

Chicago Metropolitan Area Amyotrophic Lateral Sclerosis (ALS) Surveillance Project Summary

BACKGROUND

ALS, or Lou Gehrig's disease, is a rare, difficult to diagnose neurological condition with no known cause or cure. Because ALS is a non-notifiable disease, little is known about its incidence and prevalence in the U.S. To help learn more about ALS, the federal Agency for Toxic Substances and Disease Registry (ATSDR) maintains the [National ALS Registry](#) (Registry).^{1,2} The Registry identifies ALS cases using national administrative databases, including those from Medicaid, Medicare, and the Veterans Health Administration and Veterans Benefits Administration, and by patient self-enrollment through a web portal. ATSDR funded McKing Consulting Corporation (McKing) to complete surveillance projects to gather reliable and timely data to describe the incidence and demographic characteristics of ALS and to assist ATSDR in evaluating the completeness of the Registry. Surveillance projects were conducted in three states (Florida, New Jersey, and Texas) and in eight metropolitan areas (Atlanta, Baltimore, Chicago, Detroit, Las Vegas, Los Angeles, Philadelphia, and San Francisco). This summary describes the Chicago project.

METHODS

McKing partnered with the Metropolitan Chicago Healthcare Council (MCHC) to conduct the project. All neurologists practicing in Cook and DuPage Counties, Illinois were asked if they diagnosed or provided care for ALS patients that resided in Cook and DuPage Counties. Emphasis was placed on neurologists specializing in the diagnosis/care of persons with ALS who practice at the referral centers in Chicago that typically see more than 50 patients per year. Neurologists were asked to submit one-page case reports for ALS patients under the doctor's care who were alive at some point between January 1, 2009 and December 31, 2011. A medical record verification form (MRVF) and an electromyogram (EMG) report were requested for a sample of cases and reviewed by an independent consulting neurologist to confirm ALS diagnosis. Death data were reviewed to identify additional cases, and attempts were made to obtain case reports for decedents that were not already reported.

Compensation was offered to neurologists for completed forms. No patients were contacted. Crude incidence rates were calculated using the count of cases diagnosed in each year as the numerator and the corresponding U.S. Census population data³ as the denominator. Crude average annual incidence rates were calculated by adding the incidence rates for the three years and then dividing by three. This project was approved by the Centers for Disease Control and Prevention Institutional Review Board.

RESULTS

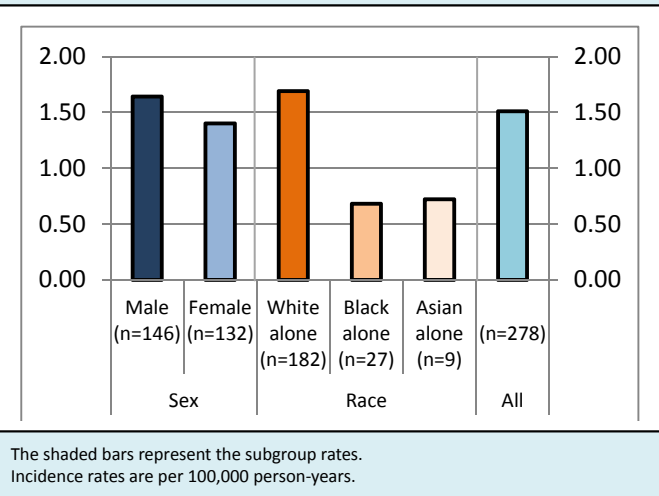
- ▶ Seven percent (30/412) of neurologists indicated that they diagnosed and/or cared for ALS patients and 67% (20/30) of those neurologists reported cases. All major referral centers in the region participated.
- ▶ Using 2010 U.S. Census population data and estimates of incidence and prevalence, we expected to identify 489 unique cases in the project area.^{3,4} A total of 480 case reports were received; 431 were unique cases, which is approximately 88% (431/489) of the expected cases.
- ▶ Seventy-two percent (312/431) of cases were reported as "definite," "probable," or "probable-lab supported" according to the El Escorial criteria.⁵ Ninety-eight percent (59/60) of the requested MRVFs were received; 88% (52/59) were classified as "definite," "probable," or "probable-lab supported," and 12% (7/59) were classified as "possible" by the consulting neurologist.
- ▶ Eighty percent of cases were 50 years of age or older at diagnosis, 51% were male, 66% were white, and 87% were not Hispanic or Latino (Table).
- ▶ Of the 393 cases for whom data were available, 50% had symptoms for 12 months or less before diagnosis. Ninety percent of the 393 cases were diagnosed within 36 months of having symptoms.
- ▶ Thirteen percent (58/431) of cases had only federal payers [(Medicare, Medicaid, Veterans Affairs (VA)), 31% (134/431) had only non-federal payers (HMO, private insurance, self-pay, or other), and 55% (239/431) had both federal and non-federal payers.

