

# **National Institute of Allergy and Infectious Diseases**

## **Workforce Plan: FY 2002-2003**

### **Introduction and Overview of Institute Mission/Goals For Fy 2002 & Fy 2003**

NIAID, the third largest NIH Institute, supports and conducts research to better understand, treat and prevent infectious, immunologic, and allergic diseases. The scope of the NIAID research portfolio is expanding continually in response to new challenges, such as the emergence of AIDS and other newly recognized diseases, and because of scientific opportunities facilitated by new technologies and progress in the core NIAID scientific disciplines of microbiology, immunology, and infectious diseases. Advances in these key fields, including progress in relatively new areas such as pathogen and human genomics, are driving the development of new treatments, vaccines, diagnostic tests, and technologies that improve the health of people in the United States and around the world.

In order to meet the many health challenges of the new millennium and take advantage of unprecedented scientific opportunities, the Institute has developed a strategic research plan for the 21st century centered around four major areas: 1) Global health and emerging infectious diseases; 2) HIV/AIDS; 3) Immune-mediated diseases, including allergy and asthma; and 4) Vaccines. The complete NIAID Strategic Plan is available on the World Wide Web at <http://www.niaid.nih.gov/strategicplan2000>.

### **Global Health And Emerging Infectious Diseases**

NIAID has a long history of supporting research into diseases that transcend national boundaries and hence fall under the rubric of global health. Examples of such diseases include newly recognized conditions such as AIDS and liver disease due to hepatitis C virus; diseases that have spread to new geographical settings, such as West Nile fever and dengue; and resurgent endemic diseases such as malaria and tuberculosis, which are increasingly resistant to antimicrobial drugs. In addition, we now face the specter of a new kind of emerging disease: one deliberately spread by bioterrorists. These emerging and re-emerging diseases are superimposed on other major health problems such as acute respiratory infections, diarrheal diseases, and measles, which remain leading causes of illness and death worldwide.

To mitigate the burden of these diseases, NIAID supports numerous laboratory, field-based, and clinical research projects related to global health, both domestically and abroad. Among many projects, NIAID-supported studies on malaria in Mali, pneumococcal disease in the Gambia, tropical diseases in the International Centers for Tropical Disease Research, and HIV prevention through the HIV Prevention Trials Network, have achieved important results through coordinated partnerships with local governments and other agencies and organizations. Building on NIAID's longstanding commitment in global health, the Institute this month released a new Global Health Research Plan for HIV/AIDS, Malaria, and Tuberculosis, which outlines NIAID goals and plans for fighting infectious diseases by building sustained research capability domestically and internationally and enhancing international partnerships.

Many of the challenges posed by emerging infectious diseases lend themselves to research in a relatively new field: genomics. The sequencing of the entire human genome and the anticipated assignment, over the next few years, of function to the estimated 30,000 to 60,000 human genes will have an enormous impact on all of medicine, including our understanding of the host response to microbial pathogens. In addition, the genomic sequencing of microbial pathogens will be a critical component of 21st century strategies for the development of diagnostics, therapeutics, and vaccines for infectious diseases. NIAID has funded projects to sequence the genomes of more than 50 medically important pathogens, a dozen of which have been completed. These include the bacteria that cause tuberculosis, gonorrhea, chlamydia, and cholera, as well as individual chromosomes of the malaria parasite, *Plasmodium falciparum*. Most recently, investigators have reported the complete genomic sequence of *Streptococcus pyogenes*, a bacterium that causes diseases ranging from strep throat to the flesh eating disease known as necrotizing fasciitis, as well as that of *Escherichia coli* O157:H7, a worldwide public health threat that has triggered scores of recent outbreaks of hemorrhagic colitis and numerous fatalities from kidney failure. In the interest of global scientific cooperation, NIAID-supported scientists deposit pathogen sequence data in specialized public databases such as GenBank, where investigators around the world can access it via the World Wide Web.

## **HIV/AIDS**

AIDS, caused by the human immunodeficiency virus (HIV), has claimed 22 million lives since the disease was recognized 20 years ago. More than 36 million people are living with HIV infection, including approximately 800,000 to 900,000 individuals in the United States. In the United States and other western countries, potent combinations of anti-HIV drugs (highly active antiretroviral therapy or "HAART") have dramatically reduced the numbers of new AIDS cases and AIDS deaths. NIAID-supported investigators conducted research that was pivotal to the development of these drugs, and have helped define how best to use these medications in different clinical settings. Ongoing research promises to yield a new generation of drugs that may improve upon existing medications in terms of cost, effectiveness, and tolerability.

