Workforce Plan

FY 2002
FY 2003

U.S. Department of Health and Human Services

June 2001

Agency Context for Workforce Plan

Good workforce planning results in having the right people with the right skills in the right jobs at the right time. The following workforce plan links human resource strategies to the research mission of the NIH. The plan is consistent with the strategic plans of the Institutes and Centers of the NIH and is tied to research agendas, budgets, facilities and our GPRA plan.

NIH Mission and Long Term Goals

The NIH mission is to uncover new knowledge about the prevention, detection, diagnosis, and treatment of disease and disability.

The NIH works toward this mission by conducting research in its own laboratories; supporting the research of non-federal scientists in universities, medical centers, hospitals, and research institutions throughout the country and abroad; helping to train research investigators; and fostering communication of medical information.

Medical innovation is one of the principal foundations on which America's past successes in improving healthcare have been built. It is where hope for the future resides. History provides abundant evidence that medical progress rarely occurs without the sustained pursuit of advances in basic, clinical and behavioral science. Through the conduct and support of medical research, the NIH seeks to expand fundamental knowledge about the nature and behavior of living systems; to improve and develop new strategies for the diagnosis, treatment, and prevention of disease; and to reduce the burdens of disease and disability.

The NIH invests the public's resources for medical science in three basic and interrelated ways. First and foremost, the NIH conducts and supports medical research. Second, it contributes to the development and training of the pool of scientific talent. And third, it participates in the support, construction, and maintenance of the laboratory facilities necessary for conducting cutting-edge research.

The NIH's long-term goals encompass each of these important domains of agency activity:

- ***Increase understanding of normal and abnormal biological functions and behavior.***
- ***Improve prevention, diagnosis, and treatment of diseases and disabilities.***
- ***Promote development of a talent base of well qualified, highly trained, and diverse investigators capable of yielding the scientific discoveries of the future.***
- ***Secure facilities for research that are modern, efficient, and safe.***

The agency's activities and strategies discussed throughout this plan are directed at realizing all of these overarching goals.

Organization, Programs, Operations, Strategies, and Resources

Organizational Overview

The NIH is comprised of twenty-seven Institutes and Centers ("ICs" or "Institutes"), the Office of Research Services, and the Office of the Director, whose research activities extend from basic research that explores the fundamental workings of biological systems and behavior, to studies that examine disease and treatments in clinical settings, to prevention and to population-based analyses of health status and needs. (A brief mission statement and glossary for each of the Institutes appears in the Appendix.)

The NIH is "visible" to most Americans as encompassing the research institutes focused on diseases (e.g., cancer, diabetes), primary organ systems (e.g., heart, eye, kidney), or a stage of life (e.g., children, the aging). Yet, no less essential to the nation's health are NIH programs that address overarching scientific needs and opportunities. Included here are such efforts as deciphering the human genome, understanding cellular and tissue biology and physiology, training investigators in relevant scientific fields, and developing the array of technologies dictated by the needs of cutting-edge research. All are scientific innovations that move into clinical practice and enhance the capabilities and quality of routine medical treatment.

The Extramural Research Community. More than $8 out of every $10 appropriated to the NIH flows out to the scientific community at large -- of which the lion's share supports individual scientists. This "extramural" system is premised on *independence*, embodied in "investigator-initiated" research; on *self-governance*, embodied in peer review of scientists by scientists as the primary basis for judging the merits of research proposals and awarding funds; and on the powerful incentive of *competition* among the most highly trained scientists in the world. The extramural research community numbers an estimated 50,000 scientists affiliated with some 2,000 university, hospital, and other research facilities located in all 50 states, the District of Columbia, Puerto Rico, Guam, the Virgin Islands, and points abroad.

Research at NIH's Intramural Laboratories. A much smaller fraction of the funds -- approximately 9 percent of the budget -- supports a core program of basic and clinical research activities administered and staffed by the NIH's own physicians and scientists. This in-house, or intramural, research program includes the NIH Clinical Center and other resources that provide scientific, clinical, and educational benefits to the citizens of the U.S. and the world.

Programs

For purposes of planning and performance assessment, the NIH organizes its main activities into three Core Programs: 1) *Research*, 2) *Research Training and Career Development*, and 3) *Research Facilities*.

The ***Research Program*** represents all aspects of the medical research continuum, including basic research, which may be disease-oriented; observational and population-based research; behavioral research; clinical research, including research to understand both normal health and disease states, to move laboratory findings into medical applications, to assess new treatments or to compare different treatment approaches; and health services research. In addition, the timely dissemination of medical and scientific information is a key component of the Program, as is the expeditious transfer of the results of its medical research to provide benefits to human health.

The ***Research Training and Career Development Program*** addresses the need for creative and capable personnel to conduct medical research. The primary goal of the support that the NIH provides for graduate training and career development is to produce new, highly trained investigators who are likely to perform research that will benefit the nation's health. Our ability to maintain the momentum of recent scientific progress and our international leadership in medical research depends upon the continued development of new, highly trained investigators.

The ***Research Facilities Program*** focuses on ensuring that the scientists we support have adequate facilities in which to conduct their work. In fact, many of the advances in medical research that are leading to more effective treatments for illnesses reflect stunning innovations in sophisticated, but often costly, research technologies that are far beyond the capacity of all but a handful of institutions to purchase, construct, or maintain. The NIH recognizes that ensuring broad access to these research resources creates efficiencies that make the research dollar go farther, while providing critical resources to all scientists. Often, access to the needed tools by the largest possible number of scientists determines the pace of research on many devastating illnesses.

Throughout the NIH's Core Programs are aggregates of the many specific programs and activities underway across the agency. This aggregation approach is implemented due to the crosscutting nature of disease and scientific discovery. By aggregating activities that are intrinsically collaborative and complementary, the NIH neither omits nor minimizes the significance of any particular activity that contributes to a major function or operation for the agency as a whole.

Operations and Broad Strategy

The NIH's mission to advance medical knowledge and sustain the nation's medical research capacity is accomplished by sustained federal stewardship. It is achieved through a number of fundamental principles that underlie the NIH's broad planning and management of its programs and resources. These principles comprise the basic context in which the NIH's goal setting and strategic planning operate.

■ ***Provide scientific leadership and establish research priorities.*** Establishing research priorities is essential to ensure that science meets national public health needs and efficiently uses limited resources. The NIH uses a multi-level system to establish and review research priorities. The NIH Director, in collaboration with IC directors and their respective advisory councils and boards and the biomedical research community, guides the priority-setting process. Additional

input is sought from the Department of Health and Human Services (DHHS), Congress, and the public. Reflecting the research priorities identified through this process, ICs examine research initiatives and public health needs to ensure that the NIH is committing federal resources to projects and programs that will achieve the greatest yield from the nation's medical research investment.

Public health need and scientific opportunity are the primary drivers in the allocation of resources. In general, the NIH sponsors research that addresses public health needs – to find ways to prevent, treat, or cure disease and to minimize pain and suffering. But public health need alone is not enough; there must also be some real opportunity for success.

How do we identify areas of increased scientific opportunity? New knowledge comes from the pursuit of answers to new questions. The rate-limiting step in the generation of new knowledge is not the number of experiments conducted, but rather the number of new hypotheses or questions. When an arena of research is enjoying an exponential increase in the number of new questions, it is, indeed, an area of scientific opportunity. New questions emerge as a result of several converging factors, including the creativity of individual investigators, the emergence of new methods and tools that allow previously unanswered questions to be addressed, and what is already known about a problem. It is imperative that the NIH capitalize by investing funds in areas of scientific opportunity.

■ ***Fund the best research.*** Research proposals are submitted to the NIH by scientists working at universities, medical, dental, nursing and pharmacy schools, schools of public health, non-profit research foundations, and private industry. The NIH support for a project includes the salaries of the scientists and technicians; the cost of equipment such as lasers or computers; the cost of supplies such as chemicals and test tubes; the cost of procedures conducted with research subjects; and the indirect costs associated with doing research, such as maintenance of buildings, electricity, library services, and cost of administrative support. Part of the NIH budget is also spent on research and development contracts, which are awarded to non-profit and commercial organizations for work requested and overseen by the NIH.

The NIH funds are awarded through a highly competitive process to the most promising and productive scientists. Extramural research proposals are first evaluated by expert scientific peer review panels composed of non-NIH scientists who are among the most knowledgeable and respected in their fields. The proposals are then reviewed by independent advisory councils that include members of the lay public. This two-tiered independent review system is critical to ensuring that the best research proposals are funded from the more than 40,000 grant applications the NIH receives each year.

Research grants to the Extramural Research Community comprise the main body of the NIH research -- and these scientists are the NIH's principal "partners" in the overall research enterprise. Currently, this research community numbers an estimated 50,000 scientists, affiliated with some 2,000 university, hospital, and other research facilities located in all 50 states, the District of Columbia, Puerto Rico, Guam, the Virgin Islands, and points abroad. In recent years, Extramural Research has accounted for more than 80 percent of the NIH's total annual budget appropriation.

