Making the Connection Outside the Clinic: Adding Public Health and Environmental Public Health Education to Medical School Curriculum

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INTRODUCTION / BACKGROUND

Environmental health comprises those aspects of human health, including quality of life, that are determined by physical, chemical, biological, social, and psychosocial processes in the environment.

It also refers to the theory and practice of assessing, correcting, controlling, and preventing those factors in the environment that can potentially adversely affect the health of present and future generations.

Problem Statement:

Why are we not able to produce more physicians with environmental and public health training?

There is an increased need for physicians to have a basic understanding of common public and environmental health problems that affect their patients and to a greater extent the population in general. Medical education has changed very little in the past 100 years. Public health is still not a required subject in medical school. Concern about the lack of well-trained public health physicians resulted in the U.S. Congress directing the Institute of Medicine (IOM) to undertake a study to determine how to address this shortage area.

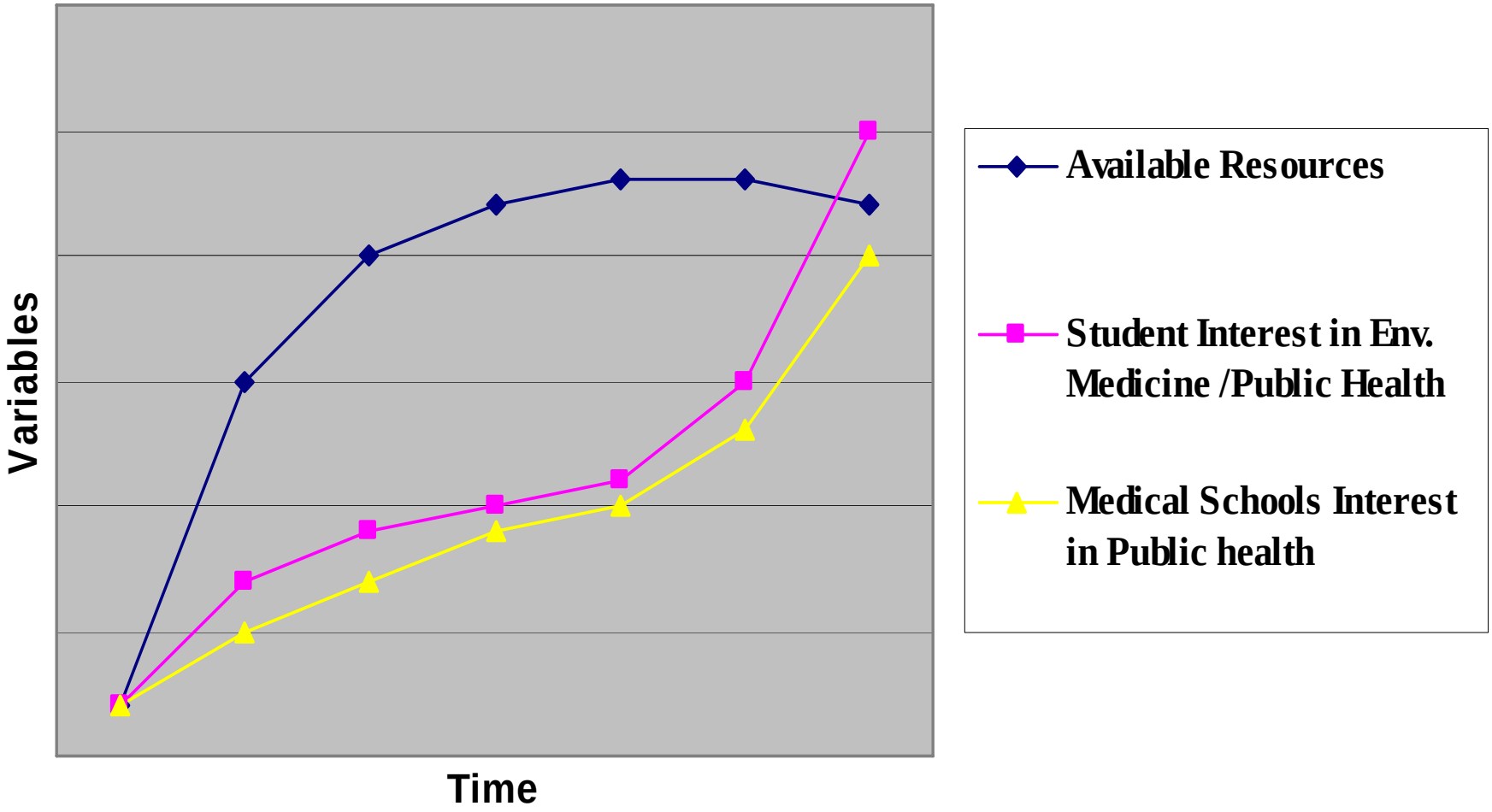
Background

In 1996, in an effort introduce public health education into medical school training, the South Texas Environmental Education and Research (STEER) program of the University of Texas Health Science Center at San Antonio (UTHSCSA) began offering an introductory environmental medicine and public health elective for medical students and physicians in training.

