

THE CDC/CSTE APPLIED EPIDEMIOLOGY FELLOWSHIP PROGRAM

Implementation Plan

**THE CDC/CSTE APPLIED EPIDEMIOLOGY
FELLOWSHIP PROGRAM**

A Collaborative Project

between

The Council for State and Territorial Epidemiologists (CSTE),

The Centers for Disease Control and Prevention (CDC),

and

The Association of Schools of Public Health (ASPH)

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EXECUTIVE SUMMARY

Overview

The mission of the Council of State and Territorial Epidemiologists (CSTE) is to promote the effective use of epidemiologic data to guide public health practice and improve health. CSTE accomplishes this in part by supporting good epidemiologic practice through training and capacity development (CSTE Web site). A recent CSTE assessment of epidemiologic workforce capacity demonstrated that a substantial need exists at the state and local level for trained epidemiologists. In accordance with its mission, CSTE proposes to address this need by developing the CDC/CSTE Applied Epidemiology Fellowship Program.

The CDC/CSTE Applied Epidemiology Fellowship Program will provide practical on-the-job experience and training in applied epidemiology to recent graduates from schools of public health or to others with an appropriate background in a health-related field. Fellows will be placed in a local or state health department under the mentorship of an experienced senior epidemiologist for a period of 2 years. The program will be a collaborative effort between the Council of State and Territorial Epidemiologists (CSTE), the Centers for Disease Control and Prevention (CDC), and the Association of Schools of Public Health (ASPH).

The program will fill a unique training niche, since none of the current public health fellowship programs specifically address all of the following components:

- A focus on applied epidemiology training.
- Mentorship within state and local health departments across the country.
- Training geared toward recent graduates from schools of public health (Master's or Doctoral level).

Program Mission

To meet the nation's ongoing need for applied epidemiology workforce capacity in state and local health departments through a national fellowship training program.

The program will focus on balancing three key concepts, as identified in the CDC guidance document, *Applied Epidemiology and Training Program (AETP) Development Handbook* (McDonnell 2002):

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

Principles

- The Fellowship will offer high quality on-the-job training in epidemiology and public health practice at a state or local health department through a mentorship model.
- The Fellowship will be geared toward persons who are interested in the practice of public health at the state or local level as a career focus.

- Training will be activity- and competency-based (i.e., graduates will be expected to develop a core set of skills during the course of the program through completing specified training activities).
- A major goal of the Fellowship will be long-term job placement for participants in a state or local health department.
- The Fellowship will provide cross-training in various program areas, including emergency response and bioterrorism.
- The Fellowship will provide a certain degree of flexibility to meet the needs of individual fellows or to meet priority objectives for workforce development within certain program areas.
- CSTE will work with federal partners to develop funding sources for the Fellowship.

Roles of Collaborating Organizations

Roles of Collaborating organizations are outlined below and shown schematically in Appendix A.

Fellowship Advisory Committee

A Fellowship Advisory Committee will be formed to provide oversight and guidance for the Fellowship Program. Members of the Fellowship Advisory Committee will include the CSTE Executive Director, several CSTE members from state and/or local health departments, several representatives from CDC (including representation from the Epidemiology Program Office [EPO]), and at least one representative from ASPH. Primary functions for each of the collaboration organizations are outlined below. During the implementation phase of the Fellowship, a Steering Committee will work to establish the program; after the first year, this committee will be replaced by the ongoing Fellowship Advisory Committee.

CSTE

Primary functions for CSTE include the following.

- Develop an infrastructure to support the Fellowship, including:
 - Create a Fellowship Program Office within the CSTE National Office.
 - Staff the Steering and the Fellowship Advisory Committees.
 - Coordinate other committees to fulfill specific functions as necessary, such as a Review Committee (to review fellow applications and participate in fellow interviews) and a small Selection Committee (to select the applicants for each incoming class of fellows).
- Solicit host agency positions by contacting the CSTE membership and the National Association of County and City Health Officials (NACCHO).
- As an affiliate of the Association of State and Territorial Health Officials (ASTHO), CSTE will keep ASTHO informed about the program and will solicit ongoing input from ASTHO.
- Evaluate potential host agency positions according to a specified set of criteria and develop a list of acceptable positions to be offered to fellow candidates (in conjunction with CDC).
- Recruit fellows by providing information about the program on the CSTE Web site and encouraging CSTE members to solicit applicants.
- Collaborate with CDC and ASPH to evaluate and select incoming fellows.

- Develop an introductory didactic training course to be held near the beginning of each fellowship year, drawing on expertise from CSTE members, CDC staff, and faculty at schools of public health.
- Provide orientation and ongoing training to supervisors within the selected health agencies.
- Monitor the training of each fellow during the course of the program, including making site visits as necessary and reviewing all reports produced by fellows and their supervisors.
- Assume primary responsibility for administering the program.
- Assure that fellows complete all required activities.
- Award certificates of completion to fellows who have met all of the program requirements (in conjunction with CDC and ASPH).
- Assume primary responsibility for program evaluation.

CDC

Primary functions for CDC include the following.

- Provide oversight to the program through membership on the initial Steering Committee and the ongoing Fellowship Advisory Committee.
- Provide initial funding to CSTE to support the program through the current CSTE Cooperative Agreement.
- Provide information about the program on the CDC Web site.
- Participate in selection of incoming fellows each year.
- Participate in selection of acceptable host agency positions each year.
- Provide lecturers for the introductory didactic training course to be held at the beginning of each fellowship year.
- Provide training at CDC to fellows in certain situations where such training would benefit the fellow as part of an individualized curriculum.
- Participate in awarding certificates of completion to fellows who have met all of the program requirements.
- Participate in ongoing program evaluation.

ASPH

Primary functions for ASPH include the following.

- Provide oversight to the program through membership on the initial Steering Committee and the ongoing Fellowship Advisory Committee.
- Recruit fellow applicants at ASPH schools and member programs.
- Provide information about the program on the ASPH Web site.
- Participate in selection of incoming fellows each year.
- Participate in awarding certificates of completion to fellows who have met all of the program requirements.
- Participate in ongoing program evaluation.

SECTION 1: BACKGROUND

The Need for Workforce Development in Applied Epidemiology

The public health system in the United States faces a number of important challenges as it strives to address the myriad of health issues that confront the general population. In its landmark 1988 report, *The Future of Public Health*, the Institute of Medicine (IOM) called on the nation to strengthen its public health workforce (IOM 1988). Although some progress has been made since that time, the ongoing need for a strong, well-trained public health workforce was echoed again by the IOM in *The Future of Public Health in the 21st Century* (IOM 2003). In that report, the IOM stated, “The public health workforce must have appropriate education and training to perform its role. Today, a majority of government public health workers . . . have little or no training in public health. Enhancing the knowledge and skill of government public health workers is necessary to ensure that essential public health services are competently delivered.”

Workforce development in applied epidemiology at the state and local levels continues to be a central issue in strengthening the public health workforce. In another recent IOM report on infectious disease prevention and control (*Microbial Threats to Health: Emergence, Detection, and Response* [IOM 2003]), the IOM specifically stressed the importance of applied epidemiology by stating that, “The workforce necessary to accomplish the needed improvement in the national capacity to respond to microbial threats must be supported with strong training programs in the applied epidemiology of infectious disease prevention and control.” Furthermore, four of the 10 essential services of public health (as identified in 1994 by the Public Health Function Steering Committee of the American Public Health Association [APHA]) require use of epidemiologic methods. These four essential services are: 1) monitor health status to identify community health problems; 2) diagnose and investigate health problems and health hazards in the community; 3) evaluate effectiveness, accessibility, and quality of personal and population-based health services; and 4) research for new insights and innovative solutions to health problems. Additional support for the importance of epidemiologic capacity in public health was demonstrated in a 1992 survey of directors of state health agencies (Morris 1994). Investigators found that state health officials ranked epidemiology highest among 11 priority areas of responsibility for their agencies.

Organizations of public health professionals also have stressed the urgent need for additional epidemiologic capacity at the state and local levels. An assessment conducted between November 2001 and April 2002 by the Council of State and Territorial Epidemiologists (CSTE) demonstrated large variations in epidemiologic infrastructure across states and across program areas within states (CSTE 2003). Based on findings from this assessment, CSTE estimated that up to 1,600 trained epidemiologists are needed to meet the current demand at the state level. Additionally, a workforce survey conducted in early 2000 by the National Association of County and City Health Officials (NACCHO) indicated that epidemiologists were among the top five priority occupations needed during the next 5 years (NACCHO 2001).

Recent demands related to bioterrorism preparedness that have been placed upon public health agencies have served to intensify workforce capacity needs across program areas. At a meeting held in May 2002 on Public Health Workforce, Collaboration, and Infrastructure Related to Bioterrorism that was coordinated by the University of Minnesota, Center for Infectious Disease Research and Policy (CIDRAP 2002), a group of representatives from various public

health organizations (including CSTE, NACCHO, and the Association of State and Territorial Health Officials [ASTHO]) addressed this point. According to a summary of the meeting, officials agreed that, “There is an overall shortage of qualified public health workers available to meet the immediate demands of bioterrorism preparedness. Agencies are being asked to develop new programs and add new staff in the face of a substantial shortage in qualified personnel. An estimated 3,200 to 4,000 new positions were requested in the bioterrorism cooperative agreements recently submitted to the Centers for Disease Control and Prevention (CDC). In addition, an estimated 13,000 to 15,000 persons are needed to provide 24-hour emergency coverage at the local level. Personnel not only require adequate academic training but also require several years of on-the-job training and experience to meet the performance demands of certain key program positions.” Furthermore, the group indicated that, “Because of an inadequate workforce, qualified personnel are: (1) being shifted to different programs within agencies, (2) transferring to different agencies within government, and (3) moving between the public and private sectors. These transitions are creating significant gaps in expertise within certain programs.” The group specifically indicated that epidemiologists were a major occupational category of concern (Personal Communication: Michael Osterholm, University of Minnesota).

