Public Health Tracking in Massachusetts: "The Little Engine That Could"

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Outline

I. Introduction to Massachusetts Center for Environmental Health.

II. Broad mission and public demand for assessment of perceived disease elevations.

III. Difficulties in public health response with inadequate tracking of health outcomes. (e.g. Woburn)

IV. Outcomes currently being tracked in Massachusetts.

V. Where are we now? Where are we going?

Center for Environmental Health

- Has a broad mission of protecting the public from a variety of environmental exposures.
- Responds to environmental health concerns and provides communities with epidemiologic and toxicological health assessments.
- Is comprised of nine programs that are housed in the Boston office, the State Laboratory and several regional offices throughout the state.

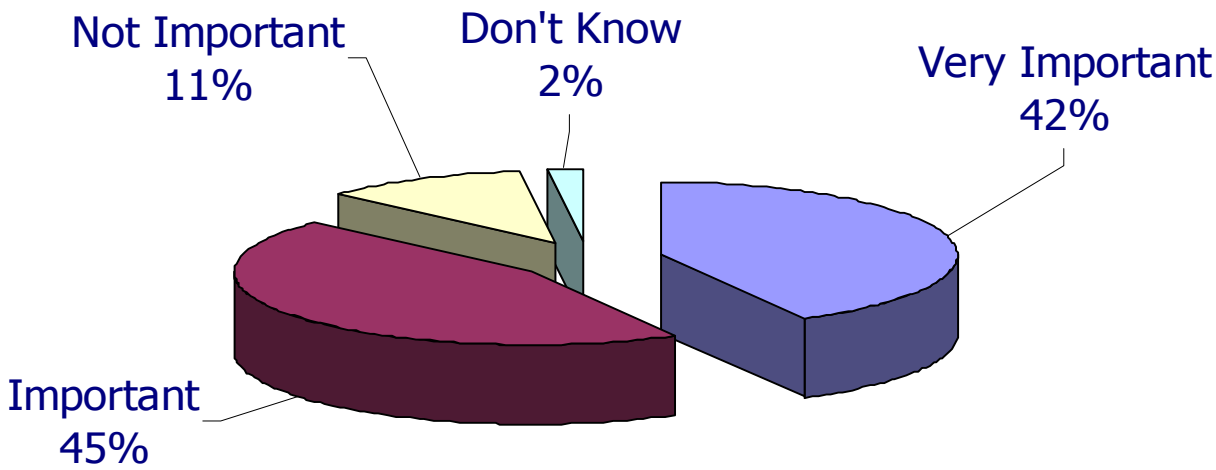

Organizational Chart
Center for Environmental Health
Bureau of Environmental Regulations and Compliance
Community Sanitation Program
Food Protection Program
Radiation Control Program
Bureau of Environmental Health Assessment
Community Assessment Program
Childhood Lead Poisoning Prevention Program
Emergency Response Indoor Air Quality Program
Environmental Epidemiology Program
Environmental Health Education and Outreach Program
Environmental Toxicology Program

How do we evaluate health?

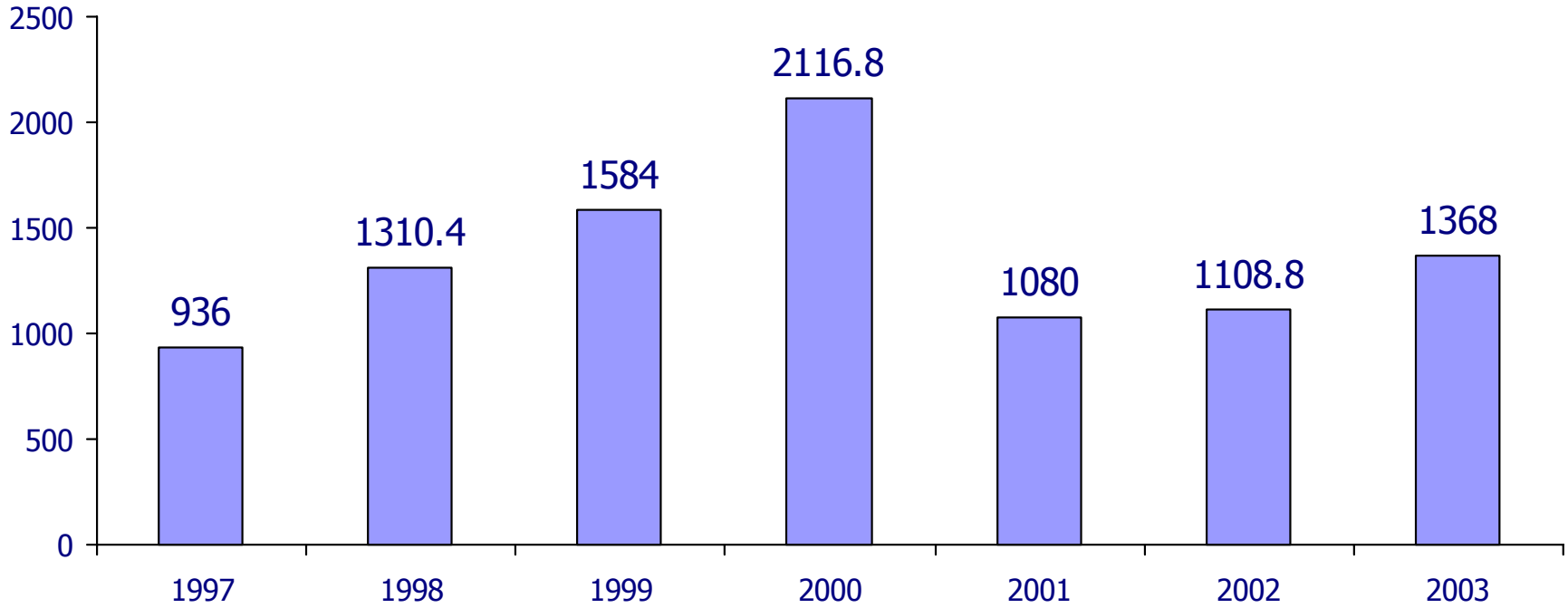
- Assess the potential impact of exposure on the population.
- Evaluate disease frequency in the population.
- Investigate possible association between the exposure and disease.