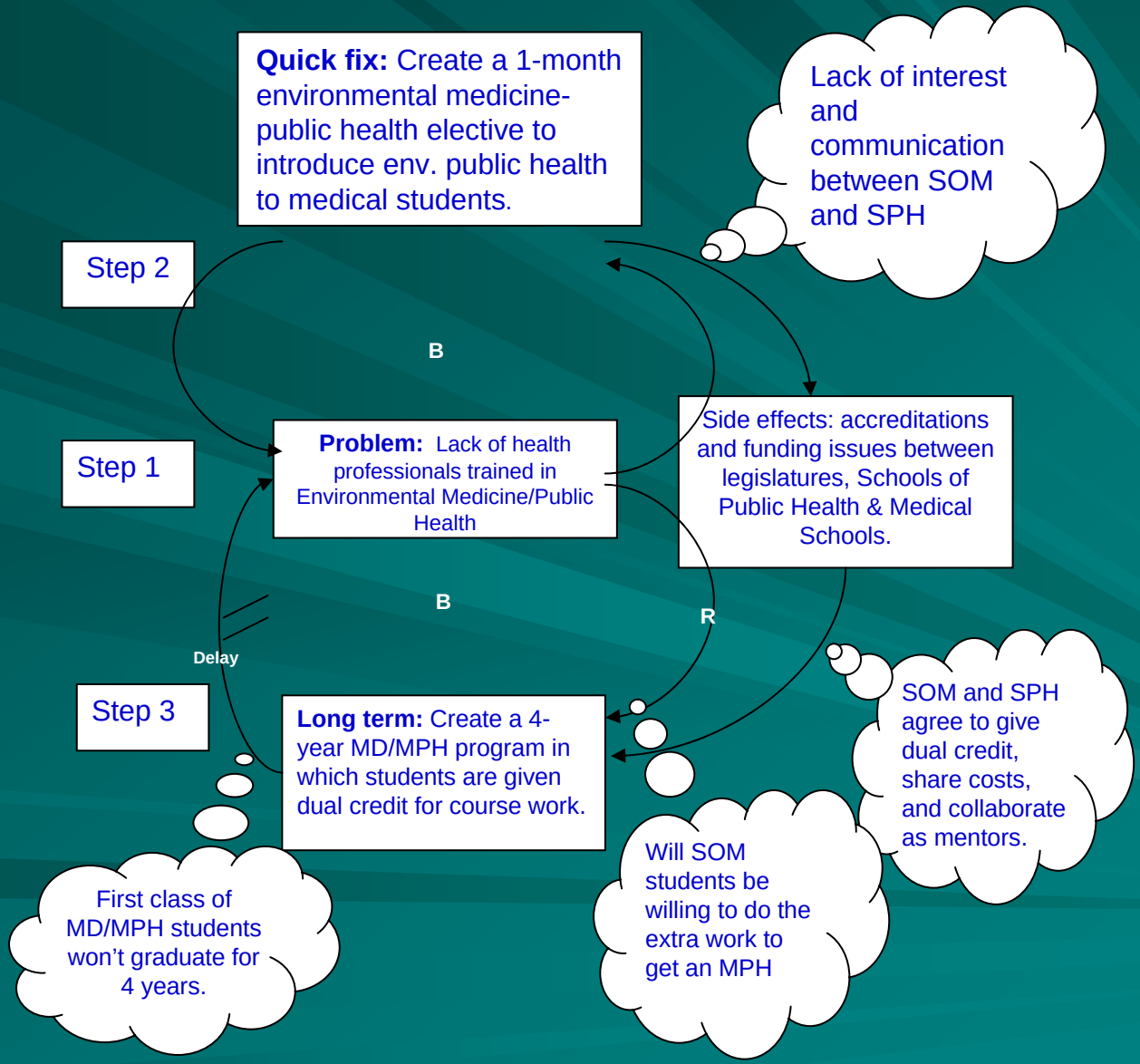
Public Health (Sources)

