Three Approaches to Linking Childhood Cancer and the Environment

Wisconsin Environmental Public Health Tracking

Wisconsin's Goals for Tracking Childhood Cancer

BUILD BRIDGES FOR FUTURE DATA LINKAGE EFFORTS

- Increase timeliness of data acquisition
- Facilitate data exchange with environmental partners
- Expand ability to identify potential exposures
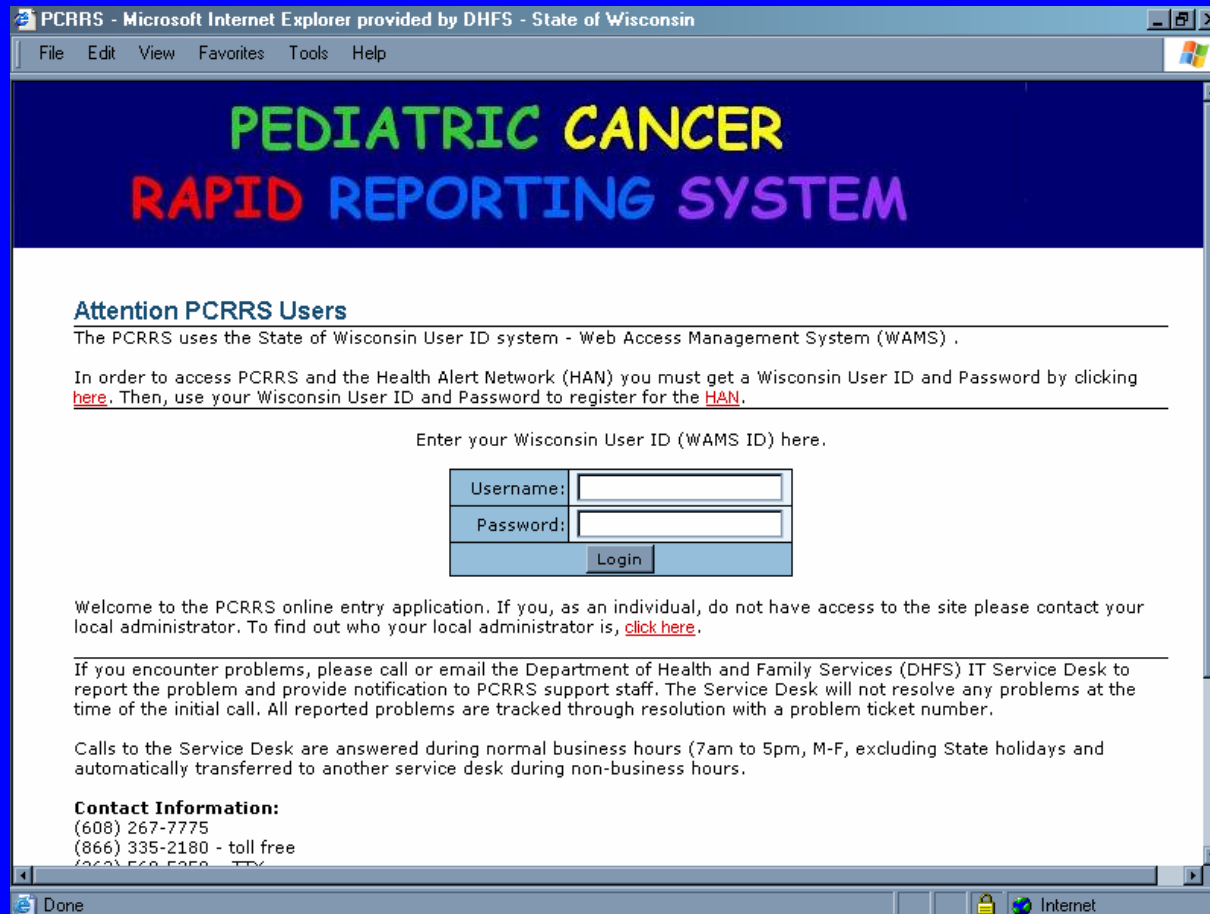
Increase timeliness of data acquisition