Until recently, expensive HAART regimens were considered to be beyond the reach of developing countries, where 95 percent of the world's HIV-infected people live. Now, with dramatic reductions in the price of antiretroviral drugs for developing nations and the commitment of world leaders to address the AIDS problem in southern Africa and other poor regions of the world, AIDS therapies will begin to reach more of the people in poor countries who could benefit from them. Building on the research infrastructure that NIAID has helped establish in Africa and elsewhere in the developing world, we intend to work with our international colleagues to link the provision of anti-HIV therapy to ongoing efforts in prevention research, with the goal of facilitating a comprehensive approach to the AIDS pandemic in poor countries. Two recently launched NIAID programs will be key to this effort: the HIV Prevention Trials Network (HPTN) and the HIV Vaccine Trials Network (HVTN), which have research sites in the United States, Latin America, Europe, Africa, Asia and the Caribbean.

The HPTN focuses on several key areas of prevention research, including behavioral modification, interventions to prevent mother-to-infant transmission of HIV, and the

development of topically applied microbicides that women could use to protect themselves against HIV and other sexually transmitted pathogens. The HVTN will conduct all phases of clinical vaccine trials, from evaluating candidate vaccines for safety and the ability to stimulate immune responses, to testing vaccine efficacy. In pre-clinical and clinical studies, NIAID-supported investigators are testing a diverse range of vaccine strategies, several of which in recent months have shown remarkable promise in tests in non-human primates. The best candidates will be moved rapidly into HVTN trials. We remain optimistic that a safe and effective vaccine can be found that will prevent HIV infection and/or slow the progression of disease in people who are already infected with the virus.

## **Immune-Mediated Diseases**

Immunologic diseases cause a considerable burden of illness and death and lead to medical costs that exceed \$100 billion annually in the United States. Many immune-mediated diseases disproportionately affect women and members of minority groups. Autoimmune diseases such as type-one diabetes, rheumatoid arthritis, systemic lupus erythematosus, and multiple sclerosis collectively afflict approximately five per cent of the U.S. population. More than seven percent of American children are asthmatic, with poor children in inner city areas disproportionately affected by this serious disease. In addition, immune-mediated graft rejection remains a significant obstacle to the successful transplantation of potentially life-saving organs.

NIAID-funded research in basic and clinical immunology has led to many promising approaches for treating individuals with these and other immunologic conditions. For example, researchers are developing novel ways of selectively blocking inappropriate or destructive immune responses, while leaving protective immune responses intact. This approach, called tolerance induction, holds great promise for the treatment of many immune-mediated conditions, including autoimmune diseases and asthma and allergic diseases. The induction of tolerance to transplanted organs or tissues ultimately may allow transplant patients to forego long-term regimens of broadly immunosuppressive drugs. These drug regimens are costly and dampen not only destructive immune responses, but protective ones as well, thereby increasing a patient's risk of malignancies and infections. Among many projects in the field of immune tolerance, the Institute established the Immune Tolerance Network (ITN), an international consortium of more than 70 research groups. The ITN is implementing clinical trials in four areas: transplantation of islets (the insulin-producing cells of the pancreas), kidney transplantation, autoimmune diseases, and asthma and allergic diseases. The first ITN trial is testing a new approach to transplanting islets in diabetics who are unable to properly control their blood sugar levels. This international study builds on groundbreaking research at the University of Alberta that has resulted in long-term insulin independence for nearly 20 patients.

For more than a decade, NIAID has worked to reduce the burden of asthma, particularly among inner-city children. Investigators of NIAID's National Cooperative Inner-City Asthma Study developed a successful behavioral and educational intervention that substantially reduced asthma severity in these pediatric populations. Building on this success, NIAID and the Centers for Disease Control and Prevention (CDC) are collaborating to implement this proven intervention in a new four-year program that will reach 6,000 children in 23 inner-city health care delivery

sites throughout the U.S. An ongoing NIAID intervention study, involving approximately 1,000 children nationwide, is testing the effectiveness of environmental control measures and physician education in reducing the burden of asthma. Preliminary results are showing substantial reductions in asthma symptoms and emergency room visits. In both of these studies, recruitment has exceeded the targeted levels and retention of patients has been extraordinarily high compared to other studies of other inner-city pediatric populations. Because of these successes, NIAID-supported inner-city asthma programs are now recognized as models for conducting clinical research in the inner city and have attracted partners in the public and private sectors to collaborate with NIH-funded researchers. These collaborations promise to bring new asthma interventions to minority populations whose access to such therapies might otherwise be diminished or delayed.

