521.

[36]GAO, *Federal Workforce: Leading Practices Related to Diversity, Equity, Inclusion, and Accessibility*, GAO-24-106684 (Washington, D.C.: May 23, 2024).

[37]Consolidated Appropriations Act, 2023, Pub. L. No. 117-328, § 2331, 136 Stat. 4459, 5778 (to be codified at 42 U.S.C. § 290c(k)(3)(A)-(B)). ARPA-H and NIH officials told us that, beginning on October 1, 2024, HHS's Office of Equal Opportunity, Diversity and Inclusion—responsible for collecting and managing the agency's workforce demographic data—will provide this information to ARPA-H, as well as other support, such as helping with diversity, equity, inclusion, and accessibility planning.

addition, according to the Consolidated Appropriations Act, 2023, in appointing personnel, ARPA-H shall make efforts to recruit a diverse workforce. This includes individuals with a variety of professional experiences or backgrounds as well as individuals underrepresented in science, engineering, medicine, such as racial and ethnic minorities, provided such efforts do not conflict with applicable federal civil rights law.[38]

Examining an agency's workforce demographic data allows leadership to track progress toward their goals, provide effective oversight, and take corrective actions to maintain a diverse workforce.[39] As previously discussed in this report, ARPA-H workforce data indicate that the agency had hired more than half of its planned scientific workforce as of July 1, 2024. Given the current size of its scientific workforce, sufficient information is already available for ARPA-H to assess the diversity of its workforce and, if warranted, adjust its approach as it continues recruiting and hiring more scientific personnel in fiscal years 2025 and 2026. Understanding whether the recruitment activities are effective would better position ARPA-H to make additional progress in meeting its workforce planning goals and overall mission.

ARPA-H Has Leveraged Hiring Authorities and Pay Flexibilities to Address Challenges of Competition with the Private Sector for Scientific Personnel

ARPA-H officials told us they are also facing challenges recruiting and hiring scientific personnel because of higher salaries and benefits offered by the private sector. ARPA-H has taken some steps to address this challenge by leveraging multiple hiring authorities and some pay-related incentives to attract scientific personnel but has not assessed their effectiveness.

As we have previously reported, much of the hiring authority that federal agency leaders need to tailor human capital strategies to their unique needs is available under current laws and regulations. For an agency to achieve its human capital goals, it is important to identify and make use of all the appropriate hiring authorities to build and maintain the workforce needed for the future.[40]

As of July 1, 2024, ARPA-H had used 8 hiring authorities, including Title 5 hiring authorities available to other federal agencies, as well as agency-specific special hiring authorities such as those provided for in the Consolidated Appropriations Act, 2022.[41] According to ARPA-H officials, the agency plans to use the authority Congress granted to it in the Consolidated Appropriations Act, 2023, which permits the agency to hire up to

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[38]Consolidated Appropriations Act, 2023, Pub. L. No. 117-328, § 2331, 136 Stat. 4459, 5779 (to be codified at 42 U.S.C. § 290c(i)(5)(B)).

[39]GAO-24-106684.

[40]GAO, *Human Capital: Effective Use of Flexibilities Can Assist Agencies in Managing Their Workforces*, GAO-03-2 (Washington, D.C.: Dec. 6, 2002).

[41]Consolidated Appropriations Act, 2022, Pub. L. No. 117-103, tit. II, 136 Stat. 49, 465.

210 personnel, among other things.[42] Table 3 shows the hiring authorities that ARPA-H has used to build its scientific workforce, as of July 1, 2024.

Table 3: Hiring Authorities Used by ARPA-H for Recruiting Scientific Personnel, as of July 1, 2024

