

# Mapping the Rural Kansas Dental Workforce

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## Project Objectives

- Describe the populations in rural Western/Central Kansas in greatest need of oral health care providers
- Use Geographic Information Systems (GIS) to pinpoint locations where services are needed and innovations could be tested
- Quantify the number of Kansans who have disparate access to oral health care providers



## **Teams**

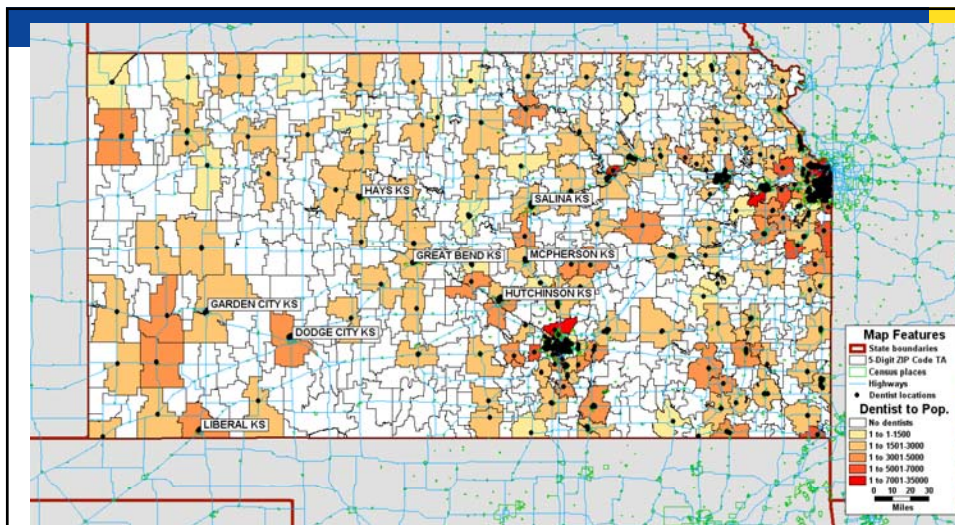
- KUMC Team
  - Tony Wellever
  - Arshia Ahmed
  
- Florida State University Team
  - Mark Horner
  - Ona Strikas

## **Data Used for the Study**

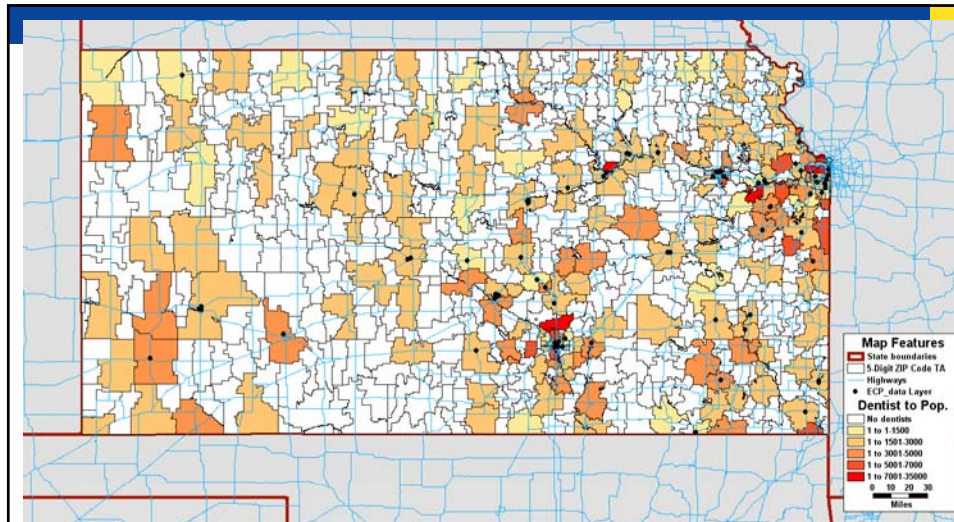
- Kansas Dental Board licensure information
  - Only included primary care dentists
  - Included all ECPs
- US Census and Current Population Survey data
- USDA rural-urban classification codes
- KDHE rural-urban classification codes
- ZIPcode data
- Road networks (including speed limit data)
- Qualitative rural resident primary care survey

## Key Findings:

1. Access to primary care dentists is not equal for all Kansans.
2. ECPs have not fully filled in the geographic gaps where primary care dentistry is unavailable.
3. Dental Care Service Deserts exist in KS.
4. The addition of strategically placed dental providers could make a difference.