Pew Environmental Health Commission

The Public Believes That Environmental Factors Are A Major Cause of Health Problems and Disease



Mean Annual Calls Regarding Perceived Environment and Disease Clusters

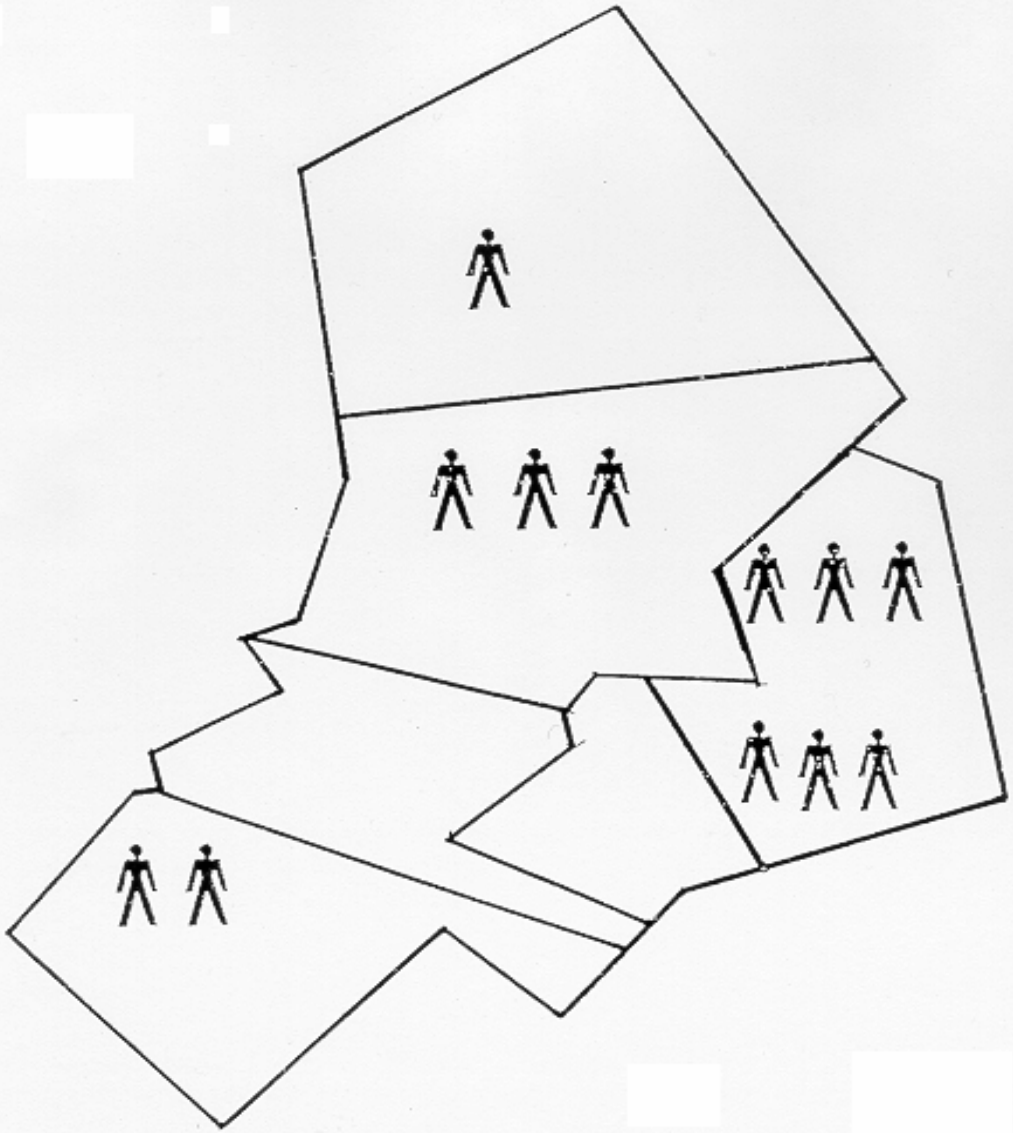


Source: MDPH 2004 (extrapolated from Community Assessment Program Telephone Tracking System)

Health Outcomes & Exposure Investigations at CEH (selected examples)

- ALS/MS
- Asthma
- Birth Defects
- Developmental Disabilities
- Lupus
- Scleroderma
- Suspected Cancer Clusters
- Arsenic Exposure Investigation
- Childhood Lead Exposures
- IAQ and Mold Investigations
- Suspected Pesticide Exposure

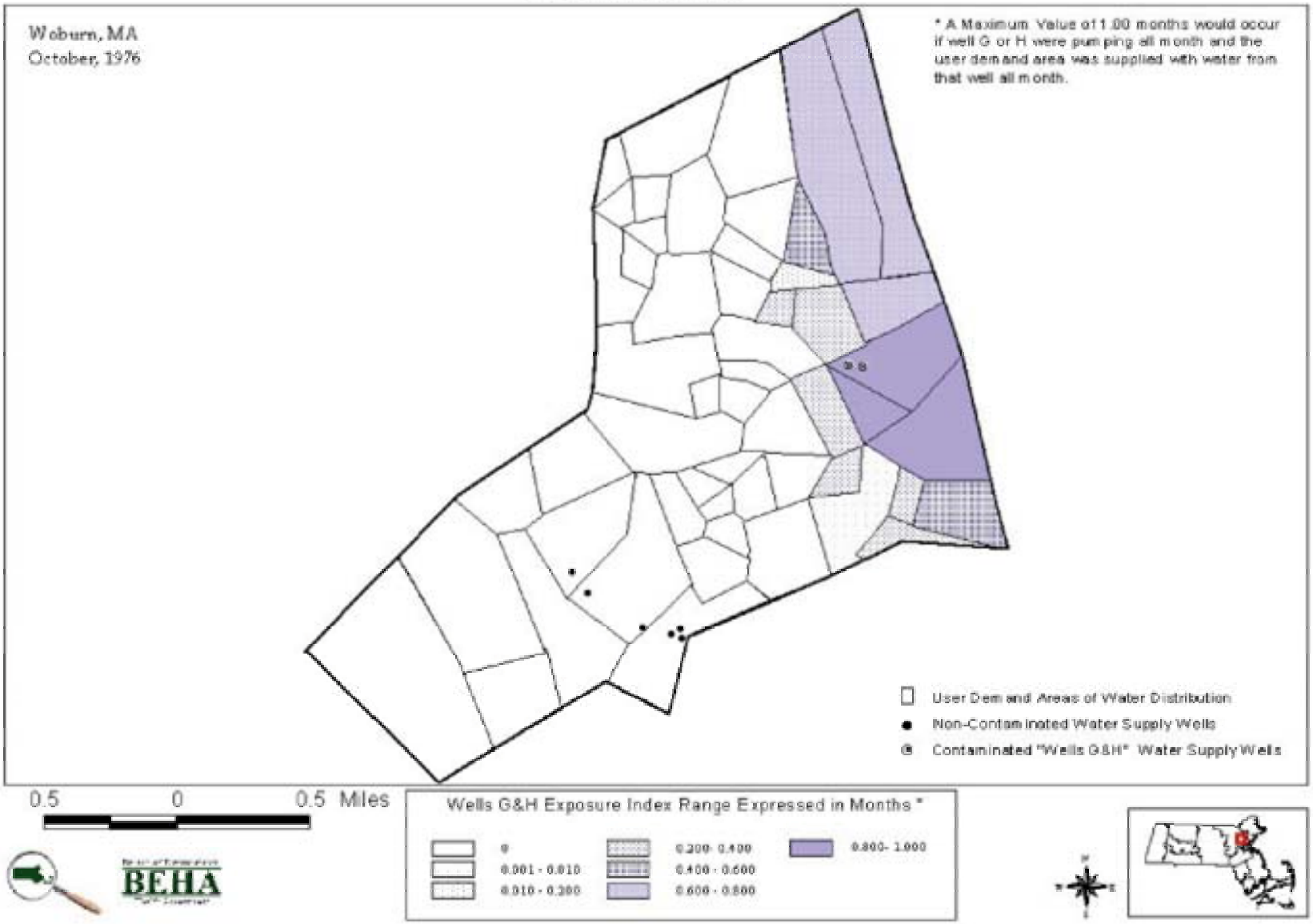
Woburn, Massachusetts
Residence at Diagnosis of Childhood Leukemia Cases
1969 – 1979