Since the 1988 IOM report, the issue of strengthening the public health workforce has received a great deal of thought and attention (CDC: PHPPPO: Office of Workforce Policy and Planning). One key concept that has been raised repeatedly is the need to develop systems that bridge the gap between academic schools of public health and agencies engaged in the practice of public health (Gemmel 1995, Handler 1994, IOM 2002, Margolis 1998, Morris 1994). Establishment of fellowship programs targeted to recent graduates from schools of public health is one creative way to bridge that gap. The value of developing training programs that involve mentorship by experienced public health workers was clearly stated in a recent report on workforce development from the Joint Council of State and Local Health Officials (Brown 2001). According to the report, “Great importance is placed upon formal public health training for future and current public health workers. However, this emphasis tends to diminish the importance of the wealth of experience that many veteran [public health] workers currently offer. Efforts should be made to recognize and build upon this tremendous resource.”

Proposed CSTE Response to the Current Workforce Need

To address the current need for workforce development in the field of applied epidemiology at the state and local levels, CSTE proposes to initiate a new fellowship program in partnership with CDC and the Association of Schools of Public Health (ASPH). When considering workforce development in applied epidemiology, a schematic pyramid can be considered (Personal Communication: Richard Dicker, CDC).



The fellowship program proposed here is targeted primarily to mid-level staff and toward senior staff in some program areas, depending on specific needs for workforce development. The program will focus on balancing three key concepts, as identified in the CDC guidance document, *Applied Epidemiology and Training Program (AETP) Development Handbook* (McDonnell 2002):

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

The basic parameters of the program include the following (see Section 3: Program Mission and Principles for more information).

- The program will provide practical on-the-job experience and training in applied epidemiology.
- Fellows will be placed in local or state health departments for a 2-year period.
- Recent graduates from schools of public health or others with an appropriate background in a health-related field will be eligible to apply. Applicants will be required to have at least a Master's in Public Health (MPH), a Master's of Science in Public Health (MSPH) or epidemiology, or other equivalent degree.
- The number of fellows enrolled in the Fellowship each year will depend upon available positions and resources will be allocated to various program areas in accordance with support provided.

Existing Training Programs

Although several fellowship/training programs currently exist that provide workforce development in public health with at least some training in applied epidemiology, none of the existing programs meet both of the following criteria: 1) address national applied epidemiology workforce needs at the state and local levels and 2) focus on applicants who have at least an MPH degree from schools of public health or other qualified programs. Thus, a unique training niche exists that has not yet been filled. Brief summaries of existing training programs are outlined below.

CDC's Epidemic Intelligence Service (EIS)

The EIS was established in 1951 as a combined training and service program in the practice of applied epidemiology. The EIS is a 2-year training program with 70 to 90 positions available each year either at CDC or in state health departments; approximately one-fourth of officers

are assigned to state or city health departments and the rest are assigned to positions within CDC. The EIS primarily is geared toward persons with advanced degrees and the overall intent of the program is to provide training to those who will eventually assume leadership positions in public health at the local, state, federal, or international levels (CDC: EIS Web site). To illustrate these points, between 1951 and 2000, 78% of EIS Officers were physicians, 8% were veterinarians, 7% were doctoral-level epidemiologists or statisticians, and the rest had a variety of other credentials including doctorate degrees in other fields or a nursing background with an MPH degree (Thacker 2001). In 2000, 42% of state and territorial epidemiologists were EIS graduates (CSTE Web site).

California Epidemiologic Investigation Service (Cal-EIS)

Cal-EIS was established in 1988 for health professionals who have at least a Master's degree in a field related to public health. The program offers 1-year fellowships at the California Department of Health Services (DHS) or at local health departments in California. The program has been relatively successful in retaining its fellows. A recent follow-up of 63 fellows who had graduated from the program between 1991 and 2002 demonstrated that 33 (52%) held public health positions at the California DHS or at a local health department in California at the time of follow-up (Cal-EIS Training Program Web site).

Florida Epidemic Intelligence Service (FL-EIS)

The Florida EIS program, which was founded in 2001, is similar in scope to the Cal-EIS program. Its mission is to prepare epidemiologists for public health leadership positions in Florida (Florida EIS Training Program Web site). Fellowship positions vary from 1 to 2 years and fellows are assigned to a preceptor at a local health department in the state.

HRSA/CDC Maternal Child Health (MCH) Epidemiology Training Fellowship

Currently, this program has capacity to train three fellows in MCH epidemiology, with the potential to fund future fellowship opportunities. The program expects to fill the three positions sometime between May and October 2003. These training fellowships are intended to provide 1 to 2 years of on-site work experience under the direct mentorship of qualified senior MCH epidemiologists currently working in state, tribal, or major urban public health agencies (ASPH Web site).

ASPH Public Health Fellowship Program

The ASPH Public Health Fellowship Program, which was established in 1995, provides training opportunities at CDC and the Agency for Toxic Substances and Disease Registry (ATSDR) for students and graduates of ASPH member graduate schools (ASPH Web site). The fellowships are from 1 to 2 years in duration, depending on the needs of CDC and the fellow. The fellowship program was developed to strengthen the relationship between the academic public health community and public health practice agencies. The types of opportunities vary according to specific areas of research or training available at CDC. This program traditionally has focused on opportunities at the federal level and to date has not been geared toward training epidemiologists for practice in state or local health departments.

Other ASPH Fellowship Programs

The ASPH supports several other fellowship programs (information available on the ASPH Web site), including:

- ASPH/USDA/FSIS Fellowship Program: A fellowship opportunity for a single fellow (epidemiologist or statistician) to provide support for the Foodborne Diseases Active Surveillance Network (FoodNet), Foodborne and Diarrheal Diseases Branch (FDDB), based at CDC in Atlanta, Georgia. The fellowship is being offered by ASPH in cooperation with the U.S. Department of Agriculture (USDA), Food Safety and Inspection Service (FSIS), and the CDC.
- ASPH/EPA Fellowship Program: A fellowship program offered at the federal Environmental Protection Agency (EPA) for work in the field of environmental public health.
- ASPH/HRSA Fellowship Program: A fellowship program for direct training and service within the Health Resources and Services Administration (HRSA), U.S. Department of Health and Human Services.

Public Health Prevention Service

The Public Health Prevention Service (PHPS) was established by CDC in 1997. PHPS is a service and training program of 3 years duration; the first year is spent completing two 6-month rotations at CDC and the second and third years involve a field assignment in a state or local health department. Each class has about 35 Prevention Specialists. The goal of the program is to develop a workforce that is skilled in planning, implementation, and evaluation of prevention programs (CDC: PHPS Web site). Although Prevention Specialists may gain experience in applied epidemiology during their 3 years of training, the program is not focused specifically on training epidemiologists.

ATPM Preventive Medicine and Public Health Fellowship Program

The Association of Teachers of Preventive Medicine (ATPM) sponsors the ATPM Preventive Medicine and Public Health Fellowship Program (ATPM Web site) in conjunction with CDC. Graduate students and physicians are eligible to apply, depending on the position. Most of the positions are offered through various programs at CDC.

Preventive Medicine Residency Programs

CDC and several schools of public health have preventive residency programs that focus on applied epidemiology (such as the Johns Hopkins Bloomberg School of Public Health and the University of Michigan School of Public Health). These programs are geared toward physicians who are seeking training in public health/preventive medicine.

SECTION 2: METHODS USED TO DEVELOP THE IMPLEMENTATION PLAN

This document outlines an implementation plan for the proposed Applied Epidemiology Fellowship Program. The implementation plan was developed by the University of Minnesota, School of Public Health (Center for Infectious Disease Research and Policy), under contract from CSTE. Funding to support development of the implementation plan was provided through the Epidemiology Program Office at CDC. Development of the plan included five phases:

1. A site visit to the APHL office in Washington, D.C. to discuss operational aspects of the EID Laboratory Fellowship.
2. Interviews (either in person or over the telephone) with key informants from CSTE, CDC, ASPH, and two schools of public health.
3. Initial drafting of the plan.

4. Review of the draft plan by the CSTE Workforce Development Committee and several selected reviewers from accredited schools of public health.
5. Finalization of the plan based on comments from reviewers.

Persons who contributed to the development process (either by being interviewed and/or by reviewing the draft plan) are listed in Appendix B.

SECTION 3: PROGRAM MISSION AND PRINCIPLES

Mission

To meet the nation's ongoing need for applied epidemiology workforce capacity in state and local health departments through a national fellowship training program.

The program will focus on balancing three key concepts, as identified in the CDC guidance document, *Applied Epidemiology and Training Program (AETP) Development Handbook* (McDonnell 2002):

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

Principles

- The fellowship will offer high quality on-the-job training in epidemiology and public health practice at a state or local health department through a mentorship model.
- The fellowship will be geared toward persons who are interested in the practice of public health at the state or local level as a career focus.
- Training will be activity- and competency-based (i.e., graduates will be expected to develop a core set of skills during the course of the program through completing specified training activities).
- A major goal of the fellowship will be long-term job placement for participants in a state or local health department.
- The fellowship will provide cross-training in various program areas, including emergency response and bioterrorism.
- The fellowship will provide a certain degree of flexibility to meet the needs of individual fellows or to meet priority objectives for workforce development within certain program areas.
- CSTE will work with federal partners to develop funding sources for the fellowship.

