

## Environmental/Occupational Health

### Information About the Chronic Disease and Environmental Epidemiology Program

The CSTE Epidemiology Fellow will participate in a wide variety of applied epidemiology experiences within the Chronic Disease and Environmental Epidemiology (CDEE) Section of the Minnesota Department of Health (MDH). The CDEE Section includes three major program areas: (1) the Minnesota Cancer Surveillance System; (2) the Center for Occupational Health and Safety, and (3) special projects and studies, including the CDC-funded state asthma program and other activities primarily related to chronic respiratory or other environmentally-related diseases. CDEE currently includes about 45 staff, including six staff with doctoral degrees and an equal number with master's degrees. The section enjoys a unique relationship with the nearby University of Minnesota School of Public Health. Four section staff are adjunct professors in the School of Public Health and many section staff have obtained master's or doctoral degrees while working at MDH. Also, many students at the School of Public Health are able to serve internships at the MDH. MDH staff and University faculty frequently serve as co-investigators on a variety of studies and projects. More information about the activities of the CDEE section can be found at our web page at: <http://www.health.state.mn.us/divs/hpcd/cdee/index.html>

### Daily Activities and Data Analysis Projects

The candidate will have an opportunity to participate in a variety of section activities, depending on background and interests. The three major areas of study will include the following:

#### 1. Development and Utilization of Occupational Health Indicators

CSTE and NIOSH (2004) have previously developed a set of occupational health indicators to be used in monitoring trends and identifying priorities for occupational health and safety interventions. These occupational health indicators include such items as workplace injuries and illnesses reported by employers, work-related hospitalizations and deaths for specific conditions such as pneumoconiosis, asbestos-related cancer, and elevated adult blood lead. These data will be obtained from existing sources such as the state labor department, hospital discharge data, state cancer registry, state mortality records, and other sources as required. Under the guidance of senior staff, the candidate will have a leading role to: (a) Collect and analyze Minnesota data for at least 13 specified occupational health indicators using existing data systems based on criteria established by CSTE (2004); (b) Identify and maintain relationships with agencies, organizations, groups, and individuals who can provide and/or utilize appropriate surveillance data; and (c) Develop and implement strategies to disseminate and publish surveillance results, their interpretations, implications, and conclusions.

#### 2. Development and Testing of Environmental Health Indicators

Over the past year, the CDEE has been working with other state agencies and the University to identify opportunities for collaboration in the development of environmental health indicators. These environmental health outcomes (such as cardiovascular disease and asthma) would be used to monitor measurable health impacts of changes in environmental quality, such as reductions in fine particulates due to conversions of coal-fired power plants and reduced sulfur in diesel fuel. Dr. Jean Johnson is presently leading efforts at MDH to submit a grant application in further support of this activity. The section is currently a test site for software under development by CDC to facilitate analysis of ambient environmental data and health outcome data (case-crossover analysis). The candidate will work with senior staff and a biostatistician in developing and evaluating appropriate indicators.

### 3. Other Activities

The candidate will have additional opportunities to examine and interpret public health data sets and/or participate in implementation strategies. Three areas include: (a) Asthma. Several asthma related opportunities exist in CDEE for an epidemiology fellow. Minnesota was one of only three states participating in the Asthma Call-Back Survey in 2005 and is one of only 6 states that have received a 5-year CDC Asthma Implementation Grant. Data from the call-back survey will be applied to programming and interventions conducted by the Minnesota Asthma Program. The candidate will work closely with an asthma epidemiologist. In addition to working with the call-back asthma data, the candidate will have an opportunity to work with staff and other stakeholders to implement a strategic plan for work-related asthma. (b) Adolescent work and injury data. Through a previous NIOSH-funded surveillance grant, data are available from a longitudinal study of work experiences and injuries among 14,000 rural Minnesota adolescents. In addition to work and injury experiences, this data set also contains items such as BMI, smoking, alcohol use, sleep hours, seat belt use, etc. Many additional analyses and issues could be addressed with this dataset. (c) Iron mining cohort. Minnesota produces about 70% of the iron ore utilized in the US and thousands of Minnesotans have been employed in this industry over many decades. Occupational and environmental health issues have frequently been raised related to the mining of taconite ore. A previously established cohort of over 70,000 miners provides opportunities for record linkage studies and mortality follow-up studies. Opportunities exist to participate in the development of protocols and grant applications to utilize this resource and help resolve a long-standing public health issue in the state.

Opportunities for Surveillance System Evaluations and Work on Interdisciplinary Teams  
The CSTE Epidemiology Fellow will be expected to have or develop the skills needed to: review the published literature; acquire and manipulate data sets in various formats; utilize database and statistical software to edit and analyze data; evaluate the strengths and limits of the data, and prepare written reports and manuscripts. The CDC Fellow will work with staff in other departmental units and agencies to become familiar with the hospital discharge data set, mortality data, cancer registry data, and OSHA data; and would be expected to communicate with epidemiologists at the CDC and in other states.

#### Role in State Emergency Preparedness Plan

CDEE is currently engaged in planning activities with the MDH Office of Emergency Preparedness to develop plans for long-term surveillance activities as part of the State All-Hazards Emergency Response Plan. The candidate will participate in the emergency planning activities and discussions related to occupational, environmental, and chronic disease surveillance.

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| <b>Assignment Location:</b> | St. Paul, Minnesota                                                                                         |
| <b>Primary Mentor:</b>      | Allan N. Williams, MA, MPH, PhD<br>Epidemiologist Supervisor Senior                                         |
| <b>Advanced Degrees:</b>    | PhD, University of Minnesota (1994)<br>MPH, University of Minnesota (1982)<br>MA, Indiana University (1972) |
| <b>Secondary Mentor:</b>    | Jean Johnson, PhD, MS<br>Epidemiologist Principal                                                           |
| <b>Advanced Degrees:</b>    | PhD, University of Minnesota (1998)<br>MS, University of Minnesota (1983)                                   |