

**Epidemiological Descriptive Analysis of a Case Series of
ALS Patients from 2008-2009
in Six Counties of Western Pennsylvania**

Angela M. Bazaco, MPH; Evelyn O. Talbott, Dr.PH

Objectives: ALS is a rare disease with a global incidence of 1-2 cases per 100,000 persons and an estimated prevalence of 5 per 100,000. The etiology of ALS is not known although environmental risk factors are thought to play a role. The history of the steel industry and several hazardous waste sites, landfills, and Superfund sites provide a suitable setting for studying ALS in Western PA. The purpose of this pilot study is to test the feasibility of conducting a case control study of personal, occupational and environmental risk factors in the six county area of Western Pa. We begin by conducting a descriptive analysis of ALS cases by age at onset, gender, race and area of residence for a large ALS research Center at the University of Pittsburgh Medical Center.

Methods: Validation of a questionnaire measuring risk factors for ALS and assessment of the feasibility of information on proximity to waste sites, and environmental, occupational, residential, and personal lifestyle factors through personal interviews is presently ongoing. Age race and gender matched controls will be obtained. Time of onset and disease severity is also being assessed. Geographic information systems (GIS) techniques are being used to relate proximity of subjects' residences to surrounding toxic waste sites and major landfill areas.

Implications for public health: This is only one of two studies conducted on the environmental and personal risk factors for ALS and will provide useful information in identifying risk factors for this disease.

**Amyotrophic Lateral Sclerosis (ALS) in Western Pennsylvania (Pa) (2008-2009):
Examining the Role of Gender and Age at Onset**

Angela M. Bazaco, MPH; Evelyn O. Talbott, Dr.PH,
David Lacomis, MD, Robert Bowser, PhD, Sandeep Rana, MD

Objectives: ALS is a rare disease with a global incidence of 1-2 cases per 100,000 persons and an estimated prevalence of 5 per 100,000. Median survival is approximately 2-4 years after onset of ALS. There is currently no treatment available to prevent or reverse this devastating disease. The etiology of ALS is unknown although environmental/occupational risk factors are thought to play a role. Western Pa provides a suitable setting for studying ALS due to the history of the coal and steel industry, occupational exposures, as well as environmental hazards. The purpose of this case series is to investigate personal, occupational and environmental risk factors for ALS in Western Pa.

Methods: A descriptive analysis of ALS cases was conducted by age at onset, gender, race and area of residence for individuals diagnosed at the University of Pittsburgh Medical Center's Center for ALS Research. Age, race, gender, sex, and county matched controls will be obtained. Time of onset and disease severity is also being assessed. A Standardized Mortality ratio was calculated comparing ALS deaths identified through the PADOH with Pa deaths as a whole for 2006-2008. Geographic information systems (GIS) techniques will be used to relate proximity of subjects' residences to surrounding toxic waste sites and major landfill areas.

Results: Subjects presently identified include 76 ALS cases, 21 years of age and over. Fourteen (18%) are from the City of Pittsburgh. *The mean age of onset for males is 58.4 ± 12.3 and 64.7 ± 13.0 for women, p=0.037. There are 44 males and 32 females (1.4:1) (p<0.01).* Caucasian's make up 97% (72/74) of the sample, the remainder are African-American. The SMR showed a significantly elevated rate for Beaver county (SMR=1.48, 95% CI=103.6, 204.8) and nearly significant elevation for Allegheny County (SMR=113.9, 95% CI 98.1, 131.5).

Conclusions: The increased male: female ratio and the male decreased mean age of onset may reflect a reduced latency due to increases in personal and /or environmental /occupational exposures in men compared to women. The comparison of female cases to female controls will be equally important to determine if there are unique exposures within ALS cases that are "non traditional "and more reflective of a male profile of experiences.

Implications for public health: The case control design will permit within gender and racial comparisons of cases to controls and may shed light on important risk factors for this disease.