■ ***Conduct leading-edge research in NIH laboratories.*** The NIH also conducts basic and clinical research in its own (intramural) laboratories. Projects are selected on the basis of scientific merit and public health need. Each institute maintains a Board of Scientific Counselors, composed of external experts, that reviews the intramural programs and makes recommendations to the Institute Director. The intramural program enables scientists to apply the results of laboratory research to patient care and to seek answers in the laboratory to questions that arise in the clinical setting. This national resource permits the NIH to respond rapidly to critical health problems and emergencies and to take advantage of emerging opportunities.

■ ***Effectively disseminate scientific results and research-based health information.*** The NIH develops and disseminates informational materials to individuals and groups, including medical and scientific organizations, industry, the media, and volunteer and patient organizations. Information dissemination efforts have expedited the translation of NIH's scientific advances and technologies into important diagnostic, preventive, and therapeutic products. In addition, they have brought about major health-enhancing changes in public attitudes and behaviors, such as reduction of smoking and better control of high blood pressure and high cholesterol levels. To effectively reach diverse audiences, whose knowledge of science and health differ, the NIH disseminates information ranging from highly technical research advances to the steps individuals can take to improve their own health.

■ ***Facilitate the development of health-related products through technology transfer.*** The NIH has a statutory mandate to transfer new biomedical technologies to the private sector for further development and commercialization. NIH's technology transfer programs ensure that the public investment in NIH research leads rapidly to beneficial health-related products, including preventives, diagnostics, therapeutics, and vaccines. Examples of various relationships include:

- *Vaccine research and development*. Most currently available vaccines, as well as those in the development pipeline, have resulted from collaborations between partners in the public and private sector, including federal and state governments, small and large corporations, academic research institutions and non-governmental organizations.
- *Technology Transfer through Cooperative Research and Development Agreements (CRADAs)*. CRADAs are one major technology transfer mechanism used by NIH to enable private companies to work collaboratively with federal laboratory scientists and technologists in activities with the promise of yielding new technologies. (The CRADA mechanism was established by the Congress in 1986.)
- *Clinical Trials*. For example, NIH conducted a Phase I/II trial of recombinant methionyl human cell factor in patients diagnosed with acquired aplastic anemia. This trial was sponsored by Amgen, Inc., the private industry producer of the recombinant methionyl human stem cell factor.

■ ***Ensure a continuing supply of well-trained laboratory and clinical investigators.*** Because supporting research is essential, it is equally important to ensure the availability of well-trained investigators who reflect our nation's diversity and who have specialized knowledge, methodological expertise, and creativity. These programs are critical to ensuring that medical

research programs nationally and internationally, not just at the NIH, have a pipeline of trained researchers. The NIH's research training grant portfolio covers all the career stages that are key to the recruitment, training, and retention of productive medical researchers.

One of the goals of research training is to teach pre- and post-doctoral students how to conduct innovative, high-quality science, including how to identify problems, develop hypotheses, design experiments, choose model systems, and see connections among different fields that allow a scientist to make quantum leaps in understanding a problem. Mentors are a critical training resource, serving as role models and providing guidance that ensures trainees develop into successful investigators.

■ ***Sustain the nation's research facilities.*** The NIH must continually support the development, maintenance, and renewal of physical resources that are vital to the rapid pace of scientific discovery. The past achievements of medical research have required access to state-of-the-art laboratories. Up-to-date and safe research facilities are essential to assuring continued progress in the medical sciences. To support intramural research, the NIH constructs new facilities and renovates existing ones to meet the ever-changing needs of biomedical research. The NIH also provides support to extramural grantees through research facilities construction grants designed to assist in the construction and modernization of non-federal research facilities.

■ ***Collaborate and coordinate with others.*** The NIH collaborates and coordinates on an ongoing basis with other federal agencies and research organizations where research interests intersect and when joint efforts will enhance the individual activities of each entity. Medical research benefits from multiple perspectives being brought to bear on a particular problem. Collaborative efforts bring diverse domains of expertise together and can facilitate a more rapid response to emerging opportunities. In addition, collaborative efforts work to produce the best possible science while making the most economical use of the resources available.

These collaborative endeavors frequently involve the NIH's sister agencies in DHHS, including the Food and Drug Administration (FDA), Centers for Disease Control and Prevention (CDC) and the Agency for Healthcare Research and Quality (AHRQ). Nonetheless, the full scope of the NIH's collaborative activities -- both in the past and those contemplated for the future -- is far wider, including many other federal agencies, government bodies, non-governmental organizations, and industry.

A sampling of the NIH's diverse research collaborations in recent years with other federal agencies is as follows:

- *Human Genome Project*. The NIH has completed, with the Department of Energy (and with other international collaborators), the major effort to sequence the large and complex human genome. This endeavor is widely regarded as one of the single most important projects in biology and biomedical science.
- *DNA Polymorphism Discovery Resource*. In one of numerous related studies, the NIH worked recently with CDC and several independent scientists to assemble DNA samples from several hundred U.S. residents with ancestry from all the major regions of the

world. This material will provide a resource of immense value for identifying human genetic variations, through which other studies can seek to relate to health and disease.

- *National Emphysema Treatment Trial*. The NIH is collaborating with the Health Care Financing Administration (HCFA) and the AHRQ in a multi-center clinical trial designed to determine the role, safety, and effectiveness of bilateral lung volume reduction surgery in the treatment of emphysema.

Resources

The FY 2002 President's budget provides funding to support the NIH staff (i.e., Full Time Equivalents), including approximately 2,000 intramural scientists, funding to support research efforts from a pool of extramural scientists, and funding to support the facilities (i.e., universities, research centers and the buildings on the NIH campus) necessary in the conduct of science. The combination of dollars, human capital, and physical facilities available for research make up the resources by which the NIH accomplishes its program performance goals.

The dollar resources are distributed to the NIH's programs through budget mechanisms that direct the funding to intramural and extramural researchers, contractors, the NIH staff, universities and research centers. Ultimately, all funds are used to support the NIH's mission and long-term goals.

Under the NIH's aggregated approach, GPRA performance goals are grouped under the three NIH Core Programs: Research, Research Training and Career Development, and Research Facilities. Within these three program areas, the NIH has defined a crosswalk for how each budget mechanism (e.g., Research Project Grant, Research Management and Support, Construction, etc.) links to the three core programs.

<table>
<tr><th>Resources</th><th>Budget Mechanisms</th><th>Core Program</th><th>Program Areas</th></tr>
<tr><td rowspan="7">$23 Billion estimated for FY 2002

NIH Staff

Extramural Scientists

Contractors

Universities, Research Centers and NIH Facilities</td><td rowspan="7">• Research Project Grants
• Research Centers
• Other Research
• Research Training
• R&D Contracts
• Intramural Research
• Research Management and Support
• Cancer Control
• Construction
• Library of Medicine
• Office of the Director
• Buildings and Facilities</td><td rowspan="4">Research</td><td>Research</td></tr>
<tr><td>Communication of Results</td></tr>
<tr><td>Technology Transfer</td></tr>
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<u>QUESTION #1:</u> What skills are currently vital to the accomplishment of the agency's goals and objectives?

To accomplish all aspects of our mission critical initiatives, the NIH needs to recruit a cadre of highly skilled, scientific and program support staff. Both scientific and administrative duties have increased in direct relation to the growth in both our budget and our organizational complexity, as mandated by Congress. This results in increased scientific staff needs to conduct and administer research and increased staff support needs to ensure proper oversight of grants and to complete administrative tasks that are essential to the advancement of major research initiatives. Specifically, we need individuals with M.D, Ph.D., or similar degrees in biomedical and behavioral research and in related areas critical to these fields, such as physics, biophysics, chemistry, engineering, statistics, computer sciences and mathematics. Within the overall scientific category, we also need to attract additional clinicians as we expand clinical research in response to Congressional demands and expectations of the American public.

Because of its extensive research grants program, the NIH also requires a highly trained cadre of professionals to issue and manage the administrative and fiscal aspects of our large portfolio of grants. Advances in technology require staff that constantly strive to improve current systems or develop new ones to enhance the administrative services we provide to our scientists.

Finally, we require a staff of engineers, architects, and highly trained workers to maintain our research laboratories and clinical care facilities on the main campus in Bethesda and surrounding areas, in North Carolina and in other areas. We need a "non-scientific" workforce that is flexible, a change agent that is willing to develop new skills and take on new assignments to improve the efficiency of the service. In addition, skill enhancement and training are necessary to keep pace with changes in all areas related to the work of the NIH (see glossary in Appendix 1 for Institute and Center acronyms).

