

ID: 75996765

**Infectious Diseases, Infectious Diseases - HAI - Host Site Description
Houston Health Department**

Assignment Location: Houston, US-TX
Houston Health Department
PUBLIC HEALTH SCIENCE AND SURVEILLANCE

Primary Mentor: Osaro Mgbere, PhD, MS, MPH
Epidemiologist Manager (Behavioral and Clinical Surveillance Program)
Houston Health Department

Secondary Mentor: Kirstin Short, MPH
Bureau Chief - Epidemiology
Houston Health Department

Work Environment

100% In-person

Assignment Description

Overview of the Fellow's Assignment

The CSTE Applied Epidemiology Fellow (AEF) at the Houston Health Department (HHD) will gain immersive, hands-on experience through applied, practice-based training that integrates HIV surveillance, surveillance systems evaluation, advanced data analysis, emergency preparedness/outbreak response, cluster and outbreak response, and public health communication.

The Fellow will support surveillance activities for people with HIV in Houston/Harris County through the Medical Monitoring Project (MMP), a population-based system that monitors behavioral and clinical outcomes among persons with diagnosed HIV. Responsibilities will include sampling, recruitment oversight, data quality monitoring, weighted analyses, and interpretation of findings to inform HIV care continuum and health equity strategies.

The Fellow will also evaluate ongoing behavioral and clinical surveillance systems, including the Medical Monitoring Project (MMP), National HIV Behavioral Surveillance (NHBS), and the SHIELD Project. Key responsibilities include assessing core surveillance attributes (data quality, timeliness, representativeness, stability, and flexibility), examining sampling and weighting methodologies, and evaluating how surveillance data inform HIV prevention planning, linkage-to-care initiatives, and health equity strategies. The Fellow will also identify data gaps and redundancies, and produce actionable recommendations to improve system efficiency, analytic capacity, and translation of findings into public health action. Deliverables will include a formal evaluation report, a performance dashboard, stakeholder presentations, and opportunities for scholarly dissemination via manuscripts or conference abstracts.

The Fellow will conduct an advanced analytic project examining behavioral and clinical characteristics of persons with diagnosed HIV (2015-2024) using Houston MMP data, producing surveillance reports, technical briefs, abstracts, and manuscripts. The Fellow will also help support the design and development of a dynamic webpage for the Behavioral and Clinical Surveillance Program, enhancing data dissemination through dashboards, reports, and stakeholder-facing resources.

In addition, the Fellow will participate in structured rotations with HHD's Bureau of Epidemiology and the Outbreak Management Team within the Public Health Science and Surveillance Division. During these assignments, the Fellow will develop practical competencies in infectious diseases investigation, outbreak investigation, incident command operations, syndromic surveillance, and risk communication.

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Planned activities include participating in outbreak investigations (foodborne, respiratory, vaccine-preventable, and emerging infections), supporting case identification and contact tracing, conducting descriptive and analytic epidemiologic analyses, and contributing to situational reports and after-action evaluations. The Fellow will also engage in preparedness trainings, emergency exercises, and departmental drills to build all-hazards response capability.

This integrated training environment, supervised by seasoned epidemiologists and public health professionals with oversight by both primary and secondary AEF mentors, will ensure that the Fellow will acquire advanced skills in applied epidemiology, surveillance evaluation, outbreak response, and community-centered public health practice, public health communications, and prepare them for leadership roles in local, state, and national public health settings. Collectively, these assignments provide immersive experience in surveillance science, analytic rigor, emergency response, stakeholder engagement, and translational public health practice.

AEF Placement at Houston Health Department (HHD)

The Applied Epidemiology Fellow (AEF) will be placed in the Bureau of Epidemiology within the Public Health Science and Surveillance (PHSS) Division of the Houston Health Department (HHD). The PHSS Division, led by an Assistant Director, comprises nine specialized bureaus, including Epidemiology, Laboratory Services, Environmental Health, Maternal and Child Health, Vital Statistics, Pollution Control and Prevention, Informatics, Data Services, and Public Health Preparedness. Together, these bureaus form an integrated infrastructure that supports surveillance, laboratory science, analytics, and field response across the city.

The AEF will be embedded within the Behavioral and Clinical Surveillance Program in the Bureau of Epidemiology, gaining in-depth experience in HIV-related surveillance systems. Over the course of training, the fellow will rotate through all epidemiology programs, including HIV Core Surveillance, General Communicable Disease Surveillance, Vaccine-Preventable Diseases (VPD), Foodborne Disease, Healthcare-Associated Infections (HAIs), and the Outbreak Management Team. These rotations will provide hands-on exposure to routine surveillance operations, field investigations, and emergency response activities.

In addition, the fellow will complete structured rotations in the Bureau of Laboratory Services, Public Health Preparedness, HIV/STD Prevention and Viral Hepatitis, Environmental Health, and Informatics and Data Services. These cross-bureau experiences will strengthen competencies in laboratory-epidemiology integration, preparedness planning, environmental investigations, and advanced data systems.

As the epidemiologic and analytic backbone of HHD, the PHSS Division generates high-quality data and translates findings into actionable strategies that advance health equity and protect Houston's diverse communities. Through rigorous surveillance, interdisciplinary collaboration, and real-world application, the Division equips fellows with comprehensive, practice-based epidemiology experience.

