Geographical Distribution Analysis - A Practicum Experience

USING COMMUNITY ASSESSMENTS IN PRIORITIZING, PLANNING & ALLOCATING RESOURCES

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UNIVERSITY

CO-AUTHORS: BAIG, K., MUNOZ, O, & SHAW, M. (2010)

CHUD Vision

Improve the quality of life (People) and the quality of the built environment (Place),

Mission

the specific mission of CHUD is to conceive, develop and deliver integrated, sustainable, scalable, flexible, evidence-based, outcome-driven, and technology-enabled solutions to achieve our vision.

CSHD Vision

Transform the health and education landscape of Texas and beyond.

Mission :

To stimulate research, education, training, advocacy, and policy development that benefits communities and contributes to eliminating health and health care disparities.

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PURPOSE OF STUDY

- ❖ To determine the expressed needs of colonia residents

- ❖ To use needs assessment data for future planning, prioritizing, and allocating limited resources to address service gaps

INTRODUCTION

Colonia:

❖ *Colonia* is a Spanish term for neighborhood or community. It has come to have a very different meaning over time…

❖ The Office of the Texas Secretary of State defines a *colonia* as:

"a residential area along the Texas-Mexico border that lacks some of the basic living necessities, such as potable water and sewer systems, electricity, paved roads and safe and sanitary housing."
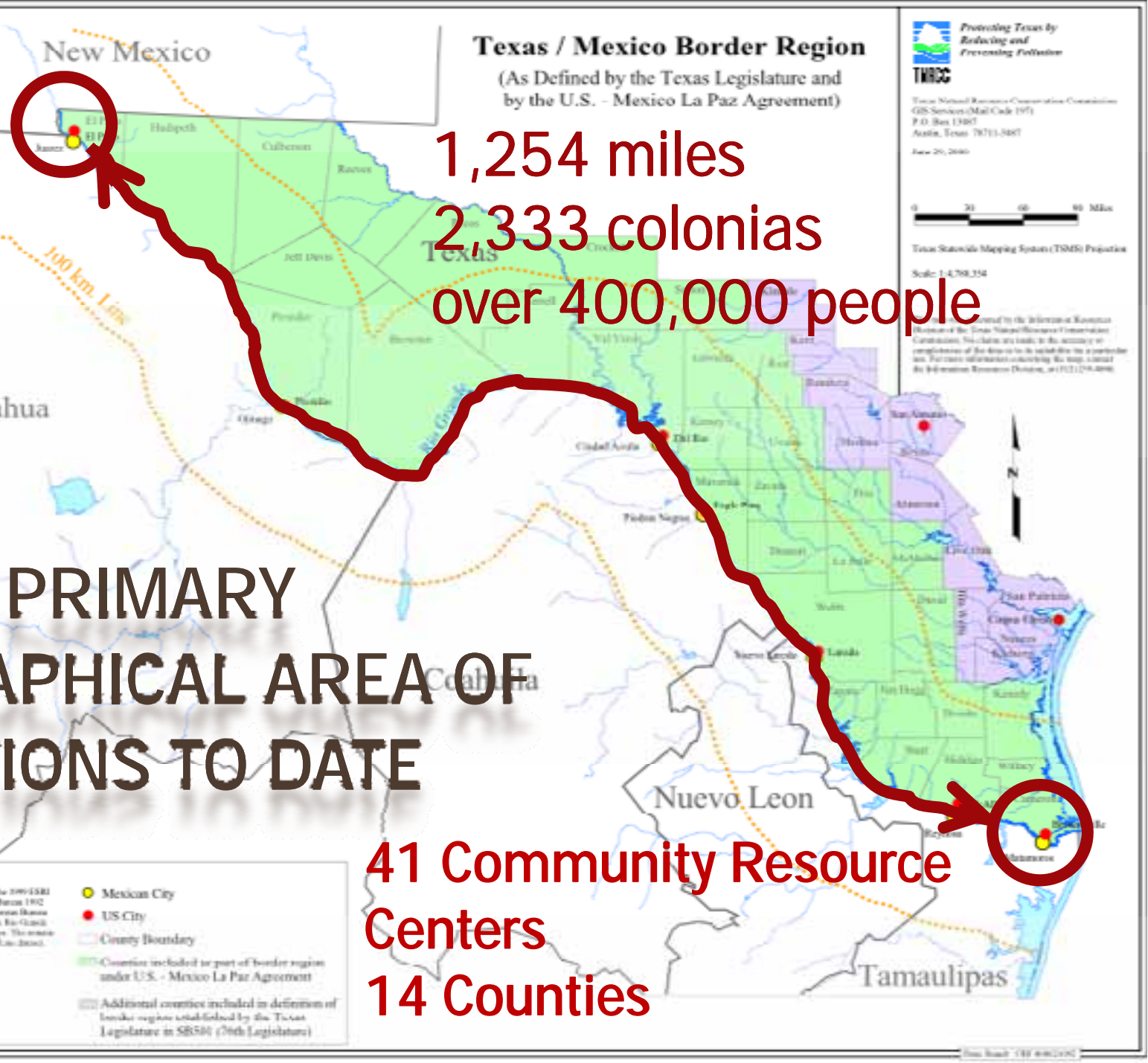
Texas / Mexico Border Region
(As Defined by the Texas Legislature and by the U.S. - Mexico La Paz Agreement)