Contaminants in Wells G & H

Contaminant	Well G		Well H	
	5/14/79	9/24/79	5/14/79	9/24/79
Chloroform	11.8	1.1	ND	ND
Trichloroform	267.4	117.6	181.5	63.0
Tetrachloroethylene	20.8	18.3	13.4	9.0
1,1,1-Trichloroethane	0.6	ND	ND	2.1
Dibromochloromethane	2.0	ND	ND	ND
Trichlorotrlfloroethane		22ppm		23ppm
Dichloroethylene		28ppm		ND
Dichlorotrlflourethane		<5ppm		ND

Figure 2
Geographic Distribution of Water Drawn
from Contaminated Wells G and H
During Periods of "Limited Use"



Woburn, Massachusetts
Residence at Diagnosis of Childhood Leukemia Cases

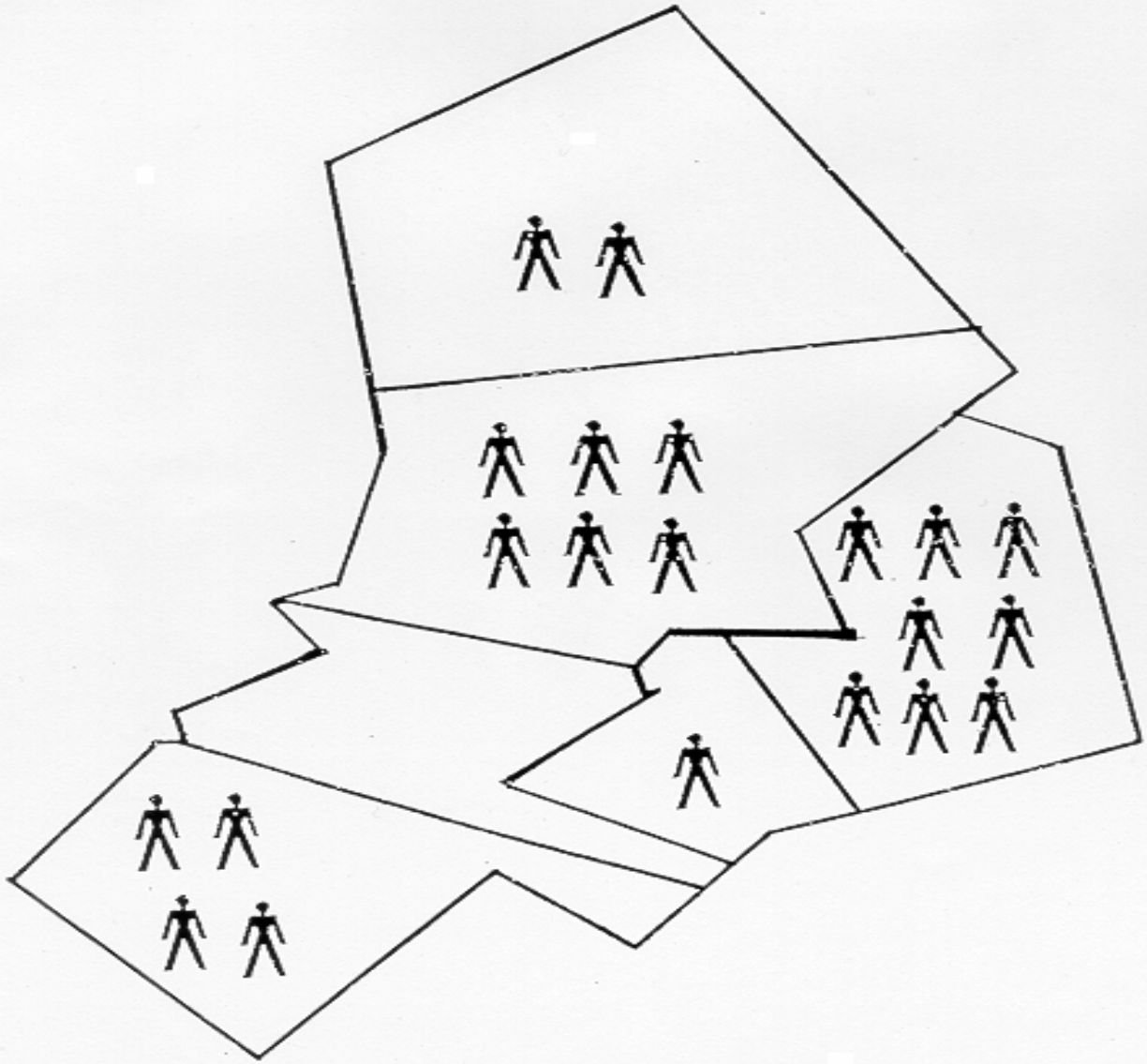
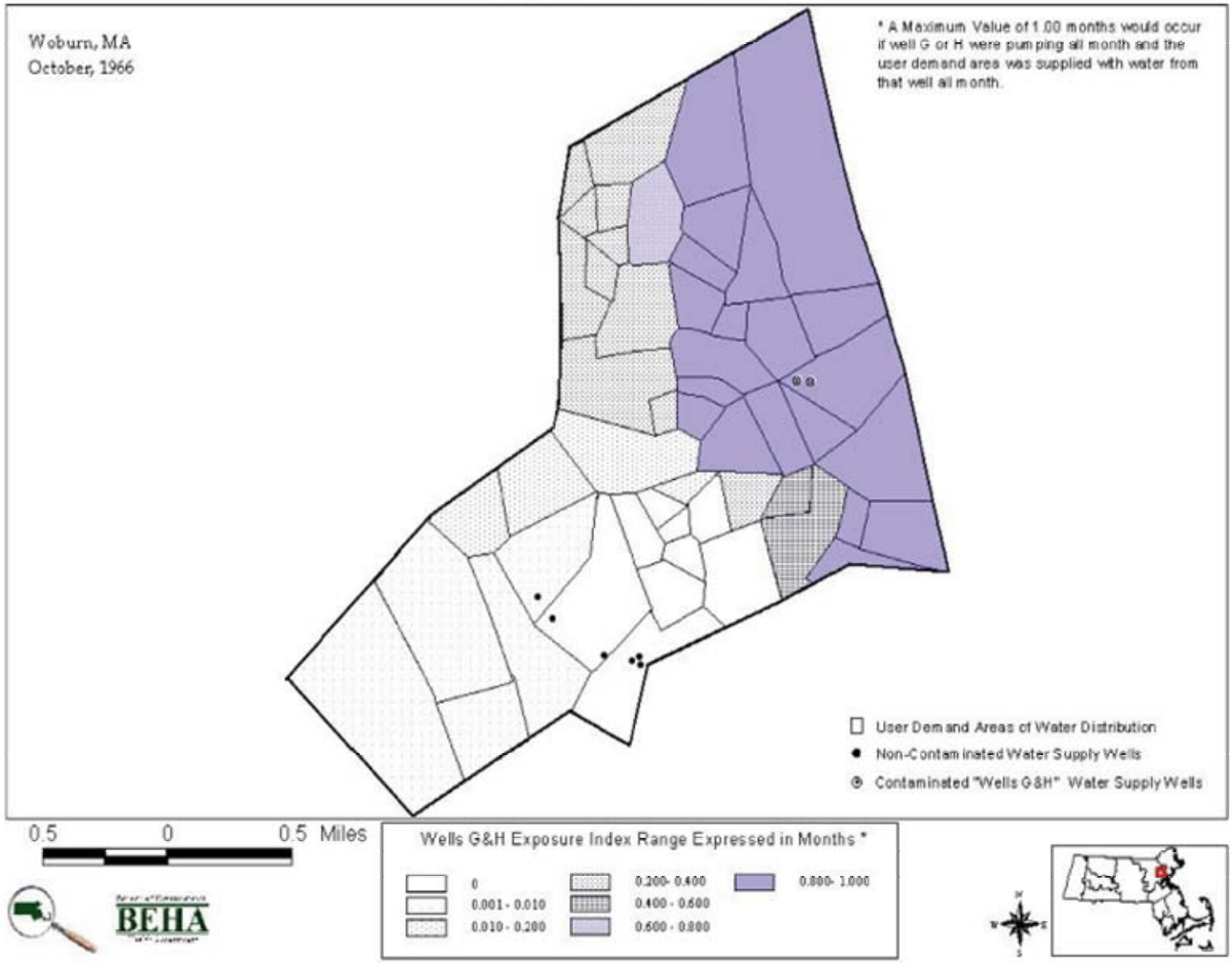


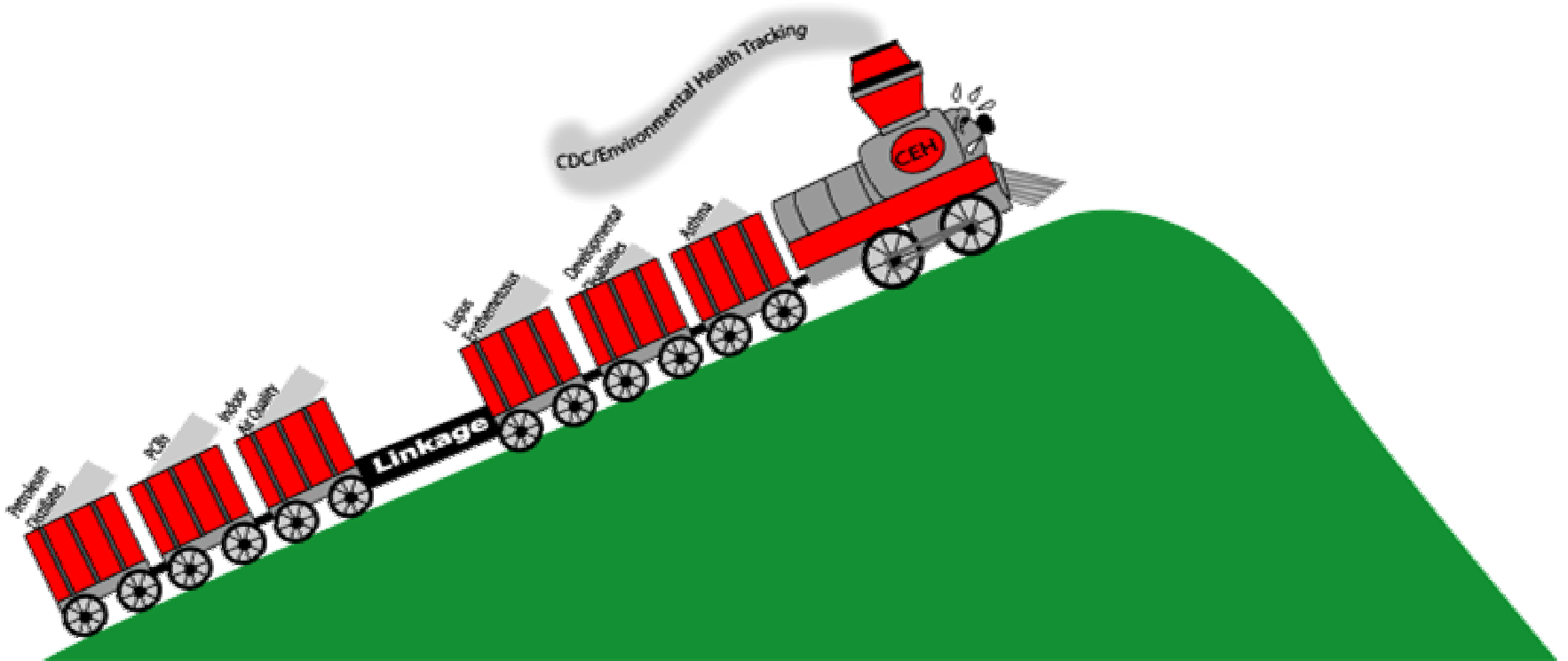
Figure 3
Geographic Distribution of Water Drawn
from Contaminated Wells G and H
During Periods of "Broad Use"



