

**Collaborative Faculty Preceptor Partnerships between Public Health Practice & Academia:** The applied public health & epidemiology program balances the need to develop applied public health skills among trainees in an applied public health context and the need for state-of-the-art research support resources and academic rigor typically offered in the academic public health training environment. Towards this end, the program uses a model of collaborative faculty preceptor partnerships, including:

- Lead faculty preceptors (and co-mentors) consisting of a public health epidemiology practitioner and an academician, and
- A global network of adjunct faculty preceptors who may:
  - Co-host trainees (at a wide range of health agencies which trainees may need to work with depending on the assigned topic of research), and
  - Lead seminars, tutorials, external peer reviews of trainees' work and other elements of Module 5 (colloquium) & Module 4 (scientific writing skills mentorship); faculty preceptors for these modules may be drawn from many health agencies, academic institutions and peer reviewed scientific research journals, including a) leading international public health agencies such as the World Health Organization, UNAIDS, CDC Global AIDS program, UNICEF, iHASE - Institute of HIV/AIDS Surveillance & Epidemiology and associated entities such as The HASE collaboration and jHASE - Journal of HIV/AIDS Surveillance & Epidemiology ([www.ieph.org](http://www.ieph.org)), and b) major research intensive academic public health institutions in the US, Europe, Africa & Asia.

#### Administrative Information

- **Program Length:** Trainee placements may be: 1) short-term *paid or unpaid* internships (practicum lasting 1 semester; modules combined with for-credit graduate semester courses for 3-6 months) or 2) long-term fellowships (6—12 months or longer). Highly motivated trainees may extend their programs by up to 3 – 5 years through securing external funding support for individual pre- or post-doctoral trainee grants, or public health research or service program grants as outlined under Module 3);
- **Academic Credit, Partial Fulfillment of Academic Degree Requirements, Applied Epidemiology Certification, & Academic Loan Repayment:** Program participants may earn academic credit upon completion of the 5 module program (totaling ~12-15 credits) or use some modules towards fulfillment of graduate courses requirements (incl. independent study courses), the public health practicum, master's thesis, doctoral dissertation, etc (incl. medical trainee research/elective requirements). Completion of this program may fulfill requirements for MCAE or FCAE certification, depending on requirements completed - more info is at: <http://ieph.org/hase/c-aboutcae.htm> . The program has successfully sponsored/hosted eligible doctoral graduates for 2-year NIH loan repayment program/LRP grants of ~\$35,000/yr; hosted LRP fellows do 20 hrs/week of research; <http://www.lrp.nih.gov>
- **General Eligibility & Application Info:** Master's or doctoral candidates or graduates in epidemiology, public health, medicine, others with graduate-level training incl. 3 courses in epidemiology/health services research methods, 2-3 courses in (bio) statistics incl. multiple logistic regression & proficiency in advanced/multivariate analyses using SAS/Enterprise Guide &/or SPSS for Windows. Proficiency in ArcGIS, transmission dynamics modeling, social network analyses & other advanced analytical techniques is an advantage. Medical/biomedical trainees seeking research electives may also apply. **Interested persons may request application information by email with a NIH-format PHS-398 biographical sketch to:** [c-mccdcp@pa.gov](mailto:c-mccdcp@pa.gov)

**Flexible On-site, Distance-Learning or Hybrid Modalities:** Most traineeships are on-site/co-hosted jointly by a public health agency and an academic institution, however, advanced-standing candidates or graduate students taking particular modules for academic credit may be approved for the distance-learning program (DLP) or hybrid program (HP) tenable at the academic home institution of the trainee.

## Applied Public Health & Epidemiology Internships & Fellowships on HIV & Related Conditions

Post-graduate **in-service training** & preparation for various certifications

A 'virtual' collaboration center bringing together a multidisciplinary network of applied & translational researchers to innovate & partner with health agencies & communities on integrated disease surveillance, control & prevention of HIV, & related conditions.

**mccdcp** A Model Collaboration Center for Disease Control & Prevention of HIV & Related Diseases

Through mentored in-service training, this problem-based applied public health program provides trainees with an opportunity to translate academic public health preparation in epidemiology, health services and biostatistics research methods into application in public health practice. The in-service training context of the program offers a problem-based learning framework through which trainees are presented with an opportunity to tackle real life public health problems including conducting reviews of disease control and prevention/public health program issues and challenges; literature reviews, conceptualization, development and implementation of a work plan or investigational approach to addressing public health challenges - this includes application of epidemiology, biostatistics and health services/operations research methods to: a) conduct population-level 'diagnoses' of community/public health problems (community health needs/status assessments/investigations) through public health surveillance, monitoring and evaluation (of burden of disease, risk, outcomes, health services), and applied epidemiology studies, and b) address and solve identified/presenting public health problems by conceptualizing, designing and conducting demonstration/pilot studies/projects to systematically investigate, implement and evaluate intervention solutions and improve program outcomes..

*Program Co-Directors/Co-Principal Investigators:*  
Kenneth McGarvey, Admin. Management Director  
Benjamin Muthambi DrPH, MPH, Program Director



Are you highly motivated?

Separate yourself from the pack!

