

ID: 58511631

Chronic Disease - Host Site Description
Kentucky Department for Public Health

Assignment Location: Frankfort, US-KY
Kentucky Department for Public Health
Division of Prevention and Quality Improvement

Primary Mentor: Adam Berrones, PhD, MS
Epidemiologist III (working title: Data Analytics Manager)
Kentucky Department for Public Health

Secondary Mentor: Elizabeth Goode, MPH
Director, KDPH Division of Prevention of Quality and Improvement
Kentucky Department for Public Health

Work Environment
Hybrid

Assignment Description

Established in 2006, the Kentucky Department for Public Health Division of Prevention and Quality Improvement (DPQI) is the cornerstone of state public health efforts to address chronic disease through prevention and assuring health care access for the underserved population. The DPQI includes both the Chronic Disease Prevention Branch and the Health Care Access Branch, bridging the gap from research, discovery and development to delivery to improve the health status of Kentuckians. In addition, DPQI works closely with the Division of Epidemiology, and together have many partnerships with universities, professional organizations, and other public health agencies.

The Fellow will participate in the day-to-day activities conducted by DPQI staff to address health disparities, including participating in chronic disease meetings; analyzing data and writing surveillance reports; designing and presenting chronic disease infographics; creating and delivering COPD surveillance and educational programs, participating in conference calls with federal, local and regional partners; attending departmental meetings as well as local, regional and national conferences; enhancing statewide cerebrovascular disease (stroke) surveillance by analyzing hospitalizations data; and, last, doing a deep-dive into nutrition, physical activity, and obesity data with the ultimate goal of generating a map and evaluating this program's activities.

Additionally, the Fellow will spend considerable time evaluating the quality and soundness of data over time of the Kentucky Behavioral Risk Factor Survey (KyBRFS). As mentioned, the KyBRFS is a vital part of DPQI and serves as a primary data source for a variety of programmatic work across the entire Department. In order to achieve this, the Fellow will attend regular CDC meetings with our KyBRFS program manager and lead data analyst/epidemiologist in order to bolster a working knowledge base of the historical and current challenges, strengths, and weaknesses of the program.

Finally, there will be some opportunity for the Fellow to work across the various Divisions in our Department, up to 10% or as needed has been assigned for the Division of Epidemiology; for example, the Fellow may assist with epidemiological research in infectious disease outbreaks and processing/cleaning data for local, regional, or state investigations.

The Fellow should have experience or a keen interest in learning and expanding R programming skills, especially for web-based applications in R Shiny. Dashboards, reports, and interactive reports using R will be focused upon.

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Describe Statistical and Data Analysis Support, Such as Databases, Software, and Surveillance Systems Available to the Fellow

The Fellow would have access to statistical analysis software including SPSS, SAS, Excel, R, QGIS and Epi Info and the REDCap data collection software. An interest or experience in developing R Shiny web-based applications will be ideal. Several staff members are versed in using each of these analysis software and are available to assist the fellow. Microsoft Access and Microsoft Office programs are available to all staff. The fellow may become an active user of systems such as National Syndromic Surveillance Program (NSSP), American Heart Association's Get With The Guidelines stroke registry, and would gain experience using Business Objects software to retrieve data from them. Additionally, the Kentucky Health Information Exchange (KHIE), which gathers and houses clinical data from healthcare facilities across the state and the fellow may have access to this data for various projects. KHIE is integrated with public health surveillance and immunization registry data collection and electronic case reporting is being implemented for notifiable disease conditions. Additionally, surveillance tracking for chronic disease programs have been implemented using the REDCap system. The Fellow may be enrolled in EPI-X, the CDC Epidemic Information Exchange, and can become a user in the National Healthcare Safety Network (NHSN). KDPH epidemiologists and other persons with data analysis responsibilities meet in a monthly Data Users Workgroup, coordinated by the Division of Prevention and Quality Improvement, where updates and ideas are shared between individuals and groups on current data practices, analysis solutions, etc., across the department and with academic representatives. Several current staff are well-versed in R as well, so the fellow may have the opportunity to work in that software as well.

Projects

Surveillance Activity Title: Enhancing Cerebrovascular Disease (Stroke) Surveillance in Kentucky

Surveillance Activity Description:

Strokes are a leading cause of mortality and disability nationwide. Kentucky's stroke prevalence rate among adults is higher than the national average (2022 Behavioral Risk Factor Surveillance System Data: 4.6 KY vs. 3.4% USA). The high morbidity and mortality are, in part, due to Kentuckians having higher prevalence rates of the common risk factors for stroke, namely: high blood pressure, high cholesterol, smoking, overweight/obesity, and diabetes. In addition to the high morbidity and mortality, there is a significant economic burden associated with the disease.