Scientific Limitations for Linking Environmental Contaminants and Health Outcomes in Woburn in 1979

- Reliance on mortality data
- Due to a small number of people in a community with disease we are limited in our ability to detect an association statistically.
- Environmental data is often unavailable to determine if any source and/or route of exposure exists.
- Scientific or medical literature does not exist.

Environmental Public Health Tracking in Massachusetts



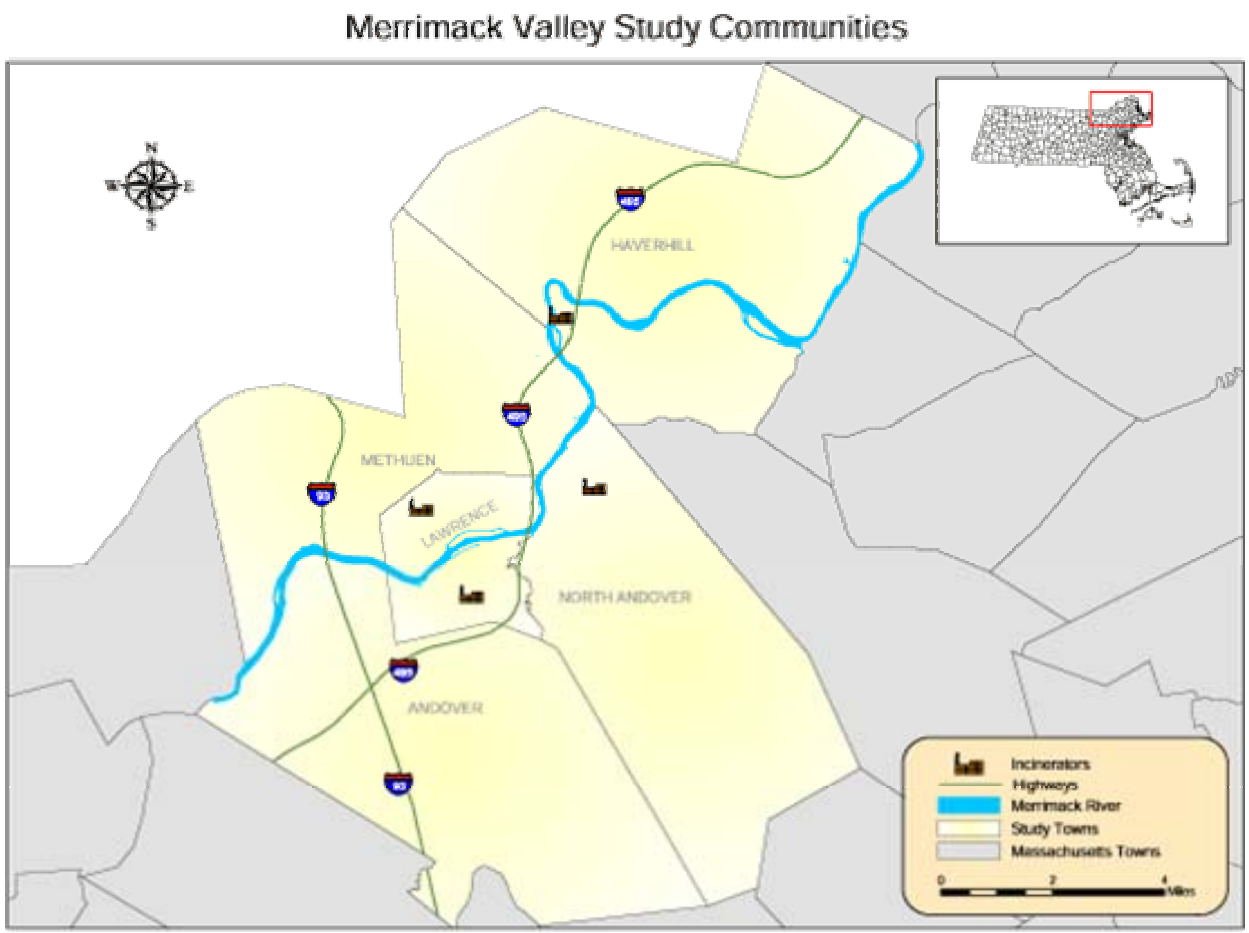
Outcomes of Interest in Massachusetts

- Pediatric Asthma
- Systemic Lupus Erythematosus