SECTION 4: RECRUITMENT AND SELECTION OF FELLOWS

Mechanisms for Recruiting Applicants

Role of CSTE

CSTE will provide a link to information about the program on its Home page (<http://www.cste.org>). In addition, CSTE will develop recruiting materials, including brochures about the program and application materials.

CSTE also will send information about the Fellowship to its members and to NACCHO. In some jurisdictions, members of CSTE are closely affiliated with the school of public health in their area (as adjunct faculty or through providing practicum experiences for students). In such situations, CSTE will encourage its members to recruit candidates in the following ways.

- Identify students that would be good candidates for the program and refer them to the application materials on the ASPH or CSTE Web sites.
- Send information about the program to contacts they may have at the nearest school(s) of public health.
- Conduct on-site recruiting at the nearest school(s) of public health through presentations or seminars about the program.
- Provide information about the program to other epidemiologists (who are not CSTE members) at their agency or at local health departments in the area.
- Provide information about the program at job fair booths, regional EIS conferences, or regional epidemiology conferences.

Role of CDC

CDC will post information about the program on its Web site under the area entitled, “Training and Employment Opportunities” (<http://www.cdc.gov/train.htm>). In addition, CDC staff members (both in the EIS Program and in the Personnel Office) often participate in job fairs at schools of public health; informational brochures about this program will be included in the materials available at the CDC booth.

Role of ASPH

ASPH will participate in recruitment of fellows through methods currently used by ASPH to recruit applicants for existing fellowship programs. Specifically, students graduating from accredited schools of public health will be the major target audience (although eventually public health programs at other schools may be included in the recruitment process). A list of ASPH member schools is provided in Appendix C. Students at these schools currently are reached through the following mechanisms.

- ASPH currently promotes fellowship opportunities through the Friday Letter, the weekly electronic newsletter of ASPH. The Friday Letter is distributed to over 1800 individuals at ASPH schools of public health and various organizations.
- ASPH acts as a resource for public health students and schools regarding public health training opportunities.
- ASPH includes information about training programs on its Web site (<http://www.asph.org/>). Information about this program will be added to the current list of general fellowship postings.

Requirements for Applicants

To be eligible for the program, applicants will be required to have the following.

- An MPH, MSPH, MS in epidemiology, or equivalent degree or an advanced degree in a health-related field (i.e., PhD in epidemiology, biostatistics, or other public-health field; an MD degree; or a DVM degree).
- Completed at least three graduate-level epidemiology courses and one graduate-level biostatistics course.
- United States citizenship.
- A strong interest in a career as an epidemiologist in a state or local health department.

Application Materials

Applicants will be required to provide the following materials when they apply to the program.

- Completed application form.
- Curriculum vitae/resume in a standard format.
- Three letters of recommendation.
- Transcripts from all degree-granting programs.
- Personal statement indicating why they are interested in the program and stating their career goals (no more than one single-spaced type-written page).

The application form should include the following information (see Appendix D for a sample application).

- Name.
- Address, telephone, email address.
- Social Security Number.
- Place of birth or documentation of U.S. citizenship.
- Summary of education (names of schools, majors, diplomas or degrees, dates attended).
- Chronologic record of relevant work experience (names and addresses of employer, descriptions of duties, dates of employment).
- Past public health experience.
- Honors, awards, and memberships to professional societies.
- Program areas of interest.
- Geographic considerations and preferences.
- Professional references (list of three).

Selection of Applicants

Methodology

All applications initially will be received at the CSTE National Office. CSTE staff will review each application to determine whether or not the minimum application criteria have been met. Applicants who meet the criteria will be further evaluated through a formal review of their application by at least two members of a Review Committee. Members of the Review Committee will be appointed by the CSTE Executive Director and will include representation from the following categories (with emphasis placed on appointing members who have had practical experience working in a public health agency):

- CDC staff (CIOs that have invested in the program will be adequately represented).
- Persons with past or current experience working as an epidemiologist in a state or local health department.
- Persons affiliated with ASPH.

Members of the Review Committee will participate in a short training session on how to score the applicants, so that the process will be standardized as much as possible. The applications will be scored using a standardized evaluation tool (Appendix E).

Rating System for Applicants Applying to the Applied Epidemiology Fellowship		
<i>Category*</i>	<i>Possible points (Total =110)</i>	<i>Considerations</i>

Academic Achievement (Maximum 40 points)	40	~Quality of academic record (15 pts) ~Education in epidemiology/statistics (15 pts) ~Awards, honors, leadership roles (5 pts) ~Past research projects (5 pts)
Work/Research Experience (Maximum 10 pts)	10	~Past work experience in public health or related areas (10 pts)
Writing Skills (based on personal statement)	10	~Clarity (5 pts) ~General quality (grammar, punctuation, etc.) (5 pts)
Career Goals (Maximum 30 pts)	30	~Commitment to public health (15 pts) ~Commitment to state/local level (15 pts)
Letters of Recommendation (Maximum 10 pts)	10	~Level of support for candidate (5 pts) ~Standing of the person writing the recommendation (5 pts)
Special Considerations (Maximum 10 pts)	10	~Example: A particular state has a strong desire to place a candidate in a position at their agency
*Other issues, such as program area preference and geographic considerations also will be taken into account in the review process.		

Reviews will be submitted to the CSTE National Office where the scores will be assessed and the top applicants will be selected for in-person interviews. The number of persons selected for interviews will depend upon the number of funded positions and the quality of the applications.

All in-person interviews will be conducted by one member of the Review Committee and one senior state epidemiologist. Each applicant will be interviewed separately by the two interviewers (not necessarily those who scored their initial application). Applicants will be asked a standard set of questions and interviews will be scored using a standardized evaluation tool (Appendix F).

After interviews have been completed, the evaluation materials will be reviewed by a small Selection Committee. Members of the Selection Committee will be appointed by the CSTE Executive Director; this committee will be separate from the Review Committee. The Selection Committee will select a group of “finalists” who will then be eligible to apply for the available positions.

SECTION 5: RECRUITMENT AND SELECTION OF HEALTH AGENCIES

Mechanisms for Recruiting Health Agencies

The CSTE National Office will have primary responsibility for recruiting host agencies. CSTE will accomplish this through the following activities.

- A brochure (or similar notification) about the program will be distributed at the CSTE annual meeting in June each year. CSTE members will be encouraged to share information about the program with other epidemiologists in their agency and with epidemiologists at local health departments in their jurisdiction.
- An email will be sent to CSTE members each fall (see the timeline below). The email will provide basic information about the program and instructions for applying to host a fellow also will be attached

- Information about the program will be posted on the CSTE Web site along with instructions for how health agencies can apply.
- CSTE will request that NACCHO provide information about the program to their members.

Requirements for Health Agencies

State and local public health agencies will be eligible to host a fellow provided that they meet the following requirements.

- An epidemiologist who is willing to serve as a mentor and who has the following qualifications:
 - An advanced degree (i.e., a PhD in epidemiology or related public health field, an MD degree, or a DVM degree).
 - At least 3 years of experience as a practicing public health epidemiologist at a state or local health department (not including training positions).
 - Demonstrated writing ability as evidenced by publications, such as peer-reviewed journals.
 - Willingness and ability to spend 4 hours per week with the fellow during the first month of the Fellowship and 2 hours per week thereafter for the rest of the Fellowship.
- A specified backup supervisor who has epidemiologic and supervisory experience.
- Demonstrated ability to provide office space and equipment (including a desktop computer; current computer software [e.g., word processing, statistical packages, graphics]; telephone, fax, printer, photocopier, and internet access [including email access]); and clerical and administrative support.

Application Instructions for Health Agencies

Interested health agencies will be required to submit a Letter of Intent (LOI) to host a fellow. The LOI must include the following information:

- Basic information
 - Name of the agency
 - Name of the primary supervisor and title
 - Name of the secondary supervisor and title
 - Locating information for the primary supervisor (mailing address, email address, telephone number, and fax number)
- Supervision (1 page)
 - Brief summary of the epidemiologic experience of the primary and secondary supervisors, including publication record
 - Brief summary of the supervisory experience of the primary and secondary supervisors
 - Past mentoring experience of the primary and secondary supervisors
 - Brief work plan for providing structured supervision to the fellow
 - Availability of the supervisors and competing priorities
 - Description of academic affiliations or responsibilities, such as an adjunct appointment to a school of public health, teaching responsibilities, or other related activities
- Assignment description (1/2 page)

- Information about the program area
- Day-to-day activities for the fellow
- Opportunities for data analysis
- Opportunities for outbreak or field investigations
- Opportunities to work on interdisciplinary teams with health planners, health educators, and others
- Examples of potential projects
- Support structure (1/2 page)
 - Organizational location of the fellow position within the health agency
 - Other fellows or trainees within the same program area (e.g., EIS Officers, Preventive Medicine Residents, Prevention Specialists, etc.)
 - Description of additional statistical and data analysis support that will be made available to the fellow
 - Description of educational and training opportunities that will be made available to the fellow
 - Description of workplace support (office setting, computer equipment and software, clerical and administrative support, coworkers, etc.)
- Potential for retaining the fellow on staff after the fellowship period (provided that a “good fit” exists between the position and the fellow)
 - Identification of potential funding sources that could be tapped for ongoing support
 - Description of existing vacant positions that could be utilized
 - Potential for creation of a new position within the program area
 - Other relevant information (including current or anticipated hiring freezes)

Attachments that should be provided with the LOI:

- Organizational chart for the program area where the fellow will be working
- CV for the primary supervisor
- CV for the secondary supervisor
- Letters of support from any other programs that have been included in the assignment description

At the time that the LOI is submitted, an abstracted one-page summary of the position should be sent electronically to the CSTE National Office. If the position is approved, this summary will be posted on the ASPH and CSTE Web sites for viewing by candidates. The summary should include the telephone number and email address of the supervisor so that candidates can make contact with them to find out more about the position.