The principal effort in the state to monitor stroke prevalence and severity is led by the Stroke Encounter Quality Improvement Project (SEQIP) that was created in 2009. In summary, SEQIP is a statewide quality improvement initiative created by the Kentucky Heart Disease and Stroke Prevention Task Force - Cardiovascular Health Delivery Systems Subcommittee, the Kentucky Heart Disease and Stroke Prevention (KHDSP) Program, and the American Heart Association/American Stroke Association (AHA/ASA) to advance stroke systems of care in Kentucky by developing collaboration among member hospitals to improve evidence-based performance measures for stroke care.

Pursuant to KRS 211.575, which requires KDPH to establish and implement a plan to address continuous quality improvement for stroke care, KDPH is required to provide an annual report to the Governor and the Legislative Research Commission that includes data, related findings, and recommendations to improve the delivery of stroke care efforts in Kentucky.

The principal strength of the American Heart Association's "Get With The Guidelines" (GWTG) registry program is reliable abstracted stroke clinical data for quality improvement and research analyses. However, the GWTG stroke registry does NOT contain all strokes occurring statewide in Kentucky as certified stroke center designation is the trigger for inclusion into the stroke registry. It is estimated that more than 75 to 90% of all Kentucky strokes do appear in the

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registry. But this picture is not fully complete. The goal of this surveillance activity is to more thoroughly understand the nature, severity, and type of strokes in the other 25% that are not routinely analyzed.

Therefore, The Fellow will use a variety of Kentucky Cabinet for Health and Family Services data such as inpatient, outpatient, and emergency department hospitalizations, as well as Department for Medicaid claims, Kentucky Office of Vital Statistics (OVS) death certificate data, and other data sets, to more completely quantify the actual number of annual statewide strokes, and to determine more precisely the severity of stroke prevalence and their overall impact to critical care medical services.

Surveillance Activity Objectives:

Developing a robust and comprehensive statewide cerebrovascular disease (stroke) surveillance system would allow for more careful monitoring and would fully categorize the burden. These activities would promote health equity, and epidemiology of statewide strokes. Using GWTG data, and other data sets, the Fellow will be required to:

- Assess the magnitude of stroke in Kentucky
- Describe populations at risk
- Identify associated risk factors
- Monitor trends over time
- Provide the basis for designing and implementing interventions
- Monitor and evaluate the effectiveness of interventions

The Fellow will be required to create a recurring monthly or quarterly report or brief technical memo quantifying prevalence, incidence, morbidity and mortality of statewide strokes.

Surveillance Activity Impact:

Regularly quantifying the full picture of strokes in Kentucky will strengthen SEQIP's initiatives and will enhance the state's understanding of our capacity of acute hospital beds, rehabilitation facilities, etc. The findings may shed light on new requirements, or perhaps policy changes, for community care coordination.

Surveillance System Evaluation Title: Longitudinal Evaluation of the Kentucky Behavioral Risk Factor Survey (KyBRFS)

Surveillance System Evaluation Description:

The Behavioral Risk Factor Surveillance System (BRFSS) is the nation's premier system of health-related telephone surveys co-sponsored by the Centers for Disease Control and Prevention (CDC) and the Kentucky Department for Public Health. BRFSS collects data in all 50 states, the District of Columbia and three U.S. territories. Personal identifying information, such as name or address, is not collected. In Kentucky, the BRFSS program is referred to as KyBRFS (Kentucky Behavioral Risk Factor Survey) and data from each individual surveyed are combined to determine the health practices of Kentuckians. This information is then combined with other states' data to provide national health behaviors estimates.

Data from the KyBRFS are used to:

1. Analyze health trends
2. Develop policies and legislation
3. Plan and to measure the progress of prevention initiatives
4. Monitor health goals, such as those stated in Healthy Kentuckians 2020 and Healthy People 2030
5. Educate the public about risk behaviors and preventive health practices
6. Provide data for preparation of budgets, contracts and grants

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Because a variety of KDPH programs utilize and report KyBRFS data it is of paramount importance the data quality, data integrity, and data accuracy are measured and understood through a direct longitudinal analysis. This evaluation is not an analysis of KyBRFS data; rather, it is an analysis of previously analyzed KyBRFS data in terms of record completeness, statistical power, and longitudinal trends of the data itself in a year-over-year manner.

Surveillance System Objectives:

- Longitudinal data analysis research on all variables in KyBRFS
- Participant counts/survey responses over time; completeness of observations
- Geographical considerations or biases
- Which metrics have been removed? Included? Modified?
- Review the impact of two key changes to the BRFS system; namely, the impact of incorporating cell phone respondents, and adoption of a more advance weighting method that were intended to generalize the data
- Statistical power analysis

The Fellow will be required to draft a comprehensive detailed report of their findings with respect to quality assurance of KyBRFS data that addresses the soundness of data.

Surveillance System Impact:

The primary benefit of analyzing longitudinal KyBRFS data is assessing data quality, data integrity, and data accuracy through a direct longitudinal analysis that will enhance the public's understanding of how KyBRFS data are used and presented, or could be used and presented. Attributing quality assurance metrics to KyBRFS data is key to understand any unknown chronological limitations that may be currently unknown.