Fellow's Anticipated Day-to-Day Activities

The Applied Epidemiology Fellow (AEF) will function as an integrated member of the Bureau of Epidemiology within the Public Health Science and Surveillance Division. Day-to-day activities will combine surveillance activities, data collection, field engagement, collaboration, and professional development.

On a routine basis, the fellow will:

- Onboarding processes
- New employee orientation
- Participate in mandatory trainings

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- Check emails and manage Outlook calendar
- Attend team and CDC meetings
- Assist with MMP Sample persons recruitment and interviews
- Conduct searches for hard to hard-to-reach sampled persons using search engines and available databases
- Conduct medical records abstractions of interviewed clients
- Assist with community engagement by reaching out to Community partners and providers whose patients are part of the MMP sampling frame
- Initiate work on the evaluation of the surveillance systems evaluation
- Participate in outbreak investigations, including line list development, case follow-up coordination, exposure assessment, and analytic summaries.
- Clean, manage, and validate data; assess completeness and quality; and apply sampling weights where appropriate.
- Analyze surveillance datasets (e.g., MMP, NHBS, SHIELD, HIV Core Surveillance, communicable disease data) using SAS, R, or other statistical software.
- Generate descriptive and analytic reports examining trends by time, place, and person.
- Develop tables, dashboards, and data visualizations for internal leadership, CDC reporting, and community stakeholders.
- Attend multidisciplinary meetings with HIV prevention teams, laboratory staff, environmental health specialists, and preparedness personnel.
- Contribute to HHD surveillance system evaluation activities and quality improvement initiatives.
- Assist with the preparation of epidemiologic reports, needs assessments, grant reports, abstracts, and manuscripts.
- Present findings to internal teams, Ryan White Planning Council members, and community partners.
- Participate in training sessions, regional epidemiology meetings, and emergency preparedness exercises.

Through these structured, mentored activities, the fellows will gain hands-on experience conducting disease investigations and translating surveillance data into real-world public health action, while developing leadership, analytical, and communication competencies essential for applied epidemiology practice.

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

The AEF will engage in projects spanning both descriptive and analytic epidemiology, utilizing advanced statistical techniques such as multivariate modeling, time-series analysis, and effect modification evaluation. Under the primary mentor, who is an Epidemiologist-Biostatistician/data scientist with over 25 years of experience, the fellow will benefit from expert guidance in tools like SAS, SPSS, R, JMP, Stata and OriginPro which will be available for the fellow's use. The primary mentor oversees four CDC-funded projects, two of which involve extensive datasets (2005-2024) with ongoing data collection.

These datasets, encompassing over 7,000 variables and numerous records, will provide a wealth of opportunities for analysis tailored to the fellow's interests. The fellow will also gain access to additional HHD infectious disease data repositories for expanded analytical projects. Key responsibilities will include management and cleaning of databases, conducting data analysis to generate surveillance and technical reports on selected diseases. The fellow will also assist in creating factsheets summarizing disease incidence, prevalence, trends, and outcomes for distribution to providers, patients, and the public, emphasizing descriptive epidemiology.

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In addition, the fellow will undertake research projects leveraging the available data and applying sophisticated statistical methods, including multivariate and time-series modeling. The AEF will prepare presentations, abstracts, and participate in manuscripts preparation for publication.

While the fellow will not be tasked with protocol development, he/she may occasionally assess and monitor the progress of ongoing projects under established protocols. These assignments will enable the fellow to build expertise in both descriptive and analytic epidemiology while contributing to critical public health initiatives.

Projects

Surveillance Activity Title: Surveillance of People with Human Immunodeficiency Virus in Houston/Harris County, Texas: Medical Monitoring System

Surveillance Activity Description:

Background:

The surveillance of people with Human Immunodeficiency Virus (HIV) in Houston/Harris County is conducted through the Medical Monitoring Project (MMP), a CDC-funded, population-based surveillance system designed to generate reliable, representative, and policy-relevant data on adults diagnosed with HIV in the United States. MMP serves as a critical component of the national HIV surveillance infrastructure, providing in-depth information on clinical outcomes, behavioral risk factors, social determinants of health, and access to prevention and care services. In Houston, MMP is implemented within the Houston Health Department's Bureau of Epidemiology and employs a rigorous, probability-based sampling methodology to ensure that findings are generalizable to the local population of adults with diagnosed HIV. Individuals are randomly selected from the National HIV Surveillance System (NHSS) sampling frame, minimizing selection bias and strengthening external validity. Eligible individuals are systematically recruited and administered standardized CDC-developed questionnaires that capture information on treatment adherence, viral suppression, healthcare utilization, prevention service uptake, mental health, substance use, stigma, and structural barriers to care. To enhance data completeness and validity, trained surveillance staff conduct structured medical record abstractions to obtain objective clinical indicators, including CD4 cell counts, viral load results, antiretroviral therapy prescriptions, and comorbid conditions. The integration of behavioral interview data with verified clinical information allows for comprehensive monitoring of the HIV care continuum and disparities across demographic and geographic subgroups. Collectively, MMP provides actionable epidemiologic evidence that informs HIV prevention planning, Ryan White resource allocation, program evaluation, and local Ending the HIV Epidemic strategies in Houston/Harris County.