Because of the diverse scientific and support staff skills needed at the NIH, the following serve as representative examples of the skills that are vital to the NIH. The NCI requires staff who can understand and coordinate collaborative, multidisciplinary activities, facilitate the multitude of quality control and analytical issues associated with large-scale interdisciplinary studies, and effectively use the broad range of technologies now possible for accelerating cancer research to keep pace with the scientific and technological opportunities.

NCI's goals for research include: research on cancer and genetic and environmental interaction, development of cancer imaging technology, research for defining the signatures of cancer cells, clinical trials, and research and interventions to support reducing cancer-related health disparities.

To accomplish these goals, staff with expertise and experience in multidisciplinary research focused on the pediatric genetic disorders that predispose to bone marrow failure, acute leukemia and solid tumors would be needed to help support the *New*

Clinical Genetics Branch within the Division of Cancer Epidemiology and Genetics Human Genetics Program. In addition, staff with experience in the new initiative to improve methodology for measuring dietary intake by quantifying and adjusting for dietary measurement error in using food frequency questionnaires will be needed to support the expansion of the *Nutritional Epidemiology Branch* within the Division of Cancer Epidemiology and Genetics Human Genetics Program. Also, staff with expertise and experience in discovery and development of molecularly targeted imaging probes are needed to help support the development of *Clinical Imaging Drugs and Enhancers* program.

Staff with expertise and experience in medical oncology, clinical trial design and analysis and monitoring for the oversight of a major NCI program that links community-based physicians with cooperative groups and cancer centers (as research bases for participation in NCI-approved clinical trials) are needed in the *Community Clinical Oncology Program*.

Staff experienced in overseeing, monitoring and analyzing a large-scale randomized clinical trial that will compare the lung cancer detection rates of single view X-ray and spiral computed tomography (CT) screening in smokers or former smokers will be needed in the *Lung Screening Study*.

NCI also needs staff experienced in coordinating and supporting the interface between social and biomedical scientists to implement a new initiative for addressing cancer-related health disparities with a lead scientist, a statistician to conduct rapid turnaround statistical analyses about cancer trends and the cancer burden, and a senior informatics specialist will be needed in the *Centers for Population Studies in Cancer.*

NCMHD is a newly established Center and will be expanding its skill sets in a number of areas, including epidemiology and statistics, molecular biology and genomics, public health, psychosocial behavior, and alternative and complementary medicine. They also feel a need to acquire staff with grants administration and management experience.

The accelerating changes in science, medicine and technology pose great challenges to the NIH peer review system. Emerging areas of science often do not fit into pre-existing peer review panels; they generate increased workload and require additional staff resources to maintain quality and timely review, as well as to develop innovative approaches to peer review. Over the past five years the CSR has allocated resources accordingly to support the core mission by increasing the number of Scientific Review Administrators (SRAs) by 43%. Another emphasis has been to enhance the level of grants technical assistance. Of the 47 anticipated hires in 2002, 83% are either SRAs or Grants Technical Administrators (GTAs).

The NIDCR will continue to recruit for individuals with the skills to fulfill its strategic mission, which is to improve and promote craniofacial, oral and dental health through research. They need scientists with expertise in applying Biomimetics to Orofacial Tissue Restoration: NIDCR scientists are using the principles of biomimetics to create replacement bone, cartilage, and tooth structures. Scientists today can mimic biological systems to fabricate high-performance composites that in the near future will be used to replace or repair structures such as bone and teeth. Investigators are also looking at how

such materials can be used for drug and gene delivery in the treatment of a variety of diseases.

Over one million people suffer a loss of salivary gland function as a result of Sjögren's syndrome, an autoimmune disease, or from radiation treatment for head or neck cancer. The resulting loss of saliva flow markedly impairs quality of life. NIDCR scientists are focused on creating a small tube that can be placed into the cheek of patients whose salivary gland cells have been destroyed. Scientists believe that an artificial salivary gland will be ready for clinical testing within 5-7 years; hence NIDCR continues to recruit for expertise in this arena. To sustain this research, NIDCR will require scientists with broad, interdisciplinary skills.

NIDDK needs scientists with the expertise to support its most urgent intramural goals. These include developing computational approaches to understand how proteins interact and how the pathways that regulate cell function are organized, and to create new approaches to analyze the vast amounts of biological information that are now being generated, so as to better understand the pathogenesis of and to develop treatment of type 1 diabetes. They also need scientists with the skills to conduct basic, translational and clinical research aimed at understanding physiological regulation of the homeostasis of glucose and other nutrients, energy metabolism, and the abnormalities that are found in types 1 and 2 diabetes, mellitus, and obesity.

The NINDS strategic planning process focused on the major topics in contemporary neuroscience and laid the groundwork for numerous initiatives during the past two years. For example, last year's Parkinson's Disease Research Agenda was the first in a series of disease-focused plans, that now also includes brain tumor research (with NCI), epilepsy and stroke. Implementation of these plans requires hiring of additional staff, including scientists with expertise in the emerging areas of bioinformatics and proteomics. The NINDS also need staff well versed in translational research to help span the gap between basic and clinical research. Currently NINDS is in the process of strengthening its clinical trials program to promote excellent and safe clinical research protocols.

The following is NIH's FY2002 and FY2003 hiring plan. We have broken the numbers by intramural and extramural and have included non-FTE positions such as Visiting Fellows, trainees, and summer interns. Our hiring plan was developed with the goal of providing the necessary levels of leadership, research and research support, and oversight of research programs to ensure the greatest opportunity for success as the NIH resources increase.

NIH Hiring Plans for FYs 2002/2003

	FY 2002	FY 2003	Total
INTRAMURAL			
Senior Investigators [1]	0	59	59
Investigators [2]	111	96	207
Other MD/PhDs, in FTE positions	454	321	775
Other MD/PhDs in non-FTE positions (IRTA, VF)	902	901	1803
Other lab/clinical staff => GS-13	112	107	219
Other lab/clinical staff =< GS-12	570	521	1091
Admin/support staff => GS-13	210	162	372
Admin/support staff =< GS-12	248	198	446
Infrastructure support => GS-13	71	54	125
Infrastructure support =< GS-12 [3]	72	107	179
Summer and other temps not listed above (include summer IRTAs)	1071	1082	2153
TOTAL INTRAMURAL	3821	3608	7429
EXTRAMURAL			
HSAs/SRAs and other senior level science administrators => GS-13	305	248	553
Other science administration positions =< GS-12	106	89	195
Grants Management and R&D Contract Staff => GS-13 [4]	80	52	132
Grants Management and R&D Contract Staff =< GS-12 [4]	102	99	201
Administrative and support staff => GS-13	130	84	214
Administrative and support staff =< GS-12	265	194	459
Infrastructure support => GS-13	13	7	20
Infrastructure support =< GS-12 [3]	23	13	36
Summer and other temps not listed above	126	127	253
TOTAL EXTRAMURAL	1150	913	2063
NIH TOTAL	4971	4521	9492

1 Tenured scientists

2 Tenure track scientists

3 Includes all wage grade positions related to infrastructure in this group.

4 Includes 1101, 1102, 301 and 303 series where individual is engaged in these activities on a full-time basis.

<u>QUESTION #2:</u> What changes are expected in the work of the agency (e.g., due to change in mission/goals, technology, new/terminated programs or functions, and shifts to contracting out)? How will this affect the agency's human resources? What skills will no longer be required, and what new skills will the agency need in the next five years?

NIH is in the midst of an era of great scientific opportunity, much of which is due to the explosion of new technologies and research techniques, Chief among them is computational research, which has led to an acceleration in research findings. Additionally, many of our research projects require scientists whose skills transcend several disciplines, a relatively new development, but one that brings to the research a broader perspective and a greater capacity to understand the issues. Finally, we are planning for a substantial growth in our clinical research, where the NIH is in a unique position to translate new basic research and technology development into clinical studies. New or expanded programs in bone marrow transplantation, cardiology, vaccine development, and interventional radiology are primary examples of how our research and technology development will move from the bench to the bedside, and lead to more rapid advancements that can be used for patients across the country.

NIMH recognized that successful implementation of new scientific priorities and collaborative efforts would require a different mix of skills in its workforce. As a result, vacancies in the NIMH IRP became part of a carefully constructed multi-year revamping plan. Over the past several years, vacancies have been created and filled according to a detailed reorganization plan that will enter its final phase of staff recruitment in FY 2002. Recruitment efforts in FY 2002 will focus on the hiring of 12 senior investigators and 36 associated doctoral and technical staff. The remainder of IRP hiring in FY 2002 and FY 2003 will focus on filling high priority vacancies stemming from projected retirements and other turnover, in order to maintain the momentum of its reorganization efforts. In filling these vacancies, NIMH will focus on hiring staff whose skills will facilitate the achievement of the Institute's current scientific goals and objectives, and who will have the flexibility to develop new skills and take on new tasks as these goals and objectives continue to evolve.