- Issue

  – Delay in getting information from cancer registry hinders follow-back

- Approach

  – Web-based application for timely data entry
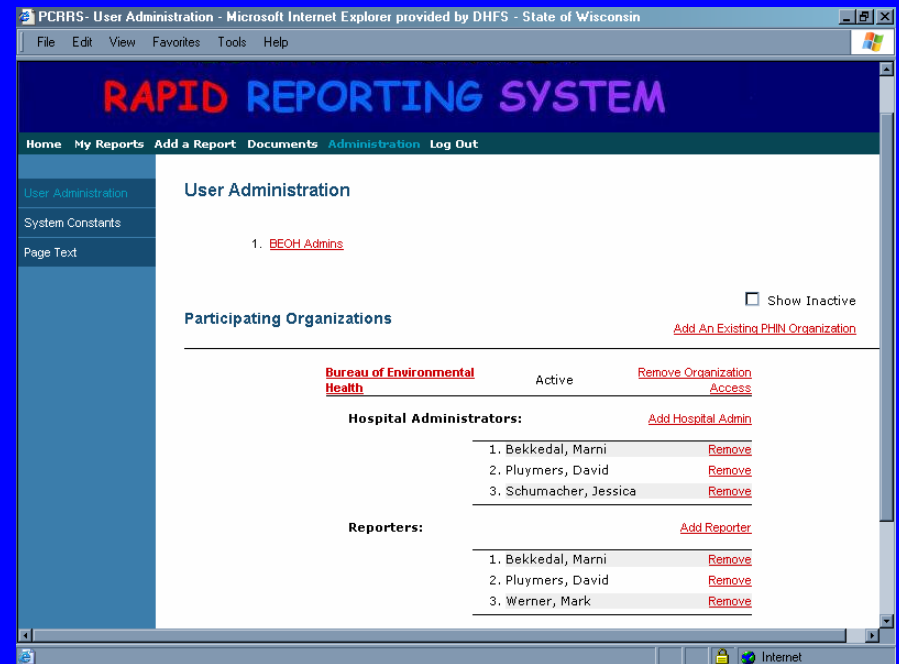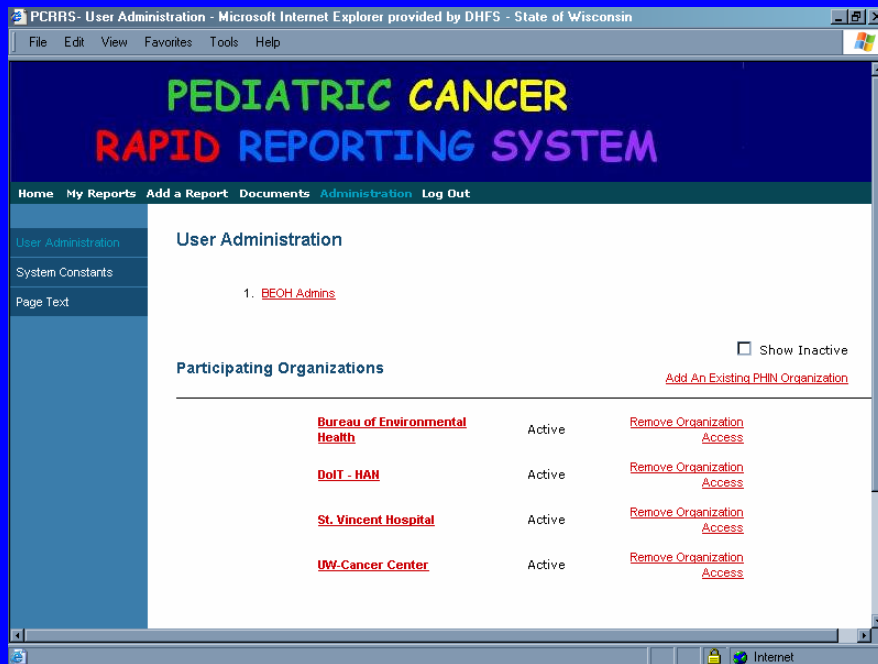
Application Description
(User authentication, Role-based Access, Specific permissions)

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Application Description

(Adding Reports)

Application Description
(Querying for Reports)

Application Description

(Printing Reports)

Increase timeliness of data acquisition

- Obstacles:

  - hospitals volunteering for double data entry

  - cumbersome IT acquisition process

  - Normal bumps associated with application development

- Solutions:

  - find a "carrot" for them

  - Like Nike says, "Just do it."

