National Postdoctoral Association Institutional Policy Report 2014

SUPPORTING AND DEVELOPING POSTDOCTORAL SCHOLARS

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NATIONAL POSTDOCTORAL ASSOCIATION
BURROUGHS WELLCOME FUND
Alfred P. Sloan FOUNDATION

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Source for all figures: NPA, 2014, Institutional Policy Survey.

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- ***Amy Wilson, B.A.,*** *Office & Marketing Manager, NPA*

Our sincere thanks to the team that analyzed the data and contributed to the final report:

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- ***Amy Wilson, B.A.,*** *Office & Marketing Manager, NPA*

* *position held at the time of the taskforce*

Foreword

The following report is both the culmination of several years of effort by the National Postdoctoral Association (NPA) to gather data on postdoctoral policies at the institutional level, and the beginning of a data-driven effort to improve these policies.

The NPA was founded in 2003 as a grass-roots organization determined to improve the U.S. scientific enterprise by improved training of postdoctoral scholars. We have always pursued a collaborative approach, bringing together all stakeholders—postdocs, postdoc offices, institutions, funding agencies, and societies—in an effort to ensure that all voices were heard. This approach has proven extremely effective in identifying areas where improvement was needed, as well as highlighting best practices as more institutions began recognizing that postdoctoral scholars were an important and underserved component in their research enterprises.

The lack of comprehensive data concerning postdoctoral training has remained one of the most frustrating hurdles to creating a more efficient and effective training model, and until now there has been little improvement. Sigma Xi, the Scientific Research Society, performed a national survey of postdocs and released a report entitled Doctors Without Orders[1] in American Scientist. This survey and report was the first large-scale attempt to gather data from individual postdocs on the policies and practices of postdoctoral training at a national level, and the NPA's efforts here are to build upon this foundation.

The NPA's report summarizes the postdoctoral policies (institutional, training, health insurance, and benefits) at 92 institutions, and is intended to identify best practices and areas for development for postdoctoral services and support. Our hope is that by reading this report, you will be better informed about the progress made over the past decade, and better prepared to advocate for further improvements in the future.

I joined the NPA in 2003 as a postdoctoral fellow, and have remained active as my career progressed to my current position as the Postdoctoral Program Director at New York University School of Medicine. I am proud of the work done by our tireless volunteers, and am convinced that their efforts have made an enormous difference in the way postdoctoral scholars are treated at their institutions.

Sincerely,

Keith Micoli, Ph.D.
CHAIR, BOARD OF DIRECTORS
NATIONAL POSTDOCTORAL ASSOCIATION

[1] Davis, G. (2005). Doctors without orders. *American Scientist 93*(3), supplement.http://postdoc.sigmaxi.org/results/.

Executive Summary

The NPA Institutional Policy Survey asks postdoctoral offices about office structure, postdoc demographics, postdoctoral policies, professional development and career training, benefits, and more. This data provides a snapshot and a glimpse into the needs of the postdoctoral community. The community of postdoctoral offices is relatively young; in the early 2000s, there were less than 25 offices that served postdoctoral scholars, and many administrators worked without budgets. In 2014, there are now 167 postdoctoral offices serving the needs of approximately 79,000 postdoctoral scholars.

A postdoctoral scholar is defined as:
An individual who has received a doctoral degree (or equivalent) and is engaged in a temporary and defined period of mentored advanced training to enhance the professional skills and research independence needed to pursue his or her chosen career path.[2]

The NPA Institutional Policy Survey questions collected data on the following areas:

- Demographics of the institution and their postdoc population
- Structure of the institution's postdoc office
- Postdoc policies: length of appointment, postdoc handbook, exit survey
- Postdoc compensation and benefits
- Career and professional development services
- Other institutional services

"Data from the survey revealed a lack a parity remains in postdoc funding, health insurance, appointment policies, collection of outcomes data, access to training program and retirement benefits."

To analyze the data from the Institutional Policy Survey, we benchmarked how postdoctoral policies and practices had developed since the NPA crafted the Recommendations for Postdoctoral Policies and Practices.[3] While significant progress has been made in the last decade for the creation of postdoctoral offices, data from this survey revealed that a lack of parity remains in postdoc funding, health insurance, appointment policies, collection of outcomes data, access to training programs, and retirement benefits.

The NPA's Institutional Policy Survey is intended to be a longitudinal data collection from our postdoc offices. We will use this data to measure the progress and growth of postdoc services and benefits over time.

[2] National Postdoctoral Association. (2007). *What is a postdoc?* http://www.nationalpostdoc.org/policy-22/what-is-a-postdoc.
[3] National Postdoctoral Association. (2005). *Recommendations for postdoctoral policies and practices.* http://www.nationalpostdoc.org/policy-22/institutional-policies/recommended-practices-for-institutions.

Introduction

2013 NPA Institutional Policy Survey Respondents

Albert Einstein College of Medicine
Argonne National Laboratory
Baylor College of Medicine
Boston University School of Medicine
Brigham and Women's Hospital
Brown University
Buck Institute for Research on Aging
Cold Spring Harbor Laboratory
Cornell University
Dana Farber Cancer Institute
Duke University
East Carolina University
Fred Hutchinson Cancer Research Center
Georgia Institute of Technology
H. Lee Moffitt Cancer Center and Research Institute
Harvard Medical School
Harvard School of Public Health
Harvard University
Indiana University, Purdue University at Indianapolis
Johns Hopkins University Homewood Postdoc Association
Keck Graduate Institute of Applied Life Sciences
Los Alamos National Laboratory
Maine Medical Center Research Institute
Massachusetts Institute of Technology
Medical University of South Carolina
Michigan State University
Mount Sinai School of Medicine
National Cancer Institute
National Institute of Environmental Health Science

Today the United States competes with global counterparts to attract and retain the best and the brightest professionals for its workforce. Given the structure of the "knowledge economy" that currently exists, our sustained competitiveness as a nation depends upon the research, skills, innovations, and entrepreneurial abilities of our workforce.

The critical juncture between graduate education and the workforce is a current focus of the Council of Graduate Schools.[4] Deans surveyed across the United States by CGS were unsatisfied with their institution's ability to support graduate student career goals, provide career guidance, and prepare graduates for careers outside of academia.[5] Ph.D. graduates who go on to pursue postdoctoral scholarly training often encounter these same issues. Having ongoing access to career guidance and to professionals trained to assist them with their individual development plans enables postdoctoral scholars to develop a purposeful training program. Institutional support for a diverse range of career development programs for postdocs has never been more vital, as only 15 percent of science, engineering and health postdocs will attain a tenure track faculty position.[6]

To measure institutional support, the NPA Institutional Policy Survey asks postdoctoral offices to report on office structure, postdoc demographics, professional and career development training, benefits, and more. This data illuminates the persisting needs of the postdoctoral community. The community of postdoctoral offices is relatively young; in the early 2000s, there were less than 25 offices that served postdoctoral scholars, but in 2014, there are 167 postdoctoral offices serving the needs of approximately 79,000 postdoctoral scholars.

BRIEF HISTORY OF POSTDOCTORAL SCHOLARS IN U.S. INSTITUTIONS

The early American colonial college had a classical curriculum of Latin, Greek, logic, Hebrew and rhetoric, moral philosophy, and metaphysics.[7] But as the natural and physical sciences matured, the role of science changed the classical course of study. In the 1860s as technological and scientific education advanced, more colleges and institutes developed a practical orientation.[8] Johns Hopkins pledged his fortune to create a university in Baltimore, based upon the German-model research institution. This faculty-centered institution, led by President Daniel Coit Gilman, sought students that were sufficiently prepared to provide their faculty with challenging and rewarding stimulation.[9]

2013 NPA Institutional Policy Survey Respondents (cont'd)

New York University School of Medicine
North Carolina A&T State University
North Carolina State University
Northwestern University
New York University
Oak Ridge National Laboratory
Ohio State University
Oregon State University
Penn State University
Princeton University
Sanford-Burnham Medical Research Institute
Scripps Research Institute
Stanford University
Stony Brook University
Stowers Institute For Medical Research
The Children's Hospital of Philadelphia Research Institute
The City University of New York
The J. David Gladstone Institutes
The Research Institute at Nationwide Children's Hospital
The Rockefeller University
Thomas Jefferson University
Tufts University
Tulane University
University at Buffalo, State University of NY
University of California, Berkeley
University of California, Irvine
University of California, Los Angeles
University of California, San Diego
University of California, San Francisco
University of California, Santa Cruz
University of Chicago
University of Colorado Denver
University of Florida

The roots of the postdoctoral training date back to the 1870s when high-level apprenticeships were part of the German-model research institution.[10] This apprenticeship model was used by Johns Hopkins University in 1876, and by 1920 the Rockefeller Foundation established formal postdoctoral fellowships in physical science. According to Enhancing the Postdoctoral Experience for Scientists and Engineers[11] published by the National Academies, the first period of rapid growth of postdoctoral scholars ("postdocs") began in the late 1950s. With the advent of the Cold War, there was a demand for scientists and engineers, hence many of the Ph.D.s completing graduate schools took postdoc positions to "broaden or deepen their experience before moving to faculty or other research career opportunities." [12]

In the 1970s, the U.S. government reduced support of graduate fellowships, contributing to graduate students leaving laboratories without positions, and the number of non-U.S. graduate students increased. By the late 1970s, as the numbers of postdocs increased and Ph.D. labor markets weakened, the time spent as a postdoc began to lengthen, suggesting difficulty in finding job placements. At this point, postdocs spent between two to seven years in their positions.[13] Significant numbers of postdocs began to claim that they accepted their appointments because they had few options,[14] and the postdoc became a "holding station" rather than a career choice. The most significant growth of the postdoc population occurred between 1981 and 1998. In the last three decades alone, science-based postdocs have increased at a rate of 10 percent per year.[15]

WHO IS A POSTDOCTORAL SCHOLAR?

A postdoctoral scholar is defined as:

An individual who has received a doctoral degree (or equivalent) and is engaged in a temporary and defined period of mentored advanced training to enhance the professional skills and research independence needed to pursue his or her chosen career path.[16]

While this definition seems quite straightforward, data collection of this population has been confounded by the fact that postdoctoral scholars are appointed with a wide variety of titles by institutions across the United States. In a 2011 survey conducted by the NPA, for example, there were over 37 different titles assigned to postdoctoral scholars. [17]

The majority of institutions use the following titles:

- Postdoctoral fellow
- Postdoctoral scholar
- Postdoctoral associate
- Research associate
- Postdoctoral research fellow
- Postdoctoral scholar employee
- Postdoctoral researcher
- Research fellow
- Postdoctoral trainee
- Visiting research fellow
- Postdoctoral research associate
- Research assistant

2013 NPA Institutional Policy Survey Respondents (cont'd)

University of Georgia

University of Illinois at Chicago

University of Illinois at Urbana-Champaign

University of Iowa

University of Kansas Medical Center

University of Maryland Baltimore

University of Massachusetts Medical School

University of Missouri Postdoctoral Association

University of North Carolina at Chapel Hill

University of Pennsylvania

University of Rochester

University of South Florida

University of Texas Health Science Center at Houston

University of Texas Health Science Center at San Antonio

University of Texas MD Anderson Cancer Center

University of Texas Southwestern Medical Center

University of Virginia

University of Wisconsin Madison

Vaccine and Gene Therapy Institute of Florida

Van Andel Research Institute

Vanderbilt University Medical Center

Virginia Commonwealth University

Virginia Tech

Washington University in St. Louis

Wayne State University

Whitehead Institute for Biomedical Research

Wistar Institute

Woods Hole Oceanographic Institution

Wright State University

Yale University

HOW MANY POSTDOCS ARE THERE?