## **Vaccine Development**

Vaccination has been recognized as the greatest public health achievement of the 20th century, and vaccine research has long been a cornerstone of the NIAID research portfolio. NIAID-supported research has led to the development of many new and improved vaccines now widely used, such as those against *Haemophilus influenzae* type b, pertussis, chickenpox, pneumococcal disease, and hepatitis A and B. The rapidly evolving science base in pathogen genomics, immunology and microbiology will facilitate further progress in developing new and improved vaccines. In particular, the availability of the genomic sequences of major microbial pathogens will facilitate the identification of a wide array of new antigens for vaccines. Because many pathogens gain entry to the body via mucosal sites, NIAID-supported scientists are developing new vaccines that target mucosal surfaces such as those in the intestine or respiratory tract. Vaccines that are easy to administer -- orally, nasally, or trans-dermally - will have great utility in resource-poor setting and for mass immunization programs. In addition to the development of vaccines against classic infectious diseases, NIAID is working to develop vaccines against chronic diseases with infectious origins, as well as potential agents of bioterrorism, and autoimmune diseases and other immune-mediated conditions.

## **Conclusion**

In the 21st century, NIAID is poised to exploit unprecedented scientific opportunities in immunology, microbiology and infectious diseases. As has been the case for more than 50 years, a commitment to the best possible research -- basic science as well as clinical trials -- will drive our efforts to improve health in this country and abroad. With a strong research base, the commitment of talented investigators, and the availability of powerful new research tools, we are confident that our initiatives will help solve seemingly intractable clinical and public health problems and improve global health in the 21st century.

### **1. Workforce Skills Vital To Accomplishment Of Niaid Goals And Objectives**

The NIAID has chartered a very important and ambitious agenda for the next two fiscal years. As a result, it will be necessary to continue and expand the network of research teams we have established throughout the Institute in order to ensure that goals are achieved and mission is accomplished.

The NIAID carries out its responsibilities through an organization comprised of six major divisions—two of which are focused on intramural research, including laboratories and patient care clinics; three which are focused on extramural research initiatives; and one which has responsibility for planning, coordinating and administering a comprehensive program of research grants and research and development contracts.

At the core of each division is a staff of doctorate level physicians, scientists and other highly trained and skilled professionals. In order to accomplish the assigned goals, there are important requirements for collaboration and support provided by non-scientists who have particular expertise in helping to develop, manage, implement, coordinate and support the research efforts. One example is the area of grants administration, where a large percentage of the Institute's budget is allocated. In order to appropriately carry out the programs established by Congress and the Administration, it is necessary to have on staff scientists who have research experience and also are knowledgeable in the field to manage the various grants portfolios. Furthermore, in order to accomplish the necessary peer review of applications, other trained scientists are employed to review and rate and rank the grant applications on scientific merit. Once applications are ranked and selected for funding, a cadre of experienced grant management specialists are needed to ensure that the conditions of the grant are met, that the funding levels authorized are commensurate with reasonable costs for performing the specified research, that indirect costs are appropriate and applied consistent with regulations, and a host of other required tasks. Another example is the operations of an intramural laboratory, where the scientists must both conduct personal research, supervise more junior scientists in their research efforts, train new researchers just beginning their careers, and manage the overall operation of their research initiatives, including recruiting and retaining staff, arranging for travel to both learn new methods and techniques used in research, disseminate their research findings and collaborate with other researchers outside government, procure the necessary equipment, supplies and other research tools that are needed to conduct the work. In order to accomplish the myriad of responsibilities, it is necessary that appropriate technical laboratory, administrative, personnel, procurement and clerical support be provided in order to ensure a successful research endeavor.