Due to changes and expansion in their goals as recommended and discussed by the Blue Ribbon Committee and the Institute Advisory Committee, NHGRI is focusing on the expansion of its Clinical Program, informatics and computational biology, and the inclusion of Proteomics in the Division of Intramural Research. The most notable skill sets needed to meet their goals are the computational bioinformatics and biology skills needed to support the various databases maintained within the NHGRI.

In order to address the shortage of clinical and basic research pharmacologists (the experts needed to improve drug design, selection and dosage) NIGMS is focusing on individuals with a Ph.D. degree in pharmacology or a related science, M.D. or other professional degree. They have also identified a need for individuals with a Ph.D. or M.D. in biomedical fields, especially in the areas of physics, biophysics, chemistry,

engineering, statistics, computer science, and mathematics in order to promote quantitative, interdisciplinary approaches to problems of biomedical significance.

NIGMS recently established the Center for Bioinformatics and Computational Biology (CBCB) to serve as the scientific "home" of centers, large collaborative projects, model organism databases, and research grants in those areas of investigator-initiated fundamental research where computation can be a powerful tool in pursuing research questions. Growth in this center is projected in future years and appropriate staffing will be required.

Technology has made it possible to provide detailed information to patients, grantees, employees and a diverse population around the world. This has improved the knowledge of the population with regard to all of our major disease areas and has enabled the rapid dissemination of research results for the benefit of patient and health practitioners. It is vital to support this function, as it is an important means of promoting health and preventing disease.

NIH has identified three primary IT enterprise systems in its workforce plan for which they need staff with skills to assist in implementation and maintenance.

- The goal of the Electronic Research Administration (eRA) is to make the extramural research grants enterprise more effective and efficient. Paperless electronic transfer of application and administrative data is the NIH's vision for the 21st century and is consistent with the Presidential management goal of expanding electronic government. In addition to a congressional mandate requiring agencies to migrate from paper-based to electronic systems, the NIH is pursuing eRA to lower costs and administrative effort, speed up process, and provide better quality data. The potential benefit to the extramural community is immense as approximately 85% of the NIH budget is allocated to grant expenditures.
- The new Clinical Research Information System (CRIS), in addition to replacing base functionality for physician ordering, result retrieval, and charting functions for all the NIH inpatient and outpatient visits, will also include essential features to support the expanding the NIH clinical research mission. These features include longitudinal access, clinical decision support, research protocol mapping, ease of interfacing with research systems, ease of retrieving old data, support for structured text, support for management data, and image presentation. In facilitating the work of the clinical researcher, CRIS will directly support the NIH mission.
- The NIH Business System (NBS) is a massive undertaking, combining all of the functionality of the Administrative Database (the existing NIH business system developed in the 1970's) with several satellite systems, improved security, reliability and a new user interface. It will allow an integration of all data within NBS, as well as shared data capability between other systems such as IMPAC II and the DHHS's Enterprise Human Resource Planning System, where the administrative and research communities utilize common data sets. It will also allow electronic purchasing via the Internet, "best practice" processes for

> administrative functions such as property and inventory, and an accounting system that meets the accounting standards established by the Department, the Joint Financial Management Improvement Program, and the General Accounting Office.

For a number of years now, many of the NIH components have had to manage a steadily increasing number of research grants and contracts with no growth in staff. Nonetheless, grant and contract management specialists and health scientist administrators have generally been able to award and administer larger numbers of grants and contracts with the aid of fewer support staff. As a result, support staff vacancies, when they occurred were in many cases used to hire professional staff. We have now reached the point, where many of the potential efficiencies associated with increased reliance upon computerized systems have been fully realized, so that the rapid budget increases associated with the NIH budget doubling effort that began in FY 1999 and the attendant rapid increases in the numbers of grant and contract awards can no longer be accommodated by shifting staff resources. Additional grant and contract management staff are needed to make sure that the legal formalities of grant and contract award processes are fully complied with. Additional health scientist administrators are needed not just to maintain the appropriate level of scientific oversight for awarded grants and contracts but also to work with the scientific community to hold targeted workshops and other conferences to identify the highest priority research needs and scientific opportunities and then to develop requests for applications and requests for proposals to address them.

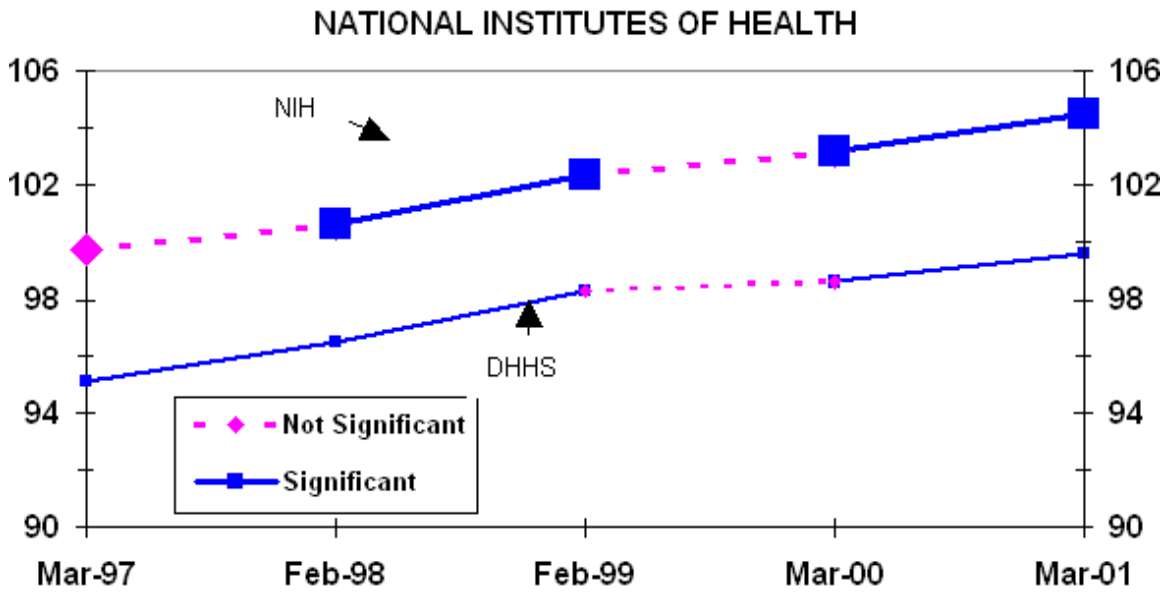
In accordance with OMB guidelines, NIH is currently reviewing all positions to determine if they are appropriate for performance-based contracting. Included in this review for the first time are a number of research positions/activities which traditionally had been determined to be exempt from competitive contracting. Based on preliminary indications we expect a significant increase in the number of positions/activities which will be subject to FAIR Act cost comparison requirements. Upon the completion of the NIH Fair Act Inventory process, NIH will develop a plan for how to go about scheduling the cost comparison competitions so as to complete the first round in accordance with the October 2002 mandate. NIH expects to gain increases in efficiency either as a result of performance-based contracting or the benefits reaped from streamlining and increased productivity of staff subject to cost comparison competitions.

<u>QUESTION #3:</u> What recruitment, training, and retention strategies are being implemented to help ensure that the agency has, and will continue to have, a high-quality, diverse workforce?

NIH has devoted substantial planning, resources and evaluation to its programs to improve recruitment, training and retention of employees. To ensure that there is a strong NIH presence at major recruitment activities, we have developed corporate recruitment strategies aimed at various target audiences. Recruitment for scientific positions is supported by the ICs with intramural programs, and is aided by a variety of recruitment tools such as our loan repayment programs for researchers. We recently began piloting a corporate research program targeted primarily to fill positions in research grants administration and administration/management functions. On-campus site visits were begun in 2000, and are expected to resume this fall. Both corporate recruitment programs produce savings because resources from across the NIH are directed in a single program. Both also have a strong diversity component, to advance our goals of achieving and maintaining a workforce reflecting the nation.

We believe that our strategies have been successful. Data from the DHHS annual employee survey, the Human Resource Management (HRM) Index, indicate that, on an overall basis, employee satisfaction remains high, and has increased in a statistically significant manner in recent years.

The chart below shows the trend of NIH and of the Department's HRM Index based on the most recent five HRM Index surveys (March 1997 through March 2001).



However, knowing that we will continue to face challenges in maintaining the workforce essential to meeting our research goals, we continue to develop and expand programs to retain and develop our employees.

The NIH has historically been able to retain its workforce because of the supportive environment we foster. The following chart shows a steady and low turnover rate. We feel this is a result of our emphasis on family-friendly issues and training opportunities. In this time of low unemployment, particularly in the DC area, we are proud of this trend and expect it to continue.

