

# National Institute for Occupational Safety and Health

*V*ision — Delivering on the Nation’s promise: safety and health at work for all people through research and prevention.

*M*ission — Provide national and world leadership to prevent work-related illness, injury, and death by gathering information, conducting scientific research, and translating the knowledge gained into products and services.

## Strategic Goals

1. Conduct a targeted program of research to reduce morbidity, injuries, and mortality among workers in high-priority areas and high-risk sectors.
2. Develop a system for surveillance of major occupational illnesses, injuries, exposures, and health hazards.
3. Increase occupational disease and injury prevention activities through workplace evaluations, interventions, and recommendations.
4. Provide workers, employers, the public, and the occupational safety and health community with information, training, and capacity to prevent occupational diseases and injuries.

# Background

In 1970, Congress passed the *Occupational Safety and Health Act* “to assure so far as possible every working man and woman in the Nation safe and healthful working conditions.” In passing this landmark legislation, Congress developed a two-pronged approach to meet this ambitious goal: **research** concerning the causes of occupational injuries and illnesses and based on that research, the development and **enforcement** of standards to remove those hazards from the workplace. The Act created the Occupational Safety and Health Administration (OSHA) to perform the enforcement function and the National Institute for Occupational Safety and Health (NIOSH) to perform the research function. NIOSH has dedicated itself to that research function throughout its 25-year history.

Congress has reiterated and enhanced the NIOSH research function twice in the last 20 years with regard to occupational safety and health in mines. With the 1977 amendments to the *Coal Mine Health and Safety Act* and the 1995 consolidation of the U.S. Bureau of Mines safety and health research with NIOSH, Congress gave NIOSH responsibilities in mining that paralleled its work for the rest of industry.

## Specifically, NIOSH has the responsibility to:

- ◆ enumerate hazards present in the workplace,
- ◆ identify the causes of work-related diseases and injuries,
- ◆ evaluate the hazards of new technologies and work practices,
- ◆ create ways to control hazards,
- ◆ train safety and health professionals, and
- ◆ recommend occupational safety and health standards.

# The Challenge:

**Using research to protect workers in a constantly changing work environment.**

NIOSH employees face a daunting challenge every day. Although the Nation has made substantial progress toward improving worker protections since 1970, (largely a result of occupational safety and health research), workplace hazards continue to inflict a tremendous toll on this nation in terms of human and economic costs. Each day, an average of 16 people die from work-related acute traumatic injuries, and 137 people die from work-related diseases. In 1996, occupational injuries alone cost \$121 billion in lost wages and productivity, administrative expenses, health care, and other costs. Clearly, there is much work to be done.

Each day, 16 people die from work-related traumatic injuries and 137 people die from work-related diseases.

In 1996, occupational injuries cost \$121 billion.

In addition, it is rare that any NIOSH effort — no matter how important — can, by itself, bring an end to a workplace hazard. The practical impact of the NIOSH program on the workplace largely depends on the actions of employers, employees, and NIOSH partners in other Federal agencies, state and local governments, industry, labor, academia, and community organizations.

This dilemma can be seen in the Department of Health and Human Services (DHHS) *Healthy People 2000* program. HHS has described *Healthy People* as “a conceptual model for the Nation . . . that sets the agenda for prevention programs in the *public and private sectors*. . .”. (emphasis added).

Among the *Healthy People* objectives for improving the health of this Nation are improvements that will be evidenced at the workplace. These objectives include target levels of improvements in work-related conditions. Examples are reducing work-related deaths and injuries, reducing lost work days and incidences of cumulative trauma and skin disorders, and increasing the number

of workplaces with rehabilitation and safety and health programs. (For a complete list of *Healthy People* objectives, see page 21.)

The work of NIOSH has had and will continue to have an impact on improving health and safety at the workplace; it will therefore help the Nation meet many *Healthy People* objectives. NIOSH has ongoing efforts to address many of the *Healthy People* areas of work-related hazards, injuries, illnesses, and deaths (such as musculoskeletal problems, skin diseases, violence in the workplace, employee stress, and back injuries) as well as categories of workers and prevention strategies for mine workers, farm workers, and adolescents. In addition, NIOSH goals for surveillance will assist the overall *Healthy People* effort by moving toward a more comprehensive database, thereby helping to establish baseline and trend information in the occupational safety and health area. Several *Healthy People* objectives for the workplace related to State law changes, enforcement, and standard setting that fall outside the NIOSH mandate.

The combined efforts of all sectors are needed to have a positive overall impact on the health of this Nation. As one partner in this effort, we have therefore developed strategies that will contribute to achieving *Healthy People* objectives, but we have not incorporated specific *Healthy People* goals into this plan.

As NIOSH develops its plan for moving forward into the next century in a time of fiscal constraints, it must ensure that its resources and efforts are focused on the most important workplace hazards and that the information it gains through research is accessible to its partners in prevention.

# NIOSH Strategic Goals:

## Safety and Health at Work for All People

NIOSH and its employees are ready to meet the challenge of assuring safety and health at work for all people. To accomplish this mission, NIOSH has established four Institute-wide objectives that complement the goals set out by DHHS and the Centers for Disease Control and Prevention (CDC). Note that NIOSH has not attempted to make all of its activities fit within these goals. The Institute has instead looked to those activities that represent the majority of its work.