The Applied Epidemiology Fellow (AEF), working in close collaboration with Medical Monitoring Project (MMP) staff within the Houston Health Department, will conduct population-based surveillance of a probability-selected, representative sample of people with HIV (PWH) in Houston/Harris County, Texas. Through this assignment, the fellow will gain hands-on experience in complex survey methodology and surveillance operations and will be directly involved in recruiting sampled persons, data collection, quality assurance, and the dissemination of epidemiologic findings to guide evidence-based public health decision-making.

MMP Training Requirements' Summary

- The trainee will complete a structured onboarding and competency-based training program to ensure full readiness for participation in the Medical Monitoring Project (MMP).

Foundational & Compliance Training:

- Complete required Ethics, Human Subjects Protection, Data Security, and Confidentiality trainings.
- Review the MMP Operations Manual and local Standard Operating Procedures (SOPs).

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- Complete Data Coordinating Center (DCC) Portal, MMP Tracking Module, and Voxco data collection system trainings.

Medical Record Abstraction (MRA) Training:

- Read the Medical Record Abstraction (MRA) Manual, including the technical manual.
- Review the paper MRA form and watch all MRA training videos.
- Shadow a senior abstractor conducting a live abstraction.
- Complete at least two supervised practice MRAs and review them with a senior abstractor.
- Undergo re-abstraction of the first completed MRA to ensure accuracy and quality control.

Interview Training:

- Review the MMP Questionnaire and Interview Guide.
- Study local policies on tokens of appreciation, referrals, and prevention messaging.
- Watch interview training videos and complete the required assessment.
- Review modules within the MMP Interview Learning Tree.
- Conduct four full mock interviews to demonstrate competency.

Recruitment Training:

- Read the Recruitment Guide and review recruitment scripts and materials.
- Complete recruitment training modules and practice mock recruitment scenarios.
- This structured training ensures competency in recruitment, interviewing, abstraction, data security, and quality assurance before independent fieldwork begins.

Surveillance Activities

The Applied Epidemiology Fellow will play a central role in implementing behavioral and clinical surveillance activities within the Bureau of Epidemiology. Key responsibilities and expectations will include the following, among others:

- **Provider & Facility Engagement:** Develop and maintain collaborative relationships with assigned healthcare providers and facilities to strengthen participant recruitment and ensure high-quality medical record abstraction.
- **Participant Recruitment & Case Ascertainment:** Recruit sampled individuals using multiple data sources, including surveillance registries, public databases, and advanced search tools to locate eligible participants.
- **Data Collection (Interviews):** Conduct structured telephone and in-person interviews with sampled individuals during each surveillance cycle, adhering to standardized protocols and confidentiality requirements.
- **Flexible Field Operations:** Maintain availability for evening and weekend work as necessary to maximize recruitment success and participant accessibility during active data collection periods.
- **Medical Record Abstraction (MRA):** Perform comprehensive medical record abstractions for interviewed participants and accurately enter clinical data into secure, web-based surveillance systems.
- **Activity Documentation & Tracking:** Maintain detailed documentation of recruitment efforts, participant disposition, and linkage/re-engagement activities using electronic tracking modules and surveillance databases.
- **Advanced Lead Investigation:** Conduct comprehensive lead searches, including for individuals identified as out of care, utilizing multiple databases and investigative methods to confirm eligibility and current status.
- **Linkage to Care & Re-engagement Coordination:** Collaborate with the Bureau of HIV/STD & Viral Hepatitis Prevention to facilitate linkage to care, re-engagement services, and referrals for participants who are out of HIV medical care or require supportive services.

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- Institutional Coordination: Coordinate recruitment efforts within institutional settings, including immigration detention facilities, jails, and prison systems, ensuring compliance with regulatory and ethical requirements.
- Field Verification Activities: Conduct field visits to verify residential status and confirm address validity for sampled individuals when necessary.
- Reporting & Performance Monitoring: Prepare and submit weekly activity reports summarizing recruitment metrics, abstraction progress, data quality indicators, and performance relative to funding agency benchmarks.
- Data Dissemination & Scientific Contributions: Contribute to the development, review, and dissemination of local and national data products, including surveillance reports, epidemiologic briefs, abstracts, conference presentations, and peer-reviewed manuscripts.
- Community Outreach & Engagement: Participate in community health fairs, outreach events, and public awareness activities to promote surveillance participation and strengthen community trust.
- Stakeholder & Advisory Board Engagement: Facilitate and participate in community and provider advisory board meetings and stakeholder workshops to enhance surveillance relevance, acceptability, and translation into public health action.

Surveillance Activity Objectives:

Project Objectives' Medical Monitoring Project (MMP)

- Collect data on health behaviors, access to care, treatment adherence, and clinical outcomes among people with HIV (PWH) receiving medical care in Houston/Harris County through the conduct of behavioral interviews and MRAs.
- Identify gaps in engagement, retention, and viral suppression to inform interventions aimed at improving the HIV care continuum and supporting the Ending the HIV Epidemic (EHE) initiative.
- Provide actionable, high-quality surveillance data to healthcare providers, planning councils, community organizations, and public health authorities to guide local HIV prevention and care programs.
- Apply rigorous probability-based sampling, medical record abstraction, and standardized interview instruments to ensure data quality, reliability, and representativeness.