Dentist Distribution by Population Density (by ZIPcode)



**ECP Distribution by Population Density (by ZIPcode)**



## Current Coverage in Western KS

Provider	Census Block Groups	Number of Kansans
No primary care dentist	81	63,736
No ECP	270	228,015
No dentist or ECP	79	57,811
		<b>~11% of all rural Kansans lack local oral health provider</b>
Areas <u>with</u> Dentist &/or ECP Coverage	440	456,565



## **Rural Kansas Survey**

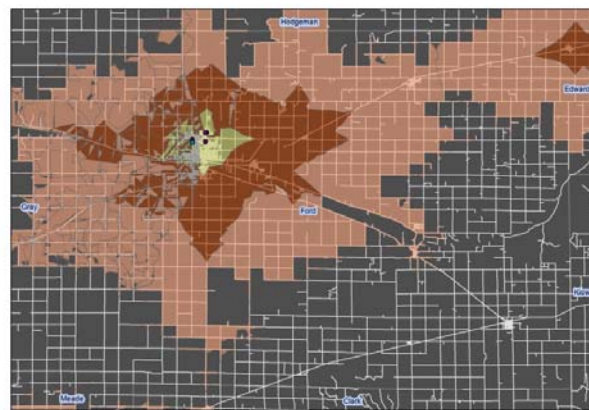
- Primary care medical patient survey
- Distance to \_\_\_\_\_ questions
  - Estimated distance
  - Estimated time to travel
  - Frequency
- Location and distance to dentist included in the list

## **Rural Kansas Primary Care Survey**

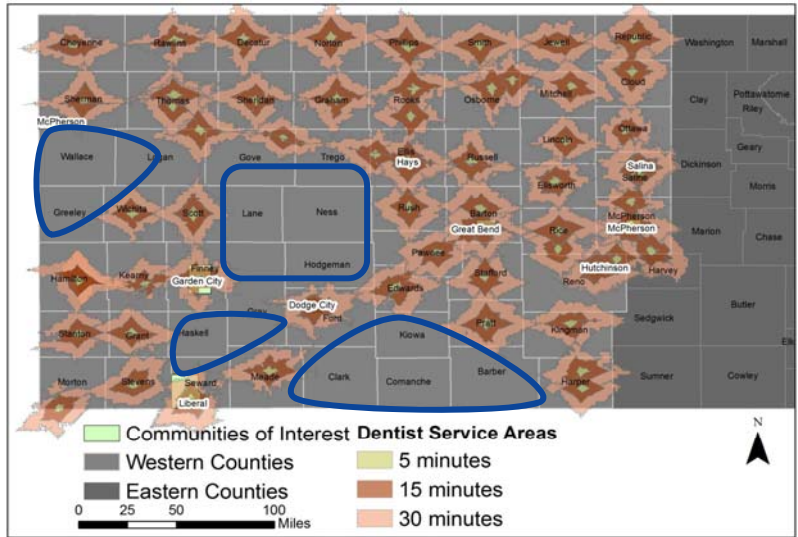
- 359 patients in 19 clinic sites
- Patients live in 100 different communities
- Reported frequency to dentist = 2.6 /year
- Distance and time traveled used to model dentist service area