Hiring authority	Description	Legal authority	Service type	Number of scientific personnel hired
Title 5 of the U.S. Code: Direct hire authority	Severe candidate shortage or a critical hiring need	5 C.F.R. § 337.201	Competitive	8
Title 5 of the U.S. Code: Promotion, demotion, and reassignment	Promoting, demoting, or reassigning a career or career-conditional employee	5 C.F.R. § 335.102	Competitive	3
Title 5 of the U.S. Code: Transfer	Transfer of current career or career-conditional employee of another agency	5 C.F.R. § 315.501	Competitive	1
Title 5 of the U.S. Code: Schedule A, temporary fellowships	Temporary appointments for fellowship and similar programs	5 C.F.R. § 213.3102(r)	Excepted	4
Title 5 of the U.S. Code: Schedule A, individuals with disabilities	Intellectual, severe physical, or psychiatric disabilities	5 C.F.R. § 213.3102(u)	Excepted	2
Title 5 of the U.S. Code: Reinstatement	Allows former eligible federal employees to re-enter the competitive service without competing with the public	5 C.F.R. § 315.401	Competitive	1
Agency-specific hiring authorities: Consolidated Appropriations Act, 2022	Scientific, medical, and professional personnel without regard to Title 5's appointment provisions	Pub. L. No. 117-103, div. H, tit. II	Excepted	46
Agency-specific hiring authorities: Public health service special consultants	Consultants who assist and advise in the operations of the Public Health Service without regard to civil service laws	42 U.S.C. § 209(f)	Excepted	1
Total				**66**

Source: GAO analysis of Advanced Research Projects Agency for Health (ARPA-H) workforce data. | GAO-25-107418

Note: ARPA-H had not used its hiring authority under the Consolidated Appropriations Act, 2023, as of July 1, 2024.

For 46 of the 66 scientific personnel hired as of July 1, 2024, ARPA-H used an expedited process under its agency-specific special hiring authority. For example, under this process, ARPA-H can recruit candidates and perform screening functions, giving it additional flexibility to onboard personnel. Additional authorities available to ARPA-H include Direct Hire Authority, which allows agencies to fill positions for which there is a severe shortage of candidates or a critical hiring need by bypassing certain requirements relating to competitive rating and ranking and veterans' preference. For example, NIH human resources specialists are not required to review lists of candidates, but only to supply the list to ARPA-H. This process shortens the amount of time it takes for the agency to receive applicant information, according to ARPA-H officials.

Regarding pay flexibilities, senior leadership at ARPA-H noted that certain scientific fields are in great demand; thus, hiring personnel in those fields is even more competitive and may call for larger salaries. These officials

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[42]The Consolidated Appropriations Act, 2023, authorized the Director of ARPA-H to, among other things, hire scientific and non-scientific personnel for the purposes of carrying out the agency's duties. The act specifies that no more than 210 personnel are to be hired by ARPA-H unless the Director notifies Congress that additional personnel are required. ARPA-H had not used this authority as of July 1, 2024. Consolidated Appropriations Act, 2023, Pub. L. No. 117-328, § 2331, 136 Stat. 4459, 5775 (to be codified at 42 U.S.C. § 290c(i)(3)).

explained that salaries are not flexible for those hired under a Title 5 General Schedule pay plan, while those hired using the Administratively Determined pay plan can provide flexible salaries, which can help with recruitment and hiring.[43]

Based on our review of ARPA-H data, as of July 1, 2024, 10 of the 66 hired scientific personnel received an incentive through ARPA-H's use of pay flexibilities. Six received a recruitment incentive and four received an advanced rate of pay.[44] Table 4 shows pay flexibilities used by ARPA-H as of July 1, 2024, and the hiring authorities used for the 10 personnel.

Table 4: Pay Flexibilities Used by ARPA-H to Hire Scientific Personnel, as of July 1, 2024

Hiring authority	Number of scientific personnel that received recruitment incentive	Number of scientific personnel that received advanced rate of pay
Title 5 of the U.S. Code: Direct hire authority	0	2
Title 5 of the U.S. Code: Schedule A, temporary fellowships	0	2
Agency-specific hiring authority: Consolidated Appropriations Act, 2022	6	0
Subtotal	**6**	**4**
Total		**10**

Source: GAO analysis of Advanced Research Projects Agency for Health (ARPA-H) workforce data. | GAO-25-107418

Note: Hiring authorities listed only include those for which some scientific personnel received a recruitment incentive or advanced rate of pay.

However, we found that ARPA-H has not assessed whether the pay incentives it uses to hire scientific personnel are effective. Our prior work on hiring and retention strategies identified periodically assessing the effectiveness of strategies such as pay flexibilities as a leading practice. We found that doing so can help agencies meet their workforce planning goals.[45] We have also reported on agencies that have used pay flexibilities that helped them recruit and retain individuals from specific career fields.[46] ARPA-H officials stated that they collect information on pay flexibilities such as incentives but have not evaluated the effectiveness of such incentives.