Expected Deliverables

Submission of a weekly report of project-related activities that includes the number of searches, recruitments, number of participants referred to and linked to care, interviews, and MRAs completed.

The AEF will also support the Houston Project area in meeting all the CDC-stipulated targets within a given timeline:

- First interview completed by June 15, following the start of the cycle.
- First MRA completed by July 15, following the start of the cycle.
- 95% of the assigned sampled persons with a first contact attempt by August 15.
- Interviews completed on 27% of the eligible persons from the presumed out-of-care list on April 15
- Medical Record Abstractions (MRA) completed on 95% of interviewed persons by May 15.
- A minimum of 10% of interviews are evaluated, and 5% of MRAs are re-abstracted as part of the MMP quality assurance process.
- 100% of assigned sampled persons and target interviews completed by April 15.
- 60% of target interviews and 30% of target MRAs completed by October 15.
- 80% of target interviews and 60% of target MRAs completed by January 15.
- MRAs are completed on 95% of interviewed persons by May 15.
- Complete all closeout activities for previous data collection cycle activities completed by July 1.
- Manage interviews and MRA data, and report errors requiring corrections to the data manager for reconciliation.

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Surveillance Activity Impact:

The Medical Monitoring Project (MMP) generates representative, high-quality data on people with HIV (PWH) receiving care in Houston/Harris County. By systematically monitoring behavioral and clinical outcomes, this project provides critical insights into gaps in engagement, retention, and viral suppression, enabling the design of targeted interventions to improve the HIV care continuum.

Findings from MMP inform local and regional public health strategies, including Ryan White resource allocation, Ending the HIV Epidemic (EHE) initiatives, and community-based prevention programs.

Data on disparities by race/ethnicity, gender identity, age, and social determinants of health allow public health authorities to identify and address inequities, ensuring interventions are culturally responsive and reach populations most in need.

The project enhances collaboration between healthcare providers, planning councils, and community-based organizations, strengthening linkage-to-care programs and improving clinical outcomes.

The integration of behavioral and clinical data supports evidence-based policy decisions, program evaluation, and real-time response to emerging HIV trends.

Ultimately, the MMP contributes to measurable improvements in population health by reducing HIV-related morbidity and mortality, increasing viral suppression rates, and supporting equitable access to care, while providing Applied Epidemiology Fellows with hands-on experience in population-based surveillance, data collection, and data management.

Through MMP data, examine differences in behavioral and clinical outcomes by demographics, social determinants of health, and access to services to inform and develop targeted, culturally competent interventions.

Surveillance System Evaluation Title: Comprehensive Evaluation of Integrated Behavioral and Clinical HIV Surveillance Systems in Houston/Harris County: Medical Monitoring Project (MMP), National HIV Behavioral Surveillance (NHBS), and SHIELD Project

Surveillance System Evaluation Description:

This project will conduct a systematic evaluation of three CDC-supported surveillance systems at the Houston Health Department (HHD):

Medical Monitoring Project (MMP): A CDC-funded, population-based surveillance system that monitors the behavioral, clinical, and sociodemographic characteristics of people with HIV (PWH) receiving medical care. MMP uses complex probability sampling to generate representative estimates of care engagement, antiretroviral therapy use, viral suppression, comorbidities, prevention behaviors, stigma, and unmet service needs. Data collected through structured interviews and medical record abstraction provide critical insights into the HIV care continuum, health disparities, and barriers to sustained viral suppression. Findings directly inform Ryan White planning, resource allocation, and Ending the HIV Epidemic (EHE) strategies at local, state, and national levels.

National HIV Behavioral Surveillance (NHBS): A CDC-funded, cyclical surveillance system that monitors HIV-related behavioral risk factors, testing patterns, prevention service utilization, and access to care among populations disproportionately affected by HIV, including men who have sex with men (MSM), people who inject drugs (PWID), and heterosexuals at increased risk. NHBS employs venue-based sampling and respondent-driven sampling methodologies to reach hard-to-reach populations and generate locally relevant data.

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Through structured behavioral interviews and HIV testing, NHBS provides critical insights into PrEP awareness and uptake, substance use patterns, sexual risk behaviors, stigma, and structural barriers to prevention services. Findings inform targeted prevention strategies, resource allocation, community engagement efforts, and Ending the HIV Epidemic (EHE) initiatives at the local and national levels.

SHIELD Project (Surveillance of HIV Early and Late Diagnoses): A CDC-supported surveillance initiative that systematically monitors patterns, determinants, and outcomes associated with early and late HIV diagnoses within the Houston/Harris County area. SHIELD integrates surveillance, laboratory, and clinical data to identify the timing of diagnosis using markers such as CD4 counts, viral load levels, and AIDS-defining conditions at or near diagnosis. The project examines demographic, behavioral, and structural factors associated with delayed testing and late presentation to care, including access barriers, stigma, and healthcare utilization patterns. By distinguishing early from late diagnoses, SHIELD provides actionable insights into gaps in HIV testing, linkage to care, and missed prevention opportunities. Findings inform targeted testing strategies, rapid linkage interventions, and resource allocation within the Ending the HIV Epidemic (EHE) framework.