The four NIOSH goals concern the targeting of research, surveillance, prevention, and information dissemination and training. These four goals represent the broad spectrum of NIOSH work, and the interplay of these goals has formed and will form the NIOSH contribution to realizing the Vision of this Institute — safer and healthier workplaces. Achievement of these goals in the United States can provide a beacon for other countries in the world, many of which are struggling to define occupational safety and health problems and ways to combat them.

“...we recognize NIOSH’s distinct role as a R&D entity which has been very effective in injury prevention research over the last 25 years. This effort has ultimately saved the Nation billions of dollars annually in medical costs and also improved the health and welfare of every American worker and their families.”

— a vice president of the  
General Motors Corporation

Throughout its 25-year history, NIOSH has had proven successes in all of these areas. For example, because of research performed by NIOSH, this Nation has virtually eliminated byssinosis (brown lung) and substantially reduced coal workers’ pneumoconiosis (black lung). NIOSH has also addressed the critical need for occupational safety and health professionals through training for doctors, nurses, industrial hygienists, and engineers. NIOSH efforts have led to the banning of ethylene dibromide (a fruit fumigant and proven human toxin), an action that protected an estimated 108,000 workers from possible reproductive damage, and recently, NIOSH work with the asphalt paving industry resulted in an agreement with the industry to install ventilation systems on paving machines — thereby reducing worker exposure to asphalt fumes by 80 percent.

As recently stated by a Vice President of the General Motors Corporation, “...we recognize NIOSH’s distinct role as a R&D entity which has been very effective in injury prevention research over the last 25 years. This effort has ultimately saved the Nation billions of dollars annually in medical costs and also improved the health and welfare of every American worker and their families.”

To remain successful, NIOSH must continue to integrate efforts in all four strategic goal areas. For example, in 1990 Congress directed NIOSH to expand its efforts directed at health problems affecting construction and agricultural workers. In response, NIOSH developed comprehensive prevention programs by expanding existing NIOSH activities in the areas of surveillance, research, intervention, and information transfer. NIOSH conducted or funded more than 100 such activities to identify, characterize, and control work-related injuries, diseases, and hazards experienced by construction and agricultural workers and to disseminate the information generated from these and other research efforts.

In the end, progress toward the NIOSH Vision can be measured only by a reduction in occupational injuries, illnesses, and fatalities. In fact, the Nation has made measurable progress since the inception of NIOSH. From 1970 to 1995, the rate of workplace fatalities fell by 78%, and the number of workplace deaths has declined by 62%. We have also seen a 25% decline in the rate of occupational injuries and illnesses from 1973 through 1994.

These reductions are the result of the combined efforts of all the NIOSH partners in occupational safety and health: industry, labor, academic researchers, OSHA, MSHA, State and local agencies and others. No single partner can claim exclusive credit for the progress we have made or will make in protecting this Nation's workers. For if progress is to be made, all of the partners must act — from identifying the causes of disease and injury through controlling or eliminating the hazards or exposures at the worksite. For this reason, NIOSH has not included reductions of specific hazards, injuries, or diseases in its list of goals.

Although we have placed NIOSH activities under each strategic goal, it is difficult to categorize some of our activities as belonging to one goal rather than another. For example, workplace and industry interventions are described here as prevention activities, but we could also describe them as efforts at problem identification or applications of targeted applied research and place them under the surveillance or targeted research goal.

The NIOSH Strategic Goals relate to and complement those of DHHS and CDC.

Much of the work of NIOSH could also be characterized as anticipating the next crisis in the workplace and working to ensure that it does not come to pass. Examples include the following:

- Mine disasters that did not occur because NIOSH engineers developed a new pillar system for longwall mining that has become the worldwide industry standard.
- Firefighter deaths that did not happen because of the lessons learned from a NIOSH fatality investigation.
- Health emergencies avoided because employers and employees called the NIOSH information number and learned that the respirators they were about to use would not protect them from acute toxic exposure.

Events such as these occur every day. We cannot precisely measure the number of workers who benefit, since even they may have no idea that it was knowledge obtained by NIOSH that enabled them to go home at the end of the day. Neither do these events translate easily into measures of NIOSH performance. We acknowledge this fact and are committed to ensuring that these preventive acts continue to occur every day in the future as they have in the past.

### **Centers for Disease Control and Prevention Strategic Goals**

- 1.** Science: Assure a strong science base for public health action.
- 2.** Assessment: Detect and assess threats to public health.
- 3.** Policy: Provide leadership for the Nation in prevention policy and practice.
- 4.** Assurance: Assure the public's health through translation of research into effective community-based action.

### **Department of Health and Human Services Strategic Goals**

- 1.** Reduce the major threats to the health and productivity of all Americans.
- 2.** Improve the economic and social well-being of individuals, families, and communities in the United States.
- 3.** Improve access to health services and assure the integrity of the Nation's health entitlement and safety net programs.
- 4.** Improve the quality of health care and human services.
- 5.** Improve public health systems.
- 6.** Strengthen the Nation's health sciences research enterprise and enhance its productivity.

## ***NIOSH Strategic Goal 1***



*Conduct a targeted program of research to reduce morbidity, injuries, and mortality among workers in high-priority areas and high-risk sectors.*

### **The National Occupational Research Agenda (NORA)**

In the past, occupational safety and health research has been conducted with minimal coordination or collaboration between NIOSH, other government agencies, university researchers, or industry- and labor-funded programs. NIOSH is working to change that pattern. Beginning in 1995, NIOSH spearheaded a broad-based national effort that resulted in the creation of the National Occupational Research Agenda (NORA) in 1996. This consensus agenda has the potential to guide occupational safety and health research into the next century — not just for NIOSH, but for the entire occupational safety and health community.