This Program Offers ..  
**Solid Real World Experience ..**  
**A Unique Applied Curriculum ...**  
**Distinguished Preceptor Faculty**

$$\text{logit}(p) = \log\left(\frac{p}{1-p}\right) = \log(p) - \log(1-p).$$

## Background, Rationale & Significance

- Many Public Health and Community Health agencies that serve communities adversely impacted by the HIV pandemic and other public health threats have limited access to trained Epidemiologists with expertise needed to:
  - Assess community needs including disease surveillance/assessment of disease burden/risk, & do early detection, prevention & control of disease outbreaks;
  - Analyze and use surveillance and other Epidemiologic data to support planning of response plans to meet changing demands for service;
  - Conduct disease intervention Epidemiology research to develop & pilot interventions, & evaluate outcomes;
- Applied public health Epidemiologic research to elucidate/solve public health problems is currently too limited in quantity/quality as Public Health/Community Health agencies have limited capacity to meet the need;
- Broader quality assurance & continuing education through peer-review of applied Epidemiology work contributing to openly-accessible reference publications is too limited in quantity/quality;
- The public health workforce, and public health and medical professions students are not as well prepared in applied Public Health Epidemiology as they could or should be to meet the needs of communities;

### Program Objectives

Consistent with the CDC guidance in the Applied Epidemiology and Training Program (AETP) Development Handbook (McDonnell 2002), the fellowship program focuses on balancing three key concepts in an effort to meet the ongoing need for applied public health & epidemiology workforce capacity:

- Provide service to the sponsoring public health agency;
- Create and train a core group of public health workers;
- Strengthen capacity in applied epidemiology across public health institutions.

## Program Modules

The program uses a problem-based learning approach to integrate six (6) separate but interlocking in-service training modules. The curriculum typically includes 6 modules (~3-4 semester credit equivalent for each), depending on trainee background/appointment level:-

- **Module 1: Disease intervention & health services/operations research** | *From concept to practice*: Review, development/enhancement and evaluation of public health programs to reduce health disparities and adverse outcomes;
- **Module 2: Advanced special analyses**: Monitoring and evaluation analyses of disease burden, risk factors/determinants and health outcomes (incl. evaluation of performance of public health surveillance systems used), and analyses of public health program services monitoring and evaluation data in support of HIV prevention and care program planning, development, and implementation;
- **Module 3: E-course module in support of intervention, analyses, scientific writing/peer review training**: Basic to advanced courses/certifications in SAS EG, ArcGIS, research ethics, and other selected e-courses offered to qualified candidates;
- **Module 4: Scientific writing mentorship** by 'The HASE collaboration' faculty offers quality assurance & continuing education through peer review culminating in a research grant application & research manuscripts ( <http://www.ieph.org/hase/i-cc-HASEc.htm> ); & proctored collaboration with a public health agency on a peer-reviewed publication-format Epidemiologic Profile of HIV/AIDS in jHASE - the online Journal of HIV/AIDS Surveillance & Epidemiology ( <http://www.ieph.org/hase/jHASE.htm> );
- **Module 5: The Colloquium** offers interactive support of Modules 1, 2 & 4 through a series of seminars (and webinars/grand rounds), tutorials, journal clubs, online/listserv;
- **Module 6: Project Management Experience** offers mentoring on project management;

## Key Learning Objectives

At the end of this program, trainees are expected to be able to work with Departments of Health and their implementing partners to:

- Review a public health problem, and conduct a literature review; conceptualize relevant hypotheses; design a public health investigation, select and apply appropriate epidemiology, biostatistics, health services/operations research methods for a demonstration/pilot project to systematically assess and/or address public health problems and evaluate outcomes (All modules);
- Design a study, develop a conceptual abstract, work plan and timeline, and implement a public health project such as: a) public health surveillance/monitoring and evaluation of disease burden, risk behavior, or services delivery; b) a needs assessment; c) public health/ disease intervention demonstration projects; d) biostatistical analyses on disease occurrence and intervention outcomes (incl. determinants thereof); e) a grant application project, etc (All modules);
- Perform basic, intermediate & advanced biostatistical analyses of data (using SAS/SAS Enterprise Guide &/or SPSS, ArcGIS, transmission dynamics, social network and other analyses software to - Modules 2-3);
- Participate in quality assurance & continuing education through peer-review (research seminars, conferences, 'The HASE collaboration' & an online peer-reviewed scientific journal - Modules 4-5)
- Obtain quality assurance & continuing education through peer review by 'The HASE collaboration' faculty, & contribute to much-needed published reference literature (at least 2 research articles through jHASE supplements (online open-access research journal)-Modules 1, 2 & 4);
- Conceptualize, develop, write and submit an application for external funding/grants [e.g. pre- or post-doc applied epidemiology training fellowship; grants; research/health service grants at NIH F, K, R or equivalent - Module 4]; & NIH loan repayment program grants for doctoral graduates (<http://www.lrp.nih.gov>) - Modules 1, 2 & 4];
- Conduct research, translate, apply & disseminate research findings (contribute rigorously peer-reviewed research articles to publication-format updates/supplements of Epidemiologic Profile of HIV/AIDS in the participating public health jurisdiction; provide quality Epidemiology consulting support for public health practice, prevention & care program planning (incl. prioritization & resource distribution), & program development, implementation, monitoring & evaluation - Modules 4-5);
- Manage and administer applied public health/epidemiology projects (Module 6);

### Focus Areas of Research

The applied public health, epidemiology and biostatistics focus areas include:

- Public health surveillance/monitoring of disease burden trends and progression (including risk factors/determinants thereof), risk behaviors; and systems research on development and evaluation of surveillance methods for monitoring disease outcomes, diagnostic status, risk factors and behaviors, and service delivery;
- Program monitoring and evaluation of outcomes (and assessment of determinants of health outcomes including as psycho-social needs, barriers to access, and services gaps);
- Public health/disease intervention research to address public health problems and evaluate outcomes (i.e. demonstration/pilot projects to develop public health, biomedical or behavioral interventions, and assess the effectiveness & efficacy thereof);
- Health information and systems interventions;
- Translational multidisciplinary collaborative research to advance the full realization of the benefits fundamental research results through translation into practical applications (research on increasing uptake of rapid HIV testing);
- Basic, advanced & intermediate Biostatistical analyses (incl. research on development of biostatistical and health informatics methods).