1,254 miles
2,333 colonias
over 400,000 people

CHUD'S PRIMARY GEOGRAPHICAL AREA OF OPERATIONS TO DATE

41 Community Resource Centers
14 Counties

COLONIA SNAPSHOTS

- *Colonias* are also found within city limits.
- Upon receiving basic services, some *colonias* are annexed by an adjacent city
- Others choose to incorporate in hopes of becoming eligible as applicants for federal and state funding, and assistance in the delivery of services to its residents.

METHODS

- ❖ Texas A&M University - Colonias Program Network engages and rotates 20 to 30 service providers in each center on weekly basis.
- ❖ Promotora – community health worker.
  - ➢ Residents of the community.
  - ➢ Recruited and trained by Texas A&M staff.
  - ➢ Data gathering, outreach & training
  - ➢ Conduct door to door and face to face surveys.
  - ➢ Disseminate information

METHODS (CONT.)

The survey questionnaire included:

Demographics

Education

Employment

Youth services
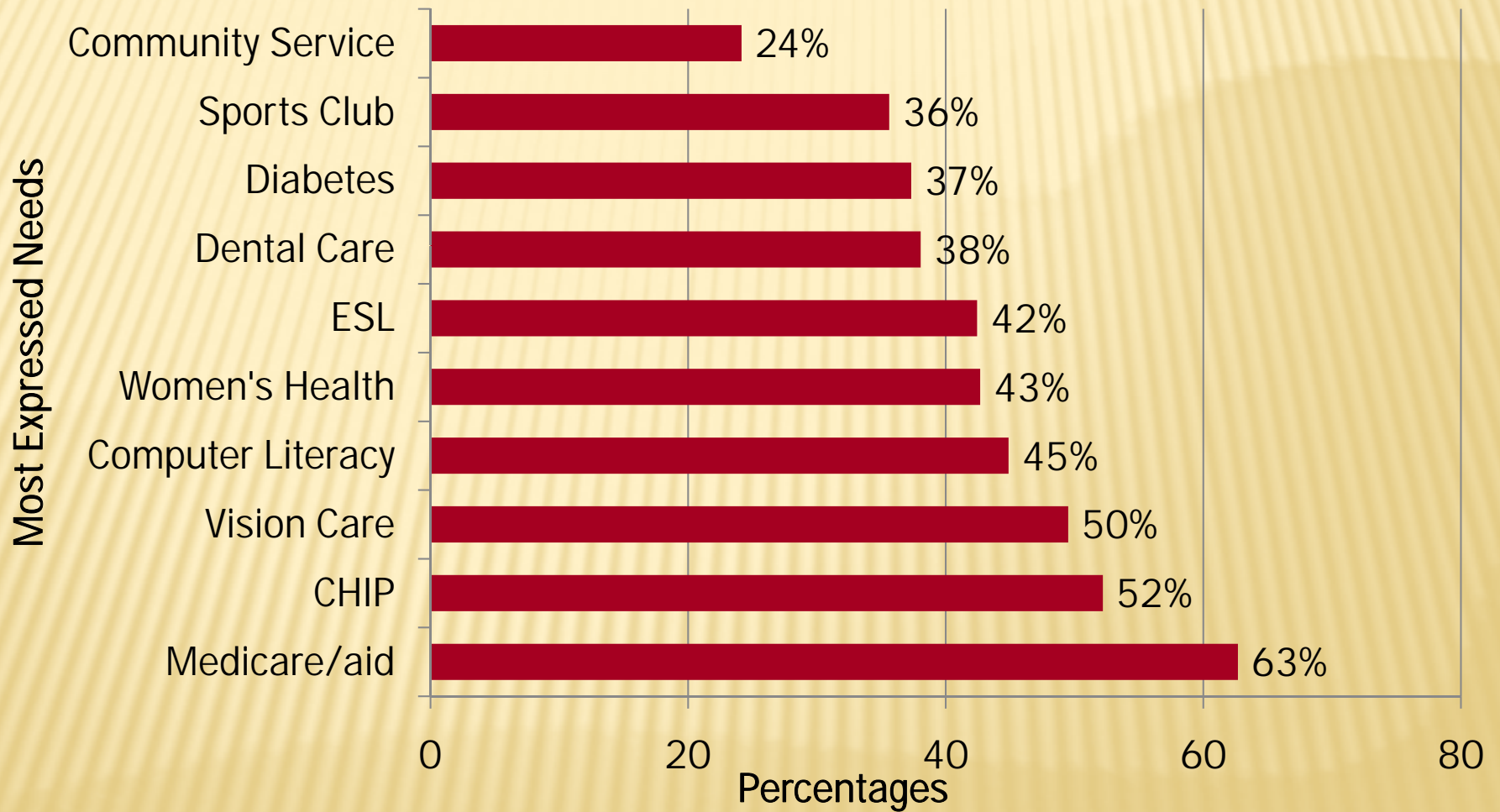
Health and Human Services

