Assignment Description

CPPE is recruiting a CSTE Fellow to participate in a variety of chronic disease activities. He/she will be located within the Center’s Research, Evaluation and Measurement (REM) with opportunities to work across DC Health administrations, and provide epidemiologic support, especially to the Bureau of Cancer and Chronic Diseases that is charged with the responsibility of reducing the incidences, morbidity and mortality of cancer and chronic disease in the District of Columbia. The fellow will also have the opportunity to work with the Health Emergency, Preparedness and Response Administrations (HEPRA) in monitoring or conducting emergency operations. The fellow will conduct epidemiologic studies on chronic diseases, develop epidemiologic reports and conduct spatial analysis using the Geographic Information System (GIS) software, ArcGIS 10.4.

Day-to-Day Activities

The Fellow will join a team of data analysts, epidemiologists and statisticians in data analysis and production of statistical reports for tracking progress, program and policy development. He/she will be mentored in using methods of data analysis to achieve research goals. The Fellow will participate in office meetings and will have the opportunity to collaborate with other team members on new and existing projects. He/she will review journal articles and lead discussions at the CPPE monthly journal club meeting, and assist with development of training materials. The implementation of the Health People 2020 plan is an ongoing activity within CPPE and the fellow will be engaged with other staff in monitoring chronic disease indicators. He/she will meet weekly with mentors to discuss issues and priorities, as well as problems the fellow could encounter in carrying out his/her assignments. The Fellow will have the opportunity to present to programs within DC Health, national meetings, and publish project work in peer-reviewed journals.

Specific activities include the following:

- Performs activities associated with the collection, management, analysis and dissemination of surveillance and survey data.
- Assists with data collection, data entry and analysis for surveillance programs.
- Performs statistical analysis of large complex data sets and local data sets.
- Evaluates and analyzes data to make recommendations for public health policies, promotion, and disease prevention.
- Conducts syndromic surveillance and determines its use for various chronic diseases.
- Analysis of the DC Quitline data
- Conducts research and analysis related to chronic diseases on issues of importance to the District of Columbia.
- Prepares reports for publication in peer-reviewed journals.
**Potential Projects**

**Surveillance Activity** Using the ESSENCE Syndromic Surveillance System for tracking chronic diseases in the community.

The emergency department (ED) is a key setting to monitor and detect patients with cardiovascular disease. Multiple ED syndromic surveillance systems across the United States primarily rely on chief complaints (CC) to monitor and detect health events, because CC provide the timeliest data to detect aberrant patterns. Whether CC alone can accurately detect patients presenting to the ED with cardiovascular disease or other chronic conditions is unknown; using discharge diagnosis (DD) along with CC might improve surveillance. In this project, the fellow would ascertain the value of syndromic surveillance in improving the use of CC and DD to detect ED visits related to cardiovascular disease and other chronic conditions in adult patients. The fellow will determine the use of the system in tracking chronic diseases in communities that are concerned with exposures to environmental contaminants due to the increase in implementation of several development projects in the District of Columbia. The fellow will use the Tableau software to create a dashboard of chronic disease data that will be made available to the public.

**Surveillance Evaluation**

Evaluation of the District of Columbia Cancer Registry

The District of Columbia Cancer Registry (DCCR) collects, maintains and reports cancer incidence on all cancers diagnosed and/or treated in the District. DCCR publishes annual reports on the incidence and mortality of cancer in the District by tracking all types of malignant cancers and certain types of benign tumors. DCCR gathers its data from acute care hospitals, labs and other reporting agencies mandated under the existing law (Rule: 22-B215). The DC Department of Health (DOH) is also part of a reciprocal exchange agreement with neighboring states to help capture all occurrences of cancer among District residents.

The District’s cancer data is subjected to stringent protocols of completeness, accuracy and timeliness, making it one of the most successful surveillance programs at DOH. Academic medical centers, researchers, public health and advocacy agencies, and interested lay persons rely heavily on the reports generated by DCCR. The data is closely reviewed by the North American Association of Central Cancer Registries (NAACCR) and the National Program of Cancer Registries (NPCR). Some of the system attributes that will be evaluated are: simplicity, flexibility, data quality, acceptability, sensitivity, predictive value positive, representativeness, timeliness, stability.

**Major Project**

Major Risk Factors and the Burden of Chronic Diseases in the District of Columbia.