- Developmental Effects

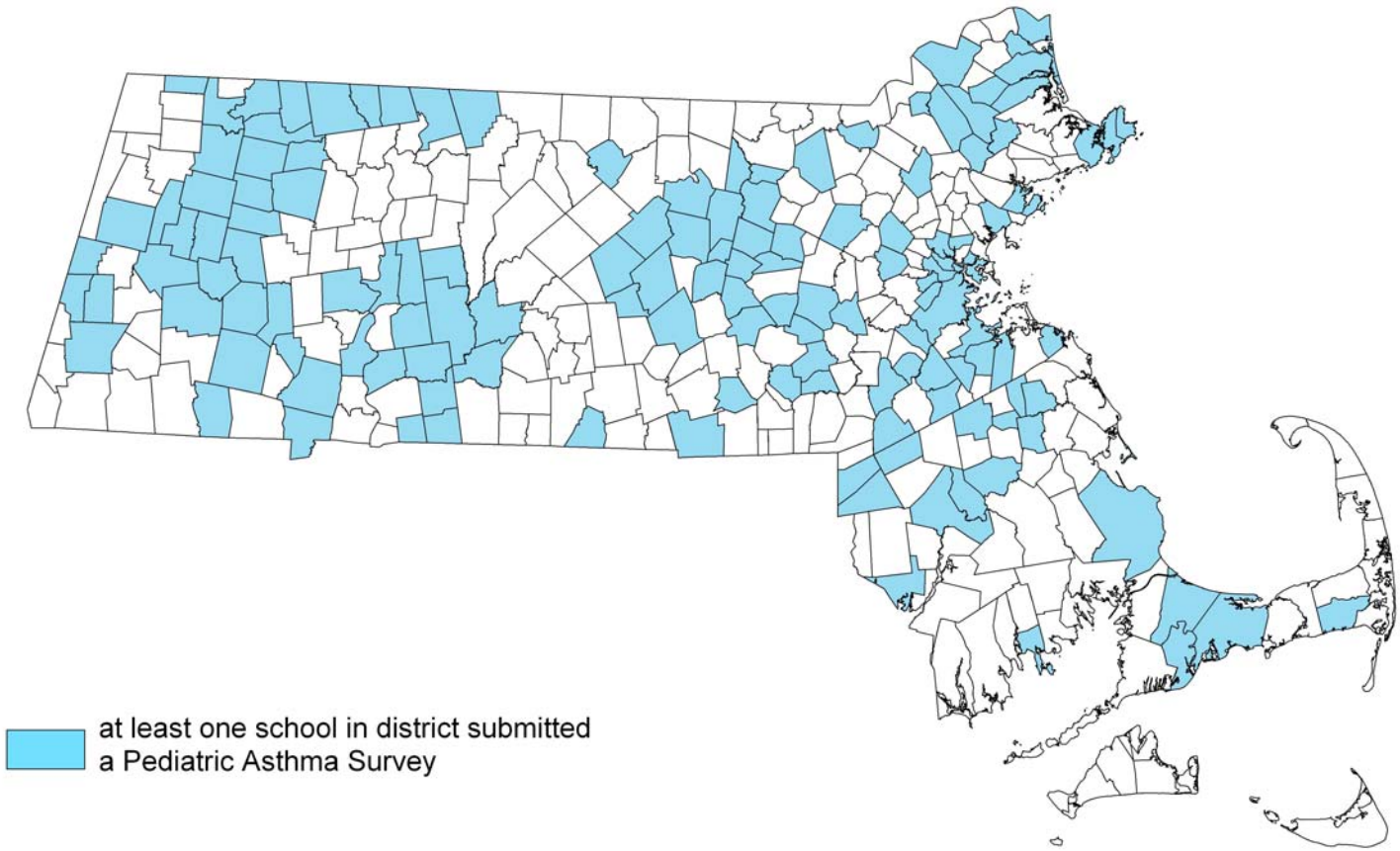
Potential Environmental Exposures

- Indoor Air Quality in Schools (MDPH 1999 study)
- Exposure Opportunities to sources of petroleum distillates (e.g., state hazardous waste sites)
- Areas of PCB Contamination

Proposed Approach: Tracking Asthma in Massachusetts



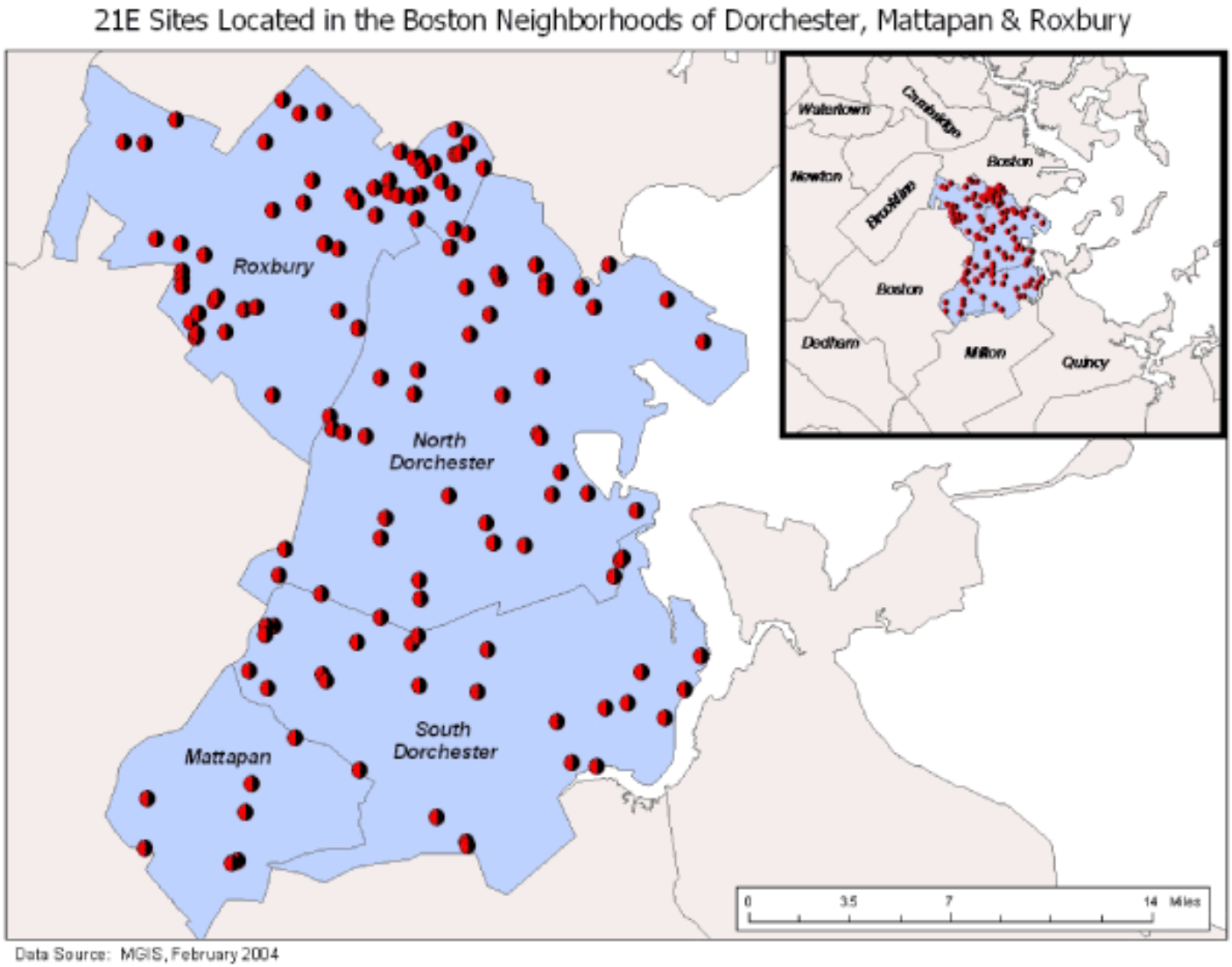
Communities Participating in the Pediatric Asthma Survey 2002-2003



Proposed Approach: Tracking Lupus in Boston, MA

- Focus on Boston
- Initial case ascertainment through hospital discharge/billing databases.