## **2. Changes Expected In The Work Of The Institute**

With the advent of new technologies, such as those brought about by advances in genetic research, and sophisticated new methodologies to identify and plan research theories and develop research plans, there will be some changes needed in terms of the skills and training required by the Institute's staff. In general, some functions previously requiring individuals with general background and experience will disappear due to new methodologies that may reduce or eliminate many of the routine research and non-research tasks previously performed. However, rather than this shift resulting in the elimination of positions, it will likely lead to the need for staff with more advanced education, training and skills in order to adapt to the new technologies that are and will continue to be developed and introduced into the research enterprise. This mirrors the trend that is occurring in the employment of non-scientific staff. Increasingly there is a need for staff who are well educated and trained in the use of modern technology in order to both perform the current work, and to help develop new and more efficient ways to accomplish the work. It is expected that a higher level of understanding of new information and other

technologies will be critical to the future advancement and success of the Institute's research endeavors. There will also be an increasing need for staff in all categories and levels to have greater skills in analysis and evaluation, as well as those involving writing—whether it be for scientific or non-scientific documents, reports and evaluations. As new software and programs are developed, it will be necessary to have a workforce that can not only use the methodologies available, but also be adept at identifying new and better methods to use them for maximum effectiveness.

### **3. Implementation Of Recruitment, Training And Retention Strategies To Ensure A Quality And Diverse Workforce**

The Institute has recognized that in today's highly competitive employment market, the ability to offer competitive salaries is one absolutely critical factor to obtaining the best and brightest employees. However, salaries alone are not sufficient to attract and retain qualified and talented individuals. In response to the need to offer other incentives to prospective and existing employees, the NIAID has either instituted or is exploring the institution of a number of flexible benefits for staff.

One example is the Alternate Work Schedule system, which has been in place for several years, and is generally considered to be a distinct advantage to employees. Under this system, employees may, with supervisor and management concurrence, adopt either a 5/4-9 schedule, where during a two week period the employee works five days of 9 hours each one week, and four days of 9 hours each the other week, and then has one day off every two weeks. Another option is credit hours, whereby an employee, with supervisory concurrence, can work additional hours in a workday and earn credit that can be used to take off work for the equivalent amount of hours.

The NIAID is currently participating in the 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. The NIAID currently has 40 staff participating in the pilot, which has as part of it a comprehensive reporting and evaluation component. The Institute is optimistic that this limited pilot will prove to be a benefit not 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. One concern about telecommuting is the potential cost if it were implemented for a larger number of staff. Specifically, some preliminary estimates of the cost to purchase and maintain additional phone lines, servers and other equipment may not necessarily be offset in the savings realized from a decreased need for office space, and other inconveniences in particular working units. The Institute plans to carefully study the pros and cons of telecommuting if implemented on a wider scale to assess the realistic costs, both monetary and in terms of the impact to the work flow.

Realizing that the Institute will need to have a better-trained staff in the future, NIAID has established a Training Working Group comprised of a cross-section of staff that is representational of all Divisions and Offices. The purpose of the group is to address how NIAID can more effectively emphasize the importance of training for our workforce, and also to

recommend actions and initiatives that will help to make training more efficient, effective and relevant to the duties and responsibilities of the employee. The work group has already developed a list of short and long-term recommendations that will serve to improve the overall effectiveness of training in the Institute.

The NIAID has also 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. While the Institute has previously had a number of ongoing recruitment efforts, it has not been accomplished in a coordinated manner. It is the goal of the group to have consolidated, well-planned and effective efforts, and a process to evaluate the progress and success, so that those non-productive methods can be discarded and productive ones can be promoted and expanded as needed.

The NIAID has also been a major participant in the various NIH loan repayment programs. We have found that the ability to offer reimbursement of student loans to be a great success in both recruiting and retaining new and mid-career scientists. Unfortunately, the programs available at this time only permit scientists to qualify for participation. However, we understand that there are several new programs that will be implemented soon that will permit employees who are in non-scientific categories to participate. There has been a recent trend for young, new perspective applicants to inquire about the availability of student loan repayment, and there is the indication that availability of such a benefit may be a critical factor in attracting highly competitive candidates.

