EIS
The Epidemic Intelligence Service

Douglas Hamilton, MD, PhD
Director, EIS Program
What is the EIS?

A 2-year post graduate experience and on-the-job training for health professionals interested in applied epidemiology.
Historical Background

• July 1946 CDC established with mandate to help state control communicable diseases
• October 1947 CDC assigned responsibility for epidemic aid to states
• July 1951 Epidemic Intelligence Service (EIS) established
Tradition of Service to the States

“Asked if they would accept responsibility for answering all epidemic requests, NIH officials replied, according to Langmuir, ‘Certainly not. Only the interesting ones.’ CDC, however, would respond to any request.”

E.W. Etheridge, Sentinel for Health (1992)
Historical Background

- April 1955 Cutter vaccine incident
- In the first full year of operation EISOs responded to over 200 requests
- Currently CDC responds to 80 to 100 request per year
- State based EISOs conduct an additional 600-800 investigations a year
Who is Eligible to Join EIS?

- Physicians with at least 1 year post-graduate clinical training
- Other health professionals such as veterinarians, nurses, and dentists with an MPH or equivalent
- PhD, DrPH, or other doctoral-degree holders in epidemiology, biostatistics, social or behavioral science, or nutrition
EIS Class of 2009

- Total Class Size = 82 (69 US, 12 Internationals)
- 27 Men (33%) and 55 (67%) Women
- 21/70 (30%) Minorities (US/US Perm Residents)
- Professional Backgrounds:
  - 41 (50%) physicians (63% with advanced degrees)
  - 25 (30%) doctoral-level scientists
  - 6 (7%) MD/PhD
  - 7 (9%) veterinarians
  - 3 (4%) RN/MPH
Training Model

• Sample Content
  - Applied epidemiology
  - Emergency response

• Methods of Training
  - Structured courses, including case studies
  - Exercises, Simulations
  - Required activities on-the-job
  - Mentoring
  - Experiential learning
EIS Officer Assignments

State or Local Health Department
- Broad, front-line public health experience
- Surveillance, investigation, and intervention

Headquarters
- Specialized, disease- or problem-specific experience
  (e.g., vaccine preventable disease, STD, injury, ectopic pregnancy)
- Surveillance, investigation, and policy development
Cities Listed:
Seattle, Los Angeles, San Diego, Denver, Chicago, New York City

1 = 1st year EIS Officers (n=25)
2 = 2nd year EIS Officers (n=21)
Current EIS Officer Assignments  (N = 162)

- Infectious Diseases (n = 77)
- State and Local Health Depts (n = 46)
- Environmental/Occ. Health, Injury (n = 19)
- Chronic Disease, Maternal/Child Health, Genomics (n = 15)
- Health Statistics (n = 3)
- Food and Drug Administration (n = 1)
- Office of Global Health (n = 1)
EIS Mission

• Training
  - Develop Applied Epidemiology Skills
  - Quantitative skills
  - Research design
  - Epidemiologic judgment
  - Health communications
EIS Mission

• Domestic and International Service
  – Respond to Requests for Epidemiologic Assistance
  – Prevention
  – Disease and injury control
  – Health promotion
  – Capacity building
Professional Skills and Abilities Acquired Through the EIS Program

• Investigations of acute outbreaks and hazards
• Analyses of large data bases
• Evaluation of surveillance systems
• Publication and presentation of scientific manuscripts
• Oral presentations at national conferences
• Responding to public inquiries
Selected Recent Publications by EIS Officers

- David B. Blossom et al. Outbreak of Adverse Reactions Associated with Contaminated Heparin
  - EISO assigned to CDC/Division of Healthcare Quality Promotion

- Aron J. Hall et al. Patterns of Abuse among Unintentional Pharmaceutical Overdose Fatalities
  *JAMA* 2008;300:2613–2620
  - EISO assigned to West Virginia

- SK Greene et al. Recurrent Multistate Outbreak of *Salmonella* Newport Associated with Tomatoes from Contaminated Fields, 2005
  *Epidemiology and Infection* 2008;136:157–165
  - EISO assigned to CDC/DFBMB

  *Pediatrics* 2008;121:e1470–e1477
  - EISO assigned to CDC/Division of Cancer Prevention and Control
Selected Recent Publications by EIS Officers

  
  
  - EISO assigned to CDC/Division of Violence Prevention

- E. Danielle Rentz et al. Outbreak of Acute Renal Failure in Panama in 2006: A Case-Control Study
  
  
  - EISO assigned to CDC/EHHE

- Melissa Van Dyke et al. Evaluation of universal antenatal screening for group B streptococcus
  
  
  - EISO assigned to CDC/ Bacterial Diseases/Respiratory Diseases
What Types of Problems do EIS Officers Deal With?

- Lead screening
- TB in immigrants
- Malaria
- Norwalk Virus from oysters
- Cyclosporiasis
- Hanta Virus
- E. coli
- Copper in drinking water
- Cryptosporidiosis
- Monkey Pox
- West Nile Virus
- WTC Bombing
- Hurricane Hugo
- Legionnaires' Disease
- Norovirus
- Forest Fires
- Hurricane Katrina
- Malaria
- Hanta Virus
- TB in immigrants
- Lead screening
- Norovirus
DEOC Deployments of EIS Officers

- West Nile Virus (2002)
- SARS (2003)
- Monkey Pox (2003)
- Avian Influenza (2004)
- Hurricane Katrina (2005)
- Rift Valley Fever in Kenya (2007)
- Acanthamoeba keratitis (2007)
- Ebola in the DRC (2007)
- H1N1 (2009)
Sites of Epidemic Intelligence Service EPI-AID Investigations 1950-2004
EIS Activities Post 911

• 182 individual deployments

• 126 (86%) of all officers had been deployed into the field at least once
  – 39 officers deployed twice
  – 5 officers deployed 3 times
  – 2 officers deployed 4 times

• 64 (88%) 1\text{st} year and 62 (85%) 2\text{nd} year officers were deployed
Present Occupation of All EIS Graduates

- 70% work in public health
- 20% academia
- <10% private practice
Initial Assignment After EIS
Class of 1965 vs 1985

- Federal government
- University faculty
- Private practice
- State/Local Government
- International Health
- Residency/Fellow
- Other

Percentage

0 10 20 30 40 50 60 70
Employment ≥5 Years
EIS Class of 1965 vs 1985

- Federal government
- University faculty
- Private practice
- State/Local Government
- International Health

Percentage
EIS Background

• 1951 EIS established with 23 recruits
• 1954 First woman officer
• 1954 First Asian officer (204)
• 1956 First Hispanic Officer (87)
• 1965 First AA/Black officer (161)
• 1968 First Native American officer (14)
• Approximately 20% - 35% of recent graduates represent ethnic minorities
EIS Background

- 1951 22 MDs and one sanitarian
- 1953 First veterinarian
- 1953 MS level microbiologist with an MPH
- 1954 First Nurse
- 1956 First Dentist
- 1975 First International Officer
- 1979 First PhD level scientist
- 2002 First JD/MPH
- 2008 First DPT/MPH