Quality of Work Life activities available to employees are powerful recruitment and retention tools. NIH is proud of its QWL program, which was recognized in 1999 as the best in the Federal government. For NIH employees, "QWL" has become a well-known acronym that encompasses a broad range of programs and activities including: employment flexibilities such as alternative work scheduling and telecommuting; on- or near-site child care; elder and adult dependent care resources and information; training and career development; worksite conveniences, such as on-site financial services and fitness centers; employee health and wellness, including a lactation program for nursing mothers; transportation subsidies; and other special events, such as "Take Your Child to Work Day."

There are currently three childcare centers on or near the NIH main campus in Bethesda, and one at the facility in Research Triangle Park, NC. In addition, $3.5 million was appropriated to build a new, larger childcare center on the NIH main campus. It will serve approximately 100 children, with a kindergarten program for 20 of them. This is slated for completion and scheduled for occupancy in August 2001.

The NIH Work and Family Life Center (WFLC) is another employee resource center, which exists to help employees balance the increasing demands of their work with their personal interests and responsibilities. The goal of the WFLC is to increase employee well being, thereby improving the quality of work and the quality of life at the NIH as a whole. Examples of services offered by the WFLC are: guidance and consultation, seminars and training, and information and resources including a library and computing resources. Training is an ongoing activity at the NIH which supports employee growth.

At the NIH, OHRM's Human Resource Development Division (HRDD) is tasked with facilitating organizational and individual performance improvement. The overall goal is to develop and maintain a highly capable and diverse workforce.

Examples of types of training offered include: instructor-led training, technology-based training, performance coaching, career development programs, the Institute of Leadership and Management (ILM), and the employee orientation and information program. The ILM provides senior NIH scientific and administrative leaders with an opportunity to assess leadership skills and attributes through multiple feedback approaches, including one-on-one sessions with feedback experts. Each participant designs a personal plan to develop desired leadership skills and attributes which will enhance their capacity to give and receive constructive feedback, to contribute to achieving NIH's scientific research goals; enhance capacity to utilize results-based management and performance measures in a variety of organizational settings and systems; think analytically about challenges and strategies for leading organizational change at the NIH; and enhance capacity to analyze and operate effectively in the political systems that impact the NIH.

The NIH has been instrumental in developing and implementing creative and effective programs to ease recruitment and retention issues. The ICs have taken advantage of many of these opportunities. The use of Title 42 authorities for scientists and the use of T38 pay for physicians, for example, have allowed the NIH to compete with universities and outside organizations when recruiting top scientists. The process simplification and flexibilities inherent in those mechanisms have made them extremely useful with regard to recruitment and retention. The use of recruitment and retention incentives up to 25 percent of salary is also a useful tool when confronting salaries available in the private sector for individuals with scientific and other technical skills.

The NIH also offers flexible workplace programs, such as telecommuting. This can be a very effective recruitment tool to attract candidates that might not otherwise have an interest in the NIH, because of travel distance/time. For current employees it offers staff with portable tasks a flexible work environment utilizing digital technology and software-based tools to help facilitate efficient and productive work outside of the traditional work space and provides the option of maintaining a quality work life and family life balance while reducing the stress of commuting and finding parking on the NIH campus.

The NIAID, OD, CSR and NIDCD are currently participating in a year long NIH Telecommuting Pilot, which began in March 2001. This pilot allows individuals to work at other than their normal workplace, such as their residences or at telecommuting centers

in closer proximity to their homes. There are currently 50 staff participating in the pilot, which has as part of it a comprehensive reporting and evaluation component. We are optimistic that this limited pilot will prove to be a benefit not only to employees in terms of convenience and the reduction in commuting time, but also to the organization in terms of improved productivity, decreased use of leave and absences, and a more content workforce.

The NIH loan repayment program for scientific staff has been a great recruitment tool for potential employees when they learn of the tremendous benefit it can offer. In FY2001, the Congress expanded this authority to include more research programs, both intramural and extramural. We also expect to use the new Government-wide authority to allow more employees to participate. These programs are expected to play an important and continuing role in our recruitment and retention efforts. Likewise, increased delegations of authority that allow managers to make decisions without higher-level involvement, have allowed for greater flexibility in hiring. Delegations have also made a difference in reducing intermediate levels of review and approval, thus cutting down on paperwork.

NIAID has established a Recruitment Strategies Group, which is comprised of selected staff from various areas within the Institute, including personnel, administration, EEO, scientific program managers, recruiting specialists, and representatives from the NIAID Minority Scientists Advisory Committee. This group has as its focus the development of novel methods to attract and recruit staff, with a particular emphasis on underrepresented minorities and the disabled. The group has already made significant strides in the area of outreach to local colleges and universities, and has fostered and sponsored Institute representation at job fairs, employment seminars and showcases, as well as forging closer alliances with organizations that represent minority and disabled individuals who are seeking employment.

NHGRI has developed a Training and Career Development Program to enhance the training experience of pre- and post-doctoral fellows. This program focuses on five primary areas: NIH/NHGRI resources and information, mentorship, conflict resolution/problem solving, minority recruitment and grants and fellowships.

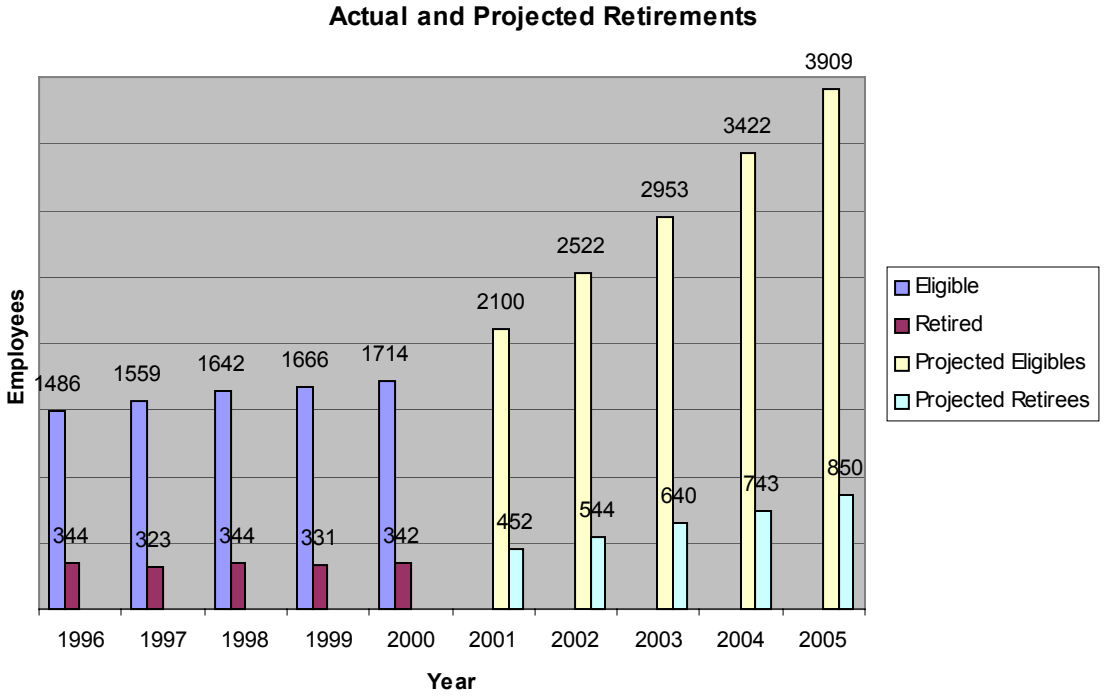
QUESTION #4: How is the agency addressing expected skill imbalances due to attrition, including retirements over the next five years?

In response to OMB Bulletin 01-07 and instructions from the Office of the Secretary, the NIH will review its organizational structure for the "non-scientific" functions within its programs to determine if they are effective and adequately support our mission. An important element in this process is to consider the number and kinds of employees we may lose to retirement. Because retirees may represent the organization's most experienced and knowledgeable employees, we are reviewing data to see what kinds of positions will be affected by a changing workforce. We have identified what skills are critical to our mission and will consider trends in these fields. In some situations, we may find it more advantageous to "contract out" some of our tasks. In other situations, it

will be necessary to train and cross-train current employees to use new technologies and to continuously learn new skills and upgrade their current skills to maintain the skill level necessary to meet our goals/mission.

Using historical data as a guide, we find that most NIH employees, and scientists in particular, work far beyond their retirement eligibility.

The following chart shows history and a forecast of actual retirements as compared to eligibility.



We have already discussed some skills imbalances, such as in research grants administration and some developing areas of technology, and the corporate recruitment programs to identify new employees, re-train and keep employees who have the requisite skills or can develop their skills.