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[43]According to OPM, some pay plan codes, such as the Administratively Determined (AD) code, may be used by any agency with an independent authority to administratively determine the rates of pay for any group or category of employees. Each agency must follow its own unique statutory pay authority when setting and adjusting pay under an AD pay system. See OPM, Fact Sheet: Pay Plans, available at https://www.opm.gov/policy-data-oversight/pay-leave/pay-administration/fact-sheets/pay-plans/.

[44]According to a NIH policy, recruitment incentives may be paid to a newly appointed employee following a determination that the employee's position is critical to the mission of the organization and is likely to be difficult to fill without an incentive. Recruitment incentives may not exceed 25 percent of the employee's annual rate of basic pay. Before paying a recruitment incentive, the approving official, the administrative officer and the employee must sign a written service agreement, which requires completion of a specified period of employment (Form NIH 2952). An advanced rate of pay refers to a pay rate higher than the minimum pay rate and can be set based on an employee's superior qualifications or a special need for their skills within an agency.

[45]GAO, *Human Capital: Key Principles for Effective Strategic Workforce Planning*, GAO-04-39 (Washington, D.C.: Dec. 11, 2003).

[46]GAO, *Federal Pay: Opportunities Exist to Enhance Strategic Use of Special Payments*, GAO-18-91 (Washington, D.C.: Dec. 7, 2017).

According to ARPA-H officials, a job candidate can request incentive payments and advanced rates of pay with a justification that is considered by the agency. In addition, the ARPA-H hiring team can suggest an incentive to counter competing offers the candidate may be getting from the private sector. To date, ARPA-H officials have not assessed the effectiveness of its use of pay flexibilities, which would help inform decisions moving forward. Agency officials stated that assessments of ARPA-H's pay flexibilities will be most valuable when reviewed over time and when they have enough data. Agency officials stated they expect to start such assessments before the end of fiscal year 2025.

Based on our review of ARPA-H workforce data, the agency has hired more than half of its planned scientific workforce as of July 1, 2024. Understanding whether the incentives are effective in attracting or retaining employees could help ARPA-H make additional progress in meeting its workforce planning goals. We have previously reported that federal agencies should use data to assess the effectiveness of its use of pay flexibilities.[47] Doing so would be a critical first step for ARPA-H in making more strategic use of flexibilities to meet its hiring needs more effectively.

Conclusions

High-potential, high-impact biomedical and health research can help to create the next generation of lifesaving treatments and cures that can improve the health and well-being of all Americans. ARPA-H is uniquely positioned to address such urgent challenges in the health ecosystem. The agency has hired more than half of its planned scientific workforce as of July 1, 2024. But we found it does not have a strategic workforce planning process to guide its recruiting and hiring efforts. ARPA-H officials have also said they face challenges recruiting and hiring diverse candidates for its scientific workforce and competing with the private sector.

While ARPA-H has taken some steps to address these challenges, it has not assessed demographic data specifically for its scientific personnel, for example, on race, disabilities, and veteran's preference, to determine whether additional or different recruiting activities are needed to meet the agency's goals and congressional direction to hire a diverse workforce. The agency also has not assessed the pay incentives it uses to hire its scientific personnel.

As the agency moves forward with its recruitment and hiring of scientific personnel, hiring a specialized diverse workforce will require targeted efforts in conjunction with identifying skills and competencies and analyzing gaps. This approach enables an organization to be agile, resilient, and responsive to current and future demographic and technological trends, as well as other demands. Understanding whether the incentives offered are effective in attracting or retaining employees could help ARPA-H make additional progress in meeting its workforce planning goals and overall mission.

Recommendations for Executive Action

We are making the following three recommendations to ARPA-H:

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[47]GAO, *Federal Hiring: OPM Needs to Improve Management and Oversight of Hiring Authorities*, GAO-16-521 (Washington, D.C.: Aug. 2, 2016). Also cited in: GAO, *Cybersecurity: Federal Efforts Are Under Way That May Address Workforce Challenges*, GAO-17-533T (Washington, D.C.: Apr. 4, 2017).