The success of NORA will be measured by its utility in focusing occupational safety and health research. As a starting point, NIOSH will use NORA to direct and target intramural and extramural occupational safety and health research. Ultimately, this Nation will see improvements in worker safety and health.

| <b>CATEGORY</b>                       | <b>PRIORITY RESEARCH AREAS</b>  |
|---------------------------------------|---|
| <b>Disease and Injury</b>             | Allergic and Irritant Dermatitis<br>Asthma and Chronic Obstructive Pulmonary Disease<br>Fertility and Pregnancy Abnormalities<br>Hearing Loss<br>Infectious Diseases<br>Low Back Disorders<br>Musculoskeletal Disorders of the Upper Extremities<br>Traumatic Injuries  |
| <b>Work Environment and Workforce</b> | Emerging Technologies<br>Indoor Environment<br>Mixed Exposures<br>Organization of Work<br>Special Populations at Risk   |
| <b>Research Tools and Approaches</b>  | Cancer Research Methods<br>Control Technology and Personal Protective Equipment<br>Exposure Assessment Methods<br>Health Services Research<br>Intervention Effectiveness Research<br>Risk Assessment Methods<br>Social and Economic Consequences of Workplace Illness and Injury<br>Surveillance Research Methods |



## Targeted Scientific Research

The creation of NORA is a critical milestone on the road to improving the safety and health of America’s workers; however, the Agenda was created with the knowledge that it would not, by its nature, include all areas that are “still important [occupational safety and health issues] and merit research effort.” NIOSH itself undertakes research and other activities outside the NORA priorities that will provide crucial information to reduce injuries and illnesses in the workplace. Much of the work of NIOSH laboratories (such as developing new imaging methods for the early detection of occupational illnesses and injuries, and perfecting microscopic analysis of tissue samples to increase our understanding of disease development) are fundamental to optimizing occupational safety and health research in all areas.

## Measuring Basic Scientific Research

Congress, the Office of Management and Budget, and the President’s National Science and Technology Council (NSTC) understand that measuring the impact of basic scientific research is difficult. As stated by the Committee on Science of the U.S. House of Representatives, strategic planning and performance measures offer both “an opportunity and a significant challenge” for agencies such as NIOSH.

### Committee on Science of the U.S. House of Representatives

“However, assessment techniques are in relatively early stages of development and are only in their infancy for such areas as fundamental science. Further, the causal relationship between research outputs and their eventual outcome is very complex.

Particularly for basic research, the primary goal is to produce new knowledge, with long term and frequently, unpredictable outcomes. Fundamental science often contributes to multiple societal goals. Further, the results of fundamental research may not appear for some length of time. Interpretation and evaluation of research results may require specialized expertise. *Indeed quantitative measures may not be feasible for basic research.*” (emphasis added)

In July 1996, NSTC released a report entitled *Assessing Fundamental Science* intended as a “broad framework for the Government Performance Results Act (GPRA) implementation in assessment of fundamental science programs.” With regard to efforts at measuring science, the report states the following:

For evaluating current programs in individual agencies, merit review based on peer evaluation will continue to be the primary vehicle for assessing excellence and conduct of science at the cutting edge. . . .

Balanced assessment of the various dimensions of program performance in an agency will require multiple sources and types of evidence. In addition to retrospective merit review, retrospective performance reports might draw on quantitative indicators, qualitative indicators, descriptive indicators or narrative text, examples of outstanding accomplishments and of more typical levels of achievement, information about context, and findings from special studies and analysis.

Because pre-existing measures of research results were developed primarily for other purposes, they have not yet been adapted for use in reporting at the agency level. Pre-existing measures capture only a subset of research outputs and outcomes. They do not map neatly or cleanly onto GPRA concepts. Consequently, these measures (e.g., publication counts, citation counts, and rate-of-return and related economic measures)...can serve only as a starting point for agency thinking about how to design the most effective assessment strategies.

Nevertheless, NIOSH is committed to tracking the implementation of NORA in the research community and in the workplace as well as continuing to perform — and evaluate — its other important scientific research in occupational safety and health. With regard to NORA, NIOSH will look first to increases in NIOSH and other Federal intramural and extramural research in NORA priority areas as indicators of NORA’s impact. NIOSH will also develop a protocol by using bibliometrics and other existing methods of evaluation as indicators of the impact of its research efforts. At the same time, NIOSH will be working to develop new procedures and capacities to measure NORA’s impact as well as that of other occupational safety and health research on safety and health outcomes.

# Objectives

## Strategic Goal 1

### Objectives - FY 1999

- Disseminate NORA throughout the occupational safety and health research community.
- Implement NORA through the formation of partnership teams for each NORA topic.
  - Teams will consist of partners from all aspects of safety and health.
  - Teams will assist in the development, pursuit, review, and dissemination of research.
- Evaluate the success of focusing occupational safety and health research on NORA priorities and other target areas by
  - determining current levels of NIOSH and other Federal agencies' intramural and extramural research funding in NORA priority areas and calculating any annual increases, and
  - developing a protocol for the use of bibliometrics and other research proxy measures (i.e., numbers of patents, engineering control devices, laboratory methods development, peer-reviewed articles, spin-off technologies, etc.) to evaluate the level of NORA and other targeted research in the occupational safety and health community.
- Report on the progress of NORA.