As part of our workforce planning, we hold annual program and personnel reviews with the heads of each component along with management staff to discuss current program priorities and new initiatives in addition to personnel matters within their organizations. We discuss attrition and what plans/recruitment strategies they are considering to replace or re-train current staff or how they may reorganize to better utilize the staff they have; provide training opportunities; and in some cases eliminate skills/tasks when necessary.

As noted above, having an increasingly flexible scientific workforce is essential to meet the challenges posed by the increasingly interdisciplinary nature of scientific research. With the changing mix of basic and behavioral science, and increasing emphasis on integration, staff with varying scientific backgrounds are required. For example, the

recent evaluation of the NIA's behavioral science program included a number of recommendations, which were supported by the National Advisory Council on Aging. Chief among the recommendations is the need for increased interaction among staff about substantive research opportunities that cut across disciplinary boundaries, requiring scientific staff with knowledge of biology, especially genetics and physiology.

QUESTION #5: What challenges impede the agency's ability to recruit and retain a high-quality, diverse workforce?

Our overall challenge is to recruit and retain the best quality researchers and support staff. Competition with other medical research organizations impede our recruitment process, hence the NIH has instituted a corporate recruitment strategy. Because supporting research is essential, it is important to ensure the availability of well-trained investigators who reflect our nation's diversity and who have specialized knowledge, methodological expertise, and creativity. These recruiting and training programs are critical to ensuring that medical research programs nationally and internationally, not just at the NIH, have a pipeline of trained researchers. The NIH's research training grant portfolio covers all the career stages that are key to the recruitment, training, and retention of productive medical researchers.

One of our most challenging issues is pay comparability, especially for more senior scientists and science administrators. How does the NIH compete with outside organizations for not only entry-level positions but top-level positions as well? Pay caps provide artificial barriers to recruiting and retaining experienced personnel. They limit the opportunity to provide continuing career paths for exemplary and highly skilled professionals. The Federal pay scale for entry-level financial management personnel is not competitive with private industry and we continue to search for and use other financial incentives to bridge the pay gap. We must also do a better job communicating our total employment package to make certain our Federal employment benefits are appropriately valued. Another obstacle we are facing daily is the Federal hiring process. The entire process is outdated and creates enormous delays. Priority placement programs, and other red tape prolong the time between identifying a suitable applicant and actually hiring the person.

Because the NIH hires a large number of foreign scientists, our ICs work closely with the FIC. The FIC has the responsibility for operational administration of the NIH Visiting Program, which provides opportunities for foreign researchers, exchange scientists, foreign guest researchers/special volunteers and foreign scientists to train and conduct collaborative research at the NIH. We rely on FIC to assist us in obtaining various types of VISAs, work permits, etc. A recent study of existing policies and procedures determined that changes could be made to expedite or streamline many existing procedures, and that existing resources are needed for this purpose. One example of a desired improvement is that NIH may look into the possibility of getting authority from the Department of State to authorize the NIH to issue 4th and 5th year J-1 renewals.

Nationwide and local occupational shortages of nurses, pharmacists, and physicians affect the Clinical Center's workforce, necessitating flexible and efficient administrative and pay processes. These shortages have created an extremely competitive hiring environment. The speed at which pay can be set, offers turned around, and start dates agreed upon are pivotal factors in recruiting highly qualified candidates. Recruitment is also very seasonal, which means that hiring delays or freezes during the critical spring recruitment season causes a delay of a year in staffing critical clinical programs.

QUESTION #6: Where has the agency successfully delegated authority or restructured to reduce the number of layers that programmatic actions passed through before it reaches an authoritative decision point? Where can the agency improve its processes to reduce the number of layers that a programmatic action passes through before it reaches an authoritative decision point?

The NIH has allowed the ICs to empower managers and supervisors through re-delegation of most personnel authorities, both Title 42 and Title 5. This has led to a simplified process that provides a more flexible and easy-to-use personnel system.

For example, the NEI Director has re-delegated personnel authorities to the Scientific Director and Clinical Director, which has allowed for processing procedures to be updated and streamlined and thus removed unnecessary paper reviews has allowed us to improve our processing time by two weeks. (This is consistent with best practices in private industry).

Examples of removing layers and enhancing decision-making at NIDCD are the consolidation of extramural programs into one division from two divisions has enabled the extramural scientific program and review staff to work more closely together when developing scientific initiatives. It has also streamlined the communication between the Institute Director and the extramural staff.

They have also arranged to place all Council materials on an intranet, thereby increasing the ease of access for Council members. This has resulted in greater participation by Council members at the Council meetings since it has made it easier for them to review the grant applications. It has also increased their satisfaction with the review process. It is not always easy to persuade members of the public to serve on the Council and anything we can do to make their jobs easier will make council membership more attractive.

NIDA has successfully delegated authority in a number of areas, which reduced the number of layers involved before a decision can be made. Examples include delegating the authority to sign certain technology transfer agreements to the Scientific Director which allows the science to proceed without unnecessary delays; delegating to Office/Division Directors the authority to approve performance awards providing quicker feedback to an employee for a job well done; and delegating certain purchasing authority to program staff and the use of purchase cards and intramall which have helped speed up the receipt of necessary scientific supplies. NIDA has also revised its website to make it

more user friendly so customers (e.g., public, parents, treatment providers, drug abusers) can access factual scientific information directly without having to call and request a hard copy be mailed.

NICHD feels they have delegated budget, purchasing and human resource authorities to the lowest levels in the organization consistent with sound decision making and proper stewardship of government funds. All staff and managers are within a telephone call or e-mail message away from the customers they serve, both external and internal. They have encouraged an atmosphere of quality customer service and open communication with employees and the public—utilizing websites, public communication and liaison programs, and community outreach activities to communicate with constituents face to face and to quickly provide educational materials to the public on our research activities and findings. Examples include Milk Matters and SIDS public education campaigns.

QUESTION #7: What barriers (statutory, administrative, physical, or cultural) has the agency identified to achieve workforce restructuring?

Several barriers including space, funding, and additional recruitment incentives to attract high quality staff are still prevalent in our attempt to achieve our goals despite increasing gains in many of these areas. Laboratory space is currently a serious constraint and is being addressed as a priority since it hinders our ability to develop programmatically and attract outstanding new scientists. Examples here are the new Neurosciences Research Center, and ongoing construction of the new Clinical Research Center. Nonetheless, there is a need for additional clinical space in general and a need for more modern laboratory buildings, a priority in our multi-year buildings and facilities plan.

The expansion of responsibility at the NLM when combined with the inexorable growth of the published collection on the shelves of the Library, has led to a serious space problem that affects the workforce directly. Staff of the National Center for Biotechnology Information are scattered among several buildings and the size of their individual workspace has been reduced. Storage space for more books, journals, and other materials in the collection will disappear by 2004. These problems are being addressed both by NLM's plans to acquire more space and by the active encouragement of such administrative strategies as flexible work schedules and telecommuting that reduce the number of staff present at one time.

The technology available to researchers becomes increasingly more sophisticated and complex and requires highly trained personnel. For that reason it is crucial that we retain highly skilled staff on permanent or long-term appointments (GS or Title 42 staff scientists and technicians), which serve as repository of that knowledge and provide continuity to incoming personnel. In addition, access to training resources is required, including the ability to attend classes and invite experts from outside of the NIH that may have specialties in areas we wish to master.

New and expanded research initiatives at NIEHS will generate a corresponding increased need for laboratory and office space as well as scientific and information resources

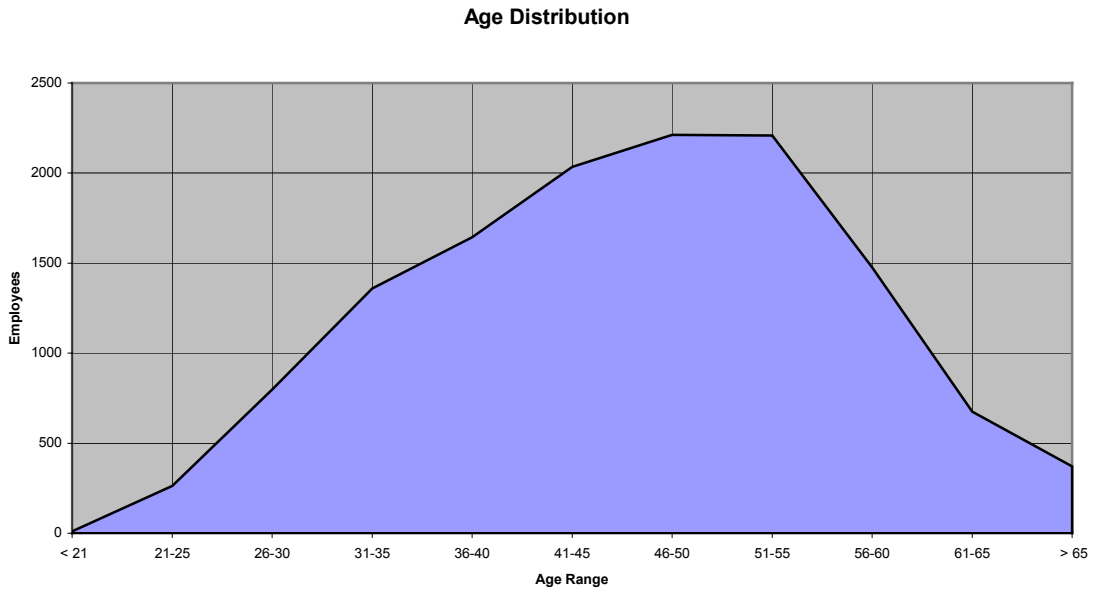
equipment. The location of NIEHS, away from the Bethesda campus, restricts its ability to share resources with the other Institutes. Therefore, NIEHS facilities support staff will be challenged to continue to provide high quality support for expanded requirements.

