Occupational Health

A Medical Dictionary, Bibliography,
and Annotated Research Guide to
Internet References

James N. Parker, M.D.
and Philip M. Parker, Ph.D., Editors

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About the Editors

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FORWARD

In March 2001, the National Institutes of Health issued the following warning: "The number of Web sites offering health-related resources grows every day. Many sites provide valuable information, while others may have information that is unreliable or misleading."[1] Furthermore, because of the rapid increase in Internet-based information, many hours can be wasted searching, selecting, and printing. Since only the smallest fraction of information dealing with occupational health is indexed in search engines, such as **www.google.com** or others, a non-systematic approach to Internet research can be not only time consuming, but also incomplete. This book was created for medical professionals, students, and members of the general public who want to know as much as possible about occupational health, using the most advanced research tools available and spending the least amount of time doing so.

In addition to offering a structured and comprehensive bibliography, the pages that follow will tell you where and how to find reliable information covering virtually all topics related to occupational health, from the essentials to the most advanced areas of research. Public, academic, government, and peer-reviewed research studies are emphasized. Various abstracts are reproduced to give you some of the latest official information available to date on occupational health. Abundant guidance is given on how to obtain free-of-charge primary research results via the Internet. **While this book focuses on the field of medicine, when some sources provide access to non-medical information relating to occupational health, these are noted in the text.**

E-book and electronic versions of this book are fully interactive with each of the Internet sites mentioned (clicking on a hyperlink automatically opens your browser to the site indicated). If you are using the hard copy version of this book, you can access a cited Web site by typing the provided Web address directly into your Internet browser. You may find it useful to refer to synonyms or related terms when accessing these Internet databases. **NOTE:** At the time of publication, the Web addresses were functional. However, some links may fail due to URL address changes, which is a common occurrence on the Internet.

For readers unfamiliar with the Internet, detailed instructions are offered on how to access electronic resources. For readers unfamiliar with medical terminology, a comprehensive glossary is provided. For readers without access to Internet resources, a directory of medical libraries, that have or can locate references cited here, is given. We hope these resources will prove useful to the widest possible audience seeking information on occupational health.

The Editors

[1] From the NIH, National Cancer Institute (NCI): **http://www.cancer.gov/cancerinfo/ten-things-to-know**.

CHAPTER 1. STUDIES ON OCCUPATIONAL HEALTH

Overview

In this chapter, we will show you how to locate peer-reviewed references and studies on occupational health.

The Combined Health Information Database

The Combined Health Information Database summarizes studies across numerous federal agencies. To limit your investigation to research studies and occupational health, you will need to use the advanced search options. First, go to **http://chid.nih.gov/index.html**. From there, select the "Detailed Search" option (or go directly to that page with the following hyperlink: **http://chid.nih.gov/detail/detail.html**). The trick in extracting studies is found in the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Journal Article." At the top of the search form, select the number of records you would like to see (we recommend 100) and check the box to display "whole records." We recommend that you type "occupational health" (or synonyms) into the "For these words:" box. Consider using the option "anywhere in record" to make your search as broad as possible. If you want to limit the search to only a particular field, such as the title of the journal, then select this option in the "Search in these fields" drop box. The following is what you can expect from this type of search:

- **Strategy for Prevention and Control of the Risks Due to Noise**

  Source: Occupational and Environmental Medicine. 57(6): 361-369. June 2000.

  Contact: Available from BMJ Publishing Group. P.O. Box 590A, Kennebunkport, ME 04046. (800) 236-6265. Website: www.occenvmed.com.

  Summary: This article proposes a strategy for progressively controlling exposure to noise in industry as much as possible. The strategy includes three stages. Stage 1 is observation, simple and easy to use by the workers to recognize the problems, identify straightforward solutions, and call for assistance when needed. Stage 2 is analysis, more complex but more costly, performed with the assistance of **occupational health** specialists to identify more technical control measures and to set up a program to

conserve hearing. Stage 3 is expertise, performed with the assistance of acoustic experts for special measurements and control measures. This strategy explicitly recognizes the competence of the workers and management about their working conditions and that knowledge and measurements of acoustics are not absolute prerequisite for solving (at least partly) noise problems. The strategy is designed to organize in sequence and optimize the cooperation between the workers, the **occupational health** specialists, and the experts in acoustics. 12 tables. 18 references.

- **Oncology Nurses' Perspectives on Unconventional Therapies**

  Source: Cancer Nursing. 22(1): 90-96. February 1999.

  Summary: This journal article describes a qualitative study of oncology nurses' perspectives on unconventional therapies. Interviews were conducted with 48 nurses, 44 of whom worked in oncology settings, 3 were **occupational health** nurses, and 1 worked in a psychiatric setting. All participants were women, with an average of 13.2 years in oncology nursing. Data were collected through interviews focusing on the nurses' experiences with patients who were interested in conventional therapies. Analysis of the interview data revealed five prominent themes: (1) information regarding unconventional therapies should be readily available to patients and health care professionals, (2) various people use unconventional therapies, (3) people seek unconventional therapies for a variety of reasons, (4) communication about unconventional therapies needs to be open, and (5) conventional and unconventional practitioners should work collaboratively. The article has 13 references.

- **Coal, Lead, Asbestos, and HIV: The Politics of Regulating Risk**

  Source: Journal of Occupational Medicine: Vol. 35, No. 9.

  Contact: Columbia University, Mailman School of Public Health, New York/Virgin Islands AIDS Education and Training Center, 600 W 168th St 7th Fl, New York, NY, 10032, (212) 305-5656, http://cpmcnet.columbia.edu/dept/sph.

  Summary: This journal article examines the politics involved in regulating risk in the **occupational health** field. It examines the history of establishing safe exposure levels for coal, lead, and asbestos, then juxtaposes this information with the topic of posed HIV risks in health care settings. The article concludes that the regulation of risk should be guided by principles of justice, recognizing that people and things need to be evaluated in different ways.

- **Employee Perceived Stress: Relationship to the Development of Repetitive Strain Injury Symptoms**

  Source: AAOHN Journal. 45(3):115-123; March 1997.

  Summary: This journal article for health professionals describes a study that determined and described the effects of several variables on employee perceived development of repetition strain injury (RSI) symptoms, particularly carpal tunnel syndrome, in a group of at-risk computer users. RSIs, especially carpal tunnel syndrome, are the fastest growing type of occupational injury. The study design was a descriptive survey using a nonprobability sampling method. The study focused on four variables related to perceptions of symptoms: employees' perceptions of level of knowledge regarding the prevention of RSIs, employee's taking a specific action to make their workstations more ergonomically correct, employees' perceptions of having an ergonomically correct workstation, and employees' perception of being psychosocially stressed. Results

indicate that perceived stress was significantly associated with perceived RSI symptoms. Workers who used a computer 4 or more hours per day reported significantly more symptoms than those who did not. At-risk computer users who perceived an ergonomically correct workstation reported fewer symptoms. **Occupational health** nurses must address ergonomics, stress levels, and knowledge levels to prevent RSIs. 59 references and 2 tables. (AA-M).

Federally Funded Research on Occupational Health

The U.S. Government supports a variety of research studies relating to occupational health. These studies are tracked by the Office of Extramural Research at the National Institutes of Health.[2] CRISP (Computerized Retrieval of Information on Scientific Projects) is a searchable database of federally funded biomedical research projects conducted at universities, hospitals, and other institutions.

Search the CRISP Web site at **http://crisp.cit.nih.gov/crisp/crisp_query.generate_screen**. You will have the option to perform targeted searches by various criteria, including geography, date, and topics related to occupational health.

For most of the studies, the agencies reporting into CRISP provide summaries or abstracts. As opposed to clinical trial research using patients, many federally funded studies use animals or simulated models to explore occupational health. The following is typical of the type of information found when searching the CRISP database for occupational health:

- **Project Title: AN INDOOR ENVIRONMENT DESIGN TOOL FOR ENTIRE BUILDINGS**

  Principal Investigator & Institution: Srebric, Jelena; Agricultural Engineering; Pennsylvania State University-Univ Park 201 Old Main University Park, Pa 16802

  Timing: Fiscal Year 2001; Project Start 01-AUG-2001; Project End 31-JUL-2004

  Summary: (provided by applicant): The applicant's long-term career plans are to conduct research and teaching on indoor environment, such as indoor air quality and thermal comfort in buildings. In particular, the applicant will emphasize the research on energy-efficient ventilation system for applications to occupational safety and health. Indoor environment is important to a worker's health and welfare, because more than half of the U.S. workforce is employed indoors, and up to 90 percent of a typical worker's time is spent indoors. Also, worker's productivity is related to the indoor environment, such as the indoor air quality and thermal comfort. Poor indoor environment design has cost billions dollars due to productivity loss of the working American. The aims of the proposed investigation are to develop an integrated design tool to analyze combined problems of indoor air quality (IAQ) and thermal comfort for an entire building. The integrated tool will consist of three major components: building models, a heating, ventilating, and air-conditioning (HVAC) model, and mass and heat source/sink models. The building models will use a simplified computational-fluid-dynamics model to calculate IAQ and thermal comfort in a single zone and a multi-zone model to link the heat and mass transfer between zones for an entire building. The

[2] Healthcare projects are funded by the National Institutes of Health (NIH), Substance Abuse and Mental Health Services (SAMHSA), Health Resources and Services Administration (HRSA), Food and Drug Administration (FDA), Centers for Disease Control and Prevention (CDCP), Agency for Healthcare Research and Quality (AHRQ), and Office of Assistant Secretary of Health (OASH).

HVAC model will use modules that can be easily used to form different HVAC systems. The mass and heat source/sink models will use the coupled program of the simplified computational-fluid-dynamics and an energy analysis program as well as various dispersion models. The integrated design tool will be validated by experimental data of LAQ and thermal comfort obtained in a building. The integrated design tool can be used to evaluate IAQ and thermal comfort in terms of contaminant concentrations, the mean age of air, ventilation effectiveness, airflow pattern, air velocity, air velocity fluctuation, air temperature, relative humidity, percentage dissatisfied people due to draft, and percentage predicted dissatisfied people in an entire building.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: BIOLOGICAL MONITORING OF WOODSMOKE EXPOSURE**

  Principal Investigator & Institution: Simpson, Christopher D.; Environmental Health; University of Washington Seattle, Wa 98195

  Timing: Fiscal Year 2002; Project Start 01-SEP-2002; Project End 31-AUG-2004

  Summary: (provided by applicant): Exposure of humans to high levels of woodsmoke is associated with adverse health effects including asthma, respiratory disease and cardiovascular disease. In the US alone, more than 100,000 people annually are exposed to elevated woodsmoke levels from wildfires, prescribed burns and agricultural field burning. 70,000-80,000 people involved in wild land fire fighting also receive substantial occupational exposure to woodsmoke. Investigating the relationship between woodsmoke exposure and adverse health effects is hindered by inadequate methods of exposure assessment, which lead to exposure misclassification, and the setting of community-impact-driven guidelines for managed fires suffers from a lack of exposure-response data. The primary objective of this proposal is to develop biological markers of human exposure to woodsmoke. Preliminary work has shown that levels of a number of substituted methoxylated phenolic compounds are increased in urine following woodsmoke exposure. It is our hypothesis that the dose-dependent increase in urinary methoxyphenols observed following ingestion or inhalation of woodsmoke combustion products can be related in a quantitative manner to environmental woodsmoke, and thereby provide a biomarker basis for assessment of woodsmoke exposure in occupationally and environmentally exposed populations. To test this hypothesis, we plan to conduct human exposures to woodsmoke from an open fire. Exposures will be characterized using time-integrated personal sampling and area monitors. The following parameters will be measured: particle mass, particle-associated methoxyphenols and vapor-phase methoxyphenols. In addition, time resolved exposures will be assessed using data logging nephelometers at fixed locations and personal nephelometers. Urinary methoxyphenols will be determined before and after woodsmoke exposure, by using gas chromatography/mass spectrometry. In addition, we plan to measure methoxyphenol levels in urine samples collected from wildfire fighters who have elevated occupational exposure to woodsmoke. A validated biomarker of woodsmoke exposure will facilitate exposure assessment for studies investigating adverse effects of woodsmoke exposure in humans, and could be used to evaluate the effectiveness of interventions to reduce woodsmoke exposure in domestic and occupational settings. This proposed study addresses NORA research priorities related to asthma and COPD, exposure assessment methods and control technology/personal protective equipment.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: BIOMECHANICAL/PSYCHOSOCIAL RISKS FOR LOW BACK DISORDERS**

  Principal Investigator & Institution: Marras, William S.; Professor and Director; Industrial, Welding & Sys Engr; Ohio State University 1960 Kenny Road Columbus, Oh 43210

  Timing: Fiscal Year 2001; Project Start 01-SEP-2001; Project End 31-AUG-2004

  Summary: Occupationally, related low back disorders (LBDs) represent a major **occupational health** concern. The etiology of this health problem is complex and poorly understood. The proposed study investigates the role of biomechanical job demands and psycho social work characteristics in increasing LBD risk among employees in manual materials handling jobs. Although there is a wealth of knowledge associated with each of these categories of risk factors, there is a dearth of studies that have rigorously investigated both categories of risk factors in the same work environment. Therefore, it is difficult to estimate the contribution of each of these risk categories to the overall risk for occupationally-related LBDs. We hypothesize that both types of risk factors make independent contributions to the risk of LBDs, and that psycho social work characteristics are more likely to increase risk for LBD when biomechanical job demands are moderate to low than when they are high. The proposed study uses a prospective cohort design. It significantly increases the standard of scientific rigor of investigations in this area through: (1) reliable, valid state-of-the art measures of both psycho social work characteristics and biomechanical job demands; (2) assessments of exposure variables at multiple points in time; (3) the use of an array of outcome measures for LBD including a validated, highly quantifiable clinical assessment of low back functional status; and (4) adequate power to formally assess both additive and potential interactive effects of the two categories of risk factors. With adequate quantification of exposures, we will be able to accurately estimate the extent to which exposures (both psycho social and biomechanical) need to be decreased to reduce LBP risk. We will also be able to discern when and under what conditions an intervention to improve the psycho social work environment will be likely to reduce LBP and its associated morbidity.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: BODY SUBSTANCE EXPOSURE:PSYCHOLOGICAL IMPACT**

  Principal Investigator & Institution: Babcock, Hilary M.; Internal Medicine; Washington University Lindell and Skinker Blvd St. Louis, Mo 63130

  Timing: Fiscal Year 2002; Project Start 01-SEP-2002; Project End 31-AUG-2005

  Summary: Body substance exposures pose a significant risk to healthcare workers of blood-borne pathogen transmission. Prevention efforts have focused on barrier precautions and more recently on safety devices, whose efficacy may vary and whose cost-effectiveness is unclear. Other risks such as organizational factors at work are still being explored. The psychological impact on healthcare workers of sustaining an exposure is poorly documented. Specific Aim 1 will determine the effect of three safety devices on needle stick injury rates, and their cost-effectiveness, in a large multi-hospital system. This healthcare system has a large, computerized **occupational health** database to which large and small, urban and rural, teaching and community hospitals report exposures using a common reporting form. Specific Aim 2 will address organizational factors that can affect risk of body substance exposures. A large survey of work schedules and practices of exposed workers at nine hospitals will be performed as well as a nested case-control study at the largest hospital. Specific Aim 3 will use validated psychiatric assessment tools to assess the psychological impact of sustaining an

exposure both immediately after the event and at one and six month intervals. To accomplish these aims, the candidate will work with two sponsors: Dr. Victoria Fraser, a nationally recognized leader in the fields of hospital epidemiology and healthcare worker safety, and Dr. Bradley Evanoff, an **occupational health** specialist with a Master of Public Health (MPH) degree and extensive research experience in **occupational injuries.** In addition, the candidate will attend research seminars in the divisions of Infectious Diseases and General Medical Sciences and continue to pursue a MPH degree. The proposed research, classes, and mentorship will allow the candidate to become a well-trained independent investigator studying infectious risks to healthcare workers and designing and implementing interventions to improve the **occupational health** and safety of healthcare workers.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: CANCER PREVENTION FOR SMALL BUSINESSES**

  Principal Investigator & Institution: Sorensen, Glorian C.; Director, Center for Community Based Res; Harvard University (Medical School) Medical School Campus Boston, Ma 02115

  Timing: Fiscal Year 2001; Project Start 26-JUN-2001; Project End 31-JAN-2002

  Summary: Cancer risk, represented by low intake of fruits and vegetables, high consumption of saturated fat, physical inactivity, and exposures to occupational hazards, is increasingly concentrated among those with lower levels of education and low status jobs. This project tests a worksite cancer prevention intervention specifically designed for working class, "blue collar" workers. The intervention will be tested in small manufacturing business, in which over half of the work force, includes high proportions of multiethnic working class workers. The comprehensive intervention integrates health protection, aimed at reducing exposure to occupational hazards, and health promotion within a single intervention. Small manufacturing businesses will be recruited from inner city neighborhoods of Boston. Based on community demographics, we anticipate that over half of the workers employed in these worksites will represent ethnic workers. This study uses a randomized controlled design, in which 24 worksites will be randomly assigned to either an integrated intervention or a minimal intervention control condition. The impact of the intervention will be evaluated using a nested design which controls for worksite. The specific aims of this proposal are to: 1) determine if this integrated' health promotion/health protection intervention for small businesses yields greater mean improvements in the primary outcomes (increased fruit and vegetable intake, decreased saturated fat consumption, and increased moderate and vigorous physical activity), compared to the minimal intervention control condition; 2) estimate the effects of this health promotion/health protection intervention on reductions in exposure to known or suspected occupational carcinogens; 3) assess worksite acceptance of this health promotion/health protection intervention in small business, as indicated by program adoption rate; extent of implementation of the intervention; and worker participation in programs in intervention worksites; 4) assess the role of the social context and other modifying conditions and mediating mechanisms, including motivation, self-efficacy, and social support, in changes in the primary outcomes; and 5) assess the cost effectiveness of the study in order to assess the replicability of the project and provide data for the Cancer Prevention Policy Model. Thus, this project addresses the social contexts in which people live and work through: (1) interventions that target social networks at the workplace, workplace management, and workers' families; (2) the use of interventions designed with sensitivity for cultural differences and limitations in

material resources; and (3) the integration o f health protection with health promotion as a means of responding to workers' priorities.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: CARPAL TUNNEL SYNDROME AMONG CONSTRUCTION WORKERS**

  Principal Investigator & Institution: Rosecrance, John C.; Assistance Professor; Prev Med & Environmental Hlth; University of Iowa Iowa City, Ia 52242

  Timing: Fiscal Year 2001; Project Start 30-SEP-1999; Project End 31-DEC-2002

  Summary: The applicant's broad goals are to further develop research skills, become an independent researcher, and become an accomplished educator in occupational safety and health. The Special Emphasis Research Career Award allow the applicant to take advantage of the excellent resources available at the University of Iowa including comprehensive research support services, exceptional mentoring and collaboration with independent researchers in **occupational health,** and advanced coursework in the Department of Preventive Medicine and Environmental Health. The applicant proposes a cross-sectional study to characterize the prevalence of carpal tunnel syndrome (CTS) among construction apprentices. Data will be collected from 350 construction apprentices that have low exposure to hand and wrist-intensive work (operating engineers) and compared to previously collected data from 430 apprentices in trades that are associated with high exposure to hand and wrist-intensive work (sheet metal, electrical, plumbing workers). Apprentices in the operating engineering trade have a very similar demographic background to the existing cohort and will serve as a comparison group. Electrophysiologic tests and hand symptoms will be used to identify CTS cases among the operating engineer apprentices. Questionnaires will be utilized to determine occupational factors, personal factors, and medical histories associated with CTS. Focus group meetings will be held to determine why many apprentices do not seek medical attention for CTS symptoms. Additionally, electrophysiologic tests and questionnaires will be repeated in the apprentices in two years to assess changes in electrophysiologic variables and symptoms. The data collected in the proposed study will provide a better understanding of the specific work factors associated with CTS, provide pilot data for planning future projects to study the natural history of CTS, and assist in the development of strategies for the prevention of CTS in construction and non-construction workplaces. The proposed research study directly addresses the issue of musculoskeletal disorders of the upper extremity and assists in accomplishing the goals set out in the National Occupational Research Agenda.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: CAUSES AND EFFECTS OF COMPLIANCE WITH OSHA STANDARDS**

  Principal Investigator & Institution: Mendeloff, John M.; Professor; None; University of Pittsburgh at Pittsburgh 350 Thackeray Hall Pittsburgh, Pa 15260

  Timing: Fiscal Year 2003; Project Start 01-JUN-2003; Project End 31-MAY-2006

  Summary: (provided by applicant): This project will provide new insights into the determinants of compliance with OSHA standards and into the effects of compliance on the total factor productivity and capital investment at inspected establishments. This information can, in turn, be used to estimate the costs of compliance. All of these contribute to our understanding of the OSHA enforcement process, which is arguably the central public policy intervention addressing **occupational injuries** and illnesses.

The knowledge gained can also help OSHA target its enforcement efforts. This project will create a dataset linking information on OSHA inspections from 1972 to the present with confidential establishment-level Census data, the Longitudinal Research Database, which combines economic data from the Census of Manufacturers, conducted every 5 years, and the Annual Survey of Manufacturers. Although a similar dataset has been extensively used to study EPA enforcement over the last decade, this will be the first time it has been used to study OSHA. Until now, studies of the determinants of compliance have used only the information available in OSHA's own inspection data system. No prior studies have been able to use establishment level data to explore the impact of OSHA compliance on plants' productivity. In addition to examining overall patterns of compliance, this research will focus on compliance with health standards, compliance with new standards, and compliance with standards which have been found to be clearly related to the prevention of injuries. Regression analyses will examine a number of different measures of compliance, adding explanatory variables on establishment characteristics (plant age, wage levels, capital investment, and productivity) and firm characteristics (size and profitability) to the variables already in the OSHA file. Regressions will also be used to examine the effects of compliance on capital spending, productivity, and other measures of the establishment' s economic performance. Adjustments to address the potential endogenity of these variables will be carried out. The information on productivity and investment will be used to make estimates of the compliance costs entailed by the lead and cotton dust standards adopted in the late 1970s, and compare them to prospective estimates of those compliance costs derived during the standard-setting process.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: CD-ROM DELIVERY OF WORKSITE SUBSTANCE ABUSE PREVENTION**

  Principal Investigator & Institution: Bennett, Joel S.; Professor of Medicine; Owls 2501 Oak Hill Cir, #511 Fort Worth, Tx 76109

  Timing: Fiscal Year 2002; Project Start 25-AUG-2002; Project End 31-JUL-2003

  Summary: (provided by investigator): The long-term objective of the proposed project is to develop an electronically-based (e.g., CDROM/Internet/DVD) training program that will facilitate delivery of cost-effective alcohol or drug (AOD) workplace prevention programs in ways that afford "expertise on demand." Science-based programs are available that can improve work force health and productivity, but managers are neither familiar with these programs or know how to shape them to their particular worksite. The proposed training will enable behavioral health professionals-employee assistance (EAPs), human resource, and healthcare managers-to (1) diagnose productivity and health (including substance abuse) in the organization; and (2) select and shape prevention interventions likely to reduce behavioral health problems. The CD-ROM will provide access to a range of interventions that directly or indirectly link to AOD prevention (e.g., stress management). A prototype CD-ROM program will be pilot-tested in Phase I. Human resource professionals will be interviewed, sent copies of the CD-ROM along with evaluation instruments, and will later attend focus groups designed to solicit feedback on potential usefulness of the training. Evaluation data will provide the basis for full development of an Internet-based program designed to train professionals in assessing needs, selecting interventions, and evaluating results-all related to workplace AOD prevention.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: CERTIFIED SAFE FARM EVALUATING HEALTH INSURANCE CLAIMS**

  Principal Investigator & Institution: Donham, Kelley Jon.; Professor; Occupational & Environ Health; University of Iowa Iowa City, Ia 52242

  Timing: Fiscal Year 2003; Project Start 01-SEP-2003; Project End 31-AUG-2007

  Summary: (provided by applicant): Agriculture is one of the most hazardous industries in the US. A recent systematic review of farm safety interventions found little evidence of the interventions being effective. The Certified Safe Farm (CSF) program has shown exceptional potential to become a widely used effective intervention model. Our pilot results show a 17% reduction in total farm related injury and illness costs and 35% reduction in the costs covered by insurance. These results are very promising, but they are self-reported, and may be subject to bias. We propose to validate these results in this new proposed study, which has large sample sizes and measures success with actual health insurance claims data. Iowa Farm Bureau Federation, Wellmark Blue Cross Blue Shield of Iowa, and AgriSafe Network are our active partners. The specific aims of this project are to: 1. Enroll 600 Iowa farmers into the CSF program who are members of the Iowa Farm Bureau Federation and have Wellmark health insurance coverage through Iowa Farm Bureau Federation. 2. Provide CSF services (agricultural **occupational health** screenings, education, and on-farm safety reviews) to each of the enrolled farmers twice during the four-year project. 3. Provide safety and health education to CSF farm families on a continual basis. 4. Conduct retrospective and prospective analyses of health insurance claims data for the 600 CSF farmers and at least 2400 control farmers who are also Iowa Farm Bureau-Wellmark insurees. 5. Analyze the association of health outcomes and demographic, farm production, health, insurance, and farm hazard characteristics. 6. Utilize project findings to build an ongoing CSF program in collaboration with insurance and agribusiness partners. The CSF program has shown to be well received among farmers, feasible to implement, and transportable to different farming situations. It has shown to reduce farm hazards, increase the use of personal protective equipment, reduce respiratory symptoms, and decrease farm-related injury and illness costs. This proposal aims to take this program to the next level - a sustainable ongoing program linked with farm organizations, insurance companies, and agribusinesses. Positive results from this study will provide justification for the private sector to invest in the CSF program. With insurance and agribusiness participation, this program has the potential to achieve high participation rates among farmers and make a significant difference in reducing the burden of injuries and illnesses in US agriculture.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: COMMUNITY COLLABORATION FOR FARMWORKER HEALTH AND SAFETY**

  Principal Investigator & Institution: May, John J.; Mary Imogene Bassett Hospital Cooperstown, Ny 13326

  Timing: Fiscal Year 2003; Project Start 01-SEP-2003; Project End 31-AUG-2007

  Summary: (provided by applicant) The Community Collaboration for Farmworker Health and Safety project will utilize the PRECEDE-PROCEED model of health education/intervention to create locally-designed occupational interventions at each of two independent migrant farm worker community sites. The aim is a directly measurable decline in previously quantitated rates of **occupational injury** and illness in migrant communities in eastern New York and Maine. The fundamental goals are: 1) to build an effective coalition of community migrant health programs - Maine Migrant

Health Program (MMHP) and Hudson Valley Migrant Health Program (HVMHP); primary care practitioners (PCPs) at each site; and a research team - the Northeast Center for Agricultural Health (NEC). 2) to develop and test a process for effective occupational interventions through coalitions. This process would be of great utility to the NEC in stimulating similar interventions at a number of other collaborating sites throughout the Northeast. Central to this project are the efforts of a NEC-based Project Coordinator and of Site Coordinators at each of the community sites. Through this work the project would include: 1) dialogue with the migrant community, soliciting community input and identifying leaders to join a project team of workers, employers, PCPs and other stakeholders at each site. 2) Following the PRECEDE-PROCEED model, in assisting these teams in selecting the most significant **occupational health** problems challenging the community and devising appropriate interventions for these problems. The teams would draw upon existing local injury data from ongoing NEC epidemiologic studies, upon the injury prevention expertise of the PCP committee members and upon community input to make these determinations. 3) Solicit project team and community review and assessment of the process and intervention outcome evaluation data collected by NEC researchers to determine those interventions that proved to be effective. 4) Utilize community and coalition resources to both disseminate effective interventions to the migrant and farm community, as well as the **occupational health** community and to permanently embed all or portions of the interventions in local organizations. The proposed project addresses a number of NIOSH's NORA priorities and would lead to ongoing coalition-based intervention efforts with the other ten migrant health programs who are currently collaborating with ongoing NEC migrant farmworker injury epidemiology research.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: COMMUNITY HEALTH INTERVENTION WITH YAKIMA AGRICULTURAL ***

  Principal Investigator & Institution: Keifer, Matthew C.; Associate Professor; Environmental Health; University of Washington Seattle, Wa 98195

  Timing: Fiscal Year 2003; Project Start 01-SEP-2003; Project End 31-AUG-2007

  Summary: (provided by applicant) The primary purpose of this project is to develop a permanent partnership that will empower the Hispanic agricultural worker community in the Yakima Valley, Washington State, to effectively identify, characterize and respond to the many occupational and environmental risks they face. The target population is the seasonal and migrant agricultural workers in the middle Yakima Valley. The Northwest Community Education Center/Radio KDNA, Heritage College, the Yakima Valley Farm Workers Clinic, and the University of Washington will partner in this multi-disciplinary project. This project will organize and sustain a community advisory board (CAB) comprised of unions, church groups, community members and other representative community groups. Through the guidance of the CAB a community process will develop a prioritized research and action agenda. The activities of the project will use a participatory action research (PAR) approach as a means to obtain new perspectives and an ecological framework to identify and prioritize occupational and environmental health stressors. The plan will include frequent community communication and education, an interactive evaluation process, curriculum development for Heritage College students and ConneX summer trainees and further data collection by students and community members. Technical expertise will be tapped from the University of Washington Schools of Nursing and Public Health and Heritage College. Preliminary data collection will support the development of new research proposals. The products of

this process will be a sustainable community-academic-clinical partnership, an empowered cadre of young people from the community and improved occupational and environmental health for Hispanic agricultural workers.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: CONSTRUCTION SAFETY ALLIANCE (CSA)**

  Principal Investigator & Institution: Halpin, Daniel W.; Sch of Industrial Engineering; Purdue University West Lafayette West Lafayette, in 479072040

  Timing: Fiscal Year 2001; Project Start 01-SEP-2001; Project End 31-AUG-2003

  Summary: (provided by applicant): In order to make a significant impact in the safety and health culture of the construction industry, a vision that embraces meaningful and effective partnerships are critical. The Construction Safety Alliance (CSA) provides the framework of this new vision. It represents a cooperative effort that includes: universities, labor organizations, construction companies, owners of constructed projects, trade associations, local and state governments. The Alliance will address problems that are specific to different regions, different trades and different industry. The focus of the Construction Safety Alliance (CSA) is to help bring to fruition the NIOSH goal to "develop, implement and evaluate a NATIONAL RESEARCH PROGRAM for intervention effectiveness research and preventive service systems research in construction safety and health." The main focus is to embed safety measures as critical components in construction, and to address NIOSH's National Occupational Research Agenda (NORA). In doing so, it will link safety with quality and productivity which typically mark the success of construction projects. Key projects for FY 2001 include: Prevention of falls from elevations, Safer trenching operations, A pilot survey of small construction companies using the Dunn & Bradstreet model, Zero accident work sites, Development of web-based dissemination tools and a scalable database for safety practices in construction. Expected deliverables from these five projects include: * Intervention approaches (i.e., engineering controls, administrative controls, training and education, and personal protective equipment) for reducing accidents in trenching and high-elevation projects, * A user-friendly interactive database that companies could use to track injuries and illnesses and improve the bottom line, * A model for best practices to promote zero accident work sites, * Prototype of demonstration projects in trenching and falls from elevations.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: CORE SURVEILLANCE OF OCCUPATIIONAL HEALTH IN NEW YORK**

  Principal Investigator & Institution: Gelberg, Kitty H.; Bureau of Occupational Health 547 River St Troy, Ny 12180

  Timing: Fiscal Year 2001; Project Start 01-JUL-2001; Project End 30-JUN-2005

  Summary: New York, with the assistance of the SENSOR and ABLES programs, has established a structure for occupational disease surveillance and follow-up in New York State. Provisions of the New York State (NYS) Public Health Law mandate the reporting of a number of occupational conditions in NYS. Since 1981, the New York State Department of Health, Bureau of **Occupational Health** (BOH) has operated a Heavy Metals Registry for the reporting of cases of lead, mercury, arsenic, and cadmium poisoning, and an Occupational Lung Disease Registry for the reporting of cases of work related lung disease. Since 1991, BOH has operated a Pesticide Poisoning Registry and receives reports from healthcare providers of suspected pesticide poisonings. While

all of these registries are operational, the extent to which there is active surveillance, with aggressive case finding, ascertainment and follow-up, varies. There are a number of reasons for this variability, including differences in how the diseases are diagnosed and the different reporting sources for the various registries. Additional federal resources will permit us to build upon existing reporting laws and infrastructure and expand current surveillance efforts to help us achieve the NIOSH standards for a model core surveillance system for a range of significant occupational conditions. We propose to conduct general surveillance of existing databases available to the Department of Health such as death certificates and hospital discharge data to assist with documenting the magnitude of **occupational injuries** and illnesses in New York, and to identify trends and industries occupations at elevated risk. Focus will be primarily upon upgrading our Occupational Lung Disease Registry; however, we will also focus more attention on conducting educational outreach for all of our registries.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: CORE--EPIDEMIOLOGY**

  Principal Investigator & Institution: Gold, Ellen B.; Director; University of California Davis Sponsored Programs, 118 Everson Hall Davis, Ca 95616

  Timing: Fiscal Year 2002; Project Start 22-APR-2002; Project End 31-MAR-2003

  Description (provided by applicant): The overall goal of this research is to characterize the exposures and associated determinants of disease among populations exposed to toxic chemicals in the agricultural workplace to this end, this Core encourages and facilitates research to assess the contribution of potentially toxic agrochemical exposures to symptoms or disease in the exposed populations. The research involves the interaction of disciplines involved in the epidemiologic study of disease occurrence, exposure assessment and characterization of toxic exposures, effects, and likely routes of transmission. Each project may involve some or all of these components. The interaction of epidemiology with exposure assessment (industrial hygiene) represents a traditional model in occupational/environmental epidemiologic investigations. The integration of laboratory analyses with epidemiologic data, sometimes referred to as molecular or biochemical epidemiology, is also an important approach to studying, the determinants and mechanisms of disease and adverse health effects of exposures. In these studies, the laboratory investigators work with epidemiologists to measure both markers of exposure in biologic specimens, and markers of effect. For example, measurement of organophosphate metabolites in urine is a marker of exposure, while assessment of urinary endocrine markers of reproductive function is a marker of effect. The investigation of dust exposure and pulmonary pathology in lungs from deceased Hispanic males obtained from coroners' cases includes both biomarkers of exposure (lung dust content and composition) and effect (pathologic changes in the lung).

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: CORE--EXPOSURE ASSESSMENT AND CONTROL**

  Principal Investigator & Institution: Schnoor, Jerald; University of Iowa Iowa City, Ia 52242

  Timing: Fiscal Year 2001; Project Start 29-SEP-1990; Project End 31-MAR-2006

  Summary: The Environmental Assessment and Control Core (EACC) was added to the Center in 1996 as a research core as a result of the 1995 NIEHS Review Committee. The goal of this core is to provide the Center with basic skills and tools necessary to implement investigators' programs. The core includes investigators from the

departments of Civil and Environmental Engineering and Occupational and Environmental Health and from the University Hygienic Laboratory, who are concerned with measuring, modeling, and remediation of environmental exposures in rural and agricultural settings in the state, region, and nation, as well as internationally. The core consists of two main components: **Occupational Health** research with a focus on aerosols and biologics and Environmental Research with a focus on groundwater and exposure assessments. The primary goal of the Environmental Assessment and Control Core is to provide original research in the area of rural environmental exposure assessments with a secondary goal of providing intervention and engineering remediation of rural and agricultural problems. The scope of the research core is the measurement, modeling, and remediation of environmental and occupational contaminants. The specific aims of this core are: (1) exposure assessment in support of epidemiologic studies and surveys of environmental contamination and for risk assessment; (2) risk assessment methods for environmental contaminants, especially in the agricultural and rural environment; (3) remediation of rural and agricultural environmental problems in air, water, and soil; (4) analytical measurements and modeling of environmental contaminants; and (5) development of new methods to reduce uncertainty and improve sensitivity in exposure assessments. An additional specific aim is to facilitate training in environmental health assessment and control research.

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- **Project Title: CORE--OCCUPATIONAL HEALTH**

  Principal Investigator & Institution: Sprince, Nancy L.; Associate Professor; University of Iowa Iowa City, Ia 52242

  Timing: Fiscal Year 2001; Project Start 29-SEP-1990; Project End 31-MAR-2006

  Summary: The **Occupational Health** Core has as its specific aims (1) to carry out research in agricultural health, injury prevention, and prevention of musculoskeletal injuries, (2) to provide **occupational health** expertise and interactions within the Center, (3) support the pilot projects, (4) serve as a technical resource, (5) enhance and promote training in the development of junior investigators, and (6) contribute to the Center's Enrichment Program.

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- **Project Title: CORE--PULMONARY BIOLOGY**

  Principal Investigator & Institution: Hunninghake, Gary W.; Professor and Director; University of Iowa Iowa City, Ia 52242

  Timing: Fiscal Year 2001; Project Start 29-SEP-1990; Project End 31-MAR-2006

  Summary: The Pulmonary Biology Core is headed by Gary Hunninghake, M.D.; Joel Kline, M.D., is the co-director. The focus of this core is on Environmental Lung Disease and the development of new science related to this area. The specific aims of the core are (1) to function as a training environment for young scientists interested in environmental lung disease (ELD) associated with agricultural exposures; (2) to support the research of young scientists to develop independent studies related to ELD associated with agricultural exposures; (3) to attract senior scientists to develop studies on ELD associated with agricultural exposures; (4) to consult with scientists pursuing studies related to ELD; (5) to enhance communication among investigators interested in ELD; and (6) to promote the use of dedicated EHSRC facilities for investigation of ELDs associated with agricultural exposures. The director and co-director of the core propose

to meet on a monthly basis with the investigators of the Core. The purpose of these meetings will be to identify new investigators who can direct their careers to ELD. The leaders of this core also will organize bimonthly seminars to discuss ongoing research, and they will evaluate and support meritorious requests for pilot studies.

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- **Project Title: DEMOLITION AND ASTHMA IN CHICAGO PUBLIC HOUSING**

  Principal Investigator & Institution: Dorevitch, Samuel; Epidemiology and Biostatistics; University of Illinois at Chicago 1737 West Polk Street Chicago, Il 60612

  Timing: Fiscal Year 2002; Project Start 02-MAY-2002; Project End 31-MAR-2007

  Summary: (provided by applicant) Candidate: The candidate is a physician with a background in emergency medicine, currently training in occupational and environmental medicine. In the short term the candidate will obtain mentored experience conducting field research and will develop expertise in environmental asthma. Additionally the candidate will become proficient in biostatistics and environmental science methodologies through formal course-work and through field experience. In the long term the candidate intends to become an independent researcher in environmental epidemiology and to collaborate with medical and public health colleagues to improve the health of the public by preventing harmful environmental exposures, and also to improve our understanding of the mechanisms of asthma. Environment: The proposed training and research will be done at the University of Illinois at Chicago School of Public Health. The mentor and co- mentor of the proposed project have substantial expertise in air pollution monitoring, bio-aerosol sampling and analysis, inner-city asthma, asthma panel studies, time series analysis, and time-space cluster analysis. All of these fields of knowledge are important in environmental asthma research. The Center for Environmental Epidemiology is a forum for developing a broad understanding of leading-edge research and controversies. The faculty, laboratories and computing facilities of the School of Public Health will be available to the candidate. The School of Public Health, the Division of Epidemiology and Biostatistics, and the Division of Environmental and **Occupational Health** Sciences actively support the development of the candidate as an independent researcher in environmental epidemiology. Research Project: Inner city residents living in public housing are at increased risk for asthma morbidity and mortality. Cities in the United States are demolishing public housing developments. This may increase local concentrations of airborne particulate matter. The impact of this on asthma severity has not been studied. The proposed project is a panel study that will evaluate the impact of housing demolition on asthma severity of nearby public housing residents. The exposure will be characterized by environmental sampling. Health effects studied will be asthma symptoms, peak expiratory flow rate, and exhaled nitric oxide, an indicator of pulmonary inflammation. In order to determine the health effects of the particulate matter exposure, potential confounders and effect modifiers such as ambient air pollutants, pollen counts, and meteorological factors will be considered in a time-series analysis.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: DENTAL OCCUPATIONAL HEALTH: A CE/CEU WEB SITE**

  Principal Investigator & Institution: Triant, Randi S.; New England Research Institutes, Inc. 9 Galen St Watertown, Ma 02472

  Timing: Fiscal Year 2001; Project Start 01-MAR-2001; Project End 31-DEC-2001

Summary: It is proposed to develop a World Wide Web-based continuing education course to teach general Dentists and Dental Hygienists to recognize, avoid, and prevent **occupational health** hazards. During Phase 1, the content, design, and format as well as the script and storyboard for each section of the entire program will be developed, and a Web prototype of the first segment will be produced. The prototype will include a functioning and fully designed home page and one module that will consist of 10-15 fully functioning screens, including all buttons, backgrounds, graphic illustrations, text and audio narration, textual hyperlinks, and interactive testing examples. Based on the content outline and the first Web segment, the program will be pilot tested by intended end-users for feasibility of such a program and impact on knowledge about the content of the segment. Based on results from the pilot study, the content and presentation of the educational program will be modified. Additionally, continuing education accreditation for participation in the program will be initiated for Dentists and Dental Hygienists. PROPOSED COMMERCIAL APPLICATION: NOT AVAILABLE

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: DORCHESTER OCCUPATIONAL HEALTH INITIATIVE**

  Principal Investigator & Institution: Noorani, Ali R.; Hlth Svcs Partnership of Dorchester 1452 Dorchester Ave, 4Th Fl Dorchester, Ma 02122

  Timing: Fiscal Year 2003; Project Start 30-SEP-2003; Project End 30-JUN-2007

  Summary: (provided by applicant) Little capacity exists at the community level for addressing and improving the **occupational health** status of workers. Within immigrant communities, the lack of access to **occupational health** information (prevention, treatment and benefits) and basic medical care is complicated by marginal economic stability and employment in small immigrant-owned or family-owned businesses. Ethnic networks, business owner networks, and existing links to community organizations, including community health centers, represent an opportunity to reach low-income immigrant workers with culturally appropriate **occupational health** programs. The Dorchester Environmental Health Coalition (DEHC), representing three community health centers, ethnic community organizations, the Massachusetts Coalition for Occupational Safety and Health, block and neighborhood associations and youth groups, has taken action on assessing environmental health needs of Dorchester residents. DEHC is proposing to bring three community health centers, several community organizations and the Harvard School of Public Health, the Chief Medical Officer of Dorchester House to engage the community in developing and implementing community-based **occupational health** programs among immigrant groups in Dorchester, Massachusetts. The purpose of the proposed project is to: assess the **occupational health** needs of low-income and immigrant communities in Dorchester; involve workers, their families and small businesses in designing culturally appropriate interventions; carry out community education; and evaluate the impact of these efforts on the Dorchester community as well as local policy and regulatory functions. The specific aims include: 1) Conduct a streamlined assessment of the **occupational health** needs of Dorchester's low-income and immigrant communities, augmenting available current statistical data and the results of recent resident surveys with focus groups, key informant interviews, and culturally acceptable methods of obtaining information; 2) Develop culturally appropriate models of education, communication and dissemination of **occupational health** information - based on research, intervention and policy objectives - within the Dorchester community with an initial focus on two populous, undeserved groups: the Vietnamese and Cape Verdean communities; 3) Implement community education and training programs, and conduct demonstration projects to

achieve a demonstrable improvement in access to occupational safety and health information and resources within the Dorchester community; and 4) Provide site-specific feedback and technical assistance to small businesses and community health centers to increase awareness of the **occupational health** needs and to promote local prevention activities in small business and community settings.