According to the National Science Foundation (NSF), the largest growth in the postdoctoral population occurred between 1981 and 1998. The number of postdocs in university science and engineering departments more than doubled, from 18,000 to 39,000. In 1998 the estimated number of postdoctoral scholars was 52,000, with slightly more than half non-U.S. citizens.

Today, a postdoctoral appointment is a necessary requirement for those who wish to have a long-term independent research career in the life sciences, physics, chemistry, and a growing number of other fields. Historically, institutions have not kept accurate records of postdoctoral scholars, although more and more institutions are doing so today. As a result, it is not clear precisely how many postdoctoral scholars are currently employed in the United States, but the NSF estimates there are between 30,800 to 63,400.[18] These estimates cover different segments of the postdoc population, including postdocs with research doctorates in science, health and engineering fields from U.S. universities, but not those with doctorates from non-U.S. universities; and postdocs from U.S. academic graduate departments, regardless of where these individuals earned their doctorate, thus missing all postdocs who are employed outside of academe. These numbers also do not account for postdocs in the humanities in the United States.

The NPA's member postdoctoral offices estimate they serve about 79,000 postdoctoral scholars; this number is thought to be closer to the true total, though still incomplete. This includes both postdocs employed at national labs and postdocs who have earned doctorates outside of the United States. An estimated 60 percent[19] are international postdocs, here on temporary visas.

WHY ARE THERE SO MANY POSTDOCS?

The current science and engineering enterprise relies heavily on the postdoctoral population, who carry out a large proportion of the nation's research. Postdocs educate, train and supervise junior members, assist with writing grant proposals and papers, oftentimes presenting their research at professional society meetings, all the while building their curriculum vitae. Consequently the postdoc has become a prerequisite for most individuals in science and engineering seeking a tenure-track faculty position.[20] Some scientists even move through multiple postdoc positions, sometimes because funding ran out, because of a conflict with their principal investigator, or they choose to work in a different lab learning a new set of skills.[21]

THE HISTORY OF THE NATIONAL POSTDOCTORAL ASSOCIATION

The NPA is a 501(c)(3) nonprofit association headquartered in Washington, D.C. founded to improve the postdoctoral experience by supporting enhanced research training and a culture of enhanced professional growth to benefit the scholarship of innovation. The NPA serves the postdoctoral community, including some 2,800 individual members and 167 Institutional Sustaining Members. Through education, advocacy and community building the NPA supports the needs of the postdoctoral community. Every year, the NPA holds an Annual Meeting, which is the only national venue dedicated solely to the

postdoctoral community. In 2009, the NPA launched National Postdoc Appreciation Day to increase awareness of postdocs and to recognize the contributions they make to the U.S. research enterprise. In 2010 this was expanded to a full week, National Postdoc Appreciation Week (NPAW). The NPA actively advocates on behalf of postdocs for increases in National Institutes of Health (NIH) training stipends, requirement for mentoring plans on NIH grants, more independent funding for postdocs, better benefits for postdocs, and increased data collection on postdocs, including tracking outcomes. The National Academy of Sciences, the Office of Science and Technology Policy of the White House, the NIH, and the NSF have consulted with the NPA on significant policy matters and reports for postdoctoral scholars.

SEMINAL REPORTS ON POSTDOCTORAL TRAINING AND THE POSTDOCTORAL WORKFORCE

Beginning in 1998, there were a series of reports published that examined the postdoctoral scholar. The Association of American Universities published the Committee on Postdoctoral Education Report and Recommendations, which defined a postdoctoral fellow, and made recommendations to systematically incorporate postdoctoral education into the overall academic program.[22] In the same year, the National Research Council published Trends in the Early Careers of Life Scientists, which characterized the postdoctoral period as a "holding pattern." Data in this report showed 38 percent of life science Ph.D.s still held postdoctoral positions five to six years after receiving a Ph.D.[23] This publication provided recommendations such as the dissemination of career information to all postdocs, and a shift in support from research grants to training grants and other funding mechanisms.

The National Academy of Science published Enhancing the Postdoctoral Experience for Science and Engineers: a Guide for Postdoctoral Scholars, Advisers, Institutions, Funding Organizations, and Disciplinary Societies, also known as the Committee on Science, Engineering and Public Policy (COSEPUP) report. This report made recommendations to advisors, institutions, funding organizations, and disciplinary societies on compensation, postdoc policies, evaluations, health insurance, time limits, career guidance and transitions.

The Federation of American Societies for Experimental Biology's (FASEB) Individualized Development Plan (IDP) outlined a planning process to assist postdoctoral fellows in identifying career goals and included self-assessment, career exploration, and goal setting components.[24] The IDP was intended to improve communication between the postdoc and faculty mentor. In this career planning process, postdocs are empowered to take charge of their careers.

Bridges to Independence called attention to the increasing age at which Ph.D. researchers receive their first NIH grant.[25] While repeating previous recommendations regarding the duration of the postdoc, increasing training grants, and improving career advising, Bridges to Independence's notable recommendations included: the blueprint for career transition grants (K99/R00), mentoring plans for postdocs on R01 grants, and enhanced data collection. That same year, the American Association of Medical College's (AAMC) Compact Between Postdoctoral Appointees and Their Mentors outlined four core tenets of postdoctoral training: institutional commitment, quality training, importance of mentoring, and flexibility in career choices, and delineated the responsibilities of both postdoctoral appointees and their mentors.[26]

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4 Council of Graduate Schools and Educational Testing Service. (2012). *Pathways through graduate school and into careers. Report from the commission on pathways through graduate school and into careers.* Princeton, NJ: Educational Testing Service.

5 Council of Graduate Schools and Educational Testing Service. (2012). *Pathways through graduate school and into careers. Report from the commission on pathways through graduate school and into careers.* Princeton, NJ: Educational Testing Service.

6 National Science Foundation Division of Science Resource Statistics. (2014). Science and Engineering Labor Force. *Science and engineering indicators 2014.* (pp. 36, table 3-18). Arlington, VA: National Science Board.

7 Rudolph, F. (1962). *The American college and university: A history.* (pp. 244). New York, NY: Alfred A. Knopf.

8 Rudolph, F. (1962). *The American college and university: A history.* (pp. 244). New York, NY: Alfred A. Knopf.

9 Rudolph, F. (1962). *The American college and university: A history.* (pp. 244). New York, NY: Alferd A. Knopf.

10 National Academy of Sciences, National Academy of Engineering, and Institute of Medicine. (2000). Postdoctoral Scholars in US Institutions. In *Enhancing the postdoctoral experience for scientists and engineers: A guide for postdoctoral scholars, advisers, institutions, funding organizations, and disciplinary societies.* (pp. 4). Washington, DC: The National Academies Press.

[11] National Academy of Sciences, National Academy of Engineering, and Institute of Medicine. (2000). *Enhancing the postdoctoral experience for scientists and engineers: A guide for postdoctoral scholars, advisers, institutions, funding organizations, and disciplinary societies*. Washington, DC: The National Academies Press.

[12] National Academy of Sciences, National Academy of Engineering, and Institute of Medicine. (2000). Postdoctoral Scholars in US Institutions. In *Enhancing the postdoctoral experience for scientists and engineers: A guide for postdoctoral scholars, advisers, institutions, funding organizations, and disciplinary societies.* (pp. 5). Washington, DC: The National Academies Press.

[13] Patton, S. (2014). "Between postdoc and job, a whole lot of questions." *Vitae.* https://chroniclevitae.com/news/632-between-postdoc-and-job-a-whole-lot-of-questions.

[14] National Academy of Sciences, National Academy of Engineering, and Institute of Medicine. (2000). Postdoctoral Scholars in US Institutions. In *Enhancing the postdoctoral experience for scientists and engineers: A guide for postdoctoral scholars, advisers, institutions, funding organizations, and disciplinary societies.* (p. 6). Washington, DC: The National Academies Press.

[15] Patton, S. (2014). "Between postdoc and job, a whole lot of questions." *Vitae.* https://chroniclevitae.com/news/632-between-postdoc-and-job-a-whole-lot-of-questions.

[16] National Postdoctoral Association. (2007). *What is a postdoc?* http://www.nationalpostdoc.org/policy-22/what-is-a-postdoc.

[17] National Postdoctoral Association. (2011). *National Postdoctoral Association institutional survey on postdoctoral compensation, benefits, and professional development opportunities.* http://www.nationalpostdoc.org/membership-6/member-categories/sustaining-member/sustaining-toolkit.

[18] National Science Foundation Division of Science Resource Statistics. (2014). Science and Engineering Labor Force. *Science and engineering indicators 2014.* (pp. 38). Arlington, VA: National Science Board.

[19] National Science Foundation Division of Science Resource Statistics. (2010). Science and Engineering Labor Force. *Science and engineering indicators 2010.* Arlington, VA: National Science Board.

[20] Dunn, D. (2014). "A Brief History of the Humanities Postdoc." *Vitae.* https://chroniclevitae.com/news/593-a-brief-history-of-the-humanities-postdoc.

[21] Dunn, S. (2014). "The rise of the post-post-postdoc." *Vitae.* https://chroniclevitae.com/news/655-the-rise-of-the-post-post-postdoc.

[22] Association of American Universities. (1998). *Committee on Postdoctoral Education Report and Recommendations.* https://www.aau.edu/WorkArea/DownloadAsset.aspx?id=468.

[23] National Research Council. (1998). *Trends in the Early Careers of Life Scientists.* Washington, DC: The National Academies Press.

[24] Federation of American Societies for Experimental Biology. (2002). Individualized development plan. http://www.faseb.org/portals/2/pdfs/opa/idp.pdf.

[25] National Research Council. (2005). *Bridges to independence: Fostering the independence of new investigators in biomedical research*. Washington, DC: The National Academies Press,

[26] American Association of Medical College. (2005). Compact between postdoctoral appointees and their mentors. https://www.aamc.org/initiatives/research/postdoccompact/.

Methodology

To fully understand the needs and develop solutions to postdoc issues, comprehensive data gathering is needed. The Sigma Xi Postdoc Survey[27] was the first large-scale survey of individual U.S. postdocs administered through institutions. Of the 22,000 postdocs that were contacted, 7,600 participated in the survey. It created a broader look at what policies, benefits, and training programs were available to postdocs across the country. Findings of this survey revealed that postdocs who had the greatest amount of structured oversight and formal training were much more likely to say they were satisfied, give their advisors high ratings, experience fewer conflicts with their advisors and be more productive.

Initial work on the NPA Institutional Policy Survey began in 2012 through the generous support of the Burroughs Wellcome Fund and the Sloan Foundation. The first task was to revise the survey questions from the Sigma Xi /NPA Postdoc Survey and create new questions for the new survey. The NPA Institutional Policy Survey required administrators responsible for postdoc affairs at their institutions to answer the survey; in contrast, the Sigma Xi Postdoc Survey requested individual postdocs to complete the survey. The NPA surveyed postdoctoral offices (PDOs) to gain a more accurate understanding of office structure, operating budgets, and university polices and benefits that pertain to postdocs.