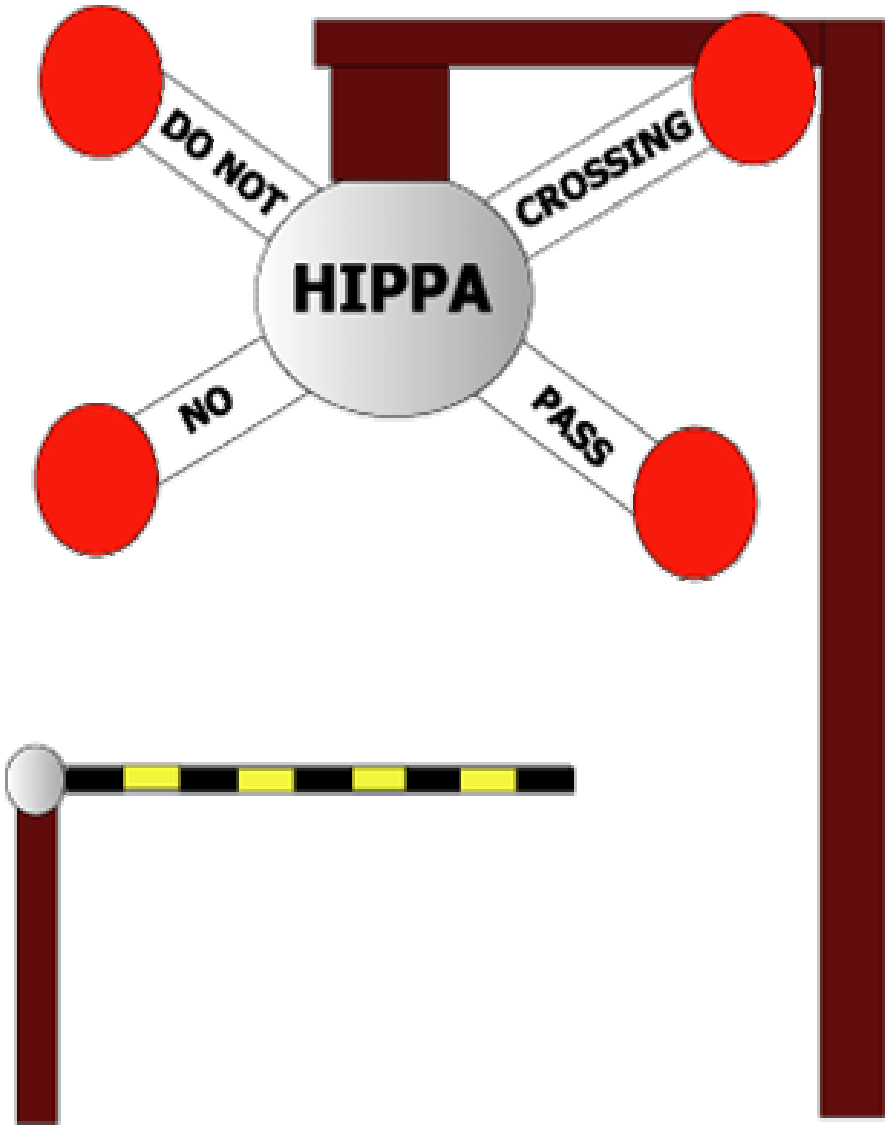
Current Active 21 E Sites in, Dorchester, Roxbury & Mattapan Neighborhoods



Proposed Approach: Tracking Lupus in Boston, MA (continued)

- Case information will be linked with environmental exposures of interest (e.g., petroleum distillates).

- Will work with MDEP to link with existing and most appropriate environmental databases.