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- **Project Title: EFFECTIVENESS OF INTERVENTION ON HEALTH**

  Principal Investigator & Institution: Brosseau, Lisa M.; Associate Professor; Environ & Occupational Health; University of Minnesota Twin Cities 200 Oak Street Se Minneapolis, Mn 554552070

  Timing: Fiscal Year 2002; Project Start 01-JUN-2002; Project End 31-MAY-2004

  Summary: The purpose of this research is to develop tailored written materials and test whether they enhance small business owner's beliefs about outcomes that result from efforts to improve workplace health and safety. Enhanced beliefs will, in turn, raise their attitudes and intentions toward trying to make improvements. Written materials will be designed to emphasize those belief outcomes most highly associated with high-intentioned owners, using written formats and styles shown to be most attractive to small business owners. This research is responsive to the need for more and better information on the effectiveness of interventions identified by NIOSH's National Occupational Research Agenda. The research will take place in two phases over two years. In the first phase, a wide variety of written materials in various formats (newsletters, magazines, newspapers, brochures, etc.) and styles (case studies, personal stories from owners and workers, cartoons, etc.) will be developed and tested using a series of focus groups with small business owners. Results will be used to determine which styles and formats are ranked most highly by owners in attractiveness, readability, and effectiveness in delivering specific health and safety messages. Six to twelve separate written pieces will be developed, incorporating the focus group results. In the second phase, the effectiveness of written materials will be tested in a randomized, controlled trial with 120 owners of small businesses. Owners in control and intervention groups (60 owners in each group) will complete a baseline survey of intentions, attitudes and outcome beliefs toward improving health and safety. Owners in the control group will receive monthly or bi-monthly mailings of a trade newsletter or journal. Owners in the intervention group will receive the same materials along with tailored written materials aimed at specific health and safety outcome beliefs. At the end of the year, owners in both groups will be asked to complete a follow up survey measuring their intentions, attitudes and outcome beliefs. Owners in the intervention group will also be asked for their opinions on the specific materials received. It is expected that the difference in mean pre- and post-study outcome beliefs (and perhaps intentions and attitudes) will be greater in the intervention than the control group.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: E-LEARNING TOOLS FOR CHEMICAL EMERGENCY RESPONDERS**

  Principal Investigator & Institution: Rathje, Dean; New Leaf Interactive Media Box 2, 1505 Hillcrest St Ely, Ia 52227

  Timing: Fiscal Year 2002; Project Start 30-SEP-2002; Project End 31-AUG-2004

  Summary: (provided by applicant) New Leaf Interactive Media, working with the Hazardous Materials Training and Research Institute at Kirkwood Community College will, over a 2-year period, use cutting-edge technologies to produce and pilot-test three

(3) DVD videos that are multi-platform, video-interactive, and customized for training three separate audiences. DVD technology has not been used to date for interactive training that creates simulated environments in which the user makes real-world choices and then realizes the consequences of those choices. The DVDs will consist largely of menus (choices) and video (results of choices). These E-learning tools will use new technologies and teaching paradigms to reinforce serious subject matter. They can be widely disseminated and are easily packaged and replicated in a commercial run of any desired quantity. The DVD-video is playable on inexpensive consumer DVD players and on personal computers equipped to play video DVD. The intent of the project is to, 1) minimize the "digital divide" by providing a product playable on a $100 consumer device, and 2) explore the interactive capabilities of video DVD. Content will include environmental health and safety refresher and recertification materials for workers and managers. Participants will be tracked and scored based on time and materials used in responses. They will be tested for competency attainment in a variety of ways including pen and paper, disc, and website-based tests. By the end of the 2-year period, the project will have produced and pilot-tested three Master DVDs and will look toward commercialization in Phase II. The three DVD Exercises may be completed in 15-20 minutes, with 8 correct decisions, or in several hours, if poor choices are made for a total of 26 unwise decisions. The Exercises include the following: The Mystery Drum Exercise in which participants learn to identify and contain a spill of an unknown chemical. In the Lock-out Tag-out in a Confined Space Exercise, participants are presented a set of problems related to making a safe entrance through lockout procedures, entry procedures, and choices in ventilation and respiratory protection. This exercise will not have one "right" answer, but multiple routes to the successful entry and rescue of an injured worker. In Brownfields, participants plan to redevelop a four-block site previously occupied by 10-12 businesses that contaminated the area in different ways with PCB-contaminated electrical equipment, asbestos-containing building materials, and drums of disregarded hazardous waste. Participants will research printed historical documents, walk through the area noting potential safety hazards, and then develop a clean-up plan through a series of menu-driven choices.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: ENVIRONMENTAL & GENETIC RISK FACTORS FOR RENAL FUNCTION**

  Principal Investigator & Institution: Weaver, Virginia M.; Environmental Health Sciences; Johns Hopkins University 3400 N Charles St Baltimore, Md 21218

  Timing: Fiscal Year 2003; Project Start 01-MAR-1997; Project End 31-MAY-2007

  Summary: (provided by applicant): End stage renal disease (ESRD) is associated with substantial morbidity and mortality. Strategies to prevent the renal function decline that can ultimately result in ESRD are essential. The impact of environmental exposures has received relatively little attention in this regard, despite the fact that exposures such as cadmium and lead are known renal toxicants that are stored long-term in the body and ubiquitous in humans. In fact, the lead and cadmium dose-effect curves for renal function remain uncertain for the low to moderate range of doses. The proposed study will investigate a broad set of causes of renal function decline, including lead, cadmium, blood pressure, diabetes, nephrotoxic medication use, genetic polymorphisms, and age. This application is a competing renewal application of the study "Exposure, dose, body burden, and health effects of lead" (Schwartz BS, PI) conducted from 1997-2001. It will build on data, from the large cohort of current and former lead workers and participants without occupational lead exposure in the originally funded grant. Study subjects have

a wide range of lead exposure and dose measures and renal outcome data from three visits each over an average of 2.2 years. Analysis of existing data has already provided very important results, including longitudinal decline in renal function associated with lead dose measures; interaction between age and lead dose on renal function and renal function decline; interaction between ALAD genotype and lead dose on renal function; and associations of environmental level cadmium dose with elevated NAG in a subset of lead workers. However, in order to better understand the causes of renal function decline, cadmium dose must be characterized in all subjects, additional genotypes must be measured, and additional follow-up time is needed because of the slow rate of renal function decline. We propose to include 675 participants from the first study and enroll 225 new current or former lead workers over age 45 years, those at greater risk for renal function decline. We will obtain blood and tibia lead, genotyping, urinary cadmium, BUN, serum creatinine, measured and calculated creatinine clearances, NAG and RBP during 3 evaluations at yearly intervals. The specific aims are to determine: 1) if lead and cadmium dose are or continue to be associated with renal function at cross-section and longitudinally; 2) if there is effect modification by lead or cadmium dose, respectively, on associations between cadmium or lead dose and renal function decline; 3) if hypertension modifies the relations of lead or cadmium dose with renal function decline; and 4) whether polymorphisms in the genes for ALAD, VDR, ACE, and eNOS modify or continue to modify relations of lead and/or cadmium dose with renal outcomes. We believe the proposed work will allow a more complete understanding of the causes of renal function decline and lead to the development of public health interventions to prevent this considerable public health problem.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: ENVIRONMENTAL FACTORS IN ALPHA 1-ANTITRYPSIN DEFICIENCY**

  Principal Investigator & Institution: Newman, Lee S.; Professor; National Jewish Medical & Res Ctr and Research Center Denver, Co 80206

  Timing: Fiscal Year 2001; Project Start 01-JUN-2001; Project End 31-MAY-2003

  Summary: Occupational dust, fume, and gas exposures have been associated with the development of chronic obstructive pulmonary disease (COPD). Genetic and familial factors also contribute to the risk of COPD. Individuals with alpha1-antitrypsin deficiency (alpha11ATD) comprise one of these genetically susceptible populations. The major environmental risk factor for COPD and for alpha1AT deficient individuals who are homozygous (PI*Z) is personal tobacco use. However, preliminary studies suggest that occupational respiratory exposures may also contribute to the severity of this disease. We hypothesize that exposure to occupational and environmental respiratory irritants (dust, fumes, smoke, and gas) increases the risk of both chronic respiratory symptoms and airflow obstruction in genetically susceptible individuals with PI* Z alpha1AT deficiency. This hypothesis will be tested through the following specific aims: 1) To evaluate the association between specific types of occupational and environmental respiratory exposures and the presence and severity of specific pulmonary symptoms and airflow obstruction. 2) To assess the potential interaction or confounding effects between different types of respiratory irritant exposures and/or personal and environmental tobacco smoke in predicting risk of respiratory symptoms. 3) To assess the potential interaction between personal or environmental tobacco smoke and respiratory infections in predicting risk of respiratory symptoms and airflow limitation. 4) To validate the model developed as a predictive model by repeated re-sampling of the original data set, i.e. bootstrapping, that could help health professionals counsel and

educate PI*Z patients concerning their risks from environmental and occupational exposures. A cross-sectional design will be used in an expanded cohort of >300 patients with alpha1At deficiency PI*Z. The goal of this proposal is to better understand the burden of obstructive lung disease due to occupational exposures in PI*Z individuals. Such research offers an opportunity to investigate environmental and genetic interactions in which the gene trait that confers susceptibility is known but in which the environmental triggers are not.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: ENVIRONMENTAL WORKER TRAINING AND EDUCATION PROGRAM**

  Principal Investigator & Institution: Leconche, John L.; Executive Director; Laborers-Agc Education and Training Fund Po Box 37 Pomfret Center, Ct 062590037

  Timing: Fiscal Year 2003; Project Start 01-SEP-1992; Project End 31-AUG-2005

  Summary: Laborers-AGC Education and Training Fund (Laborers-AGC) is applying for the Hazardous Materials Worker Health and Safety Training Cooperative Agreements RFA: ES-99-009 for the EPA Environmental Worker Training and Education Program (EWTEP 43.1 million dollars), EPA Minority Worker Training Program (MWTP 6.9 million dollars), and EPA Brownfields Minority Worker Training Program (BMWTP 7.3 million dollars) for a total program cost of 57,291,610 dollars. Partners are the International Brotherhood of Teamsters (IBT) for the EWTEP; Young Community Developers, Greater Dwight Development Corp., Make Ready, Inc., and 6 affiliated training funds for MWTP; University of Mass. Lowell, Detroit Works Partnership, and 2 affiliated training funds for BMWTP. The EWTEP will train workers who are working or have the potential to work at hazardous waste sites or who are at risk of exposure to hazardous waste on the job. The program includes hazardous waste worker training that meets OSHA requirements as well as other health and safety and skills training needed to safely conduct environmental remediation jobs. Training will incorporate hands-on simulated exercises, classroom instruction, and advanced training technologies. Laborers-AGC will utilize 22 regional training sites and 4 mobile units to train approximately 25,000 workers. IBT will train about 14,445 workers at 4 training centers and 4 mobile units. This nation-wide program targets Laborers, Teamsters, and other construction craft workers. MWTP and BMWTP will provide comprehensive training to improve academic and life skills, safety, health, environmental justice awareness, and construction and environmental job skills training. MWTP will train a maximum of 535 young adults of color (between the ages of 18 and 25) in 5 urban areas. BMWTP will train a total of 400 residents of color from communities surrounding Brownfields in 3 urban areas. The goal for both programs is sustainable employment in the environmental industry.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: ERGONOMICS ASSESSMENT METHOD FOR WORK/WORKER SYSTEMS**

  Principal Investigator & Institution: Sommerich, Carolyn M.; Associate Professor; Industrial Engineering; North Carolina State University Raleigh 2230 Stinson Drive Raleigh, Nc 27695

  Timing: Fiscal Year 2001; Project Start 01-SEP-1999; Project End 31-AUG-2003

  Summary: Typically the goals of ergonomic research are one or more of the following: establish a (causal) link between hazards and health outcomes; characterize dose-

response relationships between hazards and health outcomes; identify exposure thresholds for hazards; or demonstrate efficacy of interventions. Efforts persist towards all these goals, in continued attempts to understand the etiology of musculoskeletal injuries. Yet, the etiology of work-related musculoskeletal disorders (WRMSDs) remains unclear. In fact, the work- related-ness of musculoskeletal disorders remains a contentious issue. More recently, multifactorial theories for their etiology have been proposed. Yet few ergonomics research studies adequately address the multiple facets of ergonomics: biomechanics, psychosocial factors, work organization, and personal attributes. Some facets are either ignored or poorly assessed. This may lead to incorrect conclusions about the strengths of their effects, and the validity of benchmark design criteria that may be proposed based on a study's results. Specific aims of the project are development and application of a comprehensive assessment methodology for characterizing the work-worker system from an ergonomics perspective. The methodology will consist of several standardized tools (questionnaire, work measurement protocols, and biomechanical assessment). The questionnaire provides qualitative information on the worker, work, and workplace (demographics and psychosocial perspectives, work organization and job design). Work measurement protocols supply quantitative temporal information and qualitative biomechanical data. Biomechanical assessment provides a view of the internal activity necessary to carry out activities observed in the workplace. Products of the assessments will be multi-dimensional work and worker profiles. The worker profile will characterize the worker's interaction with his or her work (personal attributes, psychosocial perspectives, demographics, work history, and health history and status). The work profile will characterize physical and administrative work elements. Together the profiles will be used to identify associations between worker attributes and perceptions, worker health outcomes (musculoskeletal impairment and other strains), and work profiles. The methodology will be applied to mobile computing, an emerging area of office ergonomics. The long term objective of this line of research is development of a predictive model of work-related musculoskeletal impairment, that includes physical, psychosocial, work organization and personal factors, and has generalized applicability across job types for use in research from initial exploration to intervention demonstration efforts.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: EVALUATION OF THE NAGCAT TRACTOR GUIDELINES**

  Principal Investigator & Institution: Fathallah, Fadi A.; Assistant Professor; Biological & Agricultural Engr; University of California Davis Sponsored Programs, 118 Everson Hall Davis, Ca 95616

  Timing: Fiscal Year 2003; Project Start 01-AUG-2003; Project End 31-JUL-2006

  Summary: (provided by applicant): Work-related injuries may occur because children are assigned hazardous farm jobs that are beyond their physical and mental capabilities. The North American Guidelines for Children's Agricultural Tasks (NAGCAT) were developed to assist parents in assigning appropriate and safe jobs to their children 7-16 years. Farm tractors account for the majority of deaths and major portions of non-fatal trauma among children on North American farms. Because of this high frequency of tractor involvement in childhood fatalities and other traumatic farm injuries, NAGCAT have a heavy emphasis on safe operation of farm tractors in different work situations. The proposed study aims to build upon the NAGCAT project by providing a field test of the NAGCAT tractor guidelines. The objective of this study is to systematically assess the most common tractors operated by children with respect to dimensional and

operational characteristics in order to identify any potential strength and anthropometrics mismatches between the physical characteristics of children and adolescents of ages 12 to 16 years (ages recommended for tractor operation by NAGCAT) and the tractors they are operating. To achieve this objective, the following specific aims will be addressed: Evaluate 250 tractors that are representative of those operated by children with respect to a) seat dimensions and characteristics b) control reach and clearance requirements c) control force activation requirements d) monocular, binocular, and ambinocular fields of view e) entry/exit characteristics. Identify potential strength and anthropometrics mismatches between the requirements of operating a given tractor and the physical characteristics of children and adolescents of ages 12 to 16 years. Recommend revisions to the NAGCAT tractor guidelines based on these findings. The results of this study will provide scientific evidence of the extent to which the NAGCAT tractor guidelines (developed by consensus) actually reflect a match between the physical abilities of children and adolescents 12 to 16 years and the tractors they commonly operate. It is anticipated that once the recommended revisions are incorporated into the NAGCAT, the risks of traumatic and fatal injuries to children due to tractor operation will be reduced.

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- **Project Title: EXTENDED WORK SCHEDULE AND HEALTH: ROLE OF SLEEP LOSS**

  Principal Investigator & Institution: Van Cauter, Eve; Medicine; University of Chicago 5801 S Ellis Ave Chicago, Il 60637

  Timing: Fiscal Year 2002; Project Start 01-JUL-2002; Project End 30-JUN-2007

  Summary: (provided by applicant): Extended work schedules almost invariably result in reduced time for sleep. Work schedules that produce the shortest sleep times are those of night workers. In addition to sleep loss, shift work also results in chronic maladaptation of circadian rhythms. Recent studies have demonstrated that sleep loss has an adverse health impact and may represent a risk factor for obesity, hypertension and diabetes. Whether circadian maladaptation, independently of sleep loss, also has negative health consequences is not known. The overall goal of the present proposal is to test the hypothesis that sleep loss as occurs during extended work schedules may result in adverse health consequences. We propose to use two experimental protocols, each involving 8 days of bedtime curtailment to model in the laboratory the amount of sleep loss typically associated with extended work schedules. The first protocol simulates a schedule of regular extended daytime hours and restricted nighttime sleep. The second protocol simulates a work schedule alternating between day work and night work. The total number of bedtime hours during the experimental period is identical in both models and, because of the restricted bedtimes (5 hours), it is expected that the total amount of sleep occurring during the 8-day experimental period will be similar in both models. Glucose tolerance, neuroendocrine profiles, cardiovascular function, and neurobehavioral parameters will be measured under baseline conditions and at the end of the 8-day experimental period. Two groups of gender- and age-matched healthy subjects will be studied under each protocol in order to allow for the testing of gender differences and impact of circadian disruption independently of sleep loss. The results of the proposed studies are expected to provide an estimation of sleep loss and circadian disruption as risk factors for the health and well-being of many Americans who work long and/or irregular hours.

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- **Project Title: HAZARDOUS MATERIALS WORKER HEALTH AND SAFETY TRAINING**

  Principal Investigator & Institution: Stafford, Erich J.; Center to Protect Workers Rights 8484 Georgia Ave, Ste 1000 Silver Spring, Md 20910

  Timing: Fiscal Year 2001; Project Start 21-SEP-1992; Project End 31-AUG-2005

  Summary: EPA Hazardous Waste Worker Training Program. The long-term objective of the Construction Consortium is to ensure that crafts workers who are called upon to work in EPA Superfund environments, have the skills, knowledge and confidence they need to protect their health and safety, and that of their co-workers, their families, their communities, and the environment. Our members perform a vast array of remediation and construction tasks at hazardous waste sites. With The Center to Protect Workers' Rights as the lead and coordinating organization, the consortium, which has recently grown to include ten international/national union members with the addition of the Electrical Workers, Plumbers and Pipefitters, and Bricklayers, has been providing effective training for our members who may work at EPA sites for the past nine years. In the first year of this grant the consortium will deliver 90 hazardous waste classes to 1,762 students and 133 hazardous waste refresher classes to 2,102 students. OSHA 10, scaffold user, and confined space classes will also be offered. Lead and asbestos worker courses will be delivered where specifically required by site contractors. The consortium, with its nationwide network of over 1,700 spacious and well equipped training centers, highly skilled national and local peer-trainers, containerized, craft-specific, and up-to-date training equipment, and centralized training support organization, can respond rapidly and effectively to requests for training from anywhere in the country. Consortium training is highly participatory, peer-led, and trade specific. Safety and health information is presented within a real-world context that readily transfers to the trainees' workplace environment. Problem solving exercises will guide trainees to help bring about health-related changes in their workplaces. Master trainers and program managers will work with training and evaluation experts to develop and improve training exercises, as well as classroom and web-based presentations. Extensive and rigorous trainer and master trainer preparation and enhancement programs will be coordinated by CPWR. It is a construction consortium objective to prepare a cadre of certified master trainers who can ensure the quality of their organizations' training well beyond the completion of this grant.

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- **Project Title: HAZARDOUS MATERIALS WORKER SAFETY AND HEALTH TRAINING**

  Principal Investigator & Institution: King, Judith L.; Associate Professor; Educational Development; University of Alabama at Birmingham Uab Station Birmingham, Al 35294

  Timing: Fiscal Year 2001; Project Start 16-SEP-1992; Project End 31-AUG-2005

  Summary: The University of Alabama at Birmingham 's Center for Labor Education and Research, in its application for funding an EPA- HWWT cooperative agreement, will provide courses to four populations of workers who share the need for general and specialized training in topics related to 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response. The overall goal is to improve the health and safety of members of the Communications Workers of America (CWA), Native Americans, emergency health care providers and fire fighters, by helping them reduce exposures to hazardous chemicals. Classes include Hazardous Materials Awareness, Operations, and Technician, adapted for the four different training populations; Handling Contaminated

Patients; Hazardous;SCBA Fit Testing; Air Surveillance in Chemical Emergency Incidents; Health Effects of Chemical Exposure; Confined Space Entry and Rescue, Hazardous Waste Handling; and Worker Training Methods. Classes will be taught in train-the-trainer mode, and materials provided for workplace training by the participants and for outreach to their respective communities. The four target populations have in common their potential for exposures to chemicals, training budgets that are inadequate or nonexistent, and job- and finance- related restrictions on extensive travel for training. CWA workers in manufacturing, product distribution and service, health care, printing and publishing, and numerous crafts will have regional classes throughout the United States, as will members of all 557 federally-recognized Native American tribes. Indian law enforcement officers, fire fighters, highway and hospital workers, emergency planners, natural resource personnel, environmental planners, and search-and-rescue units will be trained in safe Awareness Level response and Incident Management in classes coordinated through cooperation with the Native American Fish and Wildlife Society. In the southeastern United States, emergency room personnel will be trained to handle contaminated patients; surveys show most are unprepared for this problem and are in violation of the regulations of several agencies, including OSHA 1910.120. Because fire fighters have increased risk of diseases shown to be related to the inhalation of chemicals and smoke, they will be trained in toxicology, fit testing, air monitoring, and rescue from confined spaces with hazardous atmospheres. Computer-based asynchronous training will be utilized to achieve some of the objectives, and this method formally compared with traditional training. Professional safety and health trainers will develop and deliver all training using curricula developed and piloted under previous cooperative agreements. Total number of trainees will exceed 20,000, with tribal peer trainees and community outreach participants not included in the estimate. The total proposed cost of the five- year project is 3,296,947 dollars.

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- **Project Title: HEALTH IMPROVEMENT & COST REDUCTION IN ANIMAL FACILITIES**

  Principal Investigator & Institution: Smith, Abigail L.; Professor of Pathology; Jackson Laboratory 600 Main St Bar Harbor, Me 04609

  Timing: Fiscal Year 2002; Project Start 30-SEP-1998; Project End 31-MAR-2005

  Summary: (Provided by applicant): The overall goal of the proposed studies is to establish environmental conditions that optimize the health of mice used in biomedical research, provide a safe and comfortable workplace, and minimize the costs associated with doing animal-based research. The methods by which the applicants will approach this goal include: (1) determining housing conditions that minimize pathogen transfer, (2) evaluating effects of culling on reproductive success, (3) identifying husbandry and hygiene practices that reduce caretaker exposure to mouse allergen, and (4) instituting workplace activities that may improve the health of animal caretakers. The investigators will first study the capacity of ventilated caging maintained at "neutral" airflow and negatively ventilated changing tables to reduce worker exposure to allergen and to reduce or eliminate transfer of Pasteurella pneumotropica, Helicobacter spp. and Pneumocystis carinii from infected mice to pathogen-free immunocompromised mice. The applicants will determine reproductive success of mice whose litters are culled or not and housed under different ventilation conditions. The efficacy of water, dilute tannic acid, and dilute sodium hypochlorite used to reduce breathing zone allergen levels during bedding changes will be tested. Skin and clothing of caretakers will be

sampled for Staphylococcus aureus upon entry into mouse rooms through air or wet showers and for allergen upon exiting the facility through air or wet showers. In an effort to reduce employee workplace injuries, a functional capacity checklist will be developed and will be used to design an employee exercise program. Lastly, a pre-employment Functional Capacity Assessment tool to help slot new hires in positions for which they are physically capable will be used.

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- **Project Title: INCREASING COLORECTAL CANCER SCREENING AMONG CARPENTERS**

  Principal Investigator & Institution: Lipkus, Isaac M.; Associate Research Professor; Community and Family Medicine; Duke University Durham, Nc 27706

  Timing: Fiscal Year 2001; Project Start 30-SEP-1993; Project End 31-MAY-2004

  Summary: This competing continuation interactive R01 is being submitted by Duke University Medical Center as one of five sites to the National Cancer Institute's Cancer Screening Consortium. The other sites include: Fred Hutchinson Cancer Research Center, RAND-UCLA, State University of New York at Stony Brook, and the University of Massachusetts. This proposal makes a unique contribution to the Consortium by examining how different modes of conveying colorectal cancer (CRC) risk factors affects CRC screening among a high risk occupational group, carpenters. Carpenters are exposed to **occupational health** hazards (e.g., asbestos, wood dust, solvents) and engage in lifestyle behaviors (e.g., smoking, alcohol use) that may increase their CRC risk. This proposal assesses whether an intervention that highlights and communicates to carpenters these occupational hazards and behavioral risk factors via different modalities (e.g., brochures, telephone counseling) motivates CRC screening. With the aid of the New Jersey Carpenters Trust, the main aims are to assess whether: 1) informing carpenters ages 50 and older about occupational and behavioral risk factors related to CRC, in addition to generic risk factors (e.g., age, family history, polyps), produces incremental increases in CRC screening as compared to providing them with generic risk information only; and 2) the use of targeted telephone counseling, as a motivational adjunct, produces incremental increases in CRC screening as compared to written educational materials. It is expected that carpenters who receive written information about occupational and behavioral risk factors along with telephone counseling that personalizes these risks will have the highest CRC screening rates. This proposal will address the Consortium aims of assessing: 1) the effectiveness of targeted telephone counseling versus a control (e.g., usual care) group; 2) sociodemographic and psychosocial characteristics comparing users versus underusers of CRC screening, and 3) the cost-effectiveness of the intervention. This site will develop the targeted telephone counseling to be used among the other Consortium members. This theoretically driven intervention will target individuals at a stage when risk perceptions are hypothesized to be most influential at initiating behavioral change. The results will: 1) provide much needed information about the efficacy of different modalities of communicating general, behavioral and occupation-related CRC risk factors, and 2) aid in the design of future CRC screening interventions among high risk occupational groups that capitalize on risk communication messages. Such interventions are especially needed among blue-collar workers who are more likely to be exposed to environmental carcinogens and engage in behavioral risk factors that increase CRC risk.

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- **Project Title: INHALATION DOSIMETRY/EXPOSURE INDEX OF FIBER AEROSOL**

  Principal Investigator & Institution: Cheng, Yung-Sung; Lovelace Biomedical & Environmental Res Environmental Research Inst Albuquerque, Nm 87185

  Timing: Fiscal Year 2002; Project Start 01-SEP-2002; Project End 31-AUG-2007

  Summary: (provided by applicant): Exposures to airborne asbestos and man-made vitreous fibers (MMVFS) increase the incidence of lung cancer, asbestosis, and mesothelioma. Fibers that deposit in the bronchial and alveolar regions, subsequently translocating to the parenchyma, are thought to be responsible for the development of these diseases. Physico-chernical properties of fibers, including length, diameter, and durability in the lung, are major factors in the etiology of these lung diseases. Because inhalation is the main route of exposure, the deposition pattern in the respiratory tract as a function of fiber dimensions is new information critical to understanding respiratory dosimetry and defining the index of exposure for health protection purposes. Controlled studies of fiber deposition in human volunteers are not available because of ethical concerns. However, total and regional depositions of inhaled fibers have been estimated from postmortem measurement, mathematical modeling, and animal toxicity studies. Increasingly, mathematical deposition models have been used to assess the dosimetry of inhaled MMVFS. However, current lung dosimetric models for fibers in the human respiratory tract are based on theoretical equations, which have not been verified with experimental data. This proposal has three objectives: (1) to develop experimental information on the deposition of fibrous aerosols as a function of fiber diameter and length in realistic human respiratory tract replicas, (2) to verify and improve the prediction of fiber dose estimate in human lungs using both empirical data as well as a computational fluid dynamic technique, and (3) to define,.a size-selective exposure index based on fiber penetration data. Because lung diseases caused by inhaled fibers occur in the bronchial, alveolar, and parachymal regions, a thoracic fraction defined as the fraction of particles penetrating the larynx and reaching the lung must be established and will be defined from experimental data obtained in this study. This research will generate essential information on the dosimetry of inhaled fibers in the human lung, data for an improved mathematical lung deposition model, and a definition of the thoracic fraction of fibers for exposure assessment. Sampling devices based on this size-selection definition can be developed in the future for improved assessment of worker exposure.

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- **Project Title: JOB HAZARD ANALYSIS OF SANDBLASTING SUBSTITUTES**

  Principal Investigator & Institution: Rosenberg, Beth J.; Assistant Professor; Family Medicine & Cmty Health; Tufts University Boston Boston, Ma 02111

  Timing: Fiscal Year 2001; Project Start 01-AUG-2000; Project End 31-JUL-2003

  Summary: Silicosis is a disabling and often fatal lung disease that is completely preventable. The recent designation of silica as a lung carcinogen, by the International Agency for Research on Cancer (IARC) makes the control of silica urgent. The connection between silicosis and tuberculosis is well known, and with the rise of drug resistant tuberculosis, the need to control silica is clear. Sandblasting produces high silica exposures. The urgency to decrease silica exposures has produced excellent research at NIOSH on the industrial hygiene aspects of blasting substitutes (Mickelsen et al, 1995, Greskovitch, 1999). Yet, there has been little research into the health effects that are not associated with chemical exposures, such as ergonomic effects, and the economics of the substitutes. With all the much needed focus on technologies to reduce

silica exposure, we must be mindful of introducing new hazards into the workplace. There have been numerous cases of unintended consequences resulting from well-intentioned interventions, because the focus has been on controlling a single hazard rather than assessing the full range of impacts on the work environment (Rosenberg, 1996). In order to fully evaluate an intervention, we need to take an integrated approach to the workplace. Further, for any of this research to be useful for contractors in deciding which method to choose, we need to have full cost accounting of each of the technologies. Otherwise, contractors are dependent solely on manufacturers for this information. This proposal investigates the range of health and economic impacts of interventions used to decrease silica exposure in the sandblasting industry. Objectives are to: 1) determine the potential health and economic impacts of selected substitute materials and technologies for silica sand in abrasive blasting and 2) acquire the skill to perform hazard analyses and economic analyses for the work environment.

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- **Project Title: LABORATORY REPORTING FOR PESTICIDE ILLINESS SURVEILLANCE**

  Principal Investigator & Institution: Das, Rupali; Public Health Institute 555 12Th St, 10Th Fl Oakland, Ca 94607

  Timing: Fiscal Year 2001; Project Start 30-SEP-1999; Project End 30-DEC-2003

  Summary: The **Occupational Health** Branch (OHB) of the California Department of Health Services (CDHS) proposes to develop a method for direct laboratory reporting of blood cholinesterase test results and to assess the efficacy of this system as a method for surveillance of illness due to cholinesterase-inhibiting pesticides. OHB currently conducts surveillance of work-related diseases, including pesticide illness, primarily through mandatory physician reporting. The use of laboratories as a source of information to supplement current pesticide illness surveillance activities will be explored. Impending regulations to standardize cholinesterase test reporting in California present a unique opportunity to study the utility of direct laboratory reporting as a surveillance method. This project proposes a prospective passive surveillance system for the detection of pesticide illness through direct laboratory-based reporting. Three laboratories will be initially requested to voluntarily report to OHB the results of all cholinesterase tests performed on California patients. Occupational pesticide illness cases will initially be identified through telephone follow-up of health care providers. Laboratory requisition forms will be modified or new forms developed to facilitate the identification of occupational pesticide-related cholinesterase tests and the forms will be tested for physician acceptance and compliance. If compliance is demonstrated, suspected occupational pesticide-related cases will be identified through laboratory reports, not solely through physician follow-up. All suspected cases will be contacted by bilingual interviewers for completion of an interview to assess issues related to pesticide illness and exposure at work. The NIOSH case classification system for pesticide illness will be used. Data abstraction, entry, and analysis will be conducted using strict quality control. Various information technologies will be explored for routine reporting of blood cholinesterase test results: hard copies will initially be requested; if acceptable, electronic reporting will be established by the end of the project. Surveillance data gathered by the research project will be evaluated for its ability to detect additional occupational pesticide illness cases. Under-reporting of illness due to cholinesterase inhibiting pesticides will be assessed by comparison of data obtained by this research project with physician reported cases in the current surveillance system. The data will also be used to identify populations at risk for illness

due to cholinesterase inhibiting pesticides and the work tasks associated with illness. If the proposed research shows that reports of cholinesterase test results contribute significantly to occupational pesticide illness surveillance, OHB will consider introducing laboratory-based reporting as a requirement in legislation

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- **Project Title: MANAGEMENT PRACTICES AS A FACTOR IN WORKPLACE VIOLENCE**

  Principal Investigator & Institution: Lowe, Tony B.; None; University of Pittsburgh at Pittsburgh 350 Thackeray Hall Pittsburgh, Pa 15260

  Timing: Fiscal Year 2002; Project End 31-JUL-2003

  Summary: (provided by applicant): This revised dissertation research project application of 1 R03 OH07374-0l will investigate the influence of management practices in contributing to the increased exposure of male social workers to workplace violence. Specifically, this project will test the effect of decision-making practices, as they relate to informal risk management efforts, regarding the task assignment of clients in the workplace. Examining the assignment practices of volatile (or high-risk) mental health clients may provide additional understanding of contributors to gender disparity in **occupational health** hazards for social workers. This experimental study will solicit a national random sample of 1000 National Association of Social Workers (NASW) members for analysis. The sample inclusion criteria are: current membership in NASW, mental health as the primary service setting, and supervision as the primary practice function. This research addresses the following questions: (1) Does a mental health client's behavioral history significantly increase the client's likelihood of assignment to a male social worker? (2) Does a mental health client's behavioral history and a social work supervisor's gender role perception interact to significantly increase the client's likelihood of case assignment to a male social worker? (3) Does a mental health client's behavioral history and the male gender of the client interact to significantly increase the client's likelihood of case assignment to a male social worker? (4) Does a mental health client's behavioral history and gender of supervisor interact to significantly increase the client's likelihood of case assignment to a male social worker? (5) Does a mental health client's behavioral history and an organization's policy practices interact to significantly increase the client's likelihood of case assignment to a male social worker? By investigating management practices around volatile clients and testing hypotheses regarding their outcome, this study has implications for the Work Environment and Workforce priority research area of the National Occupational Research Agenda. In general, this research will help us understand mechanisms that may contribute to gender disparities in **occupational health** hazards within an occupation. More specifically, these findings will increase our knowledge of gender disparities in client-related violence, risk exposure of an at-risk population, supervisory practices, and organizational policy practices in mental health service settings across the nation.

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- **Project Title: MEASUREMENTS AND CONTROL OF DIESEL EMISSIONS IN UNDERGR***

  Principal Investigator & Institution: Lu, Mingming; Civil and Environmental Engr; University of Cincinnati 2624 Clifton Ave Cincinnati, Oh 45221

  Timing: Fiscal Year 2002; Project Start 01-SEP-2002; Project End 31-AUG-2005

Summary: The diesel particulate matter (DPM) emissions in underground mines are much higher than other occupational exposures, which pose potential health threats to mine workers. This project is aimed at developing a novel control technology to substantially reduce DPM and other diesel exhaust emissions and to determine the impact of this control method by performing a thorough characterization of DPM emissions in target underground mines. DPM emission measurements, such as area-of-interest sampling, personal exposure and emission source sampling, will be performed and the technology will be implemented in a selected mine/mines for demonstration purposes.

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- **Project Title: MICROANALYTICAL SYSTEM FOR INDOOR VOC MONITORING**

  Principal Investigator & Institution: Zellers, Edward T.; Associate Professor; Environmental Health Sciences; University of Michigan at Ann Arbor 3003 South State, Room 1040 Ann Arbor, Mi 481091274

  Timing: Fiscal Year 2002; Project Start 30-SEP-1998; Project End 31-MAY-2005

  Summary: Continued research on the development and implementation of a high-performance micro analytical system capable of on-site speciated analysis of volatile and semi-volatile organic compounds (VOCs and SVOCs) encountered as complex mixtures at low-/sub-part-per-billion concentrations in non-industrial indoor working environments is proposed. Application to other **occupational health** monitoring needs will also be addressed. During the first finding cycle of this project, we succeeded in producing and characterizing the performance of a notebook-computer-sized fieldable instrument that employs preconcentration, thermal desorption, high-speed tunable separation, and microsensor-array detection. Detection limits ranging from 0.06 - 17 ppb have been achieved for the components of mixtures of >30 VOCs/SVOCs spanning a 10,000-fold range of vapor pressures captured from l-L air samples. Response patterns combined with chromatographic retention times have been used for vapor identification. Analytical cycle times of < 10 min are possible. Meeting these goals has also led to advances in adsorbent-preconcentrator design, dual-column pressure/temperature-modulated separations using air as carrier gas, and vapor detection, recognition, and quantification with ultra-miniature arrays of polymer-coated surface-acoustic-wave (SAW) microsensors. Here, we propose to field test this first-generation instrument in office buildings and to explore its application for breath analysis and for industrial air monitoring where vapor concentrations tend to be higher. Development of a second-generation microanalytical system with the following refinements/additions is also proposed: a wireless interface to permit unattended operation; an on-board vapor generator for automatic field calibration and system diagnostics; use of an alternative sensor technology with greater sensitivity to reduce sample volumes and/or detection limits; addition of a focusing element to reduce inlet bandwidths and use of alternative separation strategies to improve chromatographic resolution/versatility and reduce analysis time; and implementation of Si-micromachined components to reduce size and power. Laboratory and field testing of this second-generation instrument will then be performed. This system represents a significant advancement over the current state-of-the-art in monitoring instrumentation for complex vapor mixtures, obviating the need for conventional sorbent-tube/GC-MS methods for routine indoor air (and other) monitoring. The versatility of this instrument will facilitate the assessment of exposure distributions and the implementation of rational intervention strategies related to indoor air quality and other **occupational health** problems.

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- **Project Title: MINIATURE SENSOR PLATFORM FOR DETECTING TOXIC GASES**

  Principal Investigator & Institution: Kostelecky, Clayton J.; Principal Investigator; Nanomaterials Research, Llc 2021 Miller Dr, Ste B Longmont, Co 805016787

  Timing: Fiscal Year 2002; Project Start 01-APR-2002; Project End 30-SEP-2003

  Summary: The development of small, reliable, real-time gas sensors is important in industrial health and safety, indoor air quality assessment, and emissions monitoring. These sensors (and their associated instrumentation) need to be very lightweight, battery-operable, resistant to environmental damage, highly sensitive to the desired gas species, and fast to respond and alarm. This work addresses the development of just such a miniaturized sensor platform. During the Phase I project, NRC will demonstrate a single sensor package containing four discrete devices with a footprint of only 0.007 square inches. Due to the considerable degree of miniaturization enabled by this approach, arrays with over 32 individual sensor elements are envisioned for the Phase II, allowing the simultaneous measurement of a wide range of chemical gases with only a single small sensor device. Two demonstration gases will be characterized during Phase I, namely toluene and methanol. However, this platform is amenable to the detection of a large number of toxic species, enabling us to tailor the device for specific applications. PROPOSED COMMERCIAL APPLICATION: If successfully developed, this unique sensor platform can be used in a variety of commercial applications including personal exposure monitoring of workers, indoor air quality assessment, and biomedical research.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: NAIL SALON HAZARDS AND HEALTH EFFECTS**

  Principal Investigator & Institution: Roelofs, Cora R.; Work Environment; University of Massachusetts Lowell 1 University Ave Lowell, Ma 01854

  Timing: Fiscal Year 2003; Project Start 01-SEP-2003; Project End 31-AUG-2006

  Summary: (provided by applicant): Nail salon employees are potentially exposed to dozens of recognized chemical hazards including acrylates, solvents, and biocides in dust and vapor form, yet little is known of salon workers' total exposure or work environment conditions. Even less is known about prevalence of health effects in this population of mostly Asian immigrant women workers. We do know that exposure to the chemicals with which they work have been linked to asthma, dermatitis, cognitive dysfunction and reproductive health hazards. Special barriers confront investigators in studying the nail work environment, including the smallness of nail salons businesses and potential language and cultural differences between investigators and salon owners and workers. The proposed study, by a new investigator, aims to develop methods for a community-based, comprehensive investigation of both the technical and social issues related to the nail salon work environment and health hazard prevalence in salon workers. Through consultation with a Research Advisory Group, site visits to salons, and in-depth and relationship-building interviews with stakeholders, the investigator will 1) design an exposure assessment strategy appropriate to the evaluation of nail salon work environments; 2) design a survey to assess occupationally-related health effects in nail salon workers; 3) pilot the exposure assessment strategy and health effects survey to evaluate feasibility and validity; 4) assess the social context of **occupational health** issues as they relate to nail salon work; 5) determine access strategies and build relationships to facilitate this project and a larger-scale study.

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- **Project Title: OCCUPATIONAL AND ENVIRONMENTAL HEALTH**

  Principal Investigator & Institution: Brain, Joseph D.; Professor; Environmental Health; Harvard University (Sch of Public Hlth) Public Health Campus Boston, Ma 02460

  Timing: Fiscal Year 2001; Project Start 01-DEC-1977; Project End 31-MAR-2003

  Summary: The objectives of our Harvard Kresge Center for Environmental Health are to generate new knowledge relating to the physiology, pharmacology, pathology, cell biology, and epidemiology of environmental disease, and to apply this knowledge to new modalities of therapy and prevention. We intend to realize these objective through a variety of approaches which range from studies of molecules and cells to those of whole animals and human populations. Through the organizational structure and financial support provided by the NIEHS Center Grant, we hope to increase the impact of our research and the prevention, diagnosis and treatment of environmental diseases. A major goal is to facilitate productive interactions between basic and applied environmental science. This will be accomplished by fostering active collaborations among six scientific cores: They are: 1) Radiobiology and Environmental Carcinogenesis, 2) Biochemical and Environmental Toxicology, 3) Respiratory Biology and Inhalation Toxicology, 4) Environmental Epidemiology, 5) **Occupational Health,** and 6) Environmental Science and Engineering. The work of the scientific cores, their faculty, students and fellows, will be greatly facilitated by four facilities cores: They include: 1) Cell and Molecular Imaging, 2) Human Cell Bank, Genotyping and Tissue Culture, 3) Exposures, and 4) Biostatistics and Data Management. Finally our ability to make our research available to the public will be greatly enhanced by our Community Outreach and Education Core. The theme of our center grant is the effects of physical and chemical factors in the environment on biological system, with particular emphasis on the health of humans. Biologic effects include alteration of function, as well as initiation or aggravation of illness, disability and premature death. A wide range of diseases and effects are included, such as cancer, chronic lung disease, reproductive outcomes and effects on the nervous and renal systems. Our approaches are both toxicologic and epidemiologic. Toxicologic approaches include a variety of molecular, biochemical and physiologic methods applied to biologic systems ranging from cells to whole organisms. Epidemiologic methods also cover a wide range from field studies to analysis of vital records and case control studies.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: OCCUPATIONAL HEALTH GRADIENTS IN HOSPITAL WORKERS: THE**

  Principal Investigator & Institution: Blanc, Paul D.; Professor of Medicine; Medicine; University of California San Francisco 500 Parnassus Ave San Francisco, Ca 94122

  Timing: Fiscal Year 2001; Project Start 28-SEP-2000; Project End 31-AUG-2005

  Summary: (Taken from the Investigators' Abstract) Socioeconomic gradients in health status are ubiquitous in space, persistent in time, and pervasive across diverse health outcomes. Yet little is known of how they arise, and specifically, how great a contribution is made to them by working conditions during adult life. Existing occupational cohort studies, such as the landmark Whitehall publications, have failed to convince some observers that work-related "psychosocial" exposures, e.g., the degree of control felt by employees over their jobs, constitute the key causal influences responsible for socioeconomic gradients in the health of the general adult population, especially

gradients in chronic disease. Largely missing in the debate thus far is high-quality evidence on gradients from workplaces with a wide range of jobs -- Whitehall, for example, is fundamentally an office worker study. The present proposal is premised on the view that rich insights into the genesis of such health "gradients" may be gained by studying in detail, over some years, a workplace, such as a hospital, that has a very wide range of jobs, and of employees from different social classes. By far the major "short-term" **occupational health** problem of this workforce, and many others, is work-related musculoskeletal disorders (WRMSDs) -- a broad class of outcomes including low back pain and upper extremity injuries, such as tendinitis and carpal tunnel syndrome. Both psychosocial and physical-ergonomic exposures at work are now thought to be joint determinants of these musculoskeletal problems. Thus, psychosocial aspects of work are increasingly recognized as risk factors for both sorts of illness processes: traumatic and chronic disease. Yet there appears to be a dearth of research linking socioeconomic and job-category disparities in the risk of WRMSDs, with well-known gradients in many longer-term health outcomes, particularly coronary heart disease and its risk factors (such as hypertension). The investigators propose a study to shed light on the nature and multi-factorial etiology of hospital gradients, across job categories and employee social class backgrounds, in the occurrence of several potentially work-related health outcomes in hospitals. The outcomes studied will be lost-time, work-related musculoskeletal disorders, non-invasive measures of allostatic load (salivary cortisol and blood pressure), overall health-related quality-of-life and injury-specific functional status, mental health status, and total sickness/injury absence from work. The influence of both directly observed physical-ergonomic factors at work and psychosocial occupational exposures on socioeconomic gradients in the risk of these conditions will be assessed. Finally they propose to examine, through qualitative research methods, the social contextual factors within participating hospitals, which influence working conditions. The study team will also work with a labor-management team to develop possible interventions for the problems that are identified by this study.

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- **Project Title: OCCUPATIONAL HEALTH OF IMMIGRANTS WORKING IN RESTAURANTS**

  Principal Investigator & Institution: Tsai, Jenny H.; None; Seattle University 12Th and E Columbia Seattle, Wa 98122

  Timing: Fiscal Year 2003; Project Start 01-SEP-2003; Project End 31-AUG-2005

  Summary: (provided by applicant): The eating and drinking (E&D) industry is the third largest employment sector in the United States; and restaurant workers make up the largest proportion of E&D workers. It is estimated that E&D workers sustain more than 5 percent of reported nonfatal injuries nationwide. Washington State reports even higher rates with a 7.6% injury rate in 1999. The E&D industry, and in particular the restaurant industry, is one of the most common workplaces for Chinese immigrants. The primary purpose of this feasibility study is to explore and analyze the occupational experiences of Chinese immigrants who work in restaurants, with specific emphasis on work-related injuries and illnesses. The specific aims are to: (1) identify and describe the types of **occupational injuries** and illnesses that occur among Chinese immigrant workers; (2) describe Chinese immigrant restaurant workers' perceptions about work-related hazards and risks; (3) examine these workers' **occupational health** and safety knowledge related to such things as regulatory requirements, worker protection, and safe work practices; (4) identify individual and contextual factors influencing the occupational experiences of these workers; and (5) determine the optimal way to collect

valid and reliable data about occupational hazards and risks among Chinese immigrant workers. The participants for this study will consist of a purposive sample of 20 Chinese immigrants whose primary employment is in the restaurant industry. Inclusion criteria include: (1) born in China, Taiwan, or Hong Kong; (2) over 18 years of age; (3) speak Chinese, Taiwanese, or English; and (4) have been working in restaurants for at least 6 months. An ethnographic approach that includes semi-structured interviews and participant observation will be used. The interviews will be used to learn about the participants' work-related experiences and to explore their knowledge and perceptions about occupational hazards and risks. The participant observation will be used to generate new questions and to supplement the information collected during the interviews. Additionally, a Demographic and Immigration Questionnaire will be used to collect demographic and immigration data, and a Demands of Immigration Scale will assess distress associated with the demands of immigration. A qualitative software program (Hyper RESEARCH) will be used for data management. An ecological framework will be used to guide interview questions and analysis for this study; this framework provides a means to identify the full range of factors that affect the participants' occupational experiences.

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- **Project Title: OCCUPATIONAL PHYSICAL ACTIVITY AND CIRCULATORY DISEASES**

  Principal Investigator & Institution: Krause, Niklas; Medicine; University of California San Francisco 500 Parnassus Ave San Francisco, Ca 94122

  Timing: Fiscal Year 2003; Project Start 01-AUG-2003; Project End 31-JUL-2006

  Summary: (provided by applicant): Low levels of physical activity have been identified as a major risk factor for cardiovascular disease. However, the evidence for this observation is primarily based on leisure time physical activity. The literature regarding occupational physical activity is controversial. The long-term health effects of different levels of energy expenditure and of different types of activity at work are unknown for most circulatory diseases. However, recent epidemiological research has shown a strong association between prolonged standing at work and hospitalization due to varicose veins, 4-year progression of carotid atherosclerosis, all-cause mortality, and a trend for cardiovascular mortality. The aim of the proposed research is to determine the long-term health effects of different types and levels of occupational physical activity on chronic circulatory diseases. This will be accomplished by an 11-year follow-up of 2682 middle-aged men enrolled in the population-based Kuopio Ischemic Heart Disease Risk Factor Study (KIHD). The KIHD study has the most comprehensive set of biological, behavioral, social, and psychological risk factors of any study, allowing for the control of virtually all known possible confounders. For the first time, the impact of occupational physical activity will be evaluated prospectively on 11-year progression of carotid atherosclerosis and a wide range of specific circulatory diseases, including myocardial infarction, stroke, intermittent claudicating, hypertension, thrombophlebitis, and pulmonary embolism. Specifically, the following questions will be addressed: 1) Is the level of daily energy expenditure during work activities associated with circulatory disease and death? 2) Is the ratio of static/dynamic work predictive of morbidity and mortality? 3) Is a predominantly standing working position a risk factor for arteriovascular and venous diseases? 4) Is the impact of occupational physical activity on persons with existing is chemic heart disease or peripheral vascular disease different from the impact on healthy individuals? The long-term goals of this project are to yield useful information for (1) the primary prevention of chronic diseases of the circulatory

system, associated disability, and premature death in the aging working population, and (2) the development of evidence-based recommendations for the optimal balance between static and dynamic work, working postures, and overall levels of occupational and leisure time physical activity, for both healthy people and those diagnosed with cardiovascular disease.

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- **Project Title: OCCUPATIONAL SAFETY AND HEALTH TRAINING FOR TELEWORKERS**

  Principal Investigator & Institution: Harrington, Susan S.; Harrington Software Associates 7431 Wilson Rd Warrenton, Va 20186

  Timing: Fiscal Year 2001; Project Start 30-SEP-2001; Project End 31-MAR-2002

  Summary: (provided by applicant): The purpose of this research is to reduce the risk of **occupational injury** and illness to employees who telecommute from their homes (telework). The rapid growth of teleworking has raised several social and legal issues regarding an employer's responsibility for an employee's home office. Current OSHA policy states that employers are not responsible for home offices; yet, teleworkers may be more at risk from occupational safety and health hazards than their co-workers who commute. In a corporate or government workplace, occupational safety and health risk factors are controlled or eliminated by the employer, building owner, or fire marshal. In the home workplace, employees must control or eliminate risk factors on their own. The long-range goals of this project are: (1) to develop a validated computer-based occupational safety and health training program for workers who telecommute from their homes; (2) to demonstrate the short- and long-term effects of the training on the knowledge, attitudes, and practices of teleworkers; and (3) to demonstrate the effect of the safety training on the **occupational injury** and illness rates of teleworkers. Topics will include office ergonomics, fire safety, electrical safety, indoor air quality/radon, and falls/tripping. The program will be delivered in CD-ROM and web-based formats. PROPOSED COMMERCIAL APPLICATIONS: There is a large market for a teleworker safety program. The number of U.S. teleworkers rose from 4 million in 1990 to 16.5 million in 1999. The International Telework Association and Council has expressed an interest in including Safety for Teleworkers in their International Telework Institute (ITI). The web-version of Safety for Teleworkers will also be submitted to Click2Learn, for inclusion in their corporate training catalog. Click2Learn provides e-learning training solutions to large corporations, such as Lucent Technologies, Microsoft, and AT&T.

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- **Project Title: OLDER AGE HEALTH AND LONGEVITY: A LONG-TERM VIEW**

  Principal Investigator & Institution: Costa, Dora L.; Associate Professor; National Bureau of Economic Research Cambridge, Ma 02138

  Timing: Fiscal Year 2002; Project Start 01-SEP-2002; Project End 31-AUG-2007

  Summary: (provided by applicant): Mortality rates at older ages have been falling throughout the twentieth century. By 2050 at least 20 percent of the population of the United States is expected to be older than 64. The consequences of mortality decline for older age health are still disputed. One view holds that rising longevity may increase both chronic disease and disability rates. Another view holds that the onset of both chronic disease and disability rates may be postponed. Alternatively, even though declines in mortality may increase the prevalence of chronic disease rates, the rate of

progression of chronic disease and therefore of disability may fall. Although the short-run consequences of mortality declines for older age health may differ from the long-run consequences, the evidence suggests that in the long-run population aging has been accompanied by improvements in elderly health. Several factors could account both for long-term improvements in elderly health and for increases in longevity at older ages. This project will use data on both recent and past populations to investigate the plasticity of aging to assess explanations for long-run trends in disease, disability, and death. Among the explanations considered will be reduced infectious disease rates, reduced occupational risk and improvements in socioeconomic status, and improved nutritional intake. The project will focus on the role of these factors in both older age and young adult health proxies to determine the timing of when infectious disease, occupational risk, socioeconomic status, and nutritional intake affect health declines. The project will examine the role of these factors not just in disease and mortality rates, but also in cognitive functioning at older ages. The project will also examine the social construction of disability by investigating changes in the relationship between disability and labor force participation. In addition, it will estimate the economic gains to improvements in chronic disease, disability, and death rates, apportioning the economic gains to those due to improvements in reduced infectious disease rates and to changes in socioeconomic status. The findings have implications for theories of aging; for forecasting future health and mortality trends; for assessing policies aimed at reducing the fiscal deficits in Social Security Old Age Insurance and Medicare; and for assessing the economic gains to investments in biotechnology and innovations in medical care.

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- **Project Title: ORGANIC SOLVENT MIXTURES & NEUROPSYCHOLOGICAL OUTCOMES**

  Principal Investigator & Institution: Kirrane, Ellen F.; Biostatistics; University of North Carolina Chapel Hill Office of Sponsored Research Chapel Hill, Nc 27599

  Timing: Fiscal Year 2001; Project Start 01-APR-2001; Project End 31-MAR-2003

  Summary: The overall goal of this project is to characterize organic solvent exposure among a cohort of commercial fishers and determine the association between this exposure and neuropsychological and neurobehavioral tests scores. Although commercial fishing is among the most hazard industries in the United States (Myers et at. 1994) little is known about the health hazards in this occupational group. However, despite the lack of information on health hazards in this industry, fishers are known to be exposed to a variety of organic solvents including evaporative emissions from fuel and fuel exhaust, styrene and acetone during fiberglass work, paints and tars for waterproofing their traps. These chemicals have been associated with decrements in neurobehavioral measures of memory and psychomotor function (Baker et al. 1994). In order to achieve the project goal, repeat measures of personal exposure to organic solvents will be made and combined with data from an ongoing cohort study of 225 fishers. Fisher participants in the cohort study receive a battery of neuropsychological and neurobehavioral tests at baseline and every six months during the follow-up period. In addition, a wealth of information on occupational activities and personal factors that may be related to poor performance on neuropsychological tests is collected. The analytic strategy that will be employed for this project involves the use of mixed model methods to identify control options and determine homogenous exposure groups. Once homogenous exposure groups are defined, exposure levels can be assigned to each fisher in the cohort. Statistical analyses will generate the following measures of association or effect for each neuropsychological and neurobehavioral test result: (1)

mean test score and standard deviation in different exposure groups; (2) the slope and correlation coefficient describing the association between exposure and test score; and (3) an odds ratio estimating the relative risk of an abnormal test score across exposure groups. Both the cumulative exposure and the timing of exposure on outcome measures will be evaluated. In addition, the effect of individual solvents and the combined effect of multiple solvents will be determined. The main strength of this study involves its use of a rich database of exposure and outcome data from an ongoing study of commercial fishers. The exposure assessment piece proposed in this project is an ideal addition to the cohort study and will provide valuable information for evaluating the risks from continuous and intermittent exposure to commonly used organic solvents.