Eighty-seven possible questions were asked in an online survey to PDOs. The NPA taskforce spent a great deal of time deciding how postdocs would be defined in regards to compensation and benefits. After much deliberation four categories were decided upon:

Insitutionally Funded Postdoc Employees
(PI research grant)
This indicates the classification(s) your institution typically uses for a postdoc funded on a principal investigator's grant. (e.g. RO1 grant)

Insitutionally Funded Postdoc Trainees
(Institutional training grant)
This indicates the classification(s) your institution typically uses for a postdoc funded on a principal investigator's grant. (e.g. T32 training grant)

Individually Funded Postdocs
(Individual fellowship)
This indicates the classification(s) your institution typically uses for a postdoc funded by a fellowship that is paid to the institution. (e.g. American Heart Association fellowship)

Externally Funded Postdocs
(External funding)
This indicates the classification(s) your institution typically uses for a postdoc funded by a fellowship that is paid directly to the postdoc. (e.g. Fellowship paid by the postdoc's home country)

New questions created for the survey include the funding and reporting structures of PDOs. Knowing where PDOs reside in the organizational structure of their institutions, who funds the PDO, who is designated to oversee postdoc affairs, and how many full-time employees are solely dedicated to postdoc affairs, enables institutions to compare this data to peer institutions.

"The NPA's Institutional Policy Survey is intended to be a longitudinal data collection from our postdoc offices. We will use this data to measure the progress and growth of postdoc services and benefits over time."

In July 2013, the Institutional Policy Survey was sent to all 167 NPA Institutional Sustaining Members. Responses were received through January 2014. Of the 92 institutions that started the survey, 74 institutions completed the survey. Our response rate was 55 percent for those that started the survey and 44 percent for those that fully completed the survey. The survey is comprised of 87 possible questions. Depending on one's answer to some questions, a respondent may or may not see additional questions on a particular topic. The survey could be cumbersome for an institution to answer, depending on the quantity of data and the complexity of gathering the data on an institution's postdoc population. The survey collected data on the following areas:

- Demographics of the institution and their postdoc population
- Structure of the institution's postdoc office
- Postdoc policies: length of appointment, postdoc handbook, exit survey
- Postdoc compensation and benefits
- Career and professional development services
- Other institutional services

To analyze the data from the Institutional Policy Survey, the NPA benchmarked how postdoctoral policies and practices had developed since the NPA crafted the Recommendations for Postdoctoral Policies and Practices in 2005.[28] Through the current report, the NPA examines the state of the PDO and whether these recommended practices and policies have been achieved in the last nine years. The NPA is pleased that many of the recommendations originally developed are now widespread among the postdoctoral community. More reliable data is still needed, however, on the size of the postdoc population overall, their demographics, benefits, and training opportunities.

The NPA's Institutional Policy Survey is intended to be a longitudinal data collection from our postdoc offices. We will use this data to measure the progress and growth of postdoc services and benefits over time.

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[27] Davis, G. (2005). Doctors without orders. *American Scientist 93*(3), supplement. http://postdoc.sigmaxi.org/results/.

[28] National Postdoctoral Association. (2005). *Recommendations for postdoctoral policies and practices.* http://www.nationalpostdoc.org/policy-22/institutional-policies/recommended-practices-for-institutions.

Overview of Findings

POSTDOC DEMOGRAPHICS

The Institutional Policy Survey asked the question, "What percentage of postdocs at your institution is female and male?" The overall postdoc population at respondent institutions is 56 percent male and 44 percent female *(see Figure 1)*.

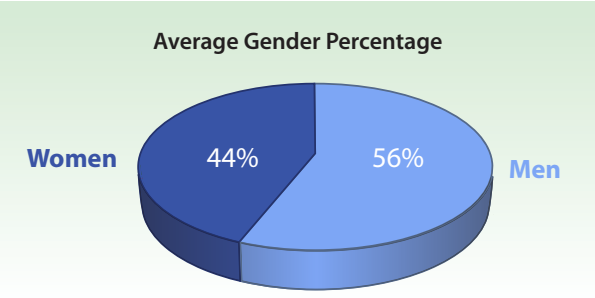

Figure 1. Average Gender Percentage.
Source: NPA, 2014, Institutional Policy Survey.

Figure 2 shows the distribution of institutions according to the percentage of postdocs on temporary visas. The majority of institutions reported that international postdocs make-up over half of their postdoctoral population *(see Figure 2)*.

The diversity of the biomedical workforce is of paramount concern to government agencies and the policy community. The NPA Institutional Policy Survey asked, "What percentage of postdocs at your institution is from underrepresented groups?" The definition used for underrepresented groups in the survey is[29]:

- People with disabilities, i.e., who have a physical or mental impairment that substantially limits one or more major life activities.
- People from disadvantaged backgrounds.
- Racial and ethnic groups such as Blacks or African Americans, Hispanics or Latinos, American Indians or Alaskan Natives, and Native Hawaiians or other Pacific Islanders.

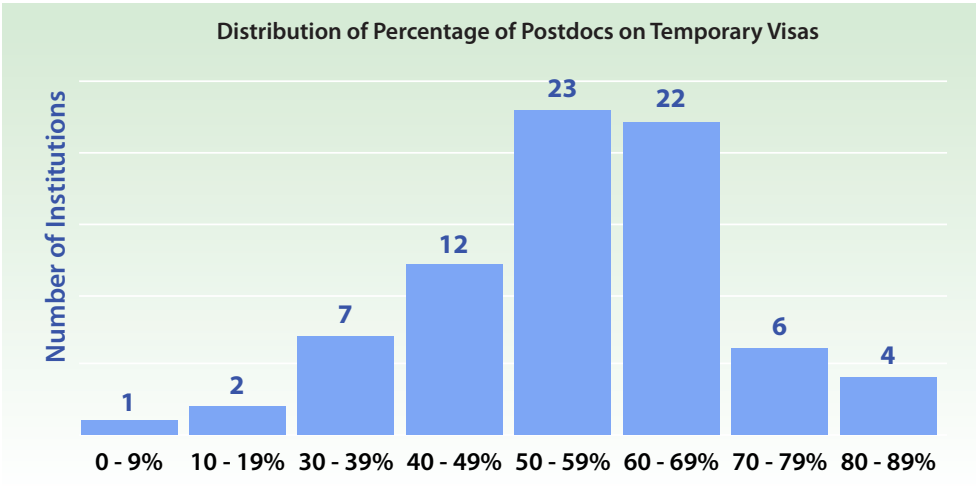

Figure 2. Distribution of Percentage of Postdocs on Temporary Visas.
Source: NPA, 2014, Institutional Policy Survey.

A handful of institutions reported larger percentages of postdocs from underrepresented groups, but the majority of institutions reported their percentage of postdocs from underrepresented groups was 10 percent or less *(see Figure 3)*.

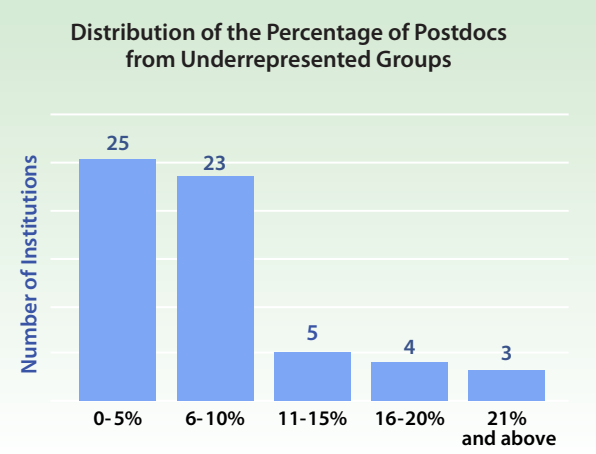

Figure 3. Distribution of the Percentage of Postdocs from Underrepresented Groups.
Source: NPA, 2014, Institutional Policy Survey.

RECOMMENDATIONS FOR POSTDOCTORAL POLICIES AND PRACTICES

In 2005, the NPA developed the Recommendations for Postdoctoral Policies and Practices. These included: 1) establish postdoctoral policies (centralized appointments, equal benefits) 2) establish a postdoctoral office 3) utilize an IDP and annual review 4) maintain an international scholar office 5) create a postdoctoral handbook and 6) offer career development services. These recommendations were updated in 2014 to include specific recommendations regarding establishing a postdoctoral association, defining what a postdoc is and the employment categorization they occupy: fellow, employee or scholar. In addition, the NPA recommended facilitating effective mentoring and personal responsibility through career planning with an annual review, providing career counseling and development services, providing a fair and equitable benefits package to all postdocs, national and international, at the same institution, and allowing matched contributions to a retirement program. The original recommendations called for establishing a Diversity Office to ensure diversity and inclusion, and the updated recommendations seek to establish formal recruitment mechanisms to increase diversity among the postdoctoral population and to create support systems that improve retention and success of postdocs from underrepresented and non-traditional backgrounds.

POSTDOCTORAL OFFICES (PDO)

The NPA's Recommendations for Policies and Practices states that the presence of both a PDO (staffed by permanent employees) and a postdoctoral association (PDA) (run by the postdocs themselves) facilitates open communication with the administration and gives postdocs an independent avenue to provide input to the administration. In 2003, when the NPA started, there were less than 25 PDOs. In 2014, there are 167 NPA Institutional Sustaining Members.

The types of institutions in the NPA Institutional Policy Survey include private (52 percent), public (45 percent), and government (3 percent) *(see Figure 4)*. Many PDOs are housed within medical schools, where the first PDOs began. Sixty-eight of the ninety-two PDOs who responded to this survey reside in medical schools.

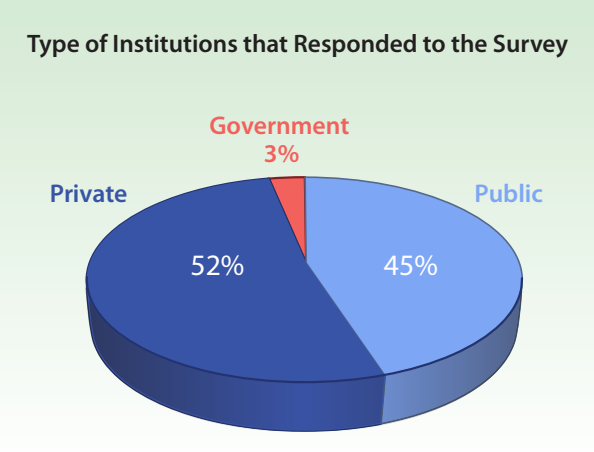

Figure 4. Type of Institutions that Responded to the Survey.
Source: NPA, 2014, Institutional Policy Survey.

The size of the postdoctoral population served by PDOs varies widely between institutions, from 25 to more than 2001 postdocs. Thirteen percent of PDOs serve less than 100 postdocs. Eighteen percent of PDOs serve between 751 – 1500 postdocs. And only two percent of PDOs serve above 1500 postdocs *(see Figure 5)*.