Chronic disease has become a serious public health concern in the United States today. Data from the Centers for Disease Control (CDC) show that approximately 1.6 million Americans die from chronic diseases each year. One in four Americans have more than one chronic disease condition, and chronic conditions are associated with decreased quality of life, increasing health-care expenditures, and premature death. Cardiovascular disease (heart disease and stroke), cancer, diabetes, and respiratory diseases such as asthma are prevalent chronic diseases that disproportionately affect residents in the District of Columbia. The incidence of chronic diseases within District communities has grown to epidemic proportions and has become a major public health challenge. While some risk factors such as genetic predisposition cannot be modified, many others, such as obesity and hypertension can be modified, treated, or controlled. DC is divided geographically into eight electoral Wards. Personal
behaviors that constitute risk factors for chronic disease also vary among the Wards. The rates of asthma and diabetes are three times higher in Wards 7 and 8 than in the wealthier Wards 2 and 3. Overall, 55% of adults in DC are overweight, but in Wards 7 and 8, the rate is 72%. This study describes the demographics, disease prevalence and predictors of chronic diseases in various parts of the District of Columbia.

Additional Project Determine the Burden of Cancer and the Role of Obesity

In 2012, 2,954 District residents were diagnosed with cancer and 1,081 died. Between 2011 and 2012, the number of new cancers diagnosed decreased by 5% and the number of deaths decreased by 1%. Between 2000 and 2010, the cancer incidence rates in the District of Columbia decreased from 528.7 to 499.5 new cases per 100k. However, age adjusted incidence rates were mostly stable for males and females. The rates of obesity are increasing worldwide and this condition is now recognized as a leading preventable cause of cancer. Several diseases are directly related to obesity, including diabetes, hypertension, atherosclerosis, stroke, musculoskeletal disorders, and a diverse range of malignances-such as breast cancer. Obesity is associated with an increased risk of postmenopausal estrogen receptor-positive breast cancer and worse cancer-related outcomes for all breast tumor subtypes. This study is designed to evaluate the contribution of obesity to the development of the most commonly diagnosed cancers in the District of Columbia.

Additional Project Racial Differences in Mortality for Breast and Prostate Cancer

In 2012, prostate cancer was the most commonly diagnosed cancer among men in the United States and the number two cause of cancer deaths (2012). Seventy three percent (72.3%) of prostate cancers are diagnosed in men between the ages of 55 and 74 years. About 60.3% of prostate cancer deaths occur in men between the ages of 60 and 84 years. It was the leading cause of cause of cancer deaths in the District (31.8 per 100,000). Also, in 2012, breast cancer was the number two cause of deaths among women in the United States and is the most commonly diagnosed cancer. In the District of Columbia 72.0% of breast cancer cases are diagnosed in women between the ages of 45 and 74 years. It is the most commonly diagnosed cancer in the District (130.3 per 100,000). It is also the leading cause of cancer deaths in the District (31.1 per 100,000). Ward 3 had the highest incidence rate of breast cancer (178.7 per 100,000) in 2012 and Ward 2 had the highest mortality rate of breast cancer (54.5 per 100,000). This study is designed to identify the determinants of racial differences in mortality for breast cancer in order to design suitable intervention measures.

Preparedness Role

The CSTE fellow will participate in emergency response training, exercises, and actual events based on the State Emergency Preparedness plan, especially events classified as National Special Security Events (NSSEs). He/she will participate in other emergency preparedness activities, disease surveillance and investigation during such events. The Fellow will conduct regular syndromic surveillance with other program epidemiologists and produce reports. The fellow will join other epidemiologists in responding to disease outbreaks and will serve as on-call epidemiologists during this period.
Additional Activities

The fellow may also be involved in other chronic epidemiology activities such as the following:

- Assessment of cancer burden attributable to smoking
- The spatial distribution of cardiovascular disease in obese individuals to identify pockets of need for directing appropriate resources.
- Determine the spatial epidemiology of asthma in the District of Columbia.
- Develop a database for childhood obesity and determine the state of obesity in children.
- Perform ward-level analysis of head and neck cancer disparities in the District of Columbia and determine the need for early screening and education for patients with risk of developing the disease.

Mentors

Primary
John Davies-Cole PhD, MPH
State Epidemiologist

Secondary
Shalewa Noel PhD, MPH
Bureau Chief, Cancer and Chronic Disease Prevention Bureau