Senior Citizen Services

Transportation

- ❖ Surveys were administered by *promotoras* and submitted to the regional community center

- ❖ Data entered into Access database

- ❖ Analysis conducted by GRA

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TEN MOST EXPRESSED NEEDS

GEO-CODING

- Synchronization of Arc Map and Google Earth

- Geo-coded Addresses=333 (81%)

- Unmatched= 77 (19%)

Vision Care, Dental Care

- ◇ Yes, No response
- ● Yes, Yes
- ◯ No response, No response
- ● No response, Yes
- H Hospitals in Hidalgo

Geo-coded households in Colonias of Hidalgo County

Texas

Hidalgo County
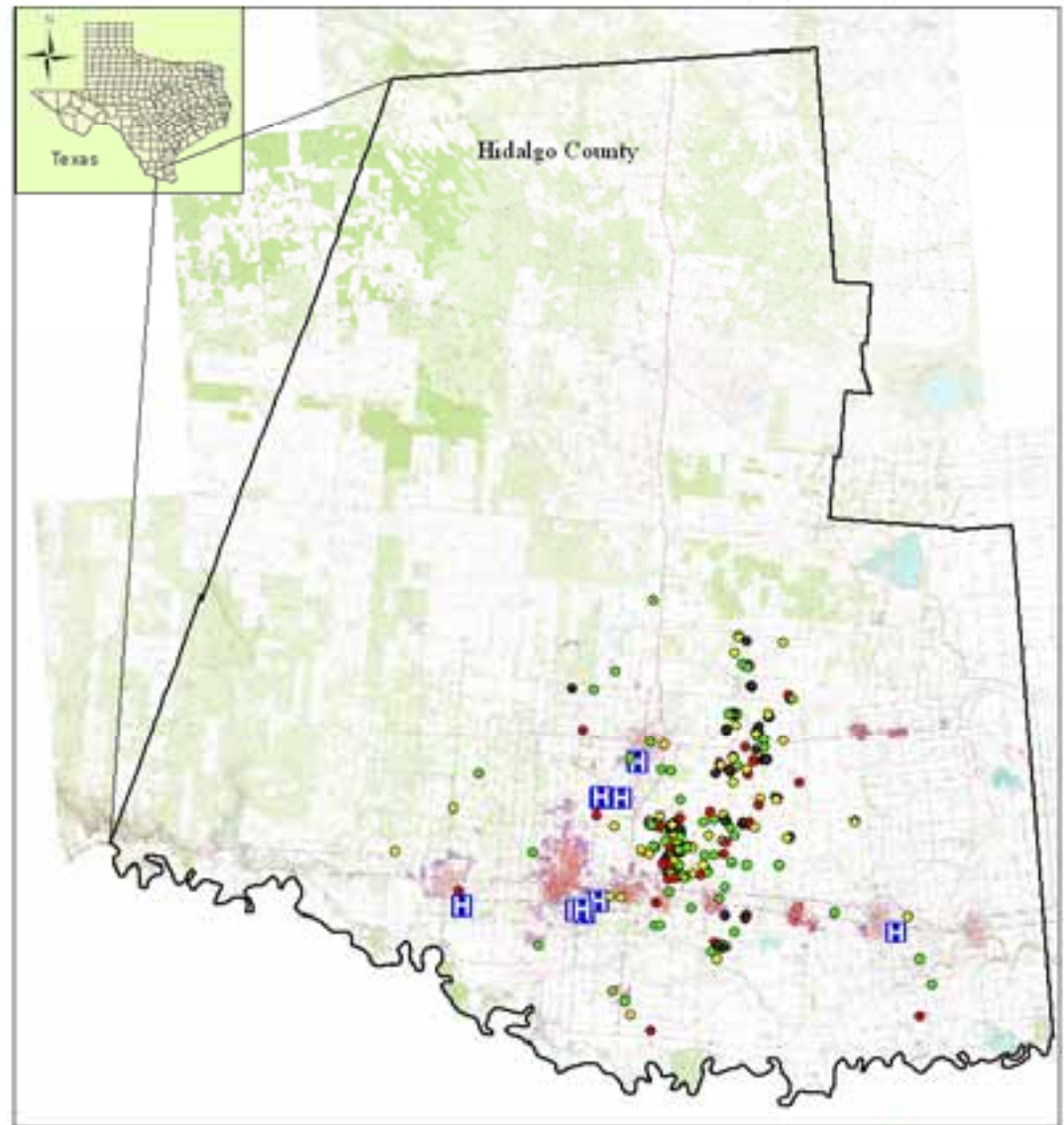
Geocoded_Households
Vision Care, Dental Care
- ○ Yes, No response
- ● Yes, Yes
- ● No response, No response
- ● No response, Yes
- H Hospitals in Hidalgo

0 2 4 8 12 16 Miles

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GEOGRAPHICAL DISTRIBUTION ANALYSIS

- ❖ *Mean center* is defined as a point constructed from the average x and y values for the input feature centroids.

- ❖ Calculated the Weighted *Mean Centers* for the houses in need of dental and vision care assistance

- ❖ *Standard Distance* measures the degree to which features are concentrated or dispersed around the points (or feature centroids) in an input feature class.

