Taiwan FETP -- Current Status & Perspectives

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Field Epidemiology Training Program (FETP)

“FETPs provide training in applied epidemiology to build a pool of public health workers able to use science and data to appropriately respond to public health threats”

US CDC, 2011
International Health Regulations, 2005
Eight Core Capacities

- Legislation & policy
- Coordination
- Surveillance
- Response
- Preparedness
- Risk communications
- Human resources
- Laboratory

TEPHINET

- The Training Programs in Epidemiology and Public Health Interventions Network
- Founded in 1997
- Goal – Support and strengthen existing field-based training programs in applied epidemiology and public health practice
Key Events after SARS 2003

- TCDC started recruiting medical officers in 2005
- Two-year rotation schedule settled in 2008
  - One-year headquarters, one-year regional office
- Pandemic influenza A(H1N1) 2009
  - Became an independent unit
- Haiti earthquake in 2010
  - Special funding to train epidemiologists from Haiti
- Influenza A(H7N9) in 2013
  - Integrated into an office with medical officers

SARS & Medical Officers

- Epidemic threat: SARS; avian influenza
- Need for medical professionals
  - Surveillance
  - Investigation
  - Consultation
  - Case management
  - Infection control
Recruitment of Medical Officers

- Revised Organization Law of Taiwan CDC
  - Allow for recruiting up to 30 medical officers
  - First recruitment: 2005

Specialties of Medical Officers (n=23)

- Infectious diseases (n=15)
- Family medicine (n=4)
- Internal medicine (n=1)
- Pediatric gastroenterology (n=1)
- Pediatric cardiology (n=1)
- Emergency medicine (n=1)
Major Assignments of Medical Officers

- Investigate outbreaks and special cases
- Provide consultation to policy makers
- Strengthen public communication
- Conduct epidemiologic research projects
- Facilitate international cooperation
Outbreak Investigation

Consultation to Policy Makers

- Vaccination policy
  - Advisory Committee on Immunization Practices (ACIP)
  - National Vaccine Injury Compensation Program (VICP)
- Development of new surveillance systems
- Guidelines & case management of HIV, TB, malaria
- Emerging infectious diseases
Surveillance of avian influenza A(H7N9) virus infection in humans and detection of the first imported human case in Taiwan, 3 April to 10 May 2013

On 3 April 2013, suspected and confirmed cases of influenza A(H7N9) virus infection became notifiable. The first imported case, reported through both surveillance systems, was confirmed in a man returning from China by sequencing from endotracheal aspirates after two negative throat swabs. Three of 139 contacts were ill and tested influenza A(H7N9)-negative.
### Core Capacities of FETP Trainees

<table>
<thead>
<tr>
<th>Category</th>
<th>Capabilities</th>
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</table>
| Epidemiologic Methods           | 1. Use epidemiologic practices to conduct studies that improve public health program delivery  
                                  | 2. Respond to outbreaks |
| Biostatistics                   | 3. Analyze epidemiological data using appropriate statistical methods |
| Public Health Surveillance      | 4. Manage a public health surveillance system |
| Laboratory and Biosafety        | 5. Use laboratory resources to support epidemiologic activities |
| Communication                   | 6. Develop written public health communications  
                                  | 7. Develop and deliver oral public health communications |
| Computer Technology             | 8. Use computers for specific applications relevant to public health practices |
| Management and Leadership       | 9. Manage a field project  
                                  | 10. Manage staff and resources  
                                  | 11. Be an effective team leader and member  
                                  | 12. Manage personal responsibilities |
| Prevention Effectiveness        | 13. Apply simple tools for economic analysis |
| Teaching and Mentoring          | 14. Train public health professionals  
                                  | 15. Mentor public health professionals |
| Epidemiology of Priority Diseases and Injuries | 16. Evaluate & prioritize the importance of diseases or conditions of national public health concern |

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### FETP 2-year Program Overview

- **On-the-job training**
- **1-month introductory course**
- **Periodically scheduled short courses**
- **1st year based in FETP headquarter office**
- **2nd year in one of the TCDC Regional Offices**
- **Monthly meeting and telephone supervision**
FETP Activities & Assignments

- Outbreak investigation
- Surveillance evaluation
- Analytic project
- Oral/poster presentation
- Scientific writing