  - regular meetings and updates with developers; strong testing team

Facilitate data exchange with environmental partners

- Issue
  - No previous attempts to routinely link environmental and health data

- Approach
  - Work together to build tools and construct datasets that can work now and into the future for data linkage purposes

Tools Development

- Surveillance of pesticides in drinking water
- Other potential pesticide exposure
- Modeling of HAPs
- GIS coding algorithms
- Mapping templates

Tools Development
Pesticides in Drinking Water

Tools Development
Other Potential Pesticide Exposure

Percentage of Land in Corn and Soybean Production
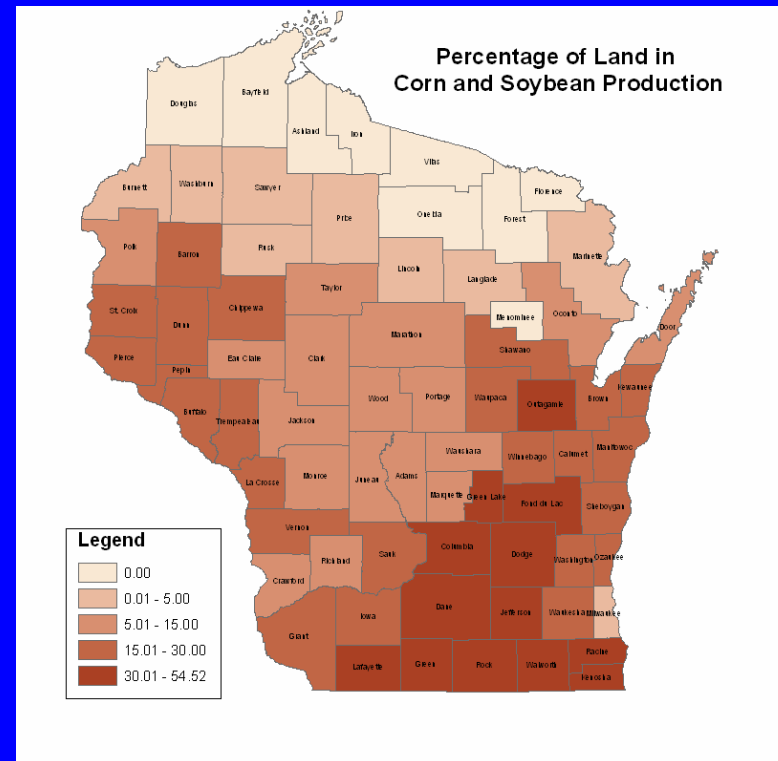
Tools Development
Modeling HAPs
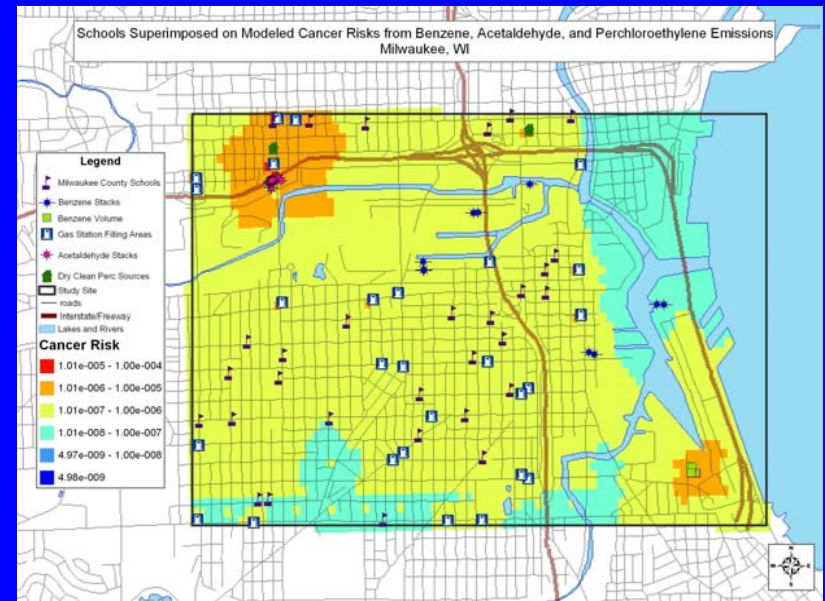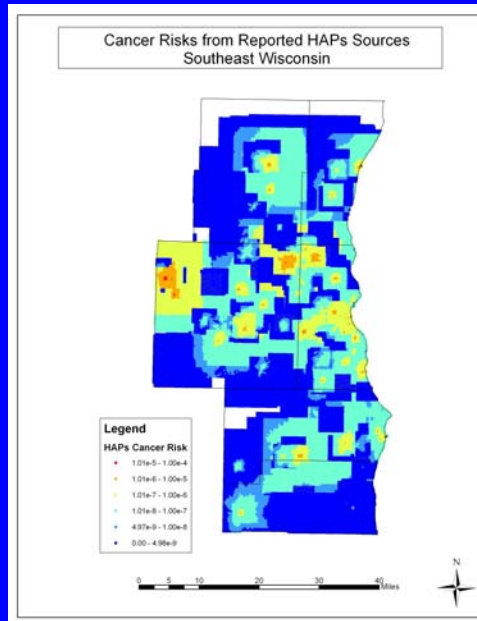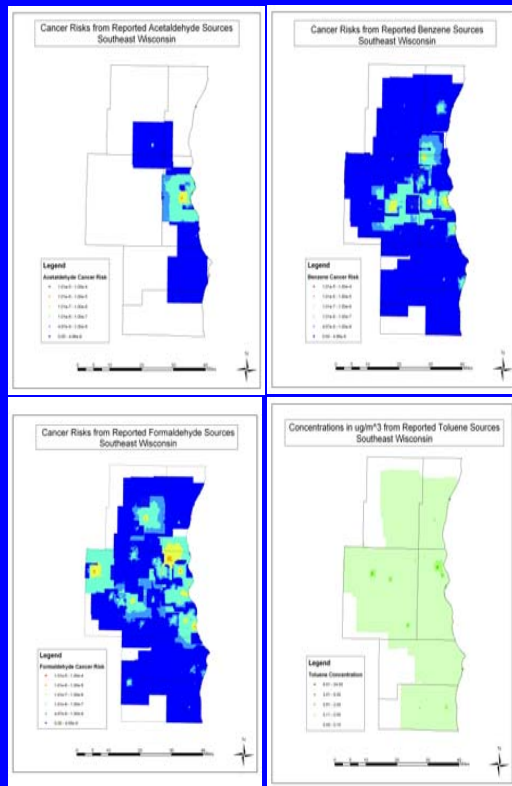
Facilitate data exchange with environmental partners