### Objectives - FY 2002

- Evaluate the adequacy of existing procedures and tracking models to measure the impact of NORA and other NIOSH research on safety and health outcomes.
- Develop new procedures and capacities to measure the impact of NORA and other NIOSH research on safety and health outcomes.
- Update NORA (2002 mid-course review).

### Ongoing Objective

- Increase knowledge and understanding of occupational safety and health issues through conducting and funding peer-reviewed research in NORA and other priority areas.

## *NIOSH Strategic Goal 2*



Develop a system of surveillance for major occupational illnesses, injuries, exposures, and health hazards.

In 1986, Congress reported that Federal surveillance of occupational illness was 72 years behind communicable disease surveillance. The Institute of Medicine further reported in 1987 that the Nation's occupational illness and injury surveillance systems were inadequate, especially with regard to occupational disease surveillance, and they remain inadequate today. Not surprisingly, given the state of occupational safety and health surveillance, the human toll of work continues. It is a human toll that we know in large part is preventable.

The ability to identify, quantify, and report work-related injury and disease is vital to prevention. Targeted surveillance efforts (many supported by NIOSH) exist today to address specific conditions such as adult lead poisoning, occupational lung disease, and carpal tunnel syndrome. However, no national surveillance system exists for occupational disease and injury.

To optimize the use of public resources and to obtain the most useful and accurate information, NIOSH has developed partnerships at the Federal, State, and local levels throughout the country. NIOSH currently supports limited surveillance activities of 12 occupational conditions, diseases, and injuries in more than half of the States. Although these programs are important, they are far from comprehensive. In only one State (New Jersey) do we have a surveillance program that examines even four of the 12 conditions. In four states, only one condition is monitored.

NIOSH now operates a number of surveillance programs with its State partners:

### **Adult Blood Lead Epidemiology and Surveillance (ABLES)**

ABLES is a surveillance system for identifying cases of elevated blood lead levels among U.S. adults. Started in the late 1980s, the ABLES program provides funding and technical assistance to participating States. As of January 1997, 27 states had surveillance programs reporting to ABLES, and seven more were developing programs.

### **Sentinel Event Notification System for Occupational Risks**

**(SENSOR)** Through cooperative agreements with State health departments NIOSH supports surveillance for pesticide poisoning, asthma, silicosis, burns, dermatitis, youth injury, carpal tunnel syndrome, amputation, and noise induced hearing loss. To date, the SENSOR program is active in 13 States.

**Fatality Assessment and Control Evaluation (FACE)** Working with State health departments, NIOSH investigates worksites where fatalities have occurred. These efforts help us understand the factors that contribute to or cause deaths from injuries in the workplace. NIOSH supports fatality investigations in 20 States. In fiscal year 1996, NIOSH and its State partners investigated 135 occupational fatalities. Following such investigations, NIOSH disseminates prevention recommendations to the employers and workers.

NIOSH intends to partner with parts of CDC, state-based surveillance programs, and new NIOSH partners.

At the Federal level, NIOSH partners with agencies such as the Consumer Product Safety Commission (to study the number of nonfatal occupational injuries), the Environmental Protection Agency (to study the number of acute pesticide poisonings), the Bureau of Labor Statistics, the Department of Energy, and the National Cancer Institute.

Building on and learning from these experiences, NIOSH proposes to undertake a comprehensive surveillance planning process with NIOSH partners at the State and Federal levels. Much like the NORA process, this effort will be helpful in establishing surveillance priorities and will define roles for various agencies at all levels of government.

Such a planning process will lead to enhanced surveillance of occupational injuries, illnesses, exposures, and health hazards that will in turn permit us to monitor trends, target prevention resources to populations at risk, and evaluate the impact of prevention efforts. Looking at occupational diseases and injuries in other countries, would help the United States understand threats to our citizens, and develop ways to manage them. In taking this important step, NIOSH intends to partner with other parts of CDC, state-based surveillance programs, and new NIOSH partners.

# Objectives

## Strategic Goal 2

### Objectives - FY 1999

- Undertake a comprehensive surveillance planning process with NIOSH partners at the State and Federal levels to establish surveillance priorities and define roles for various agencies.

### Objectives - FY 2000 - FY 2002

- Implement the recommendations of the surveillance planning process for NIOSH in the areas of occupational injuries, illnesses, exposures, and health hazards.
- Develop procedures and capacities to measure the impact of the recommendations of the surveillance planning process on safety and health outcomes.
- Develop a demographics database that will represent miners in all States with mining operations.

### Ongoing Objective

- Collect, analyze, and disseminate information on the distribution of occupational illnesses, injuries, exposures, and health hazards to target and evaluate intervention and prevention efforts.

## *NIOSH Strategic Goal 3*

*Increase occupational disease and injury prevention activities through workplace evaluations, interventions, and recommendations.*

As stated in the NIOSH Vision, the Agency has an important role to play in prevention. Crucial to this role is the ability to link prevention policy and practice with scientific research. Throughout its 25-year history, NIOSH has used field research as one way to make this link.