#### **4. Addressing Expected Skill Imbalances Due To Attrition, Retirements, Etc.**

The Institute has been carefully reviewing expected retirements and attrition rate data projected for the next several years. On average, the Institute has been experiencing a turnover rate of about 27% on a base of 1,200 employees, and we would expect that rate to continue over the next two years. It is our expectation that the losses we will accrue will heavily impact technical positions and mid-level professional positions. In addition, we project that approximately 10% of our current staff will be eligible to retire during the fiscal years 2002 and 2003. We are concerned about the potential turnover of critical technical and mid-level staff, combined with a significant rate of retirements by seasoned staff.

The NIAID is already addressing this issue in a number of different ways, including the use of "bridging" programs, such as the use of the COTA mechanism, and support of STRIDE internships. Both of these programs provide mechanisms by which a non-professional employee with some higher education is provided both college level course work and on-the-job training under a professional mentor/supervisor with the goal of qualifying the individual for transition into a professional position with considerably more promotion potential.

These programs are especially appealing, since the participants already have some knowledge of the NIH and a set of non-professional skills on which to build a professional career. The retention rate for employees who participate is extremely high.

Some other methods of addressing the imbalance are support and participation in the NIH Management Intern Program and the Presidential Management Intern Program (PMI). These programs are geared to individuals who already have a baccalaureate or master's degree, and the programs provide rotational assignments through a myriad of different functional areas. This program serves as a "training ground" for future senior professionals and managers. While the retention rate for the NIH Management Interns is very good, the rate for the Presidential Management Interns is not as high as we would like. Efforts are being made to attract candidates in the PMI program who are a better potential match for the future career positions that NIH has to offer. It is our hope that these efforts will significantly improve the retention rate over time. We also are eagerly awaiting the implementation of the new career intern program when it is finalized. As we understand that program, it will be flexible and will permit participation by applicants with a wider range of educational background, training and skills. We are particularly interested in this and other programs that will attract individuals with an interest in careers with a focus on general administrative, human resource, financial management and contract and grant management and other administrative/management professions.

The Institute is also putting greater emphasis on the need for supervisors and managers to change their recruiting strategies to develop a staff with differing levels of skills and experience, and at different age-levels. There has been a tendency, due to increasing complexity and workload, to focus hiring for vacant and new positions on those individuals who are highly-skilled and experienced, rather than to diversify the workforce with some individuals who are more junior and can be trained and groomed for more senior positions. The advantage to adopting this strategy is that the workforce will be more diversified, there will be more junior employees available and trained as more senior employees move on to other career opportunities or retire.

## **5. Challenges That Impede Ability to Recruit and Retain A Quality/Diverse Workforce**

There are a number of challenges that make the recruitment and retention of a high quality and diverse workforce a very difficult endeavor. Some of the impediments are noted below:

- There has been an inability to offer competitive salaries for some positions that are critical to the Institute's operations. This is particularly the case for scientific staff that do not hold doctoral level degrees, such as intramural laboratory scientific technician positions, where the complexity and sophistication of the research methods and processes used require individuals with hard to find or even rare training, skills and experience. This is also the case for many non-traditional nursing positions involved in important clinical trial research. Another area that has been problematic is the recruitment and retention of administrative technical positions, such as Personnel Assistants, Administrative Technicians, Purchasing Agents, Grants Technical Assistants, and other similar job categories that are currently classified in non-professional series. The grade levels available for these positions is limited, and it is difficult to attract and retain

individual when there is no sustained career track to offer them. The institution of new pay systems, such as Title 42, have help to solve similar problems with doctoral level scientific positions, where there is greater flexibility in both initial salary setting and periodic and performance-based pay increases. It would be extremely helpful if pay systems with more flexibility, such as pay banding or something similar, were instituted.