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- **Project Title: OUPATIONAL SURVEILLANCE MODULES FOR PREVENTION**

  Principal Investigator & Institution: Bonauto, David; Washington State Dept Lab/Indust of Labor and Industries Olympia, Wa 98504

  Timing: Fiscal Year 2001; Project Start 01-JUL-2001; Project End 30-JUN-2005

  Summary: Through surveillance of several National Occupational Research Agenda (NORA), Healthy People, and Washington State Department of Labor and Industries priority conditions including occupational asthma (OA), adult lead poisoning, musculoskeletal disorders of the upper extremity, low back disorders, dermatitis, hospitalized burns, traumatic head and brain injuries (THBI) as well as assaults, the Safety and Health Assessment and Research for Prevention (SHARP) program will demonstrate the application of a comprehensive, occupational surveillance program. Through demonstration of the proposed surveillance program, SHARP will create a systematic model for adoption by other states. To allow for adaptability, SHARP proposes development of a modular approach which demonstrates several approaches to outcome based surveillance, hazard based surveillance, and subsequent prevention activities. The proposed project will address the following aims: 1) Conduct a survey of state based occupational surveillance programs to determine currently employed approaches to surveillance and prevention, program capabilities, and program opinion leaders. 2) Demonstrate a modular approach to occupational surveillance. This modular approach should encompass the use of different data sources for priority conditions selected by an individual program. 3) Develop modules for the creation, dissemination, and evaluation of prevention efforts. 4) Conduct an employer/employee survey to further identify etiologic agents or practices in one identified industry. 5) Develop an Internet based library of surveillance modules and prevention materials. 6) Produce and disseminate three surveillance reports for WA State priority conditions per year. 7) Produce and disseminate two prevention reports to employers or employees per year. Through the proposed project, SHARP will demonstrate the utilization of several data sources for the surveillance of occupational diseases and hazards. Further, SHARP will demonstrate the analysis of such data, the creation of simple public health interventions using surveillance data, the implementation of interventions, and the evaluation of interventions using surveillance data. Finally, SHARP will produce a web accessible library of materials detailing the methodology of the various components of the surveillance program including prevention materials that may be modified and disseminated in other states.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: PARTNERSHIP IN SURVEILLANCE AND PREVENTION**

  Principal Investigator & Institution: Mccauley, Linda A.; Professor; None; Oregon Health & Science University Portland, or 972393098

  Timing: Fiscal Year 2001; Project Start 01-JUL-2000; Project End 30-JUN-2003

  Summary: This proposal addresses the NORA designated priority area of Surveillance Research Methodology and is based on a collaboration between the Center for Research on Occupational and Environmental Toxicology (CROET) at Oregon Health Sciences University (OHSU), the Environmental, Occupational and Injury Epidemiology Section of the Oregon Health Division (OHD), and major insurers for Workers' Compensation (WC) in Oregon. This collaboration brings together experts in epidemiology, surveillance, WC, and insurance plans for industry to advance the knowledge of worker injury and illness surveillance. Specifically we will address the disparities in data available in the state-mandated WC system and those available in the databases held by private insurers and self- insured companies. We will also provide for insurers that collaborate in this project evidence of the utility of surveillance data in understanding how the employers they insure compare with other employers in the state and the nature of their **occupational injuries** and illnesses. A research plan has been developed which will assess the feasibility and potential utility of WC claims data from multiple insurers into a common database for monitoring all types of WC claims. This transformation of claims data from multiple insurers will provide a broad view across insurers, will indicate any need for taxonomy development and standardization to facilitate the merging of data, and will provide the mechanism to compare illness and injury claims in relation to key variables. Upon successful merging of data from multiple insurers, this project will determine differences in the disabling and "medical-only" claims among different insurers according to type of injury/illness, age and gender of claimants, type of industry, and occupation. Comparisons will be made in the profile of **occupational injury** and illness available in state WC databases and the profile available in data from insurers. This project will demonstrate the utility of complete insurer databases in monitoring clusters of illness and injury, trends and patterns of claims and identifying new intervention opportunities as they emerge. The information generated from this surveillance can then be used to communicate to insurers the benefit of the surveillance for their loss prevention and the ultimate goal of improving worker safety and health and decreasing WC claims costs.

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- **Project Title: PATIENT-ORIENTED ENVIRONMENT HEALTH RESEARCH & TRAINING**

  Principal Investigator & Institution: Redlich, Carrie A.; Associate Professor of Medicine; Occupational Medicine; Yale University 47 College Street, Suite 203 New Haven, Ct 065208047

  Timing: Fiscal Year 2001; Project Start 06-JUL-2000; Project End 30-JUN-2005

  Summary: The overarching goal of this midcareer investigator award in patient-oriented research is to expand training in clinical multidisciplinary research focused on environmental health at Yale University. The candidate, Carrie A. Redlich, MD, MPH, an Associate Professor of Medicine, is a well respected clinical investigator with unique training and research experience in multidisciplinary environmental/occupational health research. This proposal will enable Dr. Redlich to expand her current research efforts and to develop a mentoring program that focuses on environmental and **occupational health** (EOH), and integrates laboratory, clinical and epidemiologic

approaches (also known as biomarker research, molecular epidemiology, or translational research). The proposed research project is a continuation of Dr Redlich's ongoing research. Specific aims are: 1) Characterize exposure and host factors which determine/modify risk of isocyanate asthma in a field epidemiologic study of HDI exposed autobody shop workers; 2) Determine how best to diagnose isocyanate asthma and how prevalent it is in autobody shop industry; 3) Investigate the mechanisms by which isocyanates cause isocyanate asthma; 4) Based on T cell or other immunologic responses, identify peripheral blood markers of immune sensitization or isocyanate asthma; 5) Develop a murine model of HDI asthma with the salient features of human isocyanate. The goals of the mentorship program are to provide research mentorship in patient-oriented environmental health research to occupational and environmental medicine fellows, doctoral and postdoctoral students, medical students and other trainees. The program will include didactic training, including new courses in biomarker research, a research infrastructure (data analysis, research assistance, information systems), and hands-on well supervised research mentorship. The environment for EOH research at Yale, spanning clinical, public health, and basic science departments, provides an ideal setting for multidisciplinary collaborative environmental health research and training.

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- **Project Title: PRACTICAL CIRCADIAN INTERVENTIONS FOR NIGHT SHIFT WORK**

  Principal Investigator & Institution: Eastman, Charmane I.; Professor of Psychology; Rush-Presbyterian-St Lukes Medical Ctr Chicago, Il 60612

  Timing: Fiscal Year 2003; Project Start 30-SEP-1999; Project End 30-APR-2008

  Summary: (provided by applicant): Millions of U.S. workers have to work night shifts, resulting in serious consequences such as sleep deprivation, fatigue, reduced alertness, impaired performance, gastrointestinal disorders, and reduced job and public safety. These problems occur because the circadian clocks of the workers do not usually phase shift (reset) to adjust to night work and day sleep schedules. Thus, there is a misalignment between the physiological circadian rhythms and the work and sleep schedule. Night workers are forced to work and sleep when their bodies are not prepared for either. We have shown, in simulated night shift studies, that appropriately timed bright light during the night shift combined with specific dark periods for daytime sleep can produce complete re-alignment of circadian rhythms with the night work, day sleep schedule. However, with complete adjustment night workers would not be adapted to the night time sleep schedule that they subsequently follow on their days off. This will limit the practical application of these types of schedules. We plan to test a schedule for permanent night work that would produce sufficient re-alignment both during night shifts and during days off. Subjects will "work" in the lab and sleep at home. Treatment groups will be exposed to bright intermittent light during the night shifts and will adhere to prescribed dark/sleep episodes (for daytime sleep after night work and sleep on days off). This treatment should phase delay the circadian clock (set it later) to a compromise position, in between complete adaptation to night work and complete adaptation to days off. Control groups will remain in ordinary room light during the night shifts and will be free to sleep whenever they choose while off work. A series of experiments are proposed in which circadian phase will be assessed on different days of the schedule by measuring the circadian rhythm of melatonin. We will determine whether the compromise phase position can be achieved and maintained in the treatment groups despite alternations between series of night shifts and days off. We

will determine whether more subjects in the treatment groups than in the control groups obtain a favorable compromise phase position. We will determine whether the treatment groups perform better and feel more alert on the night shift than the control groups, and whether they obtain more sleep. This work will have important implications for the health, safety, and well being of the night shift worker.

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- **Project Title: RACE AND OUTCOMES IN WORK-RELATED BACK INJURIES**

  Principal Investigator & Institution: Tait, Raymond C.; Psychiatry; St. Louis University St. Louis, Mo 63110

  Timing: Fiscal Year 2002; Project Start 01-FEB-2002; Project End 31-JAN-2005

  Summary: Occupational low back injury, a significant economic and healthcare problem in the U.S., has proven difficult to manage consistently and cost-effectively. Recent studies have shown medical management of low back pain to be highly variable. With respect to Workers' Compensation, apparent disparities in assessment and treatment associated with race have also been identified. While this research demonstrated potentially inequitable treatment of injured minorities with low back injuries, the representativeness of the results and their implications for post-settlement outcomes (i.e., clinical adjustment and employability) remain unknown. This historical cohort study is designed to identify potential race-related disparities in occupational healthcare, define the scope of the problem, and to assess the impact of such disparities on post-settlement adjustment. The study will examine a cohort of African Americans and White workers who incurred disabling low back injuries in the State of Missouri and whose disability claims were settled during the year 2001. Records of the Missouri Division of Workers' Compensation (MODWC) will be used to identify those claims from three Missouri population centers (St. Louis City, St. Louis County, Jackson County), where the majority of African Americans in Missouri reside. MODWC records will provide data relevant to medical costs, temporary total disability costs, permanent disability costs, and other injury-related matters for all claimants with work-related low back injuries leading to missed work time. Computer Assisted Telephone Interviewing methods will be used to assess post-settlement adjustment. Regression models will be used to assess the relationship of race and legal representation, alone and in interaction, with Workers' Compensation outcomes and post-settlement adjustment of claimants. The historical cohort design will address three weaknesses in the present state of knowledge. First, it addresses potential associations between race, treatment, and disability outcomes, an area that has been neglected. Second, it addresses relations among the above constructs and the post-settlement adjustment of claimants. Moreover, because of the sample size and the design, we will be able to separate the effects of potentially confounding variables (e.g., job type, socioeconomic status), both alone and in interaction with race. Finally, by dint of the procedures needed to recruit participants, the study will establish a cohort of injured workers whose adjustment can be monitored not only at the time of this study, but potentially beyond that time frame. If the cohort is examined at a later point in time, it will be possible to track true long-term outcomes of occupational healthcare.

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- **Project Title: REDUCING OCCUPATIONAL DISABILITY IN RURAL WORKERS**

  Principal Investigator & Institution: Butterfield, Patricia G.; Associate Professor; None; Montana State University (Bozeman) Bozeman, Mt 59717

Timing: Fiscal Year 2001; Project Start 01-JUL-1997; Project End 30-JUN-2003

Summary: (Adapted from the Investigator's Abstract): A total of 6.8 million injuries and illnesses were reported in private industry workers during 1994. Return-to-work (RTW) programs promote optimal recovery in injured workers; the rationale for RTW programs is based on evidence that proactive management of **occupational injuries** can significantly reduce the magnitude and duration of work-related disability. However this evidence comes almost exclusively from large companies (e.g., Boeing) in metropolitan areas. The objective of the proposed project is to systematically evaluate the feasibility of delivering nurse-coordinated RTW services in rural settings. Rather than transfer a centralized system to the rural setting, the RTW intervention will capitalize on the familiarity and expertise of local community nurses and physicians to direct and provide interventions in their own communities. The project will be conducted in three phases. Phase 1 includes a secondary analysis of data from three Oregon studies (n=927 workers) directed toward rural workers. These data, combined with clinical findings addressing low-back injuries, form the empirical foundation for the RTW intervention. Phase 2 includes a feasibility study delivered in two sites (Missoula, Montana and LaGrande, Oregon), 60 workers will be randomly assigned to either the RTW intervention or standard care. The intervention is comprised of four home/worksite visits to injured workers focusing on targeted areas of disability reduction. Phase 3 focuses on the development of an empirically-based risk reduction model for rural workers employed in small companies. Within this context, specific aims include: 1) Finalize components of the RTW intervention using data from the Oregon studies, 2) Train local nurses to provide the intervention, 3) Conduct a feasibility study testing the intervention in two communities, 4) Compare clinical and employment outcomes between the experimental and control groups, 5) Evaluate the feasibility of a multi-site clinical trial in rural communities, and 6) Develop an empirically-based model of risk reduction for injured workers in rural communities.

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- **Project Title: SOCIAL AND OCCUPATIONAL INFLUENCES ON HEALTH AND ILLNESS**

  Principal Investigator & Institution: Marmot, Michael G.; U of L University College London University College London London,

  Timing: Fiscal Year 2002; Project Start 30-SEP-1993; Project End 31-AUG-2007

  Summary: (provided by applicant): The Whitehall II study was set up to investigate the reasons for the social gradient in coronary heart disease, elucidating the contribution of psychosocial factors, health behaviors and their biological intermediaries. The internationally unique contribution of the Whitehall II study arises out of its combination of rich measures of work and non-work social positions and psychosocial factors coupled with detailed biological phenotyping, in an occupational cohort now moving out of work. If this renewal application is successful, this cohort of civil servants, men and women initially aged 35-55, will have been followed for 19-21 years. New findings from the last period of NHLBI support show that there is a social gradient in CHD morbidity and in the metabolic syndrome; the metabolic syndrome is associated with measures of automatic function and the hypothalamic-pituitary-adrenal axis; and in turn, aspects of these biological pathways are related to the psychosocial factors. Employment grade predicts the rate of decline in health functioning and continues to predict CHD mortality in participants who are beyond working age. Taken together these findings lead to the three specific aims of this application: (1) to determine the extent to which socio-economic position and psychosocial factors influence

pathophysiological responses and sub-clinical vascular disease directly and via health related behaviors, (2) to examine psychosocial explanations for socio-economic differences in coronary health in an occupational cohort moving out of work, (3) to determine, in our aging population, the relationships between socio-economic position, coronary disease and health functioning and disability. NHLBI support is sought for key new measures at phase 7, continued follow up of the cohort, and for data analysis in support of our three specific aims.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: SOFTWARE SYSTEM FOR PREDICTION OF SHIFTWORK ALERTNESS**

  Principal Investigator & Institution: Heitmann, Anneke; Circadian Technologies, Inc. 24 Hartwell Ave Lexington, Ma 024213103

  Timing: Fiscal Year 2001; Project Start 01-MAY-1999; Project End 31-AUG-2003

  Summary: (provided by applicant): A software system will be developed as a practical tool for accurately predicting alertness levels at work to help design bio-compatible work schedules and time the effective use of fatigue countermeasures. This software system can potentially benefit health and safety of a large portion of the working society. The core algorithm structure considers circadian and homeostatic aspects of sleep and alertness as well as time-on-task effects. The software system will use as input sleep and/or work patterns and individual characteristics (morningness/eveningness, habitual wake-up time) to generate a continuous alertness curve and statistical measures for work schedule evaluation. When the actual sleep pattern is not known, sleep will be predicted based on the work pattern. The algorithms of the modules for sleep and alertness prediction will be refined by optimization methods using error minimization techniques. The optimization process will use large training data sets on sleep and alertness patterns of shiftworkers with regular work schedules (to be collected during this project) and of workers with irregular work schedules (to be drawn from Circadian Technologies' extensive database). The predictive capability of the software system will be evaluated, using goodness-of-fit measures, by comparisons with Phase-I algorithms and by cross validations (using independent test data sets). PROPOSED COMMERCIAL APPLICATION: The progressive transition into a 24-hour society creates a large market for a software system for predicting alertness at work. This software system would be an attractive tool to design bio-compatible work schedules or to assess worker fatigue in accident investigations. The software system can also be used for worker training and public education regarding chronobiological and homeostatic aspects of sleep and sleepiness, and it can help increase awareness about the practical implications of fatigue at work.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: SUPPORT FOR INSTITUTE FOR LABORATORY ANIMAL RESEARCH**

  Principal Investigator & Institution: Zurlo, Joanne; Associate Director; National Academy of Sciences 500 5Th St Nw Washington, Dc 20418

  Timing: Fiscal Year 2001; Project Start 30-SEP-2000; Project End 31-JUL-2003

  Summary: The purpose of this study is to review **occupational health** and safety in the care of nonhuman primates used in research, education, and testing. The National Research Council will appoint an expert committee that will write a report based upon this review that meets the following specific aims: 1) identify hazards associated with

using nonhuman primates (NHP); 2) assess, in so far as it is possible, degree of risk of these hazards; 3) suggest options for managing the risks including engineering controls, administrative procedures, personal protective equipment, and worker training; 4) recommend methods for institutional management after suspected exposure; and 5) develop illustrative **occupational health** and safety plans for personnel working in large and small holdings of NHP. The committee will be composed of experts in **occupational health** and safety, industrial hygiene, virology and infectious disease, husbandry and veterinary medical care of nonhuman primates in large colonies and small facilities, and researchers who use nonhuman primates in their research. The committee will identify the hazards associated with using nonhuman primates (NHPs) in research, education, and testing; assess the degree of risk of these hazards: and suggest options for managing the risks including engineering controls, administrative procedures, personal protective equipment, and worker training. Recommendations would be made for institutional management of workers after suspected exposure. Sample illustrative **occupational health** and safety plans should be developed for personnel working in large and small holdings of NHP.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: SURVEILLANCE OF MORTALITY AND MORBIDITY IN US WORKERS**

  Principal Investigator & Institution: Fleming, Lora E.; Associate Professor; Epidemiology and Public Health; University of Miami-Medical Box 248293 Coral Gables, Fl 33124

  Timing: Fiscal Year 2002; Project Start 01-SEP-2002; Project End 31-AUG-2005

  Summary: (provided by applicant): The databases available to examine national patterns and trends of US worker health and safety are out dated, and in general, incomplete. The National Health Interview Survey (NHIS), a multipurpose household survey of the US civilian noninstitutionalized population conducted annually since 1957 by the National Center for Health Statistics (NCHS) of the Centers for Disease Control and Prevention (CDC), has collected demographic, health, and employment data on over 450,000 US workers aged 18 years and older in a probability sampling of the entire US population, with a Mortality Follow Up with cause of death from 1986 through 1995. Therefore, the NHIS database allows for longitudinal analysis of mortality data as a retrospective cohort study, as well as cross-sectional and trend analysis of the aggregate morbidity data collected annually representative sample of all US workers for the past 2 decades. Using this uniquely representative and large database of the NHIS 1986-94 surveys with Mortality Follow-Up, the objectives of this proposed study are to evaluate the time trends for morbidity, and the longitudinal mortality associated with industry and occupation for the US worker. After assembling the cohort of employed persons aged 18 and older, the Investigators will examine the cause specific mortality and reported health and disability as summarized data for all annual NHIS interviews from 1986-1994, as well as the morbidity time trends, by industry and occupation. Hypotheses have been generated based on the historical literature; these hypotheses can be tested not only in terms of specific industry/occupational subgroups, but also in subgroups determined by important confounding variables such as age, gender, race/ethnic, socio-economic status, and geographic region (depending on the subgroup sample size). The costs of injury and disease in terms of lost work time and the use of medical services can be evaluated by specific industry/occupational subgroups; cause-specific mortality by industry/occupational subgroups, as well as by the same confounding variables, will also be determined. The investigators propose to create 2 Study Monographs, one on Morbidity and one on Mortality, to be made publically available on a linked Study

Website so that researchers and the general **occupational health** community can use these data to compare to prior studies, to develop new research hypotheses, and to use the data as a surveillance tool to evaluate time trends and occupational disease in the US for the past 2 decades in both genders and in a variety of ace-ethnic subpopulations. This study proposal satisfies at least 3 NIOSH research priority areas (NORA): 1) surveillance research methods providing unique mortality and morbidity data on the entire US workforce; 2) unique mortality and morbidity data on older, race-ethnic, lower socio-economic and gender-specific worker subpopulations in the US; and 3) unique data on social and economic costs of workplace disease and injury. In addition this application is responsive to Program Announcement "Occupational Safety and Health Research (PA-99-143J.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: SURVEILLANCE RESEARCH METHODS IN CONSTRUCTION INJURY**

  Principal Investigator & Institution: Glazner, Judith E.; Preventive Med and Biometrics; University of Colorado Hlth Sciences Ctr P.O. Box 6508, Grants and Contracts Aurora, Co 800450508

  Timing: Fiscal Year 2002; Project Start 01-JUL-2002; Project End 30-JUN-2005

  Summary: (provided by applicant): Construction workers have among the highest rates of **occupational injury,** yet there are significant challenges in understanding their work exposures and the injuries associated with them for a number of reasons that are closely associated with they way they work. Construction workers are mobile, working for multiple contractors, which makes them difficult to enumerate. Their job sites are constantly changing as are the associated hazards. The work is often done by multiple trade groups on site with different responsibilities, different immediate supervisors, potentially different safety priorities and training requirements, and usually different compensation carriers. Yet the work of one group of workers has great potential to affect the health and safety of other workers. In recent years, the U.S. economy has supported much construction; consequently the construction trades have attracted Latino workers, presenting new challenges associated with language and cultural differences to the safety and health of workers. We propose to assess **occupational injuries** and hazards on a long-term commercial construction site in the Denver area with a diverse workforce. The study will take place through collaboration with the University of Colorado's rolling owner-controlled insurance plan. This arrangement provides a unique opportunity to enumerate time at risk among a variety of trade groups and to document their work injuries and the circumstances surrounding those events as well as the changing hazards associated with different stages of construction. Data will be collected through a combination of quantitative and qualitative methods which will allow both case-based and rate-based analyses. The result should be improved understanding of the injury experience of workers as well as the context in which injuries occur on complex construction projects, which will be useful for guiding prevention efforts. The proposed work will address a number of NIOSH's priorities, including surveillance methods, traumatic injury, construction workers, and special populations, specifically Latino construction workers.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: TOLERANCE OF THE INTERVERTEBRAL DISC**

  Principal Investigator & Institution: Lotz, Jeffrey Charles.; Professor; Orthopaedic Surgery; University of California San Francisco 500 Parnassus Ave San Francisco, Ca 94122

  Timing: Fiscal Year 2001; Project Start 30-SEP-1998; Project End 31-AUG-2003

  Summary: (Adapted from Investigator's Abstract) Occupationally-related low back injury and the resulting disability represent national health and economic problems of crisis proportions. For instance, medical costs associated with low back disorders are estimated to exceed 50 billion dollars annually. In attempts to protect workers from back injury during manual materials handling, significant progress has been made in the development of engineering models witch predict the muscular and spinal forces associated with specific lifting task. Unfortunately, relatively little is known regarding how these spinal forces are, in turn, linked to injury. This is the gap the research is intended to fill. Current injury tolerance criteria are based, in part on in vitro human cadaveric testing which describes the compressive strength of lumbar vertebral bodies. However, it is apparent that repeated spinal stress can lead to disc degeneration, and increased risk of injury, through more subtle, biologic pathways. With cadaveric testing, the body's normal process of degeneration due to cumulative loading and repair are missed. To clarify these factors, animal models can provide an important adjunct to cadaveric testing. However, no animal data currently exists which links the biological and biomechanical response of the disc to various static and dynamic loading regimens. Therefore, we have developed a mouse tail model in which controlled compressive stress can be applied to the intervertebral disc, and the biologic and biomechanical consequences monitored. Using this animal model preliminary studies demonstrate that disc degeneration is proportional to the magnitude, frequency, and duration of spinal loading. The goal of this proposal is to use these preliminary results and collect biological and biomechanical data from animals subjected to various spinal loading regimens in vivo. These data will be used to develop and validate a mathematical model that quantifies the degenerative response of the disc to various durations of dynamic compressive loading. Final results will be in the form that is appropriate for future combination with existing biomechanical lifting models, which together, can be used to refine occupational lifting limits.

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- **Project Title: UNCLAIMED INJURIES AND WORKERS' COMPENSATION ADEQUACY**

  Principal Investigator & Institution: Lakdawalla, Darius N.; Rand Corporation 1700 Main St Santa Monica, Ca 90401

  Timing: Fiscal Year 2002; Project Start 01-SEP-2002; Project End 31-AUG-2004

  Summary: The workers' compensation system is designed to provide health care and compensation to all American workers who suffer injuries or illnesses in the workplace without regard to fault. However, preliminary analysis suggests that only half of injured workers file claims. In light of this fact, we propose research with two key goals: (1) To understand the economic, demographic, and policy factors that cause workers with **occupational injuries** and illnesses not to file claims; (2) To reassess the adequacy of workers' compensation wage replacement rates, in light of the fact that many workers do not file claims or receive benefits of any kind. Consideration of the first goal reveals the surprising finding that the most vulnerable workers-those with the least alternative insurance against workplace injuries and illnesses-may be the ones least likely to file for

workers' compensation. They may face higher costs of filing workers' compensation claims. To pursue the second goal, we calculate the total wages lost over several years as a result of a workplace injury, which we will compare to the benefits paid by workers' compensation. These calculations will include the zero benefits paid to workers who do not file claims. We will use the National Longitudinal Survey of Youth (NLSY), a public-use database sponsored by the United States Department of Labor. Use of the NLSY breaks new empirical ground in two important ways. First, the NLSY is a nationally representative database, containing extensive information on over 4,000 workplace injuries, while previous analyses of workers' compensation filing have been limited to the use of site-, firm-, or region-specific data. Second, the NLSY has longitudinal data on earnings as well as unclaimed injuries, while previous analyses of the adequacy of workers' compensation have been limited to workers who file claims. This research is within NIOSH's NORA priority area of the Social and Economic Consequences of Workplace Injuries and Illnesses.

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- **Project Title: USING THE ASHBMP MANUAL AS A TOOL TO REDUCE FARM HAZARDS**

  Principal Investigator & Institution: Legault, Malcolm L.; Manager-Training and Education; Agricultural & Biological Engr; Pennsylvania State University-Univ Park 201 Old Main University Park, Pa 16802

  Timing: Fiscal Year 2001; Project Start 30-SEP-2000; Project End 31-OCT-2001

  Summary: This project will include working with two audiences - youth and their parents. Both are found working on farms and as such, both are exposed to the same farm hazards. It is postulated that youth may influence their parents in reducing farm hazards. This project will allow an evaluation of this postulate. This project addresses Goal 1 (Develop new or enhance existing control technologies) of the Research Goals of this RFA by developing and experimentally evaluating a youth oriented version of the Agricultural Safety and Health Best Management Practices (ASHBMP) Manual. A previous study, Adult ASHBMP Study, showed the original (Adult) ASHBMP Manual to be effective in reducing hazard levels when used by adult farmers. This study will investigate the use of the concept of the ASHBMP Manual by 12 to 15 year old farm resident youth to reduce farm hazard levels. The Adult ASHBMP Manual has a reading level of Grade 11. A Youth ASHBMP Manual will be developed that will have a reading level of Grade 6. The research objectives for this developmental project are to: Determine the effect of the Adult and Youth ASHBMP Manuals and youth-parent interaction about safety topics in modifying safety behaviors on the farm; Determine the effects of using the visually-oriented ASHBMP as a hazard audit tool for reducing hazards on farms; Determine the relative effectiveness of youth use of the Adult ASHBMP Manual as compared to adults; and to Evaluate inter-rater reliability and internal consistency of the Adult and Youth ASHBMP Manuals as an auditing tool for use by youth. Before the evaluative process can be accomplished, the Youth ASHBMP must be developed. Also, in this study safety factsheets are used for the control measure. These fact sheets are the ones used in the Adult ASHBMP Study. Youth oriented fact sheets will be developed, as a second control measure, and used in the evaluation of the Youth ASHBMP Manual. It is very expensive to print large quantities of a paper-based manual. After completion of this study, funds will not be available for duplication. But, even though the up-front costs can be high developing the Youth ASHBMP into an interactive CD-ROM is an economical choice. Recordable CD's are less than $1.50 and a paper manual would be

about $30. Therefore, the last objective of this study is to develop the Youth ASHBMP into a CD-ROM.

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- **Project Title: WORK ACCOMMODATIONS FOR OLDER WORKERS WITH DISABILITIES**

  Principal Investigator & Institution: Zwerling, Craig S.; Prev Med & Environmental Hlth; University of Iowa Iowa City, Ia 52242

  Timing: Fiscal Year 2001; Project Start 15-SEP-1999; Project End 31-JUL-2003

  Summary: This project's goal is to determine the prevalence of workplace accommodations for older workers with disabilities and to evaluate the impact of these accommodations on retirement and on the risk of **occupational injury.** These analyses will be carried out primarily in the rich database of the Health and Retirement Study (HRS)- a longitudinal, nationally representative survey of older Americans. The specific aims of this project are: 1. To describe the prevalence of workplace accommodations and the factors that influence the likelihood of accommodation among older workers, using the first three waves of the HRS (1992-1996). 2. To compare the prevalence of workplace accommodations and the factors that influence the likelihood of accommodation among older workers with those among younger workers, using the National Health Interview Survey (NHIS) (1994-1995 Disability Supplement). 3. To assess changes in the rate and nature of workplace accommodations over the first decade of implementation of the Americans with Disabilities Act (ADA), using the first five waves of the HRS (1992-2000). 4. To determine whether workplace accommodations prolong the worklife of older workers with disabilities, using the first five waves of the HRS (1992-2000). 5. To determine whether workplace accommodations prevent **occupational injuries** among older workers with disabilities, using the first five waves of the HRS (1992-2000).

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- **Project Title: WORK AND HEALTH DISPARITIES AMONG RURAL WOMEN**

  Principal Investigator & Institution: Lipscomb, Hester J.; Associate Professor; Community and Family Medicine; Duke University Durham, Nc 27706

  Timing: Fiscal Year 2001; Project Start 30-SEP-2000; Project End 31-JUL-2005

  Summary: (Taken from the Investigator's Abstract) For more than 20 years women in northeastern North Carolina have been organizing to address social, economic, and health issues arising from industrial work in an area with few employment opportunities. Although the impacts of racial discrimination and fast paced assembly line production have been described by government inspectors, journalists, and women advocating on their own behalf, research has not quantified the occurrence of specific health outcomes or their risk factors. Through collaboration of investigators at Duke University, University of North Carolina, and the Center for Women's Economic Alternatives, the investigators propose to evaluate occupational roots of health disparities among women in a five-county region of northeastern North Carolina. An intensive prospective cohort study of women newly employed in assembly line work in the area is planned to define the incidence of musculoskeletal disorders and acute injuries under different work conditions and exposures, document high-risk groups, and allow the exploration of etiologic factors. To facilitate analyses, a multidimensional exposure assessment will be conducted documenting work processes, exposures, and conditions of women employed in the target industries. This will be accomplished through collaboration with workers, serving as key informants, and the use of

participant-action and risk-mapping techniques. The exposure matrix will be used in etiologic analyses but will also serve as an educational tool for workers and providers of healthcare. This process will include not only traditional (physical, chemical, and ergonomic) work exposures but also psychosocial aspects including level of control and demand. In addition to providing high-quality data on an unstudied high-risk population, this work will employ a blend of qualitative and quantitative methodologies to help document and quantify health-related quality of life and social consequences of employment for women in rural North Carolina and the relationship of these consequences to different types of work exposures. Community outreach will be integrated at all stages of the research design to foster empowerment of women employed in this industry through risk factor education, medical information on disease and treatment, ergonomic training, and legal rights. Education will also be targeted to medical providers in this geographic area on work exposures and conditions, exposure response, prevention, basic epidemiology, and ergonomics.

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- **Project Title: WORK ENVIRONMENT JUSTICE PARTNERSHIP FOR BRAZILIAN IMMI***

  Principal Investigator & Institution: Siqueira, Carlos E.; Regional Economic and Social Development; University of Massachusetts Lowell 1 University Ave Lowell, Ma 01854

  Timing: Fiscal Year 2003; Project Start 01-SEP-2003; Project End 30-JUN-2007

  Summary: (provided by applicant) The Work Environment Justice Partnership (WEJP) for Brazilian Immigrant Workers in Massachusetts aims at educating and engaging members of a growing Brazilian immigrant community in Massachusetts in identifying, recognizing, analyzing, and designing a research agenda to prevent work environment hazards that affect Brazilian immigrant workers and their families. This project will bring Brazilian immigrant workers together to participate in the investigation of the numerous hazards they face at work and the development of feasible and viable solutions to the health problems generated by daily exposure to those hazards. The partnership is composed of the Brazilian Immigrant Center, the Lowell Community Health Center, the Massachusetts General Hospital Chelsea Health Center and the University of Massachusetts, Lowell. This project will accomplish these goals by building a network of committed partners that will contribute with their resources and assets to build the capacity, skills, and knowledge the Brazilian immigrant worker community needs to develop its own strategies to successfully address work environment problems identified. The project will hire outreach workers in both healthcare providers to promote the **occupational health** and safety of janitors and cleaning workers, restaurant and food service workers, grounds keepers and gardeners. The Outreach Workers will be bilingual and improve the cultural competency of the providers to handle Brazilian patients. The WEJP will also train a group of peer-leaders to become change agents within the Brazilian community. These peer leaders will train about 500 immigrant workers over 3.5 years. The project will sponsor training in research methods, promote community forums, evaluate work environment hazards and develop brochures and fact sheets in Portuguese to disseminate workplace health and safety information to Brazilians in churches and schools. By the end of the project the Brazilian community in Lowell and the Chelsea area will have created a group of leaders that will pursue policies and research strategies to improve the working conditions of all Brazilian immigrant workers in Massachusetts. This project could create knowledge, methods and strategies for coalition building that may be applicable to many other immigrant groups in the nation.

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- **Project Title: WORK SCHEDULES AND HEALTH IN WOMEN HEALTH PROFESSIONALS**

  Principal Investigator & Institution: Barnett, Rosalind C.; None; Brandeis University 415 South Street Waltham, Ma 024549110

  Timing: Fiscal Year 2001; Project Start 01-JUN-1999; Project End 31-MAY-2003

  Summary: Women health-care providers with children at home experience especially heavy distress and are at high risk for such mental health problems as psychological distress and poor marital- and job-role quality and for such stress-related physical health problems as tension headaches. TMJ, hypertension, coronary artery disease (CAD), peptic ulcer disease (PUD) and nonulcer dyspepsia, and fibromyalgia. Alternative career options (e.g., part-time) have been proposed as a means of decreasing distress by increasing flexibility. Whereas such options have already been adopted in such less prestigious health-care occupations as licensed practical nursing, demand for female physicians is prompting the creation of flexible career options in medicine. The aim of the proposed three-year in-depth interview and survey study is to estimate the relationship between full- and part-time work schedules and stress-related mental and physical health outcomes in a random sample of 200 married women ages 25-50 with under-high-school-age children in two-health-care professions that vary in occupational prestige, medicine and licensed practical nursing, and who vary in race/ethnicity. The focus of our proposed study is on one key aspect of flexibility, work scheduling, conceptualized as a complex construct comprising at least two components-- number of work hours (i.e., full-time vs. reduced hours) and work arrangements (e.g., compressed work weeks, weekend or night work, standard work week). We hypothesize that the relationship between work hours and health outcomes varies with work arrangements. We also assess several subjective aspects of work scheduling, including fit, or how well the schedule meets the needs of the health-care professional and her children, spouse, and elderly dependents (if any), and, among reduced-hours workers, the discomfort she experiences over the tradeoff of certain professional activities for more non-work time. These subjective indicators are also thought to mediate or moderate the relationship between work hours and health outcomes. The proposed project addresses four major questions: 1) Are full- time married women with children employed in medicine and licensed practical nursing at higher risk for stress-related mental- and physical-health problems than their reduced-hour counterparts? 2) Do these relationships depend on work arrangements, occupational prestige, race-ethnicity, age, household income, medical setting, number of children at home, elderly dependent care, and, for doctors, area of medical specialization?; 3) Are objective job conditions (e.g., work hours or arrangements) or subjective indicators (e.g., fit, discomfort over tradeoffs) better predictors of stress-related health outcomes; and 4) What are the processes by which schedules affect health outcomes? For example, does the degree to which the health-care professionals are optimizing their work- family preferences (i.e., fit) mediate this relationship?

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- **Project Title: WORKER GENETIC SUSCEPTIBILITY TO MUTAGENIC RISK**

  Principal Investigator & Institution: Brandt-Rauf, Paul W.; Professor and Chairman; Div/Environmental Hlth Scis; Columbia University Health Sciences New York, Ny 10032

  Timing: Fiscal Year 2001; Project Start 01-JUL-2001; Project End 30-JUN-2004

Summary: Special populations at risk for workplace-related health effects include workers with genetic susceptibility to the mutagenic effects of occupational exposures due to inherited variants of metabolizing enzymes. We have previously demonstrated that workers exposed to vinyl chloride (VC) experience an increased frequency of biomarkers of mutagenic damage (mutant ras-p21 and/or mutant p53) in a dose-dependent fashion. At any given dose, however, workers can experience none, one or both of these biomarkers of mutagenic damage, suggesting that there may be inherited differences in VC-metabolizing enzymes that could account for these differences in effect from presumed similar exposures. In fact, genetic polymorphisms in VC-metabolizing enzymes have recently been related to an increased sister chromatid exchange frequency, a non-specific indicator of DNA damage, in VC-exposed workers. The purpose of the current study is to see if genetic polymorphisms in VC-metabolizing enzymes are also related to the more specific biomarkers of mutagenic damage (mutant ras-p21 and/or mutant p53) in VC-exposed workers. Restriction fragment length polymorphism techniques will be used to analyze DNA from sub-groups of VC-exposed workers with none, one or both biomarkers of mutagenic damage but with similar demographic and exposure characteristics for genetic polymorphisms in VC-metabolizing enzymes, and prevalences of the polymorphisms will be compared among the sub-groups. It is anticipated that workers with the polymorphisms will be more likely to have the biomarkers of mutagenic damage than similarly exposed workers without the polymorphisms and thus will be more likely to suffer form the subsequent carcinogenic and other health effects of VC exposure. If this proves to be correct, then such special populations at risk could be targeted for more stringent interventions to help prevent the occurrence of VC-related occupational diseases.

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- **Project Title: WORKER HEALTH & SAFETY TRAINING COOPERATIVE AGREEMENT**

  Principal Investigator & Institution: Mirer, Franklin E.; Director; International Union, Uaw of Amer Afl-Cio America, Afl-Cio Detroit, Mi 48214

  Timing: Fiscal Year 2001; Project Start 01-SEP-1992; Project End 31-AUG-2005

  Summary: The International Union, UAW seeks EPA-HWWT funding for a 5-year project to train 1,353 participants in the first year, and 7,201 participants over the life of the project, using 15 different curricula at worksites and union-sponsored functions for a first year direct cost of 971,169 dollars and a total direct cost of 5,329,630 dollars. The proposed project continues and expands a ten-year effort of the UAW and the University of Michigan to train employees in job assignments requiring response to chemical emergencies or handling of hazardous wastes, and to evaluate the impact of that training on improving worker safety and health. The primary target sector will be 3,000 smaller UAW-represented establishments with about 375,000 members, emphasizing the automobile, metalworking and transportation equipment sectors of the UAW. This high-risk industrial sector reports production of about 180,000 tons of toxic waste per year, and has been further implicated by recent studies showing occupational cancer and respiratory disease in many of the main production processes. The project will also target public sector UAW members in waste water treatment and transportation assignments, and minority and underserved community residents who work in or live near hazardous waste sites or industrial facilities. The ultimate goal of the project is to reduce adverse health effects and injuries among the target populations by promoting hazard recognition, improved facility emergency response programs and work practices, prevention of uncontrolled chemical releases, and community and

worker input into emergency response planning. A second goal is to develop and deliver emergency response curricula using innovative training methods, peer trainers, and participatory techniques, and demonstrate the impact of these on safety and health so as to promote the implementation of such model programs beyond the target trainee population. New curricula include: 8-hr. Pollution Prevention, 40-hr. Haz Mat Technician, 16-hr. Hazardous Materials Review Committee training, 6-12 hr. Basic Competency Training for Joint Health and Safety Committees, 8-hr. Haz Mat Refresher, and an Advanced Training Technologies module. Other specific aims are to: expand the role of worker trainers in the areas of curriculum development, program evaluation, and train-the-trainer planning and delivery; conduct worksite needs assessments and site-specific training in target facilities; conduct HAZWOPER-related awareness training for worksite leadership; enhance training skills of peer trainers; evaluate and document training effectiveness; conduct train-the-the- trainer programs at worksites; and assure high-quality training. Additional new initiatives include a second worksite impact study using participatory action research techniques, a multi-grantee trainer and curriculum development project, and a community outreach project.

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- **Project Title: WORKER HEALTH AND SAFETY TRAINING COOPERAIVE AGREEMENT**

  Principal Investigator & Institution: August, James; American Fed of St, Co, & Mun Employees Washington, Dc 20036

  Timing: Fiscal Year 2001; Project Start 30-SEP-1995; Project End 31-AUG-2005

  Summary: The AFSCME Training and Education Institute (ATEI) is applying for 4,676,999 dollars in EPA-HWWT funds in order to develop workers' ability to successfully and safely respond to unplanned releases of hazardous substances, and to participate in efforts to improve workplace safety. AFSCME-represented occupations likely to respond to emergencies include: road, bridge, water sewer, waste water treatment, sanitation, public safety and security, and hospitals, which comprise about 40 percent of AFSCME's 1.3 million members. ATEI plans to train over 5700 workers for the 5-year project in programs mandated by OSHA's HAZWOPER Standard other related activities including confined space entry and trenching safety, along with annual refreshers. The California-Arizona Consortium will provide training to Spanish-speaking workers. We will collaborate with the UAW to deliver training where both unions represent workers. We will expand our successful peer trainer program to reach more workers and target the train-the-trainer programs in locations with large groups of minority or underserved workers. We will collaborate with other grantees in 3 trainer and evaluator development workshops each year. We will form an Evaluation Team and a Curriculum Task Force composed of peer trainers, evaluation staff, ATEI staff, and others to fully integrate peer trainers into the program. The University of Massachusetts at Lowell will lead the evaluation team's activities and analyze the long-term impact. We will coordinate with our consortium member, the Coalition of Black Trade Unionists, (CBTU), to provide training on hazardous materials and community right to know at CBTU's annual convention and community meetings, and ATEI will provide technical assistance to community groups. ATEI will utilize advanced training technologies. We will design and deliver workshops on accessing health and safety resources on the Internet. The Hazardous Materials Training and Research Institute/Community College Consortium will assist us in: expanding and evaluating the use of AFSCME's web page for health and safety, and in conducting several teleconferences on health and safety issues related to hazardous materials exposure.

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- **Project Title: WORKER HEALTH AND SAFETY TRAINING COOPERATIVE AGREEMENT**

  Principal Investigator & Institution: Treanor, David M.; International Union Operating Engineers Operating Engineers Washington, Dc 20036

  Timing: Fiscal Year 2001; Project Start 01-SEP-1992; Project End 31-AUG-2005

  Summary: For the next 5 years, the Operating Engineers National Hazmat Program shall: 1, Train approximately 13,635 students over the five-year cooperative agreement. 2. Annually refresh 24 master instructors and train 5 new instructors to maintain a viable cadre of peer instructors nationwide. 3. Annually refresh approximately 9,375 operating engineers and train 650 new students in the full Site Worker course to work at DOE hazardous waste sites. 4. Develop modules on the latest issues in safety and health, particularly deactivation and decommissioning issues for inclusion into refresher training. 5. Use refresher training as the primary vehicle for alerting target audiences working on DOE hazardous waste sites to the most recent developments. 6. Expand the use of advanced training technologies to instructors and students. 7. Develop strong, collaborative initiatives with Florida International University to recruit and train Hispanic workers near DOE sites. 8. Collaborate with the University of Kentucky to produce an effective evaluation program. 9. Integrate the lessons learned from the OENHP's unique Technology Assessment Program into the Hazwoper training programs

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- **Project Title: WORKER HEALTH AND SAFETY TRAINING COOPERATIVE AGREEMENT**

  Principal Investigator & Institution: Rice, Carol H.; Professor; Environmental Health; University of Cincinnati 2624 Clifton Ave Cincinnati, Oh 45221

  Timing: Fiscal Year 2001; Project Start 01-SEP-1992; Project End 31-AUG-2005

  Summary: (Taken from application) The Midwest Consortium proposes to continue to serve the needs of workers who may be exposed to hazardous materials while performing jobs covered by the Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) standard in eight states of the Midwest (IL, IN, KY, MI, MN, OH, TN, WI). The proposed training program builds on a twelve-year history of training supported by NIEHS. Workers who have completed consortium programs have significantly increased levels of knowledge, retained that knowledge over time, and applied their training to the workplace. Continued training is required because of high needs in the region served by the consortium, and to provide training for groups who are underserved. The specific aims of this application are to serve the continuing needs of the region through interactive, hands-on training developed to meet the needs of adult learners employed in jobs covered by HAZWOPER; to document the change in and retention of knowledge and skills as a result of training; to evaluate the impact of training and residents after return to the workplace; to expand the Partnership Program to train trainers in communities where hazardous materials exposures may occur; and to fully integrate advanced training technologies into program content and delivery. These specific aims will be achieved through established working relationships that have resulted in the development of 13 initial and refresher training programs since 1987 and direct delivery of 839,264 hours of training to 55,207 Midwest workers. Through community programs,

trainers have received information to share with citizens, more than 300 citizens have attended workshops and 11 Detroiters are now employed after successfully completing the 40-hour program. In the new funding period 2,257 training programs will be delivered to 31,870 workers; 447,971 contact hours will be delivered. 870 community programs will be delivered to 6,342 trainees.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: WORKER HEALTH AND SAFETY TRAINING COOPERATIVE AGREEMENT**

  Principal Investigator & Institution: Brown, Marianne P.; None; University of California Los Angeles 10920 Wilshire Blvd., Suite 1200 Los Angeles, Ca 90024

  Timing: Fiscal Year 2001; Project Start 01-SEP-1992; Project End 31-AUG-2005

  Summary: The California-Arizona Consortium, consisting of four full Member Universities and the Alaska Health Project in collaboration with organizations will provide hazardous waste health and safety training for 12,860 workers in EPA Region IX (California, Arizona, Nevada and the Pacific Islands) and Alaska over a five year period. This EPA-HWWT Program's total cost (direct plus indirect) is 6,118,810.00 dollars. A full range of HAZWOPER courses will be provided including: hazardous waste cleanup and investigation, supervisor and refresher courses; treatment, storage and disposal (TSD) facility and refresher courses; first responder operations, incident commander, refresher, awareness course; DOT transportation and refresher courses; confined space courses; hazard awareness courses. The Consortium will also provide 2 train-the-trainer for Maquiladora workers, 20 train-the-trainer courses for NIEHS trainers of hazardous waste workers and 2 national trainers' exchange. Access to target populations has been firmly established over the past 12 years. In addition, underserved populations will be reached through community-based and tribal organizations to reach workers of color populations in the Southwest, Pacific Trust Territories, Alaska and along the Mexican border will be trained.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: WORKER HEALTH AND SAFETY TRAINING COOPERATIVE AGREEMENT**

  Principal Investigator & Institution: Schurman, Susan J.; George Meany Center for Labor Studies 10000 New Hampshire Ave Silver Spring, Md 20903

  Timing: Fiscal Year 2001; Project Start 01-SEP-1992; Project End 31-AUG-2005

  Summary: The George Meany Center for Labor Studies, in cooperation with eight rail unions, the AFL-CIO Department of Occupational Safety and Health, and the AFL-CIO Transportation Trades Department submits this application for EPA-HWWT. The total cost requested for this program is 5,083,868 dollars. The long-term aims of the poposal are to: Facilitate the safe transport of hazardous materials throughout the United States by educating rail workers to the dangers posed by hazmats and the proper safety techniques for responding to emergency situations; Encourage workplace and community safety and environmental protection generally by raising the level of worker awareness and involving employees directly in health and safety implementation; Expand training efforts to underserved populations by special efforts to reach out to Native Americans and those of limited English-speaking skills; Enhance access to information about hazardous materials through expanded use of advanced technologies. These efforts will be embodied in the proposed training program which will be provided to an estimated 17,245 workers during the five year funding cycle. All

training will be designed to fully meet both DOT and OSHA standards for worker health and safety. The program is national in scope to be available to all types and categories of railroad workers throughout the country. Specific geographic targets will be established in California, Arizona, Texas, and Illinois to coincide with high concentrations of underserved Native American workers and employees with limited English- speaking skills. New initiatives that are part of this proposal are as follows: Expanded use of advanced technology and provision of computer access to make hazardous materials safety information available online and to make possible distance learning of training coursework; Enhancement of train-the-trainer efforts by establishment of certificate trainer program through the National Labor College; Development of multi-grantee efforts through increased coordination and expansion of joint efforts.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: WORKER HEALTH AND SAFETY TRAINING COOPERATIVE AGREEMENT**

  Principal Investigator & Institution: Lamar, Eric S.; International Association Fire Fighters Fire Fighters Washington, Dc 20006

  Timing: Fiscal Year 2001; Project Start 16-SEP-1992; Project End 31-AUG-2005

  Summary: The International Association of Fire Fighters (IAFF) is requesting 762,665 dollars during the initial budget period and 4,049,091 dollars for the total project period of the EPA-HWWT Cooperative Agreement. Fire fighters, paramedics and allied emergency personnel respond to over 270,000 specific hazardous materials incidents and over 1,000,000 structure fires annually. Each year over 2,000 responders are injured at these incidents and thousands more are exposed to toxic materials resulting in increased rates of cancer and other diseases. The IAFF proposes to continue to implement a proven training plan that strongly and forcefully emphasizes occupational safety and health and OSHA defined responder training as a cornerstone of professional and effective emergency response. This plan relies heavily on an efficient Train-The-Trainer approach; uses a combination of the Internet, advanced training technologies and regional programs; and provides the estimated 475 annual attendees with the knowledge and the tools to implement this program in local fire/rescue departments in and around EPA NPL sites and in other identified areas. The IAFF is the only national organization serving professional fire fighters and enjoys longstanding training partnerships and access with fire/rescue departments across the US. Our training curricula is current, focused, and ready to be delivered. In addition, we have a highly regarded 100-member professional fire fighter/paramedic instructor team trained in using facilitation techniques and problem-based learning to reinforce responder safety and health. It is a state-of-the-art program with a focused safety and health message provided by experienced, committed instructors.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: WORKER HEALTH AND SAFETY TRAINING COOPERATIVE AGREEMENT**

  Principal Investigator & Institution: Gregoire, Larry V.; International Chemical Workers Union Union, Afl-Cio Akron, Oh 44313

  Timing: Fiscal Year 2001; Project Start 01-SEP-1992; Project End 31-AUG-2005

  Summary: The International Chemical Workers Union (ICWU) is applying for the Hazardous Materials Health and Safety Training Cooperative Agreement for the EPA-

HWWT program, with a first year cost of 2,225,000 dollars and a five year cost of 11,954,477 dollars. The long term organizational goal of the ICWU Consortium is to institutionalize our model program within the member unions and through their companies' support. The immediate educational goal is to continue delivering, chemical emergency response training (1910.120, paragraph q) to thousands of industrial workers with collateral duty who respond to a variety of emergencies. The long term educational goal of the Consortium is to provide students with the confidence, tools and problem solving skills to identify inadequacies in their facilities' chemical emergency response programs. We will continue to evaluate our successes in making programmatic and institutional workplace improvements. This Consortium founded and operates the ICWU Center for Worker Health and Safety Education in Cincinnati, Ohio. The Center has developed the institutional capabilities and competencies of educational staff, trainers, curriculum and physical facilities to deliver nationwide hazardous waste and chemical emergency response training to thousands of workers. The current Consortium members are: the ICWU, the United Steelworkers of America, the International Association of Machinists, the American Flint Glass Workers Union, the Aluminum, Brick and Glass Workers Division (USWA), the Coalition of Black Trade Unionists, the Rubber/Plastics Industry Conference (USWA), the University of Cincinnati and the Greater Cincinnati **Occupational Health** Center. The grant proposes to add the United Food and Commercial Workers Union (1.4 million members) and the American Federation of Teachers (1.1 million). Through these additional members, we propose to increase the amount of training by 25 percent, reaching nearly 111,000 trainees over the five year period in 3660 courses (including field classes). This proposal aims to continue and expand the successes of a multi union consortium in training industrial workers in the dangers of chemical emergency response and launch a Multi Grantee Project with four other existing NIEHS grantees. Through these activities we will raise awareness of proper Chemical Emergency Response procedures and return thousands of active participants to improve their working conditions.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: WORKER HEALTH AND SAFETY TRAINING COOPERATIVE AGREEMENT**

  Principal Investigator & Institution: Gotsch, Audrey R.; Interim Deam; Environmental & Community Med; Univ of Med/Dent Nj-R W Johnson Med Sch Robert Wood Johnson Medical Sch Piscataway, Nj 08854

  Timing: Fiscal Year 2001; Project Start 16-SEP-1992; Project End 31-AUG-2005

  Summary: The New Jersey/New York Hazardous Materials Worker Training Center, a NIEHS awardee since 1987, is requesting funds for three program areas: EPA-HWWT, MWT and BMWT; total costs for each area are 7,223,310 dollars; 3,800319 dollars; and 3,890,094 dollars respectively. For each program area, proposed providers have established relationships with the target populations and represent unions, academia, labor and the public sector. A major objective of the Center is prevent and reduce disability, morbidity and mortality due to potential risk during hazardous waste operations and emergency response via effective health and safety training. Additionally, this Center aims to improve the systematic collection, analysis and dissemination of data to increase the understanding of health status among various populations, especially minorities, in Federal Region II. The thousands of Federal and State Superfund sites in Region II, where cleanup is either planned or in progress, clearly demonstrate a large population in need of health and safety training. Center members for the EPA-HWWT program include: the University of Medicine and

Dentistry of New Jersey, Hunter College, New Jersey State Police, New York Committee for Occupational Safety and Health, New York Carpenters Labor Technical College, and the University at Buffalo. In Year 01, the Center will conduct 459 courses to train 10109 workers involved in hazardous waste site investigations or cleanup, operations at RCRA/TSD facilities, and emergency response, providing over 100,000 contact hours. Program objectives for the MWT and BMWT are similar, to prepare and place people of color in the expanding area of environmental cleanup, assessment and construction. Center members for these programs are the UMDNJ, New York City Environmental Justice Alliance, Hunter College, New York Carpenters Labor Technical College, and various Community Based Organizations (CBOs). These two programs differ specifically on their target populations. In Year 01, the MWT program will train 25 young people of color from the New York City area and the BMWT will train 25 people of color from two Brownfield sites (i.e., Glen Cove, NY; Newark NJ) in a comprehensive 20-week "pre apprentice" training program, certifying them to conduct a range of environmental work. Graduates of these programs will be placed in environmental remediation and construction jobs.