**Health Hazard Evaluations** — Every year NIOSH conducts hundreds of evaluations at the request of workers, employers, and government agencies to evaluate health concerns at specific worksites. Following an investigation NIOSH makes recommendations for preventing hazards at that specific work-site and similar worksites.

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**Intervention Effectiveness Research** — NIOSH also conducts research to evaluate the effectiveness of existing prevention approaches at worksites where a hazard is known or suspected to cause injury or disease. In order to most effectively invest future prevention resources NIOSH and others must be able to show which approaches work best in protecting worker safety and health.

While much more research needs to be conducted in this area, NIOSH has many projects underway. For example, NIOSH is evaluating the use of lifting devices to reduce back injuries in nursing homes and the effectiveness of a NIOSH Alert in warning health care workers about the hazards of natural rubber latex.

Information resulting from NIOSH intervention effectiveness research will be used by employers, workers, and the occupational safety and health community to ensure that the prevention strategies used to protect workers have been shown to effectively prevent injury and disease at work.

**Control Technology Assistance** — NIOSH is working to improve the workplace environment by advancing the development of control technology. In this effort, NIOSH stresses practical, solutions-oriented efforts that will have broad impact on worksites. For example, ground-breaking guidelines were jointly developed by industry, labor and government to implement engineering controls for the asphalt paving industry. Similar guidelines are being developed for the dry-cleaning industry.

**Recommendations** — NIOSH uses the information from all of its research and surveillance to make recommendations to the public as well as to Federal enforcement agencies, including the Occupational Safety and Health Administration (OSHA) and the Mine Safety and Health Administration (MSHA). Many of these take the form of recommendations on levels of exposure to hazards (recommended exposure limits (REL) and levels considered to be immediately dangerous to life or health (IDLH). NIOSH recommendations are published in criteria documents and Current Intelligence Bulletins. Recommendations concerning new hazards or exposures are often made directly to the public through Alerts and special hazard reviews (see also Strategic Goal 4). NIOSH also publishes analytical methods which recommend the best methods to use for measuring workplace exposures.

By working with the entire occupational safety and health community, NIOSH intends to continue expanding its overall recommendation efforts in the coming years.

**Respirator Certification** — An additional area of prevention involves respirator certification. Through its mandated respirator certification program, NIOSH annually prevents untold numbers of workers from being exposed to dangerous substances. This program (1) provides site audits at the plants of respirator manufacturers to evaluate quality control (2) investigates respirator problems through field investigations (3) studies proposed modifications to certified respirators (4) conducts research to identify and address knowledge gaps relating to respirator use and performance and (5) to-date has certified nearly 4,800 respirator models.

In 1995, NIOSH revised and streamlined the process for respirator certification and introduced new performance-based requirements for certain respirators. As a result of this effort new, better-performing, more efficient, less expensive respirators are being introduced into the workplace. Employers and employees alike will benefit from increased protection and cost savings. NIOSH is committed to maintaining the quality of this program, which is heavily relied upon by employers and employees.



# Objectives

## Strategic Goal #3

### Objectives - FY 1999

- Work with the occupational safety and health community to develop a system for assessing, determining the baseline level, and increasing the extent to which NIOSH recommendations are utilized by employers, workers, and government agencies at worksites, industry-wide, and in standard setting.
- Implement targeted evaluation of the effectiveness of prevention programs (e.g., latex allergy and agriculture-related injuries to children) by tracking the prevalence of an illness or injury, the level of exposure, and the behavior of affected workers and employers before and after the implementation of the program.
- Use new technology (e.g., virtual reality) in the design of prevention measures.
- Develop and implement criteria for selecting field investigation sites. These criteria should include the selection of workplaces with NORA or other priority areas or hazards. Determine the number of such investigations performed in FY'98 that met this criterion.
- Develop and communicate a plan for updating respirator certification regulations.

Ultimately, one measure of NIOSH success will be the extent to which its research priorities have been translated into prevention policy and practice. Such translation can occur through changes in the behavior of employers and workers at the worksite, industry-wide adoption of control or abatement measures or devices, through the amount of NIOSH-sponsored or -conducted intervention research, and standard-setting and enforcement activities. As discussed earlier, this measure of success depends largely on the voluntary actions of NIOSH partners in industry, labor, academia, community organizations, and Federal, State and local agencies. Over the coming years, NIOSH is committed to working with the entire occupational safety and health community to bring the results of its research into the workplace.

## Objectives - FY 2002

- Increase the number of health hazard evaluations conducted at work-places with NORA or other priority areas or hazards.
- Increase the number of work-site prevention activities implemented after a NIOSH report is issued.
- Increase the number of industry-wide control measures or devices put in place after the release of a NIOSH research report.
- Increase the number of NIOSH recommendations, including those in NORA priority areas and other targeted areas.
- Increase the number of NIOSH-sponsored or -conducted intervention effectiveness research projects in the occupational safety and health field, including projects in NORA or other priority areas.\*
- Implement updated respirator certification regulations.

\*Intervention effectiveness research is a NORA topic and will, therefore, be included under appropriate objectives of Goal 1 as well.

## *NIOSH Strategic Goal 4*

*Provide workers, employers, the public, and the occupational safety and health community with information, training, and capacity to prevent occupational diseases and injuries.*

In conjunction with recommending actions for preventing occupational disease and injuries, NIOSH believes that the Nation's health can be improved by translating its basic and field research into forms of information that the entire occupational safety and health community can understand and act upon.