The AEF will evaluate these systems using CDC's Updated Guidelines for Evaluating Public Health Surveillance Systems. The evaluation will comprehensively assess the following core surveillance system attributes in alignment with CDC guidelines:

- **System Purpose and Objectives:** A clear examination of the system's stated goals, alignment with CDC and local HIV strategic priorities (including Ending the HIV Epidemic [EHE] initiatives), and its effectiveness in meeting defined surveillance and programmatic objectives.
- **Data Quality (Completeness, Validity, and Timeliness):** A rigorous assessment of data completeness (e.g., missing key variables such as CD4, viral load, risk factors), internal consistency and validity checks, concordance with external data sources where applicable, and timeliness of data collection, reporting, and dissemination.
- **Representativeness and Sampling Methodology:** Evaluation of the extent to which surveillance data accurately reflect the target population across person, place, and time. This includes review of sampling frames, recruitment strategies, weighting procedures, design effects, and potential selection or nonresponse bias.
- **Simplicity and Operational Efficiency:** Analysis of system structure, workflow complexity, reporting burden, staffing requirements, and resource utilization to determine operational efficiency and feasibility.
- **Acceptability Among Stakeholders and Participants:** Assessment of engagement and cooperation among reporting facilities, community partners, and participants, including response rates, participation levels, and stakeholder perceptions of system value.
- **Stability and Sustainability:** Evaluation of the system's reliability, technological infrastructure, data security, staffing continuity, and long-term funding stability to ensure uninterrupted operation.
- **Flexibility to Respond to Emerging HIV Trends:** Determination of the system's capacity to adapt to new surveillance priorities, evolving case definitions, emerging risk factors, novel testing technologies, and shifting epidemiologic patterns.
- **Usefulness in Informing HIV Prevention, Care Continuum, and EHE Strategies:** Measurement of the extent to which surveillance findings translate into actionable public health interventions, resource allocation decisions, policy development, program evaluation, and improvements across the HIV care continuum-from diagnosis to viral suppression.

Together, these evaluation components will provide a structured, evidence-based assessment of system performance and generate actionable recommendations to strengthen HIV surveillance and improve public health impact. The fellow will examine how these three systems function independently and collectively to support HIV Prevention and Surveillance, Comprehensive HIV planning, Ryan White resource allocation, and local Ending the HIV Epidemic (EHE) initiatives.

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Surveillance System Objectives:

Project Objectives

1. Assess System Performance:

- a. Conduct a comprehensive evaluation of core surveillance attributes, including data quality, completeness, validity, timeliness, representativeness, and system stability.
- b. Review and critically assess sampling methodologies, weighting procedures, and design effects for the Medical Monitoring Project (MMP) and National HIV Behavioral Surveillance (NHBS).

2. Evaluate Data Integration and Utility:

- a. Examine how surveillance findings from MMP, NHBS, and the SHIELD Project inform HIV prevention strategies, linkage-to-care programs, and broader health equity initiatives.
- b. Identify redundancies, data gaps, and opportunities to integrate datasets across behavioral and clinical surveillance systems for improved analytic efficiency and programmatic relevance.

3. Examine Health Equity Impact:

- a. Assess the systems' ability to capture disparities across key demographic and social determinants, including race/ethnicity, age, gender identity, geography, stigma, housing instability, and other structural barriers.
- b. Determine whether surveillance outputs sufficiently inform interventions targeted to underserved and marginalized populations.

4. Develop Actionable Recommendations:

- a. Provide evidence-based guidance to enhance system efficiency, analytic capacity, data translation, and public health impact.
- b. Recommend strategies to strengthen the use of surveillance data for decision-making, program planning, and evaluation of Ending the HIV Epidemic (EHE) objectives.

Expected Deliverables

- **Comprehensive Surveillance System Evaluation Report:** A detailed, CDC-aligned report documenting methodology, findings, and actionable insights for MMP, NHBS, and SHIELD.
- **Executive Summary:** Concise, high-level summary tailored for HHD leadership, CDC project officers, and key decision-makers.
- **Data Quality and Performance Dashboard:** Visual tools and metrics highlighting system completeness, timeliness, representativeness, and analytic outputs for rapid review and monitoring.
- **Stakeholder Presentation:** Interactive presentation to the Ryan White Planning Council, Ending the HIV Epidemic (EHE) consortium, and community partners, translating evaluation results into actionable recommendations.
- **Scholarly Dissemination:** Manuscript or abstract submission to a peer-reviewed journal or CSTE conference, highlighting evaluation methods, findings, and implications for public health practice.
- **Recommendations for System Enhancement and Sustainability:** Practical guidance to improve operational efficiency, analytic capacity, health equity impact, and long-term sustainability of HIV behavioral and clinical surveillance systems.

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Surveillance System Impact:

Expected Public Health Impact

- **Strengthened Surveillance Systems:** Evaluation findings will improve the completeness, timeliness, and accuracy of the MMP, NHBS, and SHIELD datasets, enhancing Houston Health Department’s capacity to monitor HIV trends effectively.
- **Data-Driven Decision-Making:** Insights from the evaluation will inform HIV prevention planning, linkage-to-care initiatives, and resource allocation, enabling targeted interventions for populations most at risk.
- **Enhanced Health Equity:** By assessing disparities across race/ethnicity, age, gender identity, geography, and social determinants of health, the project will identify gaps and inform strategies to reduce inequities in HIV prevention, care engagement, and outcomes.
- **Operational Efficiency and Sustainability:** Recommendations will optimize sampling designs, weighting procedures, and system integration, ensuring efficient use of resources and long-term sustainability of HIV surveillance activities.
- **Workforce Capacity Development:** The evaluation will provide the Applied Epidemiology Fellow hands-on experience in surveillance system assessment, advanced analytics, and translating data into actionable public health strategies, building the next generation of skilled applied epidemiologists.
- **Broader Public Health Contribution:** Findings will be disseminated to local, state, and national stakeholders to support evidence-based policies, strengthen the Ending the HIV Epidemic (EHE) initiative, and contribute to the national knowledge base on HIV behavioral and clinical surveillance.