Selection of Health Agencies

Methodology

The LOIs from health agencies will be received at the CSTE National Office. CSTE staff will review each LOI for completeness and appropriateness. LOIs containing all of the appropriate information will be forwarded to the Review Committee (as outlined under Section 4: Recruitment and Selection of Fellows).

All forwarded LOIs will be reviewed and scored by at least two members of the Review Committee according to criteria identified in the section below. Once the agencies have been

scored, the CSTE National Office will develop a final list of positions to be offered to incoming fellows. CSTE will consult with the CIOs at CDC in making this determination and workforce development issues will be taken into consideration. It is likely that the number of positions approved will be substantially higher than the number of fellows competing for the positions.

The one-page summaries for the approved health agency positions (to be provided electronically by the health agency at the time that the initial application is submitted) will be posted on the CSTE Web site for viewing by prospective fellows.

Evaluation Process

The LOIs from health agencies will be evaluated and scored according to the table below (see Appendix G: Scoring tool for host agencies). Members of the Review Committee will receive a brief training session (in person or through a conference call) on how to score the health agencies.

Rating System for Health Agencies		
Category*	Possible points (Total =100)	Considerations
Epidemiologic experience of the primary and secondary supervisors	15	~Years of experience ~Quality of experience ~Past publications ~Recognition by peers
Supervisory experience and past mentoring of the primary and secondary supervisors	15	~Years of supervisory experience ~Types of staff supervised ~Mentoring of students ~Appointment at a school of public health ~Teaching responsibilities at a school of public health
Availability of the supervisors	15	~Potential for supervisors to be readily available to the fellow ~Potential for the supervisors to be able to spend at least 4 hours per week with the fellow ~Other competing priorities for the supervisors
Assignment description	35	~Variety of opportunities in day-to-day work scope ~Provides “hands on” work experience ~Opportunities for data analysis ~Potential for outbreak or field investigations ~Potential to work on cross-disciplinary teams ~Potential for publication ~Balance between applied epidemiology and academic exposure ~Adequate staffing and infrastructure within the work environment ~Availability of experts in biostatistics or data analysis ~Potential for academic consultation ~Availability of didactic courses or lectures

		~Availability of rounds or journal clubs
Description of workplace support	10	~Office setting ~Computer equipment and software ~Clerical and administrative support ~Coworkers
Demonstrated willingness or ability to retain the fellow after the fellowship period	10	~Potential funding sources ~Existing vacant positions ~Other creative approaches
*Once the Fellowship has been in operation for a full cycle, experience of past fellows will be included as an evaluation criterion and the evaluation scoring tool will be revised accordingly.		

SECTION 6: PLACEMENT OF FELLOWS

Methodology

Once the finalists and the approved health agency positions have been selected, the finalists will be provided with online access to the one-page summaries for each of the approved positions. At the same time, health agency supervisors will be sent summary information for each of the finalists.

Timelines for placing fellows will be developed once the Fellowship has been established. An example of a possible timeline is as follows.

- Between March 15 and April 15, finalists and approved health agencies will contact each other and conduct telephone interviews (or in-person interviews when possible).
- On April 15, fellows and health agencies will be required to submit their top choices ranked in order of preference. The number of fellows/positions that each must rank will be determined each year on the basis of class size and availability of positions.

The matching process will be performed by the CSTE National Office with assistance from the Selection Committee if needed.

Timeline for Class Selection and Placement

After the first pilot year, a timeline for operation of the program will be established. An example of a timeline is as follows.

- September: Email sent to CSTE members and NACCHO with health agency application information.
- September through December: Application period for candidates.
- December 31: Deadline for submission of applications and LOIs from health agencies.
- January: Initial screening of applicants; health agency LOIs reviewed and evaluated.
- February 1: Health agencies notified of approved positions.
- February: In-person interviews for top applicants (Atlanta, Georgia).
- March 1-March 15: Finalists selected.
- March 15: Finalists sent information about approved positions and host agencies sent information about each finalist.
- March 15-April 15: Finalists and host agencies contact each other; telephone (or in-person) interviews conducted between health agencies and finalists.
- April 15: Finalists and host agencies submit ranked requests to CSTE; matching process begins.

- May 1: Finalists and host agencies notified of the assignments.
- September 1: Fellows report to their work station (local or state health department).
- November 15: Orientation Course held for incoming fellows (to be held sometime during the first 3 months of the fellowship).

SECTION 7: TRAINING AND CERTIFICATION

Training Overview

Training will be for 2 years and will be competency-based, with required activities that fellows must complete during the Fellowship. Competencies and required activities are outlined in the sections below. In addition, selected topics will be covered in the Orientation Course (as described below) to assure that fellows have an understanding of the major topic areas.

Competencies

Epidemiologic methods

At the end of the Fellowship, fellows should be able to:

- Design surveillance systems to assess health problems in terms of key parameters.
- Evaluate surveillance systems and understand the limitations of surveillance data.
- Be able to interpret surveillance data.
- Design an epidemiologic study to address a health problem.
- Understand the different basic types of study design and the advantages and limitations of each type.
- Design a questionnaire or other data collection tool to address a health problem.
- Collect health data from appropriate sources (e.g., case interviews, medical records, vital statistics records, laboratory reports, or pathology reports).
- Create a database for a health data set.
- Use statistical software to analyze and characterize epidemiologic data.
- Interpret findings from epidemiologic studies, including the ability to recognize the limitations of the data and potential sources of bias or confounding.
- Recommend control measures, prevention programs, or other public health interventions based on epidemiologic findings.

Communication

At the end of the Fellowship, fellows should be able to:

- Write a field investigation report.
- Write a surveillance report.
- Understand the basic process for preparing a manuscript for publication.
- Make an oral presentation using appropriate media.
- Present data graphically and know how to use graphic software.
- Understand the basics of health-risk communication and be able to communicate epidemiologic findings in a manner that is easily understood by lay audiences (i.e., those with limited scientific background).

- Master's-level fellows: present a poster at a national or regional meeting/publish a technical report/prepare a manuscript for publication in a peer-reviewed journal.
- Doctoral-level fellows: prepare a manuscript for publication in a peer-reviewed journal.

Practice, Policy, and Legal Issues

At the end of the Fellowship, fellows should have a basic understanding of the following topics:

- Public health law.
- The Health Insurance Portability and Accountability Act of 1996 (HIPAA).
- Distinguishing between public health research and public health practice.
- Protection of human subjects and the role of an Institutional Review Board (IRB).
- Essential public health functions.
- Roles of local, state, and federal public health agencies.
- The diversity of how epidemiology is used in different program areas.
- Cultural sensitivity issues.

Orientation Course

During the first 3 months of the Fellowship Program, all incoming fellows will participate in an orientation course. Lectures for the course will be provided by CSTE members, CDC staff, and possibly faculty from schools of public health. Topics to be covered in the course include the following:

- Current topics in public health epidemiology.
- The history of public health.
- Questionnaire design.
- Overview of surveillance.
- Overview of public health program areas (e.g., chronic disease, environmental health, occupational health, infectious diseases, and others).
- Evaluation of surveillance systems.
- Review of statistical software.
- Health risk communication.
- Emergency preparedness and response (including bioterrorism preparedness).
- Workshop on writing in public health.
- Public health law/HIPAA.
- Public health research versus public health practice.
- Protection of human subjects (including the IRB process) and data privacy issues.
- Essential public health functions.
- Roles of local, state, and federal public health agencies.
- Cultural sensitivity issues.
- The role of the public health laboratory.
- Specialized tools available to epidemiologists (e.g., GIS mapping).

Core Activities

During the Fellowship, fellows will be expected to complete a core set of activities that are intended to demonstrate competence in key areas of applied epidemiology (as outlined above). The following activities must be completed during the Fellowship.

- Participate substantively in a surveillance activity by: 1) collecting surveillance data, 2) entering data into a database, 3) analyzing and interpreting the data, and 4) writing a summary surveillance report.
- Evaluate a surveillance system using the CDC report, *Updated Guidelines for Evaluating Public Health Surveillance Systems* (CDC 2001).
- Complete training in bioterrorism preparedness and response.
- Participate substantively in an outbreak investigation or other field investigation that requires a rapid public health response.
- Design a data collection tool for an epidemiologic study, investigation, or surveillance system.
- Complete a Major Project during the fellowship period. The project must involve: 1) a public health problem or program evaluation, 2) use of epidemiologic methods, and 3) data analysis and interpretation. A report on the project must be prepared and submitted to the CSTE National Office before the end of the Fellowship. The report should include recommendations for control measures, prevention activities, or other public health interventions and should be formatted similar to a manuscript for publication (i.e., Introduction, Methods, Results, Discussion, References, and Tables/Figures).
- Make an oral presentation to a professional audience using presentation media.
- Attend the annual CSTE Conference during both years of the fellowship and attend at least one national or regional public health meeting that is approved by the CSTE National Office (e.g., the EIS Conference, a conference geared toward a specific program area, or a regional epidemiology conference).

Plan of Action

By the end of the third month of the fellowship (i.e., approximately the end of November), each fellow will be required to submit a proposed Plan of Action that will outline how the fellow will complete the major required core activities. The plan should be created jointly by the fellow and the supervisor. In the plan, the following should be identified.

- Surveillance activity in which the fellow will participate.
- Surveillance system to be evaluated.
- Role in bioterrorism preparedness and response.
- Major Project (including a timeline for completion).
- National or regional meeting to be attended (in addition to the annual CSTE meetings).

The plan will be reviewed and approved by CSTE. The Fellowship Director will further discuss the plan with the fellow and the on-site supervisor if necessary.