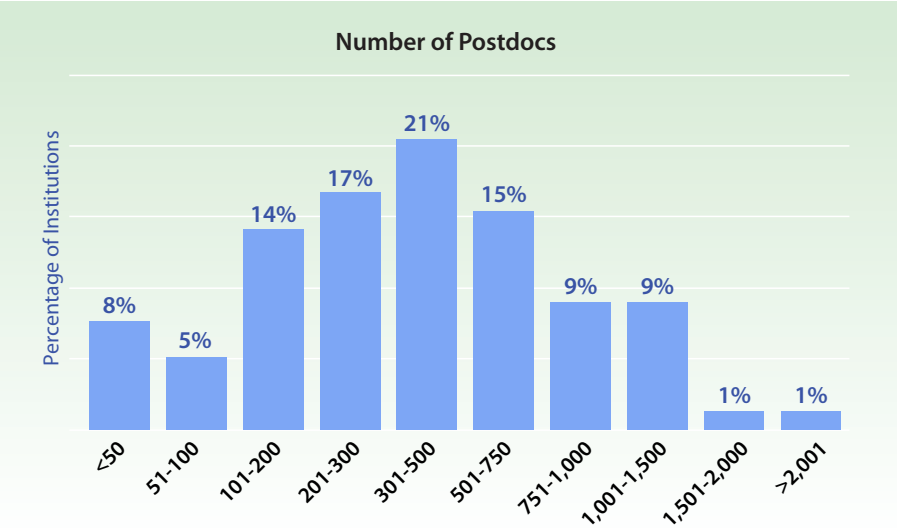

Figure 5. Number of Postdocs. *Source: NPA, 2014, Institutional Policy Survey.*

Postdoctoral offices vary widely in how they are structured. Eighty-three percent of PDOs report they are separate units, not housed within a department, division, or executive office within their institutions, while 17 percent are not. PDOs most frequently report to the graduate school (26 percent), research affairs (19 percent), an academic dean (14 percent), or the office of the president/provost/chancellor (13 percent) *(see Figure 6)*. In contrast, PDO funding most frequently comes from the president/provost (23 percent), research affairs (20 percent), or graduate school (20 percent) *(see Figure 7)*. Thus, while PDOs most frequently report to the graduate school, they are most frequently funded by the office of the president/provost.

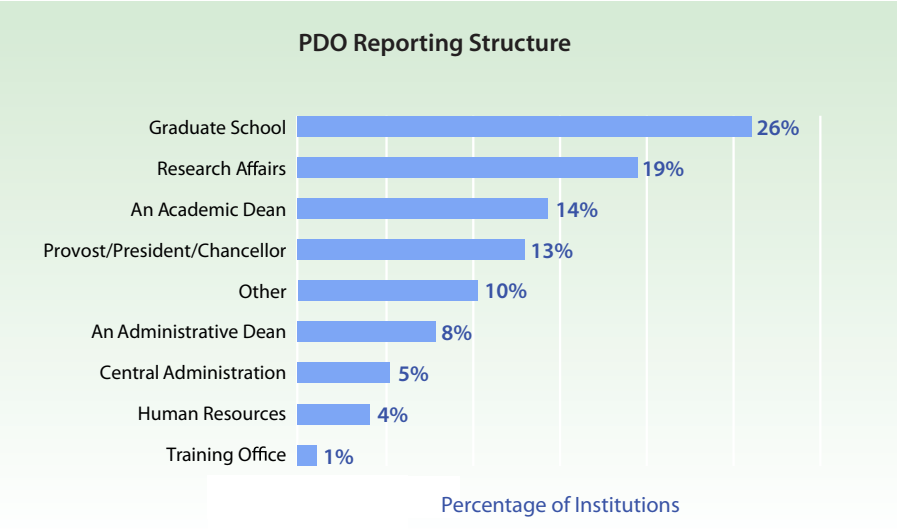

Figure 6. PDO Reporting Structure. *Source: NPA, 2014, Institutional Policy Survey.*

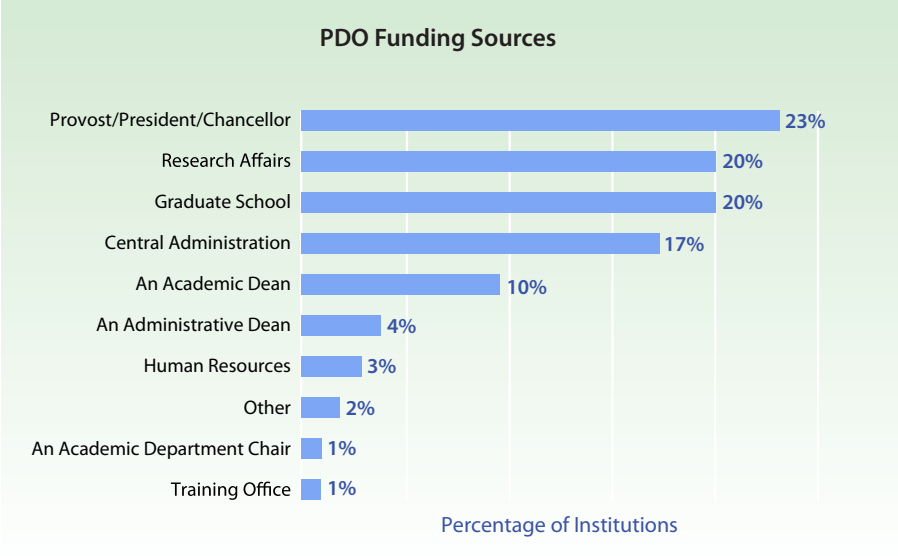

Figure 7. PDO Funding Sources. *Source: NPA, 2014, Institutional Policy Survey.*

OPERATING BUDGETS

Thirty-nine percent of PDOs do not have an annual operating budget beyond the salary of the PDO administrator(s) (they may be a part of someone else's administrative budget). Seventy percent of the institutions state they have an operating budget less than $40,000 *(see Figure 8)*.

Figure 8 shows the average number of postdocs served by each budget amount category. Postdoctoral offices that had no budget served 323 postdocs, and those that had between $1000 - $9,999 served 238 postdocs. Postdoctoral offices with larger budgets of $40,000 and above serve above 300 postdocs, and those that have $80,000-99,000 budgets serve the largest number of postdocs, 751.

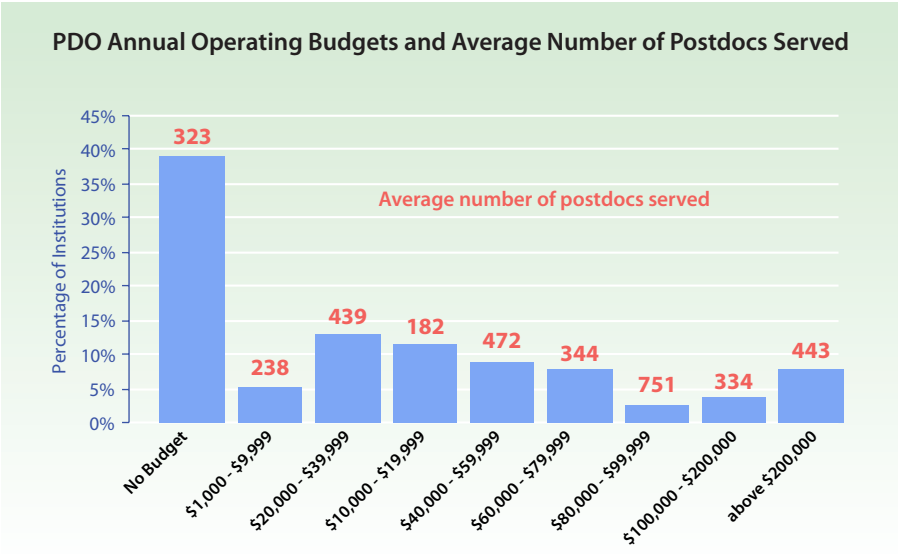

Figure 8. PDO Annual Operating Budgets and Average Number of Postdocs Served.
Source: NPA, 2014, Institutional Policy Survey.

POSTDOCTORAL POLICIES

Administrative policies recommended by the NPA's Recommendations for Postdoctoral Policies and Practices include misconduct, grievances, authorship disputes and concerns related to intellectual property. As institutions recognize its postdoctoral population has unique needs and concerns that differ substantially from others in the university/institute population, it can create and implement policies that pertain specifically to postdoctoral scholars. Policies should include whether postdocs are treated as employees in all cases or only in certain cases (e.g. by source of funding). While it is not necessary to create new policies for every circumstance, institutions should clearly define which existing policies apply or do not apply to postdocs. Postdoc specific policies that should be clearly delineated include administrative, training, and benefits policies.

Institutions were asked to identify the type of policies in place for postdocs. At many institutions, postdocs are covered under institutional policies. Postdoc-specific policies were more common for termination, grievance, and responsible conduct of research policies. When PDOs were asked about institution-wide policies that included postdocs, 88 percent stated they had a misconduct policy, 71 percent had a grievance policy, 75 percent had an authorship policy, 97 percent had an intellectual property policy, and 86 percent had a Responsible Conduct of Research Policy *(see Figure 9)*.

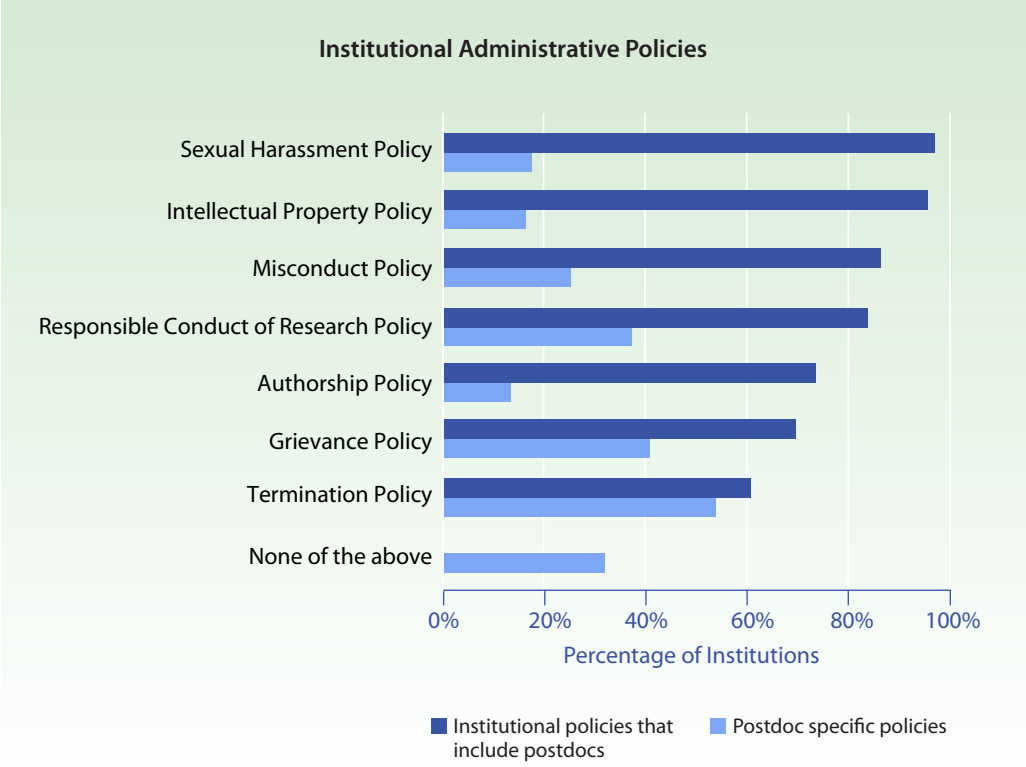

Figure 9. Institutional Administrative Policies. *Source: NPA, 2014, Institutional Policy Survey.*

Handbook for Postdocs

The NPA's Recommendations for Postdoctoral Policies and Practices suggest that institutions maintain a handbook that includes important policy information, as well as local information, as an indispensable reference and resource for postdocs. Ideally, this handbook would be produced as a collaborative effort between the PDO, the PDA, the international scholars office, and the human resources office. Among other resources, the handbook should contain information on the implications of funding support from training grants (individual and institutional) versus research grants; authorship and intellectual property policies; and an overview of conflict resolution and misconduct policies with contact information for the appropriate ombudsman office. Postdocs should be provided with a hard copy of this document at the start of their training. Additionally, this document should be easily accessible online for future reference. The majority of institutions are not providing this resource *(see Figure 10)*.

