

## Introduction

- Suicide is a major cause of death responsible for close to 800,000 deaths yearly and is the number two cause of death among 15-29 year olds.<sup>1</sup>
- This issue is compounded in Nicaragua due to lack of resources allocated to mental health. There are only 0.64 psychiatrists per 100,000 people.<sup>2</sup>
- The Health Demographics and Surveillance Site (HDSS) has been collecting demographic information from a representative sample of the municipality of León.

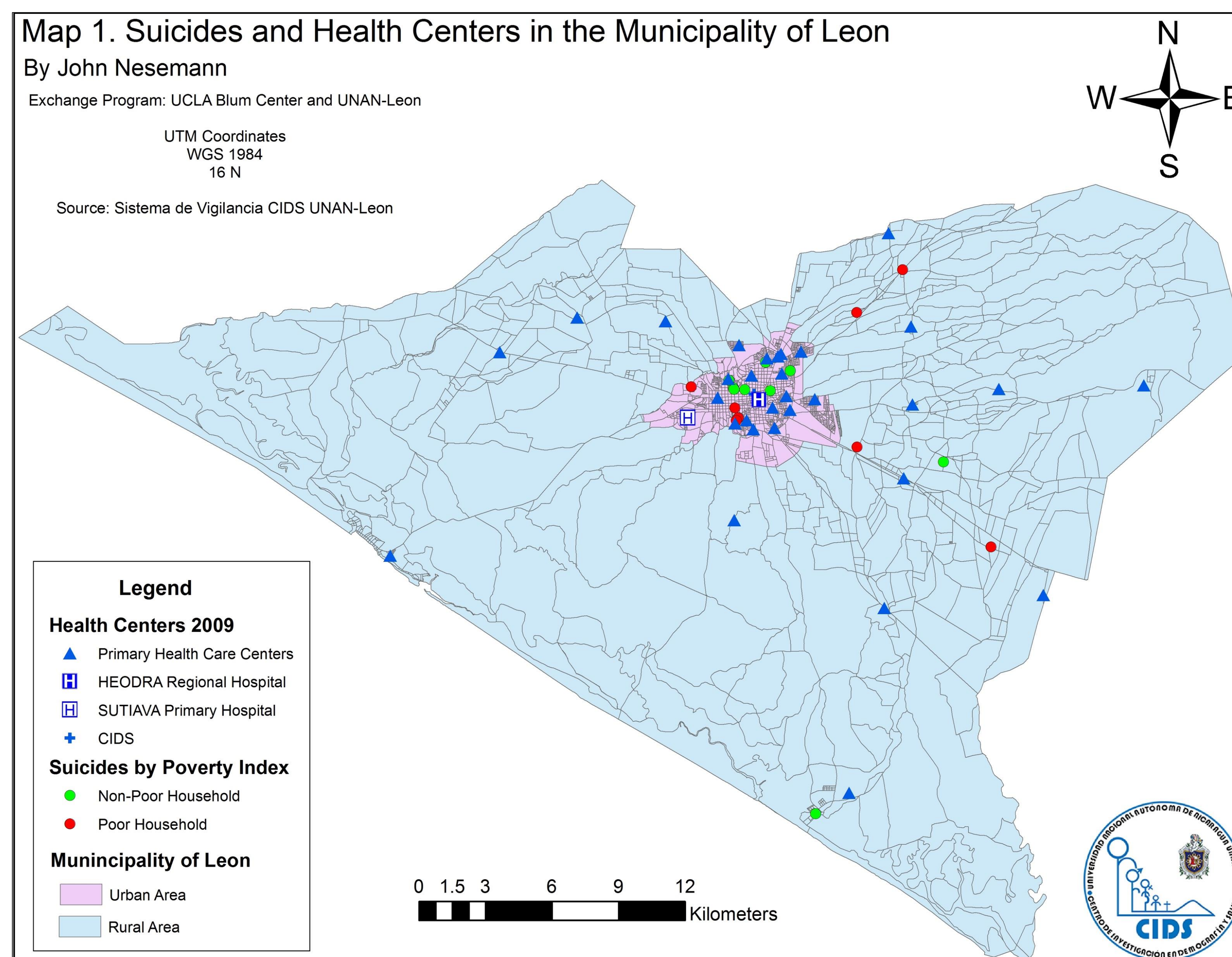
## Objectives

- Identify suicides from the León Census data from years 2005-2009 and map the regional distribution of suicides in the municipality of León in relation to health clinics.
- Analyze suicides by sociodemographic characteristics and fraction of total deaths and compare them to outside data.

