Occupational Health
Minnesota Department of Health, Health Promotion Chronic Disease/Chronic Disease Environmental Epidemiology
Saint Paul, Minnesota

Assignment Description
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 four major program areas:

1. The Minnesota Cancer Surveillance System (MCSS)
2. The Center for Occupational Health and Safety (COHS)
3. The epidemiology portion of the CDC-funded state Asthma Program and other activities primarily related to chronic respiratory diseases
4. The Environmental Epidemiology unit that includes the CDC-funded and state-funded Environmental Public Health Tracking and Biomonitoring programs.

CDEE currently includes about 45 staff, including 9 staff with doctoral degrees and 10 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 (currently we have one PhD candidate and one person who just completed her PhD). One current staff member is a former CSTE Epidemiology Fellows and there are six other former Fellows employed in other divisions of the MDH. MDH staff and University faculty frequently serve as co-investigators on a variety of studies and projects. More information about the CDEE section can be found at: http://www.health.state.mn.us/divs/hpcd/cdee/index.html.

The main MDH offices are located within the Minneapolis-St. Paul area - also known as the Twin Cities. Despite winter weather, this region consistently ranks very high in various surveys of best places to live. The high rankings reflect the many cultural, educational, artistic, and recreational opportunities available. Numerous city lakes, extensive bicycle and walking paths, hundreds of city and regional parks, nationally renowned orchestras and theaters, over a dozen universities and colleges, a diverse economy, outstanding health care, college and professional sports of every category, and a highly-educated population are just a few of the quality-of-life attributes of the Twin Cities.
Day-to-Day Activities

The candidate will have an opportunity to participate in a variety of section activities, primarily within the Center for Occupational Health and Safety (COHS). There will be two broad categories of activities:

1) Activities that support and expand the goals of a federally-funded occupational surveillance program
2) Activities that go beyond the surveillance program and utilize and expand upon other COHS activities

1) Activities related to the Minnesota Occupational Health and Safety Surveillance Program:

For many years the National Institute for Occupational Safety and Health (NIOSH) has provided grants and technical assistance to states to enhance their capacity for occupational health and safety surveillance. In 2010, Minnesota received a five-year grant from NIOSH to support occupational surveillance, joining almost two-dozen other states as part of NIOSH’s state-based surveillance program (http://www.cdc.gov/niosh/programs/surv/grants.html).

This grant was renewed for an additional five years (2015-2020). To improve the consistency and availability of the surveillance data, NIOSH and CSTE developed a set of occupational health “indicators” to be used in surveillance of work-related injuries and diseases and for other measures of occupational hazards. These occupational health indicators include such items as the numbers and rates of workplace injuries and illnesses reported by employers, asbestos-related cancer, elevated adult blood leads, and work-related hospitalizations and deaths for specific conditions such as occupational lung disease. They also include measures such as the number of workers employed in high risk occupations. These indicators utilize data from existing sources such as the state labor department, hospital discharge data, state cancer registry, state mortality records, and other sources as required. States are also encouraged to explore new or state-specific indicators (disease or hazard surveillance).
(Day-to-Day Activities Continued 1)
The COHS surveillance grant supports the development, analysis, and dissemination of 22 indicators, as well as a variety of related occupational health initiatives. The Fellow will have opportunities to collaborate with COHS and other CDEE epidemiologists to apply a range of epidemiologic skills and develop specific areas of expertise in a variety of program-supporting activities:

a. Participate in the collection, analysis, and interpretation of Minnesota data for 22 specified occupational health indicators using existing data systems based on criteria established by CSTE (2015)
b. Aid in further refinement and break down of the 22 occupational health indicators to provide descriptive epidemiological results and identify at risk occupational or demographic groups
c. Identify, develop, and evaluate new surveillance approaches for indicators of occupational health in Minnesota
d. Identify and maintain relationships with agencies, organizations, groups, and individuals who can provide and/or utilize appropriate surveillance data
e. Develop and implement strategies to disseminate and publish surveillance results, their interpretations, implications, and conclusions
f. Develop new communications strategies for occupational health and safety, including for example, a periodic e-newsletter
g. Develop articles for the NIOSH eNews electronic newsletter.