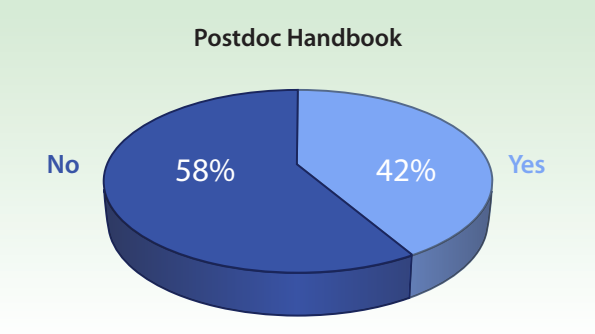

Figure 10. Postdoc Handbook.
Source: NPA, 2014, Institutional Policy Survey.

Appointments

The NPA's Recommendations for Postdoctoral Policies and Practices advises that institutions adopt a specific process for appointing postdocs. This process will enable an institution to know precisely how many postdocs work at their institution, and to evaluate the working conditions of their postdoctoral scholars. An appointment letter detailing the terms of the appointment, verifying the existence of sufficient funds for the duration of employment, delineating conditions for re-appointment, detailing stipend information, and explaining benefits, should be part of this process. The letter should be submitted to the PDO if such an office exists, in addition to the department chair or dean. The appointment process should be uniform and ensure that postdocs are aware of the terms of their appointment and that sufficient funds are available to provide financial support for the duration of their appointments.

Postdoctoral offices were asked if they had a centralized appointment process. Eighty-seven percent said they did centralize the process, and 13 percent said they did not *(see Figure 11)*.

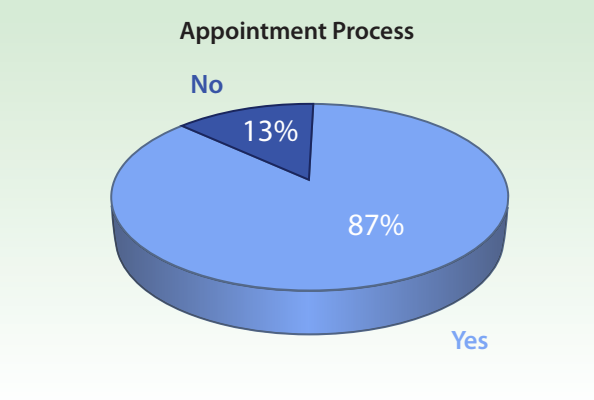

Figure 11. Appointment Process.
Source: NPA, 2014, Institutional Policy Survey.

The majority of institutions cap the length of postdoctoral appointment at five years *(see Figure 12)*. Fifty-seven percent state the maximum length of time that an individual can be classified as a postdoc does not include previous years of experience in the current length of appointment, and 43 percent maintain it is included in the current appointment.

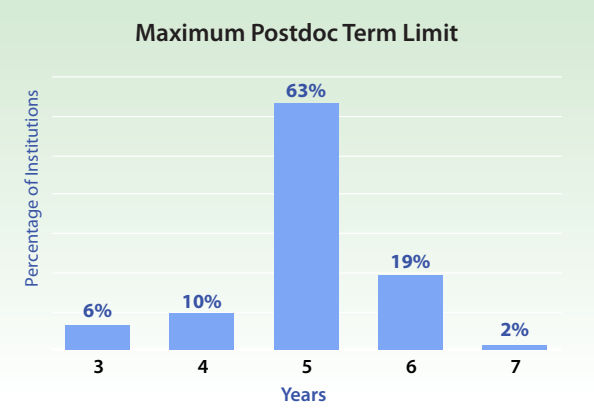

Figure 12. Maximum Postdoc Term Limit.
Source: NPA, 2014, Institutional Policy Survey.

Orientation Program

Providing an orientation program for new postdocs is suggested in the NPA's Recommendations for Postdoctoral Policies and Practices. An orientation should be held within the first three months of a postdoc starting at an institution so the postdoc is aware of services, programs, and benefits that are available to them. Seventy percent of PDOs said they were offering an orientation program and 30 percent said they were not *(see Figure 13)*.

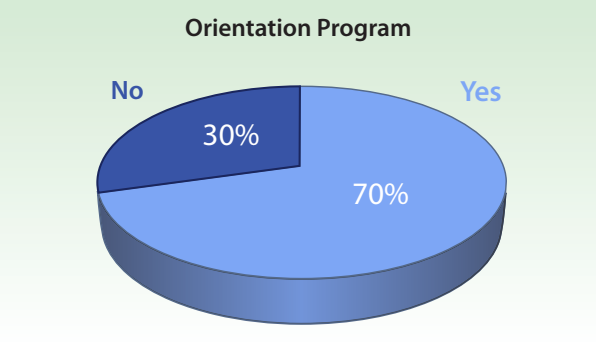

Figure 13. Orientation Program
Source: NPA, 2014, Institutional Policy Survey.

Exit Survey

The NPA's Recommendations for Postdoctoral Policies and Practices propose that institutions conduct exit surveys with postdoctoral scholars to obtain feedback regarding the success of the postdoctoral program and to track the career pursuits of the postdocs. Maintaining such outcome data would help establish an alumni network and enable policy decisions to be driven by data. Additionally, reliable information from institutions would provide valuable data regarding the scientific workforce. These surveys would ideally be conducted by the administrative body overseeing postdoctoral research at an institution but, regardless, should be conducted by an impartial entity and in such a way as to encourage honest feedback without fear of reprisal.

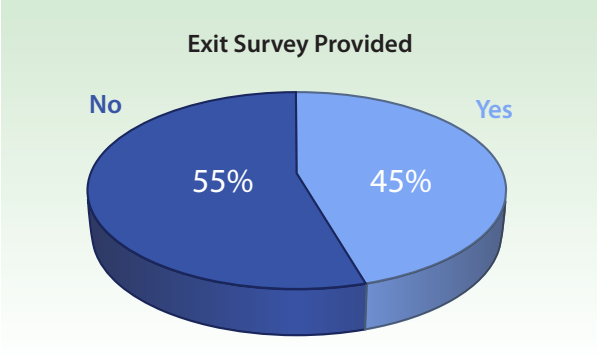

Figure 14. Exit Survey Provided
Source: NPA, 2014, Institutional Policy Survey.

According to the Institutional Policy Survey, only 45 percent administer an exit survey *(see Figure 14)*. The majority of institutions (77 percent) stated they did not have a mechanism for tracking postdocs after they leave their institutions, while 23 percent said they were able to track their postdocs.

Annual Survey

Utilizing an annual survey provides PDOs and PDAs with valuable information regarding the needs and concerns of their postdoctoral population. Many institutions conduct an annual survey where questions are asked about satisfaction with current position (50 percent), evaluation of programs offered (63 percent), incoming expectations (20 percent), career plans (40 percent) and employment outcomes (43 percent) *(see Figure 15)*.

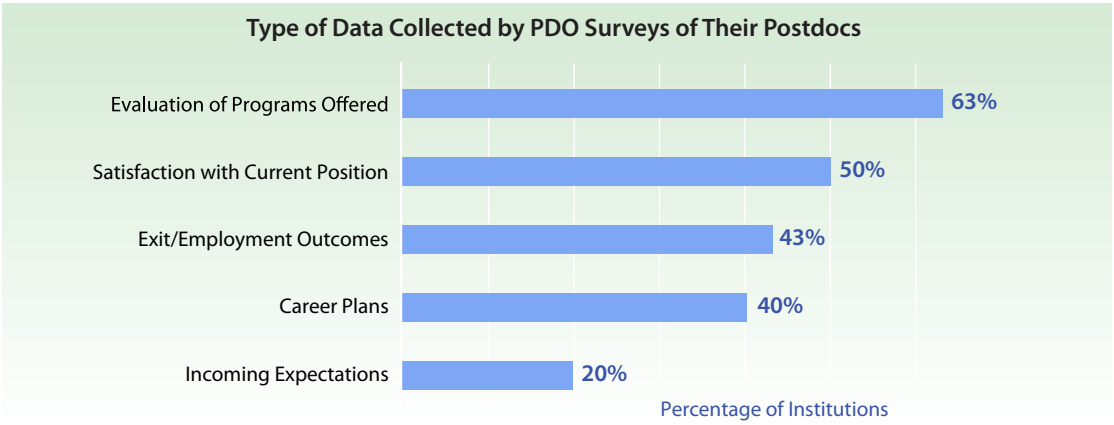

Figure 15. Type of Data Collected by PDO Surveys of Their Postdocs. *Source: NPA, 2014, Institutional Policy Survey.*

"The majority of institutions (77 percent) stated they did not have a mechanism for tracking postdocs after they leave their institutions, while 23 percent said they were able to track their postdocs."

TRAINING POLICIES

The NPA's Recommendations for Postdoctoral Policies and Practices states training policies should include professional development, career development, establishing a time frame for postdoctoral transition to independence, facilitating effective mentoring, and providing career counseling and professional development services.

Professional Development Programs

Postdoctoral offices are offering a wide range of professional development programs for postdocs. These include grant proposal writing, manuscript/scientific writing, mock study sections, lab management for an academic, teaching skills, presentation skills, negotiation skills, interpersonal skills, responsible conduct of research, diversity and outreach programs, English language training, international legal issues, and time management.

Of these offerings, the types of workshops that PDOs offer most often are grant proposal writing (94 percent), responsible conduct of research (93 percent), presentation skills (77 percent), and teaching skills (75 percent). Fewer institutions offered time management (41 percent), international legal issues (33 percent), mock study sessions (33 percent), project management for an academia (28 percent), and project management for industry (22 percent) *(see Figure 16)*.

Figure 16. Professional Development Programs. *Source: NPA, 2014, Institutional Policy Survey.*

Postdoctoral offices serving 750 or more postdocs offer more programs than other PDOs, including presentation skills (94 percent), negotiation skills (94 percent) and manuscript/scientific writing (88 percent). Overall, few PDOs offer project management for an industry setting, mock study sections, and international legal issues programs *(see Figure 17)*. PDOs serving less than 100 postdocs offer fewer programs overall. Programs in project management are not widely offered, regardless of the number of postdocs served, despite the fact that project management skills enable postdocs to establish priorities, develop time management competencies, collaborate (intra/inter-lab), develop a strategic plan, develop and manage budgets, and track material and equipment use. Many of these skills are recommended by the NPA's Core Competencies.[30]

"Overall, few PDOs offer project management for an industry setting, mock study sections, and international legal issues programs."