Major Project Title: Behavioral and Clinical Characteristics of Persons with Diagnosed HIV Infection in Houston/Harris County, Texas, 2015-2024 - Houston Medical Monitoring Project

Major Project Description:

This project involves a comprehensive analysis of behavioral and clinical data collected through the Medical Monitoring Project (MMP) from 2015 to 2024. The analysis will examine patterns in HIV care engagement, retention, adherence to antiretroviral therapy, viral suppression, and utilization of prevention services among adults diagnosed with HIV in Houston/Harris County. The project will also explore behavioral risk factors, social determinants of health, and disparities across demographic groups, including race/ethnicity, gender identity, age, and socioeconomic status.

By integrating self-reported behavioral data with medical record abstractions, the project aims to identify trends, gaps, and determinants influencing HIV outcomes over the last decade. Findings will inform targeted interventions, enhance program planning, and support local and regional strategies to advance the HIV care continuum. Additionally, the project provides the Applied Epidemiology Fellow with a practical, hands-on learning opportunity to apply advanced epidemiologic methods, statistical analyses, and surveillance evaluation skills in a real-world, population-based public health setting.

Major Project Objectives:

Project Objectives:

- **Assess Behavioral and Clinical Trends:** Analyze MMP data (2015-2024) to identify trends in HIV care engagement, antiretroviral therapy adherence, viral suppression, and preventive service utilization among persons with diagnosed HIV in Houston/Harris County.
- **Identify Disparities and Determinants:** Examine demographic, social, and behavioral determinants that contribute to disparities in HIV outcomes, including differences by race/ethnicity, gender identity, age, and socioeconomic status.

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- Evaluate HIV Care Continuum Outcomes: Assess gaps in the HIV care continuum, including linkage to care, retention, and viral suppression rates, to inform targeted interventions.
- Support Program Planning and Policy Development: Generate actionable evidence to guide local public health strategies, Ryan White-funded programs, and comprehensive HIV planning initiatives.
- Develop Applied Epidemiology Skills: Provide the Applied Epidemiology Fellow with hands-on experience in advanced data analysis, surveillance evaluation, and translation of findings into public health action.

Expected Deliverables:

- Surveillance Reports: Annual or periodic reports summarizing behavioral and clinical trends for local and CDC stakeholders.
- Study Briefs and Fact Sheets: Concise, actionable summaries for community-based organizations, healthcare providers, and the Ryan White Planning Council.
- Abstracts and Presentations: Conference abstracts and oral or poster presentations for public health and epidemiology meetings.
- Community Reports: Tailored findings and educational materials for local community groups to inform outreach and HIV prevention efforts.
- Manuscript for Publication: Peer-reviewed article(s) disseminating key findings to the scientific and public health community.
- Analytic Datasets and Documentation: Fully documented datasets and codebooks to support reproducibility and future analyses.

Major Project Impact:

The analysis of behavioral and clinical characteristics of persons with diagnosed HIV in Houston/Harris County through the Medical Monitoring Project (MMP) will provide actionable, evidence-based insights to strengthen local HIV prevention, care, and treatment programs. By identifying trends, disparities, and gaps across the HIV care continuum, including linkage to care, retention, antiretroviral therapy adherence, and viral suppression, this project will inform targeted interventions that improve health outcomes for populations disproportionately affected by HIV.

Findings will guide the allocation of resources by Ryan White-funded programs, support strategic planning by the Comprehensive HIV Planning Group, and shape public health policies to enhance equity and effectiveness of HIV services. Surveillance outputs will also inform community outreach and education, enabling culturally responsive interventions that increase engagement in care and reduce barriers such as stigma, housing instability, or limited access to preventive services.

Additionally, this project will strengthen local capacity for applied epidemiology by providing fellows and staff with advanced experience in analyzing HIV surveillance data, translating complex findings into policy-relevant recommendations, and communicating results effectively to stakeholders, including public health officials, healthcare providers, and community partners.

Overall, the project will contribute to improved population-level HIV outcomes, reduced disparities, and progress toward Ending the HIV Epidemic (EHE) goals in Houston/Harris County, while fostering sustainable, data-driven public health decision-making.

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Additional Project #1 Title: Client Satisfaction Survey - Medical Monitoring Project (MMP)

Project #1 Type: Other

Project #1 Description:

Assess participant satisfaction with the Medical Monitoring Project to inform improvements in recruitment, data collection, and overall participant experience.