2) Other Occupational Health Activities

The candidate will have additional opportunities to collect, examine, and interpret public health data sets and/or participate in implementation strategies according to his/her interest. Four focus areas include:

a. Work-Related Asthma:
   Several asthma related opportunities exist in CDEE for an epidemiology Fellow. CDEE has had a CDC-funded asthma initiative since 2001 and both the Asthma Program and the COHS are collaborating to address work-related asthma â€” one of the most prevalent work-related conditions. The Fellow will have an opportunity to work with an experienced asthma epidemiologist in examining BRFSS and other sources of asthma surveillance data. The Fellow will also have an opportunity to aid in development of an investigation of health behaviors and attitudes among cosmetologists, an occupational group at risk of developing work-related respiratory disease, after introduction of a law requiring health and safety continuing education credits to retain licensure. In addition, the Fellow will have an opportunity to work with Asthma and COHS program staff and other stakeholders to develop and 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., that could be used to examine the contribution of health behaviors to adolescent work and injury experiences. The Minnesota Student Survey, a state-wide survey of 9th and 11th grade students conducted every three years, also provides a significant data set of behavioral (including working for pay), academic, and health indicators for Minnesota adolescents. The Fellow could use these datasets to formulate many additional analyses to address several issues of importance to adolescent work safety.

c. Linkage and follow-up studies of occupational cohorts:
CDEE has two historical occupational cohorts that can be examined by a Fellow through linkage studies or classic follow-up protocols.

i. The iron ore mining cohort includes approximately 70,000 individuals ever employed in Minnesota’s taconite mining industry. COHS staff have collaborated with Univ. of Minnesota faculty on a series of studies of this cohort, including a radiographic study of respiratory disease, case-control studies of mesothelioma and lung cancer, and a cohort mortality study. Annual follow-up of this cohort via record linkage with the state cancer registry is anticipated.

ii. The Conwed cohort consists of 5,700 individuals previously employed at a ceiling tile manufacturing plant during the years in which asbestos was used in the manufacturing process. Previous COHS studies have demonstrated a high prevalence of radiographic abnormalities among this cohort as well as a high number of mesothelioma cases. Further studies and analyses by a Fellow could include: an updated record-linkage study of mesotheliomas and lung cancers among workers and their spouses, and a follow-up mortality study of this cohort.

d. Behavioral Risk Factor Surveillance Survey:
For the years 2013 and 2014 two questions asking about an individual’s industry and occupation were added to the Minnesota Behavioral Risk Factor Surveillance Survey (BRFSS). The Fellow would have the opportunity to utilize these variables with a number of other variables detailing health behaviors and present chronic conditions to determine if work is an associated factor with these health and behavior outcomes.
Potential Projects

Surveillance Activity  Occupational Health Surveillance

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These occupational health indicators include such items as the numbers and rates of workplace injuries and illnesses reported by employers, asbestos-related cancer, elevated adult blood leads, and work-related hospitalizations and deaths for specific conditions such as occupational lung disease. They also include measures such as the number of workers employed in high risk occupations. These indicators utilize data from existing sources such as the state labor department, hospital discharge data, state cancer registry, state mortality records, and other sources as required. States are also encouraged to explore new or state-specific indicators (disease or hazard surveillance).

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Surveillance Evaluation

Occupational Health Surveillance Evaluation

As described in the Daily Activities and Data Analysis Projects section, there will be many opportunities for data analysis utilizing a variety of existing occupational health surveillance data as well as data developed from previous or ongoing studies. The Fellow will have opportunities to evaluate any of the existing 22 indicators of occupational health or perhaps develop and evaluate a new indicator for occupational surveillance.

A previous CSTE Fellow compiled and evaluated various sources of data for surveillance of carbon monoxide poisonings. Another previous CSTE Fellow compiled and evaluated surveillance data from the birth defects information system at MDH. Yet another previous Fellow (still employed in CDEE) conducted a mortality follow-up study of a community cohort who resided near a vermiculite processing plant and were exposed to asbestos.

Major Project

Occupational Health Content Area

The candidate will have the opportunity to choose from one of the following areas to fulfill the major project area requirement:

1) Work-Related Asthma:
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**Preparedness Role**
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. All CDEE staff are expected to complete a series of training classes (live or web-based) related to emergency preparedness.

Previous CSTE Fellows participated in a variety of table top exercises and planning for radiological, biological, and chemical hazards. Many opportunities will exist for a Fellow to actively participate in wide range of emergency preparedness activities and planning.

**Mentors**

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