Many varied audiences rely on the results of NIOSH activities. The list of individuals and organizations to which NIOSH must communicate occupational safety and health information includes researchers, employers, employees, OSHA, MSHA, policy makers, manufacturers, trade associations, unions, other government agencies, students and the media. A key NIOSH goal is to communicate scientific findings to diverse stakeholders and the public. Today, NIOSH publishes and distributes a wide array of documents to meet the needs of these varied audiences. Examples include Health Hazard Evaluation Reports, Alerts, Current Intelligence Bulletins, criteria documents, fact sheets, and reports.

In recent years, NIOSH has focused its obligation to disseminate safety and health information through its Office for Health Communication in Washington, D.C., its Division of Education and Information in Cincinnati, Ohio, and its new Health Communications Research Branch in Morgantown, West Virginia. Together these units have moved health communications into the 21st century through the use of mass media, publicly accessible data bases, and the Internet.

In addition, NIOSH understands that the future of occupational safety and health prevention efforts rests greatly on the development and training of safety and health professionals as well as the integration of occupational medicine into mainstream medical training. To this end, NIOSH currently funds 15 universities to conduct degree programs through Education and Research Centers and 35 universities with single programs (training project grants) throughout the United States. These centers train physicians, nurses, industrial hygienists, safety professionals, engineers, and other safety and health professionals. In addition, NIOSH supports the International Training and Research in Environmental and Occupational Health Program (ITREOH), which links 13 U.S. institutions with occupational safety and health professionals in 23 countries. As we move into the next century — where the needs of the workforce and workplace will be continuously changing — NIOSH must evaluate and update its training programs.

NIOSH currently funds 15 universities to conduct degree programs through Education and Research Centers and 35 universities with single programs

# Objectives

## Strategic Goal 4

### Objectives - FY 1999

- Review the most widely distributed existing documents and new documents and training materials to ensure that they are designed and written for the intended user.
- Conduct a review and a user survey of NIOSH public documents that affect the greatest number of workers or employers. This review and user survey should include recommendations made after interventions. Objectives should be to evaluate quality, usefulness, content relevancy, and distribution.
- Review existing communications efforts to ensure that they focus on high-risk sectors and NORA priority areas.
- Design and implement two model information dissemination and training programs for key target hazards (silicosis ) or populations (e.g., adolescents).
- Make the data obtained through NIOSH field research accessible to a broad population through the use of the Internet and other devices.
- Expand the training of occupational safety and health professionals through the in-house use of internships and fellowships to graduate students and others.
- Make NIOSH materials available on the NIOSH homepage on the Internet.
- Develop interactive expert systems for NIOSH information on the Internet.
- Increase employer and employee knowledge and use of the NIOSH toll-free information number.
- Provide technical assistance to the mining industry through technology and training materials.

### Objectives - FY 2002

- Develop assessment strategies that will identify the demand and need for occupational safety and health professionals, future trends, and gaps in NIOSH training programs.
- Develop assessment strategies that will identify the demand and need for occupational safety and health information, future directions in delivering information, and potential information gaps in NIOSH dissemination programs.

# NIOSH Strategic Tools

## Scientific Research

Without a doubt, the core of NIOSH activity is research — in the laboratory and in the field. Research allows the Institute to (1) understand the causes and mechanisms of diseases and disorders (2) investigate exposures, illnesses, fatalities, and injuries, and (3) develop and evaluate control technologies at the worksite. NIOSH is committed to continuing and expanding intramural and extramural research activities in NORA priority areas and other critical areas. This commitment is demonstrated by our ongoing efforts to bring the new Morgantown research facility on line. Only through continued support of occupational safety and health research can we continue to move toward a safe and healthy future for this Nation's workers.

## NORA — A Process of Consultation With Partners

NIOSH is in a position to demonstrate what the Federal government can achieve when it works closely with public and private partners and stakeholders. More than 500 external groups and individuals contributed to the development of NORA — a cohesive national strategy for public and private occupational health research investments over the next decade. Moreover, additional partners have become involved in NORA implementation under NIOSH leadership. Over the coming years, NIOSH plans to bring the lessons learned in this process to other areas of NIOSH activity such as prevention and training. NIOSH will also seek out opportunities to form partnerships with other components of the occupational safety and health community and thereby expand the impact of its work.

Partners are also important on the international front. One of the strengths of NIOSH in recent years has been its coordination and collaboration with other countries having similar occupational safety and health problems and international organizations. We pledge to continue these efforts.

More than 500 external groups and individuals contributed to the development of NORA — a cohesive national strategy for public and private occupational health research investments over the next decade.

## Flexibility to Adapt to the Changing Nature of the Workplace

As this Nation moves into the next century, the issues at the workplace will change. NIOSH is committed to changing as well. The Institute will maintain the flexibility to meet the research needs associated with (1) new and emerging technologies as they are brought to the workplace of the future, and (2) the workplace changes brought about by changes in the organization of work and the increasing globalization of the economy. We are also committed to adapting as the workforce becomes older and more diverse and includes workers at a younger age. The needs of these workers will require innovative approaches and solutions.

# Impact Factors

## NIOSH Reliance on Partners

Congress purposely placed NIOSH (which is primarily a research institute) in a position where it must rely on others in the occupational safety and health community to have a direct impact on the overall level of hazards in the workplace. NIOSH has developed a number of systems and programs to bring it into partnership with all segments of the occupational safety and health community. But it is the designated role of NIOSH and its required reliance on the actions of others that have and will continue to have an important impact (both positive and negative) on its ability to deliver fully on its vision of a safe and healthful workplace for all.