Progress Reports

Every 6 months, the fellow and the supervisor will be required to complete an evaluation form that outlines progress toward meeting the required core activities. In addition, each fellow must submit brief quarterly reports that highlight the fellow's work experience during that quarter. Reports will be reviewed by the CSTE Fellowship Director.

Final Report

Fellows and their supervisors will be required to submit a Final Report during the last month of the fellowship. The Final Report should indicate that the fellow has completed all the required activities. In addition, the Report should include the following.

- A brief summary of how each of the required activities was completed.
- The fellow's perspective on whether or not the fellowship achieved its training objectives.
- An evaluation of the fellow by his/her supervisor.
- Ways that the fellowship could be improved (both fellow and supervisor).
- The fellow's future career plans.
- Contact information for the fellow after the fellowship.

Certification

A certificate will be awarded to fellows at the end of the 2-year Fellowship, provided they demonstrate the following:

- Complete all of the required core activities.
- Submit their Final Report to the CSTE National Office (to be completed by both the fellow and the supervisor).
- Perform satisfactorily during the fellowship according to the supervisor.

The certificates will be issued and provided by CSTE but will be cosigned by CSTE, CDC, and ASPH.

SECTION 8: CONSIDERATIONS FOR PUBLIC HEALTH PROGRAM AREAS

A key objective of the Fellowship Program is to address the workforce development needs of different public health program areas. Because these needs vary considerably across states, the Fellowship Program must maintain a certain degree of flexibility. Examples of how the program could potentially be individualized to meet this objective include the following.

- In some program areas, adequate state-based supervision in epidemiology may be somewhat limited. In such situations, the best approach may be to have a fellow spend a year working at CDC in a specific program area or at a selected state that has developed good capacity in that program area. Once the fellow has gained some experience, the fellow could then move into a state that has more limited supervisory capacity, but a strong need for workforce development. During the second year, the fellow could rely on ongoing mentoring and advice from the epidemiologist who provided supervision during the first fellowship year. Examples of program areas where this approach may fit include Maternal and Child Health (MCH) and Injury Prevention.
- Certain program areas at CDC may have a strong desire to place fellows into states that have received funding targeted to special projects. For example, two such projects funded through the National Center for Environmental Health (NCEH) include: 1) the Environmental Public Health Tracking Program (CDC: NCEH Environmental Public Health Tracking Projects) and 2) the National Asthma Control Program (CDC: National Asthma Control Program Grantees). CSTE or CDC could contact the program directors in those states and specifically request that they apply to host a fellow.
- Some programs may want to develop long-term capacity in specific states. In some situations, a program area may want to support a fellow for the duration of the

Fellowship and then offer partial salary support for an additional 1 to 2 years for that fellow to take a permanent position in the health agency or a comparable position in another state.

- In some situations, it may work best for the fellow to be a state employee and for their salary to be paid with funds from an existing cooperative agreement with a program area at CDC or through an existing block grant. This would allow the fellow to begin accruing retirement benefits, which may be an important consideration in some situations.
- In some program areas, such as MCH, the greatest capacity need may be in Doctoral-level epidemiologists (CSTE: 2002). In such situations, the program area may choose to only support Doctoral-level candidates who are interested in going to a selected group of states.
- In some instances, the Fellowship could provide an opportunity for CDC staff to obtain experience working in a local or state health department as a mid-career rotation. Although this would not fulfill the primary goal of the program, this type of activity could ultimately serve as an important component of workforce development by providing CDC staff with better understanding regarding workforce training needs at the state and local levels.

SECTION 9: PROGRAM MANAGEMENT AND ADMINISTRATION

Funding for the Program

Funding for the program initially will be sought from the various CIOs within CDC. Future funding sources may include other federal agencies (e.g., the National Institutes of Health [NIH], the Food and Drug Administration [FDA], the United States Department of Agriculture [USDA], or the Environmental Protection Agency [EPA]) as well as non-profit organizations.

Key points regarding funding are as follows.

- The CSTE Executive Director and the Fellowship Advisory Committee will work closely with CDC CIOs in structuring the experience of individual fellows to best meet the national workforce needs of specific program areas.
- Most fellows will be placed in program areas according to funding sources provided by the CIOs. Some fellows funded by bioterrorism preparedness or other core infrastructure funds may be trained in other subject areas.
- All fellows will be cross-trained in bioterrorism as part of preparedness planning.

Steering Committee

During the development phase of the program, a small Steering Committee will be appointed by the CSTE Executive Director. The Steering Committee will be replaced at the end of the first year by a more permanent Fellowship Advisory Committee (see below). Functions of the Steering Committee will be as follows.

- Review and approve the Implementation Plan for the Fellowship.
- Work with the CSTE Executive Director to secure funding for the Fellowship Program.
- Review and approve all documents necessary for program operation (application forms, evaluation forms, etc.).
- Assist with selecting the first incoming class during the initial Pilot Program (i.e., the first year of the Fellowship; see Section 10: 2003-2004 Pilot Program).

- Provide consultation on hiring the initial Fellowship Director.

Fellowship Advisory Committee

Long-term guidance and oversight for the Fellowship will be provided by an Advisory Committee (see Appendix A). Members of the Advisory Committee will include the CSTE Executive Director, several CSTE members from state and/or local health departments, several representatives from CDC (including representation from the Epidemiology Program Office [EPO]), and at least one representative from ASPH. Appointments to the Advisory Committee will be made by the CSTE Executive Director. Functions of the Advisory Committee include the following:

- Provide policy-level direction for the Fellowship.
- Advise the CSTE Executive Director on ongoing issues related to the Fellowship.
- Provide input into selection of fellows and the matching process as needed.
- Provide input into grievances or disciplinary problems.

Fellowship Program Office

A program office for the Fellowship will be established at the CSTE National Office. The Fellowship Program Office initially will be staffed by a Fellowship Director, a Deputy Director, and an Administrative Assistant. Over time, the number of leadership positions will depend on the number of fellows; no more than 20 fellows will be managed by one staff person. The Program Office staff initially will report directly to the CSTE Executive Director; however, the organizational structure for the Program Office may change over time. Examples of major activities to be conducted by the Program Office include the following:

- Provide staffing for meetings of the Fellowship Advisory Committee.
- Prepare all application materials.
- Serve as a liaison to ASPH on recruitment of fellows.
- Coordinate additional recruiting activities by working directly with CSTE members and contacting NACCHO.
- Receive fellow applications.
- Review initial fellow applications for completeness and acceptability.
- Solicit host agency applications from CSTE members.
- Receive initial host agency applications and review them for completeness and acceptability.
- Coordinate the selection and matching processes including identifying members for the Review and Selection Committees (outlined in Sections 4 and 5 above).
- Develop the Fellow Orientation Course.
- Prepare a syllabus for the Orientation Course.
- Develop written policies and procedures for the Fellowship.
- Prepare a Fellow Handbook to be distributed to fellows at the beginning of the Fellowship.
- Prepare orientation materials for host agency supervisors.
- Assure that fellows submit their Plan of Action, their Progress Reports, and their Final Report on time.
- Assure that fellows complete their core activities according to the timeline established in the Plan of Action.
- Review and critique all reports submitted by the fellow.

- Establish regular communication with each fellow via email and telephone.
- Identify and provide additional resources and opportunities for distance learning for each class of fellows (e.g., available online courses and Web casts, Tables of Contents [TOCs] for key journals, teleconferences on specific topics, etc.).
- Work with fellows and supervisors to resolve any issues or problems that may arise during the course of the Fellowship.
- Make site visits to the field locations once a year.
- Serve as an advocate for the fellows to assure that fellows have a quality learning experience
- Provide opportunities for fellows to “network” with each other so that fellows have a sense of belonging to a cohort.
- Assume responsibility for program evaluation.
- Serve as a liaison to CDC and ASPH, along with the CSTE Executive Director, on issues related to the Fellowship.
- Prepare an annual budget for the program and write sections of the CSTE Cooperative Agreement to CDC that deal with funding of the Fellowship.

Administrative Issues

The Fellowship Program will be administered by CSTE in collaboration with CDC and ASPH. Key administrative issues are outlined in the sub-sections below.

Terms of Agreement

Each fellow will be asked to sign a Terms of Agreement document before starting the Fellowship. The Terms of Agreement document will outline the start date for reporting to the field assignment, location of field assignment, name of supervisor, stipend pay schedule and amount, annual leave, fellowship requirements, standards of conduct, conditions for termination or withdrawal from the program, grievance process, and a liability disclaimer.

Stipends

Fellows will be paid a bimonthly stipend that will correspond to an annual salary of \$35,000 for fellows with an MPH degree. The salary for fellows with doctoral degrees will be negotiable based on experience and programmatic issues. The stipend will be sent to the fellow’s home address or will be directly deposited. Stipends will not be considered salaries and, therefore, no taxes will be withheld from them.

Health Insurance

All fellows will be required to have health insurance that is in place by the first day that the fellow reports to their field assignment. Two options (outlined below) exist for providing health insurance to fellows.

1. Fellows will be responsible to obtain their own health insurance (e.g., Blue Cross/Blue Shield, Kaiser Permanente, etc.) and will be given a set amount of money annually to cover reimbursement for their premiums. This model is currently used by ASPH; fellows receive \$3,000 to cover health insurance.
2. Fellows will be covered under a group policy that is obtained for them and their costs are covered under the policy. This model is currently used by the EID Laboratory Fellowship that is operated by the Association of Public Health Laboratories (APHL) through a group policy with Guardian. The Guardian Insurance Plan includes optional

coverage for family members. ASPH also offers a similar option for their fellowship programs.

