

# Wisconsin's Application of Environmental Public Health Tracking to Multiple Sclerosis and Amyotrophic Lateral Sclerosis

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# ENVIRONMENTAL PUBLIC HEALTH TRACKING

- Can it be applied to chronic diseases?



# Reasons for Selected Health Outcomes

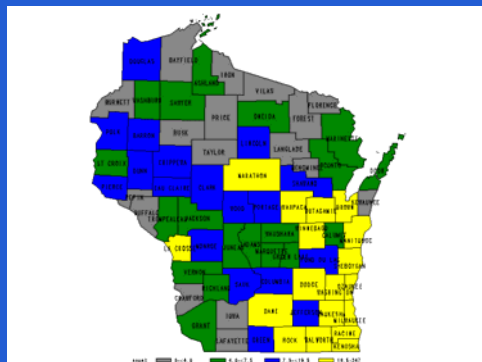
- Multiple Sclerosis & Amyotrophic Lateral Sclerosis
  - environmental exposures are likely contributors
  - difficult to adequately address cluster concerns
    - time-space analyses
    - very difficult to quantify exposures
  - Need a tool with current and future utility

# Wisconsin's MS & ALS

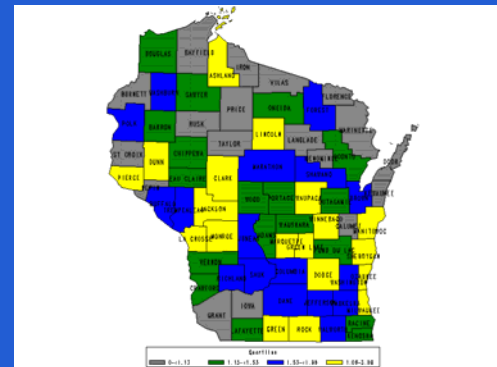
- Hospital Visits 1990-2001
  - MS principal diagnosis = 24,015 (35.5/100,000)
  - ALS principal diagnosis = 2,123 (3.1/100,000)
- Deaths 1990-2001
  - MS principal diagnosis = 1,176 (1.9/100,000)
  - ALS principal diagnosis = 1,361 (2.2/100,000)

## Preliminary MS death estimates by county from 1990-2001

Counts



Age-adjusted Rate



A photograph of the Golden Gate Bridge in San Francisco, California. The bridge's iconic orange-red towers and suspension cables are visible against a clear blue sky. The bridge spans across a body of water, with waves crashing against a large, dark rock in the foreground. The overall scene is bright and clear.

**Environmental  
Exposures**

**Health  
Outcomes**

# Addressing Environmental Exposures

- Data sources
  - Water quality
  - Air quality
  - Land use
- Quantification of potential exposures
  - data warehouse includes matrices with varying time and space resolutions

# Addressing Health Outcomes

- Data sources
  - Hospital Discharge Database
  - Mortality Database
  - Individual, “Real-time” Case Ascertainment
  - Follow-back interviews

**Environmental  
Exposures**

**ENVIRONMENTAL EXPOSURE PROFILE**

**Health  
Outcomes**





# Case Control Study

- Identify Cases and Controls
  - UW-Madison, MCW, MMRF
    - all have MS & ALS Clinics
    - all have patients with other chronic diseases
  - or select Non-disease controls
- Conduct follow-back interview
- Identify geography corresponding to patient's history
- Integrate geography with potential exposure(s)
- Establish individual Environmental Exposure Profile

# Using the Data

- Integrate Environmental Exposure Profiles
  - create Environmental Exposure Profile “maps”
- Statistically analyze for profiles associated with neurodegenerative diseases and controls
- Statistically analyze for specific profile factors associated with neurodegenerative diseases
- Address cluster concerns
- Address underlying causes of disease

# Providing a Public Service

- Environmental Exposure Profile matrices available publicly
  - interactive maps
  - opportunity to personally contribute to research, interact with research, and use results of research.

# Conclusions

- Tracking chronic disease may best be addressed using an Environmental Exposure Profile approach.
- The product is a dynamic data warehouse with “real time” updates for both environmental exposures and health outcomes
- The product should be designed for both research and public service purposes

**Environmental  
Exposures**

**ENVIRONMENTAL EXPOSURE PROFILE**

**Health  
Outcomes**