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- **Project Title: WORKER HEALTH AND SAFETY TRAINING COOPERATIVE AGREEMENT**

  Principal Investigator & Institution: Reed, Tipawan T.; National Puerto Rican Forum 31 E 32Nd St, 4Th Floor New York, Ny 10016

  Timing: Fiscal Year 2001; Project Start 30-SEP-1995; Project End 31-AUG-2005

  Summary: DePaul University and its Consortium is responding to three components of the NIEHS Worker Health and Safety Training Cooperative Agreement Programs RFA: ES99-009: EPA-Hazardous Waste Worker Training (HWWT), EPA-Brownfields Minority Worker Training (BMWT), EPA-Minority Worker Training (MWT).

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: WORKER HEALTH AND SAFETY TRAINING COOPERATIVE AGREEMENT**

  Principal Investigator & Institution: Ortlieb, David W.; Paper/Alld-Ind/Chem & Energy Wrk Int Un & Energy Workers Internl Union Nashville, Tn 372114123

  Timing: Fiscal Year 2001; Project Start 01-SEP-1992; Project End 31-AUG-2005

  Summary: The Paper, Allied-Industrial, Chemical, and Energy Workers International Union (PACE) is applying for the EPA Hazardous Waste Worker Training (HWWT) Program for 11,894,312 dollars to conduct a worker training program that will protect workers and community residents from exposure to hazardous materials. By the end of the funded 5-year period, more than 54,000 workers will receive 547,000 hours of training that will enable them to protect themselves during emergencies and to implement strategies to prevent potentially deadly accidents. The training addresses the requirements of OSHA Standard, 29 CFR 1910.120 (section q). PACE is the new union formed when the Oil, Chemical and Atomic Workers Union (OCAW) and the United Paperworkers International Union (UPIU) merged in 1999. Together, the two unions represent over 330,000 workers at some of the most dangerous industrial facilities in America. PACE's specific goals are to provide: 1) Courses meeting the requirements of 29 CFR 1910.120 consisting of 8-hour, 16-hour, 24-hour and 40-hour courses; 2) Courses addressing environmental justice and health disparities consisting of 15 8-hour community-labor workshops per year; 3) Trainer Development Courses including the

training of trainers, trainer development and trainer evaluation workshops. PACE also proposes four new initiatives to increase the program's impact and to increase self-sufficiency. They are: 1) Advanced Training Technology Initiative to use web-radio and a website for worker-trainer development and evaluation; 2) Community-Labor Initiative to conduct 15 workshops per year that bring together environmental justice communities living near toxic facilities and PACE members working in those facilities; 3) Integrated Training Sites Initiative to provide 1910.120 training that integrates into facility-wide systems of safety programs; 4) Multi-Grantee Trainer, Curriculum, and Evaluation Initiative that brings together 5 union WETP grantees shared curricula, training and evaluation innovations. PACE also will continue and expand its worker-led, team-based evaluation program by conducting two 2-day worker-evaluator workshops each year to train worker-trainers to help carry out the Self-sufficiency Research and Evaluation Project (SREP). Primary subcontractors include the Labor Institute to develop trainers and produce materials; New Perspectives Consulting Group to support team-based evaluation; the University of Alabama in Birmingham to deliver hands-on training; and an advisory board with both management and scientific subcommittees.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: WORKER HEALTH AND SAFETY TRAINING COOPERATIVE AGREEMENT**

  Principal Investigator & Institution: Borwegen, William K.; Seiu Education and Support Fund 1313 L St Nw Washington, Dc 20005

  Timing: Fiscal Year 2001; Project Start 01-SEP-1992; Project End 31-AUG-2005

  Summary: The SEIU Education and Support Fund (ESF) and the contractors in its consortium, the New York Committee for Occupational Safety and Health (NYCOSH) and the UCLA Labor Occupational Safety and Health (LOSH) Program, are applying for a grant under the EPA-Hazardous Waste Worker Training Project for five years at a total cost of $4,589,203. Through the unique access provided to the project by the national network of local unions in the Service Employees International Union, the Project proposes to prevent acute and chronic injury and illness among workers who are exposed to hazardous materials and wastes in emergency situations. The Project will accomplish this by training 4900 workers in 8-hour awareness-level emergency response, 5000 workers in 4-hour awareness-level refreshers, and internet-based 4- hour General Industry Safety course on researching hazardous materials and improving systems of safety. The target population is employed in a wide range of jobs in acute-care hospitals, road maintenance, and waste water treatment. SEIU represents approximately 285,000 workers in acute care hospitals, 10,000 workers in highway concentrated in California, New York, Maine, and New Hampshire. Training will be conducted by an existing team of delivering the new hospital operations-level training. The Project proposes to train an additional 76 worker-trainers during the next five-year period. Curricula designed specifically for worker-trainers, and appropriate to the technical knowledge of workers in these industries, have already been developed for the awareness-level training and the operations level training for confined space entry. New curricula will be developed for the hospital operations-level training and the General Industry Safety class. Project consortium staff will provide ongoing support for worker-trainers and will hold an annual technical meeting for all worker-trainers.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: WORKER HEALTH AND SAFTEY TRAINING FOR THE DOE NUCLEAR WE**

  Principal Investigator & Institution: Berntsen, Patricia A.; None; Kirkwood Community College Box 2068 Cedar Rapids, Ia 52406

  Timing: Fiscal Year 2001; Project Start 15-SEP-2000; Project End 31-AUG-2005

  Summary: The Hazardous Materials Training and Research Institute (HMTRI), submits this application for 1 million dollars annual funding on behalf of the Community and College Consortium for Health and Safety Training (CCCHST) serving Department of Energy (DOE) environmental restoration and waste management sites across the United States. The intent of CCCHST-DOE is to provide convenient, consistent, and cost-effective, NIEHS-approved worker training to DOE facilities, contractors, subcontractors, visiting scientists and public officials serving these facilities who are not otherwise prepared by organized labor. The primary mode of delivery will be through local Environmental Safety and Health Advanced Technology Learning Laboratories to be established at colleges and universities located near DOE sites. The AT Learning Laboratories will be supported by HMTRI curriculum and technical assistance. HMTRI, a current NIEHS awardee, will convert existing hazardous materials curriculum to an open-entry, open-exit format to be licensed by Learning Labs and electronically delivered to students. The Learning Labs will complement curriculum with required hands-on training and instructor support. The goal is to annually train 10,000 workers, technicians, and supervisors to protect themselves, their facilities, and their communities from exposure to hazardous materials encountered during hazardous waste site clean-up, in the transportation of hazardous materials, and in the response to releases of hazardous materials through 29CFR 1910.20 and related training. CCCHST-DOE Learning Laboratories will be located at the following educational institutions. - Aiken Technical College at the Savanna River Site, SC - Amarillo College at the Pantex Plant, TX - Community College of Southern Nevada at the Nevada Test Site, NV - Metropolitan Community Colleges at the Kansas City Plant, MO - U of Tennessee at the Oak Ridge NL, Y-12 and K-25 Plants, TN Over a five-year period, CCCHST-DOE will collectively enroll 30,000 students in 240,000 contact hours of hazardous materials training, providing over 30,000 8-hour units of study.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: WORK-RELATED ASSAULT: IMPACT OF TRAINING AND POLICY**

  Principal Investigator & Institution: Nachreiner, Nancy; Environ & Occupational Health; University of Minnesota Twin Cities 200 Oak Street Se Minneapolis, Mn 554552070

  Timing: Fiscal Year 2001; Project Start 01-APR-2001; Project End 30-MAR-2002

  Summary: Only recently, has occupational violence been recognized as a major public health problem. While there is an emerging literature pertinent to work-related homicides, there is a serious deficiency in the knowledge of nonfatal work-related violence and the impact of violence prevention training and policies. This proposed study is designed to identify the relation between (1) work-related violence prevention policy, (2) violence prevention training, and the outcome of work-related violence against nurses. This study is based on data collected for theRisk Factors for Violence Against Nurses study (RFVAN). The population consists of registered and practical nurses who were licensed in Minnesota as of October 1, 1998. Initially, a survey instrument was sent to a random sample of nurses (n=6,300) in the state to identify persons who did and did not experience work-related violence within a 12-month period. From this sample, a nested case-control study was incorporated to examine the

relation between certain hypothesized risk factors and work-related assault injuries. For each case, three controls are sampled from the population at-risk during the study period. Cases and controls are sent questionnaires to obtain data on work-related exposures, including the characteristics of individuals in the workplace and surrounding environmental factors. Cases are questioned about their exposures in the month prior to the incident; controls are questioned about their exposures during a randomly selected month from the study period to provide the person-time exposure information. Validity relevant to selection bias and information bias is evaluated through sub-studies. The current proposed study will examine, in depth, the relation between work-related violence prevention policies and training, and work-related assault injuries, based on data collected in the RFVAN case-control study. The proposed study design will enable calculation of rate ratios for the effect of work-related violence prevention policy and violence prevention training on the rate of injury. Multivariate analysis (logistic regression) will be performed to examine these relations. From these results, specific prevention and control strategies can be developed more realistically.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

E-Journals: PubMed Central[3]

PubMed Central (PMC) is a digital archive of life sciences journal literature developed and managed by the National Center for Biotechnology Information (NCBI) at the U.S. National Library of Medicine (NLM).[4] Access to this growing archive of e-journals is free and unrestricted.[5] To search, go to **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Pmc**, and type "occupational health" (or synonyms) into the search box. This search gives you access to full-text articles. The following is a sample of items found for occupational health in the PubMed Central database:

- **Occupational health finds a home on the Net.** by Liss G.; 2001 Jul 10; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=81261
- **Occupational health Web site.** by Liss GM, Cheung LS.; 2001 Sep 18; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=81450
- **Occupational Health: A Guide to Sources of Information and Occupational Safety and Health: A Guide to Information Sources.** by Ash J.; 1975 Oct; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=198957
- **Surgeons' and occupational health departments' awareness of guidelines on post-exposure prophylaxis for staff exposed to HIV: telephone survey.** by Duff SE, Wong CK, May RE.; 1999 Jul 17; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=28167

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[3] Adapted from the National Library of Medicine: **http://www.pubmedcentral.nih.gov/about/intro.html**.

[4] With PubMed Central, NCBI is taking the lead in preservation and maintenance of open access to electronic literature, just as NLM has done for decades with printed biomedical literature. PubMed Central aims to become a world-class library of the digital age.

[5] The value of PubMed Central, in addition to its role as an archive, lies in the availability of data from diverse sources stored in a common format in a single repository. Many journals already have online publishing operations, and there is a growing tendency to publish material online only, to the exclusion of print.

- **Tremorgenic mycotoxins from Aspergillus fumigatus as a possible occupational health problem in sawmills.** by Land CJ, Hult K, Fuchs R, Hagelberg S, Lundstrom H.; 1987 Apr;
  http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=203757

The National Library of Medicine: PubMed

One of the quickest and most comprehensive ways to find academic studies in both English and other languages is to use PubMed, maintained by the National Library of Medicine.[6] The advantage of PubMed over previously mentioned sources is that it covers a greater number of domestic and foreign references. It is also free to use. If the publisher has a Web site that offers full text of its journals, PubMed will provide links to that site, as well as to sites offering other related data. User registration, a subscription fee, or some other type of fee may be required to access the full text of articles in some journals.

To generate your own bibliography of studies dealing with occupational health, simply go to the PubMed Web site at **http://www.ncbi.nlm.nih.gov/pubmed**. Type "occupational health" (or synonyms) into the search box, and click "Go." The following is the type of output you can expect from PubMed for occupational health (hyperlinks lead to article summaries):

- **A century of practice. Occupational health nursing. 1988.**
  Author(s): Parker-Conrad JE.
  Source: Aaohn Journal : Official Journal of the American Association of Occupational Health Nurses. 2002 December; 50(12): 537-41.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12526625&dopt=Abstract

- **A cross-sectional study of employer and employee occupational health needs and priorities within the Irish Civil Service.**
  Author(s): Reid A, Malone J.
  Source: Occupational Medicine (Oxford, England). 2003 February; 53(1): 41-5.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12576564&dopt=Abstract

- **A glossary for research in occupational health.**
  Author(s): Garcia AM, Checkoway H.
  Source: Journal of Epidemiology and Community Health. 2003 January; 57(1): 7-10.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12490641&dopt=Abstract

[6] PubMed was developed by the National Center for Biotechnology Information (NCBI) at the National Library of Medicine (NLM) at the National Institutes of Health (NIH). The PubMed database was developed in conjunction with publishers of biomedical literature as a search tool for accessing literature citations and linking to full-text journal articles at Web sites of participating publishers. Publishers that participate in PubMed supply NLM with their citations electronically prior to or at the time of publication.

- **A new occupational health agenda for a new work environment.**
  Author(s): Benach J, Muntaner C, Benavides FG, Amable M, Jodar P.
  Source: Scand J Work Environ Health. 2002 June; 28(3): 191-6. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12109559&dopt=Abstract

- **A standardized language for occupational health nursing--the nursing minimum data set.**
  Author(s): Toth D, DiBenedetto DV.
  Source: Aaohn Journal : Official Journal of the American Association of Occupational Health Nurses. 2003 July; 51(7): 283-6. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12880230&dopt=Abstract

- **Across the water and down the ladder: occupational health in the global economy.**
  Author(s): Frumkin H.
  Source: Occupational Medicine (Philadelphia, Pa.). 1999 July-September; 14(3): 637-63. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10378980&dopt=Abstract

- **Advent of occupational health services research.**
  Author(s): Deitchman S, Dembe AE, Himmelstein J.
  Source: American Journal of Industrial Medicine. 2001 September; 40(3): 291-4.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11598978&dopt=Abstract

- **Alice Hamilton: settlement physician, occupational health pioneer.**
  Author(s): Fee E, Brown TM.
  Source: American Journal of Public Health. 2001 November; 91(11): 1767.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11684598&dopt=Abstract

- **An audit of NHS Trust alcohol policy referrals to an occupational health service.**
  Author(s): Noone P, Watt D.
  Source: Health Bull (Edinb). 2000 March; 58(2): 133-6. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12813841&dopt=Abstract

- **An economic evaluation of occupational health.**
  Author(s): Miller P, Whynes D, Reid A.
  Source: Occupational Medicine (Oxford, England). 2000 April; 50(3): 159-63.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10912357&dopt=Abstract

- **An occupational health nursing education program. Relevance to nurses in nonoccupational practice settings.**
  Author(s): Hodge BD, Ackerman S, Evans C, Erb T, Cook ML.
  Source: Aaohn Journal : Official Journal of the American Association of Occupational Health Nurses. 2002 June; 50(6): 257-61.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12080891&dopt=Abstract

- **An overview of occupational health and safety in Australia.**
  Author(s): Smith DR, Yamagata Z.
  Source: J Uoeh. 2002 March 1; 24(1): 19-25.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11915233&dopt=Abstract

- **An overview of waste management in the United States and recent research activities about composting related occupational health risk.**
  Author(s): Johanning E.
  Source: Schriftenr Ver Wasser Boden Lufthyg. 1999; 104: 127-40. Review. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10803220&dopt=Abstract

- **Analysis of Japanese occupational health services for small-scale enterprises, in comparison with the recommendations of the Joint WHO/ILO Task Group.**
  Author(s): Muto T, Takata T, Aizawa Y, Mizoue T.
  Source: International Archives of Occupational and Environmental Health. 2000 July; 73(5): 352-60. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10963420&dopt=Abstract

- **Applying research to practice. Practical guidelines for occupational health nurses.**
  Author(s): Salazar MK.
  Source: Aaohn Journal : Official Journal of the American Association of Occupational Health Nurses. 2002 November; 50(11): 520-5; Quiz 526-7. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12465209&dopt=Abstract

- **Aspirational targets for occupational health.**
  Author(s): Gibby EM.
  Source: Occupational Medicine (Oxford, England). 2000 February; 50(2): 133-4.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10829435&dopt=Abstract

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CHAPTER 2. NUTRITION AND OCCUPATIONAL HEALTH

Overview

In this chapter, we will show you how to find studies dedicated specifically to nutrition and occupational health.

Finding Nutrition Studies on Occupational Health

The National Institutes of Health's Office of Dietary Supplements (ODS) offers a searchable bibliographic database called the IBIDS (International Bibliographic Information on Dietary Supplements; National Institutes of Health, Building 31, Room 1B29, 31 Center Drive, MSC 2086, Bethesda, Maryland 20892-2086, Tel: 301-435-2920, Fax: 301-480-1845, E-mail: ods@nih.gov). The IBIDS contains over 460,000 scientific citations and summaries about dietary supplements and nutrition as well as references to published international, scientific literature on dietary supplements such as vitamins, minerals, and botanicals.[7] The IBIDS includes references and citations to both human and animal research studies.

As a service of the ODS, access to the IBIDS database is available free of charge at the following Web address: **http://ods.od.nih.gov/databases/ibids.html**. After entering the search area, you have three choices: (1) IBIDS Consumer Database, (2) Full IBIDS Database, or (3) Peer Reviewed Citations Only.

Now that you have selected a database, click on the "Advanced" tab. An advanced search allows you to retrieve up to 100 fully explained references in a comprehensive format. Type "occupational health" (or synonyms) into the search box, and click "Go." To narrow the search, you can also select the "Title" field.

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[7] Adapted from **http://ods.od.nih.gov**. IBIDS is produced by the Office of Dietary Supplements (ODS) at the National Institutes of Health to assist the public, healthcare providers, educators, and researchers in locating credible, scientific information on dietary supplements. IBIDS was developed and will be maintained through an interagency partnership with the Food and Nutrition Information Center of the National Agricultural Library, U.S. Department of Agriculture.

The following information is typical of that found when using the "Full IBIDS Database" to search for "occupational health" (or a synonym):

- **Manganese--a public health concern: its relevance for occupational health and safety policy and regulation in South Africa.**
  Author(s): Harvard School of Public Health, Boston, Massachusetts, USA. mayhermanus@mweb.co.za
  Source: Hermanus, M A Int-J-Occup-Environ-Health. 2000 Apr-June; 6(2): 151-60 1077-3525
- **Pentachlorophenol (P.C.P.) exposure--an occupational health hazard in mushroom growing.**
  Source: Chapman, J.C. Higgins, V.R. Simpson, G.R. Siyali, D.S. Proceedings of the Eleventh International Scientific Congress on the Cultivation of Edible Fungi, Australia, 1981 / edited by N.G. Nair, A.D. Clift. Sydney : [s.n.], 1981. volume 1 page 621-630.

Federal Resources on Nutrition

In addition to the IBIDS, the United States Department of Health and Human Services (HHS) and the United States Department of Agriculture (USDA) provide many sources of information on general nutrition and health. Recommended resources include:

- healthfinder®, HHS's gateway to health information, including diet and nutrition: **http://www.healthfinder.gov/scripts/SearchContext.asp?topic=238&page=0**
- The United States Department of Agriculture's Web site dedicated to nutrition information: **www.nutrition.gov**
- The Food and Drug Administration's Web site for federal food safety information: **www.foodsafety.gov**
- The National Action Plan on Overweight and Obesity sponsored by the United States Surgeon General: **http://www.surgeongeneral.gov/topics/obesity/**
- The Center for Food Safety and Applied Nutrition has an Internet site sponsored by the Food and Drug Administration and the Department of Health and Human Services: **http://vm.cfsan.fda.gov/**
- Center for Nutrition Policy and Promotion sponsored by the United States Department of Agriculture: **http://www.usda.gov/cnpp/**
- Food and Nutrition Information Center, National Agricultural Library sponsored by the United States Department of Agriculture: **http://www.nal.usda.gov/fnic/**
- Food and Nutrition Service sponsored by the United States Department of Agriculture: **http://www.fns.usda.gov/fns/**

Additional Web Resources

A number of additional Web sites offer encyclopedic information covering food and nutrition. The following is a representative sample:

- AOL: **http://search.aol.com/cat.adp?id=174&layer=&from=subcats**
- Family Village: **http://www.familyvillage.wisc.edu/med_nutrition.html**

- Google: **http://directory.google.com/Top/Health/Nutrition/**
- Healthnotes: **http://www.healthnotes.com/**
- Open Directory Project: **http://dmoz.org/Health/Nutrition/**
- Yahoo.com: **http://dir.yahoo.com/Health/Nutrition/**
- WebMD®Health: **http://my.webmd.com/nutrition**
- WholeHealthMD.com: **http://www.wholehealthmd.com/reflib/0,1529,00.html**

CHAPTER 3. ALTERNATIVE MEDICINE AND OCCUPATIONAL HEALTH

Overview

In this chapter, we will begin by introducing you to official information sources on complementary and alternative medicine (CAM) relating to occupational health. At the conclusion of this chapter, we will provide additional sources.

National Center for Complementary and Alternative Medicine

The National Center for Complementary and Alternative Medicine (NCCAM) of the National Institutes of Health (**http://nccam.nih.gov/**) has created a link to the National Library of Medicine's databases to facilitate research for articles that specifically relate to occupational health and complementary medicine. To search the database, go to the following Web site: **http://www.nlm.nih.gov/nccam/camonpubmed.html**. Select "CAM on PubMed." Enter "occupational health" (or synonyms) into the search box. Click "Go." The following references provide information on particular aspects of complementary and alternative medicine that are related to occupational health:

- **"Walk in to Work Out": a randomised controlled trial of a self help intervention to promote active commuting.**
  Author(s): Mutrie N, Carney C, Blamey A, Crawford F, Aitchison T, Whitelaw A.
  Source: Journal of Epidemiology and Community Health. 2002 June; 56(6): 407-12.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12011193&dopt=Abstract

- **A job safety program for construction workers designed to reduce the potential for occupational injury using tool box training sessions and computer-assisted biofeedback stress management techniques.**
  Author(s): Johnson KA, Ruppe J.
  Source: Int J Occup Saf Ergon. 2002; 8(3): 321-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12189103&dopt=Abstract

- **Academic occupational health and environmental medicine: current directions.**
  Author(s): Landrigan PJ.
  Source: Bull N Y Acad Med. 1985 December; 61(10): 901-16. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3866629&dopt=Abstract

- **Acupuncture and its role in occupational health.**
  Author(s): Woodier NC, Price P.
  Source: Occup Health (Lond). 1984 September; 36(9): 406-16. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6568532&dopt=Abstract

- **Alcoholism: the illness. The occupational health nurse as a link to survival.**
  Author(s): Lewis SJ, Messner RL.
  Source: Aaohn Journal : Official Journal of the American Association of Occupational Health Nurses. 1986 October; 34(10): 485-7.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3638970&dopt=Abstract

- **Alternative treatments and occupational health nurse liability.**
  Author(s): Calfee BE.
  Source: Aaohn Journal : Official Journal of the American Association of Occupational Health Nurses. 1997 April; 45(4): 206.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9155271&dopt=Abstract

- **Bereavement support. The occupational health nurse's role when death comes to work.**
  Author(s): Quan J, Wadsworth M.
  Source: Aaohn Journal : Official Journal of the American Association of Occupational Health Nurses. 2000 October; 48(10): 461-9. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11760256&dopt=Abstract

- **Complementary and alternative therapies in occupational health. Part II--Specific therapies.**
  Author(s): Bascom A.
  Source: Aaohn Journal : Official Journal of the American Association of Occupational Health Nurses. 2002 October; 50(10): 468-77; Quiz 478-9. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12400231&dopt=Abstract

- **Complementary and alternative therapies in occupational health. Part One.**
  Author(s): Bascom A.
  Source: Aaohn Journal : Official Journal of the American Association of Occupational Health Nurses. 2002 September; 50(9): 418-25; Quiz 426-7.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12244581&dopt=Abstract

- **Enhancing baccalaureate student nursing education. Collaboration with occupational health nurses for hands-on experience.**
  Author(s): Prestholdt CO, Holt BA.
  Source: Aaohn Journal : Official Journal of the American Association of Occupational Health Nurses. 1989 November; 37(11): 465-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2818761&dopt=Abstract

- **Functional hypoglycemia: implications for occupational health nurses.**
  Author(s): Edwards R, Wells BJ.
  Source: Occup Health Nurs. 1985 April; 33(4): 174-9. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3885110&dopt=Abstract

- **Holistic health promotion in the occupational health setting.**
  Author(s): Smith MN, Stenger F.
  Source: Occup Health Nurs. 1985 June; 33(6): 291-3. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3846860&dopt=Abstract

- **How I help managers understand and value an occupational health department.**
  Author(s): Jones S.
  Source: Occupational Medicine (Oxford, England). 1997 January; 47(1): 57-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9136221&dopt=Abstract

- **How long will occupational health remain a nursing specialty?**
  Author(s): Davey G.
  Source: Occup Health (Lond). 1992 May; 44(5): 152. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1528538&dopt=Abstract

- **Human factors in occupational health--objective and subjective evaluation of a work environment.**
  Author(s): Greenberg L.
  Source: American Industrial Hygiene Association Journal. 1976 April; 37(4): 257-61.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1274847&dopt=Abstract

- **Improving the quality of workers' compensation health care delivery: the Washington State Occupational Health Services Project.**
  Author(s): Wickizer TM, Franklin G, Plaeger-Brockway R, Mootz RD.
  Source: The Milbank Quarterly. 2001; 79(1): 5-33.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11286095&dopt=Abstract

- **Individual variation in response to lead exposure: a dilemma for the occupational health physician.**
  Author(s): Milkovic-Kraus S, Restek-Samarzija N, Samarzija M, Kraus O.

Source: American Journal of Industrial Medicine. 1997 May; 31(5): 631-5.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9099367&dopt=Abstract

- **Lifestyle education and modification in the occupational health setting.**
  Author(s): Ciliska DK.
  Source: Occup Health Nurs. 1982 September; 30(9): 15-7. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6752787&dopt=Abstract

- **Occupational health in Chinese metallurgical industries: report based on a visit.**
  Author(s): Goldsmith JR.
  Source: American Journal of Industrial Medicine. 1985; 7(4): 353-7.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3993651&dopt=Abstract

- **Occupational health in physiotherapy: general health and reproductive outcomes.**
  Author(s): Cromie JE, Robertson VJ, Best MO.
  Source: The Australian Journal of Physiotherapy. 2002; 48(4): 287-94.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12443523&dopt=Abstract

- **Occupational health in the USA in the 21st century.**
  Author(s): Felton JS.
  Source: Occupational Medicine (Oxford, England). 2000 September; 50(7): 523-31.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11198679&dopt=Abstract

- **Occupational health nursing with Navajo workers. Providing culturally competent care.**
  Author(s): Lusk P, Holst P.
  Source: Aaohn Journal : Official Journal of the American Association of Occupational Health Nurses. 2001 January; 49(1): 27-34. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11760275&dopt=Abstract

- **Occupational health problems in processing of X-ray photographic films.**
  Author(s): Hewitt PJ.
  Source: The Annals of Occupational Hygiene. 1993 June; 37(3): 287-95.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8346876&dopt=Abstract

- **Physiotherapy for occupational health nurses. 4. Massage.**
  Author(s): Hayne CR.
  Source: Nurs Mirror. 1978 September 7; 147(10): I-Iv. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=250030&dopt=Abstract

- **PMS in the workplace. An occupational health nurse's guide to premenstrual syndrome.**
  Author(s): Tempel R.
  Source: Aaohn Journal : Official Journal of the American Association of Occupational Health Nurses. 2001 February; 49(2): 72-8. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11760268&dopt=Abstract

- **Rehabilitation and the occupational health nurse.**
  Author(s): Donnelly DC.
  Source: Occup Health Nurs. 1983 August; 31(8): 39-41. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6225042&dopt=Abstract

- **Rehabilitation assessment: a practical guide for the occupational health nurse.**
  Author(s): Wilkinson WE, Wilkinson CS.
  Source: Occup Health Nurs. 1985 January; 33(1): 15-7. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3843873&dopt=Abstract

- **Smoking cessation programs in the workplace. Review and recommendations for occupational health nurses.**
  Author(s): Strasser PB.
  Source: Aaohn Journal : Official Journal of the American Association of Occupational Health Nurses. 1991 September; 39(9): 432-8. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1888400&dopt=Abstract

- **Spiritual care: a challenge for the occupational health nurse.**
  Author(s): Smith SD.
  Source: S C Nurse. 1997 October-December; 4(4): 25. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9391428&dopt=Abstract

- **Technical, occupational health and environmental aspects of metal degreasing with aqueous cleaners.**
  Author(s): Lavoue J, Begin D, Geerin M.
  Source: The Annals of Occupational Hygiene. 2003 August; 47(6): 441-59. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12890654&dopt=Abstract

- **Training in oculomotor tracking: occupational health aspects.**
  Author(s): Gur S, Ron S.
  Source: Isr J Med Sci. 1992 August-September; 28(8-9): 622-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1428821&dopt=Abstract

- **Traveling with the occupational health nurses in China: a perspective today.**
  Author(s): Seaver ME.

Source: Occup Health Nurs. 1983 May; 31(5): 9-16.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6551742&dopt=Abstract

- **Utilizing data systems to develop and monitor occupational health programs in a large Canadian hospital.**
  Author(s): Yassi A.
  Source: Methods of Information in Medicine. 1998 June; 37(2): 125-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9656650&dopt=Abstract

- **Worker involvement in occupational health and safety.**
  Author(s): Howlett M, Archer VE.
  Source: Family & Community Health. 1984 November; 7(3): 57-63.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10268545&dopt=Abstract

Additional Web Resources

A number of additional Web sites offer encyclopedic information covering CAM and related topics. The following is a representative sample:

- Alternative Medicine Foundation, Inc.: **http://www.herbmed.org/**
- AOL: **http://search.aol.com/cat.adp?id=169&layer=&from=subcats**
- Chinese Medicine: **http://www.newcenturynutrition.com/**
- drkoop.com®: **http://www.drkoop.com/InteractiveMedicine/IndexC.html**
- Family Village: **http://www.familyvillage.wisc.edu/med_altn.htm**
- Google: **http://directory.google.com/Top/Health/Alternative/**
- Healthnotes: **http://www.healthnotes.com/**
- MedWebPlus: **http://medwebplus.com/subject/Alternative_and_Complementary_Medicine**
- Open Directory Project: **http://dmoz.org/Health/Alternative/**
- HealthGate: **http://www.tnp.com/**
- WebMD®Health: **http://my.webmd.com/drugs_and_herbs**
- WholeHealthMD.com: **http://www.wholehealthmd.com/reflib/0,1529,00.html**
- Yahoo.com: **http://dir.yahoo.com/Health/Alternative_Medicine/**

General References

A good place to find general background information on CAM is the National Library of Medicine. It has prepared within the MEDLINEplus system an information topic page dedicated to complementary and alternative medicine. To access this page, go to the MEDLINEplus site at **http://www.nlm.nih.gov/medlineplus/alternativemedicine.html**.

This Web site provides a general overview of various topics and can lead to a number of general sources.

CHAPTER 4. DISSERTATIONS ON OCCUPATIONAL HEALTH

Overview

In this chapter, we will give you a bibliography on recent dissertations relating to occupational health. We will also provide you with information on how to use the Internet to stay current on dissertations. **IMPORTANT NOTE:** When following the search strategy described below, you may discover non-medical dissertations that use the generic term "occupational health" (or a synonym) in their titles. To accurately reflect the results that you might find while conducting research on occupational health, we have not necessarily excluded non-medical dissertations in this bibliography.

Dissertations on Occupational Health

ProQuest Digital Dissertations, the largest archive of academic dissertations available, is located at the following Web address: **http://wwwlib.umi.com/dissertations**. From this archive, we have compiled the following list covering dissertations devoted to occupational health. You will see that the information provided includes the dissertation's title, its author, and the institution with which the author is associated. The following covers recent dissertations found when using this search procedure:

- **A Standarized Vocabulary for Occupational Health Surveillance** by Toth, Weldonna; PhD from The University of Utah, 2002, 239 pages
  http://wwwlib.umi.com/dissertations/fullcit/3041613
- **A Study of the Interaction between Student Characteristics, Basic Literacy Skills, Employment and the Achievement of Technical Knowledge in Selected Occupational Health Science Programs at a Postsecondary Vocational Technical Center** by Laux, Warren Royce, EDD from University of South Florida, 1999, 124 pages
  http://wwwlib.umi.com/dissertations/fullcit/9922438
- **An Analysis of the Transformation of a Social Problem: Occupational Health in Silicon Valley's Semiconductor Industry (silicon Valley)** by Gurtuna, Hulya Zehra, PhD from University of California, Santa Cruz, 1992, 258 pages
  http://wwwlib.umi.com/dissertations/fullcit/9312436

- **An Evaluation of Occupational Health and Safety Educational Interventions in Queensland Workplaces under the Workplace Health and Safety Act 1995 (Australia)** by Vanderkruk, Roslyn Joy; PhD from University of New South Wales (Australia), 2000
http://wwwlib.umi.com/dissertations/fullcit/f1066857
- **An Examination of the Importance of Decision Choice Criteria in the Industrial Purchase of Occupational Health Programs** by Horwitz, Pamela Sue, PhD from Saint Louis University, 1987, 175 pages
http://wwwlib.umi.com/dissertations/fullcit/8805250
- **Application of the Traditional Epidemiological Model to Predict Occupational Injury Rates in Manufacturing Industries** by Morris, Gary Arthur; PhD from Old Dominion University, 2003, 232 pages
http://wwwlib.umi.com/dissertations/fullcit/3090822
- **Assault, Battery and Injury of Correctional Officers by Inmates: an Occupational Health Study (injury Control, Maryland)** by Hayes, Winifred Still, PhD from The Johns Hopkins University, 1985, 318 pages
http://wwwlib.umi.com/dissertations/fullcit/8518492
- **Collective Bargaining and Occupational Health and Safety** by Boardman-Free, Rhona Campbell, PhD from University of Notre Dame, 1983, 269 pages
http://wwwlib.umi.com/dissertations/fullcit/8316693
- **Comparison of the Metabolic and Perceptual Responses While Transporting External Loads on the Head and by Yoke (ergonomics, Human Factor, Occupational Health, Physiological Responses, Physical Exertion)** by Balogun, Joseph Abiodun, PhD from University of Pittsburgh, 1985, 163 pages
http://wwwlib.umi.com/dissertations/fullcit/8600633
- **Compensating Wage Differentials, Occupational Health and Safety, and the Value of Human Life: an Efficiency Wage Analysis** by Dorman, Peter James, PhD from University of Massachusetts, 1987, 209 pages
http://wwwlib.umi.com/dissertations/fullcit/8805909
- **Death on the Job: the Politics of Occupational Health in the United States.** by Berman, Daniel Montzingo, PhD from Washington University, 1974, 346 pages
http://wwwlib.umi.com/dissertations/fullcit/7514890
- **Evaluation of Computational Fluid Dynamics Models for Application to Occupational Health Problems** by Bryant, Jennifer Richmond; PhD from The University of North Carolina at Chapel Hill, 2002
http://wwwlib.umi.com/dissertations/fullcit/f823489
- **For the Good of Us All: Early Attitudes toward Occupational Health with Emphasis on the Northern United States from 1787 to 1870 (labor, Hygiene, Industrial, Factory)** by Donegan, Craig, PhD from University of Maryland College Park, 1984, 492 pages
http://wwwlib.umi.com/dissertations/fullcit/8625146
- **Managed Occupational Health Vs. Traditional Care: a Cost and Satisfaction Analysis of Workers' Compensation in Healthcare Workers** by Stewart-James, Joy Ellen; EDD from The University of Texas at Austin, 2002, 129 pages
http://wwwlib.umi.com/dissertations/fullcit/3075618
- **Occupational Health and Safety in Context: an Examination of Three Polyurethane Foam Plants in Israel** by Borkan, Jeffrey Michael, PhD from Case Western Reserve University, 1987, 359 pages
http://wwwlib.umi.com/dissertations/fullcit/8802469

- **Occupational Health and Safety Legislation and Working Class Political Action: a Historical and Comparative Analysis.** by Braendgaard, Asger Thomassen, PhD from The University of North Carolina at Chapel Hill, 1974, 354 pages
  http://wwwlib.umi.com/dissertations/fullcit/7515617
- **Occupational Health Nurses' Perceptions of Employee Mental Health Needs and Evaluation of Psychiatric Nurse Clinicians As Providers** by Hardie, Thomas Lawrence, EDD from Columbia University Teachers College, 1993, 172 pages
  http://wwwlib.umi.com/dissertations/fullcit/9414430
- **Phossy-jaw and the French Match Workers: Occupational Health and Women in the Third Republic** by Gordon, Bonnie, PhD from The University of Wisconsin - Madison, 1985, 297 pages
  http://wwwlib.umi.com/dissertations/fullcit/8511147
- **Predictors of Occupational Health Nurses' Likely Ethical Action Regarding Confidentiality of Employee Health Records** by McGarvey, Betty Sue; DSN from The University of Alabama at Birmingham, 2002, 100 pages
  http://wwwlib.umi.com/dissertations/fullcit/3078538
- **Professional Societies and Occupational Health Policy Reform** by Wysong, Earl Edward, PhD from Purdue University, 1990, 342 pages
  http://wwwlib.umi.com/dissertations/fullcit/9104730
- **Regulating the Workplace in Industrial Ontario: the Origins of Occupational Health and Safety Policy, 1880-1914 (public Policy, Policy History)** by Jennissen, Theresa E., PhD from McGill University (Canada), 1991, 378 pages
  http://wwwlib.umi.com/dissertations/fullcit/NN72064
- **Regulation under Constraint: Occupational Health Regulation As a Private Sector Incentive** by Pedersen, David Henrik, PhD from University of Cincinnati, 1996, 322 pages
  http://wwwlib.umi.com/dissertations/fullcit/9713457
- **The Implementation of Iso 14001-conformant Environmental Management Systems and Occupational Injury and Illness Rates Along the United States-Mexico Border** by Kraus, Jennifer Lee; PhD from University of California, San Diego and San Diego State University, 2002, 166 pages
  http://wwwlib.umi.com/dissertations/fullcit/3071181
- **The Politics of Occupational Health and Safety Ontario's Mine Workers and Government Regulation of Environmental Hazards at the Workplace, 1965-1978** by Walker, Brian; PhD from University of Toronto (Canada), 1988
  http://wwwlib.umi.com/dissertations/fullcit/NL46322
- **The Politics of Occupational Health and Safety: Ontario's Mine Workers and Government Regulation of Environmental Hazards at the Workplace, 1965-1978** by Walker, Brian, PhD from University of Toronto (Canada), 1988
  http://wwwlib.umi.com/dissertations/fullcit/f4216596
- **The Privileged Position of Business an Analysis of Canadian Asbestos Industry-government Policies Pertaining to Occupational Health, 1887-1982** by Sentes, Ray; PhD from The University of Regina (Canada), 1988
  http://wwwlib.umi.com/dissertations/fullcit/NL42389
- **The Relationship of Environmental Constraints, Self-efficacy, and Company Risk to Occupational Health Nurses' Intentions to Provide Violence Prevention**

Education/Training by Gates, Donna Marie Giesken, EDD from University of Kentucky, 1995, 158 pages
http://wwwlib.umi.com/dissertations/fullcit/9600498

- **The Right to Know: Hazard Information and the Control of Occupational Health Risks** by Brown, Michael Stuart, PhD from Cornell University, 1984, 238 pages
http://wwwlib.umi.com/dissertations/fullcit/8415368
- **Uncovering Ideology: Occupational Health in the Mainstream and Advocacy Press, 1970-1982** by Raymond, Chris Anne, PhD from Cornell University, 1983, 233 pages
http://wwwlib.umi.com/dissertations/fullcit/8321854
- **Women in Labor: Mothers, Medicine, and Occupational Health, 1890-1980** by Hepler, Allison L., PhD from Temple University, 1996, 155 pages
http://wwwlib.umi.com/dissertations/fullcit/9706967
- **Work and Health of the Chesapeake Bay Commercial Fishermen of Somerset County, Maryland: 'it's a Hard Life, Honey!' (Socialization, Social, Technological Change, Occupational Health, Community Study)** by Habermacher, Andrew Lee, PhD from University of Florida, 1986, 278 pages
http://wwwlib.umi.com/dissertations/fullcit/8618635
- **Work and Health: an Economic and Policy Analysis (labor Unions, Discrimination, Occupational Health)** by Robinson, James Claude, PhD from University of California, Berkeley, 1984, 439 pages
http://wwwlib.umi.com/dissertations/fullcit/8427074

Keeping Current

Ask the medical librarian at your library if it has full and unlimited access to the *ProQuest Digital Dissertations* database. From the library, you should be able to do more complete searches via **http://wwwlib.umi.com/dissertations**.

CHAPTER 5. PATENTS ON OCCUPATIONAL HEALTH

Overview

Patents can be physical innovations (e.g. chemicals, pharmaceuticals, medical equipment) or processes (e.g. treatments or diagnostic procedures). The United States Patent and Trademark Office defines a patent as a grant of a property right to the inventor, issued by the Patent and Trademark Office.[8] Patents, therefore, are intellectual property. For the United States, the term of a new patent is 20 years from the date when the patent application was filed. If the inventor wishes to receive economic benefits, it is likely that the invention will become commercially available within 20 years of the initial filing. It is important to understand, therefore, that an inventor's patent does not indicate that a product or service is or will be commercially available. The patent implies only that the inventor has "the right to exclude others from making, using, offering for sale, or selling" the invention in the United States. While this relates to U.S. patents, similar rules govern foreign patents.

In this chapter, we show you how to locate information on patents and their inventors. If you find a patent that is particularly interesting to you, contact the inventor or the assignee for further information. **IMPORTANT NOTE:** When following the search strategy described below, you may discover non-medical patents that use the generic term "occupational health" (or a synonym) in their titles. To accurately reflect the results that you might find while conducting research on occupational health, we have not necessarily excluded non-medical patents in this bibliography.

Patents on Occupational Health

By performing a patent search focusing on occupational health, you can obtain information such as the title of the invention, the names of the inventor(s), the assignee(s) or the company that owns or controls the patent, a short abstract that summarizes the patent, and a few excerpts from the description of the patent. The abstract of a patent tends to be more technical in nature, while the description is often written for the public. Full patent descriptions contain much more information than is presented here (e.g. claims, references, figures, diagrams, etc.). We will tell you how to obtain this information later in the chapter.

[8]Adapted from the United States Patent and Trademark Office:
http://www.uspto.gov/web/offices/pac/doc/general/whatis.htm.

The following is an example of the type of information that you can expect to obtain from a patent search on occupational health:

- **Air-drafting dust remover for power sander**

  Inventor(s): Chu; Eric (8F-2, No. 153, Chung-San Road, Hsin-chu, TW)

  Assignee(s): none reported

  Patent Number: 5,993,305

  Date filed: October 31, 1998

  Abstract: A dust remover for power sander includes a dust collecting hood secured on the sander and fluidically communicated with a vacuum system formed in or attached to the sander, having a resilient bellows portion formed on a lower portion of the hood for covering a sanding pad as driven by a motor of the sander and a bottom flange having a plurality of apertures or perforations circumferentially formed in the flange, with the bellows portion resiliently expanding to retain the bottom flange on a working surface; whereby upon vacuum suction in the sander to form at least an air stream as drafted from the outside into the inside of the hood, the dusts, as produced when operating the sander, will be sucked inwardly into the hood as laden in the air stream to be finally collected and disposed for preventing air pollution and for enhancing **occupational health.**

  Excerpt(s): The present inventor has found the drawbacks of the conventional air sander, and invented the present dust remover for power sander. The object of the present invention is to provide a dust remover for power sander including a dust collecting hood secured on the sander and fluidically communicated with a vacuum system formed in or attached to the sander, having a resilient bellows portion formed on a lower portion of the hood for covering a sanding pad as driven by a motor of the sander and a bottom flange having a plurality of apertures or perforations circumferentially formed in the flange, with the bellows portion resiliently expanding to retain the bottom flange on a working surface; whereby upon vacuum suction in the sander to form at least an air stream as drafted from the outside into the inside of the hood, the dusts, as produced when operating the sander, will be sucked inwardly into the hood as laden in the air stream to be finally collected and disposed for preventing air pollution and for enhancing **occupational health.** As shown in FIGS. 2 and 3, the dust remover for power sander of the present invention comprises a dust collecting hood 2 secured to a power sander 1 which may be a pneumatic sander as illustrated (or an electric sander driven by an electric motor). A vacuum suction system is inherently formed in the sander, or a sander such as a non-vacuum tool may be further connected with an additional vacuum suction system (not shown) for sucking and collecting dust from a hood of the sander for the disposal of dust.