Travel and Professional Development

The following statements outline general guidelines related to reimbursement for travel.

- Fellow candidates will be required to cover their own travel costs when they are invited to be interviewed for admission into the Fellowship.
- Fellows will be eligible for a one-way airplane ticket to the location of their assignment (up to \$500 or equivalent cost for other modes of transportation).
- Fellows will be reimbursed for expenses incurred during the Orientation Course. Transportation, lodging, and per diem will be covered.
- Fellows will be responsible for their own moving expenses when they relocate to their field assignment; this will not be reimbursed through the Fellowship Program.
- Travel to one national or regional meeting will be provided to each fellow. Transportation, registration, lodging, and per diem will be covered (up to \$700).
- Fellows will be required to complete a travel reimbursement form within 1 month after completing the travel.

Leave

Each fellow will be expected to follow the regular work week and holiday schedule of the host agency. In addition, fellows will receive 10 days of paid personal leave annually. Requests for leave must be approved by the supervisor at the host agency. Leave will be tracked locally and will not be handled by administrators of the Fellowship.

Grievance Procedure

A formal grievance procedure will be developed by the Fellowship Program Office. In general, the grievance procedure will include the following:

- Fellows and supervisors will be expected to bring any unresolved issues to the attention of the Fellowship Director.
- If issues cannot be resolved with input from the Fellowship Director, then either the fellow or the supervisor may file a formal grievance in writing addressed to the CSTE Executive Director.
- Formal grievances will initially be reviewed by the CSTE Executive Director with input from the Fellowship Director; the CSTE National Office will attempt to deal with the issue.
- Any issues that cannot be resolved by the CSTE National Office will be brought before the Fellowship Advisory Committee for resolution.

Withdrawal or Termination from the Program

The Fellowship Program Office at CSTE will reserve the right to terminate the fellowship agreement under recommendation of the Fellowship Advisory Committee in response to unacceptable conduct or performance of a fellow.

If fellows wish to withdraw from the program voluntarily, they will be asked to provide at least a 2-week notice in writing to the field supervisor and to the Fellowship Program Office.

SECTION 10: 2003-2004 PILOT PROGRAM

Owing to the late start date in 2003 for initiating the Fellowship, the full fellowship implementation plan cannot be put in place for the 2003-2004 year. Therefore, during this coming year, CSTE will implement a relatively small Pilot Program, consisting of no more than 15 fellows. Methods for recruiting fellows for the Pilot Program may focus specifically on schools of public health that have practice-oriented programs (such as schools with Centers for Public Health Preparedness [ASPH: Public Health Preparedness Resource Center]) and on health agencies that are closely affiliated with such schools. Methods for selection will be similar to those outlined above, although on a much shorter time line and on a smaller scale. Fellows will be selected by the Steering Committee (to be appointed by the CSTE Executive Director) and the matching process will be kept relatively simple. Incoming fellows for the Pilot Program will report to their field assignments in October 2003.

SECTION 11: EVALUATION

The Fellowship will be evaluated in several different ways as outlined in the sub-sections below.

Quality of Experience for Fellows

Fellows will be given several opportunities to provide feedback on their fellowship experience. Mechanisms of evaluation will include the following:

- An evaluation form will be completed for each of the lectures in the Orientation Course and for the overall quality of the course.
- The 6-month evaluation forms will provide an opportunity for fellows to comment on their experience.
- The Fellowship Director at CSTE will solicit oral feedback on the fellows' experience at several points during the Fellowship and fellows will be encouraged to raise any issues that they may have at any time during their experience.
- Annual site visits by the CSTE Fellowship Director will be used to assess the quality of experience for the fellows and to identify any issues that may be important for ongoing success of the program.
- Fellows will be asked to evaluate the program in their Final Report.

Quality of Experience for Health Agencies

Health agency supervisors will be asked to evaluate the fellow and to provide their views on the program in their Final Report. Supervisors also will be encouraged to provide their feedback about the program to the CSTE National Office at any time during the course of the Fellowship. During the annual CSTE meeting (held in June each year), an informal discussion will be held about the Fellowship (e.g., during a breakfast or lunch meeting).

Success of the Fellowship in Meeting Workforce Development Needs

Over time, a key issue will be to determine if the Fellowship Program is successful in meeting the demands for workforce development in applied epidemiology. This will be assessed through the following mechanisms.

- At the end of the Fellowship, fellows will be asked to indicate their plans for future employment in their Final Report and will be asked to provide a forwarding address.
- A database of locating information for fellows will be maintained and fellows will be surveyed at approximately 2 years after completion of the Fellowship to determine if they remained in the practice of applied epidemiology and in what program area.

In addition, states and CIOs will be asked each year to provide comments on the overall success of the Fellowship Program.

SECTION 12: ISSUES FOR POSSIBLE FUTURE CONSIDERATION

In the process of seeking input from key informants (as outlined in Section 2 above), several other important issues or ideas were raised that relate to the success of workforce development in applied epidemiology. These issues may be addressed at a future time.

Additional Efforts to Engage Schools of Public Health

Once the Fellowship is established, additional creative ways to engage schools of public health could be considered. Examples include the following.

- Student summer internships could be added to the fellowship program (similar to CDC internship programs currently supported through ASPH). These internships could support students to work in state/local health agencies for the summer. Faculty from local schools of public health could be asked to serve as additional mentors for the student interns, along with a primary mentor from the host agency. In return, participating faculty members could receive a set level of compensation such as 5% of their salary). These internships could: 1) provide students opportunities to develop their thesis projects, 2) stimulate student interest in public health practice at state/local health agencies, 3) serve as conduits for future fellows, and 4) enhance collaboration between health agencies and schools of public health.
- Health agencies who are hosting fellows should be encouraged to engage faculty from schools of public health in the fellows' training. To support this process, a small pool of money could be earmarked for these collaborative efforts. Host agencies could submit applications to CSTE to receive these funds through a competitive process.
- Schools of public health could be asked (and funded) to participate in evaluation of the fellowship program.

Retirement

The current practice for accruing employee retirement is a major deterrent to professionals broadening their work experience by working within different agencies or at different levels of government. Once an employee begins to accrue retirement at a given agency, the employee generally becomes reluctant to move to a new position, even temporarily.

Some states (such as New York and Michigan) have tried to address this issue by creating an independent Public Health Institute that serves as the overarching employer for public health workers at different agencies. This allows for retirement to be paid from a central source, regardless of where the employee works and, thus, eliminates the barrier posed by more restricted retirement practices. A national Public Health Institute, which could serve as an overarching employer for public health workers across states and between levels of

government, could provide a similar national mechanism for workers to move between agencies during the course of their careers. In turn, this process could have substantial impact on workforce capacity in underserved locations or program areas. CSTE or ASTHO should consider exploring the development of a National Public Health Institute for public health workers.

Lack of Career Tracts in Applied Epidemiology

Lack of career tracts in applied epidemiology also is an important deterrent for qualified epidemiologists to work in public health agencies at the state and local levels. An example of a career tract is having position descriptions for entry-, mid-, and senior-level epidemiologists with a corresponding graduated pay scale for each of the three areas (or for appropriate subdivisions into more than three areas). Although some state and local agencies have career tracts in applied epidemiology, many do not; therefore, state and local public health agencies should be encouraged to provide career tracts in epidemiology and to offer competitive salaries to qualified personnel. CSTE, ASTHO, and NACCHO can support this process.

Public Health Leadership

For a fellowship program to be successful, strong mentors and leaders in applied epidemiology are needed at the state and local levels. CSTE and NACCHO can serve as important focal points for leadership development in applied epidemiology.

Strengthening CSTE's Role across Program Areas

Over the past decade, CSTE has worked to expand its role beyond that of infectious disease epidemiology; however, the major focus of CSTE has continued to be infectious diseases. The Applied Epidemiology Fellowship Program is one way for CSTE to expand its role in other program areas. In addition, CSTE should consider developing a committee (comprised of representatives from CDC and state health departments) to explore additional ways to enhance CSTE's role across program areas, such as chronic disease, MCH, injury prevention, and environmental health.

Establish CSTE as a Focal Point for State-based Applied Epidemiology Training Programs

Currently, California and Florida operate state-based applied epidemiology training programs (Cal-EIS and Florida EIS) and other states are considering this approach to address workforce development. Once the CDC/CSTE Fellowship Program is established, CSTE could serve as an umbrella organization for these state-based programs. For example, CSTE could host a national conference for these applied epidemiology training programs and develop other mechanisms for the coordinators of these programs to share their experiences.

Certification in Applied Epidemiology

Certification has been raised as a mechanism to promote training of practicing public health professionals. CSTE could consider developing a certification program for epidemiologists who are working in state or local health departments.

SECTION 13: REFERENCES

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<http://www.aphl.org/index.cfm>

ASPH. Home Page.