In order to achieve workforce restructuring, the NIH needs the Department's support to eliminate barriers such as the "Rule of Three," and other impediments to the rapid hiring of employees, the ability to simplify General Schedules pay systems (e.g., pay banding), increasing the amount of leave given to experienced employees new to the Federal government, and overhaul of the antiquated classification system. We will look to the Department for support for these and other civil service reforms, including a voluntary early retirement program and the ability to offer separation incentives to promote restructuring.

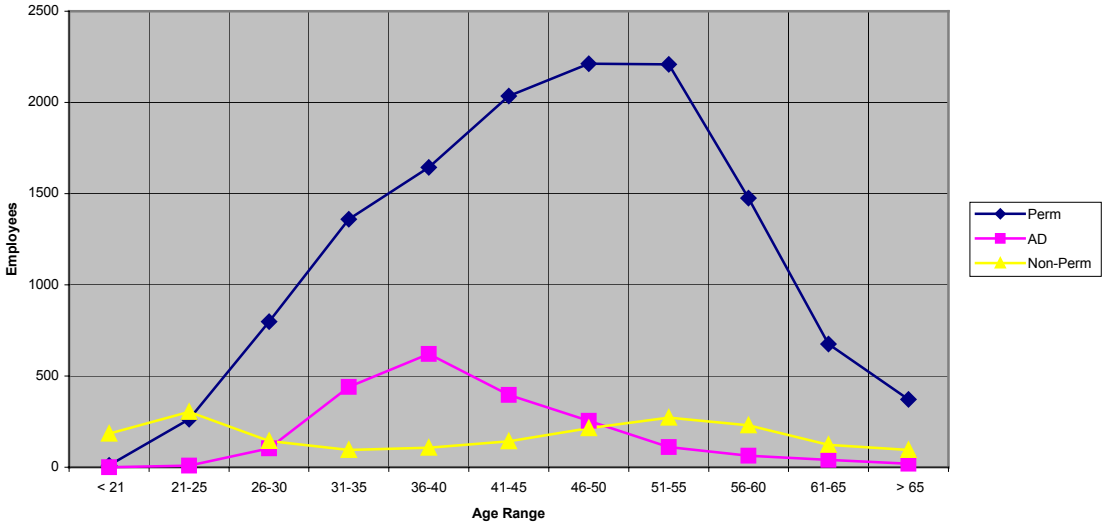
Other Workforce Analysis Issues

The Appendices contain demographics of our permanent workforce requested by the OMB.

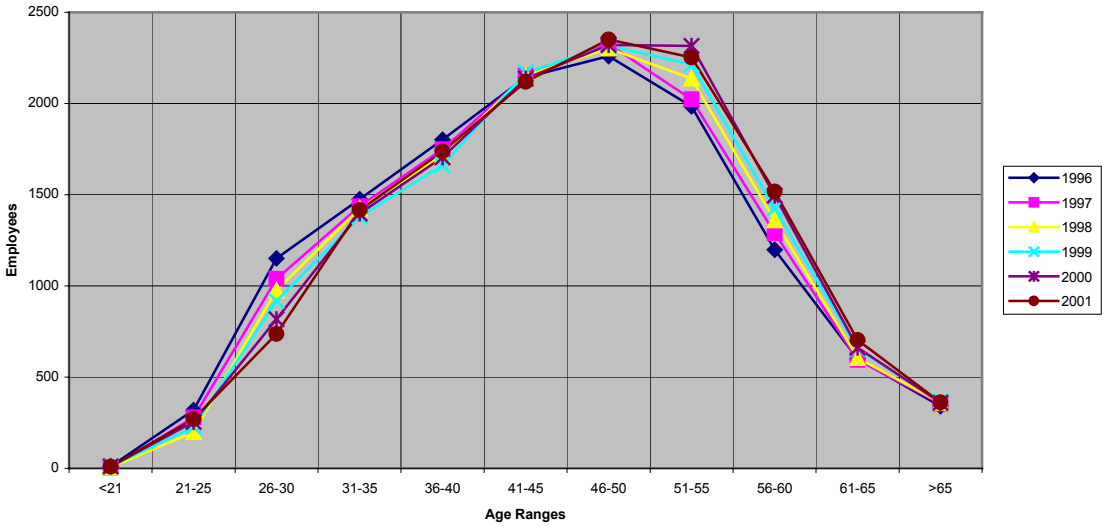
Our analysis shows 26.8% of our employees are between the ages of 31 and 40, 32% between 41 and 50, and 7.6% are under 30 years of age. Below are a total overall age distribution chart, one chart by employee category, and a six year age distribution chart of our permanent workforce.



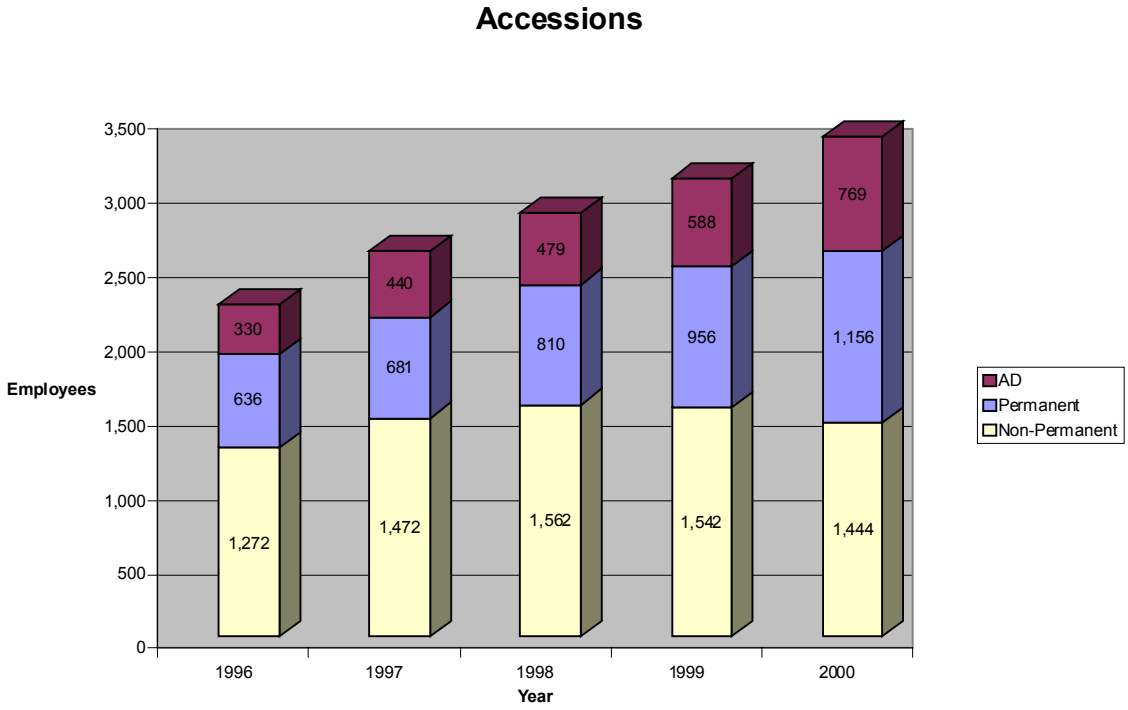
Age Distribution by Employee Category



Age Distribution of Permanent Workforce at NIH



The following chart shows a history of accessions over a five year period by employee category:



A list of each supervisor/manager is located in Appendix 5. The following chart shows both ways of calculating supervisor-to-staff ratios.