Selected Outbreaks Investigated by FETP

<table>
<thead>
<tr>
<th>Year</th>
<th>Outbreaks</th>
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| 2008 | • Meningococcal meningitis in a junior high school  
      • Trichinellosis after eating soft-shelled turtles  
      • Hospital-acquired measles |
| 2009 | • Leptospirosis after Typhoon Morakot  
      • Severe complicated influenza A (H1N1) pandemic 2009 |
| 2010 | • Salmonellosis associated with sandwiches of shop A  
      • Botulism associated with packaged dry tofu |
| 2011 | • Typhoid fever after eating delivered noodles  
      • Deaths from botulism and 2-chloroethanol intoxication  
      • Salmonellosis associated with eating roasted duck |
### Selected Outbreaks Investigated by FETP

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| 2012 | • Sapovirus gastroenteritis associated with eating raw oysters in a chain buffet restaurant  
     • Human metapneumovirus infection, psychiatric wards |
| 2013 | • Imported influenza A(H7N9)  
     • Exposure to ferret badgers during rabies reemergence  
     • Food poisoning from H₂O₂-contaminated noodles  
     • *Mycobacterium bovis* infection associated with deers |
| 2014 | • Norovirus gastroenteritis among group tourists to Korea associated with restaurant X  
     • Salmonellosis associated with tiramisu of shop B |

### Surveillance Evaluation

- **First assignment of first-year FETP fellows**
  - Follow US CDC guidelines to describe and assess objectives, operation, and attributes of a public health surveillance system  
  - Brief summary report & oral presentation

- **Short-term project for exchange FETP fellows**
  - Dengue surveillance evaluation by a UK FETP fellow in October 2012
Analytic Projects

- Assignment of second-year FETP fellows
  - Use epidemiologic methods to conduct analysis of data collected from public health surveillance or large outbreaks
  - Cohort or case-control studies preferred

- Most challenging assignment to complete
  - Limited by motivation, time, data accessibility
  - Ask questions with public health significance

Oral/Poster Presentation & Writing

- Communication – key in field epidemiology
  - Present science in concise, accurate, and understandable way
  - Scientific writing to disseminate information

- Assignment
  - Present in a national or international conference
  - Publish in Taiwan Epidemiology Bulletin（疫情報導）
  - Submit an article to a peer-reviewed journal
International Collaboration

- Collaboration in training
  - US CDC: EIS alumni as director/supervisors
  - UK PHE: exchange FETP fellow, supervisor visit
  - Haiti state-based epidemiologists: 3-month training
  - Teaching at Thailand, Vietnam, Japan FETP

- Collaboration in surveillance/investigations
  - UK Glastonbury Festival syndromic surveillance
  - Korea EIS & Hong Kong FETP in norovirus outbreak
  - TEPHINET grant for outbreak detection timeliness

Ebola International Response

- Nigeria FELTP (NFELTP) played crucial roles in epi/surveillance team in Ebola response
  - Contact investigation and tracing

- August 2014 – visited NFELTP supervisors & Emergency Operation Center in Lagos
Focused critical aspects of FETPs

- Program and organization inputs & processes
- Governance and regulation
- Curriculum design and delivery
- Residents’ learning experience and training-in-service
- Qualification of mentors and supervisors
- Trainee support
- Other program resources, including financial viability

Current Challenges

• For the program
  – Reduced funding for international activities
  – Recruitment of full-time trainees

• For trainees
  – Reduced opportunities of outbreak investigations
  – Work vs. training – for 2nd year trainees
  – Motivation to complete all assignment

• For supervisors
  – May be detailed for other work with priority
  – Refreshment training for supervisors
TEPHINET 2014
Self-Evaluation
Application Manual
for FETP

Four Domains

- Management, infrastructure, and operations
- Integration with public health services & value
- Staffing and supervision
- Residents’ experience
## Summary of Self-Assessment