The Director of ARPA-H should incorporate leading practices for workforce planning, including developing and implementing a strategic workforce planning process, which could help addresses challenges recruiting and hiring a diverse scientific workforce. (Recommendation 1)

The Director of ARPA-H should take steps to assess data on its scientific personnel to help ensure that recruitment efforts are targeted and effective and track progress towards its goal of maintaining a diverse workforce. (Recommendation 2)

The Director of ARPA-H should take steps to assess data on the agency's use of pay flexibilities to hire scientific personnel—including how often incentive payments have been offered and paid. (Recommendation 3)

Agency Comments

We provided a draft of this report to ARPA-H and HHS for review and comment. ARPA-H concurred with our recommendations, and their written responses are reprinted in Appendix II. ARPA-H and NIH officials provided technical comments, which we incorporated as appropriate.

We are sending copies of this report to the appropriate congressional committees; the Secretary of Health and Human Services; the Director of ARPA-H; and other interested parties. In addition, the report is available at no charge on the GAO website at http://www.gao.gov.

If you or your staff have any questions about this report, please contact me at (202) 512-6888 or wrightc@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last

page of this report. GAO staff who made key contributions to this report are listed in appendix III.

Candice N. Wright
Director, Science, Technology Assessment, and Analytics

Appendix I: Objectives, Scope, and Methodology

The Consolidated Appropriations Act, 2023, includes a provision for GAO to report on Advanced Research Projects Agency for Health (ARPA-H) use of hiring authorities.[1]

This report examines (1) whether ARPA-H has a workforce planning process to guide its recruiting and hiring efforts for its scientific workforce;[2] and (2) challenges ARPA-H has faced in recruiting and hiring its scientific workforce and the extent to which the agency has applied selected leading human capital practices to address the challenges.

To address our first objective, we collected and analyzed ARPA-H workforce data from April 1, 2022, through July 1, 2024. The timeframe we used to analyze ARPA-H's workforce covers the period from the month and year when ARPA-H hired its first employee through July 1, 2024, which is the most recent data available to analyze prior to publishing our report.

To identify personnel who constitute ARPA-H's scientific workforce—scientific, engineering, medical, and professional—we collected and reviewed agency workforce data for each employee to determine scientific or non-scientific status based on descriptions of personnel in the Consolidated Appropriations Act, 2023,[3] position titles, Office of Personnel Management (OPM) descriptions of occupational groups and series assigned to each employee, job descriptions and statements of work, as applicable. We provided our initial scientific personnel determinations to ARPA-H for confirmation and asked for clarification and any additional documentation to substantiate whether employee(s) were in scientific or non-scientific roles. Final scientific workforce designations were validated by ARPA-H officials.

We also collected and analyzed data on the number of ARPA-H positions that were publicly announced and filled; the occupational series, grades, pay plans, and types of appointments of such positions; and the total

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[1]Consolidated Appropriations Act, 2023, Pub. L. No. 117-328, § 2331, 136 Stat. 4459, 5779 (to be codified at 42 U.S.C. § 290c(k)(3)(C)).

[2]For the purposes of this report, scientific, engineering, medical, and professional personnel are collectively referred to as "scientific personnel" unless otherwise noted. According to ARPA-H officials, scientific personnel are those who use systematic study, research, and experimentation in the sciences to increase knowledge, test hypotheses, and develop new applications. Engineering personnel apply the principles of science and mathematics to imagine or design solutions, processes, components, or systems to solve technical problems. Their expertise allows for application of scientific discoveries for commercial applications that meet societal and consumer needs. Medical personnel are trained and licensed to practice medicine, including physicians, surgeons, nurses, and other healthcare professionals involved in the diagnosis, treatment, and prevention of diseases and medical conditions. Professional personnel have specialized knowledge and skills in a particular field, often requiring advanced education and training. This category includes subject matter experts and professionals who contribute to the advancement and application of knowledge in their respective fields. NIH officials added that the Office of Personnel Management (OPM) categorizes federal positions based on the nature of the work performed and knowledge required to perform the work.