  Web site: http://www.delphion.com/details?pn=US05993305__

- **Remote certification of workers for multiple worksites**

  Inventor(s): Kouba; Don M. (Chicago, IL), O'Reilly; Brian (Chicago, IL)

  Assignee(s): Kouba-O'Reilly Consulting Group (Chicago, IL)

  Patent Number: 6,325,631

  Date filed: November 17, 1999

Abstract: A testing system, particularly directed at contract workers, permits computer-aided instruction and testing at each of a plurality of testing sites. Different tests are created and administered for each of a plurality of work sites, which can be selected by the prospective contract worker. Whether the worker passed a particular site-specific test is stored in a database, which is turn is accessible by the work site management. The system has particular application to safety instruction and testing as mandated by the **Occupational Health** and Safety Administration.

Excerpt(s): This invention relates in general to automated instruction and testing methods, and more particularly to a method for certifying a worker, at any of a plurality of test sites, to work at one or more of a plurality of work sites. There has been an increased focus on training workers to do their jobs effectively and safely preliminary to doing the work for which they were hired. This kind of vocational education and certification is now required in many instances by the **Occupational Health** and Safety Administration (OHSA) to ensure safe work practices. There are basic safety practices which will be pertinent for a large variety of workplaces, particularly those of a single industry or a related group of industries, and then there are practices which will be peculiar to a particular plant or worksite and which relate to the exact work conditions, apparatus and processes obtaining at that site. The general, basic safety practices are conventionally given in a traditional classroom setting and are taught by human instructors. Specific, customized safety practices have conventionally been the job of safety personnel assigned to a particular plant or worksite. Another recent trend is an increasing dependency by industry on independent contractors rather than employees. These contractors are retained for relatively short periods by any one plant or workplace, and often work at several sites owned by different proprietors within a single year. At the start of each work period at a work site, the contractor has had to be recertified; this had resulted in repetitious, unnecessary and expensive recertification procedures undertaken by each different plant proprietor of a single contractor during a year. Also, the plant proprietors are reluctant to routinely provide such safety instruction to persons who are not long-term employees.

Web site: http://www.delphion.com/details?pn=US06325631__

Patent Applications on Occupational Health

As of December 2000, U.S. patent applications are open to public viewing.[9] Applications are patent requests which have yet to be granted. (The process to achieve a patent can take several years.) The following patent applications have been filed since December 2000 relating to occupational health:

- **Information reporting system**

  Inventor(s): Bellagamba, Jean-Marc; (Monthey, CH), Turin, Raymond; (Monthey, CH)

  Correspondence: Syngenta Crop Protection , INC.; Patent And Trademark Department; 410 Swing Road; Greensboro; NC; 27409; US

  Patent Application Number: 20020087582

  Date filed: December 6, 2001

[9] This has been a common practice outside the United States prior to December 2000.

Abstract: There is provided an information reporting system for an **occupational health** facility for use with an electronic database, said electronic database containing records for a group of individuals, there being at least one record for each individual, said records containing historical information on the work place exposure, generated by a first database application means from at least three independent files, said files representing the work place data, the product risk data and the personnel data, said reporting system further comprising:a second database application means for incorporating at least legislative requirement data into said records for each individual; anda report generating means for generatinga) a schedule for operating the **occupational health** facility, and/orb) an epidemiological analysis on the total or part of the individual records.

Excerpt(s): The invention relates to an information reporting system for an **occupational health** facility, a method of reporting said clinical information and a data processing system to carry out said method. The advances in technology and particularly the synthesis of new chemical compounds require a better knowledge and understanding in the area of **occupational health.** At the present time, it is almost impossible to evaluate in a definite way the influence of the exposure to new technologies or to new chemical compounds. It is therefore necessary to be able to re-evaluate the situation, especially with regard to past exposure, according to the development of further knowledge. Unfortunately, up to now a re-evaluation of an initial assessment as to the risks associated with the exposure to a technology or to a chemical compound is hardly ever undertaken. In any event such re-evaluation is up to now only possible by carrying out one change at a time, whereby neglecting possible interactions of exposures. In addition to this limitation, the ever increasing mobility of employees between different work places and legislative changes imposing additional medical exams or check-ups are to be taken into account in developing an information reporting system for an **occupational health** facility. It is therefore an object of the present invention to provide an information reporting system for an **occupational health** facility, which generates a schedule for operating the **occupational health** facility.

Web site: http://appft1.uspto.gov/netahtml/PTO/search-bool.html

Keeping Current

In order to stay informed about patents and patent applications dealing with occupational health, you can access the U.S. Patent Office archive via the Internet at the following Web address: **http://www.uspto.gov/patft/index.html**. You will see two broad options: (1) Issued Patent, and (2) Published Applications. To see a list of issued patents, perform the following steps: Under "Issued Patents," click "Quick Search." Then, type "occupational health" (or synonyms) into the "Term 1" box. After clicking on the search button, scroll down to see the various patents which have been granted to date on occupational health.

You can also use this procedure to view pending patent applications concerning occupational health. Simply go back to **http://www.uspto.gov/patft/index.html**. Select "Quick Search" under "Published Applications." Then proceed with the steps listed above.

CHAPTER 6. BOOKS ON OCCUPATIONAL HEALTH

Overview

This chapter provides bibliographic book references relating to occupational health. In addition to online booksellers such as **www.amazon.com** and **www.bn.com**, excellent sources for book titles on occupational health include the Combined Health Information Database and the National Library of Medicine. Your local medical library also may have these titles available for loan.

Book Summaries: Federal Agencies

The Combined Health Information Database collects various book abstracts from a variety of healthcare institutions and federal agencies. To access these summaries, go directly to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. You will need to use the "Detailed Search" option. To find book summaries, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer. For the format option, select "Monograph/Book." Now type "occupational health" (or synonyms) into the "For these words:" box. You should check back periodically with this database which is updated every three months. The following is a typical result when searching for books on occupational health:

- **New dimensions in women's health. (2nd ed.)**

  Source: Boston, MA: Jones and Bartlett. 2001. 531 pp.

  Contact: Available from Jones and Bartlett Publishers, 40 Tall Pine Drive, Sudbury, MA 01776. Telephone: (800) 832-0034 or (508) 443-5000 / e- mail: mkt@jbpub.com. $56.95.

  Summary: Presented in four parts, this book discusses women's health issues over the full life cycle. Part one includes an introduction into the study of women's health including developmental issues over the lifespan, mental health, and **occupational health.** Part two focuses on lifestyle and social health, including nutrition, weight, exercise and fitness, substance abuse, violence, abuse, and sexual harassment. The third part discusses personal and sexual health, including contraception and abortion, pregnancy and childbirth, and reproductive tract infections. Finally, part four covers lifespan dimensions such as menopause and hormone replacement therapy,

cardiovascular disease, and other chronic conditions. References and a glossary are included.

- **CDC Prevention Guidelines: A Guide for Action**

  Contact: Williams and Wilkins, Epidemiology Resource Inc., 428 E Preston St, Baltimore, MD, 21202, (410) 528-4000.

  Summary: These guidelines are a compilation of 161 key Centers for Disease Control and Prevention (CDC) documents excerpted from larger reports. The guidelines cover a variety of public health topics including prevention of AIDS and other sexually transmitted diseases, birth defects, workplace hazards, and risks associated with alcohol and tobacco. Each entry includes a description of the disease or condition, a summary of symptoms, recommendations for treatment of the disease and its variants, and prevention. The guidelines are organized as follows: infectious diseases, maternal and child care/nutrition, cancer, chronic diseases, environmental health, injuries, **occupational health,** and miscellaneous.

- **Policies and Positions**

  Source: AIDS in the Workplace: Resource Materials.

  Contact: Bureau of National Affairs, Incorporated, Customer Service Center, 9435 Key West Ave, Rockville, MD, 20850, (800) 372-1033.

  Summary: This book chapter reproduces policy and position statements on Acquired immunodeficiency syndrome (AIDS) and AIDS-related conditions put forth by 10 national organizations and professional associations. These include the AFL/CIO, the American College Health Association, the American Council on Education, the National Restaurant Association, the National Association of Insurance Commissioners, the National Insurance Association/American Council of Life Insurance, the National Gay and Lesbian Task Force/National Gay Rights Advocates, the American Public Health Association, the American Psychological Association, and the American Nurses Association. Statements deal with such issues as **occupational health** and safety, transmission of Human immunodeficiency virus (HIV), infection control procedures, testing, confidentiality, counseling and support services, education, discrimination, insurance concerns, and the civil and human rights of Persons with AIDS (PWA's) and related conditions.

- **The Medical Management of AIDS**

  Contact: W.B. Saunders Company, Harcourt Brace Jovanovich, Incorporated, The Curtis Center, Independence Sq W, Philadelphia, PA, 19106-3399, (800) 782-4472.

  Summary: This book is a compilation of information pertaining to the epidemiology, diagnosis, and comprehensive care of HIV-related illnesses. Information on the clinical spectrum of infectious complications and opportunistic infections related to HIV, including patient management, is detailed. Other topics discussed include **occupational health** issues, pediatric AIDS, and the epidemiology of AIDS in Africa. This reference provides methods for improving patient care and practical guidelines for a multidisciplinary approach to HIV. In this 5th edition, several new antiretroviral drugs and tests for quantifying viral load; the guidelines for the use of the three new protease inhibitors; management of needlestick injuries; review of the 1995 recommendations for preventing opportunistic infections which were published by the Infectious Diseases Society of America and the CDC; new observations on the pathophysiology of the viral

infection; and many other marked changes in AIDS/HIV caare have recently taken place are included.

- **Our bodies, ourselves for the new century: A book by and for women**

  Source: New York, NY: Simon and Schuster. 1998. 780 pp.

  Contact: Available from Simon and Schuster, 866 Third Avenue, New York, NY 10022. $24.00.

  Summary: This book provides information on women's health. The information is based on the experiences of women. It encompasses medical, social, political and economic forces that affect women's lives and health. The book is divided into five parts. Part One: Taking Care of Ourselves covers topics including food, drugs, physical activity, holistic health, emotional well-being, environmental and **occupational health,** and violence against women. Part Two: Relationships and Sexuality includes information on sexual orientation and gender identification, relationships with men, relationships with women, and sexuality. Part Three: Sexual Health and Controlling Our Fertility covers reproduction, sexually transmitted diseases, HIV and AIDS, and abortion. Part Four: Childbearing discusses the childbearing process and associated problems. Part Five: Knowledge is Power looks at women growing older, medical practices and problems, and the politics of women's health and medical care. The book encourages women to continue to discuss women's health issues. It provides an introduction to women's health resources on the Internet as well as a printed list of resources.

- **AIDS on Campus: A Legal Compendium**

  Contact: National Association of College and University Attorneys, 1 Dupont Cir NW Ste 620, Washington, DC, 20036, (202) 833-8390.

  Summary: This monograph is a compendium of recent articles and other publications that touch on the Acquired immunodeficiency syndrome (AIDS) epidemic as it affects college campuses. The editor says that it represents the most current knowledge at the time of publication, but because the face of the epidemic changes so rapidly, additional resources are included to help the reader keep up with new developments. Divided into eight sections, it starts with one on medical background. Legal background is covered in the second section, while the third looks at Centers for Disease Control and Prevention (CDC) recommendations, guidelines, and updates. A number of association policy statements are included in the fourth section. Section Five covers **occupational health** and safety issues, while Section Six turns to the health-care worker with Human immunodeficiency virus (HIV) infection. The final two sections look at student educational issues and sample campus policies on AIDS.

- **Occupational Exposure to Bloodborne Pathogens: Precautions for Emergency Responders**

  Contact: US Department of Labor, Occupational Safety and Health Administration, 200 Constitution Ave NW, Rm N3101, Washington, DC, 20210, (202) 219-4667.

  Summary: This monograph provides an overview of the **Occupational Health** and Safety Administration (OSHA) standard concerning bloodborne pathogens. The objective is to inform employees and employers of the risks of occupational exposure to bloodborne pathogens and how to reduce these risks. Who is covered by this standard, what an exposure control plan must include, who has occupational exposure, and communicating hazards to employees are addressed. Also discussed are preventive

measures, methods of control, and how to handle an exposure incident. It also gives information about the requirements for recordkeeping by employers. A copy of the hepatitis B virus (HBV) declination statement is provided in the appendix.

- **Maxcy-Rasenau-Last public health and preventive medicine. (14th ed.)**

  Source: Stamford, CT: Appleton and Lange. 1998. 1291 pp.

  Contact: Available from Appleton and Lange, Four Stamford Plaza, P. O. Box 120041, Stamford, CT 06912-0041 / Web site: http://www.appletonlange.com. $132.00.

  Summary: This textbook begins with a section about public health methods, with individual chapters on topics such as preventive medicine, epidemiology, ethics, and population. Section II deals with communicable diseases including disease control in general, vaccinations, sexually transmitted diseases, and disease vectors of many kinds. Section III discusses environmental health including **occupational health.** Section IV deals with behavioral factors affecting health and has chapters dealing with substance abuse, community intervention programs, and health behavior. Chronic illnesses and disabilities are discussed in Section V which has chapters on common diseases as well as chapters on screening, genetic disorders, nutrition, and dental health. Section VI examines health care planning, organization, and evaluation, and Section VII covers injuries and violence.

Book Summaries: Online Booksellers

Commercial Internet-based booksellers, such as Amazon.com and Barnes&Noble.com, offer summaries which have been supplied by each title's publisher. Some summaries also include customer reviews. Your local bookseller may have access to in-house and commercial databases that index all published books (e.g. Books in Print®). **IMPORTANT NOTE:** Online booksellers typically produce search results for medical and non-medical books. When searching for "occupational health" at online booksellers' Web sites, you may discover non-medical books that use the generic term "occupational health" (or a synonym) in their titles. The following is indicative of the results you might find when searching for "occupational health" (sorted alphabetically by title; follow the hyperlink to view more details at Amazon.com):

- **Administering Danger in the Workplace: The Law and Politics of Occupational Health and Safety Regulation in Ontario, 1850-1914** by Eric Tucker (1990); ISBN: 0802067654; http://www.amazon.com/exec/obidos/ASIN/0802067654/icongroupinterna
- **Advances in Neurobehavioral Toxicology: Applications in Environmental and Occupational Health** by Barry L. Johnson (Editor) (1990); ISBN: 0873713745; http://www.amazon.com/exec/obidos/ASIN/0873713745/icongroupinterna
- **Annual Book of Astm Standards, 1997: Atmospheric Analysis; Occupational Health and Safety; Protective Clothing (Vol 11.03)** (1997); ISBN: 0803124465; http://www.amazon.com/exec/obidos/ASIN/0803124465/icongroupinterna
- **Atmospheric Analysis, Occupational Health and Safety, Protective Clothing: 2002 (Annual Book of A S T M Standards. Volume 11.03, 2002)** (2002); ISBN: 0803132174; http://www.amazon.com/exec/obidos/ASIN/0803132174/icongroupinterna

- **Biological Monitoring of Chemical Exposure in the Workplace (Occupational Health for All)** (1996); ISBN: 9518021589; http://www.amazon.com/exec/obidos/ASIN/9518021589/icongroupinterna
- **Biomarkers and Occupational Health: Progress and Perspectives** by Mortimer L. Mendelsohn (Editor), et al (1995); ISBN: 0309051878; http://www.amazon.com/exec/obidos/ASIN/0309051878/icongroupinterna
- **Building a Culture of Respect: Managing Bullying at Work (Issues in Occupational Health)** by Noreen Tehrani (Editor); ISBN: 0415246482; http://www.amazon.com/exec/obidos/ASIN/0415246482/icongroupinterna
- **Chemical Risk Assessment and Occupational Health: Current Applications, Limitations, and Future Prospects** by C. Mark Smith (Author), et al; ISBN: 086569219X; http://www.amazon.com/exec/obidos/ASIN/086569219X/icongroupinterna
- **Cost of Occupational Injury and Illness** by J. Paul Leigh, et al (2000); ISBN: 0472110810; http://www.amazon.com/exec/obidos/ASIN/0472110810/icongroupinterna
- **Cotton Dust: Controlling an Occupational Health Hazard** by J.G. Montalvo (Editor) (1982); ISBN: 084120716X; http://www.amazon.com/exec/obidos/ASIN/084120716X/icongroupinterna
- **Epidemiology of Occupational Health (Who Regional Publications, European Series, No 20)** by M. Karvonen, M.I. Mikheev (Editor) (1986); ISBN: 9289011114; http://www.amazon.com/exec/obidos/ASIN/9289011114/icongroupinterna
- **Evaluation in Occupational Health Practice** by Peter Westerholm (Editor), Ewa Menckel (Editor); ISBN: 075064303X; http://www.amazon.com/exec/obidos/ASIN/075064303X/icongroupinterna
- **Fire Department Occupational Health and Safety Standards Handbook (101HB97)** by Stephen N. Foley (Editor), National Fire Protection Association; ISBN: 0877654131; http://www.amazon.com/exec/obidos/ASIN/0877654131/icongroupinterna
- **Fundamental Principles of Occupational Health and Safety** by Benjamin Alli (2001); ISBN: 9221108694; http://www.amazon.com/exec/obidos/ASIN/9221108694/icongroupinterna
- **Handbook of Occupational Health Psychology** by James C. Quick (Editor), et al (2002); ISBN: 1557989273; http://www.amazon.com/exec/obidos/ASIN/1557989273/icongroupinterna
- **Occupational Health and Safety in Automation and Robotics: The Proceedings of the 5th Uoeh International Symposium, Kitakyushu, Japan, 20-21 September 1985** by Japan)/ Noro, Kageyu Uoeh International Symposium 1985 Kitakyushu-Shi (Editor); ISBN: 0850663512; http://www.amazon.com/exec/obidos/ASIN/0850663512/icongroupinterna
- **Occupational Health and Safety in the Care and Use of Nonhuman Primates** (2003); ISBN: 030908914X; http://www.amazon.com/exec/obidos/ASIN/030908914X/icongroupinterna
- **Occupational Health and Safety in the Care and Use of Research Animals** by National Research Council, Committee On Occupational Nrc; ISBN: 0309052998; http://www.amazon.com/exec/obidos/ASIN/0309052998/icongroupinterna
- **Occupational Health and Safety in the Emergency Services** by James, S. Angle; ISBN: 0827383592; http://www.amazon.com/exec/obidos/ASIN/0827383592/icongroupinterna

- **Occupational Health in Aviation : Maintenance and Support Personnel** by Joseph Ribak (Author), et al (1995); ISBN: 0125835604;
http://www.amazon.com/exec/obidos/ASIN/0125835604/icongroupinterna
- **Occupational Health Nurse** by Beatrice Warren (1981); ISBN: 9991111115;
http://www.amazon.com/exec/obidos/ASIN/9991111115/icongroupinterna
- **Occupational Health Nursing Care Guidelines** by Debra Daly-Gawenda (Editor), et al; ISBN: 0826193501;
http://www.amazon.com/exec/obidos/ASIN/0826193501/icongroupinterna
- **Occupational Health Pocket Consultant (Pocket Consultant Series)** by J. M. Harrington, F. S. Gill; ISBN: 0632031891;
http://www.amazon.com/exec/obidos/ASIN/0632031891/icongroupinterna
- **Occupational Health: Recognizing and Preventing Work-Related Disease and Injury** by Barry S. Levy (Editor), David H. Wegman (Editor); ISBN: 0781719542;
http://www.amazon.com/exec/obidos/ASIN/0781719542/icongroupinterna
- **Occupational Health: Risk Assessment and Management** by Steven S. Sadhra (Editor), et al; ISBN: 0632041994;
http://www.amazon.com/exec/obidos/ASIN/0632041994/icongroupinterna
- **OEM Occupational Health and Safety Manual** by Deborah V. Dibenedetto, et al (1996); ISBN: 1883595096;
http://www.amazon.com/exec/obidos/ASIN/1883595096/icongroupinterna
- **One-Eyed Science: Occupational Health and Women Workers (Labor and Social Change)** by Karen Messing, et al (1998); ISBN: 1566395976;
http://www.amazon.com/exec/obidos/ASIN/1566395976/icongroupinterna
- **Practical Guide to Occupational Health and Safety** by Paul Erickson (Author) (1996); ISBN: 0122405706;
http://www.amazon.com/exec/obidos/ASIN/0122405706/icongroupinterna
- **Response to Occupational Health Hazards : A Historical Perspective** by Jacqueline Karnell Corn (Author); ISBN: 0471284076;
http://www.amazon.com/exec/obidos/ASIN/0471284076/icongroupinterna
- **Risk Management : For Occupational Health and Safety** by John Ridley (Author), John Channing (Author) (1999); ISBN: 075064558X;
http://www.amazon.com/exec/obidos/ASIN/075064558X/icongroupinterna
- **Safety Law : For Occupational Health and Safety** by John Ridley (Author), John Channing (Author) (1999); ISBN: 0750645598;
http://www.amazon.com/exec/obidos/ASIN/0750645598/icongroupinterna
- **The Burnout Companion to Study and Practice: A Critical Analysis (Issues in Occupational Health Series)** by Wilmar Schaufeli, Dirk Enzmann; ISBN: 0748406980;
http://www.amazon.com/exec/obidos/ASIN/0748406980/icongroupinterna
- **The Way from Dusty Death: Turner and Newall and the Regulation of Occupational Health in the British Asbestos Industry, 1890-1970** by P. W. J. Bartrip (2002); ISBN: 0485115735;
http://www.amazon.com/exec/obidos/ASIN/0485115735/icongroupinterna
- **Workplace Safety : For Occupational Health and Safety** by John Channing (Author), John Ridley (Author) (1999); ISBN: 0750645601;
http://www.amazon.com/exec/obidos/ASIN/0750645601/icongroupinterna

The National Library of Medicine Book Index

The National Library of Medicine at the National Institutes of Health has a massive database of books published on healthcare and biomedicine. Go to the following Internet site, **http://locatorplus.gov/**, and then select "Search LOCATORplus." Once you are in the search area, simply type "occupational health" (or synonyms) into the search box, and select "books only." From there, results can be sorted by publication date, author, or relevance. The following was recently catalogued by the National Library of Medicine:[10]

- **A professional guide for Federal occupational health units [by] John B. Hozier and Arvo B. Ederma.** Author: Federal Employee Health Program (U.S.); Year: 1968; Washington, For sale by the Supt. of Docs., U. S. Govt. Print. Off. [1965?]
- **An administrative guide for Federal occupational health units [by] Arvo B. Ederma and John B. Hozier.** Author: United States. Public Health Service. Division of Hospitals.; Year: 1967; Washington, Public
- **Family-centered care in a pediatric setting; Audrey Beatty, guest editor. Occupational health nursing; Marjorie J. Keller, guest editor.** Author: Beatty, Audrey.; Year: 1968; Philadelphia, Saunders, 1972
- **Functions and qualifications for an occupational health nurse in a one-nurse service.** Author: American Nurses' Association.; Year: 1967; [New York, 1968]
- **Health and safety for Puerto Rican workers; a series of seminars and panel discussions presented by the Council on Occupational Health of the American Medical Association in cooperation with Puerto Rico Medical Association [et al.] San Juan, Puerto Rico - January 23-25, 1964.** Author: American Medical Association. Council on Occupational Health.; Year: 1966; [Chicago, Dept. of
- **Local health official's guide to occupational health, prepared by Subcommittee on Occupational Health and approved by the Program Area Committee on Environmental Health, 1968, in cooperation with Occupational Health Section.** Author: American Public Health Association. Subcommittee on Occupational Health.; Year: 1964; New York [c1968]
- **Occupational health guide for medical and nursing personnel.prepared by the Occupational Health Committee of the State Medical Society of Wisconsin, and the Occupational Health Nurses Section of the Wisconsin Nurses Association, in consultation with the Wisconsin State Board of Health.** Author: State Medical Society of Wisconsin. Occupational Health Committee.; Year: 2002; Madison, 1966-
- **Occupational health in Sweden; working environment, safety, and occupational health services.** Author: Forssman, Sven,; Year: 1968; [Stockholm] Swedish Institute [1971]; ISBN: 9152000001
  http://www.amazon.com/exec/obidos/ASIN/9152000001/icongroupinterna
- **Occupational health nurses; an initial survey. [By] Mary Lou Bauer and Mary Louise Brown.** Author: Bauer, Mary Lou.; Year: 1967; Washington, U. S. Public

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[10] In addition to LOCATORPlus, in collaboration with authors and publishers, the National Center for Biotechnology Information (NCBI) is currently adapting biomedical books for the Web. The books may be accessed in two ways: (1) by searching directly using any search term or phrase (in the same way as the bibliographic database PubMed), or (2) by following the links to PubMed abstracts. Each PubMed abstract has a "Books" button that displays a facsimile of the abstract in which some phrases are hypertext links. These phrases are also found in the books available at NCBI. Click on hyperlinked results in the list of books in which the phrase is found. Currently, the majority of the links are between the books and PubMed. In the future, more links will be created between the books and other types of information, such as gene and protein sequences and macromolecular structures. See **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Books**.

- **Occupational health nursing for the basic nursing student. A report of a workshop, July 2-6, 1962, University of Washington, School of Nursing.** Author: Klutas, Edna May.; Year: 1966; New York, Interdivisional Council on
- **Organisation of occupational health services in places of employment. Fourth item on the agenda.** Author: International Labour Office.; Year: 1964; Geneva, 1958-59
- **Preventive aspects of occupational health nursing [by] John F. Copplestone in collaboration with Jean I. Sutherland [and] Jean M. Turton.** Author: Copplestone, John F. (John Francis); Year: 2002; London, Arnold [1967]
- **Protecting the health of eighty million Americans. A national goal for occupational health. Special report to the Surgeon General of the United States Public Health Service.** Author: National Advisory Environmental Health Committee.; Year: 1964; [Washington, Public
- **The role of the occupational health nurse in the development of a sight conservation program.** Author: Brueggen, Stella L.; Year: 2002; [New York] American Nurses' Assn., 1965

Chapters on Occupational Health

In order to find chapters that specifically relate to occupational health, an excellent source of abstracts is the Combined Health Information Database. You will need to limit your search to book chapters and occupational health using the "Detailed Search" option. Go to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. To find book chapters, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Book Chapter." Type "occupational health" (or synonyms) into the "For these words:" box. The following is a typical result when searching for book chapters on occupational health:

- **Occupational Hearing Loss Prevention Programs**

  Source: in Musiek, F.E. and Rintelmann, W.F., eds. Contemporary Perspectives in Hearing Assessment. Needham Heights, MA: Allyn and Bacon. 1999. p. 465-484.

  Contact: Available from Allyn and Bacon. 160 Gould Street, Needham Heights, MA 02194. (800) 278-3525. Website: www.abacon.com. PRICE: $65.33. ISBN: 0205274579.

  Summary: Audiologists are uniquely qualified to assume positions of responsibility in occupational hearing loss prevention programs (HLPPs). Audiologists should also acquire knowledge and skills necessary to interact with professionals from other disciplines commonly associated with **occupational health** nurses, physicians, industrial hygienists, safety professionals, and noise control engineers. This chapter on occupational hearing loss prevention programs is from a textbook designed to serve as a text for graduate level audiology courses concerned with the assessment of the peripheral and central auditory systems. The textbook includes an auditory compact disc (CD) that provides students with an opportunity to have some experience with acoustic stimuli. This chapter provides a brief overview of current legal requirements and 'best practices' for occupational hearing loss prevention programs. Legal requirements will identify minimum steps necessary to achieve compliance with federal regulations. The author notes that professional supervision by audiologists of audiometric testing programs is necessary to assure reliable and valid data for early identification and intervention. Topics include the basic concepts and terminology of noise induced hearing loss (NIHL), damage risk criteria, federal regulations, noise

exposure monitoring, audiometric testing programs, hearing protection programs, training and motivation programs, recordkeeping, program evaluation, noise control, worker compensation, and research needs. 4 figures. 4 tables. 156 references.

- **Auditory and Nonauditory Effects of Noise**

  Source: in Berger, E.H., et al, eds. Noise Manual. 5th ed. Fairfax, VA: American Industrial Hygiene Association. 2000. p. 123-147.

  Contact: Available from American Industrial Hygiene Association. Publication Orders, Department 796, Alexandria, VA 22334-0796. (703) 849-8888. Fax (703) 207-3561. Website: www.aiha.org. PRICE: $59.00 for members; $74.00 for nonmembers, plus shipping and handling. ISBN: 0932628029.

  Summary: The most undesirable effect of exposure to noise is generally agreed to be permanent hearing loss. The primary goal of any occupational noise control program is usually the prevention of this damage, even though there are other effects of noise, both concomitant with and subsequent to exposure, that are also relevant to **occupational health** and productivity. This chapter on the auditory and nonauditory effects of noise is from a textbook that serves as a comprehensive reference tool for hearing conservationists. Topics include the social handicaps of hearing loss; tinnitus (ringing or other noises in the ears); paracusis (sounds are heard incorrectly); speech misperception; the physiological measures of damage, notably otoacoustic emissions (OAEs); NIPTS (noise induced permanent threshold shifts); susceptibility, including the sound conduction mechanism, characteristics of the inner ear, gender, skin color, age and experience, initial HTL, body conditioning, the interactions of noise and other noxious agents, ameliorative agents, and the complexity of predicting NIPTS; occupational NIPTS (ONIPTS) from steady state noise, from nonsteady noise, from pure tones, and from very high sound levels; infrasonics and ultrasonics; and the nonauditory effects of noise. The authors stress that an aggressive noise control program may produce desirable side effects (in addition to hearing conservation) such as an increase in productivity, a decrease in accident rate, and improvement in worker morale. 6 figures. 55 references.

CHAPTER 7. MULTIMEDIA ON OCCUPATIONAL HEALTH

Overview

In this chapter, we show you how to keep current on multimedia sources of information on occupational health. We start with sources that have been summarized by federal agencies, and then show you how to find bibliographic information catalogued by the National Library of Medicine.

Video Recordings

An excellent source of multimedia information on occupational health is the Combined Health Information Database. You will need to limit your search to "Videorecording" and "occupational health" using the "Detailed Search" option. Go directly to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. To find video productions, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Videorecording (videotape, videocassette, etc.)." Type "occupational health" (or synonyms) into the "For these words:" box. The following is a typical result when searching for video recordings on occupational health:

- **Job - Related Stress and Burnout**

  Contact: University of California Los Angeles, School of Medicine, Center for Health Sciences, Division of General Internal Medicine and Health, Services Research, B-558 Factor Bldg, 10833 Le Conte Ave, Los Angeles, CA, 90024-1685, (310) 206-8531.

  Summary: In this videorecording, health care providers, particularly nurses, discuss the job-related stress and burnout they and their colleagues have experienced in treating patients infected with Human immunodeficiency virus (HIV) and with Acquired immunodeficiency syndrome (AIDS). Several roundtable discussions highlight the stress factors involved in patient support, including death and dying issues, family support, age factors, a high incidence of suicide, the psychological problems of their patients, and the rigors of infection control and fear of exposure. Nurses and physicians emphasize the team effort in hospitals and the gratification of working with AIDS patients as contributing to their **occupational health.** Often caused by total commitment to the job and overinvolvement with patients, burnout is identified by a low self-

concept, physical symptoms, depression, and finally total disgust with the job. An Instruction Guide (see record AD0006402) has been developed for use with this videorecording as an educational module.

- **Emergency Medical Update**

  Contact: Lockert - Jackson and Associates, PO Box 11380, Winslow, WA, 98110-5380, (206) 842-8454.

  Summary: This videorecording is an emergency medical services training video which contains a segment on **occupational health** risks and the control of infectious diseases, including Acquired immunodeficiency syndrome (AIDS). Needlestick injuries, body-fluid contact with open wounds and mucous membranes, and other forms of possible Human immunodeficiency virus (HIV) transmission are discussed. Universal precautions and proper hygiene to prevent HIV and communicable disease contagion are demonstrated.

- **Why Me? Dealing With An Occupational Exposure to A Bloodborne Virus**

  Contact: Leo Media Incorporated, 110 W Main St, Urbana, IL, 61801-2715, (217) 384-4838, http://www.leomed.com.

  Summary: This videorecording, using the examples of a lab researcher, a nurse, and a custodial staff member, discusses the appropriate measures to take if a needlestick injury or a sharp edge injury should occur in a hospital setting. A counseling session with an **Occupational Health** Services representative is shown, with the representative discussing the exposure factors, such as how deep the injury was, how much body fluid was involved, and the hepatitis and HIV status of the patient. Treatment options for exposure to hepatitis and HIV are presented, including the administering of AZT, antibody testing, and testing intervals. Safer sex guidelines are discussed as well.

Audio Recordings

The Combined Health Information Database contains abstracts on audio productions. To search CHID, go directly to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. To find audio productions, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Sound Recordings." Type "occupational health" (or synonyms) into the "For these words:" box. The following is a typical result when searching for sound recordings on occupational health:

- **AIDS and Hepatitis B: Can We Make the Workplace Safe? Third National Forum on AIDS and Hepatitis B; Washington, D.C., November 21-22, 1988**

  Contact: National Foundation for Infectious Diseases, 4733 Bethesda Ave Ste 750, Bethesda, MD, 20814-5228, (301) 656-0003, http://www.nfid.org. Sound Solution, PO Box 566074, Dallas, TX, 75356, (214) 258-6144.

  Summary: This sound recording contains proceedings of the 3rd National Forum on AIDS and Hepatitis B held in Washington, DC on November 21-22, 1988. It covers the introductory remarks to the Third National Forum on AIDS and Hepatitis B, with the focus on protecting the health of America's health care system. Both the Human immunodeficiency virus (HIV) and Hepatitis B are discussed as bloodborne viral

diseases that pose serious problems to the delivery of health care services in the United States. The purpose of the conference is to examine government regulations, evaluate existing and developing health care programs, propose new techniques, and address better ways to protect health care workers. The role of the **Occupational Health** and Safety Administration (OSHA) in conducting inspections of health care institutions, and in promulgating regulations and guidelines is outlined. The scope of upcoming regulations is discussed including those that require employers to identify workers at risk and implement risk-reduction policies. Problems that are inherent in the system are mentioned.

Bibliography: Multimedia on Occupational Health

The National Library of Medicine is a rich source of information on healthcare-related multimedia productions including slides, computer software, and databases. To access the multimedia database, go to the following Web site: **http://locatorplus.gov/**. Select "Search LOCATORplus." Once in the search area, simply type in occupational health (or synonyms). Then, in the option box provided below the search box, select "Audiovisuals and Computer Files." From there, you can choose to sort results by publication date, author, or relevance. The following multimedia has been indexed on occupational health:

- **Comprehensive occupational health nursing preparation database [electronic resource].** Year: 1991; Format: Electronic resource; [Westboro, Mass.]: Datachem Software: Lewis Publishers, c1991
- **Occupational health [videorecording]: who cares** Source: [presented by] Marshfield Clinic, Saint Joseph's Hospital [and] Marshfield Medical Research Foundation; Year: 1991; Format: Videorecording; Marshfield, WI: Marshfield Regional Video Network, [1991]
- **Occupational health management.** Year: 9999; Atlanta, Ga.: American

CHAPTER 8. PERIODICALS AND NEWS ON OCCUPATIONAL HEALTH

Overview

In this chapter, we suggest a number of news sources and present various periodicals that cover occupational health.

News Services and Press Releases

One of the simplest ways of tracking press releases on occupational health is to search the news wires. In the following sample of sources, we will briefly describe how to access each service. These services only post recent news intended for public viewing.

PR Newswire

To access the PR Newswire archive, simply go to **http://www.prnewswire.com/**. Select your country. Type "occupational health" (or synonyms) into the search box. You will automatically receive information on relevant news releases posted within the last 30 days. The search results are shown by order of relevance.

Reuters Health

The Reuters' Medical News and Health eLine databases can be very useful in exploring news archives relating to occupational health. While some of the listed articles are free to view, others are available for purchase for a nominal fee. To access this archive, go to **http://www.reutershealth.com/en/index.html** and search by "occupational health" (or synonyms). The following was recently listed in this archive for occupational health:

- **UK's NHS will sell occupational health services to private sector**
  Source: Reuters Medical News
  Date: November 19, 2001

- **UK's NHS begins selling occupational health services to private sector**
  Source: Reuters Industry Breifing
  Date: November 19, 2001
- **Occupational injury and disease exact a significant toll on global economy**
  Source: Reuters Medical News
  Date: June 09, 1999
- **Lead exposure continues as occupational health problem**
  Source: Reuters Medical News
  Date: October 30, 1998
- **BMA seeks enforcement of occupational health regulations in hospitals**
  Source: Reuters Medical News
  Date: May 13, 1998
- **Need For Occupational Health Services In Primary Care Identified**
  Source: Reuters Medical News
  Date: December 10, 1997
- **OccuSystems To Acquire 13 Occupational Healthcare Centers**
  Source: Reuters Medical News
  Date: October 29, 1996
- **Groups Begin To Compile Occupational Health Data**
  Source: Reuters Medical News
  Date: April 18, 1996

The NIH

Within MEDLINEplus, the NIH has made an agreement with the New York Times Syndicate, the AP News Service, and Reuters to deliver news that can be browsed by the public. Search news releases at **http://www.nlm.nih.gov/medlineplus/alphanews_a.html**. MEDLINEplus allows you to browse across an alphabetical index. Or you can search by date at the following Web page: **http://www.nlm.nih.gov/medlineplus/newsbydate.html**. Often, news items are indexed by MEDLINEplus within its search engine.

Business Wire

Business Wire is similar to PR Newswire. To access this archive, simply go to **http://www.businesswire.com/**. You can scan the news by industry category or company name.

Market Wire

Market Wire is more focused on technology than the other wires. To browse the latest press releases by topic, such as alternative medicine, biotechnology, fitness, healthcare, legal, nutrition, and pharmaceuticals, access Market Wire's Medical/Health channel at **http://www.marketwire.com/mw/release_index?channel=MedicalHealth**. Or simply go to Market Wire's home page at **http://www.marketwire.com/mw/home**, type "occupational health" (or synonyms) into the search box, and click on "Search News." As this service is

technology oriented, you may wish to use it when searching for press releases covering diagnostic procedures or tests.

Search Engines

Medical news is also available in the news sections of commercial Internet search engines. See the health news page at Yahoo (**http://dir.yahoo.com/Health/News_and_Media/**), or you can use this Web site's general news search page at **http://news.yahoo.com/**. Type in "occupational health" (or synonyms). If you know the name of a company that is relevant to occupational health, you can go to any stock trading Web site (such as **http://www.etrade.com/**) and search for the company name there. News items across various news sources are reported on indicated hyperlinks. Google offers a similar service at **http://news.google.com/**.

BBC

Covering news from a more European perspective, the British Broadcasting Corporation (BBC) allows the public free access to their news archive located at **http://www.bbc.co.uk/**. Search by "occupational health" (or synonyms).

Newsletters on Occupational Health

Find newsletters on occupational health using the Combined Health Information Database (CHID). You will need to use the "Detailed Search" option. To access CHID, go to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. Limit your search to "Newsletter" and "occupational health." Go to the bottom of the search page where "You may refine your search by." Select the dates and language that you prefer. For the format option, select "Newsletter." Type "occupational health" (or synonyms) into the "For these words:" box. The following list was generated using the options described above:

- **OSHA Enforcement Targets Bloodborne Standard**

  Source: Bloodborne Pathogen Update. 1(3): 1, 4. July-August 1993.

  Contact: Available from Bloodborne Pathogen Update. 967 Poorman Road, Boulder, CO 80302. (800) 334-1213.

  Summary: This article, from a newsletter that provides information about the **Occupational Health** and Safety Administration (OSHA) blood borne pathogen standard for compliance managers, presents enforcement data for July 1992 through April 1993. The author stresses that studying the pattern of OSHA enforcement can be useful in finding and eliminating weaknesses in programs. The article provides statistics on the citations and penalties issues; the five most frequently cited sections of the standard and the five sections with the highest average fines. The author concludes that to avoid the most common citations, managers must simply comply with the essentials of the standard: put in place a plan tailored to the individual facility; train employees; and make certain all employees are offered vaccination.

- **Stress Reduction Program**

  Source: Metropolitan Washington By-Pass. p. 5. September 1992.

  Summary: This brief newsletter article reprints a list of stress reduction strategies used at the Blodgett **Occupational Health** Services. Topics covered include time management; choosing appropriate companionship; the importance of flexibility; the role of planning ahead; and the importance of self-understanding and self-care.

Newsletter Articles

Use the Combined Health Information Database, and limit your search criteria to "newsletter articles." Again, you will need to use the "Detailed Search" option. Go directly to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. Go to the bottom of the search page where "You may refine your search by." Select the dates and language that you prefer. For the format option, select "Newsletter Article." Type "occupational health" (or synonyms) into the "For these words:" box. You should check back periodically with this database as it is updated every three months. The following is a typical result when searching for newsletter articles on occupational health:

- **Workplace Noise Can Cause Hearing Loss**

  Source: 3M JobHealth Highlights. Special Edition: 1-4. 1997.

  Contact: Available from 3M Occupational Health and Environmental Safety Division. 3M Center, Building 275-6W-01, St. Paul, MN 55144-1000.

  Summary: Noise is probably the most common **occupational health** problem, especially in the manufacturing industries. Hearing protection can be a satisfactory solution, as long as protectors are properly fitted, worn, and maintained. This article on workplace noise is from a special issue of JobHealth Highlights (a newsletter from the 3M company) that includes six articles on noise, hearing conservation, and hearing protection. The articles are written by Alice Suter, PhD, a consultant in industrial audiology and community noise; Dr. Suter is known as the principal author of OSHA's hearing conservation amendment to the standard for occupational noise exposure. The article discusses the decibel level at which hearing may be at risk, the impact of exposure duration, the progression of noise induced hearing loss (NIHL), communication interference, and the use of noise masking. Voice levels and levels of background noise, the effects of noise on job performance, and the effects of noise on health are also discussed. 1 figure. 2 tables. 3 references.

Academic Periodicals covering Occupational Health

Numerous periodicals are currently indexed within the National Library of Medicine's PubMed database that are known to publish articles relating to occupational health. In addition to these sources, you can search for articles covering occupational health that have been published by any of the periodicals listed in previous chapters. To find the latest studies published, go to **http://www.ncbi.nlm.nih.gov/pubmed**, type the name of the periodical into the search box, and click "Go."

If you want complete details about the historical contents of a journal, you can also visit the following Web site: **http://www.ncbi.nlm.nih.gov/entrez/jrbrowser.cgi**. Here, type in the name of the journal or its abbreviation, and you will receive an index of published articles. At **http://locatorplus.gov/**, you can retrieve more indexing information on medical periodicals (e.g. the name of the publisher). Select the button "Search LOCATORplus." Then type in the name of the journal and select the advanced search option "Journal Title Search."

APPENDICES

APPENDIX A. PHYSICIAN RESOURCES

Overview

In this chapter, we focus on databases and Internet-based guidelines and information resources created or written for a professional audience.

NIH Guidelines

Commonly referred to as "clinical" or "professional" guidelines, the National Institutes of Health publish physician guidelines for the most common diseases. Publications are available at the following by relevant Institute[11]:

- Office of the Director (OD); guidelines consolidated across agencies available at **http://www.nih.gov/health/consumer/conkey.htm**
- National Institute of General Medical Sciences (NIGMS); fact sheets available at **http://www.nigms.nih.gov/news/facts/**
- National Library of Medicine (NLM); extensive encyclopedia (A.D.A.M., Inc.) with guidelines: **http://www.nlm.nih.gov/medlineplus/healthtopics.html**
- National Cancer Institute (NCI); guidelines available at **http://www.cancer.gov/cancerinfo/list.aspx?viewid=5f35036e-5497-4d86-8c2c-714a9f7c8d25**
- National Eye Institute (NEI); guidelines available at **http://www.nei.nih.gov/order/index.htm**
- National Heart, Lung, and Blood Institute (NHLBI); guidelines available at **http://www.nhlbi.nih.gov/guidelines/index.htm**
- National Human Genome Research Institute (NHGRI); research available at **http://www.genome.gov/page.cfm?pageID=10000375**
- National Institute on Aging (NIA); guidelines available at **http://www.nia.nih.gov/health/**

[11] These publications are typically written by one or more of the various NIH Institutes.

- National Institute on Alcohol Abuse and Alcoholism (NIAAA); guidelines available at **http://www.niaaa.nih.gov/publications/publications.htm**
- National Institute of Allergy and Infectious Diseases (NIAID); guidelines available at **http://www.niaid.nih.gov/publications/**
- National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS); fact sheets and guidelines available at **http://www.niams.nih.gov/hi/index.htm**
- National Institute of Child Health and Human Development (NICHD); guidelines available at **http://www.nichd.nih.gov/publications/pubskey.cfm**
- National Institute on Deafness and Other Communication Disorders (NIDCD); fact sheets and guidelines at **http://www.nidcd.nih.gov/health/**
- National Institute of Dental and Craniofacial Research (NIDCR); guidelines available at **http://www.nidr.nih.gov/health/**
- National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK); guidelines available at **http://www.niddk.nih.gov/health/health.htm**
- National Institute on Drug Abuse (NIDA); guidelines available at **http://www.nida.nih.gov/DrugAbuse.html**
- National Institute of Environmental Health Sciences (NIEHS); environmental health information available at **http://www.niehs.nih.gov/external/facts.htm**
- National Institute of Mental Health (NIMH); guidelines available at **http://www.nimh.nih.gov/practitioners/index.cfm**
- National Institute of Neurological Disorders and Stroke (NINDS); neurological disorder information pages available at **http://www.ninds.nih.gov/health_and_medical/disorder_index.htm**
- National Institute of Nursing Research (NINR); publications on selected illnesses at **http://www.nih.gov/ninr/news-info/publications.html**
- National Institute of Biomedical Imaging and Bioengineering; general information at **http://grants.nih.gov/grants/becon/becon_info.htm**
- Center for Information Technology (CIT); referrals to other agencies based on keyword searches available at **http://kb.nih.gov/www_query_main.asp**
- National Center for Complementary and Alternative Medicine (NCCAM); health information available at **http://nccam.nih.gov/health/**
- National Center for Research Resources (NCRR); various information directories available at **http://www.ncrr.nih.gov/publications.asp**
- Office of Rare Diseases; various fact sheets available at **http://rarediseases.info.nih.gov/html/resources/rep_pubs.html**
- Centers for Disease Control and Prevention; various fact sheets on infectious diseases available at **http://www.cdc.gov/publications.htm**

NIH Databases

In addition to the various Institutes of Health that publish professional guidelines, the NIH has designed a number of databases for professionals.[12] Physician-oriented resources provide a wide variety of information related to the biomedical and health sciences, both past and present. The format of these resources varies. Searchable databases, bibliographic citations, full-text articles (when available), archival collections, and images are all available. The following are referenced by the National Library of Medicine:[13]

- **Bioethics:** Access to published literature on the ethical, legal, and public policy issues surrounding healthcare and biomedical research. This information is provided in conjunction with the Kennedy Institute of Ethics located at Georgetown University, Washington, D.C.: **http://www.nlm.nih.gov/databases/databases_bioethics.html**
- **HIV/AIDS Resources:** Describes various links and databases dedicated to HIV/AIDS research: **http://www.nlm.nih.gov/pubs/factsheets/aidsinfs.html**
- **NLM Online Exhibitions:** Describes "Exhibitions in the History of Medicine": **http://www.nlm.nih.gov/exhibition/exhibition.html**. Additional resources for historical scholarship in medicine: **http://www.nlm.nih.gov/hmd/hmd.html**
- **Biotechnology Information:** Access to public databases. The National Center for Biotechnology Information conducts research in computational biology, develops software tools for analyzing genome data, and disseminates biomedical information for the better understanding of molecular processes affecting human health and disease: **http://www.ncbi.nlm.nih.gov/**
- **Population Information:** The National Library of Medicine provides access to worldwide coverage of population, family planning, and related health issues, including family planning technology and programs, fertility, and population law and policy: **http://www.nlm.nih.gov/databases/databases_population.html**
- **Cancer Information:** Access to cancer-oriented databases: **http://www.nlm.nih.gov/databases/databases_cancer.html**
- **Profiles in Science:** Offering the archival collections of prominent twentieth-century biomedical scientists to the public through modern digital technology: **http://www.profiles.nlm.nih.gov/**
- **Chemical Information:** Provides links to various chemical databases and references: **http://sis.nlm.nih.gov/Chem/ChemMain.html**
- **Clinical Alerts:** Reports the release of findings from the NIH-funded clinical trials where such release could significantly affect morbidity and mortality: **http://www.nlm.nih.gov/databases/alerts/clinical_alerts.html**
- **Space Life Sciences:** Provides links and information to space-based research (including NASA): **http://www.nlm.nih.gov/databases/databases_space.html**
- **MEDLINE:** Bibliographic database covering the fields of medicine, nursing, dentistry, veterinary medicine, the healthcare system, and the pre-clinical sciences: **http://www.nlm.nih.gov/databases/databases_medline.html**

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[12] Remember, for the general public, the National Library of Medicine recommends the databases referenced in MEDLINE*plus* (**http://medlineplus.gov/** or **http://www.nlm.nih.gov/medlineplus/databases.html**).

[13] See **http://www.nlm.nih.gov/databases/databases.html**.

- **Toxicology and Environmental Health Information (TOXNET):** Databases covering toxicology and environmental health: **http://sis.nlm.nih.gov/Tox/ToxMain.html**
- **Visible Human Interface:** Anatomically detailed, three-dimensional representations of normal male and female human bodies: **http://www.nlm.nih.gov/research/visible/visible_human.html**

The Combined Health Information Database

A comprehensive source of information on clinical guidelines written for professionals is the Combined Health Information Database. You will need to limit your search to one of the following: Brochure/Pamphlet, Fact Sheet, or Information Package, and "occupational health" using the "Detailed Search" option. Go directly to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. To find associations, use the drop boxes at the bottom of the search page where "You may refine your search by." For the publication date, select "All Years." Select your preferred language and the format option "Fact Sheet." Type "occupational health" (or synonyms) into the "For these words:" box. The following is a sample result:

- **Hepatitis B: A Summary of the Occupational Health Concern**

  Contact: Canadian Centre for Occupational Health and Safety, 250 Main St E, Hamilton, (905) 572-2981, http://www.ccohs.ca.

