Assignment Description

The fellow will be placed with the DSHS Environmental Epidemiology and Disease Registries Section (EEDRS), Environmental Surveillance and Toxicology Branch (ESTB). For over thirty years, ESTB has been the primary entity charged with addressing environmental and occupational public health issues that have the potential to impact Texans. ESTB programs include: Environmental Epidemiology; Occupational Health Surveillance and Epidemiology; Poison Epidemiology; Health Assessment and Toxicology; and the Texas Fluoridation Program. The branch has a highly-trained multidisciplinary team, with expertise in epidemiology, biostatistics, environmental health, toxicology, occupational safety and health, and medicine. ESTB works closely with other EEDRS branches, including the Texas Cancer Registry, and the Birth Defects Epidemiology and Surveillance Branch (which has one of the largest birth defects surveillance programs globally) to conduct epidemiology studies and non-communicable disease cluster investigations.

The fellow will work with the ESTB Environmental Epidemiology and Occupational Health Surveillance and Epidemiology programs. This placement will provide the mentee with ample opportunities to contribute to a wide array of environmental and occupational epidemiology projects, including research studies and time-sensitive investigations. Additionally, through ESTB’s existing collaborations, the fellow will have opportunities to work on cross-cutting topics with other DSHS programs. For example, they will interact with public health preparedness epidemiologists, and may participate in analyses of birth defects and cancer data with other EEDRS programs.

Day-to-Day Activities

The fellow will be stationed in the ESTB office in Austin, Texas. Their day-to-day activities will include work on their major project, including designing and conducting an epidemiology study, performing statistical analysis, and interpreting and writing up the results for publication.

Their day-to-day activities will also include work on their surveillance system activities. They will design, evaluate, and/or modify existing surveillance systems, and will develop related data work flows, standard operating procedures, and surveillance indicator definitions. They will perform routine activities required for surveillance system maintenance, such as data QA/QC. They will also analyze and interpret surveillance data to describe trends and will create public-facing data visualizations to present results.

The fellow will attend regular weekly meetings with other ESTB epidemiologists to learn about the activities of other program areas and provide status updates. In addition, the fellow will be given opportunities to attend meetings in other areas of DSHS to learn about epidemiologists work in other subject areas, such as opioid overdose prevention, infectious disease, and injury.
Periodically, the fellow will be asked to participate in ESTB time-sensitive investigations of acute environmental exposures or disease clusters and write informational briefs and summary reports.

The fellow may be asked to prepare responses to inquiries from other DSHS programs, government agencies, or the general public; and to prepare informational materials for the general public including prevention and health promotion messages.

The fellow will perform all of these activities with daily communication and support from both mentors.

**Potential Projects**

**Surveillance Activity**

**Environmental Public Health Tracking Surveillance Measure Development**

The fellow will contribute to the design and implementation of Texas Environmental Public Health Tracking (Tracking) surveillance. Enhanced Tracking in Texas will ensure that environmental hazard, exposure, and health outcomes data are easily-accessible to stakeholders and are available to be considered for public health actions.

The fellow will be responsible for developing at least two Tracking measures, following CDC’s Nationally Consistent Data Measures (NCDMs) for the National Environmental Public Health Tracking Program (https://www.cdc.gov/nceh/tracking/pdfs/NCDM_Requirements_April2017.pdf). ESTB staff have previously conducted an assessment of Texas data sources for Tracking and have begun collecting these data. The fellow will work closely with ESTB staff and data stewards to obtain any additional data needed for NCDMs, will assess strengths and limitations prior to obtaining new data, and will describe these in corresponding metadata files.

The fellow will determine the data sources, data stewards, ESTB staff responsibilities, and data work flows for each measure they design. They will create metadata files, and develop Tracking measure dashboards in Tableau, which will be integrated into DSH’s web-based portals for public use. They will create Standard Operating Procedures containing operational and measurement specifications accordingly so that the surveillance system can be easily sustained in the future.