## Data collected from rural residents

Location	Average Time (Min.)	Frequency/Yr
Groceries	17.5	71.9
Chain Store	29.8	44
Auto Repair	15.9	6.1
Church	9.6	36.2
Movie Theater	30.6	10.7
Outlets	83.4	8
Pharmacy	14	13.5
Veterinarian	19.5	3.1
Chiropractor	17	4.4
Optometrist	25.1	1.6
<b>Dentist</b>	<b>21.2</b>	<b>2.6</b>



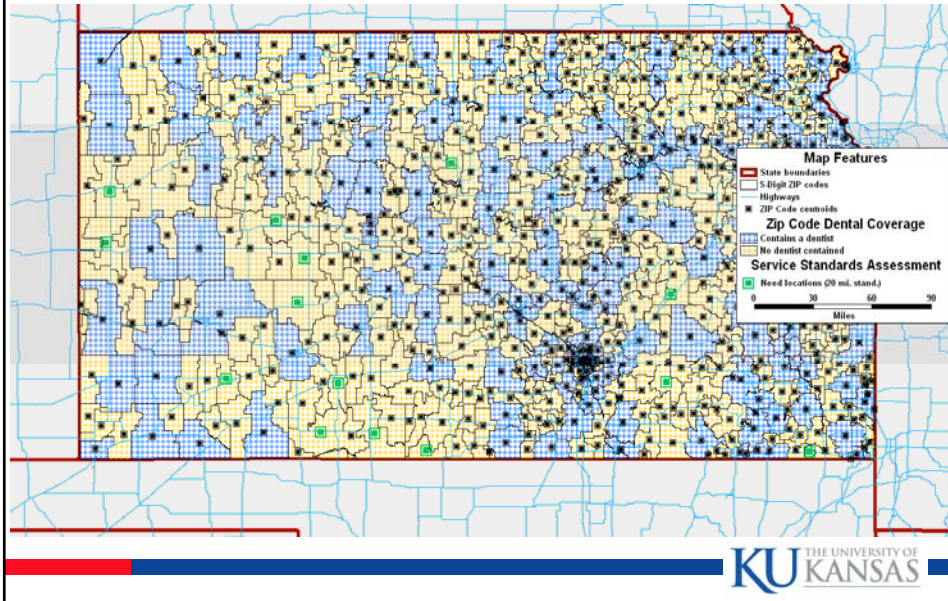
Drive Time “Buffers” for Access to Primary Care Dentists in Dodge City, KS



**Drive Times and Dental Service Deserts**

Trial	Service Standard (drive time minutes)	Unservd ZIP Codes	Dentist Required to Meet Standard
1	5	454	432
2	6	438	387
3	7	421	335
4	8	387	283
5	9	347	218
6	10	304	180
7	11	267	156
8	12	225	130
9	13	175	99
10	14	141	82
11	15	119	68
12	20	40	14
13	25	19	6
14	30	10	4

## 14 Locations to Meet 20 Minute Standard



## 10 Dental Care Service Desert Population Centers with $\geq 30$ Minute Drive Time to Dentist

ZIPcode	County	City/Town
67837	Gray	Copeland
67762	Wallace	Weskan
67758	Wallace	Sharon Springs
67761	Wallace	Wallace
67127	Comanche	Protection
67029	Comanche	Coldwater
67155	Comanche	Wilmore
67057	Barber	Hardtner
67518	Ness	Beeler
67560	Ness	Ness City

## Limitations

- Only factor modeled was time/distance; many other factors impact issue
- May undercount dentists
- May under or overstate FTEs
- Did not account for practice features:
  - Panel size
  - Insurance
- Does not quantify demand for care

## Recap and Policy Relevance

1. Access to primary care dentistry and oral health care is not equal among Kansans.
2. Given the aging of the workforce and plans for retirement, many more areas of KS will join the current dental care service deserts.
3. Placing a provider in current deserts could have a positive effect.
4. Current deserts are clearly delineated and ideally suited for innovation.

## **Thank you!**

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