Individualized Development Plan

An individualized development plan (IDP) is a document that outlines one's developmental objectives and career goals and provides a planning process for attaining them. It is typically developed jointly by the employee and supervisor, or in the case of postdocs, by the postdoc and the postdoc supervisor. In this way, it can serve as a mechanism for enhancing communication and mentoring between the two.

Professional Development Programs Offered by Postdoc Size

	NUMBER OF POSTDOCS					
	<100	101–200	201–300	301–500	501–750	750+
Grant Proposal Writing	100%	92%	100%	87%	100%	100%
Responsible Conduct of Research	100%	77%	85%	93%	92%	100%
Presentation Skills	67%	69%	77%	73%	83%	94%
Teaching Skills	33%	69%	77%	80%	92%	81%
Manuscript/Scientific Writing	67%	54%	54%	73%	67%	88%
Negotiation Skills	17%	46%	46%	67%	75%	94%
Interpersonal Skills	17%	54%	46%	53%	58%	88%
English Language Training	33%	62%	38%	67%	75%	56%
Lab Management for an academic setting	17%	46%	54%	33%	75%	69%
Diversity and Outreach Programs	33%	46%	46%	40%	42%	69%
Time Management	0%	46%	23%	33%	58%	63%
International Legal Issues	17%	23%	31%	27%	25%	56%
Mock Study Sections	17%	46%	31%	20%	42%	38%
Project Management for an academic setting	17%	38%	8%	27%	33%	44%
Project Management for an industry setting	0%	31%	0%	20%	17%	50%

**Percentages are of those that do offer the program.*

Color Key

0% - 24% | 25% - 49% | 50% - 74% | 75% - 89% | 90% - 100%

Figure 17. Professional Development Programs Offered by Postdoc Size. *Source: NPA, 2014, Institutional Policy Survey.*

University of California Berkeley's Pronouncing American English (PAE)

The VocalEase nine-week course on Pronouncing American English (PAE) is designed to help postdocs gain confidence in English, be understood more easily, and develop techniques for continued learning. Emphasis is placed upon speaking the sounds that are most difficult and saying challenging words and specialized vocabulary. Participants practice social customs for effective communication in person and over the phone, in social and academic settings.

Penn Center for Innovation Fellows Program

The Penn Center for Innovation (PCI) Fellows Program is an experiential education program that was launched in the fall of 2008. It is available to graduate (Master's degree/doctoral degree/Master of Business Administration) students and postdoctoral fellows at the University of Pennsylvania with a focus on the schools of medicine, engineering, arts and sciences, and business. The program concentrates on providing support for the assessment of the commercial potential of new technologies disclosed to PCI. PCI fellows are exposed to a wide range of emerging technologies and commercialization opportunities in the life sciences, physical sciences, and nanotechnology areas. Participants interact with professionals across multiple areas within PCI. The program includes both instructional and experiential components.

The majority of PDOs (47 percent) require IDPs or encourage them (37 percent) although 16 percent do not *(see Figure 18)*. Sixty-eight percent of supervisors/principal investigators/mentors stated that they help with developing the IDPs, however only 9 percent said they required to help, and 19 percent were not required to help with IDPs.

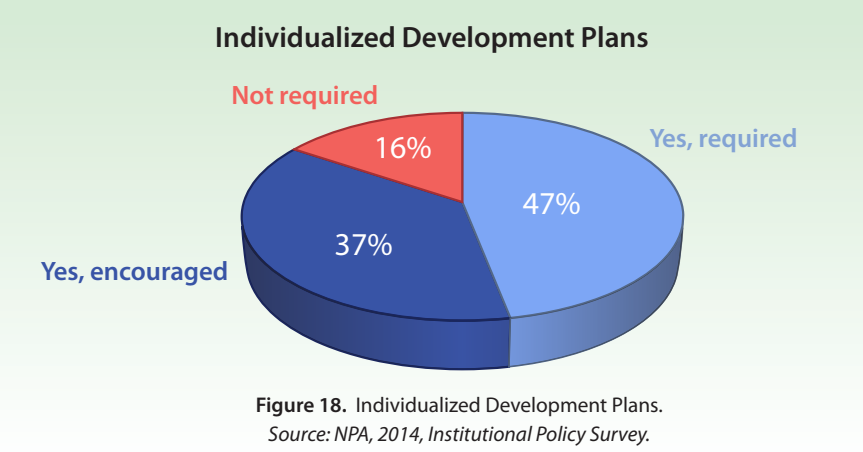

Figure 18. Individualized Development Plans.
Source: NPA, 2014, Institutional Policy Survey.

Career Development

For career development, PDOs offer career exploration/programs/panels and talks most frequently (84 percent), job search skills workshops (including interviewing, negotiating) (70 percent), and networking events (77 percent). Other, less frequent career development offerings include individual career counseling appointments (59 percent), formal career interest assessments (Strong Interest Inventory, etc.) (26 percent), on-campus interviews (14 percent), and on-site visits to local employers (17 percent) *(see Figure 19)*.

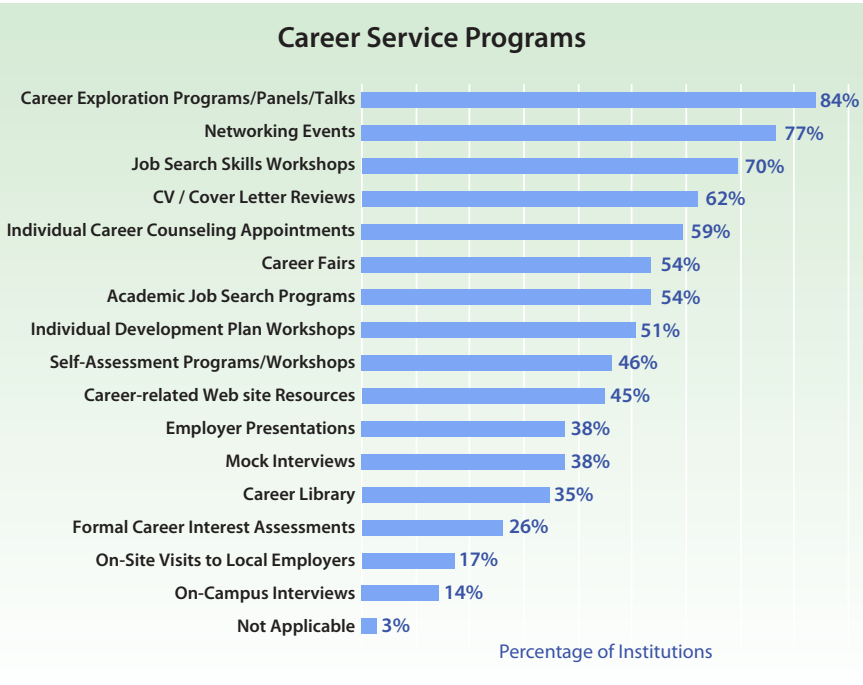

Figure 19. Career Service Programs. *Source: NPA, 2014, Institutional Policy Survey.*

For PDOs serving less than 100 postdocs, programming around academic job search, formal career assessments, on site visits to local employers, and career library and career-related website resources are offered the most. Curriculum vitae (CV) and cover letter review are offered by the majority of institutions serving 500 postdocs or more, but only by 17 percent by institutions serving less than 100 postdocs.

Mock interviews were not offered by institutions less than 100, but were conducted regularly by institutions greater than 501 *(see Figure 20)*. Most PDOs are offering CV/cover letter reviews, IDPs, and individual career counseling appointments. These individual appointments give postdocs an opportunity to be advised by a career services professional in one to one sessions that can help guide their career plans.

Career Services Programs Offered by Postdoc Size

	NUMBER OF POSTDOCS					
	<100	101–200	201–300	301–500	501–750	750+
Career Exploration Programs/Panels/Talks	67%	90%	69%	86%	82%	100%
Networking Events	67%	20%	31%	29%	18%	6%
Job Search Skills Workshops	17%	70%	69%	64%	73%	88%
CV / Cover Letter Reviews	17%	70%	62%	64%	82%	94%
Individual Career Counseling Appointments	17%	70%	38%	57%	64%	88%
Career Fairs	83%	30%	62%	43%	55%	31%
Academic Job Search Programs	100%	50%	85%	36%	36%	13%
Individual Development Plan Workshops	33%	40%	31%	50%	73%	69%
Self-Assessment Programs/Workshops	33%	60%	38%	29%	45%	69%
Career-related Web site Resources	83%	40%	69%	71%	55%	31%
Employer Presentations	100%	60%	92%	57%	45%	44%
Mock Interviews	0%	50%	8%	21%	73%	56%
Career Library	83%	80%	92%	64%	55%	38%
Formal Career Interest Assessments	100%	60%	85%	93%	55%	50%
On-Site Visits to Local Employers	100%	80%	92%	86%	82%	63%
On-Campus Interviews	100%	90%	100%	93%	64%	75%

**Percentages are of those that do offer the program.*

Color Key

0% - 24%
25% - 49%
50% - 74%
75% - 89%
90% - 100%

Figure 20. Career Services Programs Offered by Postdoc Size. *Source: NPA, 2014, Institutional Policy Survey.*

BENEFITS POLICIES

The NPA's Recommendations for Postdoctoral Policies and Practices advocate that institutions provide a comprehensive, fair, and equitable benefits package to postdocs, comparable to that which is received by other full-time employees at the same institution. Postdocs should receive a benefits package that is commensurate with other full-time employees at the institution. This benefits package should minimally include health and dental insurance plans for postdocs. Additionally, institutions should provide policies for vacation and sick days allowed for postdocs as well as for family leave benefits.

Postdoc Minimum Stipends

Many institutions adopt the NIH's Ruth L. Kirschstein National Research Service Award (NRSA) stipend scale as a minimum for departments funded through the NIH. The NRSA scale provides a baseline stipend for postdocs who have recently graduated and adjusts upwards based on the number of years of experience.

Fifty-two percent of PDOs are offering the NIH's NRSA stipend scale of $39,264 (raised to $42,000 in 2014) as their minimum postdoc stipend at their institution *(see Figure 21)*. Eighty-nine percent of PDOs have a minimum stipend policy established for their postdocs, and 93 percent that have a minimum stipend policy require it is met.

Health Benefits

The Institutional Policy Survey indicates that all four types of funded postdocs receive health, dental, and vision insurance with institutionally funded postdoc employees (those on their principal investigator's research grant) receiving the most coverage: 95 percent for single and family health insurance, 91 percent and 95 percent for single and family dental, and 80 percent for single and family vision. If a postdoc is institutionally funded (by institutional grants, T32) or funded by individual fellowships (e.g. American Heart Association fellowship), their coverage for health and dental insurance is between 77-82 percent; however coverage for single and family vision insurance drops down to 67-69 percent. Externally funded postdocs (e.g. fellowship paid by the postdoc's home country) have the lowest funding for coverage of all types *(see Figure 22)*.