  Summary: This report describes Hepatitis B, a bloodborne disease that can be transmitted in ways similar to transmission of Human immunodeficiency virus (HIV), which causes Acquired immunodeficiency syndrome (AIDS). The report discusses Hepatitis B in the workplace, occupations with increased risk of exposure, tests and treatment programs for the disease, and preventive measures, including immunizations, and personal and workplace hygiene.

- **AIDS: A Summary of the Occupational Health Concern**

  Contact: Canadian Centre for Occupational Health and Safety, 250 Main St E, Hamilton, (905) 572-2981, http://www.ccohs.ca.

  Summary: This report provides information that enables health and safety committees to understand and reduce the occupational risk of AIDS. Using a question-and-answer format, it covers how AIDS affects the immune system, methods of HIV transmission, incubation period, diagnosis, and treatment. The report also looks at the incidence of AIDS in Canada and concerns about occupational safety there.

The NLM Gateway[14]

The NLM (National Library of Medicine) Gateway is a Web-based system that lets users search simultaneously in multiple retrieval systems at the U.S. National Library of Medicine (NLM). It allows users of NLM services to initiate searches from one Web interface, providing one-stop searching for many of NLM's information resources or databases.[15] To use the NLM Gateway, simply go to the search site at **http://gateway.nlm.nih.gov/gw/Cmd**.

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[14] Adapted from NLM: **http://gateway.nlm.nih.gov/gw/Cmd?Overview.x**.

[15] The NLM Gateway is currently being developed by the Lister Hill National Center for Biomedical Communications (LHNCBC) at the National Library of Medicine (NLM) of the National Institutes of Health (NIH).

Type "occupational health" (or synonyms) into the search box and click "Search." The results will be presented in a tabular form, indicating the number of references in each database category.

Results Summary

Category	Items Found
Journal Articles	21360
Books / Periodicals / Audio Visual	2661
Consumer Health	149
Meeting Abstracts	91
Other Collections	40
Total	24301

HSTAT[16]

HSTAT is a free, Web-based resource that provides access to full-text documents used in healthcare decision-making.[17] These documents include clinical practice guidelines, quick-reference guides for clinicians, consumer health brochures, evidence reports and technology assessments from the Agency for Healthcare Research and Quality (AHRQ), as well as AHRQ's Put Prevention Into Practice.[18] Simply search by "occupational health" (or synonyms) at the following Web site: **http://text.nlm.nih.gov**.

Coffee Break: Tutorials for Biologists[19]

Coffee Break is a general healthcare site that takes a scientific view of the news and covers recent breakthroughs in biology that may one day assist physicians in developing treatments. Here you will find a collection of short reports on recent biological discoveries. Each report incorporates interactive tutorials that demonstrate how bioinformatics tools are used as a part of the research process. Currently, all Coffee Breaks are written by NCBI staff.[20] Each report is about 400 words and is usually based on a discovery reported in one or more articles from recently published, peer-reviewed literature.[21] This site has new articles every few weeks, so it can be considered an online magazine of sorts. It is intended for

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[16] Adapted from HSTAT: **http://www.nlm.nih.gov/pubs/factsheets/hstat.html**.

[17] The HSTAT URL is **http://hstat.nlm.nih.gov/**.

[18] Other important documents in HSTAT include: the National Institutes of Health (NIH) Consensus Conference Reports and Technology Assessment Reports; the HIV/AIDS Treatment Information Service (ATIS) resource documents; the Substance Abuse and Mental Health Services Administration's Center for Substance Abuse Treatment (SAMHSA/CSAT) Treatment Improvement Protocols (TIP) and Center for Substance Abuse Prevention (SAMHSA/CSAP) Prevention Enhancement Protocols System (PEPS); the Public Health Service (PHS) Preventive Services Task Force's *Guide to Clinical Preventive Services*; the independent, nonfederal Task Force on Community Services' *Guide to Community Preventive Services*; and the Health Technology Advisory Committee (HTAC) of the Minnesota Health Care Commission (MHCC) health technology evaluations.

[19] Adapted from **http://www.ncbi.nlm.nih.gov/Coffeebreak/Archive/FAQ.html**.

[20] The figure that accompanies each article is frequently supplied by an expert external to NCBI, in which case the source of the figure is cited. The result is an interactive tutorial that tells a biological story.

[21] After a brief introduction that sets the work described into a broader context, the report focuses on how a molecular understanding can provide explanations of observed biology and lead to therapies for diseases. Each vignette is accompanied by a figure and hypertext links that lead to a series of pages that interactively show how NCBI tools and resources are used in the research process.

general background information. You can access the Coffee Break Web site at the following hyperlink: **http://www.ncbi.nlm.nih.gov/Coffeebreak/**.

Other Commercial Databases

In addition to resources maintained by official agencies, other databases exist that are commercial ventures addressing medical professionals. Here are some examples that may interest you:

- **CliniWeb International:** Index and table of contents to selected clinical information on the Internet; see **http://www.ohsu.edu/cliniweb/**.
- **Medical World Search:** Searches full text from thousands of selected medical sites on the Internet; see **http://www.mwsearch.com/**.

APPENDIX B. PATIENT RESOURCES

Overview

Official agencies, as well as federally funded institutions supported by national grants, frequently publish a variety of guidelines written with the patient in mind. These are typically called "Fact Sheets" or "Guidelines." They can take the form of a brochure, information kit, pamphlet, or flyer. Often they are only a few pages in length. Since new guidelines on occupational health can appear at any moment and be published by a number of sources, the best approach to finding guidelines is to systematically scan the Internet-based services that post them.

Patient Guideline Sources

The remainder of this chapter directs you to sources which either publish or can help you find additional guidelines on topics related to occupational health. Due to space limitations, these sources are listed in a concise manner. Do not hesitate to consult the following sources by either using the Internet hyperlink provided, or, in cases where the contact information is provided, contacting the publisher or author directly.

The National Institutes of Health

The NIH gateway to patients is located at **http://health.nih.gov/**. From this site, you can search across various sources and institutes, a number of which are summarized below.

Topic Pages: MEDLINEplus

The National Library of Medicine has created a vast and patient-oriented healthcare information portal called MEDLINEplus. Within this Internet-based system are "health topic pages" which list links to available materials relevant to occupational health. To access this system, log on to **http://www.nlm.nih.gov/medlineplus/healthtopics.html**. From there you can either search using the alphabetical index or browse by broad topic areas. Recently, MEDLINEplus listed the following when searched for "occupational health":

- Guides on occupational health

  Occupational Health
  http://www.nlm.nih.gov/medlineplus/occupationalhealth.html

- Other guides

  Accidents
  http://www.nlm.nih.gov/medlineplus/accidents.html

  Asbestos/Asbestosis
  http://www.nlm.nih.gov/medlineplus/asbestosasbestosis.html

  Ergonomics
  http://www.nlm.nih.gov/medlineplus/ergonomics.html

  Health Occupations
  http://www.nlm.nih.gov/medlineplus/healthoccupations.html

  Occupational Health for Healthcare Providers
  http://www.nlm.nih.gov/medlineplus/occupationalhealthforhealthcareproviders.tml

  Rehabilitation
  http://www.nlm.nih.gov/medlineplus/rehabilitation.html

Within the health topic page dedicated to occupational health, the following was listed:

- General/Overviews

  Tox Town
  Source: National Library of Medicine
  http://toxtown.nlm.nih.gov/

  Why Should Everyone Be Concerned about Job Safety and Health?
  Source: Occupational Safety and Health Administration
  http://www.osha.gov/OshDoc/data_General_Facts/jobsafetyandhealth-factsheet.pdf

- Treatment

  Work Injuries
  http://www.ncfh.org/pateduc/en-work.htm

- Coping

  LD (Learning Disabilities) on the Job
  Source: National Center for Learning Disabilities
  http://www.ld.org/livingwithld/ldonjob_home.cfm

  On the Job with Arthritis: How to Make It Work
  Source: Mayo Foundation for Medical Education and Research
  http://www.mayoclinic.com/invoke.cfm?id=HQ01144

- Specific Conditions/Aspects

  Alcohol Alert: Alcohol and the Workplace
  Source: National Institute on Alcohol Abuse and Alcoholism
  http://www.niaaa.nih.gov/publications/aa44-text.htm

  Anthrax in the Workplace
  Source: Occupational Safety and Health Administration
  http://www.osha.gov/bioterrorism/anthrax/matrix/

  Anxiety in the Workplace
  Source: Anxiety Disorders Association of America
  http://www.adaa.org/AnxietyDisorderInfor/workplace.cfm

  Breathing Hazards at Work
  Source: American Lung Association
  http://www.lungusa.org/occupational/hazards.html

  Carbon Monoxide Hazards from Small Gasoline Powered Engines
  Source: National Institute for Occupational Safety and Health
  http://www.cdc.gov/niosh/topics/co/

  Choose the Hearing Protection That's Right for You
  Source: National Institute for Occupational Safety and Health
  http://www.cdc.gov/niosh/topics/noise/abouthlp/chooseprotection.html

  Construction Workers' Guide: Health Problems on the Job
  Source: National Institute for Occupational Safety and Health
  http://www.cdc.gov/niosh/elcosh/docs/d0400/d000486/section2.html

  Do I Work in a Sick Building?
  Source: American Industrial Hygiene Association
  http://www.aiha.org/ConsultantsConsumers/html/OOsick.htm

  EMFs in the Workplace
  Source: National Institute for Occupational Safety and Health
  http://www.cdc.gov/niosh/emf2.html

  Exposure to Blood: What Health-Care Workers Need to Know
  http://www.cdc.gov/ncidod/hip/Blood/Exp_to_Blood.pdf

  Facts about Beryllium Disease
  Source: National Jewish Medical and Research Center
  http://www.nationaljewish.org/medfacts/beryllium_medfact.html

  Hazard Alert: Lyme Disease in Construction
  Source: National Institute for Occupational Safety and Health
  http://www.cdc.gov/niosh/elcosh/docs/d0100/d000001/d000001.html

  Hazard Alert: Biological Hazards in Sewage and Wastewater Treatment Plants
  Source: National Institute for Occupational Safety and Health
  http://www.cdc.gov/niosh/elcosh/docs/d0200/d000283/d000283.html

  Hazard Alert: Solvents in Construction
  Source: National Institute for Occupational Safety and Health
  http://www.cdc.gov/niosh/elcosh/docs/d0100/d000017/d000017.html

  Lead (in the Workplace)
  Source: Occupational Safety and Health Administration
  http://www.osha-slc.gov/SLTC/lead/index.html

NIOSH Recommendations for Limiting Potential Exposures of Workers to Asbestos Associated with Vermiculite from Libby, Montana
Source: National Institute for Occupational Safety and Health
http://www.cdc.gov/niosh/docs/2003-141/

Occupational Asthma: Wheezing at Work
Source: Mayo Foundation for Medical Education and Research
http://www.mayoclinic.com/invoke.cfm?id=HQ01140

Occupational Cancer
Source: National Institute for Occupational Safety and Health
http://www.cdc.gov/niosh/topics/cancer/

Occupational Hazards
Source: American Lung Association
http://www.lungusa.org/air/air00_occupation.html

Occupational Lung Disease
Source: American Lung Association
http://www.lungusa.org/diseases/occupational_factsheet.html

Occupation-Related Skin Problems
Source: American Academy of Family Physicians
http://familydoctor.org/handouts/750.html

Smoking and the Workplace
Source: American Lung Association
http://www.lungusa.org/occupational/smoking_workplace.html

Stress at Work
Source: National Institute for Occupational Safety and Health
http://www.cdc.gov/niosh/stresswk.html

West Nile Virus
Source: National Institute for Occupational Safety and Health
http://www.cdc.gov/niosh/topics/westnile/

What Are the Sources of Amputations in the Workplace?
http://www.osha.gov/OshDoc/data_General_Facts/amputation-factsheet.pdf

What Is Carbon Monoxide?
http://www.osha.gov/OshDoc/data_General_Facts/carbonmonoxide-factsheet.pdf

What Is Workplace Violence?
Source: Occupational Safety and Health Administration
http://www.osha.gov/OshDoc/data_General_Facts/factsheet-workplace-violence.pdf

What Is Your Risk of Getting AIDS or Hepatitis B on the Job?
Source: American Liver Foundation
http://www.liverfoundation.org/cgi-bin/dbs/articles.cgi?db=articles&uid=default&ID=1038&view_records=1

Work-Related Hearing Loss
Source: National Institute for Occupational Safety and Health
http://www.cdc.gov/niosh/01-103.html

- From the National Institutes of Health

  Haz-Map
  Source: National Library of Medicine
  http://hazmap.nlm.nih.gov/

- Latest News

  Germicidal Lighting May Improve Workers' Health
  Source: 11/28/2003, Reuters Health
  http://www.nlm.nih.gov//www.nlm.nih.gov/medlineplus/news/fullstory_14887.html

  More News on Occupational Health
  http://www.nlm.nih.gov//www.nlm.nih.gov/medlineplus/alphanews_o.html#OccupationalHealth

  Stressful And Insecure Jobs Take a Toll on Health
  Source: 11/20/2003, Reuters Health
  http://www.nlm.nih.gov//www.nlm.nih.gov/medlineplus/news/fullstory_14769.html

  Ultraviolet light kills germs that cause sick building syndrome, says study
  Source: 11/27/2003, Canadian Press
  http://www.nlm.nih.gov//www.nlm.nih.gov/medlineplus/news/fullstory_14856.html

- Law and Policy

  Employment Law Guide: Occupational Safety and Health Act of 1970 (OSH Act)
  Source: Dept. of Labor
  http://www.osha.gov/pls/oshaweb/owasrch.search_form?p_doc_type=OSHACT&p_toc_level=0&p_keyvalue=

  Worker Safety and Training
  Source: Environmental Protection Agency
  http://www.epa.gov/pesticides/health/worker.htm

  Workers Have a Right to Know
  Source: American Lung Association
  http://www.lungusa.org/occupational/workers.html

  Workers' Page
  Source: Occupational Safety and Health Administration
  http://www.osha.gov/as/opa/worker/index.html

- Men

  Women's Safety and Health Issues at Work
  Source: National Institute for Occupational Safety and Health
  http://www.cdc.gov/niosh/topics/women/

- Organizations

  American Industrial Hygiene Association
  http://www.aiha.org/

Dept. of Labor
http://www.dol.gov/

National Institute for Occupational Safety and Health
http://www.cdc.gov/niosh/homepage.html

National Toxicology Program
http://ntp-server.niehs.nih.gov/

Occupational Safety and Health Administration
http://www.osha.gov/

Rehabilitation Services Administration
http://www.ed.gov/about/offices/list/osers/rsa/

- Prevention/Screening

Control of Infectious Disease
http://www.acoem.org/pdfs/2003LaborDayCheckList.pdf

Eye Safety at Work
Source: Mayo Foundation for Medical Education and Research
http://www.mayoclinic.com/invoke.cfm?id=WL00028

Eye Safety for Emergency Response and Disaster Recovery
Source: National Institute for Occupational Safety and Health
http://www.cdc.gov/niosh/eyesafe.html

Hearing Loss Prevention FAQ's
Source: National Institute for Occupational Safety and Health
http://www.cdc.gov/niosh/topics/noise/faq/faq.html

NIOSH Identifies Hazards of Baling Equipment, Suggests Ways to Prevent Deaths, Injuries
Source: National Institute for Occupational Safety and Health
http://www.cdc.gov/niosh/balers.html

On-the-Job Foot Health
Source: American Podiatric Medical Association
http://www.apma.org/topics/job.htm

Preventing Back Pain at Work and at Home
Source: American Academy of Orthopaedic Surgeons
http://orthoinfo.aaos.org/fact/thr_report.cfm?Thread_ID=130&topcategory=Spine

Save Your Skin
Source: National Institute for Occupational Safety and Health
http://www.cdc.gov/niosh/elcosh/docs/d0200/d000280/d000280.html

There's No Place Like Home for Workplace Safety: Recommendations for Office Safety at Home
Source: American Industrial Hygiene Association
http://www.aiha.org/ConsultantsConsumers/html/OOhome.htm

What Is Personal Protective Equipment?
http://www.osha.gov/OshDoc/data_General_Facts/ppe-factsheet.pdf

Working Safely with Chemicals
Source: American Lung Association
http://www.lungusa.org/occupational/safely.html

Workplace Fire Safety
Source: National Institute for Occupational Safety and Health
http://www.cdc.gov/nasd/docs/d000701-d000800/d000737/d000737.html

Your Safety 1st: Railroad Crossing Safety for Emergency Responders
http://www.cdc.gov/niosh/docs/2003-121/pdfs/2003-121.pdf

- Research

Advanced NIOSH Research on Neurotoxicity Opens New Avenues Toward Preventing Job Risks
Source: National Institute for Occupational Safety and Health
http://www.cdc.gov/niosh/neurotoxjobs.html

Beyond 'The Matrix': High-Tech Imaging at NIOSH Advances Job Injury Prevention Studies
Source: National Institute for Occupational Safety and Health
http://www.cdc.gov/niosh/matrixeffects.html

Occupational Exposures
Source: National Institute of Environmental Health Sciences
http://ntp-server.niehs.nih.gov/htdocs/liason/factsheets/OccupationalExpFacts.html

Vision Concerns at Plant Lead NIOSH to Identify Link with 2 Chemicals, Suggest Safeguards
Source: National Institute for Occupational Safety and Health
http://www.cdc.gov/niosh/teramines.html

- Statistics

Bureau of Labor Statistics: Injuries, Illnesses, and Fatalities
Source: Bureau of Labor Statistics
http://www.bls.gov/iif/

FASTATS: Occupational Health
Source: National Center for Health Statistics
http://www.cdc.gov/nchs/fastats/osh.htm

New Edition of Lung Disease Data Report Updates Resource with Newest Available Statistics
Source: National Institute for Occupational Safety and Health
http://www.cdc.gov/niosh/worldre02.html

Nonmetal Mining Facts - 2001
http://www.cdc.gov/niosh/mining/data/pdfs/fsnm2001.pdf

- Teenagers

Making Sure Your Teen's Job Is Safe
Source: Nemours Foundation
http://kidshealth.org/parent/firstaid_safe/travel/job.html

Preventing Deaths, Injuries and Illnesses of Young Workers
Source: National Institute for Occupational Safety and Health
http://www.cdc.gov/niosh/docs/2003-128/2003128.htm

Preventing Deaths, Injuries, and Illnesses of Young Workers: Fact Sheet
http://www.cdc.gov/niosh/docs/2003-128/pdfs/2003128FS.pdf

Teen Worker Safety in Restaurants
Source: Occupational Safety and Health Administration
http://www.osha.gov./SLTC/youth/restaurant/index.html

Working Safely: Advice for Teens
Source: American Academy of Family Physicians
http://familydoctor.org/454.xml

- Women

Women's Safety and Health Issues at Work
Source: National Institute for Occupational Safety and Health
http://www.cdc.gov/niosh/topics/women/

You may also choose to use the search utility provided by MEDLINEplus at the following Web address: **http://www.nlm.nih.gov/medlineplus/**. Simply type a keyword into the search box and click "Search." This utility is similar to the NIH search utility, with the exception that it only includes materials that are linked within the MEDLINEplus system (mostly patient-oriented information). It also has the disadvantage of generating unstructured results. We recommend, therefore, that you use this method only if you have a very targeted search.

The Combined Health Information Database (CHID)

CHID Online is a reference tool that maintains a database directory of thousands of journal articles and patient education guidelines on occupational health. CHID offers summaries that describe the guidelines available, including contact information and pricing. CHID's general Web site is **http://chid.nih.gov/**. To search this database, go to **http://chid.nih.gov/detail/detail.html**. In particular, you can use the advanced search options to look up pamphlets, reports, brochures, and information kits. The following was recently posted in this archive:

- **What Employees Should Know About Universal Precautions**

  Source: South Deerfield, MA: Channing L. Bete Company, Inc. 1996. 15 p.

  Contact: Available from Channing L. Bete Company, Inc. 200 State Road, South Deerfield, MA 01373-0200. (800) 628-7733. Fax (800) 499-6464. PRICE: $1.25 each for 1-24 copies; discounts available for larger orders.

  Summary: This booklet provides basic information about universal precautions in the workplace. Universal precautions are defined as work practices that help prevent contact with blood and certain other body fluids. Universal precautions must be followed with all people the worker comes in contact with, since no one can know who is infected and who is not infected. The booklet stresses the role of universal precautions in preventing the spread of infectious diseases and in helping to protect correctional workers, law enforcement officers, firefighters, emergency medical services personnel, **occupational health** workers, funeral services workers, people responsible for giving first aid, and others who may be exposed to blood or other body fluids on the job. Other topics include: the viruses that cause certain infectious diseases; how viruses are transmitted; recommended steps for protection, including covering any broken skin,

wearing gloves, using masks and eye protection, wearing a gown, using resuscitation bags, and washing hands; additional precautions, including being careful with sharps, dispose of sharps properly, using disposable equipment whenever possible, cleaning up blood and other body fluids promptly, taking care of contaminated laundry, and disposing of infectious waste carefully; and what to do after a possible exposure to blood or other body fluids, including washing the exposed skin area immediately, reporting the incident, and following procedures for testing and treatment. The booklet concludes with common questions and answers. The booklet is illustrated with cartoon-like line drawings and written in nontechnical language.

- **Preventing Occupational Exposure to HIV**

  Contact: CDC Business and Labor Resource Service, PO Box 6003, Rockville, MD, 20849-6003, (301) 562-1098, http://www.brta-lrta.org.

  Summary: This brochure discusses what labor unions can do to prevent the occupational transmission of the human immunodeficiency virus (HIV)/acquired immune deficiency syndrome (AIDS) among its members. The brochure identifies a number of different occupations that place workers at higher risk than other jobs to contract HIV, the hepatitis B virus (HBV), and the hepatitis C virus. The brochure explains the universal precautions that can be taken in the workplace to prevent HIV/AIDS, and the role of the **Occupational Health** and Safety Administration (OSHA) in setting occupational safety standards. The brochure examines the OSHA bloodborne pathogens standards, methods to prevent needlestick injuries, and post-exposure treatment.

- **AIDS: Fight the Fears?? With Facts!!!**

  Contact: St Marys Regional Medical Center, 235 W 6th St, Reno, NV, 89520-0108, (775) 770-3000, http://www.saintmarysreno.com.

  Summary: This brochure for hospital health care workers lists the admissions policy for HIV-positive persons and those with Acquired immunodeficiency syndrome (AIDS). It also outlines general **occupational health** precautions for medical personnel.

- **Reproductive hazards in the workplace: A resource guide**

  Source: No place: Massachusetts March of Dimes Birth Defects Foundation. n.d. 1 p.

  Contact: Available from Occupational and Environmental Reproductive Hazards Center, University of Massachusetts Medical Center, 119 Belmont Street, Worcester, MA 01605. Telephone: (508) 793-6266 / fax: (508) 793-6063.

  Summary: This brochure lists organizations in Massachusetts that provide direct information/referral, **occupational health** clinics/medical services, legal assistance/employment discrimination, worker/community advocacy, describes worker and community right-to-know laws, and lists state government agencies that can provide assistance.

- **Exposure to Blood/Body Fluids Contaminated With Blood From a Source of Known or Probable HIV Infection (Including Needlestick/Sharps Injuries)**

  Contact: Australian National Council on AIDS Hepatitis C and Related Diseases, GPO Box 9848 MDP 13, Canberra, (011) 62897767, http://www.ancahrd.org.

Summary: This fact sheet lists, and defines, the levels of parenteral exposure to Human immunodeficiency virus (HIV) ranging from massive, through definite, possible, doubtful, and non-exposure. It then outlines, in separate sections, the actions that should be taken by the person who has been exposed; the responsibilities of supervisors, managers, and **occupational health** and safety officers; and protocols to be followed by medical practitioners who are treating the exposure. Specific guidelines are given for treatment if the patient has been exposed to HIV, Hepatitis B, Hepatitis C, or tetanus. Prophylactic treatment with azidothymidine is explained.

- **Women's health information source book**

  Source: Washington, DC: National Association of County Health Officials. 1994. 173 pp.

  Contact: Available from National Association of County Health Officials, 440 First Street, N.W., Suite 500, Washington, DC 20001. Telephone: (202) 783-5550.

  Summary: This notebook contains essays, fact sheets, and contact information designed to inform local health officials about issues relating to women's and children's health. Topics covered include: addictive behaviors, adolescent health, advocacy, chronic diseases, cultural issues, infectious diseases, mature women's health, mental health, **occupational health,** reproductive health, socioeconomic issues, and violence against women. The essays were written by the staff of the National Association of County Health Officials and the fact sheets describe the activities of the U.S. Maternal and Child Health Bureau and the U.S. Office of Women's Health. It also contains materials about in-service training, information that can be used in advocacy efforts, supplemental materials for clients, and a resource list of national and regional organizations and programs. The materials are being developed on an on-going basis; not all of the topics included have materials available currently. [Funded by the Maternal and Child Health Bureau].

- **Hygenic Procedures for Tattooists: Protecting the Health of Yourself and Your Clients**

  Contact: Australian Department of Health and Ageing, Public Health Division, GPO Box 9848, Canberra City, (011) 262898654, http://www.health.gov.au.

  Summary: This pamphlet discusses how hygienic procedures in tattooing can prevent the spread of viruses and bacteria that cause infection, in particular, hepatitis C, hepatitis B, and human immunodeficiency virus (HIV). The pamphlet describes the transmission of these diseases and lists basic steps to hygienic and healthy tattooing, such as cleaning, disinfection, and sterilisation. Tattooists are advised to consder hepatitis B immunisation for themselves and their staff and to familiarize themselves with **Occupational Health** and Safety legislation and to refer to legislation in their respective State or Territory for imformation about skin penetration standards.

- **Protecting Yourself From AIDS: For Health - Care Workers**

  Contact: SAVANT Audiovisuals, Inc., PO Box 3670, Fullerton, CA, 92634, (714) 870-7880.

  Summary: This teaching aid can be used to train health-care workers how to protect themselves from Human immunodeficiency virus (HIV) infection. The manuals, reports, brochures, and videorecordings included in the program present guidelines on universal precautions and address topics of diagnosis, employees' rights, applicable laws, **occupational health,** occupational safety, risk reduction, and workplace policies. Accompanying materials present self-tests, body substance precautions, and a certificate of completion.

Healthfinder™

Healthfinder™ is sponsored by the U.S. Department of Health and Human Services and offers links to hundreds of other sites that contain healthcare information. This Web site is located at **http://www.healthfinder.gov**. Again, keyword searches can be used to find guidelines. The following was recently found in this database:

- **Environmental and Occupational Health Resources**

  Summary: A comprehensive listing of online resources on issues relating to environmental health and occupational health. This list is maintained by the University of Wisconsin-Milwaukee.

  Source: American Public Health Association

  http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=5282

- **Environmental Health & Safety Resources**

  Summary: Links to Internet sites on environmental-occupational health, safety, and risk management topics.

  Source: Educational Institution--Follow the Resource URL for More Information

  http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=5211

- **Interim Recommendations for Protecting Workers from Exposure to Bacillus anthracis in Work Sites Where Mail Is Handled or Processed**

  Summary: These interim recommendations are intended to assist personnel responsible for occupational health and safety in developing a comprehensive program to reduce potential cutaneous or inhalational

  Source: Centers for Disease Control and Prevention, U.S. Department of Health and Human Services

  http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=6427

- **Journal of Occupational Health Psychology**

  Summary: Official journal of the American Psychological Association.

  Source: American Psychological Association

  http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=4044

- **Safety and Occupational Health Engineer Manuals**

  Summary: From this page users can preview and order manuals for engineers. Manuals currently available include Safety and Health Requirements Manual, ENG and the Radiation Protection Manual.

  Source: Office of the Secretary of Defense

  http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=1824

- **Safety and Occupational Health Engineer Pamphlets**

  Summary: From this page users can preview and order pamphlets for engineers. Currently available pamphlets include Boards of Investigation and the Medical Surveillance Handbook.

  Source: Office of the Secretary of Defense

  http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=1823

The NIH Search Utility

The NIH search utility allows you to search for documents on over 100 selected Web sites that comprise the NIH-WEB-SPACE. Each of these servers is "crawled" and indexed on an ongoing basis. Your search will produce a list of various documents, all of which will relate in some way to occupational health. The drawbacks of this approach are that the information is not organized by theme and that the references are often a mix of information for professionals and patients. Nevertheless, a large number of the listed Web sites provide useful background information. We can only recommend this route, therefore, for relatively rare or specific disorders, or when using highly targeted searches. To use the NIH search utility, visit the following Web page: **http://search.nih.gov/index.html**.

Additional Web Sources

A number of Web sites are available to the public that often link to government sites. These can also point you in the direction of essential information. The following is a representative sample:

- AOL: **http://search.aol.com/cat.adp?id=168&layer=&from=subcats**
- Family Village: **http://www.familyvillage.wisc.edu/specific.htm**
- Google: **http://directory.google.com/Top/Health/Conditions_and_Diseases/**
- Med Help International: **http://www.medhelp.org/HealthTopics/A.html**
- Open Directory Project: **http://dmoz.org/Health/Conditions_and_Diseases/**
- Yahoo.com: **http://dir.yahoo.com/Health/Diseases_and_Conditions/**
- WebMD®Health: **http://my.webmd.com/health_topics**

Finding Associations

There are several Internet directories that provide lists of medical associations with information on or resources relating to occupational health. By consulting all of associations listed in this chapter, you will have nearly exhausted all sources for patient associations concerned with occupational health.

The National Health Information Center (NHIC)

The National Health Information Center (NHIC) offers a free referral service to help people find organizations that provide information about occupational health. For more

information, see the NHIC's Web site at **http://www.health.gov/NHIC/** or contact an information specialist by calling 1-800-336-4797.

Directory of Health Organizations

The Directory of Health Organizations, provided by the National Library of Medicine Specialized Information Services, is a comprehensive source of information on associations. The Directory of Health Organizations database can be accessed via the Internet at **http://www.sis.nlm.nih.gov/Dir/DirMain.html**. It is composed of two parts: DIRLINE and Health Hotlines.

The DIRLINE database comprises some 10,000 records of organizations, research centers, and government institutes and associations that primarily focus on health and biomedicine. To access DIRLINE directly, go to the following Web site: **http://dirline.nlm.nih.gov/**. Simply type in "occupational health" (or a synonym), and you will receive information on all relevant organizations listed in the database.

Health Hotlines directs you to toll-free numbers to over 300 organizations. You can access this database directly at **http://www.sis.nlm.nih.gov/hotlines/**. On this page, you are given the option to search by keyword or by browsing the subject list. When you have received your search results, click on the name of the organization for its description and contact information.

The Combined Health Information Database

Another comprehensive source of information on healthcare associations is the Combined Health Information Database. Using the "Detailed Search" option, you will need to limit your search to "Organizations" and "occupational health". Type the following hyperlink into your Web browser: **http://chid.nih.gov/detail/detail.html**. To find associations, use the drop boxes at the bottom of the search page where "You may refine your search by." For publication date, select "All Years." Then, select your preferred language and the format option "Organization Resource Sheet." Type "occupational health" (or synonyms) into the "For these words:" box. You should check back periodically with this database since it is updated every three months.

The National Organization for Rare Disorders, Inc.

The National Organization for Rare Disorders, Inc. has prepared a Web site that provides, at no charge, lists of associations organized by health topic. You can access this database at the following Web site: **http://www.rarediseases.org/search/orgsearch.html**. Type "occupational health" (or a synonym) into the search box, and click "Submit Query."

APPENDIX C. FINDING MEDICAL LIBRARIES

Overview

In this Appendix, we show you how to quickly find a medical library in your area.

Preparation

Your local public library and medical libraries have interlibrary loan programs with the National Library of Medicine (NLM), one of the largest medical collections in the world. According to the NLM, most of the literature in the general and historical collections of the National Library of Medicine is available on interlibrary loan to any library. If you would like to access NLM medical literature, then visit a library in your area that can request the publications for you.[22]

Finding a Local Medical Library

The quickest method to locate medical libraries is to use the Internet-based directory published by the National Network of Libraries of Medicine (NN/LM). This network includes 4626 members and affiliates that provide many services to librarians, health professionals, and the public. To find a library in your area, simply visit **http://nnlm.gov/members/adv.html** or call 1-800-338-7657.

Medical Libraries in the U.S. and Canada

In addition to the NN/LM, the National Library of Medicine (NLM) lists a number of libraries with reference facilities that are open to the public. The following is the NLM's list and includes hyperlinks to each library's Web site. These Web pages can provide information on hours of operation and other restrictions. The list below is a small sample of

[22] Adapted from the NLM: **http://www.nlm.nih.gov/psd/cas/interlibrary.html**.

libraries recommended by the National Library of Medicine (sorted alphabetically by name of the U.S. state or Canadian province where the library is located)[23]:

- **Alabama:** Health InfoNet of Jefferson County (Jefferson County Library Cooperative, Lister Hill Library of the Health Sciences), **http://www.uab.edu/infonet/**
- **Alabama:** Richard M. Scrushy Library (American Sports Medicine Institute)
- **Arizona:** Samaritan Regional Medical Center: The Learning Center (Samaritan Health System, Phoenix, Arizona), **http://www.samaritan.edu/library/bannerlibs.htm**
- **California:** Kris Kelly Health Information Center (St. Joseph Health System, Humboldt), **http://www.humboldt1.com/~kkhic/index.html**
- **California:** Community Health Library of Los Gatos, **http://www.healthlib.org/orgresources.html**
- **California:** Consumer Health Program and Services (CHIPS) (County of Los Angeles Public Library, Los Angeles County Harbor-UCLA Medical Center Library) - Carson, CA, **http://www.colapublib.org/services/chips.html**
- **California:** Gateway Health Library (Sutter Gould Medical Foundation)
- **California:** Health Library (Stanford University Medical Center), **http://www-med.stanford.edu/healthlibrary/**
- **California:** Patient Education Resource Center - Health Information and Resources (University of California, San Francisco), **http://sfghdean.ucsf.edu/barnett/PERC/default.asp**
- **California:** Redwood Health Library (Petaluma Health Care District), **http://www.phcd.org/rdwdlib.html**
- **California:** Los Gatos PlaneTree Health Library, **http://planetreesanjose.org/**
- **California:** Sutter Resource Library (Sutter Hospitals Foundation, Sacramento), **http://suttermedicalcenter.org/library/**
- **California:** Health Sciences Libraries (University of California, Davis), **http://www.lib.ucdavis.edu/healthsci/**
- **California:** ValleyCare Health Library & Ryan Comer Cancer Resource Center (ValleyCare Health System, Pleasanton), **http://gaelnet.stmarys-ca.edu/other.libs/gbal/east/vchl.html**
- **California:** Washington Community Health Resource Library (Fremont), **http://www.healthlibrary.org/**
- **Colorado:** William V. Gervasini Memorial Library (Exempla Healthcare), **http://www.saintjosephdenver.org/yourhealth/libraries/**
- **Connecticut:** Hartford Hospital Health Science Libraries (Hartford Hospital), **http://www.harthosp.org/library/**
- **Connecticut:** Healthnet: Connecticut Consumer Health Information Center (University of Connecticut Health Center, Lyman Maynard Stowe Library), **http://library.uchc.edu/departm/hnet/**

[23] Abstracted from **http://www.nlm.nih.gov/medlineplus/libraries.html**.

- **Connecticut:** Waterbury Hospital Health Center Library (Waterbury Hospital, Waterbury), **http://www.waterburyhospital.com/library/consumer.shtml**
- **Delaware:** Consumer Health Library (Christiana Care Health System, Eugene du Pont Preventive Medicine & Rehabilitation Institute, Wilmington), **http://www.christianacare.org/health_guide/health_guide_pmri_health_info.cfm**
- **Delaware:** Lewis B. Flinn Library (Delaware Academy of Medicine, Wilmington), **http://www.delamed.org/chls.html**
- **Georgia:** Family Resource Library (Medical College of Georgia, Augusta), **http://cmc.mcg.edu/kids_families/fam_resources/fam_res_lib/frl.htm**
- **Georgia:** Health Resource Center (Medical Center of Central Georgia, Macon), **http://www.mccg.org/hrc/hrchome.asp**
- **Hawaii:** Hawaii Medical Library: Consumer Health Information Service (Hawaii Medical Library, Honolulu), **http://hml.org/CHIS/**
- **Idaho:** DeArmond Consumer Health Library (Kootenai Medical Center, Coeur d'Alene), **http://www.nicon.org/DeArmond/index.htm**
- **Illinois:** Health Learning Center of Northwestern Memorial Hospital (Chicago), **http://www.nmh.org/health_info/hlc.html**
- **Illinois:** Medical Library (OSF Saint Francis Medical Center, Peoria), **http://www.osfsaintfrancis.org/general/library/**
- **Kentucky:** Medical Library - Services for Patients, Families, Students & the Public (Central Baptist Hospital, Lexington), **http://www.centralbap.com/education/community/library.cfm**
- **Kentucky:** University of Kentucky - Health Information Library (Chandler Medical Center, Lexington), **http://www.mc.uky.edu/PatientEd/**
- **Louisiana:** Alton Ochsner Medical Foundation Library (Alton Ochsner Medical Foundation, New Orleans), **http://www.ochsner.org/library/**
- **Louisiana:** Louisiana State University Health Sciences Center Medical Library-Shreveport, **http://lib-sh.lsuhsc.edu/**
- **Maine:** Franklin Memorial Hospital Medical Library (Franklin Memorial Hospital, Farmington), **http://www.fchn.org/fmh/lib.htm**
- **Maine:** Gerrish-True Health Sciences Library (Central Maine Medical Center, Lewiston), **http://www.cmmc.org/library/library.html**
- **Maine:** Hadley Parrot Health Science Library (Eastern Maine Healthcare, Bangor), **http://www.emh.org/hll/hpl/guide.htm**
- **Maine:** Maine Medical Center Library (Maine Medical Center, Portland), **http://www.mmc.org/library/**
- **Maine:** Parkview Hospital (Brunswick), **http://www.parkviewhospital.org/**
- **Maine:** Southern Maine Medical Center Health Sciences Library (Southern Maine Medical Center, Biddeford), **http://www.smmc.org/services/service.php3?choice=10**
- **Maine:** Stephens Memorial Hospital's Health Information Library (Western Maine Health, Norway), **http://www.wmhcc.org/Library/**

- **Manitoba, Canada:** Consumer & Patient Health Information Service (University of Manitoba Libraries), **http://www.umanitoba.ca/libraries/units/health/reference/chis.html**
- **Manitoba, Canada:** J.W. Crane Memorial Library (Deer Lodge Centre, Winnipeg), **http://www.deerlodge.mb.ca/crane_library/about.asp**
- **Maryland:** Health Information Center at the Wheaton Regional Library (Montgomery County, Dept. of Public Libraries, Wheaton Regional Library), **http://www.mont.lib.md.us/healthinfo/hic.asp**
- **Massachusetts:** Baystate Medical Center Library (Baystate Health System), **http://www.baystatehealth.com/1024/**
- **Massachusetts:** Boston University Medical Center Alumni Medical Library (Boston University Medical Center), **http://med-libwww.bu.edu/library/lib.html**
- **Massachusetts:** Lowell General Hospital Health Sciences Library (Lowell General Hospital, Lowell), **http://www.lowellgeneral.org/library/HomePageLinks/WWW.htm**
- **Massachusetts:** Paul E. Woodard Health Sciences Library (New England Baptist Hospital, Boston), **http://www.nebh.org/health_lib.asp**
- **Massachusetts:** St. Luke's Hospital Health Sciences Library (St. Luke's Hospital, Southcoast Health System, New Bedford), **http://www.southcoast.org/library/**
- **Massachusetts:** Treadwell Library Consumer Health Reference Center (Massachusetts General Hospital), **http://www.mgh.harvard.edu/library/chrcindex.html**
- **Massachusetts:** UMass HealthNet (University of Massachusetts Medical School, Worchester), **http://healthnet.umassmed.edu/**
- **Michigan:** Botsford General Hospital Library - Consumer Health (Botsford General Hospital, Library & Internet Services), **http://www.botsfordlibrary.org/consumer.htm**
- **Michigan:** Helen DeRoy Medical Library (Providence Hospital and Medical Centers), **http://www.providence-hospital.org/library/**
- **Michigan:** Marquette General Hospital - Consumer Health Library (Marquette General Hospital, Health Information Center), **http://www.mgh.org/center.html**
- **Michigan:** Patient Education Resouce Center - University of Michigan Cancer Center (University of Michigan Comprehensive Cancer Center, Ann Arbor), **http://www.cancer.med.umich.edu/learn/leares.htm**
- **Michigan:** Sladen Library & Center for Health Information Resources - Consumer Health Information (Detroit), **http://www.henryford.com/body.cfm?id=39330**
- **Montana:** Center for Health Information (St. Patrick Hospital and Health Sciences Center, Missoula)
- **National:** Consumer Health Library Directory (Medical Library Association, Consumer and Patient Health Information Section), **http://caphis.mlanet.org/directory/index.html**
- **National:** National Network of Libraries of Medicine (National Library of Medicine) - provides library services for health professionals in the United States who do not have access to a medical library, **http://nnlm.gov/**
- **National:** NN/LM List of Libraries Serving the Public (National Network of Libraries of Medicine), **http://nnlm.gov/members/**

- **Nevada:** Health Science Library, West Charleston Library (Las Vegas-Clark County Library District, Las Vegas), **http://www.lvccld.org/special_collections/medical/index.htm**
- **New Hampshire:** Dartmouth Biomedical Libraries (Dartmouth College Library, Hanover), **http://www.dartmouth.edu/~biomed/resources.htmld/conshealth.htmld/**
- **New Jersey:** Consumer Health Library (Rahway Hospital, Rahway), **http://www.rahwayhospital.com/library.htm**
- **New Jersey:** Dr. Walter Phillips Health Sciences Library (Englewood Hospital and Medical Center, Englewood), **http://www.englewoodhospital.com/links/index.htm**
- **New Jersey:** Meland Foundation (Englewood Hospital and Medical Center, Englewood), **http://www.geocities.com/ResearchTriangle/9360/**
- **New York:** Choices in Health Information (New York Public Library) - NLM Consumer Pilot Project participant, **http://www.nypl.org/branch/health/links.html**
- **New York:** Health Information Center (Upstate Medical University, State University of New York, Syracuse), **http://www.upstate.edu/library/hic/**
- **New York:** Health Sciences Library (Long Island Jewish Medical Center, New Hyde Park), **http://www.lij.edu/library/library.html**
- **New York:** ViaHealth Medical Library (Rochester General Hospital), **http://www.nyam.org/library/**
- **Ohio:** Consumer Health Library (Akron General Medical Center, Medical & Consumer Health Library), **http://www.akrongeneral.org/hwlibrary.htm**
- **Oklahoma:** The Health Information Center at Saint Francis Hospital (Saint Francis Health System, Tulsa), **http://www.sfh-tulsa.com/services/healthinfo.asp**
- **Oregon:** Planetree Health Resource Center (Mid-Columbia Medical Center, The Dalles), **http://www.mcmc.net/phrc/**
- **Pennsylvania:** Community Health Information Library (Milton S. Hershey Medical Center, Hershey), **http://www.hmc.psu.edu/commhealth/**
- **Pennsylvania:** Community Health Resource Library (Geisinger Medical Center, Danville), **http://www.geisinger.edu/education/commlib.shtml**
- **Pennsylvania:** HealthInfo Library (Moses Taylor Hospital, Scranton), **http://www.mth.org/healthwellness.html**
- **Pennsylvania:** Hopwood Library (University of Pittsburgh, Health Sciences Library System, Pittsburgh), **http://www.hsls.pitt.edu/guides/chi/hopwood/index_html**
- **Pennsylvania:** Koop Community Health Information Center (College of Physicians of Philadelphia), **http://www.collphyphil.org/kooppg1.shtml**
- **Pennsylvania:** Learning Resources Center - Medical Library (Susquehanna Health System, Williamsport), **http://www.shscares.org/services/lrc/index.asp**
- **Pennsylvania:** Medical Library (UPMC Health System, Pittsburgh), **http://www.upmc.edu/passavant/library.htm**
- **Quebec, Canada:** Medical Library (Montreal General Hospital), **http://www.mghlib.mcgill.ca/**

- **South Dakota:** Rapid City Regional Hospital Medical Library (Rapid City Regional Hospital), **http://www.rcrh.org/Services/Library/Default.asp**
- **Texas:** Houston HealthWays (Houston Academy of Medicine-Texas Medical Center Library), **http://hhw.library.tmc.edu/**
- **Washington:** Community Health Library (Kittitas Valley Community Hospital), **http://www.kvch.com/**
- **Washington:** Southwest Washington Medical Center Library (Southwest Washington Medical Center, Vancouver), **http://www.swmedicalcenter.com/body.cfm?id=72**

ONLINE GLOSSARIES

The Internet provides access to a number of free-to-use medical dictionaries. The National Library of Medicine has compiled the following list of online dictionaries:

- ADAM Medical Encyclopedia (A.D.A.M., Inc.), comprehensive medical reference: **http://www.nlm.nih.gov/medlineplus/encyclopedia.html**
- MedicineNet.com Medical Dictionary (MedicineNet, Inc.): **http://www.medterms.com/Script/Main/hp.asp**
- Merriam-Webster Medical Dictionary (Inteli-Health, Inc.): **http://www.intelihealth.com/IH/**
- Multilingual Glossary of Technical and Popular Medical Terms in Eight European Languages (European Commission) - Danish, Dutch, English, French, German, Italian, Portuguese, and Spanish: **http://allserv.rug.ac.be/~rvdstich/eugloss/welcome.html**
- On-line Medical Dictionary (CancerWEB): **http://cancerweb.ncl.ac.uk/omd/**
- Rare Diseases Terms (Office of Rare Diseases): **http://ord.aspensys.com/asp/diseases/diseases.asp**
- Technology Glossary (National Library of Medicine) - Health Care Technology: **http://www.nlm.nih.gov/nichsr/ta101/ta10108.htm**

Beyond these, MEDLINEplus contains a very patient-friendly encyclopedia covering every aspect of medicine (licensed from A.D.A.M., Inc.). The ADAM Medical Encyclopedia can be accessed at **http://www.nlm.nih.gov/medlineplus/encyclopedia.html**. ADAM is also available on commercial Web sites such as drkoop.com (**http://www.drkoop.com/**) and Web MD (**http://my.webmd.com/adam/asset/adam_disease_articles/a_to_z/a**).

Online Dictionary Directories

The following are additional online directories compiled by the National Library of Medicine, including a number of specialized medical dictionaries:

- Medical Dictionaries: Medical & Biological (World Health Organization): **http://www.who.int/hlt/virtuallibrary/English/diction.htm#Medical**
- MEL-Michigan Electronic Library List of Online Health and Medical Dictionaries (Michigan Electronic Library): **http://mel.lib.mi.us/health/health-dictionaries.html**
- Patient Education: Glossaries (DMOZ Open Directory Project): **http://dmoz.org/Health/Education/Patient_Education/Glossaries/**
- Web of Online Dictionaries (Bucknell University): **http://www.yourdictionary.com/diction5.html#medicine**

OCCUPATIONAL HEALTH DICTIONARY

The definitions below are derived from official public sources, including the National Institutes of Health [NIH] and the European Union [EU].