Description:

- Conduct a structured satisfaction survey among 10% of randomly selected participants who have completed the MMP health survey and provided consent.
- Use standardized questionnaires to collect feedback on participant experience, including clarity of study procedures, professionalism of interviewers, ease of participation, and perceived confidentiality.
- Capture both quantitative (Likert-scale ratings) and qualitative (open-ended) responses.
- Administer surveys via telephone or secure electronic methods, ensuring adherence to confidentiality and ethical protocols.
- Record responses in a secure database for data analysis.

Project #1 Objectives and Expected Deliverables:

Objectives:

- Assess participant satisfaction with the MMP health survey process, including clarity of instructions, interviewer professionalism, and overall experience.
- Identify barriers or challenges faced by participants during recruitment, interview, and medical record abstraction processes.
- Evaluate participants' perceptions of confidentiality, privacy, and trust in the surveillance system.
- Generate actionable insights to improve participant engagement, data quality, and retention for future surveillance cycles.

Expected Deliverables:

- De-identified Survey Dataset: Structured and cleaned dataset capturing both quantitative (e.g., Likert scales) and qualitative feedback.
- Analysis Report: Statistical summaries, trends, and thematic analysis highlighting participant satisfaction levels and areas for improvement.
- Stakeholder Presentation: Clear, concise summary for HHD leadership, MMP team, and community advisory boards.
- Recommendations Document: Evidence-based guidance to enhance survey protocols, recruitment strategies, and participant experience.

Project #1 Impact:

Enhanced Participant Engagement and Retention: By identifying barriers and facilitators to participation, the survey will inform strategies to improve recruitment and retention of people with HIV in the MMP, ensuring that surveillance data remain representative and reliable.

Improved Data Quality: Insights from participants on the clarity, accessibility, and effectiveness of survey procedures will help optimize interview protocols and medical record abstraction processes, reducing errors and missing data.

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Strengthened Community Trust and Collaboration: Understanding participants' perceptions of confidentiality, privacy, and the overall survey experience will guide efforts to foster trust between the health department, healthcare providers, and communities, which is essential for long-term surveillance success.

Evidence-Based Enhancements to HIV Surveillance: Recommendations from the survey will support the continuous improvement of the MMP, allowing the Houston Health Department to better identify gaps in care, assess behavioral and clinical outcomes, and guide targeted interventions for people with HIV.

Contribution to Public Health Policy and Planning: Results will inform local, state, and national stakeholders including Ryan White Planning Council and CDC on ways to optimize participant-centered surveillance approaches, ultimately supporting effective HIV prevention, care, and treatment strategies in Houston/Harris County.

Additional Project #2 Title: Community Engagement Project: Design and Development of Webpage for Behavioral and Clinical Surveillance Program

Project #2 Type: Other

Project #2 Description:

The Applied Epidemiology Fellow (AEF) will work collaboratively with the Primary and secondary mentors and the HHD Communication Unit to design and develop an interactive, user-friendly webpage for the Behavioral and Clinical Surveillance Program within the Houston Health Department (HHD). This webpage will serve as a central hub for the Medical Monitoring Project (MMP), the National HIV Behavioral Surveillance (NHBS) Project, and the SHIELD Project, providing comprehensive information on ongoing surveillance activities, project objectives, and outputs. Key features will include dedicated pages for providers, patients/clients, and community advisory boards (CAB), multimedia content such as training or informational videos, and detailed information on ongoing health surveys. The webpage will also integrate data dashboards, visualizations, and downloadable resources, including fact sheets, surveillance reports, technical briefs, abstracts, and peer-reviewed publications. This digital platform will facilitate the dissemination of surveillance findings, improve stakeholder engagement, and enhance public awareness of HIV surveillance activities in Houston/Harris County.

Project #2 Objectives and Expected Deliverables:

Project Objectives

- **Webpage Design and Development:** Develop a functional and accessible webpage structure with clear navigation for providers, patients/clients, CAB, and the general public; integrate multimedia resources, including videos and educational materials.
- **Data Visualization and Dashboard Integration:** Create interactive dashboards that display behavioral and clinical surveillance data from MMP, NHBS, and SHIELD projects; present trends, key indicators, and performance metrics through charts, tables, and infographics.
- **Information Dissemination:** Provide easy access to fact sheets, technical reports, surveillance reports, abstracts, and publications; maintain current content aligned with ongoing project activities and CDC reporting guidelines.
- **Stakeholder Engagement:** Ensure the webpage meets the needs of multiple stakeholders, including healthcare providers, community members, and public health officials; collect feedback to refine usability and enhance outreach.

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Expected Deliverables

- Fully functional Behavioral and Clinical Surveillance Program webpage with multiple linked sections.
- Data dashboards and visualizations for MMP, NHBS, and SHIELD projects.
- Central repository of surveillance products: fact sheets, technical reports, abstracts, and publications.
- Documentation of webpage design, updates, and user instructions.
- Stakeholder feedback report summarizing usability and accessibility improvements.

Project #2 Impact:

This project will enhance the accessibility and transparency of surveillance data, promoting data-driven decision-making across Houston/Harris County. By providing a centralized platform for providers, clients, and community stakeholders, the webpage will improve understanding of HIV-related surveillance, strengthen engagement in public health initiatives, and facilitate the dissemination of evidence-based interventions. Interactive dashboards will allow stakeholders to identify trends in HIV prevention, care, and disparities, informing targeted interventions and resource allocation. Overall, the project will improve the reach, utility, and impact of behavioral and clinical surveillance activities, supporting the Houston Health Department's mission to advance health equity and progress toward Ending the HIV Epidemic (EHE) goals.