- ❖ Calculated the weighted *Standard Distance* of the houses
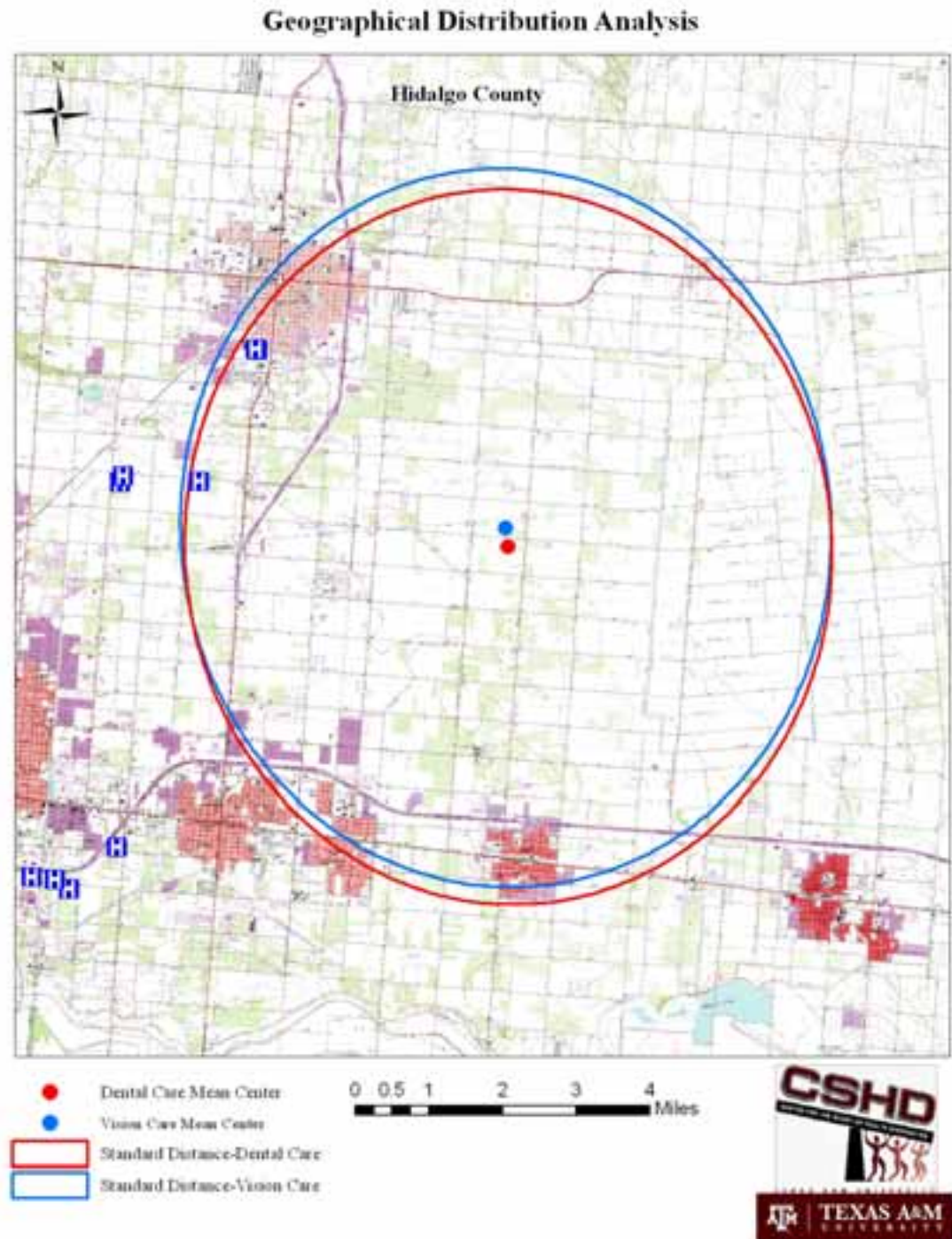
NETWORK ANALYST

- ✖ The network analyst tool was used to calculate the minimum distance of all the households from the nearest health care facility

CLIPPING

- ✖ The clipping feature was used to identify the colonias within the radius of standard distance, this enabled us to calculate the total population with in that standard distance.

RESULTS

- ❖ Weighted mean center for dental care and vision care assistance were found to be at a distance of 0.3miles from each other.

- ❖ It was observed that 68% (1SD) of the households were clustered with in a radius of 5miles aroun the mean centers.

- ❖ Interestingly there were two hospitals within th radius.

Geographical Distribution Analysis

Hidalgo County

●	Dental Care Mean Center
●	Vision Care Mean Center
▭	Standard Distance-Dental Care
▭	Standard Distance-Vision Care

0 0.5 1 2 3 4 Miles

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RESULTS (CONT.)

❖ The minimum distance of households from the nearest facility in miles were:

Minimum Distance	Maximum Distance	Mean Distance
0.52	12.41	5.71

❖ To determine the association between the distance and expressed needs we used logistic regression in SAS

Service	Odds Ratio	95% CI	p-value
Dental care	0.96	0.855 – 1.078	0.492
Vision care	1.083	0.968 – 1.212	0.164

CONCLUSION

- Analysis revealed <u>there was no significant association</u>, indicating that distance was not a barrier.

- Findings suggest that colonias residents cannot utilize the services provided by the existing health care facilities in the vicinity.

- Possibility that the hospitals do not provide dental and vision care services.

RECOMMENDATIONS

❖ Within the standard distance around the mean centers for expressed dental and vision care needs, health planners could:

    Build a <u>community clinic</u> or

    Provide a <u>mobile clinic</u>

❖ This would provide services to approximately 12,000 residents in that radius of 5 miles

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THANK YOU

QUESTION & ANSWERS