Major Project Title: Chronic Disease Burden Infographics

Major Project Description:

KDPH aims to enhance understanding of the determinants of chronic diseases in populations and how to intervene most effectively to reduce morbidity and mortality due to chronic diseases. The Fellow will work with a variety of program administrators in chronic disease prevention and control programs to learn about public health's role in preparing, preventing, and promoting sound healthful practices that reduce disease incidence.

Major Project Objectives:

- Increase awareness of chronic disease in Kentucky by creating infographics for at least 2-3 programs
- Build expertise and high-quality systems for long-term community surveillance of chronic noncommunicable diseases, especially stroke
- Establish a chronic disease infographic workgroup (form a monthly meeting) with key program stakeholders to share best practices and provide data updates
- Establish geographic-specific priorities with a focus on social determinants of health for the prevention and management of chronic diseases, especially stroke, to achieve effective prevention and control
- Develop R Shiny applications to facilitate interactive data visualization presentations

Major Project Impact:

To advance the public's health by promoting a research-based approach to the prevention and management of chronic disease and educating future leaders of the field. Making diligent use of easy-to-understand information, in the form of infographics, will improve the readability of technical information, which hopefully can bring about healthy behavioral changes.

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Additional Project #1 Title: COPD Surveillance and Education

Project #1 Type: Major Project

Project #1 Description:

Chronic obstructive pulmonary disease (COPD) affects about 300 million people worldwide. Household air pollution affects almost 3 billion people worldwide and is a major risk factor for COPD. Identifying as non-smoker is relatively common for those with COPD, as an estimated 25% to 45% of patients with COPD worldwide have never smoked. Owing to occupational exposures, in part, rural populations are at higher risk for COPD than urban residents as are minorities such as African Americans. While KDPH has had some success in recent years decreasing the overall prevalence of smoking, tobacco and tobacco-related products are in Kentucky are consumed at higher rates versus the national average. In late 2016, the department for Public Health collaborated with state partners to create a Kentucky COPD Advisory Board. The board meets quarterly (March, June, September, December) to address COPD issues in the state.

Project #1 Objectives and Expected Deliverables:

- Decreasing smoking and decreasing usage of tobacco related products has been earmarked as a Top Health Priority for KDPH.
- To help achieve this goal, the Fellow will be responsible for analyzing COPD program data, including death certificates, inpatient, outpatient, emergency department claims, and Medicaid data, to categorize the populations, regions most at risk of developing COPD. The Fellow will work with the Kentucky COPD Advisory Board to help define a specific action plan by providing strategic recommendations.

Project #1 Impact:

By emphasizing surveillance and education, the COPD community can come together to raise awareness and promote better understanding of COPD, which affects millions of Americans. Early diagnosis and treatment of COPD can improve quality of life; in addition, patients, caregivers and health and community professionals would be positively impacted by the Fellow's activities in this domain.

Additional Project #2 Title: Nutrition, Physical Activity, and Obesity: Running with Trend Data

Project #2 Type: Major Project

Project #2 Description:

Physical Activity and Nutrition Program focuses on preventing obesity by supporting policy and environmental strategies to make healthy eating and active living accessible and affordable for everyone in Kentucky. The Fellow will assist with KDPH's State Physical Activity and Nutrition Program with planning, implementation, evaluation and sustainability of food service guidelines and food voucher programs, sustainability of early childhood education and breastfeeding efforts, and active transportation efforts.

Project #2 Objectives and Expected Deliverables:

- Review historical program data and attend monthly meetings
- Write a brief report or technical memo of statewide impact of programmatic work in the area of Nutrition, Physical Activity, and Obesity
- Identify vulnerable geographic areas to target and provide strategies for implementation of new programs
- Create a map of counties, regions, or communities where food insecurity, physical inactivity, and obesity rates are beyond average in hopes of identifying new statewide initiatives

Project #2 Impact:

Increase access to healthier foods; Increased purchasing and distribution of healthier foods; Increased access to programs that provide continuity of care for breastfeeding families; Increased state level policies and activities that

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improve nutrition, physical activity and breastfeeding families and Farm to early care and education. Increased policies, plans or community design changes that increase access to physical activity.

Please Describe the Fellow's Anticipated Role in Preparedness and Response Efforts – Include Activities and Time Allocation (Required Competency of Fellowship)

The DPQI is the cornerstone of state public health efforts to address chronic disease through prevention and assuring health care access for underserved populations. While preparedness and response will not be a major part of The Fellow's responsibilities, KDPH may allot up to 5 to 10% for this activity.

Please Describe the Fellow's Anticipated Role in Cluster and Outbreak Investigations – Include Activities and Time Allocation (Required Competency of Fellowship)

The Fellow may be able to work with the Infectious Disease branch to participate in a cluster and outbreak investigation if there is a need. While this type of effort will not be common it will certainly be possible to have up to 5 to 10% of time allocated to cluster and outbreak investigations.