Abdominal: Having to do with the abdomen, which is the part of the body between the chest and the hips that contains the pancreas, stomach, intestines, liver, gallbladder, and other organs. [NIH]

Accommodation: Adjustment, especially that of the eye for various distances. [EU]

ACE: Angiotensin-coverting enzyme. A drug used to decrease pressure inside blood vessels. [NIH]

Acetone: A colorless liquid used as a solvent and an antiseptic. It is one of the ketone bodies produced during ketoacidosis. [NIH]

Acetylcholine: A neurotransmitter. Acetylcholine in vertebrates is the major transmitter at neuromuscular junctions, autonomic ganglia, parasympathetic effector junctions, a subset of sympathetic effector junctions, and at many sites in the central nervous system. It is generally not used as an administered drug because it is broken down very rapidly by cholinesterases, but it is useful in some ophthalmological applications. [NIH]

Acoustic: Having to do with sound or hearing. [NIH]

Adaptability: Ability to develop some form of tolerance to conditions extremely different from those under which a living organism evolved. [NIH]

Adaptation: 1. The adjustment of an organism to its environment, or the process by which it enhances such fitness. 2. The normal ability of the eye to adjust itself to variations in the intensity of light; the adjustment to such variations. 3. The decline in the frequency of firing of a neuron, particularly of a receptor, under conditions of constant stimulation. 4. In dentistry, (a) the proper fitting of a denture, (b) the degree of proximity and interlocking of restorative material to a tooth preparation, (c) the exact adjustment of bands to teeth. 5. In microbiology, the adjustment of bacterial physiology to a new environment. [EU]

Adjustment: The dynamic process wherein the thoughts, feelings, behavior, and biophysiological mechanisms of the individual continually change to adjust to the environment. [NIH]

Adrenal Cortex: The outer layer of the adrenal gland. It secretes mineralocorticoids, androgens, and glucocorticoids. [NIH]

Adverse Effect: An unwanted side effect of treatment. [NIH]

Aerosol: A solution of a drug which can be atomized into a fine mist for inhalation therapy. [EU]

Affinity: 1. Inherent likeness or relationship. 2. A special attraction for a specific element, organ, or structure. 3. Chemical affinity; the force that binds atoms in molecules; the tendency of substances to combine by chemical reaction. 4. The strength of noncovalent chemical binding between two substances as measured by the dissociation constant of the complex. 5. In immunology, a thermodynamic expression of the strength of interaction between a single antigen-binding site and a single antigenic determinant (and thus of the stereochemical compatibility between them), most accurately applied to interactions among simple, uniform antigenic determinants such as haptens. Expressed as the association constant (K litres mole -1), which, owing to the heterogeneity of affinities in a population of antibody molecules of a given specificity, actually represents an average value (mean

intrinsic association constant). 6. The reciprocal of the dissociation constant. [EU]

Age Factors: Age as a constituent element or influence contributing to the production of a result. It may be applicable to the cause or the effect of a circumstance. It is used with human or animal concepts but should be differentiated from aging, a physiological process, and time factors which refers only to the passage of time. [NIH]

Aggravation: An increasing in seriousness or severity; an act or circumstance that intensifies, or makes worse. [EU]

Air Pollutants: Substances which pollute the air. [NIH]

Airway: A device for securing unobstructed passage of air into and out of the lungs during general anesthesia. [NIH]

Alertness: A state of readiness to detect and respond to certain specified small changes occurring at random intervals in the environment. [NIH]

Algorithms: A procedure consisting of a sequence of algebraic formulas and/or logical steps to calculate or determine a given task. [NIH]

Alimentary: Pertaining to food or nutritive material, or to the organs of digestion. [EU]

Allergen: An antigenic substance capable of producing immediate-type hypersensitivity (allergy). [EU]

Alternative medicine: Practices not generally recognized by the medical community as standard or conventional medical approaches and used instead of standard treatments. Alternative medicine includes the taking of dietary supplements, megadose vitamins, and herbal preparations; the drinking of special teas; and practices such as massage therapy, magnet therapy, spiritual healing, and meditation. [NIH]

Alveoli: Tiny air sacs at the end of the bronchioles in the lungs. [NIH]

Amputation: Surgery to remove part or all of a limb or appendage. [NIH]

Anal: Having to do with the anus, which is the posterior opening of the large bowel. [NIH]

Analogous: Resembling or similar in some respects, as in function or appearance, but not in origin or development;. [EU]

Anaphylatoxins: The family of peptides C3a, C4a, C5a, and C5a des-arginine produced in the serum during complement activation. They produce smooth muscle contraction, mast cell histamine release, affect platelet aggregation, and act as mediators of the local inflammatory process. The order of anaphylatoxin activity from strongest to weakest is C5a, C3a, C4a, and C5a des-arginine. The latter is the so-called "classical" anaphylatoxin but shows no spasmogenic activity though it contains some chemotactic ability. [NIH]

Anatomical: Pertaining to anatomy, or to the structure of the organism. [EU]

Anemia: A reduction in the number of circulating erythrocytes or in the quantity of hemoglobin. [NIH]

Animal model: An animal with a disease either the same as or like a disease in humans. Animal models are used to study the development and progression of diseases and to test new treatments before they are given to humans. Animals with transplanted human cancers or other tissues are called xenograft models. [NIH]

Ankle: That part of the lower limb directly above the foot. [NIH]

Anthrax: An acute bacterial infection caused by ingestion of bacillus organisms. Carnivores may become infected from ingestion of infected carcasses. It is transmitted to humans by contact with infected animals or contaminated animal products. The most common form in humans is cutaneous anthrax. [NIH]

Antibacterial: A substance that destroys bacteria or suppresses their growth or reproduction. [EU]

Antibiotic: A drug used to treat infections caused by bacteria and other microorganisms. [NIH]

Antibodies: Immunoglobulin molecules having a specific amino acid sequence by virtue of which they interact only with the antigen that induced their synthesis in cells of the lymphoid series (especially plasma cells), or with an antigen closely related to it. [NIH]

Antibody: A type of protein made by certain white blood cells in response to a foreign substance (antigen). Each antibody can bind to only a specific antigen. The purpose of this binding is to help destroy the antigen. Antibodies can work in several ways, depending on the nature of the antigen. Some antibodies destroy antigens directly. Others make it easier for white blood cells to destroy the antigen. [NIH]

Antigen: Any substance which is capable, under appropriate conditions, of inducing a specific immune response and of reacting with the products of that response, that is, with specific antibody or specifically sensitized T-lymphocytes, or both. Antigens may be soluble substances, such as toxins and foreign proteins, or particulate, such as bacteria and tissue cells; however, only the portion of the protein or polysaccharide molecule known as the antigenic determinant (q.v.) combines with antibody or a specific receptor on a lymphocyte. Abbreviated Ag. [EU]

Antigen-Antibody Complex: The complex formed by the binding of antigen and antibody molecules. The deposition of large antigen-antibody complexes leading to tissue damage causes immune complex diseases. [NIH]

Antiseptic: A substance that inhibits the growth and development of microorganisms without necessarily killing them. [EU]

Anus: The opening of the rectum to the outside of the body. [NIH]

Applicability: A list of the commodities to which the candidate method can be applied as presented or with minor modifications. [NIH]

Aqueous: Having to do with water. [NIH]

Arginine: An essential amino acid that is physiologically active in the L-form. [NIH]

Aromatic: Having a spicy odour. [EU]

Arterial: Pertaining to an artery or to the arteries. [EU]

Arteries: The vessels carrying blood away from the heart. [NIH]

Asbestos: Fibrous incombustible mineral composed of magnesium and calcium silicates with or without other elements. It is relatively inert chemically and used in thermal insulation and fireproofing. Inhalation of dust causes asbestosis and later lung and gastrointestinal neoplasms. [NIH]

Asbestosis: A lung disorder caused by constant inhalation of asbestos particles. [NIH]

Astringents: Agents, usually topical, that cause the contraction of tissues for the control of bleeding or secretions. [NIH]

Asynchronous: Pacing mode where only one timing interval exists, that between the stimuli. While the duration of this interval may be varied, it is not modified by any sensed event once set. As no sensing occurs, the upper and lower rate intervals are the same as the pacema. [NIH]

Audiology: The study of hearing and hearing impairment. [NIH]

Auditory: Pertaining to the sense of hearing. [EU]

Bacillus: A genus of Bacillaceae that are spore-forming, rod-shaped cells. Most species are saprophytic soil forms with only a few species being pathogenic. [NIH]

Back Injuries: General or unspecified injuries to the posterior part of the trunk. It includes injuries to the muscles of the back. [NIH]

Back Pain: Acute or chronic pain located in the posterior regions of the trunk, including the thoracic, lumbar, sacral, or adjacent regions. [NIH]

Bacteria: Unicellular prokaryotic microorganisms which generally possess rigid cell walls, multiply by cell division, and exhibit three principal forms: round or coccal, rodlike or bacillary, and spiral or spirochetal. [NIH]

Bacterial Physiology: Physiological processes and activities of bacteria. [NIH]

Bacterium: Microscopic organism which may have a spherical, rod-like, or spiral unicellular or non-cellular body. Bacteria usually reproduce through asexual processes. [NIH]

Base: In chemistry, the nonacid part of a salt; a substance that combines with acids to form salts; a substance that dissociates to give hydroxide ions in aqueous solutions; a substance whose molecule or ion can combine with a proton (hydrogen ion); a substance capable of donating a pair of electrons (to an acid) for the formation of a coordinate covalent bond. [EU]

Benign: Not cancerous; does not invade nearby tissue or spread to other parts of the body. [NIH]

Berylliosis: A lung disease caused by exposure to metallic beryllium or its soluble salts. [NIH]

Beryllium: An element with the atomic symbol Be, atomic number 4, and atomic weight 9.01218. Short exposure to this element can lead to a type of poisoning known as berylliosis. [NIH]

Biochemical: Relating to biochemistry; characterized by, produced by, or involving chemical reactions in living organisms. [EU]

Biological Markers: Measurable and quantifiable biological parameters (e.g., specific enzyme concentration, specific hormone concentration, specific gene phenotype distribution in a population, presence of biological substances) which serve as indices for health- and physiology-related assessments, such as disease risk, psychiatric disorders, environmental exposure and its effects, disease diagnosis, metabolic processes, substance abuse, pregnancy, cell line development, epidemiologic studies, etc. [NIH]

Biomarkers: Substances sometimes found in an increased amount in the blood, other body fluids, or tissues and that may suggest the presence of some types of cancer. Biomarkers include CA 125 (ovarian cancer), CA 15-3 (breast cancer), CEA (ovarian, lung, breast, pancreas, and GI tract cancers), and PSA (prostate cancer). Also called tumor markers. [NIH]

Biomechanics: The study of the application of mechanical laws and the action of forces to living structures. [NIH]

Biopsy: Removal and pathologic examination of specimens in the form of small pieces of tissue from the living body. [NIH]

Biosynthesis: The building up of a chemical compound in the physiologic processes of a living organism. [EU]

Biotechnology: Body of knowledge related to the use of organisms, cells or cell-derived constituents for the purpose of developing products which are technically, scientifically and clinically useful. Alteration of biologic function at the molecular level (i.e., genetic engineering) is a central focus; laboratory methods used include transfection and cloning technologies, sequence and structure analysis algorithms, computer databases, and gene and protein structure function analysis and prediction. [NIH]

Bioterrorism: The use of biological agents in terrorism. This includes the malevolent use of bacteria, viruses, or toxins against people, animals, or plants. [NIH]

Bladder: The organ that stores urine. [NIH]

Bloating: Fullness or swelling in the abdomen that often occurs after meals. [NIH]

Blood pressure: The pressure of blood against the walls of a blood vessel or heart chamber. Unless there is reference to another location, such as the pulmonary artery or one of the heart chambers, it refers to the pressure in the systemic arteries, as measured, for example, in the forearm. [NIH]

Blood vessel: A tube in the body through which blood circulates. Blood vessels include a network of arteries, arterioles, capillaries, venules, and veins. [NIH]

Body Burden: The total amount of a chemical, metal or radioactive substance present at any time after absorption in the body of man or animal. [NIH]

Body Fluids: Liquid components of living organisms. [NIH]

Bowel: The long tube-shaped organ in the abdomen that completes the process of digestion. There is both a small and a large bowel. Also called the intestine. [NIH]

Bradykinin: A nonapeptide messenger that is enzymatically produced from kallidin in the blood where it is a potent but short-lived agent of arteriolar dilation and increased capillary permeability. Bradykinin is also released from mast cells during asthma attacks, from gut walls as a gastrointestinal vasodilator, from damaged tissues as a pain signal, and may be a neurotransmitter. [NIH]

Brain Injuries: Acute and chronic injuries to the brain, including the cerebral hemispheres, cerebellum, and brain stem. Clinical manifestations depend on the nature of injury. Diffuse trauma to the brain is frequently associated with diffuse axonal injury or coma, post-traumatic. Localized injuries may be associated with neurobehavioral manifestations; hemiparesis, or other focal neurologic deficits. [NIH]

Brain Stem: The part of the brain that connects the cerebral hemispheres with the spinal cord. It consists of the mesencephalon, pons, and medulla oblongata. [NIH]

Branch: Most commonly used for branches of nerves, but applied also to other structures. [NIH]

Breakdown: A physical, metal, or nervous collapse. [NIH]

Bronchi: The larger air passages of the lungs arising from the terminal bifurcation of the trachea. [NIH]

Bronchial: Pertaining to one or more bronchi. [EU]

Bronchial Hyperreactivity: Tendency of the smooth muscle of the tracheobronchial tree to contract more intensely in response to a given stimulus than it does in the response seen in normal individuals. This condition is present in virtually all symptomatic patients with asthma. The most prominent manifestation of this smooth muscle contraction is a decrease in airway caliber that can be readily measured in the pulmonary function laboratory. [NIH]

Bronchitis: Inflammation (swelling and reddening) of the bronchi. [NIH]

Burns: Injuries to tissues caused by contact with heat, steam, chemicals (burns, chemical), electricity (burns, electric), or the like. [NIH]

Burns, Electric: Burns produced by contact with electric current or from a sudden discharge of electricity. [NIH]

Cadmium: An element with atomic symbol Cd, atomic number 48, and atomic weight 114. It is a metal and ingestion will lead to cadmium poisoning. [NIH]

Cadmium Compounds: Inorganic compounds that contain cadmium as an integral part of the molecule. [NIH]

Cadmium Poisoning: Poisoning occurring after exposure to cadmium compounds or fumes. It may cause gastrointestinal syndromes, anemia, or pneumonitis. [NIH]

Calcium: A basic element found in nearly all organized tissues. It is a member of the alkaline earth family of metals with the atomic symbol Ca, atomic number 20, and atomic weight 40. Calcium is the most abundant mineral in the body and combines with phosphorus to form calcium phosphate in the bones and teeth. It is essential for the normal functioning of nerves and muscles and plays a role in blood coagulation (as factor IV) and in many enzymatic processes. [NIH]

Carcinogen: Any substance that causes cancer. [NIH]

Carcinogenic: Producing carcinoma. [EU]

Carcinoma: Cancer that begins in the skin or in tissues that line or cover internal organs. [NIH]

Cardiac: Having to do with the heart. [NIH]

Cardiovascular: Having to do with the heart and blood vessels. [NIH]

Cardiovascular disease: Any abnormal condition characterized by dysfunction of the heart and blood vessels. CVD includes atherosclerosis (especially coronary heart disease, which can lead to heart attacks), cerebrovascular disease (e.g., stroke), and hypertension (high blood pressure). [NIH]

Carpal Tunnel Syndrome: A median nerve injury inside the carpal tunnel that results in symptoms of pain, numbness, tingling, clumsiness, and a lack of sweating, which can be caused by work with certain hand and wrist postures. [NIH]

Causal: Pertaining to a cause; directed against a cause. [EU]

Cause of Death: Factors which produce cessation of all vital bodily functions. They can be analyzed from an epidemiologic viewpoint. [NIH]

Cell: The individual unit that makes up all of the tissues of the body. All living things are made up of one or more cells. [NIH]

Cell Division: The fission of a cell. [NIH]

Cellulose: A polysaccharide with glucose units linked as in cellobiose. It is the chief constituent of plant fibers, cotton being the purest natural form of the substance. As a raw material, it forms the basis for many derivatives used in chromatography, ion exchange materials, explosives manufacturing, and pharmaceutical preparations. [NIH]

Central Nervous System: The main information-processing organs of the nervous system, consisting of the brain, spinal cord, and meninges. [NIH]

Cerebellum: Part of the metencephalon that lies in the posterior cranial fossa behind the brain stem. It is concerned with the coordination of movement. [NIH]

Cerebral: Of or pertaining of the cerebrum or the brain. [EU]

Cerebral hemispheres: The two halves of the cerebrum, the part of the brain that controls muscle functions of the body and also controls speech, emotions, reading, writing, and learning. The right hemisphere controls muscle movement on the left side of the body, and the left hemisphere controls muscle movement on the right side of the body. [NIH]

Cerebrovascular: Pertaining to the blood vessels of the cerebrum, or brain. [EU]

Character: In current usage, approximately equivalent to personality. The sum of the relatively fixed personality traits and habitual modes of response of an individual. [NIH]

Check-up: A general physical examination. [NIH]

Chemotactic Factors: Chemical substances that attract or repel cells or organisms. The concept denotes especially those factors released as a result of tissue injury, invasion, or immunologic activity, that attract leukocytes, macrophages, or other cells to the site of infection or insult. [NIH]

Child Care: Care of children in the home or institution. [NIH]

Cholesterol: The principal sterol of all higher animals, distributed in body tissues, especially the brain and spinal cord, and in animal fats and oils. [NIH]

Chromosome: Part of a cell that contains genetic information. Except for sperm and eggs, all human cells contain 46 chromosomes. [NIH]

Chronic: A disease or condition that persists or progresses over a long period of time. [NIH]

Chronic Disease: Disease or ailment of long duration. [NIH]

Chronic Obstructive Pulmonary Disease: Collective term for chronic bronchitis and emphysema. [NIH]

Circadian: Repeated more or less daily, i. e. on a 23- to 25-hour cycle. [NIH]

Circadian Rhythm: The regular recurrence, in cycles of about 24 hours, of biological processes or activities, such as sensitivity to drugs and stimuli, hormone secretion, sleeping, feeding, etc. This rhythm seems to be set by a 'biological clock' which seems to be set by recurring daylight and darkness. [NIH]

Circulatory system: The system that contains the heart and the blood vessels and moves blood throughout the body. This system helps tissues get enough oxygen and nutrients, and it helps them get rid of waste products. The lymph system, which connects with the blood system, is often considered part of the circulatory system. [NIH]

Civil Rights: Legal guarantee protecting the individual from attack on personal liberties, right to fair trial, right to vote, and freedom from discrimination on the basis of race, religion, national origin, age, or gender. [NIH]

Clear cell carcinoma: A rare type of tumor of the female genital tract in which the inside of the cells looks clear when viewed under a microscope. [NIH]

Clinical trial: A research study that tests how well new medical treatments or other interventions work in people. Each study is designed to test new methods of screening, prevention, diagnosis, or treatment of a disease. [NIH]

Cloning: The production of a number of genetically identical individuals; in genetic engineering, a process for the efficient replication of a great number of identical DNA molecules. [NIH]

Cluster Analysis: A set of statistical methods used to group variables or observations into strongly inter-related subgroups. In epidemiology, it may be used to analyze a closely grouped series of events or cases of disease or other health-related phenomenon with well-defined distribution patterns in relation to time or place or both. [NIH]

Coal: A natural fuel formed by partial decomposition of vegetable matter under certain environmental conditions. [NIH]

Cochlea: The part of the internal ear that is concerned with hearing. It forms the anterior part of the labyrinth, is conical, and is placed almost horizontally anterior to the vestibule. [NIH]

Cochlear: Of or pertaining to the cochlea. [EU]

Cochlear Diseases: Diseases of the cochlea, the part of the inner ear that is concerned with hearing. [NIH]

Cofactor: A substance, microorganism or environmental factor that activates or enhances the action of another entity such as a disease-causing agent. [NIH]

Cognitive restructuring: A method of identifying and replacing fear-promoting, irrational beliefs with more realistic and functional ones. [NIH]

Cohort Studies: Studies in which subsets of a defined population are identified. These groups may or may not be exposed to factors hypothesized to influence the probability of the occurrence of a particular disease or other outcome. Cohorts are defined populations which, as a whole, are followed in an attempt to determine distinguishing subgroup characteristics. [NIH]

Colorectal: Having to do with the colon or the rectum. [NIH]

Colorectal Cancer: Cancer that occurs in the colon (large intestine) or the rectum (the end of the large intestine). A number of digestive diseases may increase a person's risk of colorectal cancer, including polyposis and Zollinger-Ellison Syndrome. [NIH]

Communicable disease: A disease that can be transmitted by contact between persons. [NIH]

Community Health Centers: Facilities which administer the delivery of health care services to people living in a community or neighborhood. [NIH]

Competency: The capacity of the bacterium to take up DNA from its surroundings. [NIH]

Complement: A term originally used to refer to the heat-labile factor in serum that causes immune cytolysis, the lysis of antibody-coated cells, and now referring to the entire functionally related system comprising at least 20 distinct serum proteins that is the effector not only of immune cytolysis but also of other biologic functions. Complement activation occurs by two different sequences, the classic and alternative pathways. The proteins of the classic pathway are termed 'components of complement' and are designated by the symbols C1 through C9. C1 is a calcium-dependent complex of three distinct proteins C1q, C1r and C1s. The proteins of the alternative pathway (collectively referred to as the properdin system) and complement regulatory proteins are known by semisystematic or trivial names. Fragments resulting from proteolytic cleavage of complement proteins are designated with lower-case letter suffixes, e.g., C3a. Inactivated fragments may be designated with the suffix 'i', e.g. C3bi. Activated components or complexes with biological activity are designated by a bar over the symbol e.g. C1 or C4b,2a. The classic pathway is activated by the binding of C1 to classic pathway activators, primarily antigen-antibody complexes containing IgM, IgG1, IgG3; C1q binds to a single IgM molecule or two adjacent IgG molecules. The alternative pathway can be activated by IgA immune complexes and also by nonimmunologic materials including bacterial endotoxins, microbial polysaccharides, and cell walls. Activation of the classic pathway triggers an enzymatic cascade involving C1, C4, C2 and C3; activation of the alternative pathway triggers a cascade involving C3 and factors B, D and P. Both result in the cleavage of C5 and the formation of the membrane attack complex. Complement activation also results in the formation of many biologically active complement fragments that act as anaphylatoxins, opsonins, or chemotactic factors. [EU]

Complementary and alternative medicine: CAM. Forms of treatment that are used in addition to (complementary) or instead of (alternative) standard treatments. These practices are not considered standard medical approaches. CAM includes dietary supplements, megadose vitamins, herbal preparations, special teas, massage therapy, magnet therapy, spiritual healing, and meditation. [NIH]

Complementary medicine: Practices not generally recognized by the medical community as standard or conventional medical approaches and used to enhance or complement the standard treatments. Complementary medicine includes the taking of dietary supplements, megadose vitamins, and herbal preparations; the drinking of special teas; and practices such

as massage therapy, magnet therapy, spiritual healing, and meditation. [NIH]

Computational Biology: A field of biology concerned with the development of techniques for the collection and manipulation of biological data, and the use of such data to make biological discoveries or predictions. This field encompasses all computational methods and theories applicable to molecular biology and areas of computer-based techniques for solving biological problems including manipulation of models and datasets. [NIH]

Conception: The onset of pregnancy, marked by implantation of the blastocyst; the formation of a viable zygote. [EU]

Concomitant: Accompanying; accessory; joined with another. [EU]

Conduction: The transfer of sound waves, heat, nervous impulses, or electricity. [EU]

Confined Spaces: A space which has limited openings for entry and exit combined with unfavorable natural ventilation such as caves, refrigerators, deep tunnels, pipelines, sewers, silos, tanks, vats, mines, deep trenches or pits, vaults, manholes, chimneys, etc. [NIH]

Confounding: Extraneous variables resulting in outcome effects that obscure or exaggerate the "true" effect of an intervention. [NIH]

Consciousness: Sense of awareness of self and of the environment. [NIH]

Consultation: A deliberation between two or more physicians concerning the diagnosis and the proper method of treatment in a case. [NIH]

Consumption: Pulmonary tuberculosis. [NIH]

Contamination: The soiling or pollution by inferior material, as by the introduction of organisms into a wound, or sewage into a stream. [EU]

Contraception: Use of agents, devices, methods, or procedures which diminish the likelihood of or prevent conception. [NIH]

Contraindications: Any factor or sign that it is unwise to pursue a certain kind of action or treatment, e. g. giving a general anesthetic to a person with pneumonia. [NIH]

Control group: In a clinical trial, the group that does not receive the new treatment being studied. This group is compared to the group that receives the new treatment, to see if the new treatment works. [NIH]

Coordination: Muscular or motor regulation or the harmonious cooperation of muscles or groups of muscles, in a complex action or series of actions. [NIH]

Coronary: Encircling in the manner of a crown; a term applied to vessels; nerves, ligaments, etc. The term usually denotes the arteries that supply the heart muscle and, by extension, a pathologic involvement of them. [EU]

Coronary Disease: Disorder of cardiac function due to an imbalance between myocardial function and the capacity of the coronary vessels to supply sufficient flow for normal function. It is a form of myocardial ischemia (insufficient blood supply to the heart muscle) caused by a decreased capacity of the coronary vessels. [NIH]

Coronary heart disease: A type of heart disease caused by narrowing of the coronary arteries that feed the heart, which needs a constant supply of oxygen and nutrients carried by the blood in the coronary arteries. When the coronary arteries become narrowed or clogged by fat and cholesterol deposits and cannot supply enough blood to the heart, CHD results. [NIH]

Coronary Thrombosis: Presence of a thrombus in a coronary artery, often causing a myocardial infarction. [NIH]

Coronary Vessels: The veins and arteries of the heart. [NIH]

Cortisol: A steroid hormone secreted by the adrenal cortex as part of the body's response to stress. [NIH]

Craniocerebral Trauma: Traumatic injuries involving the cranium and intracranial structures (i.e., brain; cranial nerves; meninges; and other structures). Injuries may be classified by whether or not the skull is penetrated (i.e., penetrating vs. nonpenetrating) or whether there is an associated hemorrhage. [NIH]

Creatinine: A compound that is excreted from the body in urine. Creatinine levels are measured to monitor kidney function. [NIH]

Creatinine clearance: A test that measures how efficiently the kidneys remove creatinine and other wastes from the blood. Low creatinine clearance indicates impaired kidney function. [NIH]

Cross-Sectional Studies: Studies in which the presence or absence of disease or other health-related variables are determined in each member of the study population or in a representative sample at one particular time. This contrasts with longitudinal studies which are followed over a period of time. [NIH]

Curative: Tending to overcome disease and promote recovery. [EU]

Cutaneous: Having to do with the skin. [NIH]

Cyclic: Pertaining to or occurring in a cycle or cycles; the term is applied to chemical compounds that contain a ring of atoms in the nucleus. [EU]

Dairy Products: Raw and processed or manufactured milk and milk-derived products. These are usually from cows (bovine) but are also from goats, sheep, reindeer, and water buffalo. [NIH]

Data Collection: Systematic gathering of data for a particular purpose from various sources, including questionnaires, interviews, observation, existing records, and electronic devices. The process is usually preliminary to statistical analysis of the data. [NIH]

Databases, Bibliographic: Extensive collections, reputedly complete, of references and citations to books, articles, publications, etc., generally on a single subject or specialized subject area. Databases can operate through automated files, libraries, or computer disks. The concept should be differentiated from factual databases which is used for collections of data and facts apart from bibliographic references to them. [NIH]

Death Certificates: Official records of individual deaths including the cause of death certified by a physician, and any other required identifying information. [NIH]

Degenerative: Undergoing degeneration : tending to degenerate; having the character of or involving degeneration; causing or tending to cause degeneration. [EU]

Delivery of Health Care: The concept concerned with all aspects of providing and distributing health services to a patient population. [NIH]

Dentists: Individuals licensed to practice dentistry. [NIH]

Dermatitis: Any inflammation of the skin. [NIH]

DES: Diethylstilbestrol. A synthetic hormone that was prescribed from the early 1940s until 1971 to help women with complications of pregnancy. DES has been linked to an increased risk of clear cell carcinoma of the vagina in daughters of women who used DES. DES may also increase the risk of breast cancer in women who used DES. [NIH]

Developing Countries: Countries in the process of change directed toward economic growth, that is, an increase in production, per capita consumption, and income. The process of economic growth involves better utilization of natural and human resources, which results in a change in the social, political, and economic structures. [NIH]

Diagnostic procedure: A method used to identify a disease. [NIH]

Diastolic: Of or pertaining to the diastole. [EU]

Diffuse Axonal Injury: A relatively common sequela of blunt head injury, characterized by a global disruption of axons throughout the brain. Associated clinical features may include neurobehavioral manifestations; persistent vegetative state; dementia; and other disorders. [NIH]

Digestion: The process of breakdown of food for metabolism and use by the body. [NIH]

Diploid: Having two sets of chromosomes. [NIH]

Direct: 1. Straight; in a straight line. 2. Performed immediately and without the intervention of subsidiary means. [EU]

Discrimination: The act of qualitative and/or quantitative differentiation between two or more stimuli. [NIH]

Disease Progression: The worsening of a disease over time. This concept is most often used for chronic and incurable diseases where the stage of the disease is an important determinant of therapy and prognosis. [NIH]

Disease Vectors: Invertebrates or non-human vertebrates which transmit infective organisms from one host to another. [NIH]

Disinfection: Rendering pathogens harmless through the use of heat, antiseptics, antibacterial agents, etc. [NIH]

Disparity: Failure of the two retinal images of an object to fall on corresponding retinal points. [NIH]

Disposable Equipment: Apparatus, devices, or supplies intended for one-time or temporary use. [NIH]

Dose-dependent: Refers to the effects of treatment with a drug. If the effects change when the dose of the drug is changed, the effects are said to be dose dependent. [NIH]

Dosimetry: All the methods either of measuring directly, or of measuring indirectly and computing, absorbed dose, absorbed dose rate, exposure, exposure rate, dose equivalent, and the science associated with these methods. [NIH]

Drug Interactions: The action of a drug that may affect the activity, metabolism, or toxicity of another drug. [NIH]

Drug Tolerance: Progressive diminution of the susceptibility of a human or animal to the effects of a drug, resulting from its continued administration. It should be differentiated from drug resistance wherein an organism, disease, or tissue fails to respond to the intended effectiveness of a chemical or drug. It should also be differentiated from maximum tolerated dose and no-observed-adverse-effect level. [NIH]

Duct: A tube through which body fluids pass. [NIH]

Education, Medical: Use for general articles concerning medical education. [NIH]

Effector: It is often an enzyme that converts an inactive precursor molecule into an active second messenger. [NIH]

Efficacy: The extent to which a specific intervention, procedure, regimen, or service produces a beneficial result under ideal conditions. Ideally, the determination of efficacy is based on the results of a randomized control trial. [NIH]

Electrolyte: A substance that dissociates into ions when fused or in solution, and thus becomes capable of conducting electricity; an ionic solute. [EU]

Embryo: The prenatal stage of mammalian development characterized by rapid

morphological changes and the differentiation of basic structures. [NIH]

Emergency Medical Services: Services specifically designed, staffed, and equipped for the emergency care of patients. [NIH]

Emergency Medicine: A branch of medicine concerned with an individual's resuscitation, transportation and care from the point of injury or beginning of illness through the hospital or other emergency treatment facility. [NIH]

Emergency Treatment: First aid or other immediate intervention for accidents or medical conditions requiring immediate care and treatment before definitive medical and surgical management can be procured. [NIH]

Emphysema: A pathological accumulation of air in tissues or organs. [NIH]

Empirical: A treatment based on an assumed diagnosis, prior to receiving confirmatory laboratory test results. [NIH]

Endocrine System: The system of glands that release their secretions (hormones) directly into the circulatory system. In addition to the endocrine glands, included are the chromaffin system and the neurosecretory systems. [NIH]

Endopeptidases: A subclass of peptide hydrolases. They are classified primarily by their catalytic mechanism. Specificity is used only for identification of individual enzymes. They comprise the serine endopeptidases, EC 3.4.21; cysteine endopeptidases, EC 3.4.22; aspartic endopeptidases, EC 3.4.23, metalloendopeptidases, EC 3.4.24; and a group of enzymes yet to be assigned to any of the above sub-classes, EC 3.4.99. EC 3.4.-. [NIH]

Endothelium: A layer of epithelium that lines the heart, blood vessels (endothelium, vascular), lymph vessels (endothelium, lymphatic), and the serous cavities of the body. [NIH]

Endothelium-derived: Small molecule that diffuses to the adjacent muscle layer and relaxes it. [NIH]

Endotoxin: Toxin from cell walls of bacteria. [NIH]

Environment Design: The structuring of the environment to permit or promote specific patterns of behavior. [NIH]

Environmental Exposure: The exposure to potentially harmful chemical, physical, or biological agents in the environment or to environmental factors that may include ionizing radiation, pathogenic organisms, or toxic chemicals. [NIH]

Environmental Health: The science of controlling or modifying those conditions, influences, or forces surrounding man which relate to promoting, establishing, and maintaining health. [NIH]

Environmental Medicine: Medical specialty concerned with environmental factors that may impinge upon human disease, and development of methods for the detection, prevention, and control of environmentally related disease. [NIH]

Environmental tobacco smoke: ETS. Smoke that comes from the burning of a tobacco product and smoke that is exhaled by smokers (second-hand smoke). Inhaling ETS is called involuntary or passive smoking. [NIH]

Enzymatic: Phase where enzyme cuts the precursor protein. [NIH]

Enzyme: A protein that speeds up chemical reactions in the body. [NIH]

Epidemic: Occurring suddenly in numbers clearly in excess of normal expectancy; said especially of infectious diseases but applied also to any disease, injury, or other health-related event occurring in such outbreaks. [EU]

Epidemiologic Studies: Studies designed to examine associations, commonly, hypothesized causal relations. They are usually concerned with identifying or measuring the effects of risk

factors or exposures. The common types of analytic study are case-control studies, cohort studies, and cross-sectional studies. [NIH]

Epidemiological: Relating to, or involving epidemiology. [EU]

Equipment and Supplies: Expendable and nonexpendable equipment, supplies, apparatus, and instruments that are used in diagnostic, surgical, therapeutic, scientific, and experimental procedures. [NIH]

Ergonomics: Study of the relationships between man and machines; adjusting the design of machines to the need and capacities of man; study of the effect of machines on man's behavior. [NIH]

ERV: The expiratory reserve volume is the largest volume of gas that can be expired from the end-expiratory level. [NIH]

Erythrocytes: Red blood cells. Mature erythrocytes are non-nucleated, biconcave disks containing hemoglobin whose function is to transport oxygen. [NIH]

Expiration: The act of breathing out, or expelling air from the lungs. [EU]

Expiratory: The volume of air which leaves the breathing organs in each expiration. [NIH]

Expiratory Reserve Volume: The extra volume of air that can be expired with maximum effort beyond the level reached at the end of a normal, quiet expiration. Common abbreviation is ERV. [NIH]

Extracellular: Outside a cell or cells. [EU]

Extremity: A limb; an arm or leg (membrum); sometimes applied specifically to a hand or foot. [EU]

Family Planning: Programs or services designed to assist the family in controlling reproduction by either improving or diminishing fertility. [NIH]

Fat: Total lipids including phospholipids. [NIH]

Fatigue: The state of weariness following a period of exertion, mental or physical, characterized by a decreased capacity for work and reduced efficiency to respond to stimuli. [NIH]

Fixation: 1. The act or operation of holding, suturing, or fastening in a fixed position. 2. The condition of being held in a fixed position. 3. In psychiatry, a term with two related but distinct meanings : (1) arrest of development at a particular stage, which like regression (return to an earlier stage), if temporary is a normal reaction to setbacks and difficulties but if protracted or frequent is a cause of developmental failures and emotional problems, and (2) a close and suffocating attachment to another person, especially a childhood figure, such as one's mother or father. Both meanings are derived from psychoanalytic theory and refer to 'fixation' of libidinal energy either in a specific erogenous zone, hence fixation at the oral, anal, or phallic stage, or in a specific object, hence mother or father fixation. 4. The use of a fixative (q.v.) to preserve histological or cytological specimens. 5. In chemistry, the process whereby a substance is removed from the gaseous or solution phase and localized, as in carbon dioxide fixation or nitrogen fixation. 6. In ophthalmology, direction of the gaze so that the visual image of the object falls on the fovea centralis. 7. In film processing, the chemical removal of all undeveloped salts of the film emulsion, leaving only the developed silver to form a permanent image. [EU]

Flatus: Gas passed through the rectum. [NIH]

Focus Groups: A method of data collection and a qualitative research tool in which a small group of individuals are brought together and allowed to interact in a discussion of their opinions about topics, issues, or questions. [NIH]

Fold: A plication or doubling of various parts of the body. [NIH]

Forearm: The part between the elbow and the wrist. [NIH]

Fungi: A kingdom of eukaryotic, heterotrophic organisms that live as saprobes or parasites, including mushrooms, yeasts, smuts, molds, etc. They reproduce either sexually or asexually, and have life cycles that range from simple to complex. Filamentous fungi refer to those that grow as multicelluar colonies (mushrooms and molds). [NIH]

Gas: Air that comes from normal breakdown of food. The gases are passed out of the body through the rectum (flatus) or the mouth (burp). [NIH]

Gas exchange: Primary function of the lungs; transfer of oxygen from inhaled air into the blood and of carbon dioxide from the blood into the lungs. [NIH]

Gastric: Having to do with the stomach. [NIH]

Gastric Juices: Liquids produced in the stomach to help break down food and kill bacteria. [NIH]

Gastric Mucosa: Surface epithelium in the stomach that invaginates into the lamina propria, forming gastric pits. Tubular glands, characteristic of each region of the stomach (cardiac, gastric, and pyloric), empty into the gastric pits. The gastric mucosa is made up of several different kinds of cells. [NIH]

Gastrin: A hormone released after eating. Gastrin causes the stomach to produce more acid. [NIH]

Gastrointestinal: Refers to the stomach and intestines. [NIH]

Gastrointestinal Neoplasms: Tumors or cancer of the gastrointestinal system. [NIH]

Gene: The functional and physical unit of heredity passed from parent to offspring. Genes are pieces of DNA, and most genes contain the information for making a specific protein. [NIH]

General practitioner: A medical practitioner who does not specialize in a particular branch of medicine or limit his practice to a specific class of diseases. [NIH]

Generator: Any system incorporating a fixed parent radionuclide from which is produced a daughter radionuclide which is to be removed by elution or by any other method and used in a radiopharmaceutical. [NIH]

Genotype: The genetic constitution of the individual; the characterization of the genes. [NIH]

Governing Board: The group in which legal authority is vested for the control of health-related institutions and organizations. [NIH]

Grade: The grade of a tumor depends on how abnormal the cancer cells look under a microscope and how quickly the tumor is likely to grow and spread. Grading systems are different for each type of cancer. [NIH]

Graft: Healthy skin, bone, or other tissue taken from one part of the body and used to replace diseased or injured tissue removed from another part of the body. [NIH]

Growth: The progressive development of a living being or part of an organism from its earliest stage to maturity. [NIH]

Guanylate Cyclase: An enzyme that catalyzes the conversion of GTP to 3',5'-cyclic GMP and pyrophosphate. It also acts on ITP and dGTP. (From Enzyme Nomenclature, 1992) EC 4.6.1.2. [NIH]

Habitual: Of the nature of a habit; according to habit; established by or repeated by force of habit, customary. [EU]

Haploid: An organism with one basic chromosome set, symbolized by n; the normal

condition of gametes in diploids. [NIH]

Hazardous Substances: Substances which, upon release into the atmosphere, water, or soil, or which, in direct contact with the skin, eyes, or mucous membranes, or as additives to food, cause health risks to humans or animals through absorption, inhalation, or ingestion. The concept includes safe handling, transportation, and storage of these substances. [NIH]

Hazardous Waste: Waste products which, upon release into the atmosphere, water or soil, cause health risks to humans or animals through skin contact, inhalation or ingestion. Hazardous waste sites which contain hazardous waste substances go here. [NIH]

Headache: Pain in the cranial region that may occur as an isolated and benign symptom or as a manifestation of a wide variety of conditions including subarachnoid hemorrhage; craniocerebral trauma; central nervous system infections; intracranial hypertension; and other disorders. In general, recurrent headaches that are not associated with a primary disease process are referred to as headache disorders (e.g., migraine). [NIH]

Health Behavior: Behaviors expressed by individuals to protect, maintain or promote their health status. For example, proper diet, and appropriate exercise are activities perceived to influence health status. Life style is closely associated with health behavior and factors influencing life style are socioeconomic, educational, and cultural. [NIH]

Health Education: Education that increases the awareness and favorably influences the attitudes and knowledge relating to the improvement of health on a personal or community basis. [NIH]

Health Promotion: Encouraging consumer behaviors most likely to optimize health potentials (physical and psychosocial) through health information, preventive programs, and access to medical care. [NIH]

Health Resources: Available manpower, facilities, revenue, equipment, and supplies to produce requisite health care and services. [NIH]

Health Services: Services for the diagnosis and treatment of disease and the maintenance of health. [NIH]

Health Status: The level of health of the individual, group, or population as subjectively assessed by the individual or by more objective measures. [NIH]

Heart attack: A seizure of weak or abnormal functioning of the heart. [NIH]

Hemiparesis: The weakness or paralysis affecting one side of the body. [NIH]

Hemorrhage: Bleeding or escape of blood from a vessel. [NIH]

Hepatitis: Inflammation of the liver and liver disease involving degenerative or necrotic alterations of hepatocytes. [NIH]

Hepatitis A: Hepatitis caused by hepatovirus. It can be transmitted through fecal contamination of food or water. [NIH]

Hepatocytes: The main structural component of the liver. They are specialized epithelial cells that are organized into interconnected plates called lobules. [NIH]

Hepatovirus: A genus of Picornaviridae causing infectious hepatitis naturally in humans and experimentally in other primates. It is transmitted through fecal contamination of food or water. [NIH]

Heredity: 1. The genetic transmission of a particular quality or trait from parent to offspring. 2. The genetic constitution of an individual. [EU]

Holistic Health: Health as viewed from the perspective that man and other organisms function as complete, integrated units rather than as aggregates of separate parts. [NIH]

Homologous: Corresponding in structure, position, origin, etc., as (a) the feathers of a bird

and the scales of a fish, (b) antigen and its specific antibody, (c) allelic chromosomes. [EU]

Hormone: A substance in the body that regulates certain organs. Hormones such as gastrin help in breaking down food. Some hormones come from cells in the stomach and small intestine. [NIH]

Hormone Replacement Therapy: Therapeutic use of hormones to alleviate the effects of hormone deficiency. [NIH]

Host: Any animal that receives a transplanted graft. [NIH]

Human Rights: The rights of the individual to cultural, social, economic, and educational opportunities as provided by society, e.g., right to work, right to education, and right to social security. [NIH]

Hygienic: Pertaining to hygiene, or conducive to health. [EU]

Hypersensitivity: Altered reactivity to an antigen, which can result in pathologic reactions upon subsequent exposure to that particular antigen. [NIH]

Hypertension: Persistently high arterial blood pressure. Currently accepted threshold levels are 140 mm Hg systolic and 90 mm Hg diastolic pressure. [NIH]

Hypoglycemia: Abnormally low blood sugar [NIH]

Hypothalamic: Of or involving the hypothalamus. [EU]

Hypothalamus: Ventral part of the diencephalon extending from the region of the optic chiasm to the caudal border of the mammillary bodies and forming the inferior and lateral walls of the third ventricle. [NIH]

Id: The part of the personality structure which harbors the unconscious instinctive desires and strivings of the individual. [NIH]

Immune response: The activity of the immune system against foreign substances (antigens). [NIH]

Immune system: The organs, cells, and molecules responsible for the recognition and disposal of foreign ("non-self") material which enters the body. [NIH]

Immunization: Deliberate stimulation of the host's immune response. Active immunization involves administration of antigens or immunologic adjuvants. Passive immunization involves administration of immune sera or lymphocytes or their extracts (e.g., transfer factor, immune RNA) or transplantation of immunocompetent cell producing tissue (thymus or bone marrow). [NIH]

Immunocompromised: Having a weakened immune system caused by certain diseases or treatments. [NIH]

Immunodeficiency: The decreased ability of the body to fight infection and disease. [NIH]

Immunodeficiency syndrome: The inability of the body to produce an immune response. [NIH]

Immunologic: The ability of the antibody-forming system to recall a previous experience with an antigen and to respond to a second exposure with the prompt production of large amounts of antibody. [NIH]

Impairment: In the context of health experience, an impairment is any loss or abnormality of psychological, physiological, or anatomical structure or function. [NIH]

In vitro: In the laboratory (outside the body). The opposite of in vivo (in the body). [NIH]

In vivo: In the body. The opposite of in vitro (outside the body or in the laboratory). [NIH]

Incision: A cut made in the body during surgery. [NIH]

Incubation: The development of an infectious disease from the entrance of the pathogen to

the appearance of clinical symptoms. [EU]

Incubation period: The period of time likely to elapse between exposure to the agent of the disease and the onset of clinical symptoms. [NIH]

Indicative: That indicates; that points out more or less exactly; that reveals fairly clearly. [EU]

Infarction: A pathological process consisting of a sudden insufficient blood supply to an area, which results in necrosis of that area. It is usually caused by a thrombus, an embolus, or a vascular torsion. [NIH]

Infection: 1. Invasion and multiplication of microorganisms in body tissues, which may be clinically unapparent or result in local cellular injury due to competitive metabolism, toxins, intracellular replication, or antigen-antibody response. The infection may remain localized, subclinical, and temporary if the body's defensive mechanisms are effective. A local infection may persist and spread by extension to become an acute, subacute, or chronic clinical infection or disease state. A local infection may also become systemic when the microorganisms gain access to the lymphatic or vascular system. 2. An infectious disease. [EU]

Infection Control: Programs of disease surveillance, generally within health care facilities, designed to investigate, prevent, and control the spread of infections and their causative microorganisms. [NIH]

Inflammation: A pathological process characterized by injury or destruction of tissues caused by a variety of cytologic and chemical reactions. It is usually manifested by typical signs of pain, heat, redness, swelling, and loss of function. [NIH]

Information Systems: Integrated set of files, procedures, and equipment for the storage, manipulation, and retrieval of information. [NIH]

Ingestion: Taking into the body by mouth [NIH]

Inhalation: The drawing of air or other substances into the lungs. [EU]

Initiation: Mutation induced by a chemical reactive substance causing cell changes; being a step in a carcinogenic process. [NIH]

Inlay: In dentistry, a filling first made to correspond with the form of a dental cavity and then cemented into the cavity. [NIH]

Inner ear: The labyrinth, comprising the vestibule, cochlea, and semicircular canals. [NIH]

Insecticides: Pesticides designed to control insects that are harmful to man. The insects may be directly harmful, as those acting as disease vectors, or indirectly harmful, as destroyers of crops, food products, or textile fabrics. [NIH]

Insomnia: Difficulty in going to sleep or getting enough sleep. [NIH]

Intermittent: Occurring at separated intervals; having periods of cessation of activity. [EU]

Internal Medicine: A medical specialty concerned with the diagnosis and treatment of diseases of the internal organ systems of adults. [NIH]

Intervertebral: Situated between two contiguous vertebrae. [EU]

Intervertebral Disk Displacement: An intervertebral disk in which the nucleus pulposus has protruded through surrounding fibrocartilage. This occurs most frequently in the lower lumbar region. [NIH]

Intestine: A long, tube-shaped organ in the abdomen that completes the process of digestion. There is both a large intestine and a small intestine. Also called the bowel. [NIH]

Intracellular: Inside a cell. [NIH]

Intracranial Hypertension: Increased pressure within the cranial vault. This may result

from several conditions, including hydrocephalus; brain edema; intracranial masses; severe systemic hypertension; pseudotumor cerebri; and other disorders. [NIH]

Intramuscular: IM. Within or into muscle. [NIH]

Intravenous: IV. Into a vein. [NIH]

Invasive: 1. Having the quality of invasiveness. 2. Involving puncture or incision of the skin or insertion of an instrument or foreign material into the body; said of diagnostic techniques. [EU]

Involuntary: Reaction occurring without intention or volition. [NIH]

Ionizing: Radiation comprising charged particles, e. g. electrons, protons, alpha-particles, etc., having sufficient kinetic energy to produce ionization by collision. [NIH]

Irritants: Drugs that act locally on cutaneous or mucosal surfaces to produce inflammation; those that cause redness due to hyperemia are rubefacients; those that raise blisters are vesicants and those that penetrate sebaceous glands and cause abscesses are pustulants; tear gases and mustard gases are also irritants. [NIH]

Isocyanates: Organic compounds that contain the -NCO radical. [NIH]

Joint: The point of contact between elements of an animal skeleton with the parts that surround and support it. [NIH]

Kb: A measure of the length of DNA fragments, 1 Kb = 1000 base pairs. The largest DNA fragments are up to 50 kilobases long. [NIH]

Ketone Bodies: Chemicals that the body makes when there is not enough insulin in the blood and it must break down fat for its energy. Ketone bodies can poison and even kill body cells. When the body does not have the help of insulin, the ketones build up in the blood and then "spill" over into the urine so that the body can get rid of them. The body can also rid itself of one type of ketone, called acetone, through the lungs. This gives the breath a fruity odor. Ketones that build up in the body for a long time lead to serious illness and coma. [NIH]

Labile: 1. Gliding; moving from point to point over the surface; unstable; fluctuating. 2. Chemically unstable. [EU]

Labor Unions: Organizations comprising wage and salary workers in health-related fields for the purpose of improving their status and conditions. The concept includes labor union activities toward providing health services to members. [NIH]

Labyrinth: The internal ear; the essential part of the organ of hearing. It consists of an osseous and a membranous portion. [NIH]

Laceration: 1. The act of tearing. 2. A torn, ragged, mangled wound. [EU]

Large Intestine: The part of the intestine that goes from the cecum to the rectum. The large intestine absorbs water from stool and changes it from a liquid to a solid form. The large intestine is 5 feet long and includes the appendix, cecum, colon, and rectum. Also called colon. [NIH]

Larynx: An irregularly shaped, musculocartilaginous tubular structure, lined with mucous membrane, located at the top of the trachea and below the root of the tongue and the hyoid bone. It is the essential sphincter guarding the entrance into the trachea and functioning secondarily as the organ of voice. [NIH]

Lead Poisoning: Disease caused by the gradual accumulation of a significant body burden of lead. [NIH]

Library Services: Services offered to the library user. They include reference and circulation. [NIH]

Lice: A general name for small, wingless, parasitic insects, previously of the order Phthiraptera. Though exact taxonomy is still controversial, they can be grouped in the orders Anoplura (sucking lice), Mallophaga (biting lice), and Rhynchophthirina (elephant lice). [NIH]

Life cycle: The successive stages through which an organism passes from fertilized ovum or spore to the fertilized ovum or spore of the next generation. [NIH]

Ligaments: Shiny, flexible bands of fibrous tissue connecting together articular extremities of bones. They are pliant, tough, and inextensile. [NIH]

Liver: A large, glandular organ located in the upper abdomen. The liver cleanses the blood and aids in digestion by secreting bile. [NIH]

Liver Neoplasms: Tumors or cancer of the liver. [NIH]

Localized: Cancer which has not metastasized yet. [NIH]

Locomotion: Movement or the ability to move from one place or another. It can refer to humans, vertebrate or invertebrate animals, and microorganisms. [NIH]

Long-Term Care: Care over an extended period, usually for a chronic condition or disability, requiring periodic, intermittent, or continuous care. [NIH]