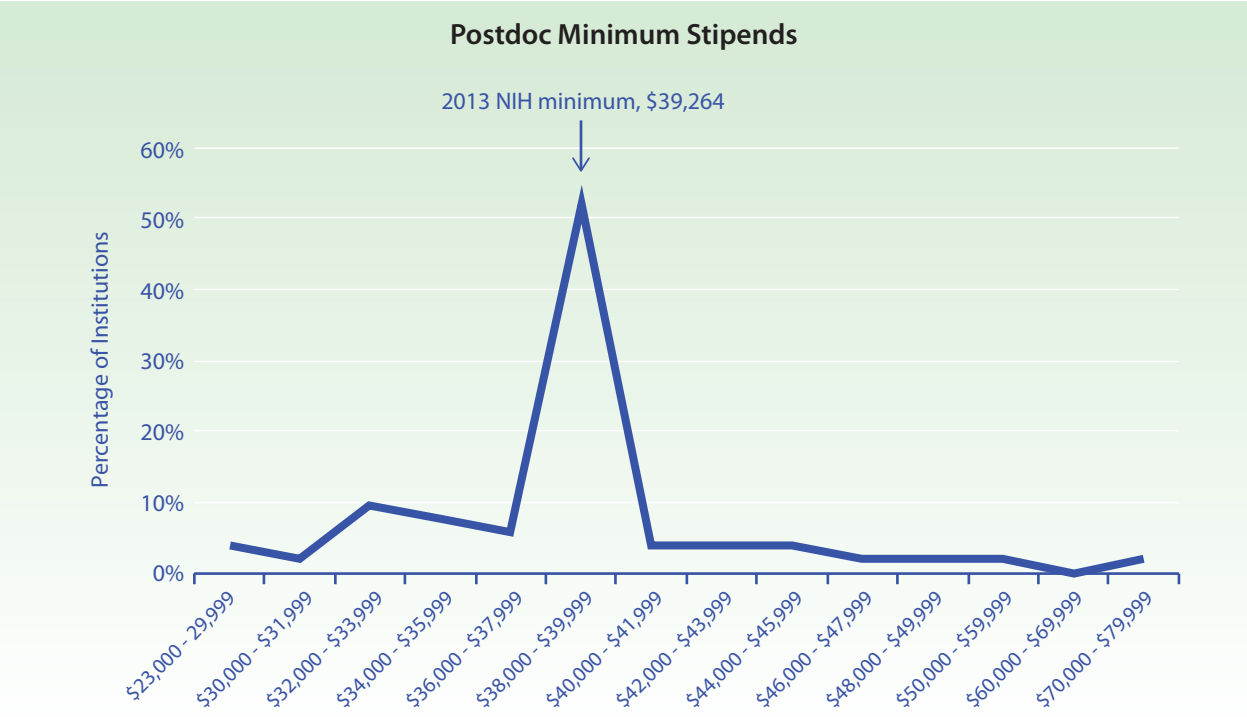

Figure 21. Postdoc Minimum Stipends. *Source: NPA, 2014, Institutional Policy Survey.*

Postdoc Classifications

Institutionally Funded Postdoc Employees
(PI research grant)
This indicates the classification(s) your institution typically uses for a postdoc funded on a principal investigator's grant. (e.g. R01 grant)

Institutionally Funded Postdoc Trainees
(Institutional training grant)
This indicates the classification(s) your institution typically uses for a postdoc funded on a principal investigator's grant. (e.g. T32 training grant)

Individually Funded Postdocs
(Individual fellowship)
This indicates the classification(s) your institution typically uses for a postdoc funded by a fellowship that is paid to the institution. (e.g. American Heart Association fellowship)

Externally Funded Postdocs
(External funding)
This indicates the classification(s) your institution typically uses for a postdoc funded by a fellowship that is paid directly to the postdoc. (e.g. Fellowship paid by the postdoc's home country)

"Externally funded postdocs (e.g. fellowship paid by the postdoc's home country) have the lowest funding for coverage of all types."

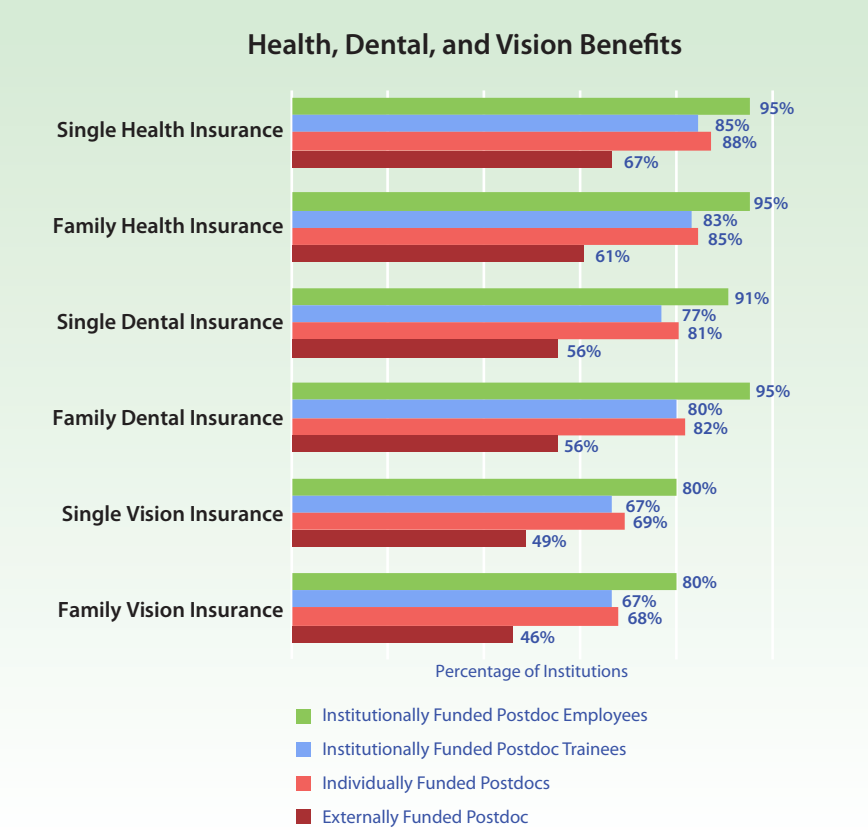

Figure 22. Health, Dental, and Vision Benefits. *Source: NPA, 2014, Institutional Policy Survey.*

Family Friendly Benefits
Given that many postdocs are at a stage of life when establishing a family is as important as their professional development, institutions should extend family-friendly benefits to all postdocs. These benefits should include: adherence to the family and medical leave act for non-employees, maternity/paternity leave, access to on-site child care and/or subsidies, access to dependent coverage for health insurance, support programs for foreign spouses, and part-time status for postdocs.

Retirement program
Given the increasing age of postdocs and length of time spent as a postdoc, the opportunity to contribute to retirement accounts is an important resource. Recognizing the temporary nature of the postdoctoral position, institutions should establish special rules for vesting by postdocs and for allowing employer-matched contributions.

[29] National Institute of Allergy and Infectious Diseases. *NIAID Glossary of Funding and Policy Terms and Acronyms—U.* http://www.niaid.nih.gov/researchfunding/glossary/Pages/u.aspx.
[30] National Postdoctoral Association. (2009). *The NPA core competencies.* http://www.nationalpostdoc.org/publications-5/competencies.

Insurance Benefits Offered by Postdoc Size

TYPES OF INSURANCE

	Health			Dental			Vision			Life	Disability	
	Single	Two-Party	Family	Single	Two-Party	Family	Single	Two-Party	Family		Short-Term	Long-Term
< 100 Postdocs												
Institutionally Funded Postdoc Employee	83%	50%	83%	67%	50%	83%	83%	33%	67%	67%	33%	33%
Institutionally Funded Trainee Postdoc	67%	33%	67%	50%	33%	67%	67%	33%	67%	50%	33%	33%
Individually Funded Postdoc	71%	29%	71%	57%	29%	71%	71%	29%	71%	57%	29%	43%
Externally Funded Postdoc	57%	14%	43%	43%	14%	43%	57%	14%	43%	29%	29%	29%
101 – 200 Postdocs												
Institutionally Funded Postdoc Employee	92%	67%	92%	92%	50%	92%	83%	50%	92%	92%	100%	100%
Institutionally Funded Trainee Postdoc	92%	67%	92%	92%	50%	92%	83%	50%	92%	58%	67%	58%
Individually Funded Postdoc	92%	62%	85%	85%	54%	77%	85%	46%	85%	54%	62%	54%
Externally Funded Postdoc	62%	31%	62%	62%	15%	62%	54%	15%	62%	31%	31%	31%
201 – 300 Postdocs												
Institutionally Funded Postdoc Employee	100%	83%	100%	100%	83%	100%	83%	83%	83%	67%	67%	50%
Institutionally Funded Trainee Postdoc	83%	58%	75%	75%	50%	67%	58%	50%	58%	50%	50%	33%
Individually Funded Postdoc	86%	50%	79%	79%	50%	79%	57%	43%	57%	50%	43%	36%
Externally Funded Postdoc	57%	36%	50%	50%	36%	50%	43%	36%	43%	29%	14%	14%
301 – 500 Postdocs												
Institutionally Funded Postdoc Employee	100%	73%	93%	87%	67%	87%	73%	53%	73%	73%	73%	53%
Institutionally Funded Trainee Postdoc	80%	47%	67%	60%	40%	60%	53%	33%	53%	53%	47%	27%
Individually Funded Postdoc	81%	56%	81%	69%	44%	69%	56%	31%	56%	50%	56%	31%
Externally Funded Postdoc	63%	38%	56%	50%	31%	44%	38%	19%	31%	38%	19%	6%
501 – 750 Postdocs												
Institutionally Funded Postdoc Employee	92%	67%	100%	83%	67%	100%	75%	58%	83%	83%	75%	83%
Institutionally Funded Trainee Postdoc	75%	58%	83%	75%	67%	92%	67%	58%	67%	75%	42%	58%
Individually Funded Postdoc	67%	50%	67%	67%	58%	75%	58%	50%	58%	50%	8%	33%
Externally Funded Postdoc	58%	33%	50%	42%	33%	50%	33%	25%	33%	33%	8%	17%
750+ Postdocs												
Institutionally Funded Postdoc Employee	100%	75%	100%	100%	75%	100%	88%	75%	88%	100%	75%	75%
Institutionally Funded Trainee Postdoc	100%	75%	100%	100%	75%	100%	81%	69%	81%	81%	69%	69%
Individually Funded Postdoc	100%	75%	100%	100%	75%	100%	81%	63%	81%	69%	63%	63%
Externally Funded Postdoc	81%	63%	81%	75%	63%	75%	63%	56%	63%	38%	38%	44%

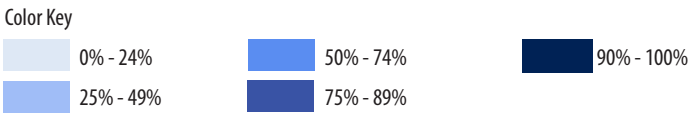

Figure 23. Insurance Benefits Offered by Postdoc Size. *Source: NPA, 2014, Institutional Policy Survey.*