## Government Decisions

The NIOSH strategic plan is contingent on the support of all aspects of the U.S. government. That is, for NIOSH to meet the goals of this plan, it requires growing resources, the support of Congress and the Administration for the NIOSH mission and the research it envisions, and judicial rulings that support the continuing role of science in protecting the health of this Nation. Changes in any of these areas will have a negative impact on the work of NIOSH and on the ability of NIOSH to meet the expectations of GPRA and this plan. If government support should decrease in the coming years, NIOSH will adjust its expectations accordingly.

The FY'97 budget for NIOSH was 25% **below** its budget for FY'80 when adjusted for inflation using the biomedical research and development index.

With regard to financial resources, it must be noted that the FY'97 budget for NIOSH was 25% **below** its budget for FY'80 when adjusted for inflation using the biomedical research and development index. Simply stated, without an influx of resources to restore its research capacity NIOSH will be unable to meet the goals it has set for itself and for the safety and health of this Nation's workforce. Failure to provide sufficient resources will require NIOSH to scale back *or eliminate* important goals — an outcome that will be negatively affect NIOSH and the level of workplace safety and health for all of our Nation's workers.

# The NIOSH Strategic Planning Process

The NIOSH Strategic Plan was developed by working with NIOSH employees throughout the Institute. Meetings were held in conjunction with the local partnership councils at various NIOSH locations throughout the Nation. Employees were encouraged to consider an early draft and answer questions including:

- Are the four strategic objectives the right ones for NIOSH?
- Does the plan portray NIOSH correctly?
- Does the plan include a broad enough cross-section of ongoing or planned NIOSH work?
- Does the plan relate to the work of my Division? Are there ways to tie the two together?
- Does the plan include measurements that will allow us to judge our progress?

Input from those meetings was included in this plan.

Following that effort, a draft plan was distributed to partners and stakeholders to obtain their input. Many of their thoughts and suggestions have likewise been incorporated into this plan, and we are thankful for their input.

NIOSH believes that this plan represents the beginning of an ongoing process that will assist the Institute in its efforts to deliver on its Vision for this Nation's workers.

The NIOSH Strategic Plan represents the beginning of an ongoing process that will assist the Institute in its efforts to deliver on its Vision for this Nation's workers.

# Healthy People 2000

*Healthy People 2000* is a Health and Human Services prevention initiative that provides a national strategy for significantly improving the health of the American people over the decade of the 1990's. *Healthy People* calls on the Nation to make the following changes by the year 2000.

- Increase to 40 percent the proportion of worksites employing 50 or more people that provide programs to reduce employee stress.
- Reduce deaths from work-related injuries to no more than 4 per 100,000 full-time workers, with sub-goals for mining, construction, transportation, and farm workers.
- Reduce work-related injuries resulting in medical treatment, lost time from work, or restricted work activity to no more than 6 cases per 100 full-time workers, with subgoals for construction, nursing and personal care, transportation, mining, adolescent and farm workers.
- Reduce cumulative trauma disorders to an incidence of no more than 60 cases per 100,000 full-time workers with subgoals for manufacturing and meat product workers.
- Reduce occupational skin disorders or diseases to an incidence of no more than 55 per 100,000 full-time workers.
- Reduce hepatitis B infections among occupationally exposed workers to an incidence of no more than 623 cases.
- Increase to at least 95 percent the proportion of worksites with 50 or more employees that mandate employee use of occupational protection systems such as seatbelts during all work-related motor vehicle travel.
- Reduce to no more than 15 percent the proportion of workers exposed to average daily noise levels that exceed 85 decibels.
- Eliminate exposures that result in worker blood lead concentrations greater than 25 micrograms per deciliter (ug/dl) of whole blood.



- Increase hepatitis B immunization levels to 90 percent among occupationally exposed workers.
- Implement occupational safety and health plans in 50 States to identify, manage, and prevent leading work-related diseases and injuries within the State.
- Establish 50 State exposure standards adequate to prevent major occupational lung diseases to which their worker populations are exposed.
- Increase to at least 70 percent the proportion of worksites with 50 or more employees that have implemented programs on worker health and safety.
- Increase to at least 50 percent the proportion of worksites with 50 or more employees that offer back injury prevention and rehabilitation programs.
- Establish in 50 States either public health or labor department programs that provide consultation and assistance to small businesses to implement safety and health programs for their employees.
- Increase to at least 75 percent the proportion of primary care providers who routinely elicit occupational health exposures as a part of the patient history and provide relevant counseling.
- Reduce deaths from work-related homicides to no more than 0.5 per 100,000 full-time workers.
- Reduce the overall age-adjusted mortality rate for four major preventable occupational lung diseases (byssinosis, asbestosis, coal workers' pneumoconiosis, and silicosis) to 7.7 per 100,000.
- Increase to 100 percent the proportion of worksites with a formal smoking policy that prohibits or severely restricts smoking at the workplace.
- Enact in 50 States and the District of Columbia comprehensive laws on clean indoor air that prohibit smoking or limit it to separately ventilated areas in the workplace and enclosed public places.
- Reduce to zero the number of States that have clean indoor air laws preempting stronger clean air laws on the local level.