- ▶ There were 278 cases diagnosed in 2009-2011. The crude incidence rates for 2009, 2010, and 2011 ranged from 1.42 to 1.69 cases per 100,000 person-years. The crude average annual incidence rates between whites and Blacks/African Americans were significantly different (Figure). The age-adjusted average annual incidence rate for the three-year period was 1.51 cases per 100,000 person-years.

Table: Demographic Characteristics of All Reported ALS Cases in Cook and DuPage Counties, Illinois, n=431		
Demographic Characteristic	n	%*
Age (years)		
Under 40	26	6.0
40 – 49	56	13.0
50 – 59	107	24.8
60 – 69	121	28.1
70 – 79	87	20.2
80 or older	28	6.5
Unknown	6	1.4
Sex		
Male	221	51.3
Female	210	48.7
Race**		
White alone	286	66.4
Black/African American alone	49	11.4
Asian alone	16	3.7
Unknown	80	18.6
Ethnicity		
Hispanic	44	10.2
Not Hispanic or Latino	374	86.8
Unknown	13	3.0

*May not add up to 100% due to rounding.
 **There were no cases reported with multiple races.

Figure: Stratified Crude Average Annual Incidence Rates for ALS Cases Diagnosed in 2009-2011 in Cook and DuPage Counties, Illinois, n=278



FOR MORE INFORMATION

PLEASE VISIT THE ATSDR WEB SITE:

[HTTP://WWWN.CDC.GOV/ALS/ALSSTATEMETRO.ASPX](http://wwwn.cdc.gov/als/alsstatemetro.aspx)

DISCUSSION

- ▶ All ALS referral centers in the region participated which was crucial to the success of this project.
- ▶ A small percentage of neurologists diagnosed or cared for patients with ALS. Some non-referral center practices in the region participated. Some non-referral center practices had cases to report, but declined to participate. However, it is unclear if providers at these practices would have reported unique ALS cases.
- ▶ Seventy-seven unique names were identified in the death data that were not reported to the project. It is unknown if any of these individuals were true ALS cases.
- ▶ We found higher crude annual incidence rates among ALS cases that were older, male, and white, which is consistent with published literature.^{4,6,7} The difference in crude rates between whites and Blacks/African Americans was statistically significantly different.
- ▶ Examining localized ALS incidence and demographics may help to reveal at-risk populations for additional studies.

REFERENCES

1. National Amyotrophic Lateral Sclerosis (ALS) Registry. Centers for Disease Control and Prevention/Agency for Toxic Substances and Disease Registry Web site. <http://wwwn.cdc.gov/als>. Updated January 17, 2013. Accessed May 15, 2014.
2. Antao VC, Horton DK. The National Amyotrophic Lateral Sclerosis (ALS) Registry. *J Environ Health*. 2012;75(1):28-30.
3. State and County QuickFacts. United States Census Bureau/American Factfinder Web site. <http://quickfacts.census.gov/qfd/states/17000.html>. Accessed May 15, 2014.
4. Hirtz D, Thurman DJ, Gwinn-Hardy K, et al. How common are the "common" neurologic disorders? *Neurology*. 2007;68:326-337.
5. Brooks BR, Miller RG, Swash M, Munsat TL. El Escorial revisited: Revised criteria for the diagnosis of Amyotrophic Lateral Sclerosis. *World Federation of Neurology Research Group on Motor Neuron Diseases. Amyotroph Lateral Scler Other Motor Neuron Disord*. 2000;1(5):293-9.
6. Forbes RB, Colville S, Parratt J, et al. The incidence of motor neuron disease in Scotland. *Journal of Neurology*. 2007;254:866-869.
7. Logroscino G, Beghi E, Zoccolella S, et al. Incidence of amyotrophic lateral sclerosis in southern Italy: a population based study. *J Neurol Neurosurg Psychiatry*. 2005;76:1094-1098.

Disclaimer: The findings and conclusions in this summary have not been formally disseminated by the Agency for Toxic Substances and Disease Registry and should not be construed to represent any Agency determination or policy.