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

The CSTE Applied Epidemiology Fellow (AEF) will play an integral role in the department's emergency preparedness and outbreak response activities through structured rotations, hands-on field experience, and integration into the Public Health Science and Surveillance Division's dedicated Outbreak Management Team. The fellow will gain practical competencies in incident command operations, outbreak investigation, surveillance data analysis, and risk communication while contributing meaningfully to real-time public health actions.

Planned Activities

During preparedness and response assignments, the AEF will:

- Participate in outbreak investigations involving communicable diseases such as foodborne illnesses, respiratory pathogens, vaccine-preventable diseases, and emerging infections.
- Assist with case identification, development of line lists, exposure assessment, contact tracing coordination, and implementation of control measures.
- Conduct descriptive and analytic epidemiologic analyses to characterize outbreaks by time, place, and person, and support the generation of situation reports.
- Contribute to syndromic surveillance monitoring, cluster detection, and evaluation of early warning signals using ESSENCE and other surveillance platforms.
- Shadow and work alongside the Outbreak Management Team during field investigations, site visits, and stakeholder meetings with healthcare facilities, schools, and community partners.
- Support Incident Command System (ICS) functions during public health emergencies, including documentation, data management, and inter-agency coordination.
- Assist in the development of after-action reports, lessons-learned assessments, and quality-improvement recommendations to strengthen preparedness capacity.
- Participate in preparedness trainings, emergency exercises, and departmental drills to build competency in all-hazards response.

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Training Environment: The Public Health Surveillance Division maintains a dedicated Outbreak Management Team composed of experienced epidemiologists, nurses, and environmental health specialists. The fellow will rotate through this unit to receive mentorship in applied field epidemiology, outbreak coordination, and emergency operations. This structure will ensure exposure to both routine and high-consequence events and provide direct supervision by seasoned responders.

Estimated Time Allocation

- 30% Outbreak investigation and response activities: case investigations, data analysis, field deployments, and ICS participation.
- 15% Preparedness planning and exercises: trainings, protocol development, and emergency drills.
- 10% Surveillance and early detection: syndromic monitoring, cluster reviews, and reporting.
- 5% Evaluation and after-action activities: report writing, quality improvement, and dissemination of findings.

Competency Development: Through these activities, the AEF will meet the required fellowship competencies in emergency response operations, outbreak investigation methods, surveillance and evaluation, communication with multidisciplinary partners, and the translation of epidemiologic findings into public health action. The fellow will emerge with the skills necessary to function as an independent field epidemiologist capable of supporting local, state, and national preparedness efforts.

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

The CSTE Applied Epidemiology Fellow (AEF) will serve as an active member of the Bureau of Epidemiology’s outbreak response infrastructure, contributing to the detection, investigation, and control of disease clusters and outbreaks across Houston. Under the mentorship of senior epidemiologists within the dedicated Outbreak Management Team, the fellow will gain progressively greater responsibility across all phases of applied field epidemiology, from signal detection to the implementation and evaluation of control measures.

Core Activities

The Fellow will:

- Support detection and verification of clusters through routine review of notifiable disease reports, syndromic surveillance platforms (e.g., ESSENCE), laboratory data, and provider alerts.
- Assist in outbreak investigation planning, including development of case definitions, hypotheses, data collection instruments, and investigation protocols.
- Conduct case investigations and interviews, perform exposure assessments, and support contact tracing in collaboration with disease intervention specialists and clinical partners.
- Develop and maintain line lists and analytic datasets, ensuring data quality, deduplication, and secure management of sensitive information.
- Perform descriptive and analytic epidemiologic analyses to characterize outbreaks by time, place, and person and to evaluate risk factors and transmission dynamics.
- Participate in field investigations and site assessments in settings such as healthcare facilities, schools, shelters, long-term care facilities, and community venues.
- Collaborate with laboratory, environmental health, and clinical partners to integrate epidemiologic and laboratory findings.
- Prepare situation reports, epidemiologic summaries, and recommendations for control measures, prophylaxis, or policy action.
- Contribute to risk communication efforts, including provider notifications and community messaging.

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- Support after-action reviews and evaluation to identify lessons learned and strengthen future outbreak response.

Training and Mentorship Structure

The Fellow will rotate with the Outbreak Management Team and Communicable Disease Program, receiving direct supervision from an Epidemiologist Manager and mentorship from subject-matter experts in foodborne disease, respiratory infections, vaccine-preventable diseases, and emerging pathogens. Responsibilities will advance from shadowing and supportive tasks in the first quarter to leading discrete components of investigations by the second year.

Estimated Time Allocation

- 35% Active cluster and outbreak investigations: case ascertainment, interviews, data management, field work, and analytic support
- 15% Surveillance and signal detection: routine monitoring, cluster review meetings, and alert triage
- 10% Data analysis and reporting: generation of epi curves, analytic studies, situation reports
- 5% After-action evaluation and quality improvement

Competency Development: Through these activities, the Fellow will achieve required competencies in outbreak investigation methods, applied analytic techniques, multidisciplinary coordination, data-to-action translation, and professional communication. The experience will prepare the Fellow to independently lead future cluster investigations and contribute to local and national public health emergency responses.