# NIOSH Strategic Goals

## An Outline of the Future

### NIOSH Strategic Goal 1

Conduct a targeted program of research to reduce morbidity, injuries, and mortality among workers in high-priority areas and high-risk sectors.

#### Objectives - FY 1999

- Disseminate NORA throughout the occupational safety and health research community.
- Implement NORA through the formation of partnership teams for each NORA topic.
  - Teams will consist of partners from all aspects of safety and health.
  - Teams will assist in the development, pursuit, review, and dissemination of research.
- Evaluate the success of focusing occupational safety and health research on NORA priorities and other target areas by
  - determining current levels of NIOSH and other Federal agencies' intramural and extramural research funding in NORA priority areas and calculating any annual increases, and
  - developing a protocol for the use of bibliometrics and other research proxy measures (i.e., numbers of patents, engineering control devices, laboratory methods development, peer-reviewed articles, spin-off technologies, etc.) to evaluate the level of NORA and other targeted research in the occupational safety and health community.

- Report on the progress of NORA.

#### Objectives - FY 2002

- Evaluate the adequacy of existing procedures and tracking models to measure the impact of NORA and other NIOSH research on safety and health outcomes.
- Develop new procedures and capacities to measure the impact of NORA and other NIOSH research on safety and health outcomes.
- Update NORA (2002 mid-course review).

#### Ongoing Objective

- Increase knowledge and understanding of occupational safety and health issues through conducting and funding peer-reviewed research in NORA and other priority areas.

### NIOSH Strategic Goal 2

Develop a system of surveillance for major occupational illnesses, injuries, exposures, and health hazards.

#### Objectives - FY 1999

- Undertake a comprehensive surveillance planning process with NIOSH partners at the State and Federal levels to establish surveillance priorities and define roles for various agencies.

#### Objectives - FY 2000 - FY 2002

- Implement the recommendations of the surveillance planning process for NIOSH in the areas of occupational injuries, illnesses, exposures, and health hazards.
- Develop procedures and capacities to measure the impact of the recommendations of the surveillance planning process on safety and health outcomes.
- Develop a demographics database that will represent miners in all States with mining operations.

#### Ongoing Objective

- Collect, analyze, and disseminate information on the distribution of occupational illnesses, injuries, exposures, and health hazards to target and evaluate intervention and prevention efforts.

### NIOSH Strategic Goal 3

Increase occupational disease and injury prevention activities through workplace evaluations, interventions, and recommendations.

#### Objectives - FY 1999

- Work with the occupational safety and health community to develop a system for assessing, determining the baseline level, and increasing the extent to which NIOSH recommendations are

utilized by employers, workers, and government agencies at worksites, industry-wide, and in standard setting.

- Implement targeted evaluation of the effectiveness of prevention programs (e.g., latex allergy and agriculture-related injuries to children) by tracking the prevalence of an illness or injury, the level of exposure, and the behavior of affected workers and employers before and after the implementation of the program.
- Use new technology (e.g., virtual reality) in the design of prevention measures.
- Develop and implement criteria for selecting field investigation sites. These criteria should include the selection of workplaces with NORA or other priority areas or hazards. Determine the number of such investigations performed in FY'98 that met this criterion.
- Develop and communicate a plan for updating respirator certification regulations.

#### Objectives - FY 2002

- Increase the number of health hazard evaluations conducted at workplaces with NORA or other priority areas or hazards.
- Increase the number of work-site prevention activities implemented after a NIOSH report is issued.
- Increase the number of industry-wide control measures or devices put in place after the release of a NIOSH research report.

- Increase the number of NIOSH recommendations, including those in NORA priority areas and other targeted areas.
- Increase the number of NIOSH-sponsored or -conducted intervention effectiveness research projects in the occupational safety and health field, including projects in NORA or other priority areas.\*
- Implement updated respirator certification regulations.

\* Intervention effectiveness research is a NORA topic and will, therefore, be included under appropriate objectives of Goal 1 as well.

#### NIOSH Strategic Goal 4

Provide workers, employers, the public, and the occupational safety and health community with information, training, and capacity to prevent occupational diseases and injuries.

#### Objectives - FY 1999

- Review the most widely distributed existing documents and new documents and training materials to ensure that they are designed and written for the intended user.
- Conduct a review and a user survey of NIOSH public documents that affect the greatest number of workers or employers. This review and user survey should include recommendations made after interventions. Objectives should be to evaluate quality, usefulness, content relevancy, and distribution.

- Review existing communications efforts to ensure that they focus on high-risk sectors and NORA priority areas.
- Design and implement two model information dissemination and training programs for key target hazards (silicosis ) or populations (e.g., adolescents).
- Make the data obtained through NIOSH field research accessible to a broad population through the use of the Internet and other devices.
- Expand the training of occupational safety and health professionals through the in-house use of internships and fellowships to graduate students and others.
- Make NIOSH materials available on the NIOSH homepage on the Internet.
- Develop interactive expert systems for NIOSH information on the Internet.
- Increase employer and employee knowledge and use of the NIOSH toll-free information number.

#### Objectives - FY 2002

- Develop assessment strategies that will identify the demand and need for occupational safety and health professionals, future trends, and gaps in NIOSH training programs.
- Develop assessment strategies that will identify the demand and need for occupational safety and health information, future directions in delivering information, and potential information gaps in NIOSH dissemination programs.