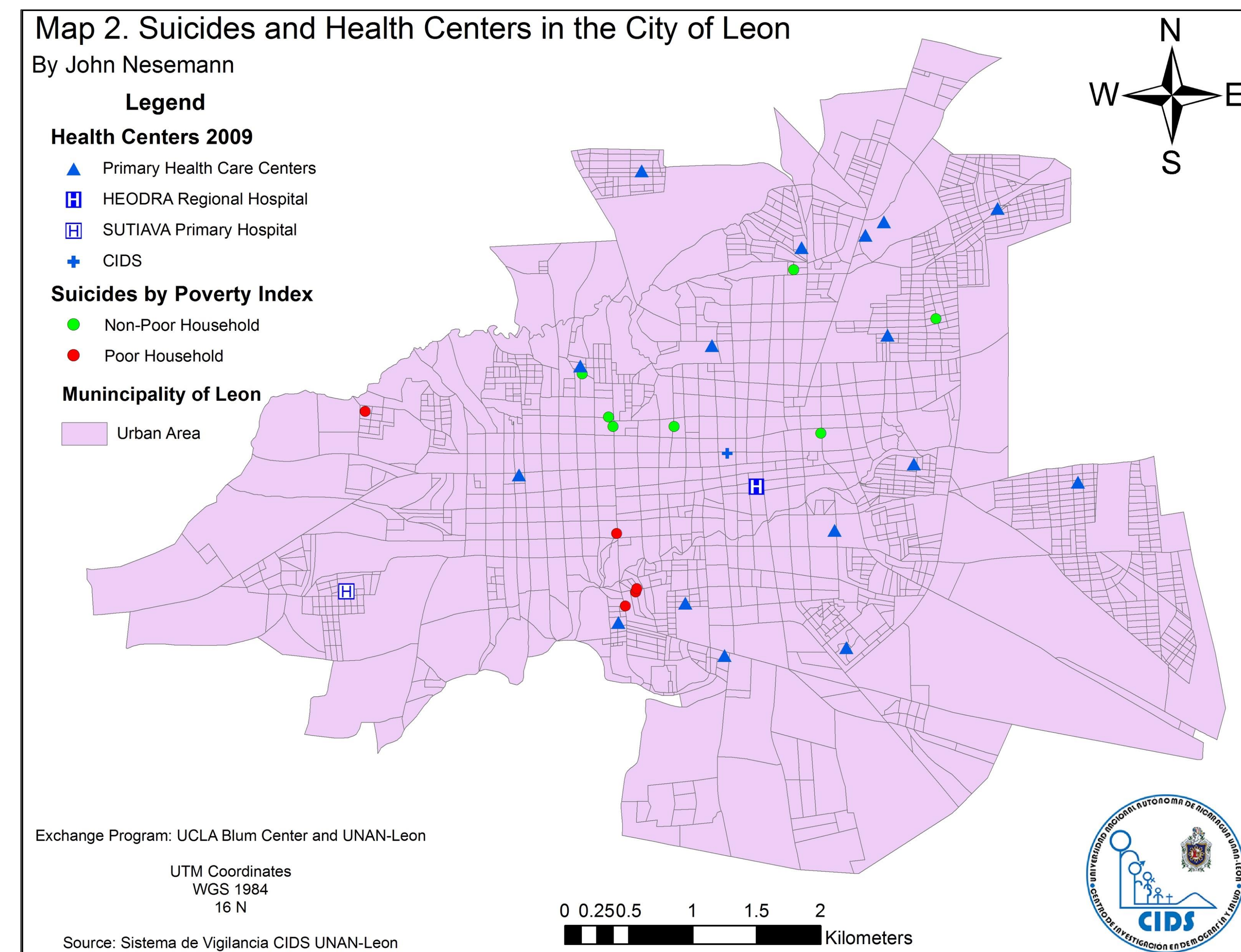
## Methods

- Retrospective review of the HDSS surveillance data from 2005-2009 was conducted and suicides identified.
- Demographic data for each case based on employment, level of education and Unsatisfied Basic Needs Assessment was obtained.
- The geographic location code assigned to each Household was obtained and mapped in ArcGIS relative to health care centers.

## Results



6 suicides occurred in the rural area. Of the 6, 4 qualified as poor and 2 as non-poor households. All households were located within 3.5km of a health care center.