<table>
<thead>
<tr>
<th>Description</th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>Does your program combine didactic with field experience and have no more than 30% of total time spent in the classroom?</td>
<td></td>
<td>●</td>
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<tr>
<td>Does your program last at least 21 months?</td>
<td>●</td>
<td></td>
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<tr>
<td><strong>DOMAIN I - MANAGEMENT, INFRASTRUCTURE, AND OPERATIONS</strong></td>
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<tr>
<td>Does your program have an advisory board, or expert committee that provides general guidance on the programs goals and operations?</td>
<td>●</td>
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<tr>
<td>Is the program hosted by or in a public health institution or Ministry of Health (MOH)?</td>
<td>●</td>
<td></td>
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<tr>
<td>Is the program officially recognized as an important component of the hosting institution/agency?</td>
<td>●</td>
<td></td>
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<tr>
<td>Does the program have dedicated office space, supplies and equipment?</td>
<td>●</td>
<td></td>
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<tr>
<td>Do residents in the program have access to public health or medical literature?</td>
<td>●</td>
<td></td>
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<tr>
<td>Does the program have access to lab services and testing for investigations?</td>
<td>●</td>
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<tr>
<td>Has the program developed standard operating procedures describing program activities such as: organization, training, core learning competencies, investigations, and expected outputs (e.g., surveillance evaluations, outbreaks)?</td>
<td>●</td>
<td></td>
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<tr>
<td>Does the program provide residents with an orientation manual?</td>
<td>●</td>
<td></td>
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<tr>
<td><strong>DOMAIN II - INTEGRATION WITH PUBLIC HEALTH SERVICE AND VALUE</strong></td>
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<tr>
<td>Does the program get financial or human resource support from host public health institution or MOH?</td>
<td>●</td>
<td></td>
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<tr>
<td>Are field placements are in service to the country’s public health system(s) and allow residents to meet the core competencies of the program?</td>
<td>●</td>
<td></td>
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<tr>
<td>Do program residents develop investigations and reports addressing the country’s public health priorities and routinely present results from these activities to the MOH or host public health institution?</td>
<td>●</td>
<td></td>
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<td>Does the program promote scientific integrity standards and submit all research-oriented protocols to Institutional Review Board (IRB) or equivalent ethics committee consistent with country standards?</td>
<td></td>
<td>●</td>
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<tr>
<td><strong>DOMAIN III – STAFFING AND SUPERVISION</strong></td>
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<tr>
<td>Does the program have a program director and/or coordinator who provides leadership and oversight the program?</td>
<td>●</td>
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</tr>
<tr>
<td>Does the program have public health staff who perform programmatic functions such as training and oversight of residents’ orientation, classroom training, field assignments, and monitoring and evaluation, and who support technical supervisors evaluations of residents performance?</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Does the program have qualified supervisors who are given orientation and provide technical assistance and supervision to residents?</td>
<td>●</td>
<td></td>
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<tr>
<td>Does the program have technical supervisors who provide on-the-job supervision, are integrally involved with residents work, and provide timely feedback?</td>
<td>●</td>
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<tr>
<td><strong>DOMAIN IV - RESIDENTS EXPERIENCE</strong></td>
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<tr>
<td>Does the program select residents based on documented criteria, such as scores on interviews or exams?</td>
<td>●</td>
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<tr>
<td>Does the program have well-defined, documented core competencies (around which the curriculum was developed) that include associated activities and deliverables that are explicit for all residents and supervisors?</td>
<td>●</td>
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</tr>
<tr>
<td>Do the majority of residents (75%) completed within the expected time frame, and have program completers met required core competencies?</td>
<td>●</td>
<td></td>
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<tr>
<td>Does the program perform regular monitoring, evaluation, and tracking with timely feedback of resident activities and experiences toward completion of program requirements (core competencies)?</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Does the program regular feedback from residents and makes changes to improve the program?</td>
<td>●</td>
<td></td>
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</table>
1) Management, infrastructure, and operations

Shortages

- An advisory board or expert committee, or similar mechanism, provides general guidance or oversight on the program’s goal and operations.
- Upon entry into the program, each resident receives an orientation document or manual that describes program components:
  - Core FETP competencies and associated activities
  - Deliverables to be completed by residents for graduation
  - Resident performance evaluation measures and feedback to the program (e.g., Resident anonymous survey)

4) Selection and training of residents

Shortages

- The majority of residents (75%) completed within the expected time frame, and program completers have met required core competencies.
- Program provides regular monitoring, evaluation, and tracking with timely feedback of resident activities and experiences toward completion of program requirements (core competencies).
- The program obtains regular feedback from residents and makes changes to improve the program.
FETP – Where to Go Next?

- **Improve selected domains of the program**
  - Establish advisory board or expert committee
  - Focused on residents’ experiences

- **Strengthen collaboration with partners**
  - Local health departments
  - Food and agricultural authorities
  - Universities and other academic partners

- **Contribute to global health diplomacy**
  - Strengthen relationships with international FETPs
  - Proactively participate in global health activities

FETP – Other Possibilities?

- **Broader curriculum**
  - Leadership/management
  - Program evaluation
  - Health economics

- **Noninfectious diseases**
  - Chronic disease, injury, environmental health
  - Integration with other areas in public health

- **Decentralized FETP**
  - FETP at county/city levels
Thank you

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