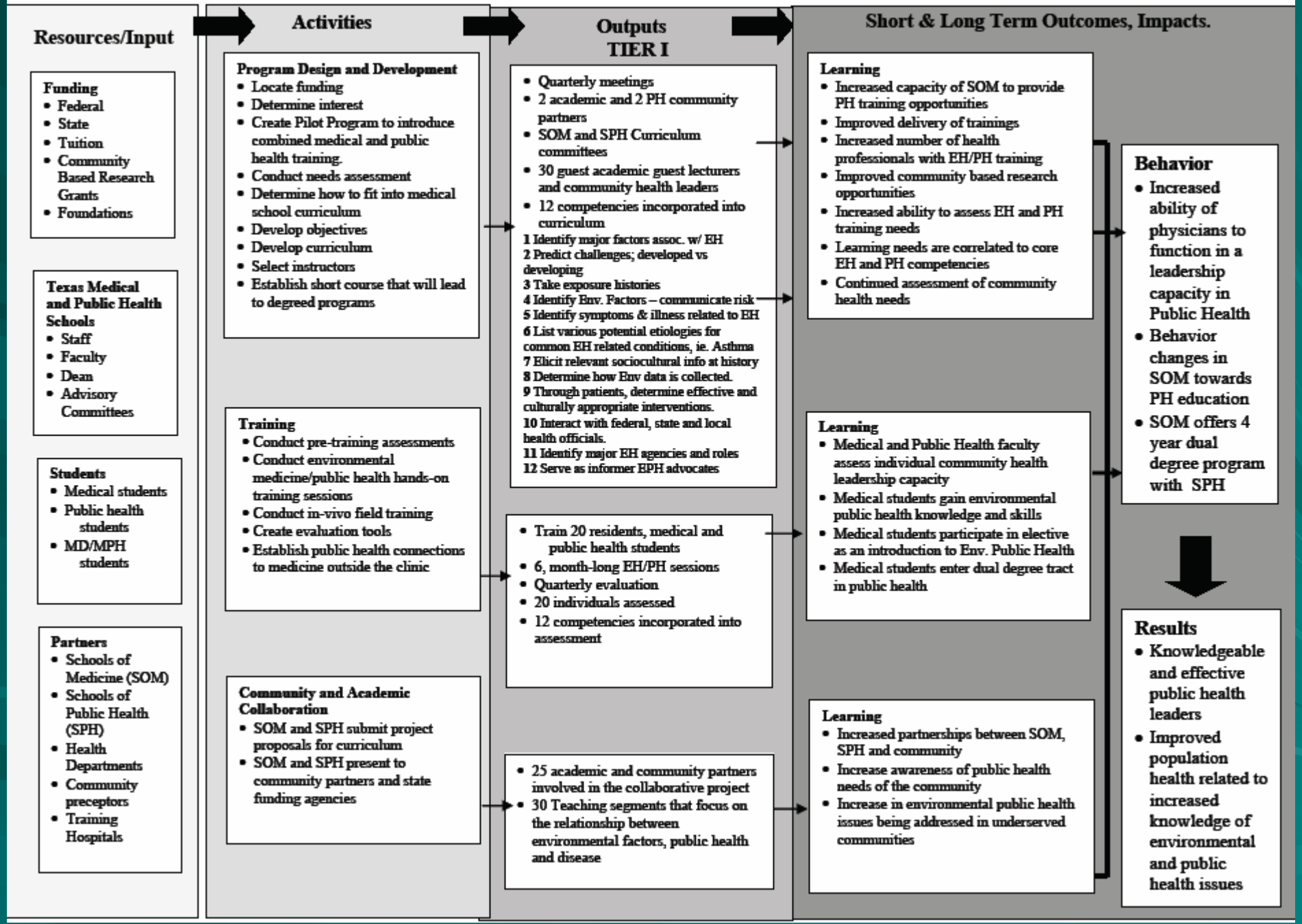
Medicine (Organ System)	AIR	WATER	FOOD	VECTOR-BORNE
Neuro				
GI				
Resp				
Skin				

Behavior Over Time Graph:



Shifting the Burden




Resources/Input
Funding
• Federal
• State
• Tuition
• Community Based Research Grants
• Foundations
Texas Medical and Public Health Schools
• Staff
• Faculty
• Dean
• Advisory Committees
Students
• Medical students
• Public health students
• MD/MPH students
Partners
• Schools of Medicine (SOM)
• Schools of Public Health (SPH)
• Health Departments
• Community preceptors
• Training Hospitals
Activities
Program Design and Development
• Locate funding
• Determine interest
• Create Pilot Program to introduce combined medical and public health training.
• Conduct needs assessment
• Determine how to fit into medical school curriculum
• Develop objectives
• Develop curriculum
• Select instructors
• Establish short course that will lead to degreed programs
Training
• Conduct pre-training assessments
• Conduct environmental medicine/public health hands-on training sessions
• Conduct in-vivo field training
• Create evaluation tools
• Establish public health connections to medicine outside the clinic
Community and Academic Collaboration
• SOM and SPH submit project proposals for curriculum
• SOM and SPH present to community partners and state funding agencies
Outputs TIER I
• Quarterly meetings
• 2 academic and 2 PH community partners
• SOM and SPH Curriculum committees
• 30 guest academic guest lecturers and community health leaders
• 12 competencies incorporated into curriculum
1 Identify major factors assoc. w/ EH
2 Predict challenges; developed vs developing
3 Take exposure histories
4 Identify Env. Factors – communicate risk
5 Identify symptoms & illness related to EH
6 List various potential etiologies for common EH related conditions, ie. Asthma
7 Elicit relevant sociocultural info at history
8 Determine how Env data is collected.
9 Through patients, determine effective and culturally appropriate interventions.
10 Interact with federal, state and local health officials.
11 Identify major EH agencies and roles
12 Serve as informer EPH advocates
• Train 20 residents, medical and public health students
• 6, month-long EH/PH sessions
• Quarterly evaluation
• 20 individuals assessed
• 12 competencies incorporated into assessment
• 25 academic and community partners involved in the collaborative project
• 30 Teaching segments that focus on the relationship between environmental factors, public health and disease
Short & Long Term Outcomes, Impacts.
Learning
• Increased capacity of SOM to provide PH training opportunities
• Improved delivery of trainings
• Increased number of health professionals with EH/PH training
• Improved community based research opportunities
• Increased ability to assess EH and PH training needs
• Learning needs are correlated to core EH and PH competencies
• Continued assessment of community health needs
Learning
• Medical and Public Health faculty assess individual community health leadership capacity
• Medical students gain environmental public health knowledge and skills
• Medical students participate in elective as an introduction to Env. Public Health
• Medical students enter dual degree tract in public health
Learning
• Increased partnerships between SOM, SPH and community
• Increase awareness of public health needs of the community
• Increase in environmental public health issues being addressed in underserved communities
Behavior
• Increased ability of physicians to function in a leadership capacity in Public Health
• Behavior changes in SOM towards PH education
• SOM offers 4 year dual degree program with SPH
Results
• Knowledgeable and effective public health leaders
• Improved population health related to increased knowledge of environmental and public health issues

National Goals Supported

The UTHSCSA and the STEER program support many of the CDC Health Protection Goals as well as the Health People 2010 Objectives. The project also supports all six goals of the National Strategy to Revitalize Environmental Public Health Services as well as many of thirteen competencies of the Environmental Health Competency Project: Recommendation for Core Competencies for Local Environmental Health Practitioners:

CDC Health Protection Goals

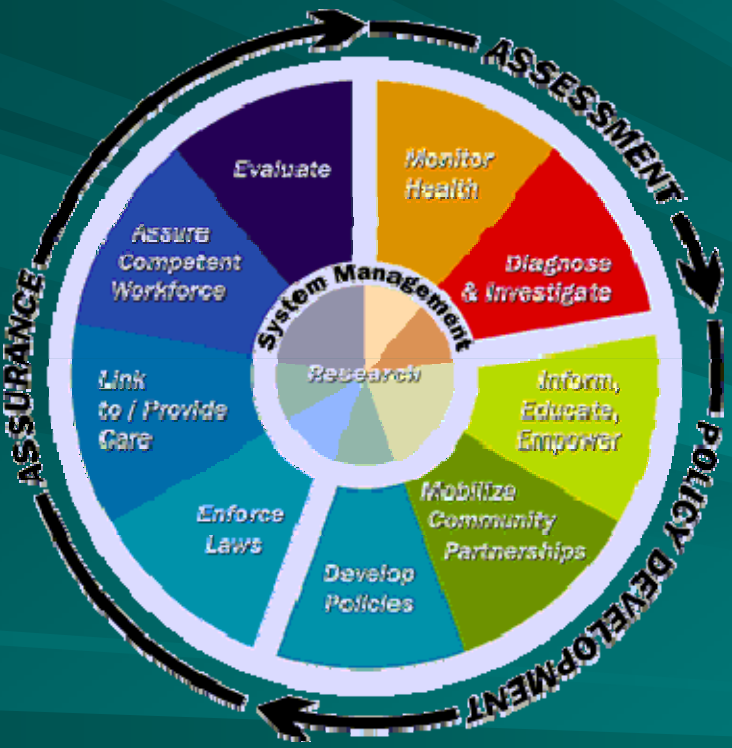
This project has and intends to continue to meet the following CDC Health Protection Goals: 1) work to improve local environmental health knowledge about healthy schools and healthy homes, 2) continue to be the local leader in academic public health research and foster local collaboration, and 3) continue to educate the community and future health care professionals in the areas of infectious disease, environmental health and occupational medicine.