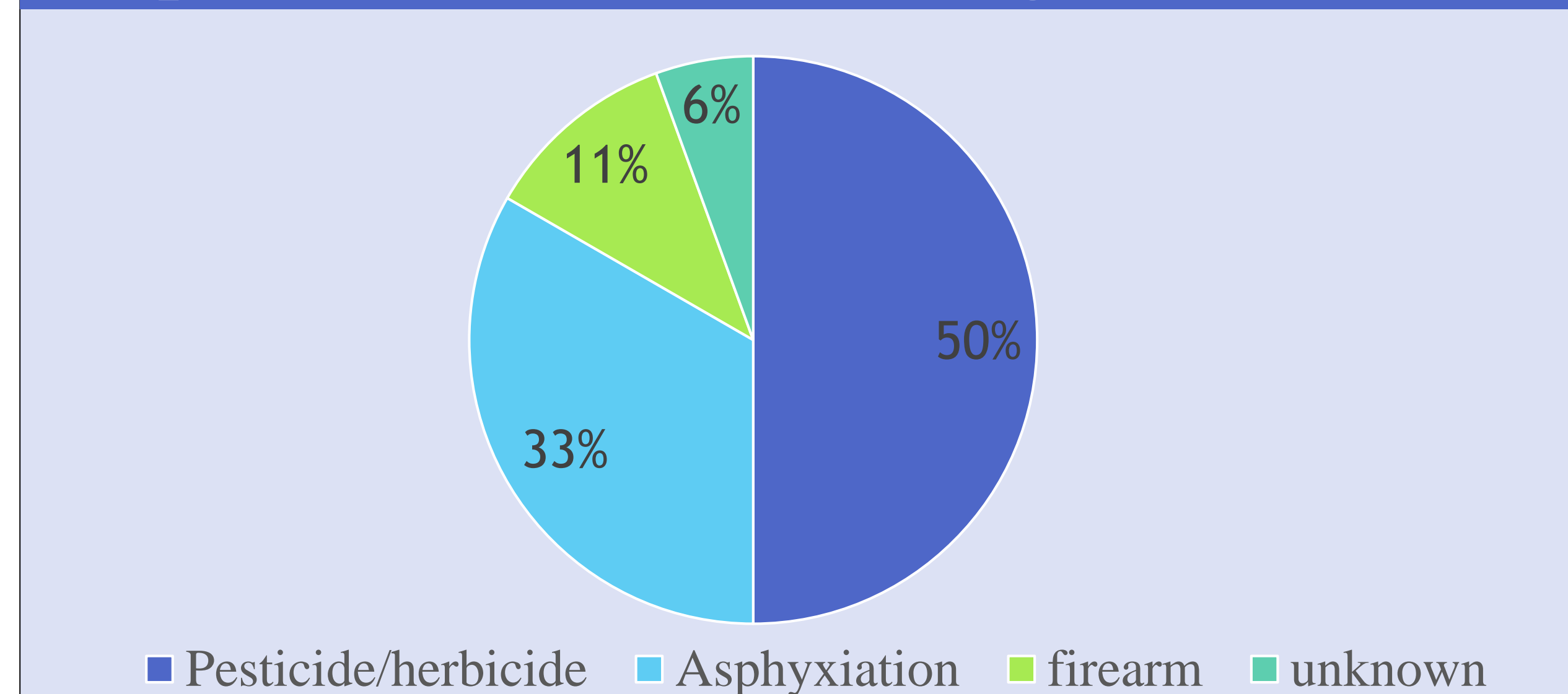
12 suicides occurred within the city of León. Of the 12, 5 households qualified as poor and 7 qualified as non-poor. All but one household was located within 1km of a health care center.