- It is important to note the cumulative effect of the imbalance of large programmatic budget increases versus the constraints on expanding staffing levels. Simply stated, staff increases have not been commensurate with the overall financial expansion. While it is less a problem in the intramural programs, it has been extremely difficult to manage every-increasing programmatic expansion in non-intramural programs because of restrictions on the amount of funds that can be used to support additional FTEs. This leads to some critical problems that are outlined in the bullet below.
- It has been a particular challenge to manage an ever-increasing workload that is disproportionate to the increases in staffing. In an effort to maintain a lower workforce, the workload per person keeps increasing, despite efforts to make the work processes more efficient and streamlined, and the implementation of the most advanced technology and other tools. Both recruitment and retention become major issues when the level of workload goes beyond appropriate levels. Institution of alternate work schedules and telecommuting certainly helps to address this issue, but there needs to be more time available for employees to receive on-the-job training, take training and coursework that will enhance not only their current work, but also prepare them for future career moves, and allow employees time to develop new and improved ways to get the work accomplished. Operating at or above maximum workload capacity results in a lack of motivation, burnout, and sense that the employee must move on to an environment where the workload is better balanced.
- Recruitment and retention of a diverse workforce, especially individuals who are under-represented minorities and the disabled, have been particularly challenging. The area of most concern for the NIAID is the attraction of qualified minorities for tenure or tenure-track positions. Individuals with the requisite education and skills are highly sought after, and it is difficult to attract a pool of qualified applicants in such a competitive environment. The Institute is currently addressing this issue with the establishment of a Recruitment Strategies Working Group, which is resulting in a coordinated effort to explore methods of identifying and attracting appropriate candidates. There is also a focus on attracting a pool of disabled individuals who are qualified for current and future positions in the Institute.
- The attraction and retention of individuals into entry-level professional positions has also been a challenge. Traditional programs, such as the Presidential Management Intern Program and the NIH Management Intern Program have been helpful, but are not sufficient to fill all of the current and future needs. The implementation of a general loan repayment program, expansion of the coverage and requirements for recruitment bonuses, and other such “perks” would certainly help to attract young individuals to careers in government service. Likewise, the implementation of a “general” professional intern

program would also be an important tool to attract talented individuals at the entry level in professional fields.

## **6. Delegations of Authority and Other Methods to Make Workflow More Efficient**

The NIAID has been successful in reducing the number of layers necessary for the processing and approval of various functions through both redelegations of authority and also instituting improved processes and methods to accomplish the work.

The NIAID has redelegated a host of authorities that were previously centralized at either the NIH or OD/NIAID level to Divisions and Offices within the Institute in order to place the final approval at the lowest possible level to make the response factor as efficient and effective as possible, while maintaining maximum integrity and consistency. Some examples are: approval of various cash awards; approval of international travel and other travel-related authorizations; approval of recruitment and retention bonuses; implementation of purchasing card authority at the laboratory/branch level; and other such redelegations.

Furthermore, recent redelegations from the NIH to the Institutes have made a real difference in our ability to process and authorize actions in critical operational areas. An excellent example is the redelegation of personnel authorities to the Institute, such as those relating to Title 42, where pending actions can be prioritized based on the NIAID priorities, and pay setting, review and final approval can be accomplished in a much more expeditious manner. This is a classic example of moving the authority to a level where it can be efficiently and effectively utilized. Such delegations have significantly improved our ability to recruit and retain staff, and have eliminated previous long delays that have led to the loss of existing staff or the loss of qualified applicants to competitors who can make final offers in a more expeditious manner.

In addition, the NIAID has made efforts to be innovative in developing various systems that help to improve the efficiency of many work processes. Examples of some long-standing systems are the use of the Visual Employee Data System (VEDS) and Visual Status of Funds System (VSOF), which are NIH-wide systems. The NIAID has also developed its own systems, such as the Automated Management and Business Information System (AMBIS) which has streamlined the processing of procurement actions and the tracking of expenditures before they are entered into the central accounting system; and the Visual Performance Appraisal Form System (VPAF), which is an automated system used by supervisors to create, track and coordinate performance plans for all employees.

The most recent NIAID innovation is the Electronic Contracts Management System (ECMS), which was developed to streamline the contract management process. This is an automated system that manages the entire contract process from the inception of a project and the development of the Statement of Work by the project officer, through the entire contract management process, including the advertising, reviewing, financial management and final close-out process. This system not only makes the entire contracting process more coordinated and efficient, but also meets the government's goals on the use of electronic systems for procurement. This system not only makes the process more effective and efficient for the internal customer (NIAID employees), but also for the external customer (the businesses,

universities, etc. who are potential bidders and awardees). However, it should be noted that even with all of the systems noted above, more efficiencies could be realized if more up-to-date systems were developed. This is discussed in more detail below.

## **7. Barriers to Workforce Restructuring**

There are a number of barriers to workforce restructuring, including: availability of space, availability of qualified applicant pools for selected positions, inability to offer competitive salaries for selected positions, and non-availability of appropriate automated systems to streamline the workflow.