Supervisory Ratios					
	FY 96	**FY 97**	**FY 98**	**FY 99**	**FY 00**
Supervisors	1,634	1,564	1,540	1,599	1,705
Non-Supervisors					
Employees	14,806	14,987	15,025	15,394	15,910
Special Volunteers	1,044	1,028	1,087	1,111	1,053
Research Trainees (non-FTE)	2,625	2,541	2,574	2,512	2,807
Total Non-Supervisors	18,475	18,556	18,686	19,017	19,770
Total Workers	20,109	20,120	20,226	20,616	21,475
Ratios					
Supv : All Workers	**1 : 12**	**1 : 13**	**1 : 13**	**1 : 13**	**1 : 13**
Supv : Non-Supv	**1 : 11**	**1 : 12**	**1 : 12**	**1 : 12**	**1 : 12**

APPENDICES

The NIH's Institutes and Centers

Institute/Center	ICs	Mission
Office of the Director	OD	OD provides leadership, focus, and direction to the NIH research community, and coordinates and directs initiatives that cross Institutes and Centers. The OD is responsible for the development and management of intramural and extramural research and research training policy, the review of program quality and effectiveness, the coordination of selected NIH-wide program activities, and the administration of centralized support activities essential to the operation of the NIH.
National Cancer Institute	NCI	NCI conducts and supports programs to understand the causes of cancer; prevent, detect, diagnose, treat, and control cancer; and disseminate information to the practitioner, researcher, patient, and public. The Institute's efforts are directed at reducing the burden of cancer morbidity and mortality, and ultimately, at preventing the disease.
National Heart, Lung, and Blood Institute	NHLBI	NHLBI's research program is directed at diseases of the heart, blood vessels, lungs, and blood and at transfusion medicine. Its activities encompass innovative basic, clinical, population-based, and health education research.
National Institute of Dental and Craniofacial Research	NIDCR	NIDCR's research program is directed at understanding, treating, and ultimately preventing the infectious and inherited craniofacial-oral-dental diseases and disorders that compromise millions of human lives.
National Institute of Diabetes and Digestive and Kidney Diseases	NIDDK	NIDDK conducts and supports research, training, health information dissemination, and other programs with respect to diabetes millitus and endocrine and metabolic diseases, digestive diseases and nutritional disorders, and kidney, urologic, and hematologic diseases.
National Institute of Neurological Disorders and Stroke	NINDS	NINDS conducts and supports research and training on the normal and diseases nervous system in order to reduce the burden of neurological diseases. The research program is ultimately directed at improving the prevention, diagnosis, and treatment of the hundreds of disorders affecting the nervous system. Including stroke; epilepsy; demyelinating disorders such as multiple sclerosis; tumors; pain; traumatic injury of the brain and spinal cord; degenerative disorders such as Parkinson's disease; movement disorders; developmental disorders such as autism, the myasthenias and muscular dystrophies; and numerous autoimmune, metabolic, and genetic disorders.

Institute/Center	ICs	Mission
National Institute of Allergy and Infectious Diseases	NIAID	NIAID conducts and supports research that strives to understand, treat, and ultimately prevent the myriad infectious, immunologic, and allergic diseases that threaten millions of human lives.
National Institute of General Medical Sciences	NIGMS	NIGMS supports basic biomedical research that is not targeted to specific diseases, but increases understanding of life processes and lays the foundation for advances in disease diagnosis, treatment, and prevention. NIGMS attempts to ensure the vitality and continued productivity of basic biomedical research, while producing the next generation of scientific breakthroughs and training the next generation of scientists.
National Institute of Child Health and Human Development	NICHD	NICHD conducts and supports research on fertility, pregnancy, growth, development, and medical rehabilitation. The Institute's broad purpose is to ensure that every child is born healthy and wanted, and grows up free from disease and disability.
National Eye Institute	NEI	NEI conducts and supports research, training, health information dissemination, and other programs that are directed at blinding eye diseases, visual disorders, mechanisms of visual function, preservation of sight, and the special health problems and requirements of the blind.
National Institute of Environmental Health Sciences	NIEHS	NIEHS conducts and supports research on how environmental exposures, genetic susceptibility, and age interact to affect an individual's health. Its overall purpose is to reduce the burden of human illness and dysfunction from environmental causes.
National Institute on Aging	NIA	NIA conducts and supports research on the biomedical, social, and behavioral aspects of the aging process; the prevention of age-related diseases and disabilities; and the promotion of a better quality of life for all older Americans.
National Institute of Arthritis and Musculoskeletal and Skin Diseases	NIAMS	NIAMS conducts and supports research, training, and information dissemination directed at understanding the normal structure and function of bones, muscles, and skin, as well as the numerous and disparate diseases that affect these tissues.
National Institute on Deafness and Other Communication Disorders	NIDCD	NIDCD conducts and supports basic and clinical research and research training in the normal and disordered processes of hearing, balance, smell, taste, voice, speech, and language. These diseases and disorders currently affect some 46 million Americans. Basic and clinical research focused on understanding the normal processes and disorders of human communication are motivated both by intrinsic scientific interest and importance to the health of the nation.
National Institute of Mental Health	NIMH	NIMH conducts and supports research on the brain and behavior – basic, clinical, epidemiological, and health services research. The Institute's activities are broadly dedicated to understanding, treating, and preventing mental illnesses.

Institute/Center	ICs	Mission
National Institute on Drug Abuse	NIDA	NIDA conducts and supports research across a broad range of disciples that bear on drug abuse and addiction and disseminates information about its research findings. The Institute's broad purpose is to help reduce drug abuse and to improve the options for addiction prevention and treatment.
National Institute on Alcohol Abuse and Alcoholism	NIAAA	NIAAA conducts research directed at improving the treatment and prevention of alcoholism and alcohol-related problems. The Institute's broad objective is to reduce the enormous health, social, and economic consequences of this disease.
National Institute of Nursing Research	NINR	NINR has a broad mandate to sponsor research on the clinical care of individuals and their responses to health problems. Scientists supported by the Institute seek to understand and mitigate the effects of acute and chronic illness and disability, promote healthy behaviors and prevent the onset or worsening of disease, and improve the environment in which healthcare is administered.
National Human Genome Research Institute	NHGRI	NHGRI supports the NIH's participation in the Human Genome Project, a worldwide research effort directed at analyzing the structure of human DNA and determining the location of the estimated 100,000 human genes. At the intramural level, NHGRI develops technology for understanding, diagnosing, and treating genetic diseases.
National Institute of Biomedical Imaging and Bioengineering	NIBIB	NIBIB promotes fundamental discoveries, design and development, and translation of technological capabilities in biomedical imaging and bioengineering, enabled by relevant areas of information science, physics, mathematics, materials science, and computer sciences. NIBIB plans, conducts, fosters, and supports an integrated and coordinated program of research and research training that can be applied to a broad spectrum of biological processes, disorders and diseases and across multiple organ systems.
National Center for Research Resources	NCRR	NCRR advances biomedical research and improves human health through research projects and shared resources that create, develop, and provide a comprehensive range of human, animal, technological, and other resources. There are four main areas of concentration: biomedical technology, clinical research, comparative medicine, and research infrastructure.
National Center for Complementary and Alternative Medicine	NCCAM	NCCAM conducts and supports basic and applied research and training and disseminates information on complementary and alternative medicine to practitioners and the public.
National Center for Minority Health and Health Disparities	NCMHD	NCMHD serves as the focal point within the National Institutes of Health for planning and coordinating minority health and other health disparities research. The Center coordinates the development of a comprehensive health disparity research agenda that identifies and establishes priorities, budgets, and policy that govern the conduct and support of NIH-sponsored minority health and other health disparities research and training activities.

Institute/Center	ICs	Mission
Fogarty International Center	FIC	FIC leads the NIH's efforts to advance the health of the American public and citizens of all nations through international cooperation on global health threats.
Warren Grant Magnuson Clinical Center	CC	CC is the clinical research facility of the NIH. It provides patient care, services, training and the environment in which NIH clinician-scientists creatively translate emerging knowledge into better understanding, detection treatment and prevention of human diseases.
Center for Scientific Review	CSR	CSR carries out initial peer review of the majority of research and research training applications submitted to the NIH. Peer review is the foundation of the NIH grant and award process. The Center also serves as the central receipt point for all Public Health Service applications and makes referrals to scientific review groups for scientific and technical merit review and to funding components for potential award.
National Library of Medicine	NLM	NLM is one of three national medical libraries. It collects, organizes, and makes available biomedical science information to investigators, educators, and practitioners. It also carries out programs to strengthen medical library services in the United States. NLM's electronic databases, such as MEDLINE, are used extensively throughout the world.
Center for Information Technology	CIT	CIT provides, coordinates, and manages information technology and seeks to advance computational science.
Office of Research Services	ORS	ORS' mission is to effectively and efficiently satisfy the diverse needs of the NIH research and research support efforts as they grow and change. This involves active stewardship of the NIH's facilities and environment; vigilant protection of the NIH staff, research animals, and physical assets; enhancement of community work life; and continuing transformation of the ORS into a best practice center for the provision of the research support and infrastructure needed at this complex biomedical research institution.