**Surveillance Evaluation**

**Asbestosis and Silicosis Surveillance System Evaluation**

DSHS has been conducting asbestosis and silicosis surveillance since these became reportable in Texas over 30 years ago. The fellow will conduct an evaluation of the surveillance system. They will describe the system, including its purpose, how it works, resources needed for its operation, and its public health significance. They will then gather additional information about the system, including input from stakeholders, to assess its attributes (e.g. data quality, flexibility, sensitivity), efficacy and usefulness of the system. They will summarize their findings, conclusions, and recommendations in a report. Finally, they will share the results with ESTB during an oral presentation.
**Major Project**  
**Prevalence of Health-Related Risk Behaviors Among Working Adults in Texas**

The DSHS Occupational Safety and Health Surveillance Program conducts activities to track occupational injuries and illnesses that affect Texans and recommends intervention strategies. However, little is known about the health-related risk behaviors, chronic conditions, and health-related quality of life among working population in Texas.

Beginning 2018, the Texas Behavioral Risk Factor Surveillance System (BRFSS) survey added questions on industry and occupation. The fellow’s major project will use these data to examine the prevalence of health-related risk behaviors among Texas workers and identify high-risk subpopulations for interventions.

The fellow will evaluate the Texas BRFSS data using robust statistical and survey methods. The fellow will examine distribution of health behaviors, chronic conditions, access to care, and health outcomes by industry and occupation, and conduct subgroup analysis to identify high-risk worker populations.

The fellow is expected to disseminate the project findings through peer-reviewed publications, data briefs, conference presentations and stakeholder meetings.

**Additional Project**  
**Assessment of Texas Poison Center Network Data For Work-Related Exposure Surveillance**

DSHS has access to near real-time data for poisonings and hazardous substance exposures reported to the Texas Poison Center Network (TPCN). Beginning February 2018, TPCN implemented two additional questions—industry and occupation, for calls that reported a potential work-related exposure or poisoning. The industry and occupation (I&O) data are recorded as a narrative text.

The fellow will evaluate the TPCN data to describe the incidence and characteristics of work-related poisonings and hazardous substance exposures in Texas. The fellow will also use the National Institute for Occupational Safety and Health’s Industry and Occupation Computerized Coding System (NIOCCS) to code the I&O and describe data capture and quality of I&O information.

The fellow is expected to disseminate the project findings to ESTB staff and TPCN via oral presentation and generate manuscripts for peer-reviewed publications.

**Additional Project**  
**Evaluation of Adult Blood Lead Poisoning in Texas**

DSHS has been conducting adult blood lead surveillance since it became reportable in Texas over 30 years ago. DSHS Occupational Safety and Health Surveillance Program collaborates with DSHS Blood Lead Surveillance Branch and conducts additional follow-ups to elicit information on work, hobbies, take-home and environmental exposures, and education needs for preventing lead exposures.

The fellow will conduct an in-depth analysis of adult blood lead surveillance data to examine the prevalence and contributing factors of adult blood lead poisoning in Texas. The fellow will use robust statistical methods and data visualization techniques to identify high-risk populations and emerging issues for lead exposure prevention.
The fellow is expected to generate a summary report and factsheets for dissemination to the stakeholders and the general public.

**Preparedness Role**

To begin, the fellow will be required to take ICS-100 and ICS-200 trainings to become familiar with the Incident Command System (ICS) structure used by DSHS. ESTB staff is frequently involved in DSHS public health preparedness and response activities. Following Hurricane Harvey, ESTB successfully advocated for the addition of a permanent environmental epidemiologist position to the State Medical Operations Center (SMOC) structure. The fellow will also have opportunities to be involved in these preparedness and response activities. For example, if a natural disaster such as a hurricane or forest fire occurs, the fellow may have opportunities to be deployed to the SMOC to provide epidemiology support, or to participate in response/recovery activities in the field. They may also be able to participate in CASPERs to assess community needs following such events.

**Mentors**

**Primary**

Ketki Patel MD, PhD, MPH  
Epidemiologist III, Environmental Surveillance and Toxicology Branch

**Secondary**

Emily Hall MPH  
Manager, Environmental Surveillance and Toxicology Branch