Time Off and Parental Leave Policies by Postdoc Size

	TYPES OF TIME OFF AND LEAVE					
	Paid Time-off *	Unpaid Time-off *	Paid Maternity **	Unpaid Maternity	Paid Paternity ***	Unpaid Paternity
< 100 Postdocs						
Institutionally Funded Postdoc Employee	100%	33%	50%	83%	50%	67%
Institutionally Funded Trainee Postdoc	83%	33%	33%	67%	17%	67%
Individually Funded Postdoc	86%	43%	29%	71%	29%	71%
Externally Funded Postdoc	57%	43%	29%	57%	14%	43%
101 – 200 Postdocs						
Institutionally Funded Postdoc Employee	67%	33%	42%	75%	42%	67%
Institutionally Funded Trainee Postdoc	50%	42%	42%	67%	42%	50%
Individually Funded Postdoc	54%	46%	46%	62%	46%	54%
Externally Funded Postdoc	31%	23%	23%	38%	23%	23%
201 – 300 Postdocs						
Institutionally Funded Postdoc Employee	100%	67%	33%	81%	25%	50%
Institutionally Funded Trainee Postdoc	67%	42%	17%	58%	17%	58%
Individually Funded Postdoc	64%	43%	21%	36%	14%	43%
Externally Funded Postdoc	43%	43%	14%	36%	7%	43%
301 – 500 Postdocs						
Institutionally Funded Postdoc Employee	87%	80%	27%	67%	13%	60%
Institutionally Funded Trainee Postdoc	67%	60%	20%	47%	13%	47%
Individually Funded Postdoc	75%	56%	25%	50%	13%	44%
Externally Funded Postdoc	56%	38%	13%	38%	6%	38%
501 – 750 Postdocs						
Institutionally Funded Postdoc Employee	83%	58%	25%	50%	25%	50%
Institutionally Funded Trainee Postdoc	67%	50%	17%	50%	17%	50%
Individually Funded Postdoc	33%	42%	17%	25%	8%	25%
Externally Funded Postdoc	8%	25%	8%	17%	0%	17%
750+ Postdocs						
Institutionally Funded Postdoc Employee	83%	58%	81%	50%	25%	50%
Institutionally Funded Trainee Postdoc	94%	81%	81%	75%	69%	69%
Individually Funded Postdoc	88%	75%	69%	69%	56%	63%
Externally Funded Postdoc	75%	75%	63%	63%	44%	56%

* holiday, personal, vacation, sick
** other than vacation/sick & income provided through disability insurance
*** other than vacation/sick time

Color Key

0% - 24% | 25% - 49% | 50% - 74% | 75% - 89% | 90% - 100%

Figure 24. Time Off and Parental Leave Policies by Postdoc Size. *Source: NPA, 2014, Institutional Policy Survey*

Family Friendly Benefits Offered by Postdoc Size

	Adoption Assistance	Access to On-site Child Care Facility	Subsidized Child Care Costs	Child Care Scholarships	Tuition Assistance	Transportation Assistance	Discounted Athletic Membership
< 100 Postdocs							
Institutionally Funded Postdoc Employee	33%	17%	0%	0%	17%	17%	0%
Institutionally Funded Trainee Postdoc	17%	17%	0%	0%	17%	17%	0%
Individually Funded Postdoc	29%	29%	14%	14%	29%	29%	14%
Externally Funded Postdoc	14%	14%	14%	14%	14%	14%	14%
101 – 200 Postdocs							
Institutionally Funded Postdoc Employee	25%	33%	17%	17%	58%	50%	58%
Institutionally Funded Trainee Postdoc	17%	25%	17%	8%	25%	42%	50%
Individually Funded Postdoc	15%	38%	15%	8%	23%	38%	54%
Externally Funded Postdoc	15%	31%	23%	0%	15%	31%	46%
201 – 300 Postdocs							
Institutionally Funded Postdoc Employee	17%	50%	17%	17%	33%	33%	42%
Institutionally Funded Trainee Postdoc	0%	50%	8%	0%	8%	17%	42%
Individually Funded Postdoc	0%	36%	7%	0%	14%	21%	36%
Externally Funded Postdoc	0%	29%	7%	0%	7%	14%	29%
301 – 500 Postdocs							
Institutionally Funded Postdoc Employee	27%	60%	20%	13%	33%	33%	27%
Institutionally Funded Trainee Postdoc	13%	47%	20%	13%	13%	27%	20%
Individually Funded Postdoc	13%	38%	19%	19%	25%	25%	31%
Externally Funded Postdoc	6%	44%	19%	6%	6%	19%	13%
501 – 750 Postdocs							
Institutionally Funded Postdoc Employee	17%	58%	17%	8%	50%	58%	25%
Institutionally Funded Trainee Postdoc	17%	50%	17%	8%	33%	33%	25%
Individually Funded Postdoc	8%	42%	8%	0%	8%	8%	17%
Externally Funded Postdoc	0%	33%	8%	8%	0%	0%	17%
750+ Postdocs							
Institutionally Funded Postdoc Employee	17%	58%	17%	8%	50%	58%	25%
Institutionally Funded Trainee Postdoc	25%	69%	19%	31%	50%	50%	44%
Individually Funded Postdoc	19%	69%	19%	31%	31%	44%	50%
Externally Funded Postdoc	0%	44%	6%	13%	13%	19%	25%

Color Key

0% - 24%
25% - 49%
50% - 74%
75% - 89%
90% - 100%

Figure 25. Family Friendly Benefits Offered by Postdoc Size. *Source: NPA, 2014, Institutional Policy Survey.*

Retirement and Other Employee Benefits Offered by Postdoc Size

	Matched Contribution to Retirement Plan	Indiv Tax-deferred Retirement Plan	Flexible Spending Account	Employee Assistance Program
< 100 Postdocs				
Institutionally Funded Postdoc Employee	67%	50%	67%	67%
Institutionally Funded Trainee Postdoc	50%	33%	67%	50%
Individually Funded Postdoc	57%	29%	71%	57%
Externally Funded Postdoc	29%	14%	29%	29%
101 – 200 Postdocs				
Institutionally Funded Postdoc Employee	67%	75%	75%	92%
Institutionally Funded Trainee Postdoc	25%	33%	42%	50%
Individually Funded Postdoc	31%	23%	38%	46%
Externally Funded Postdoc	15%	23%	31%	38%
201 – 300 Postdocs				
Institutionally Funded Postdoc Employee	42%	83%	83%	67%
Institutionally Funded Trainee Postdoc	17%	58%	42%	50%
Individually Funded Postdoc	0%	36%	43%	50%
Externally Funded Postdoc	0%	21%	29%	50%
301 – 500 Postdocs				
Institutionally Funded Postdoc Employee	40%	87%	73%	73%
Institutionally Funded Trainee Postdoc	7%	27%	13%	33%
Individually Funded Postdoc	13%	31%	25%	44%
Externally Funded Postdoc	6%	19%	6%	19%
501 – 750 Postdocs				
Institutionally Funded Postdoc Employee	58%	83%	67%	75%
Institutionally Funded Trainee Postdoc	33%	50%	42%	67%
Individually Funded Postdoc	8%	25%	8%	42%
Externally Funded Postdoc	8%	17%	0%	17%
750+ Postdocs				
Institutionally Funded Postdoc Employee	58%	83%	67%	75%
Institutionally Funded Trainee Postdoc	6%	44%	38%	75%
Individually Funded Postdoc	0%	31%	25%	56%
Externally Funded Postdoc	0%	13%	6%	44%

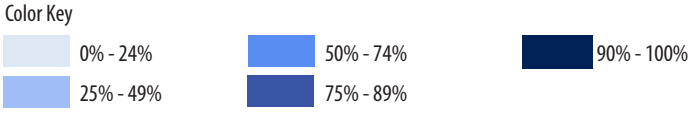

Figure 26. Retirement and Other Employee Benefits Offered by Postdoc Size.
Source: NPA, 2014, Institutional Policy Survey.

Recommendations

Using the NPA's Recommendations for Postdoctoral Policies and Practices as a guide, we commend the growth of postdoc offices to provide a needed support system, advocacy, education, and resources for postdocs that would not exist without their presence. The NPA Institutional Policy Report data highlight areas needing improvement to increase equity and services for postdocs.

FUNDING

Some operating budgets of PDOs are low and suggest a lack of commitment to postdocs and support services *(see Figure 8)*. Institutions should give PDOs adequate budgets to fund postdoc services that help postdocs connect with critical resources and obtain effective career guidance.

HEALTH CARE INSURANCE

Institutional policies for obtaining health care insurance should clearly state whether postdocs are treated as employees in all cases or only in certain cases (e.g. by source of funding). Postdocs that are classified as externally funded postdocs receive few health, dental, and vision insurance benefits (between 46 percent and 67 percent) *(see Figure 22)*. Institutions and external funders should increase the amount of health benefits for these postdocs so they are able to secure adequate health care for themselves and their families.

APPOINTMENT

The length of time that postdocs are serving is unclear. The data indicate that the majority of institutions limit postdoc appointments to five years. However 57 percent state that prior years of experience are not included in the maximum length of time that an individual could be classified as a postdoc. If postdocs are serving six to nine years as trainees, then the intent of the postdoctoral training period to be a defined period of mentored advanced training is false and trainees are serving as underpaid employees. According to the NIH NRSA training grant definition of a postdoc, the postdoctoral training period should be a maximum of five years.[31]

EXIT SURVEY

The NPA recommends that all institutions conduct exit surveys with postdocs to provide feedback regarding the success of the postdoctoral program at the institution and to track the career outcomes of postdocs. As only 45 percent of PDOs administer an exit survey and the majority (76 percent) do not have a mechanism for tracking postdocs after they leave their institutions, important data about the outcomes of postdoctoral scholars is being lost *(see Figure 14)*. Institutions need to commit resources to providing exit surveys and tracking postdocs after they leave the institution because this career information can be particularly beneficial to undergraduates, graduate students, and prospective postdocs. By understanding postdoc outcomes, postdoc training could be tailored to teach skills that postdocs need to be more effective. Finally, data on the economic impact of postdoctoral training could be ascertained.

TRAINING PROGRAMS

The variety of professional and career development program offerings are rich and varied. These include grant proposal writing, presentation and teaching skills. As 60 percent of our postdoc population is on temporary visas, international legal issues (offered by 33 percent of PDOs) need to be offered more

frequently, as well as project management for academia (28 percent) and for industry (22 percent) *(see Figure 16)*. Postdocs will need to lead teams in any number of environments, therefore their ability to conceptualize a project from start to finish, and execute it while leading their teams, is paramount. Career development programs that could be more widely offered include formal interest assessments to enable postdocs to know how their interests (entrepreneurial, teaching, business) may correspond to careers in industry, nonprofit, academia or government.

RETIREMENT BENEFITS

Given the length of time postdocs spend in training during their thirties, the opportunity to contribute to a retirement account is an important resource for postdocs to establish financial security *(see Figure 26)*. Institutions should establish special rules for vesting and allow postdoc to contribute to retirement programs, similar to full-time employees.

[31] National Institutes of Health. (2014). *Ruth L. Kirschstein National Research Service Award (NRSA) Stipends, Tuition/Fees and Other Budgetary Levels Effective for Fiscal Year 2014.* http://grants.nih.gov/grants/guide/notice-files/NOT-OD-14-046.html.

Conclusion

Postdoctoral offices have seen significant improvements in the last decade. Whether they serve, 50 to over 2000 postdocs, PDOs are the hub for postdocs to receive career guidance, personal support, grievance counseling, and benefits information. Without PDOs, postdocs would be afloat in large bureaucratic research institutions. The NPA commends the PDO administrators for the important work they do every day for postdocs.

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