**Table 1. Suicides as percent of total deaths for a given age group from different sources**

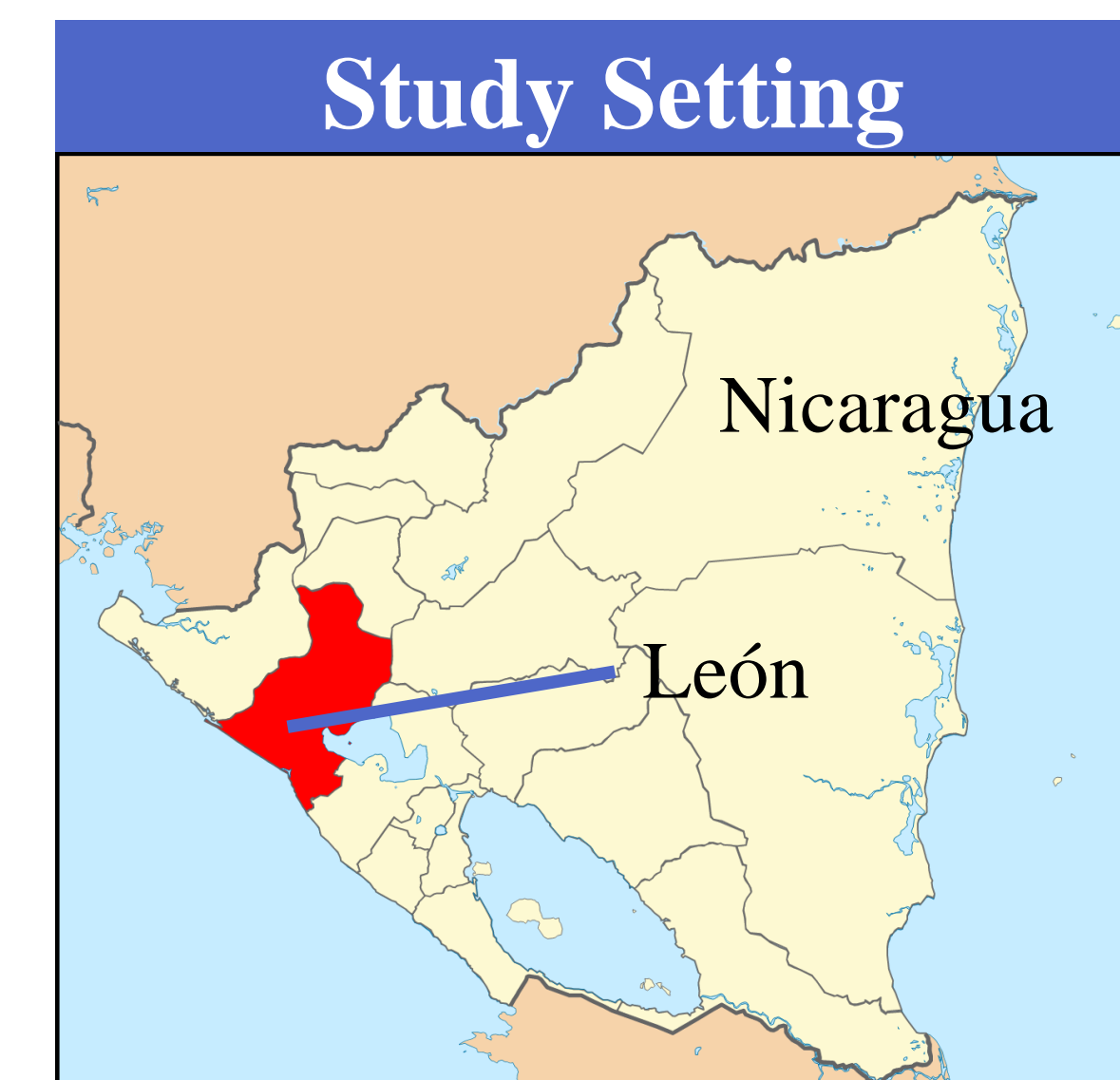
The overall suicide rate was lower than the WHO estimates for the world and Nicaragua. The highest rate was among the 15-29 age group with, 11 out of the 18 suicides occurring in this age group.

Age Group	This study	WHO-Global <sup>1</sup>	WHO-Nicaragua <sup>1</sup>
Total	1.31%	1.40%	2.04%
5 to 14	0%	0.96%	3.50%
15 to 29	12.36%	8.27%	12.84%
30 to 49	1.27%	4.03%	4.79%
50 to 59	1.23%	1.87%	1.40%
60 to 69	0%	1.00%	0.64%
70+	0.35%	0.44%	0.17%

**Graph 1. Methods of committing Suicide**



The most common was pesticide or toxin ingestion, followed by asphyxiation, firearm use, and then unknown as the least common category.



## Citations

1. Global Health Estimates 2015: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2015. Geneva, World Health Organization; 2016.
2. Jacob, K. S., et al. "Mental health systems in countries: where are we now?." *The Lancet* 370.9592 (2007): 1061-1077.
3. Madge, Nicola, and John G. Harvey. "Suicide among the young—the size of the problem." *Journal of Adolescence* 22.1 (1999): 145-155.
4. Medina, Claudia Obando, Gunnar Kullgren, and Kjerstin Dahlblom. "A qualitative study on primary health care professionals' perceptions of mental health, suicidal problems and help-seeking among young people in Nicaragua." *BMC family practice* 15.1 (2014): 129.
5. Mascayano, Franco, et al. "Suicide in Latin America: a growing public health issue." *Revista de la Facultad de Ciencias Médicas* 72.4 (2016): 295-303.

## Discussions

- A total of 18 suicides were identified: 16 men and two women. These results are likely under-reported as limited resources, social stigma, and the lack of monitoring systems in place to detect and address suicide attempts can lead to under-reported suicides<sup>3</sup>.
- In general, most suicide cases make contact with a health professional in the month leading up to suicide<sup>4</sup>. The health care centers are close enough for contact, suggesting that lack of access to a health care facility was not a contributing factor to the suicides. Thus, investments could be made in training for the identification and treatment of mental illnesses such as depression and drug abuse, both of which are risk factors in suicides<sup>5</sup>.
- Poverty index and level of education did not seem to be related to suicide likelihood. But the small sample size limited the ability to carry out statistical analysis.
- Lack of government regulation and easy access to pesticides encourage poisoning as a suicide method. However, regulations have already been enacted in León. Which begs the question: have the methods taken to reduce pesticide availability reduced suicidality?

## Funding Sources