The NIAID has been faced with a real problem in the consolidation and streamlining of selected intramural programs due to a lack of research space on the NIH campus. As a result, laboratory groups have had to be located in different locations, often splitting them into on-campus and off-campus segments due to the lack of laboratory space. This may often require some duplication of equipment and technical and clerical staff because certain critical functions must be performed at the sites where the laboratory operations are being performed. The lack of research space has also been somewhat of a barrier in the speed and efficiency with which we can implement important new research endeavors, because the acquisition of off-campus space can be extremely time-consuming and costly.

The lack of qualified applicants can be a barrier when attempting to attract individuals with specific skills and training for positions, which could make the work processes more efficient. As an example, finding skilled individuals with staffing experience to help in our efforts to make the recruitment and selection process more effective and efficient. Another example is finding qualified individuals who can manage the important functions of technology transfer and research collaboration. This relates to the previous discussion of the need for more flexibility in recruiting entry-level staff, the need for more flexibility in setting initial salaries and providing pay adjustments to recognize and retain those who provide outstanding performance.

The impact of technology can be both a positive and negative influence on the workforce. On the one hand, it is positive in that it can help to make processes more efficient, faster and more accurate. On the other hand, its implementation can be extremely costly (equipment, highly specialized personnel, additional time and cost required for training, etc.). In general, most savings in staff time and costs realized by increased use of technology, are negated by the concomitant expenses in buying necessary equipment, re-training costs, and the replacement of those employees who used to do the manual work with technology employees who are needed to implement and maintain the new systems. While considerable efficiencies can be realized, the significant savings in staff or costs is not always realized.

The implementation of buyouts and early retirements would not be a significant help in most restructuring efforts. More important would be greater emphasis on training and re-training existing and new staff to achieve more efficiencies. Also, in some cases the loss of the most experienced staff to career changes and retirement are more important factors. The ability to offer retention or other incentive bonuses to staff in a restructuring initiative is very limited. The current need to have a firm job offer at a higher salary is a limitation for its use as an incentive to

retain employees; and it is not even a viable option, as currently structured, for those who will be lost to retirement, since a higher salary job offer is not usually a factor in such cases. The ability to retain those employees who have special knowledge, expertise and skills, who would otherwise be lost to career changes and retirement is an important need in many restructuring efforts.

Again, the institution of a very flexible pay-banding or similar system would be an important incentive to help retain current employees or hire new employees who would be critical to a successful restructuring initiative.

## NIAID Hiring Plans for FYs 2002/2003

	FY 2002	FY 2003	Total
<b>INTRAMURAL</b>			
Senior Investigators <sup>1</sup>	0	4	4
Investigators <sup>1</sup>	4	5	9
Other MD/PhDs, in FTE positions	53	42	95
Other MD/PhDs in non-FTE positions (IRTA, VF)	136	135	271
Other lab/clinical staff => GS-13	8	12	20
Other lab/clinical staff =< GS-12	25	33	58
Admin/support staff => GS-13	19	18	37
Admin/support staff =< GS-12	48	46	94
Infrastructure support => GS-13			0
Infrastructure support =< GS-12 <sup>2</sup>		2	2
Summer and other temps not listed above (include summer IRTAs)	37	37	74
<b>TOTAL INTRAMURAL</b>	<b>330</b>	<b>334</b>	<b>664</b>
<b>EXTRAMURAL</b>			
HSAs/SRAs and other senior level science administrators => GS-13	75	46	121
Other science administration positions =< GS-12	11	10	21
Grants Management and R&D Contract Staff => GS-13 <sup>3</sup>	4	3	7
Grants Management and R&D Contract Staff =< GS-12 <sup>3</sup>	4	5	9
Administrative and support staff => GS-13	17	18	35
Administrative and support staff =< GS-12	42	44	86
Infrastructure support => GS-13	1		1
Infrastructure support =< GS-12 <sup>2</sup>			0
Summer and other temps not listed above	8	8	16
<b>TOTAL EXTRAMURAL</b>	<b>162</b>	<b>134</b>	<b>296</b>
<b>IC TOTAL</b>	<b>492</b>	<b>468</b>	<b>960</b>
<sup>1</sup> Using OIR professional designations			
<sup>2</sup> Include all wage grade positions related to infrastructure in this group			
<sup>3</sup> Includes 1101, 1102, 301 and 303 series where individual is engaged in these activities on a full-time basis.			