[3]The Consolidated Appropriations Act, 2023, Pub. L. No. 117-328, § 2331, 136 Stat. 4459, 5775-77 (to be codified at 42 U.S.C. § 290c(i)-(j)).

number of individuals appointed as of July 1, 2024.[4] In addition, for each employee, we collected and analyzed the date of hire and the hiring authorities used.

We collected and analyzed ARPA-H's aggregated demographic data derived from the Department of Health and Human Services (HHS), Office of Equal Employment Opportunity, Diversity, and Inclusion. According to HHS officials, HHS generates demographic data, including such data for ARPA-H, using a system that centralizes data from various sources and creates an accessible user interface for reporting. ARPA-H workforce data within this system are derived from the Enterprise Human Capital Management (EHCM) system, which is used throughout HHS to process personnel actions, among other human resource functions. The demographic data we collected for each ARPA-H employee included the occupational series, disability status, gender, and veterans' status. We used employee ID numbers to match the HHS data with the ARPA-H workforce data.

We also collected and analyzed information from ARPA-H on the number of personnel the agency plans to hire in fiscal years 2025 through 2026.

We conducted a data reliability assessment on ARPA-H's workforce data, as well as its demographic data, asking ARPA-H and HHS officials to complete a series of data reliability questions related to the data and systems where the data is contained and managed. Among other things, we asked about how and where the ARPA-H workforce data are collected; what procedures are in place to ensure that the data systems used consistently captured all data occurrences; and what procedures are in place for follow-up if errors are found. We found the data sufficiently reliable for providing information on ARPA-H's workforce composition and hiring efforts.

We obtained information from ARPA-H on how the Director made appointment decisions, how positions relate to advancing the goals and functions of ARPA-H, and a summary of sources used to identify candidates, as applicable. We summarized this information and provided it to ARPA-H officials, who provided clarifications on these processes. We also applied a selected leading human capital practice on strategic workforce planning to assess ARPA-H's efforts on developing its scientific workforce.[5]

To address our second objective, we interviewed ARPA-H officials to identify any challenges, limitations, or gaps related to the use of authorities for hiring scientific personnel. We also interviewed ARPA-H officials about efforts and plans related to recruiting and hiring scientific personnel. We collected and assessed employee data on hiring authorities, as well as data on pay flexibilities used by ARPA-H such as how often incentive payments were made as of July 1, 2024. We reviewed ARPA-H and NIH documents related to workforce topics, including human capital strategic planning and procedures related to setting pay levels and incentive payments. We reviewed OPM documents related to salary schedules, pay plans, and occupational series and groups. We applied selected leading human capital practices to assess ARPA-H efforts to address any

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[4]For the purposes of this report, the terms appoint, appointed, and appointments, are interchangeable with the human capital processes related to the terms of hire(s), hired, and hiring which are used throughout the report.

[5]GAO, *Science and Technology: Strengthening and Sustaining the Federal Science and Technology Workforce*, GAO-21-461T (Washington, D.C.: Mar. 17, 2021) and GAO, *FDA Workforce: Agency-Wide Workforce Planning Needed to Ensure Medical Product Staff Meet Current and Future Needs*, GAO-22-104791 (Washington, D.C.: Jan. 14, 2022).

challenges it faces in recruiting and hiring scientific personnel.[6] We asked ARPA-H officials about the extent to which the agency has tracked quantitative and qualitative information on its efforts to recruit and hire diversity candidates for its scientific workforce. We also asked whether the agency has assessed the information to determine the effectiveness of its efforts and whether they are progressing toward their goals in maintaining a diverse workforce. We applied selected leading recruitment and hiring practices related to pay flexibilities against the steps ARPA-H has taken to develop its scientific workforce.[7] We asked ARPA-H officials about whether they collected and assessed data related to the agency's use of pay flexibilities to recruit and hire scientific personnel.

For both objectives, we interviewed ARPA-H officials who were involved in managing ARPA-H's workforce and had information on ARPA-H workforce goals and planning and recruitment strategies. We also interviewed ARPA-H officials to obtain information on challenges related to achieving diversity in its scientific workforce, and how the agency plans to address those challenges.

We conducted this work from February 2024 to December 2024 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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[6]GAO, *Federal Workforce: Leading Practices Related to Diversity, Equity, Inclusion, and Accessibility*, GAO-24-106684 (Washington, D.C.: May 23, 2024) and GAO, *Diversity Management: Expert-Identified Leading Practices and Agency Examples*, GAO-05-90 (Washington, D.C.: January 14, 2005).