<http://www.asph.org/>

ASPH. Public Health Preparedness Resource Center

<http://www.asph.org/phprc/>

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CDC: NCEH. Environmental Public Health Tracking Projects

<http://www.cdc.gov/nceh/tracking/EPHTracking/EPHTracking.htm>

CDC: PHPPO. Office of Workforce Policy and Planning

<http://www.phppo.cdc.gov/owpp/index.asp>

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<http://www.cdc.gov/epo/dapht/phps.htm>

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SECTION 14: APPENDICIES

Appendix A

Schematic Diagram for Operation of the Fellowship

Appendix B

List of Key Informants

Appendix C

List of ASPH Schools of Public Health and Member Programs

Appendix D

Sample Application Form

Appendix E

Scoring Tool for Fellow Applications

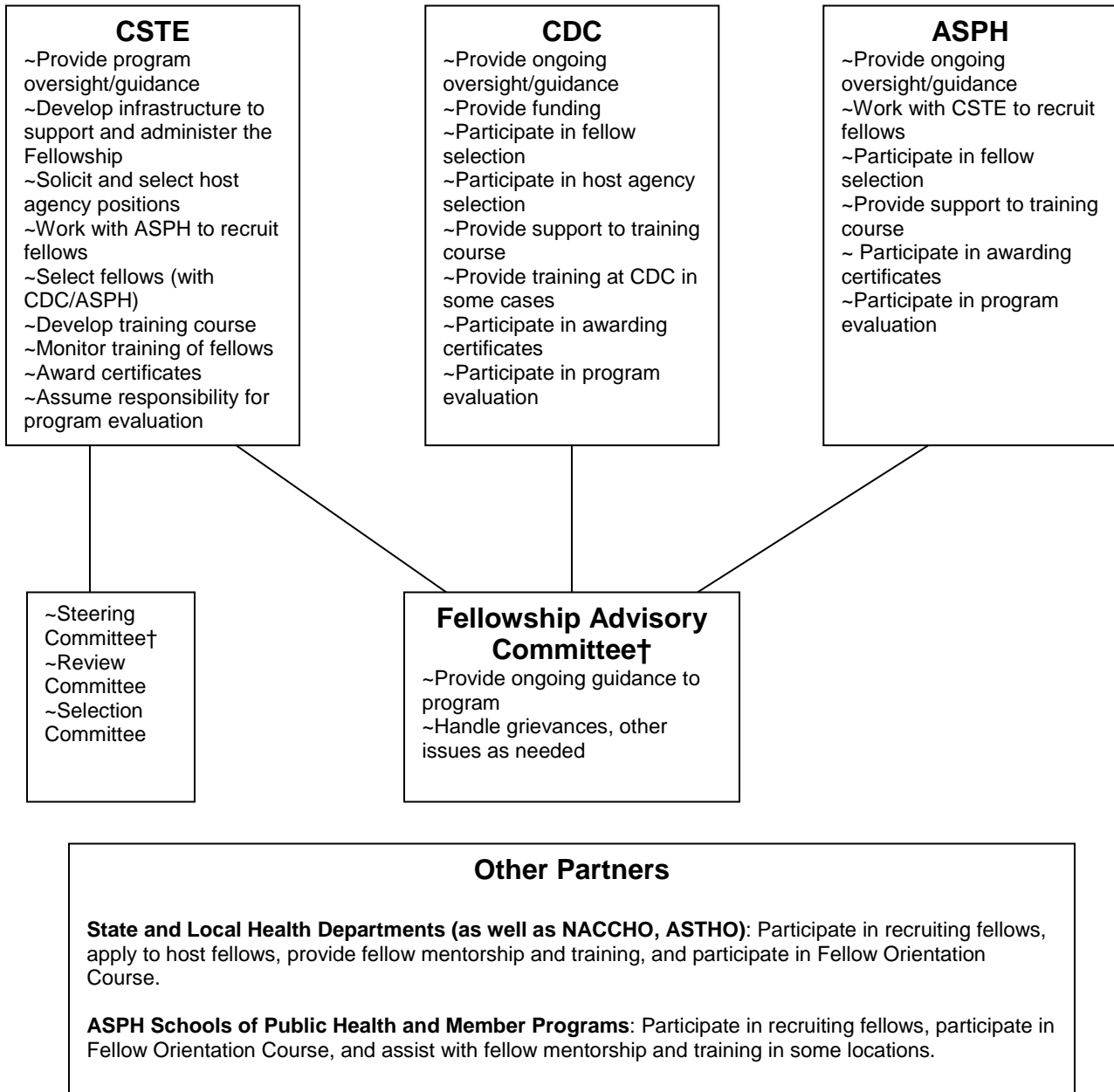
Appendix F

Questions for Applicant Interviews and Rating Form

Appendix G

Scoring Tool for Host Agency Applications

Appendix A: Schematic Structure for Operation of the Applied Epidemiology Fellowship Program



*CDC Partners include the Epidemiology Program Office, the Public Health Practice Program Office, and the various centers for specific program areas.

†The Steering Committee will help to establish the Fellowship and by the end of the first year, the Steering Committee will be replaced by the ongoing Fellowship Advisory Committee.

**Appendix B:
Key Informants for Development of the
Applied Epidemiology Fellowship Implementation Plan**

Hani Atrash, MD, MPH
Associate Director for Program
Development
National Center for Birth Defects
and Developmental Disabilities
Centers for Disease Control and
Prevention
Atlanta, Georgia

Ruth L. Berkelman, MD
Rollins Professor and Director
Center for Public Health Preparedness
and Research
Rollins School of Public Health
Emory University
Atlanta, Georgia

Suzanne Binder, MD
Director
National Center for Injury Prevention
and Control
Centers for Disease Control and
Prevention
Atlanta, Georgia

Matthew L. Boulton, MD, MPH
State Epidemiologist
Director, Bureau of Epidemiology
Michigan Department of Community
Health
Lansing, Michigan

Jill M. DeBoer, MPH
Associate Director
Center for Infectious Disease Research
and Policy (CIDRAP)
University of Minnesota School of
Public Health
Minneapolis, Minnesota

Deborah A. Deppe, MPA
Senior Public Health Advisor
National Center for Infectious Diseases
Centers for Disease Control and
Prevention
Atlanta, Georgia

Richard C. Dicker, MD, MSc
CDC EIS Field Supervisor
EIS Program
Epidemiology Program Office
Centers for Disease Control and
Prevention
Boston, Massachusetts

Doug Drabkowski
Director, Program Development
Association of Public Health
Laboratories
Washington, D.C.

Laura J. Fehrs, MD
State Branch Supervisor
EIS Program
Epidemiology Program Office
Centers for Disease Control and
Prevention
Atlanta, Georgia

David W. Fleming, MD
Deputy Director for Public Health
Science
Office of the Director
Centers for Disease Control and
Prevention
Atlanta, Georgia

Douglas H. Hamilton, MD, PhD
Director
EIS Program
Epidemiology Program Office
Centers for Disease Control and
Prevention
Atlanta, Georgia

James M. Hughes, MD
Director
Center for Infectious Diseases
Centers for Disease Control and
Prevention
Atlanta, Georgia

Merry Holliday-Hanson, PhD
Former Program Manager,
Cal-EIS Program
California Department of Health
Services
Sacramento, California

Richard J. Jackson, MD, MPH
Director,
National Center for Environmental
Health
Centers for Disease Control and
Prevention
Atlanta, Georgia

Dennis F. Jarvis, MPH, CHES
Chief
Public Health Prevention Service
Division of Applied Public Health
Training
Epidemiology Program Office
Centers for Disease Control and
Prevention
Atlanta, Georgia

Maureen Y. Lichtveld, MD, MPH
Associate Director for Workforce
Development
Office of the Director
Public Health Practice Program Office
Centers for Disease Control and
Prevention
Atlanta, Georgia

James S. Marks, MD, MPH
Director,
Center for Chronic Disease Prevention
and Health Promotion
Centers for Disease Control and
Prevention
Atlanta, Georgia

Patrick J. McConnon, MPH
Executive Director
Council of State and Territorial
Epidemiologists
Atlanta, Georgia

Michael A. McGeehin, PhD, MSPH
Director
Division of Environmental Hazards &
Health Effects
Centers for Disease Control and
Prevention
Atlanta, Georgia

Michael T. Osterholm, PhD, MPH
Director
Center for Infectious Disease Research
and Policy (CIDRAP)
University of Minnesota School of
Public Health
Minneapolis, Minnesota

Heather Roney, MA
Fellowship Program Manager
Laboratory Fellowship Program
Association of Public Health
Laboratories
Washington, D.C.

William M. Sappenfield, MD, MPH
MCH EPI Program Team Leader
Division of Reproductive Health
National Center for Chronic Disease
Prevention and Health Promotion
Centers for Disease Control and
Prevention
Atlanta, Georgia

Paul Z. Siegel, MD, MPH
Director
Field Epidemiology Program
Center for Chronic Disease Prevention
and Health Promotion
Centers for Disease Control and
Prevention
Atlanta, Georgia

Harrison C. Spencer, MD, MPH
President and CEO
Association of Schools of Public Health

Donna F. Stroup, PhD
Associate Director for Science
Center for Chronic Disease Prevention
and Health Promotion
Centers for Disease Control and
Prevention
Atlanta, Georgia

Stephen B. Thacker, MD, MSc
Director
Epidemiology Program Office
Centers for Disease Control and
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Atlanta, Georgia

F.E. (Ed) Thompson, Jr. MD, MPH
Deputy Director for Public Health
Service
Office of the Director
Centers for Disease Control and
Prevention
Atlanta, Georgia

Heather L. Ward
Center for Graduate Practice
Association of Schools of Public Health
Atlanta, Georgia

Shawna M. Ward
Program Analyst
National Center for Chronic Disease
Prevention and Health Promotion
Centers for Disease Control and
Prevention
Atlanta, Georgia

Andrew K. Weathers, MPH
Program Analyst
Epidemiology Program Office
Centers for Disease Control and
Prevention
Atlanta, Georgia

Steven T. Wiersma, MD, MPH
Bureau Chief and State Epidemiologist
Florida Department of Health
Tallahassee, Florida

Appendix C: Accredited Schools of Public Health and Member Programs in Public Health

Boston University School of Public Health
Boston, MA

Columbia University Mailman School of Public Health
New York, NY

Drexel University School of Public Health
Philadelphia, PA

Emory University Rollins School of Public Health
Atlanta, GA

George Washington University School of Public Health and Health Services
Washington, DC

Harvard School of Public Health
Boston, MA

Indiana University School of Medicine Department of Public Health
Indianapolis, IN