Healthy People 2010 Objectives

This project has and will continue to focus community-based research and environmental education on the following areas of Healthy People 2010: food safety, environmental health, infectious disease, occupational safety and health, oral health, maternal, infant and child health, community-based research and public health infrastructure

10 Essential Environmental Health Services:

This project incorporates nine of the 10 Essential Environmental Health Services.



1. **Assure Competent Work Force** Through the month-long elective, over 400 health professionals have been trained in basic environmental medicine and public health. The program also partners with CDC to sponsor interns and fellows to conduct research in environmental health.
2. **Evaluate** the training and ability to work in the community. The course is offered to SOM and SPH throughout the U.S.
3. **Monitor Health** and environmental links to disease. Topics discussed include dengue, West Nile, asthma, rabies, food sanitation, indoor and outdoor air quality, water quality and solid waste.
4. **Diagnose and Investigate** Through federal, state and private foundations, the program has conducted community-based research looking at asthma prevalence, water and sanitation, and environmental triggers of asthma.
5. **Inform, Educate, Empower** the community, local health professionals and students about environmental risks and prevention measures.
6. **Mobilize Community Partners** by working on a monthly basis with over 70 community partners to educate, conduct research and collaborate on environmental public health issues.
7. **Enforce Laws** by educating students on many of the environmental, USDA, Immigration, Fish and Wildlife, and international regulations and enforcement issues.
8. **Link to/Provide Care** through our many partnerships.
9. **Research** As one of the only medical schools and research institutions on the U.S./Mexico border, we have many opportunities to conduct and involve students in community-based research.

National Strategy to Revitalize Environmental Public Health Services

Goal 1: Build Capacity This project meets all three objectives: to expand the nation's capacity in the area of environmental health, to support/evaluate CDC-supported projects to improve livability and prevent and control environmentally related illness, and to identify the range of activities for delivering environmental public health programs in the U.S.

Goal 2: Support Research To date, STEER research has included work in the areas of asthma and the home environment, safe drinking water, rabies interventions, dengue, and pesticide exposure in children and pregnant mothers. All of the research projects have involved community partners. All research findings have been reported back to the community and include a community education component.

Goal 3: Foster Leadership Through our many partnerships, STEER has provided training and leadership in the area of public health for the community. Ten of our alumni have returned to practice in this Medically Underserved Area, and many have gone on to leadership positions around the country.

Goal 4: Communicate and Market With over 400 full-time students and several thousand individuals having participated in STEER training over the course of its more than 12 years, this program has improved environmental health education in the area as well as throughout the country. STEER faculty and staff have also presented and recruited on the national and international levels.

Goal 5: Develop the Workforce See goal 4. This project also supports local public health agencies in the development of the workforce.

Goal 6: Create strategic partnerships In addition to over 70 federal, state and local partnerships, the program also partners with medical and public health schools from over 30 states in the U.S. to train future health care professionals in the areas of environmental medicine and public health. STEER has also partnered with CDC, ATSDR, Hispanic Serving Health Professional Schools (HSHPS), NIH, NEETF and EPA.

Environmental Health Competency Project: Recommendation for Core Competencies for Local Environmental Health Practitioners

The STEER program also meets many of the goals of the EHCP in the following areas:

research

data analysis and interpretation

evaluation

partnering

education

communication

marketing environmental/public health as a service.

Rio Grande River Water Quality Assessment

First Waste Water Treatment Plant on the Mexican Side of the Rio Grande River – Opened in 1996

Aerobic Digestion Process in Waste Water Treatment

Drinking Water Delivery System in Colonias in Webb Co., Texas

Common Waste Water Disposal in Colonias

Learning the Proper Installation of Septic Systems

Indoor Air Quality Assessment

Outdoor Air Quality Assessment

Landfill and Solid Waste and the Impact on Public Health

Field Epidemiology with the USDA Wildlife Official

Rabies Control and Quarantine

Hazardous Materials and Biopreparedness


QUESTIONS ?