[7]The leading practice on the importance of hiring and retention strategies and how periodically assessing the effectiveness of strategies such as pay flexibilities can help agencies meet their workforce planning goals. See GAO, *Human Capital: Key Principles for Effective Strategic Workforce Planning*, GAO-04-39 (Washington, D.C.: Dec. 11, 2003), and GAO, *Federal Pay: Opportunities Exist to Enhance Strategic Use of Special Payments*, GAO-18-91 (Washington, D.C.: Dec. 7, 2017).

Appendix II: Comments from the Department of Health and Human Services

DEPARTMENT OF HEALTH & HUMAN SERVICES

OFFICE OF THE SECRETARY

Assistant Secretary for Legislation
Washington, DC 20201

December 16, 2024

Candice Wright
Director, Science, Technology Assessment, and
  Analytics
U.S. Government Accountability Office
441 G Street NW
Washington, DC 20548

Dear Ms. Wright:

Attached are comments on the U.S. Government Accountability Office's (GAO) report entitled,
**"BIOMEDICAL RESEARCH: Strategic Workforce Planning Needed to Address
Recruitment and Hiring Challenges at ARPA-H"** (GAO-25-107418).

The Department appreciates the opportunity to review this report prior to publication.

Sincerely,

Melanie Anne Egorin

Melanie Anne Egorin, PhD
Assistant Secretary for Legislation

Attachment

COMMENTS FROM ADVANCED RESEARCH PROJECTS AGENCY FOR HEALTH ON THE U.S. GOVERNMENT ACCOUNTABILITY OFFICE'S DRAFT REPORT ENTITLED - BIOMEDICAL RESEARCH: STRATEGIC WORKFORCE PLANNING NEEDED TO ADDRESS RECRUITMENT AND HIRING CHALLENGES AT ARPA-H (GAO-25-107418)

The Department of Health and Human Services (HHS) appreciates the opportunity to review the Government Accountability Office (GAO) draft report.

Recommendation 1
The Director of ARPA-H should incorporate leading practices for workforce planning, including developing and implementing a strategic workforce planning process, which could help address challenges recruiting and hiring a diverse scientific workforce.

HHS Response
HHS concurs with the recommendation. ARPA-H is actively working on the workforce planning process but in a way that aligns with the ARPA Model, which is designed to find innovative ideas and technologies that are responsive to the changing health landscape. But, we appreciate that the workforce planning process can assist in creating a diverse workforce.

Recommendation 2
The Director of ARPA-H should take steps to assess data on its scientific personnel to help ensure that its recruitment efforts are targeted and effective and to track progress towards its goal of maintaining a diverse workforce.

HHS Response
HHS concurs with the recommendation. ARPA-H will be starting assessments before the end of FY25 when there is enough data to draw meaningful conclusions.

Recommendation 3
The Director of ARPA-H should take steps to assess data on the agency's use of its pay flexibilities to hire scientific personnel— including how often incentive payments have been offered and paid.

ARPA-H Response
HHS concurs with the recommendation. ARPA-H will be starting assessments before the end of FY25 when there is enough data to draw meaningful conclusions.

Accessible Text for Appendix II: Comments from the Department of Health and Human Services

DEPARTMENT OF HEALTH & HUMAN SERVICES
OFFICE OF THE SECRETARY

Assistant Secretary for Legislation
Washington, DC 20201

December 16, 2024

Candice Wright
Director, Science, Technology Assessment, and Analytics
U.S. Government Accountability Office
441 G Street NW
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ARPA-H Response

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Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

Candice N. Wright at (202) 512-6888 or wrightc@gao.gov

Staff Acknowledgments

In addition to the contact named above, Farahnaaz Khakoo-Mausel (Assistant Director), Aaron Shiffrin (Analyst-in-Charge), and Elizabeth Escobar Michalewicz made key contributions to this report. In addition, Jehan Chase, Kelly Demots, Louise Fickel, Danny Lee, Curtis R. Martin, Leah Nash, Marie Warchol, and Clarette Yen contributed to the report.

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