DO NOT
CROSSING
HIPPA
NO
PASS

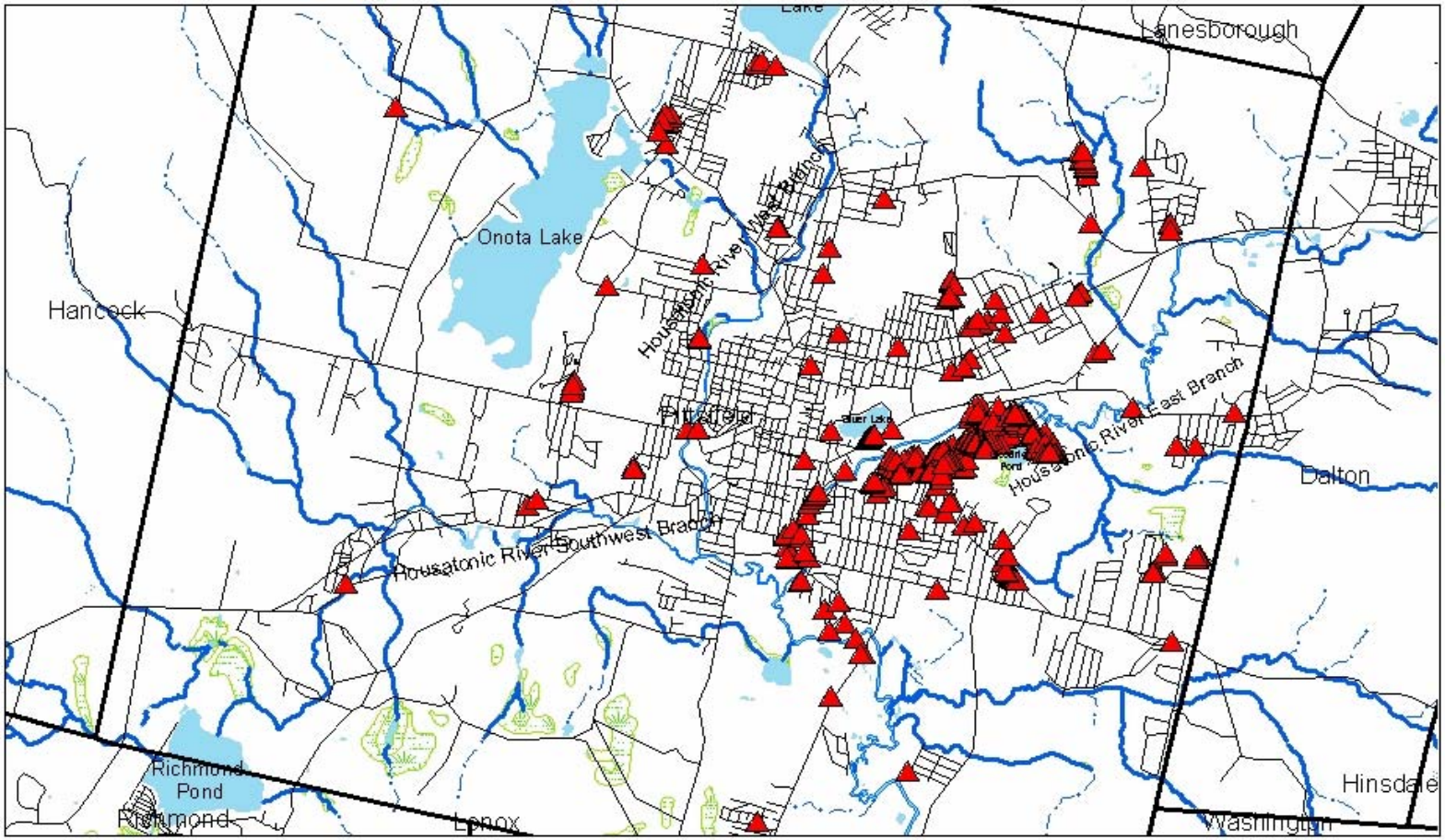
Response to HIPPA Barriers

- Amended regulations that define the diseases that are dangerous to public health.

- Coordinated with Medical Advisory Committee to contract with rheumatology fellows for data abstraction at 11 health care facilities that serve Boston residents.

Proposed Approach: Tracking Developmental Disabilities

- Initial efforts will focus on Housatonic River area of Massachusetts, but will expand to Southeastern Massachusetts.
- Track developmental effects among 3-10 year olds through existing databases (e.g., Department of Education Individual Education Program, MDPH Early Intervention Program.
- Health data will be linked with environmental (PCB) data from BEHA GIS system.



Legend

- Massachusetts_Towns
- Residential Properties Tested for PCBs
- Berkshire_County_Streets

Rivers/Streams

- River/Stream
- Intermittent Stream

Water Bodies

- Flat
- Wetland
- River
- Lake/Pond

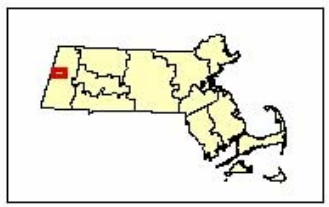
Residential Properties Tested for PCBs in Pittsfield, MA

N W E S

0.5 Miles

BEHA

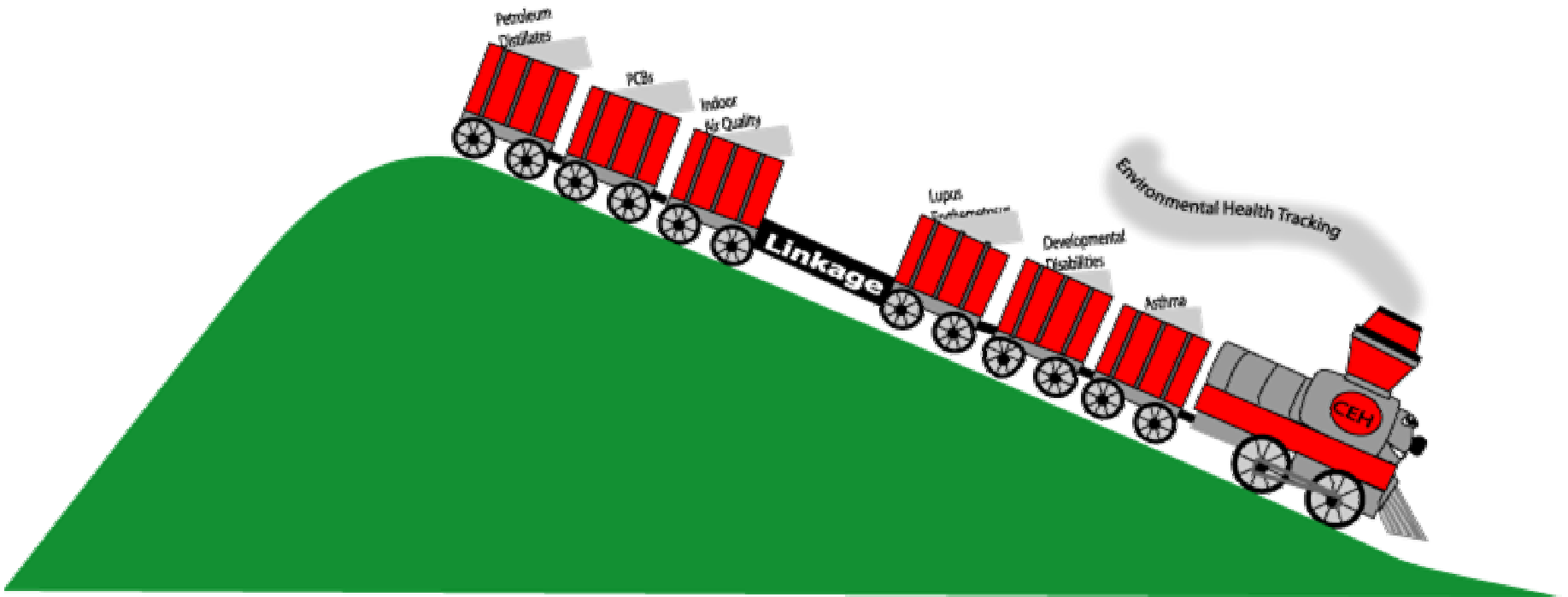
MASS GIS



"In Public Health, we can't do anything without surveillance …that's where public health begins."

Dr. David Satcher, Former U.S. Surgeon General

March 27, 2000



New Opportunities to Enhance Overall Public Health Capacity

- **Readily available tracking data will provide for better determination of the need for environmental health studies.**
- **Readily available tracking data will allow for more timely public health interventions.**
- **Environmental Public Health Tracking will expedite health status improvements.**