- Obstacles
  - Don't know what environmental data are available, or who has them
  - Geographic matching
  - State statutes

- Solutions
  - Many meetings to inventory people and data
  - fund projects to address geographic information
  - Hire as $0 LTE

Expand ability to identify potential exposures

- Issue
  - Estimate, assign, and aggregate potential environmental exposures for chronic disease

- Approach
  - Attempt to quantify "transience" of children
  - Environmental Exposure Profile

Quantify "transience"

- Would like to have more geographical information than residence at time of diagnosis.

- Would like to have some estimate of how far these children move prior to diagnosis

- Pilot project to match birth certificate address with date of diagnosis address
  - will be doing some linkages with environmental factors

Environmental Exposure Profile

- Identify cases
- Conduct follow-back survey
- Identify geography corresponding to history
- Link geography with potential exposure(s)
- Establish individual Environmental Exposure Profile
- Aggregate into matrix

ENVIRONMENTAL EXPOSURE PROFILE MATRIX FOR HEALTH OUTCOME X			
Environmental Factors	Exposure Estimate (frequencies)		
	Low	Moderate	High
Benzene	lll (3)	lllll (5)	lllllll (7)
Ozone	llll (4)	llllllll (8)	lll (3)
PM	lll (3)	llll (4)	llllllll (8)
Pesticides	lllllllllllll (13)	l (1)	l (1)

Expand ability to identify potential exposures

- Obstacles
  - No electronic survey available

  - Difficulties matching and sharing vital records and cancer data

  - State Statutes

- Solutions
  - Combine surveys and put into interactive, electronic format

  - Negotiate data sharing agreements

  - Hire as $0 LTE

Major Products

- Web-based application for timely identification of childhood cancer cases, follow-back survey administration, and sharing of data with environmental partners
- Quantification of transience to assist with exposure estimation
- Preliminary linkages of historical cases with HAP and pesticide data
- Environmental Exposure Profile survey and template

Lessons Learned

- Important to fund environmental partners to facilitate data collection, and improve dataset quality and compatibility

- There is value in building sustainable tools for long-term use in linkage efforts

- Data sharing and integration requires significant negotiation