Johns Hopkins Bloomberg School of Public Health
Baltimore, MD

Loma Linda University School of Public Health
Loma Linda, CA

Mel and Enid Zuckerman Arizona College of Public Health
Tucson, AZ

New York Medical College School of Public Health
Valhalla, NY

Ohio State University School of Public Health
Columbus, OH

Saint Louis University School of Public Health
St. Louis, MO

San Diego State University Graduate School of Public Health
San Diego, CA

Texas A&M School of Rural Public Health
TAMUS Health Science Center
Bryan, TX

Tulane University School of Public Health and Tropical Medicine
New Orleans, LA

University at Albany SUNY School of Public Health
Rensselaer, NY

University of Alabama at Birmingham School of Public Health
Birmingham, AL

University of California at Berkeley School of Public Health
University of California at Berkeley
Berkeley, CA

University of California at Los Angeles School of Public Health
UCLA School of Public Health
Los Angeles, CA

University of Connecticut Health Center Graduate Program in Public Health
West Hartford, CT

University of Illinois at Chicago School of Public Health
Chicago, IL

University of Iowa College of Public Health
Iowa City, IA

University of Kentucky School of Public Health
Lexington, KY

University of Massachusetts School of Public Health and Health Sciences
Amherst, MA

University of Medicine and Dentistry of New Jersey-School of Public Health
New Brunswick, NJ

University of Michigan School of Public Health
Ann Arbor, MI

University of Minnesota School of Public Health
Minneapolis, MN

University of North Carolina at Chapel Hill School of Public Health
Chapel Hill, NC

University of North Texas Health Science Center School of Public Health

Fort Worth, TX

University of Oklahoma College of Public Health
Oklahoma City, OK

University of Pittsburgh Graduate School of Public Health
Pittsburgh, PA

University of Puerto Rico School of Public Health
Health Sciences Center
San Juan, PR

University of South Carolina
The Norman J. Arnold School of Public Health
Columbia, SC

University of South Florida College of Public Health
Tampa, FL

University of Tennessee School of Public Health
Knoxville, TN

University of Texas School of Public Health
Houston, TX

University of Washington School of Public Health and Community Medicine
Seattle, WA

Yale University School of Public Health
New Haven, CT

Appendix D: Sample Application Form

Please print or type all responses.

PART A: IDENTIFYING INFORMATION

Name:

Last	First	Middle
------	-------	--------

Address:

Number	Street	Apartment Number
--------	--------	------------------

City	State	ZIP Code
------	-------	----------

Telephone Number: _____

Email address: _____

Place of Birth: _____ Social Security Number: _____
City State

(Note: If place of birth is not within the United States, please provide documentation of U.S. citizenship.)

PART B: EDUCATION

	Name/Location of Institution	Dates of Study	Degrees (Dates)	Major
Undergraduate				
Graduate				
Post-Graduate				

	Name/Location of Institution	Dates of Study	Degrees (Dates)	Major
Special Study or Training				

Please provide the topics for any graduate degree theses or dissertations:

PART C: PROFESSIONAL EXPERIENCE

Complete the following table in chronologic order, beginning with the most recent experience first.

Name of Institution or Company	City and State	Dates of Employment	Title and Basic Description of Duties

List any professional, scientific, or scholarly societies to which you belong:

List any awards or honors received:

List any public health experiences not included in the work record outlined above:

PART D: PROGRAM AREAS OF INTEREST

Please rank the following program areas by level of interest.

Program Area	Level of Interest (Circle one for each area)		
Birth defects and Developmental Disabilities	Low	Medium	High
Bioterrorism/Chemical Terrorism Preparedness	Low	Medium	High
Chronic Disease	Low	Medium	High
Environmental Health	Low	Medium	High
Genetics	Low	Medium	High
Infectious Diseases	Low	Medium	High
Injury Prevention	Low	Medium	High
Maternal and Child Health	Low	Medium	High
Occupational Health	Low	Medium	High
Other (specify: _____)	Low	Medium	High

PART E: GEOGRAOPHICAL PREFERENCES OR NEEDS

Please indicate any strong geographical preferences or limitations: _____

PART F: CAREER GOALS

Please indicate your long-term career goals:

PART G: REFERENCES

Indicate three references for whom you intend to seek letters of recommendation.

Name of Reference	Title and Institution/Employer

PART G: ADDITIONAL INFORMATION

Please include the following documents with your application:

- Resume or Curriculum vitae in standard format

- Transcripts from all degree-granting programs

- Personal statement indicating why you are interested in the program and stating career goals (no more than one single-spaced type-written page)

SIGNATURE:

Signature Date

Send your completed application to:

Applied Epidemiology Fellowship
CSTE
2872 Woodcock Boulevard, Suite 303
Atlanta, Georgia 30341-4015

Phone: 770-458-3811

Appendix E: Scoring Tool for Fellow Applications

Applicant Name: _____

Reviewer: _____

Overall Score (maximum 110 pts): _____

1. Program Areas of Interest (check those that apply):

Birth Defects and Developmental Disabilities _____

Bioterrorism/Chemical Terrorism Preparedness _____

Chronic Disease _____

Environmental Health _____

Genetics _____

Infectious Diseases _____

Injury Prevention _____

Maternal and Child Health _____

Occupational Health _____

2. Are there any strong geographic preferences? If so, please indicate.

3. Academic Achievement (Maximum 40 pts)

Quality of academic record (15 pts) _____

Education in epidemiology/statistics (15 pts) _____

Awards, honors, leadership roles (5 pts) _____

Past research projects (5 pts) _____

TOTAL _____

4. Work/Research Experience (Maximum 10 pts) _____

5. Writing Skills (based on personal statement; Maximum 10 pts)

Clarity (5 pts) _____

General quality (e.g., grammar, punctuation) (5 pts) _____

TOTAL _____

6. Career Goals (Maximum 30 pts)

Commitment to public health (15 pts) _____

Commitment to state/local level (15 pts) _____

TOTAL _____

7. Letters of Recommendation (Maximum 10 pts) _____

8. Special Considerations (Maximum 10 pts) _____

Specify: _____

9. General Comments:

8. *Are there any other experiences that you have had that you consider relevant to the practice of public health or applied epidemiology?*

9. *Have you given oral presentations to either professional audiences or to the general public? If so, give elaborate.*

10. *Have you had experience with writing outside of course work? Have you ever published? If so, elaborate.*

11. *Describe a situation where you functioned as a member of a team.*

Personal Questions

12. *What do you consider to be your greatest strengths?*

13. *What do you consider to be your weaknesses?*

14. *What has been your most significant accomplishment to date?*

15. *Why do you think you should be accepted into this program?*

Geographic Considerations

16. *Do you have any special needs that require you to live in certain cities or regions?*

17. *Do you have any strong geographic preferences?*

18. *Are there any places where you would NOT be willing to go?*

Program Areas of Interest

19. *Are there any specific program areas that you are interested in (such as chronic disease, environmental health, maternal and child health, birth defects, infectious diseases, injury prevention)? If so, why?*

Wrap up

20. *Is there anything else that you would like to mention about yourself?*

21. *Do you have any questions?*

Rating of Applicant

Applicant Rating Form		
Category	Score	Comments
Oral communication skills	Low 1 2 3 4 5 High	
Interpersonal skills	Low 1 2 3 4 5 High	
Confidence	Low 1 2 3 4 5 High	
Ability to be part of a team	Low 1 2 3 4 5 High	
General manner and appearance	Low 1 2 3 4 5 High	
Understanding of public health and epidemiology	Low 1 2 3 4 5 High	
Career goals that fit with the program	Low 1 2 3 4 5 High	
Clear concept of the program	Low 1 2 3 4 5 High	
Research potential	Low 1 2 3 4 5 High	
Geographic flexibility	Low 1 2 3 4 5 High	
Overall Ranking	Low 1 2 3 4 5 High	

**Appendix G:
Scoring Tool for Host Agency Positions**

Host Agency Name: _____

Supervisor and Program Area: _____

Reviewer: _____

Overall Score (maximum 100 pts): _____

**1. Epidemiologic experience of the primary and secondary supervisors
(Maximum 15 pts)**

Years of experience (5 pts) _____

Recognition by peers (5 pts) _____

Past publications (5 pts) _____

TOTAL _____

**2. Supervisory experience and past mentoring of the primary
and secondary supervisors (Maximum 15 pts)**

Years of experience (5 pts) _____

Types of staff supervised (5 pts) _____

Appointment at school of public health (5 pts) _____

TOTAL _____

3. Availability of the supervisors (Maximum 15 points)

- Consider the following:**
- Potential for supervisors to be readily available**
 - Potential to spend at least 4 hours per week with the fellow**
 - Other competing priorities**

TOTAL _____

4. Assignment Description (Maximum 35 pts)

Consider the following:

- Variety of opportunities**
- Provides “hands on” work experience**
- Potential for data analysis**
- Potential for outbreak/field investigations**
- Potential for publication**
- Potential to work on cross-disciplinary teams**
- Balance between applied epidemiology and academic exposure**
- Adequate staffing and infrastructure**
- Potential for publication**
- Availability of experts in biostatistics or data analysis**
- Potential for academic consultation**
- Availability of didactic courses/lectures**
- Availability of rounds or journal clubs**

TOTAL _____

5. Description of workplace support (Maximum 10 pts)

Consider the following:

- Office setting**
- Computer equipment and software**
- Clerical and administrative support**
- Coworkers**

TOTAL _____

6. Demonstrated ability to retain the fellow after the Fellowship (Maximum 10 pts)

Consider the following:

- Potential funding sources**
- Existing vacant positions**
- Other creative approaches**

TOTAL _____