Low Back Pain: Acute or chronic pain in the lumbar or sacral regions, which may be associated with musculo-ligamentous sprains and strains; intervertebral disk displacement; and other conditions. [NIH]

Lumbar: Pertaining to the loins, the part of the back between the thorax and the pelvis. [EU]

Lymph: The almost colorless fluid that travels through the lymphatic system and carries cells that help fight infection and disease. [NIH]

Lymphatic: The tissues and organs, including the bone marrow, spleen, thymus, and lymph nodes, that produce and store cells that fight infection and disease. [NIH]

Malignant: Cancerous; a growth with a tendency to invade and destroy nearby tissue and spread to other parts of the body. [NIH]

Malignant mesothelioma: A rare type of cancer in which malignant cells are found in the sac lining the chest or abdomen. Exposure to airborne asbestos particles increases one's risk of developing malignant mesothelioma. [NIH]

Man-made: Ionizing radiation emitted by artificial or concentrated natural, radioactive material or resulting from the operation of high voltage apparatus, such as X-ray apparatus or particle accelerators, of nuclear reactors, or from nuclear explosions. [NIH]

Marital Status: A demographic parameter indicating a person's status with respect to marriage, divorce, widowhood, singleness, etc. [NIH]

Meat: The edible portions of any animal used for food including domestic mammals (the major ones being cattle, swine, and sheep) along with poultry, fish, shellfish, and game. [NIH]

Median Nerve: A major nerve of the upper extremity. In humans, the fibers of the median nerve originate in the lower cervical and upper thoracic spinal cord (usually C6 to T1), travel via the brachial plexus, and supply sensory and motor innervation to parts of the forearm and hand. [NIH]

Mediate: Indirect; accomplished by the aid of an intervening medium. [EU]

MEDLINE: An online database of MEDLARS, the computerized bibliographic Medical Literature Analysis and Retrieval System of the National Library of Medicine. [NIH]

Membrane: A very thin layer of tissue that covers a surface. [NIH]

Memory: Complex mental function having four distinct phases: (1) memorizing or learning, (2) retention, (3) recall, and (4) recognition. Clinically, it is usually subdivided into immediate, recent, and remote memory. [NIH]

Menopause: Permanent cessation of menstruation. [NIH]

Menstrual Cycle: The period of the regularly recurring physiologic changes in the endometrium occurring during the reproductive period in human females and some primates and culminating in partial sloughing of the endometrium (menstruation). [NIH]

Menstruation: The normal physiologic discharge through the vagina of blood and mucosal tissues from the nonpregnant uterus. [NIH]

Mental Disorders: Psychiatric illness or diseases manifested by breakdowns in the adaptational process expressed primarily as abnormalities of thought, feeling, and behavior producing either distress or impairment of function. [NIH]

Mental Health: The state wherein the person is well adjusted. [NIH]

Mental Processes: Conceptual functions or thinking in all its forms. [NIH]

Mercury: A silver metallic element that exists as a liquid at room temperature. It has the atomic symbol Hg (from hydrargyrum, liquid silver), atomic number 80, and atomic weight 200.59. Mercury is used in many industrial applications and its salts have been employed therapeutically as purgatives, antisyphilitics, disinfectants, and astringents. It can be absorbed through the skin and mucous membranes which leads to mercury poisoning. Because of its toxicity, the clinical use of mercury and mercurials is diminishing. [NIH]

Mesothelioma: A benign (noncancerous) or malignant (cancerous) tumor affecting the lining of the chest or abdomen. Exposure to asbestos particles in the air increases the risk of developing malignant mesothelioma. [NIH]

Meteorological Factors: The atmospheric phenomena which pertain to climate and weather. [NIH]

Methanol: A colorless, flammable liquid used in the manufacture of formaldehyde and acetic acid, in chemical synthesis, antifreeze, and as a solvent. Ingestion of methanol is toxic and may cause blindness. [NIH]

MI: Myocardial infarction. Gross necrosis of the myocardium as a result of interruption of the blood supply to the area; it is almost always caused by atherosclerosis of the coronary arteries, upon which coronary thrombosis is usually superimposed. [NIH]

Microbe: An organism which cannot be observed with the naked eye; e. g. unicellular animals, lower algae, lower fungi, bacteria. [NIH]

Microbiology: The study of microorganisms such as fungi, bacteria, algae, archaea, and viruses. [NIH]

Microorganism: An organism that can be seen only through a microscope. Microorganisms include bacteria, protozoa, algae, and fungi. Although viruses are not considered living organisms, they are sometimes classified as microorganisms. [NIH]

Mobility: Capability of movement, of being moved, or of flowing freely. [EU]

Modeling: A treatment procedure whereby the therapist presents the target behavior which the learner is to imitate and make part of his repertoire. [NIH]

Modification: A change in an organism, or in a process in an organism, that is acquired from its own activity or environment. [NIH]

Molecular: Of, pertaining to, or composed of molecules : a very small mass of matter. [EU]

Molecule: A chemical made up of two or more atoms. The atoms in a molecule can be the same (an oxygen molecule has two oxygen atoms) or different (a water molecule has two

hydrogen atoms and one oxygen atom). Biological molecules, such as proteins and DNA, can be made up of many thousands of atoms. [NIH]

Monitor: An apparatus which automatically records such physiological signs as respiration, pulse, and blood pressure in an anesthetized patient or one undergoing surgical or other procedures. [NIH]

Monocular: Diplopia identified with one eye only; it may be induced with a double prism, or it may occur either as a result of double imagery due to an optical defect in the eye, or as a result of simultaneous use of normal and anomalous retinal correspondence. [NIH]

Morale: The prevailing temper or spirit of an individual or group in relation to the tasks or functions which are expected. [NIH]

Motor nerve: An efferent nerve conveying an impulse that excites muscular contraction. [NIH]

Mustard Gas: Severe irritant and vesicant of skin, eyes, and lungs. It may cause blindness and lethal lung edema and was formerly used as a war gas. The substance has been proposed as a cytostatic and for treatment of psoriasis. It has been listed as a known carcinogen in the Fourth Annual Report on Carcinogens (NTP-85-002, 1985) (Merck, 11th ed). [NIH]

Mutagenic: Inducing genetic mutation. [EU]

Mycotoxins: Toxins derived from bacteria or fungi. [NIH]

Myocardial infarction: Gross necrosis of the myocardium as a result of interruption of the blood supply to the area; it is almost always caused by atherosclerosis of the coronary arteries, upon which coronary thrombosis is usually superimposed. [NIH]

Myocardial Ischemia: A disorder of cardiac function caused by insufficient blood flow to the muscle tissue of the heart. The decreased blood flow may be due to narrowing of the coronary arteries (coronary arteriosclerosis), to obstruction by a thrombus (coronary thrombosis), or less commonly, to diffuse narrowing of arterioles and other small vessels within the heart. Severe interruption of the blood supply to the myocardial tissue may result in necrosis of cardiac muscle (myocardial infarction). [NIH]

Myocardium: The muscle tissue of the heart composed of striated, involuntary muscle known as cardiac muscle. [NIH]

Nausea: An unpleasant sensation in the stomach usually accompanied by the urge to vomit. Common causes are early pregnancy, sea and motion sickness, emotional stress, intense pain, food poisoning, and various enteroviruses. [NIH]

Necrosis: A pathological process caused by the progressive degradative action of enzymes that is generally associated with severe cellular trauma. It is characterized by mitochondrial swelling, nuclear flocculation, uncontrolled cell lysis, and ultimately cell death. [NIH]

Need: A state of tension or dissatisfaction felt by an individual that impels him to action toward a goal he believes will satisfy the impulse. [NIH]

Needlestick Injuries: Penetrating stab wounds caused by needles. They are of special concern to health care workers since such injuries put them at risk for developing infectious disease. [NIH]

Needs Assessment: Systematic identification of a population's needs or the assessment of individuals to determine the proper level of services needed. [NIH]

Nephrotoxic: Toxic or destructive to kidney cells. [EU]

Nerve: A cordlike structure of nervous tissue that connects parts of the nervous system with other tissues of the body and conveys nervous impulses to, or away from, these tissues. [NIH]

Nervous System: The entire nerve apparatus composed of the brain, spinal cord, nerves and ganglia. [NIH]

Networks: Pertaining to a nerve or to the nerves, a meshlike structure of interlocking fibers or strands. [NIH]

Neurobehavioral Manifestations: Signs and symptoms of higher cortical dysfunction caused by organic conditions. These include certain behavioral alterations and impairments of skills involved in the acquisition, processing, and utilization of knowledge or information. [NIH]

Neuroendocrine: Having to do with the interactions between the nervous system and the endocrine system. Describes certain cells that release hormones into the blood in response to stimulation of the nervous system. [NIH]

Neurologic: Having to do with nerves or the nervous system. [NIH]

Neuropsychological Tests: Tests designed to assess neurological function associated with certain behaviors. They are used in diagnosing brain dysfunction or damage and central nervous system disorders or injury. [NIH]

Nitric Oxide: A free radical gas produced endogenously by a variety of mammalian cells. It is synthesized from arginine by a complex reaction, catalyzed by nitric oxide synthase. Nitric oxide is endothelium-derived relaxing factor. It is released by the vascular endothelium and mediates the relaxation induced by some vasodilators such as acetylcholine and bradykinin. It also inhibits platelet aggregation, induces disaggregation of aggregated platelets, and inhibits platelet adhesion to the vascular endothelium. Nitric oxide activates cytosolic guanylate cyclase and thus elevates intracellular levels of cyclic GMP. [NIH]

Nonulcer Dyspepsia: Constant pain or discomfort in the upper GI tract. Symptoms include burning, nausea, and bloating, but no ulcer. Possibly caused by muscle spasms. [NIH]

Nuclear: A test of the structure, blood flow, and function of the kidneys. The doctor injects a mildly radioactive solution into an arm vein and uses x-rays to monitor its progress through the kidneys. [NIH]

Nurse Practitioners: Nurses who are specially trained to assume an expanded role in providing medical care under the supervision of a physician. [NIH]

Occupational Exposure: The exposure to potentially harmful chemical, physical, or biological agents that occurs as a result of one's occupation. [NIH]

Occupational Groups: Members of the various professions (e.g., physicians) or occupations (e.g., police). [NIH]

Occupational Health: The promotion and maintenance of physical and mental health in the work environment. [NIH]

Occupational Health Nursing: The practice of nursing in the work environment. [NIH]

Occupational Health Services: Health services for employees, usually provided by the employer at the place of work. [NIH]

Oculomotor: Cranial nerve III. It originate from the lower ventral surface of the midbrain and is classified as a motor nerve. [NIH]

Odds Ratio: The ratio of two odds. The exposure-odds ratio for case control data is the ratio of the odds in favor of exposure among cases to the odds in favor of exposure among noncases. The disease-odds ratio for a cohort or cross section is the ratio of the odds in favor of disease among the exposed to the odds in favor of disease among the unexposed. The prevalence-odds ratio refers to an odds ratio derived cross-sectionally from studies of prevalent cases. [NIH]

Oncology: The study of cancer. [NIH]

Oncology nurse: A nurse who specializes in treating and caring for people who have cancer. [NIH]

Opportunistic Infections: An infection caused by an organism which becomes pathogenic under certain conditions, e.g., during immunosuppression. [NIH]

Organization and Administration: The planning and managing of programs, services, and resources. [NIH]

Organizational Policy: A course or method of action selected, usually by an organization, institution, university, society, etc., from among alternatives to guide and determine present and future decisions and positions on public matters. It does not include internal policy relating to the organization and administration within the corporate body, for which organization and administration is available. [NIH]

Ovary: Either of the paired glands in the female that produce the female germ cells and secrete some of the female sex hormones. [NIH]

Overwork: Work strain that exceeds a person's natural physical or mental capabilities. [NIH]

Ovum: A female germ cell extruded from the ovary at ovulation. [NIH]

Palliative: 1. Affording relief, but not cure. 2. An alleviating medicine. [EU]

Pancreas: A mixed exocrine and endocrine gland situated transversely across the posterior abdominal wall in the epigastric and hypochondriac regions. The endocrine portion is comprised of the Islets of Langerhans, while the exocrine portion is a compound acinar gland that secretes digestive enzymes. [NIH]

Paramedic: An emergency medical technician (EMT) who received further training for the delivery of some aspects of advanced life support (ALS) care. [NIH]

Parasitic: Having to do with or being a parasite. A parasite is an animal or a plant that lives on or in an organism of another species and gets at least some of its nutrients from it. [NIH]

Parenchyma: The essential elements of an organ; used in anatomical nomenclature as a general term to designate the functional elements of an organ, as distinguished from its framework, or stroma. [EU]

Parenteral: Not through the alimentary canal but rather by injection through some other route, as subcutaneous, intramuscular, intraorbital, intracapsular, intraspinal, intrasternal, intravenous, etc. [EU]

Particle: A tiny mass of material. [EU]

Particle Accelerators: Devices which accelerate electrically charged atomic or subatomic particles, such as electrons, protons or ions, to high velocities so they have high kinetic energy. [NIH]

Pathogen: Any disease-producing microorganism. [EU]

Pathologic: 1. Indicative of or caused by a morbid condition. 2. Pertaining to pathology (= branch of medicine that treats the essential nature of the disease, especially the structural and functional changes in tissues and organs of the body caused by the disease). [EU]

Pathophysiology: Altered functions in an individual or an organ due to disease. [NIH]

Patient Education: The teaching or training of patients concerning their own health needs. [NIH]

Peak Expiratory Flow Rate: Measurement of the maximum rate of airflow attained during a forced vital capacity determination. Common abbreviations are PEFR and PFR. [NIH]

Pepsin: An enzyme made in the stomach that breaks down proteins. [NIH]

Pepsin A: Formed from pig pepsinogen by cleavage of one peptide bond. The enzyme is a single polypeptide chain and is inhibited by methyl 2-diaazoacetamidohexanoate. It cleaves peptides preferentially at the carbonyl linkages of phenylalanine or leucine and acts as the principal digestive enzyme of gastric juice. [NIH]

Peptic: Pertaining to pepsin or to digestion; related to the action of gastric juices. [EU]

Peptic Ulcer: Ulcer that occurs in those portions of the alimentary tract which come into contact with gastric juice containing pepsin and acid. It occurs when the amount of acid and pepsin is sufficient to overcome the gastric mucosal barrier. [NIH]

Peptide: Any compound consisting of two or more amino acids, the building blocks of proteins. Peptides are combined to make proteins. [NIH]

Perception: The ability quickly and accurately to recognize similarities and differences among presented objects, whether these be pairs of words, pairs of number series, or multiple sets of these or other symbols such as geometric figures. [NIH]

Percutaneous: Performed through the skin, as injection of radiopacque material in radiological examination, or the removal of tissue for biopsy accomplished by a needle. [EU]

Peripheral blood: Blood circulating throughout the body. [NIH]

Peripheral Nervous System: The nervous system outside of the brain and spinal cord. The peripheral nervous system has autonomic and somatic divisions. The autonomic nervous system includes the enteric, parasympathetic, and sympathetic subdivisions. The somatic nervous system includes the cranial and spinal nerves and their ganglia and the peripheral sensory receptors. [NIH]

Peripheral Vascular Disease: Disease in the large blood vessels of the arms, legs, and feet. People who have had diabetes for a long time may get this because major blood vessels in their arms, legs, and feet are blocked and these limbs do not receive enough blood. The signs of PVD are aching pains in the arms, legs, and feet (especially when walking) and foot sores that heal slowly. Although people with diabetes cannot always avoid PVD, doctors say they have a better chance of avoiding it if they take good care of their feet, do not smoke, and keep both their blood pressure and diabetes under good control. [NIH]

Pesticides: Chemicals used to destroy pests of any sort. The concept includes fungicides (industrial fungicides), insecticides, rodenticides, etc. [NIH]

Pharmacologic: Pertaining to pharmacology or to the properties and reactions of drugs. [EU]

Phenotype: The outward appearance of the individual. It is the product of interactions between genes and between the genotype and the environment. This includes the killer phenotype, characteristic of yeasts. [NIH]

Phospholipids: Lipids containing one or more phosphate groups, particularly those derived from either glycerol (phosphoglycerides; glycerophospholipids) or sphingosine (sphingolipids). They are polar lipids that are of great importance for the structure and function of cell membranes and are the most abundant of membrane lipids, although not stored in large amounts in the system. [NIH]

Physical Examination: Systematic and thorough inspection of the patient for physical signs of disease or abnormality. [NIH]

Physical Fitness: A state of well-being in which performance is optimal, often as a result of physical conditioning which may be prescribed for disease therapy. [NIH]

Physiologic: Having to do with the functions of the body. When used in the phrase "physiologic age," it refers to an age assigned by general health, as opposed to calendar age. [NIH]

Physiology: The science that deals with the life processes and functions of organismus, their

cells, tissues, and organs. [NIH]

Pilot Projects: Small-scale tests of methods and procedures to be used on a larger scale if the pilot study demonstrates that these methods and procedures can work. [NIH]

Pilot study: The initial study examining a new method or treatment. [NIH]

Plants: Multicellular, eukaryotic life forms of the kingdom Plantae. They are characterized by a mainly photosynthetic mode of nutrition; essentially unlimited growth at localized regions of cell divisions (meristems); cellulose within cells providing rigidity; the absence of organs of locomotion; absense of nervous and sensory systems; and an alteration of haploid and diploid generations. [NIH]

Plasma: The clear, yellowish, fluid part of the blood that carries the blood cells. The proteins that form blood clots are in plasma. [NIH]

Plasticity: In an individual or a population, the capacity for adaptation: a) through gene changes (genetic plasticity) or b) through internal physiological modifications in response to changes of environment (physiological plasticity). [NIH]

Platelet Aggregation: The attachment of platelets to one another. This clumping together can be induced by a number of agents (e.g., thrombin, collagen) and is part of the mechanism leading to the formation of a thrombus. [NIH]

Platelets: A type of blood cell that helps prevent bleeding by causing blood clots to form. Also called thrombocytes. [NIH]

Pneumoconiosis: Condition characterized by permanent deposition of substantial amounts of particulate matter in the lungs, usually of occupational or environmental origin, and by the tissue reaction to its presence. [NIH]

Pneumonitis: A disease caused by inhaling a wide variety of substances such as dusts and molds. Also called "farmer's disease". [NIH]

Poisoning: A condition or physical state produced by the ingestion, injection or inhalation of, or exposure to a deleterious agent. [NIH]

Pollen: The male fertilizing element of flowering plants analogous to sperm in animals. It is released from the anthers as yellow dust, to be carried by insect or other vectors, including wind, to the ovary (stigma) of other flowers to produce the embryo enclosed by the seed. The pollens of many plants are allergenic. [NIH]

Polymers: Compounds formed by the joining of smaller, usually repeating, units linked by covalent bonds. These compounds often form large macromolecules (e.g., polypeptides, proteins, plastics). [NIH]

Polymorphism: The occurrence together of two or more distinct forms in the same population. [NIH]

Polyposis: The development of numerous polyps (growths that protrude from a mucous membrane). [NIH]

Posterior: Situated in back of, or in the back part of, or affecting the back or dorsal surface of the body. In lower animals, it refers to the caudal end of the body. [EU]

Post-traumatic: Occurring as a result of or after injury. [EU]

Practice Guidelines: Directions or principles presenting current or future rules of policy for the health care practitioner to assist him in patient care decisions regarding diagnosis, therapy, or related clinical circumstances. The guidelines may be developed by government agencies at any level, institutions, professional societies, governing boards, or by the convening of expert panels. The guidelines form a basis for the evaluation of all aspects of health care and delivery. [NIH]

Premenstrual: Occurring before menstruation. [EU]

Premenstrual Syndrome: A syndrome occurring most often during the last week of the menstrual cycle and ending soon after the onset of menses. Some of the symptoms are emotional instability, insomnia, headache, nausea, vomiting, abdominal distension, and painful breasts. [NIH]

Prevalence: The total number of cases of a given disease in a specified population at a designated time. It is differentiated from incidence, which refers to the number of new cases in the population at a given time. [NIH]

Preventive Medicine: A medical specialty primarily concerned with prevention of disease and the promotion and preservation of health in the individual. [NIH]

Primary Prevention: Prevention of disease or mental disorders in susceptible individuals or populations through promotion of health, including mental health, and specific protection, as in immunization, as distinguished from the prevention of complications or after-effects of existing disease. [NIH]

Private Sector: That distinct portion of the institutional, industrial, or economic structure of a country that is controlled or owned by non-governmental, private interests. [NIH]

Problem Solving: A learning situation involving more than one alternative from which a selection is made in order to attain a specific goal. [NIH]

Problem-Based Learning: Instructional use of examples or cases to teach using problem-solving skills and critical thinking. [NIH]

Professional Practice: The use of one's knowledge in a particular profession. It includes, in the case of the field of biomedicine, professional activities related to health care and the actual performance of the duties related to the provision of health care. [NIH]

Program Evaluation: Studies designed to assess the efficacy of programs. They may include the evaluation of cost-effectiveness, the extent to which objectives are met, or impact. [NIH]

Progression: Increase in the size of a tumor or spread of cancer in the body. [NIH]

Progressive: Advancing; going forward; going from bad to worse; increasing in scope or severity. [EU]

Prophylaxis: An attempt to prevent disease. [NIH]

Proportional: Being in proportion : corresponding in size, degree, or intensity, having the same or a constant ratio; of, relating to, or used in determining proportions. [EU]

Prospective study: An epidemiologic study in which a group of individuals (a cohort), all free of a particular disease and varying in their exposure to a possible risk factor, is followed over a specific amount of time to determine the incidence rates of the disease in the exposed and unexposed groups. [NIH]

Prostate: A gland in males that surrounds the neck of the bladder and the urethra. It secretes a substance that liquifies coagulated semen. It is situated in the pelvic cavity behind the lower part of the pubic symphysis, above the deep layer of the triangular ligament, and rests upon the rectum. [NIH]

Protease: Proteinase (= any enzyme that catalyses the splitting of interior peptide bonds in a protein). [EU]

Protease Inhibitors: Compounds which inhibit or antagonize biosynthesis or actions of proteases (endopeptidases). [NIH]

Protein S: The vitamin K-dependent cofactor of activated protein C. Together with protein C, it inhibits the action of factors VIIIa and Va. A deficiency in protein S can lead to recurrent venous and arterial thrombosis. [NIH]

Proteins: Polymers of amino acids linked by peptide bonds. The specific sequence of amino acids determines the shape and function of the protein. [NIH]

Proteolytic: 1. Pertaining to, characterized by, or promoting proteolysis. 2. An enzyme that promotes proteolysis (= the splitting of proteins by hydrolysis of the peptide bonds with formation of smaller polypeptides). [EU]

Protocol: The detailed plan for a clinical trial that states the trial's rationale, purpose, drug or vaccine dosages, length of study, routes of administration, who may participate, and other aspects of trial design. [NIH]

Psychiatric: Pertaining to or within the purview of psychiatry. [EU]

Psychiatry: The medical science that deals with the origin, diagnosis, prevention, and treatment of mental disorders. [NIH]

Psychic: Pertaining to the psyche or to the mind; mental. [EU]

Psychology: The science dealing with the study of mental processes and behavior in man and animals. [NIH]

Psychomotor: Pertaining to motor effects of cerebral or psychic activity. [EU]

Public Health: Branch of medicine concerned with the prevention and control of disease and disability, and the promotion of physical and mental health of the population on the international, national, state, or municipal level. [NIH]

Public Housing: Housing subsidized by tax funds, usually intended for low income persons or families. [NIH]

Public Policy: A course or method of action selected, usually by a government, from among alternatives to guide and determine present and future decisions. [NIH]

Public Sector: The area of a nation's economy that is tax-supported and under government control. [NIH]

Publishing: "The business or profession of the commercial production and issuance of literature" (Webster's 3d). It includes the publisher, publication processes, editing and editors. Production may be by conventional printing methods or by electronic publishing. [NIH]

Pulmonary: Relating to the lungs. [NIH]

Pulmonary Artery: The short wide vessel arising from the conus arteriosus of the right ventricle and conveying unaerated blood to the lungs. [NIH]

Pulmonary Embolism: Embolism in the pulmonary artery or one of its branches. [NIH]

Pulse: The rhythmical expansion and contraction of an artery produced by waves of pressure caused by the ejection of blood from the left ventricle of the heart as it contracts. [NIH]

Quality of Life: A generic concept reflecting concern with the modification and enhancement of life attributes, e.g., physical, political, moral and social environment. [NIH]

Race: A population within a species which exhibits general similarities within itself, but is both discontinuous and distinct from other populations of that species, though not sufficiently so as to achieve the status of a taxon. [NIH]

Radiation: Emission or propagation of electromagnetic energy (waves/rays), or the waves/rays themselves; a stream of electromagnetic particles (electrons, neutrons, protons, alpha particles) or a mixture of these. The most common source is the sun. [NIH]

Radioactive: Giving off radiation. [NIH]

Radiological: Pertaining to radiodiagnostic and radiotherapeutic procedures, and

interventional radiology or other planning and guiding medical radiology. [NIH]

Radiopharmaceutical: Any medicinal product which, when ready for use, contains one or more radionuclides (radioactive isotopes) included for a medicinal purpose. [NIH]

Radium: A radioactive element of the alkaline earth series of metals. It has the atomic symbol Ra, atomic number 88, and atomic weight 226. Radium is the product of the disintegration of uranium and is present in pitchblende and all ores containing uranium. It is used clinically as a source of beta and gamma-rays in radiotherapy, particularly brachytherapy. [NIH]

Radon: A naturally radioactive element with atomic symbol Rn, atomic number 86, and atomic weight 222. It is a member of the noble gas family and released during the decay of radium and found in soil. There is a link between exposure to radon and lung cancer. [NIH]

Randomized: Describes an experiment or clinical trial in which animal or human subjects are assigned by chance to separate groups that compare different treatments. [NIH]

Receptor: A molecule inside or on the surface of a cell that binds to a specific substance and causes a specific physiologic effect in the cell. [NIH]

Rectum: The last 8 to 10 inches of the large intestine. [NIH]

Recurrence: The return of a sign, symptom, or disease after a remission. [NIH]

Refer: To send or direct for treatment, aid, information, de decision. [NIH]

Refraction: A test to determine the best eyeglasses or contact lenses to correct a refractive error (myopia, hyperopia, or astigmatism). [NIH]

Regimen: A treatment plan that specifies the dosage, the schedule, and the duration of treatment. [NIH]

Registries: The systems and processes involved in the establishment, support, management, and operation of registers, e.g., disease registers. [NIH]

Relative risk: The ratio of the incidence rate of a disease among individuals exposed to a specific risk factor to the incidence rate among unexposed individuals; synonymous with risk ratio. Alternatively, the ratio of the cumulative incidence rate in the exposed to the cumulative incidence rate in the unexposed (cumulative incidence ratio). The term relative risk has also been used synonymously with odds ratio. This is because the odds ratio and relative risk approach each other if the disease is rare (5 percent of population) and the number of subjects is large. [NIH]

Reliability: Used technically, in a statistical sense, of consistency of a test with itself, i. e. the extent to which we can assume that it will yield the same result if repeated a second time. [NIH]

Research Design: A plan for collecting and utilizing data so that desired information can be obtained with sufficient precision or so that an hypothesis can be tested properly. [NIH]

Research Support: Financial support of research activities. [NIH]

Respiration: The act of breathing with the lungs, consisting of inspiration, or the taking into the lungs of the ambient air, and of expiration, or the expelling of the modified air which contains more carbon dioxide than the air taken in (Blakiston's Gould Medical Dictionary, 4th ed.). This does not include tissue respiration (= oxygen consumption) or cell respiration (= cell respiration). [NIH]

Respiratory Physiology: Functions and activities of the respiratory tract as a whole or of any of its parts. [NIH]

Restoration: Broad term applied to any inlay, crown, bridge or complete denture which restores or replaces loss of teeth or oral tissues. [NIH]

Resuscitation: The restoration to life or consciousness of one apparently dead; it includes such measures as artificial respiration and cardiac massage. [EU]

Retinal: 1. Pertaining to the retina. 2. The aldehyde of retinol, derived by the oxidative enzymatic splitting of absorbed dietary carotene, and having vitamin A activity. In the retina, retinal combines with opsins to form visual pigments. One isomer, 11-cis retinal combines with opsin in the rods (scotopsin) to form rhodopsin, or visual purple. Another, all-trans retinal (trans-r.); visual yellow; xanthopsin) results from the bleaching of rhodopsin by light, in which the 11-cis form is converted to the all-trans form. Retinal also combines with opsins in the cones (photopsins) to form the three pigments responsible for colour vision. Called also retinal, and retinene1. [EU]

Retrospective: Looking back at events that have already taken place. [NIH]

Rigidity: Stiffness or inflexibility, chiefly that which is abnormal or morbid; rigor. [EU]

Risk factor: A habit, trait, condition, or genetic alteration that increases a person's chance of developing a disease. [NIH]

Rodenticides: Substances used to destroy or inhibit the action of rats, mice, or other rodents. [NIH]

Safety Management: The development of systems to prevent accidents, injuries, and other adverse occurrences in an institutional setting. The concept includes prevention or reduction of adverse events or incidents involving employees, patients, or facilities. Examples include plans to reduce injuries from falls or plans for fire safety to promote a safe institutional environment. [NIH]

Saliva: The clear, viscous fluid secreted by the salivary glands and mucous glands of the mouth. It contains mucins, water, organic salts, and ptylin. [NIH]

Salivary: The duct that convey saliva to the mouth. [NIH]

Sanitation: The development and establishment of environmental conditions favorable to the health of the public. [NIH]

Saturated fat: A type of fat found in greatest amounts in foods from animals, such as fatty cuts of meat, poultry with the skin, whole-milk dairy products, lard, and in some vegetable oils, including coconut, palm kernel, and palm oils. Saturated fat raises blood cholesterol more than anything else eaten. On a Step I Diet, no more than 8 to 10 percent of total calories should come from saturated fat, and in the Step II Diet, less than 7 percent of the day's total calories should come from saturated fat. [NIH]

Screening: Checking for disease when there are no symptoms. [NIH]

Sebaceous: Gland that secretes sebum. [NIH]

Sebaceous gland: Gland that secretes sebum. [NIH]

Secretion: 1. The process of elaborating a specific product as a result of the activity of a gland; this activity may range from separating a specific substance of the blood to the elaboration of a new chemical substance. 2. Any substance produced by secretion. [EU]

Selection Bias: The introduction of error due to systematic differences in the characteristics between those selected and those not selected for a given study. In sampling bias, error is the result of failure to ensure that all members of the reference population have a known chance of selection in the sample. [NIH]

Semicircular canal: Three long canals of the bony labyrinth of the ear, forming loops and opening into the vestibule by five openings. [NIH]

Sensitization: 1. Administration of antigen to induce a primary immune response; priming; immunization. 2. Exposure to allergen that results in the development of hypersensitivity. 3.

The coating of erythrocytes with antibody so that they are subject to lysis by complement in the presence of homologous antigen, the first stage of a complement fixation test. [EU]

Sensor: A device designed to respond to physical stimuli such as temperature, light, magnetism or movement and transmit resulting impulses for interpretation, recording, movement, or operating control. [NIH]

Serum: The clear liquid part of the blood that remains after blood cells and clotting proteins have been removed. [NIH]

Sexual Harassment: A form of discrimination in the workplace which violates the Civil Rights Act of 1964. Sexual harassment takes two forms: quid pro quo, where the employee must submit to sexual advances in exchange for job benefits or be penalized for refusing; or a hostile environment, where the atmosphere of the workplace is offensive and affects the employee's well-being. Offensive sexual conduct may include unwelcome advances, comments, touching, questions about marital status and sex practices, etc. Both men and women may be aggressors or victims. (Slee and Slee, Health Care Terms, 2d ed, p.404). While civil rights legislation deals with sexual harassment in the workplace, the behavior is not restricted to this; it may take place outside the work environment: in schools and colleges, athletics, and other social milieus and activities. [NIH]

Sexually Transmitted Diseases: Diseases due to or propagated by sexual contact. [NIH]

Shock: The general bodily disturbance following a severe injury; an emotional or moral upset occasioned by some disturbing or unexpected experience; disruption of the circulation, which can upset all body functions: sometimes referred to as circulatory shock. [NIH]

Side effect: A consequence other than the one(s) for which an agent or measure is used, as the adverse effects produced by a drug, especially on a tissue or organ system other than the one sought to be benefited by its administration. [EU]

Silicon: A trace element that constitutes about 27.6% of the earth's crust in the form of silicon dioxide. It does not occur free in nature. Silicon has the atomic symbol Si, atomic number 14, and atomic weight 28.09. [NIH]

Silicon Dioxide: Silica. Transparent, tasteless crystals found in nature as agate, amethyst, chalcedony, cristobalite, flint, sand, quartz, and tridymite. The compound is insoluble in water or acids except hydrofluoric acid. [NIH]

Silicosis: A type of pneumoconiosis caused by inhalation of particles of silica, quartz, ganister or slate. [NIH]

Sister Chromatid Exchange: An exchange of segments between the sister chromatids of a chromosome, either between the sister chromatids of a meiotic tetrad or between the sister chromatids of a duplicated somatic chromosome. Its frequency is increased by ultraviolet and ionizing radiation and other mutagenic agents and is particularly high in Bloom syndrome. [NIH]

Skeleton: The framework that supports the soft tissues of vertebrate animals and protects many of their internal organs. The skeletons of vertebrates are made of bone and/or cartilage. [NIH]

Skull: The skeleton of the head including the bones of the face and the bones enclosing the brain. [NIH]

Sleep Deprivation: The state of being deprived of sleep under experimental conditions, due to life events, or from a wide variety of pathophysiologic causes such as medication effect, chronic illness, psychiatric illness, or sleep disorder. [NIH]

Small intestine: The part of the digestive tract that is located between the stomach and the

large intestine. [NIH]

Smallpox: A generalized virus infection with a vesicular rash. [NIH]

Smooth muscle: Muscle that performs automatic tasks, such as constricting blood vessels. [NIH]

Social Class: A stratum of people with similar position and prestige; includes social stratification. Social class is measured by criteria such as education, occupation, and income. [NIH]

Social Environment: The aggregate of social and cultural institutions, forms, patterns, and processes that influence the life of an individual or community. [NIH]

Social Support: Support systems that provide assistance and encouragement to individuals with physical or emotional disabilities in order that they may better cope. Informal social support is usually provided by friends, relatives, or peers, while formal assistance is provided by churches, groups, etc. [NIH]

Social Work: The use of community resources, individual case work, or group work to promote the adaptive capacities of individuals in relation to their social and economic environments. It includes social service agencies. [NIH]

Socialization: The training or molding of an individual through various relationships, educational agencies, and social controls, which enables him to become a member of a particular society. [NIH]

Sodium: An element that is a member of the alkali group of metals. It has the atomic symbol Na, atomic number 11, and atomic weight 23. With a valence of 1, it has a strong affinity for oxygen and other nonmetallic elements. Sodium provides the chief cation of the extracellular body fluids. Its salts are the most widely used in medicine. (From Dorland, 27th ed) Physiologically the sodium ion plays a major role in blood pressure regulation, maintenance of fluid volume, and electrolyte balance. [NIH]

Solvent: 1. Dissolving; effecting a solution. 2. A liquid that dissolves or that is capable of dissolving; the component of a solution that is present in greater amount. [EU]

Somatic: 1. Pertaining to or characteristic of the soma or body. 2. Pertaining to the body wall in contrast to the viscera. [EU]

Sound wave: An alteration of properties of an elastic medium, such as pressure, particle displacement, or density, that propagates through the medium, or a superposition of such alterations. [NIH]

Specialist: In medicine, one who concentrates on 1 special branch of medical science. [NIH]

Species: A taxonomic category subordinate to a genus (or subgenus) and superior to a subspecies or variety, composed of individuals possessing common characters distinguishing them from other categories of individuals of the same taxonomic level. In taxonomic nomenclature, species are designated by the genus name followed by a Latin or Latinized adjective or noun. [EU]

Spectrum: A charted band of wavelengths of electromagnetic vibrations obtained by refraction and diffraction. By extension, a measurable range of activity, such as the range of bacteria affected by an antibiotic (antibacterial s.) or the complete range of manifestations of a disease. [EU]

Sperm: The fecundating fluid of the male. [NIH]

Sphincter: A ringlike band of muscle fibres that constricts a passage or closes a natural orifice; called also musculus sphincter. [EU]

Spinal cord: The main trunk or bundle of nerves running down the spine through holes in the spinal bone (the vertebrae) from the brain to the level of the lower back. [NIH]

Sports Medicine: The field of medicine concerned with physical fitness and the diagnosis and treatment of injuries sustained in sports activities. [NIH]

Sprains and Strains: A collective term for muscle and ligament injuries without dislocation or fracture. A sprain is a joint injury in which some of the fibers of a supporting ligament are ruptured but the continuity of the ligament remains intact. A strain is an overstretching or overexertion of some part of the musculature. [NIH]

Standardize: To compare with or conform to a standard; to establish standards. [EU]

State Government: The level of governmental organization and function below that of the national or country-wide government. [NIH]

Steady state: Dynamic equilibrium. [EU]

Steroid: A group name for lipids that contain a hydrogenated cyclopentanoperhydrophenanthrene ring system. Some of the substances included in this group are progesterone, adrenocortical hormones, the gonadal hormones, cardiac aglycones, bile acids, sterols (such as cholesterol), toad poisons, saponins, and some of the carcinogenic hydrocarbons. [EU]

Stimulus: That which can elicit or evoke action (response) in a muscle, nerve, gland or other excitable issue, or cause an augmenting action upon any function or metabolic process. [NIH]

Stomach: An organ of digestion situated in the left upper quadrant of the abdomen between the termination of the esophagus and the beginning of the duodenum. [NIH]

Stress: Forcibly exerted influence; pressure. Any condition or situation that causes strain or tension. Stress may be either physical or psychologic, or both. [NIH]

Stress management: A set of techniques used to help an individual cope more effectively with difficult situations in order to feel better emotionally, improve behavioral skills, and often to enhance feelings of control. Stress management may include relaxation exercises, assertiveness training, cognitive restructuring, time management, and social support. It can be delivered either on a one-to-one basis or in a group format. [NIH]

Stroke: Sudden loss of function of part of the brain because of loss of blood flow. Stroke may be caused by a clot (thrombosis) or rupture (hemorrhage) of a blood vessel to the brain. [NIH]

Stroma: The middle, thickest layer of tissue in the cornea. [NIH]

Students, Medical: Individuals enrolled in a school of medicine or a formal educational program in medicine. [NIH]

Styrene: A colorless, toxic liquid with a strong aromatic odor. It is used to make rubbers, polymers and copolymers, and polystyrene plastics. [NIH]

Subacute: Somewhat acute; between acute and chronic. [EU]

Subclinical: Without clinical manifestations; said of the early stage(s) of an infection or other disease or abnormality before symptoms and signs become apparent or detectable by clinical examination or laboratory tests, or of a very mild form of an infection or other disease or abnormality. [EU]

Subcutaneous: Beneath the skin. [NIH]

Subspecies: A category intermediate in rank between species and variety, based on a smaller number of correlated characters than are used to differentiate species and generally conditioned by geographical and/or ecological occurrence. [NIH]

Substance P: An eleven-amino acid neurotransmitter that appears in both the central and peripheral nervous systems. It is involved in transmission of pain, causes rapid contractions of the gastrointestinal smooth muscle, and modulates inflammatory and immune responses. [NIH]

Suction: The removal of secretions, gas or fluid from hollow or tubular organs or cavities by means of a tube and a device that acts on negative pressure. [NIH]

Symptomatic: Having to do with symptoms, which are signs of a condition or disease. [NIH]

Systemic: Affecting the entire body. [NIH]

Systolic: Indicating the maximum arterial pressure during contraction of the left ventricle of the heart. [EU]

Tear Gases: Gases that irritate the eyes, throat, or skin. Severe lacrimation develops upon irritation of the eyes. [NIH]

Temporal: One of the two irregular bones forming part of the lateral surfaces and base of the skull, and containing the organs of hearing. [NIH]

Tendinitis: Inflammation of tendons and of tendon-muscle attachments. [EU]

Tetani: Causal agent of tetanus. [NIH]

Tetanic: Having the characteristics of, or relating to tetanus. [NIH]

Tetanus: A disease caused by tetanospasmin, a powerful protein toxin produced by Clostridium tetani. Tetanus usually occurs after an acute injury, such as a puncture wound or laceration. Generalized tetanus, the most common form, is characterized by tetanic muscular contractions and hyperreflexia. Localized tetanus presents itself as a mild condition with manifestations restricted to muscles near the wound. It may progress to the generalized form. [NIH]

Therapeutics: The branch of medicine which is concerned with the treatment of diseases, palliative or curative. [NIH]

Thermal: Pertaining to or characterized by heat. [EU]

Thoracic: Having to do with the chest. [NIH]

Thorax: A part of the trunk between the neck and the abdomen; the chest. [NIH]

Threshold: For a specified sensory modality (e. g. light, sound, vibration), the lowest level (absolute threshold) or smallest difference (difference threshold, difference limen) or intensity of the stimulus discernible in prescribed conditions of stimulation. [NIH]

Thrombophlebitis: Inflammation of a vein associated with thrombus formation. [NIH]

Thrombosis: The formation or presence of a blood clot inside a blood vessel. [NIH]

Thrombus: An aggregation of blood factors, primarily platelets and fibrin with entrapment of cellular elements, frequently causing vascular obstruction at the point of its formation. Some authorities thus differentiate thrombus formation from simple coagulation or clot formation. [EU]

Time Factors: Elements of limited time intervals, contributing to particular results or situations. [NIH]

Time Management: Planning and control of time to improve efficiency and effectiveness. [NIH]

Tin: A trace element that is required in bone formation. It has the atomic symbol Sn, atomic number 50, and atomic weight 118.71. [NIH]

Tinnitus: Sounds that are perceived in the absence of any external noise source which may take the form of buzzing, ringing, clicking, pulsations, and other noises. Objective tinnitus refers to noises generated from within the ear or adjacent structures that can be heard by other individuals. The term subjective tinnitus is used when the sound is audible only to the affected individual. Tinnitus may occur as a manifestation of cochlear diseases; vestibulocochlear nerve diseases; intracranial hypertension; craniocerebral trauma; and

other conditions. [NIH]

Tissue: A group or layer of cells that are alike in type and work together to perform a specific function. [NIH]

Tolerance: 1. The ability to endure unusually large doses of a drug or toxin. 2. Acquired drug tolerance; a decreasing response to repeated constant doses of a drug or the need for increasing doses to maintain a constant response. [EU]

Tooth Preparation: Procedures carried out with regard to the teeth or tooth structures preparatory to specified dental therapeutic and surgical measures. [NIH]

Total Quality Management: The application of industrial management practice to systematically maintain and improve organization-wide performance. Effectiveness and success are determined and assessed by quantitative quality measures. [NIH]

Toxic: Having to do with poison or something harmful to the body. Toxic substances usually cause unwanted side effects. [NIH]

Toxicity: The quality of being poisonous, especially the degree of virulence of a toxic microbe or of a poison. [EU]

Toxicologic: Pertaining to toxicology. [EU]

Toxicology: The science concerned with the detection, chemical composition, and pharmacologic action of toxic substances or poisons and the treatment and prevention of toxic manifestations. [NIH]

Toxins: Specific, characterizable, poisonous chemicals, often proteins, with specific biological properties, including immunogenicity, produced by microbes, higher plants, or animals. [NIH]

Trace element: Substance or element essential to plant or animal life, but present in extremely small amounts. [NIH]

Trachea: The cartilaginous and membranous tube descending from the larynx and branching into the right and left main bronchi. [NIH]

Training Support: Financial support for training including both student stipends and loans and training grants to institutions. [NIH]

Transfection: The uptake of naked or purified DNA into cells, usually eukaryotic. It is analogous to bacterial transformation. [NIH]

Translational: The cleavage of signal sequence that directs the passage of the protein through a cell or organelle membrane. [NIH]

Translocating: The attachment of a fragment of one chromosome to a non-homologous chromosome. [NIH]

Trauma: Any injury, wound, or shock, must frequently physical or structural shock, producing a disturbance. [NIH]

Tuberculosis: Any of the infectious diseases of man and other animals caused by species of Mycobacterium. [NIH]

Tumor marker: A substance sometimes found in an increased amount in the blood, other body fluids, or tissues and which may mean that a certain type of cancer is in the body. Examples of tumor markers include CA 125 (ovarian cancer), CA 15-3 (breast cancer), CEA (ovarian, lung, breast, pancreas, and gastrointestinal tract cancers), and PSA (prostate cancer). Also called biomarker. [NIH]

Ulcer: A localized necrotic lesion of the skin or a mucous surface. [NIH]

Unconscious: Experience which was once conscious, but was subsequently rejected, as the

"personal unconscious". [NIH]

Universal Precautions: Prudent standard preventive measures to be taken by professional and other health personnel in contact with persons afflicted with a communicable disease, to avoid contracting the disease by contagion or infection. Precautions are especially applicable in the diagnosis and care of AIDS patients. [NIH]

Urethra: The tube through which urine leaves the body. It empties urine from the bladder. [NIH]

Urinary: Having to do with urine or the organs of the body that produce and get rid of urine. [NIH]

Urine: Fluid containing water and waste products. Urine is made by the kidneys, stored in the bladder, and leaves the body through the urethra. [NIH]

Vaccination: Administration of vaccines to stimulate the host's immune response. This includes any preparation intended for active immunological prophylaxis. [NIH]

Vaccine: A substance or group of substances meant to cause the immune system to respond to a tumor or to microorganisms, such as bacteria or viruses. [NIH]

Vagina: The muscular canal extending from the uterus to the exterior of the body. Also called the birth canal. [NIH]

Varicose: The common ulcer in the lower third of the leg or near the ankle. [NIH]

Varicose vein: An abnormal swelling and tortuosity especially of the superficial veins of the legs. [EU]

Vascular: Pertaining to blood vessels or indicative of a copious blood supply. [EU]

Vasodilators: Any nerve or agent which induces dilatation of the blood vessels. [NIH]

Vein: Vessel-carrying blood from various parts of the body to the heart. [NIH]

Venous: Of or pertaining to the veins. [EU]

Ventilation: 1. In respiratory physiology, the process of exchange of air between the lungs and the ambient air. Pulmonary ventilation (usually measured in litres per minute) refers to the total exchange, whereas alveolar ventilation refers to the effective ventilation of the alveoli, in which gas exchange with the blood takes place. 2. In psychiatry, verbalization of one's emotional problems. [EU]

Ventral: 1. Pertaining to the belly or to any venter. 2. Denoting a position more toward the belly surface than some other object of reference; same as anterior in human anatomy. [EU]

Vertebrae: A bony unit of the segmented spinal column. [NIH]

Vertebral: Of or pertaining to a vertebra. [EU]

Vesicular: 1. Composed of or relating to small, saclike bodies. 2. Pertaining to or made up of vesicles on the skin. [EU]

Vestibule: A small, oval, bony chamber of the labyrinth. The vestibule contains the utricle and saccule, organs which are part of the balancing apparatus of the ear. [NIH]

Vestibulocochlear Nerve: The 8th cranial nerve. The vestibulocochlear nerve has a cochlear part (cochlear nerve) which is concerned with hearing and a vestibular part (vestibular nerve) which mediates the sense of balance and head position. The fibers of the cochlear nerve originate from neurons of the spiral ganglion and project to the cochlear nuclei (cochlear nucleus). The fibers of the vestibular nerve arise from neurons of Scarpa's ganglion and project to the vestibular nuclei. [NIH]

Vestibulocochlear Nerve Diseases: Diseases of the vestibular and/or cochlear (acoustic) nerves, which join to form the vestibulocochlear nerve. Vestibular neuritis, cochlear neuritis,

and acoustic neuromas are relatively common conditions that affect these nerves. Clinical manifestations vary with which nerve is primarily affected, and include hearing loss, vertigo, and tinnitus. [NIH]

Veterinarians: Individuals with a degree in veterinary medicine that provides them with training and qualifications to treat diseases and injuries of animals. [NIH]

Veterinary Medicine: The medical science concerned with the prevention, diagnosis, and treatment of diseases in animals. [NIH]

Vinyl Chloride: A gas that has been used as an aerosol propellant and is the starting material for polyvinyl resins. Toxicity studies have shown various adverse effects, particularly the occurrence of liver neoplasms. [NIH]

Viral: Pertaining to, caused by, or of the nature of virus. [EU]

Viral Load: The quantity of measurable virus in the blood. Change in viral load, measured in plasma, is used as a surrogate marker in HIV disease progression. [NIH]

Virulence: The degree of pathogenicity within a group or species of microorganisms or viruses as indicated by case fatality rates and/or the ability of the organism to invade the tissues of the host. [NIH]

Virus: Submicroscopic organism that causes infectious disease. In cancer therapy, some viruses may be made into vaccines that help the body build an immune response to, and kill, tumor cells. [NIH]

Vital Capacity: The volume of air that is exhaled by a maximal expiration following a maximal inspiration. [NIH]

Vitro: Descriptive of an event or enzyme reaction under experimental investigation occurring outside a living organism. Parts of an organism or microorganism are used together with artificial substrates and/or conditions. [NIH]

Vivo: Outside of or removed from the body of a living organism. [NIH]

Vocational Education: Education for specific trades or occupations. [NIH]

Waste Management: Disposal, processing, controlling, recycling, and reusing the solid, liquid, and gaseous wastes of plants, animals, humans, and other organisms. It includes control within a closed ecological system to maintain a habitable environment. [NIH]

White blood cell: A type of cell in the immune system that helps the body fight infection and disease. White blood cells include lymphocytes, granulocytes, macrophages, and others. [NIH]

Xenograft: The cells of one species transplanted to another species. [NIH]

X-ray: High-energy radiation used in low doses to diagnose diseases and in high doses to treat cancer. [NIH]

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