

Rurality is Associated with Increased Drive Times to Opioid Treatment Programs in Arizona

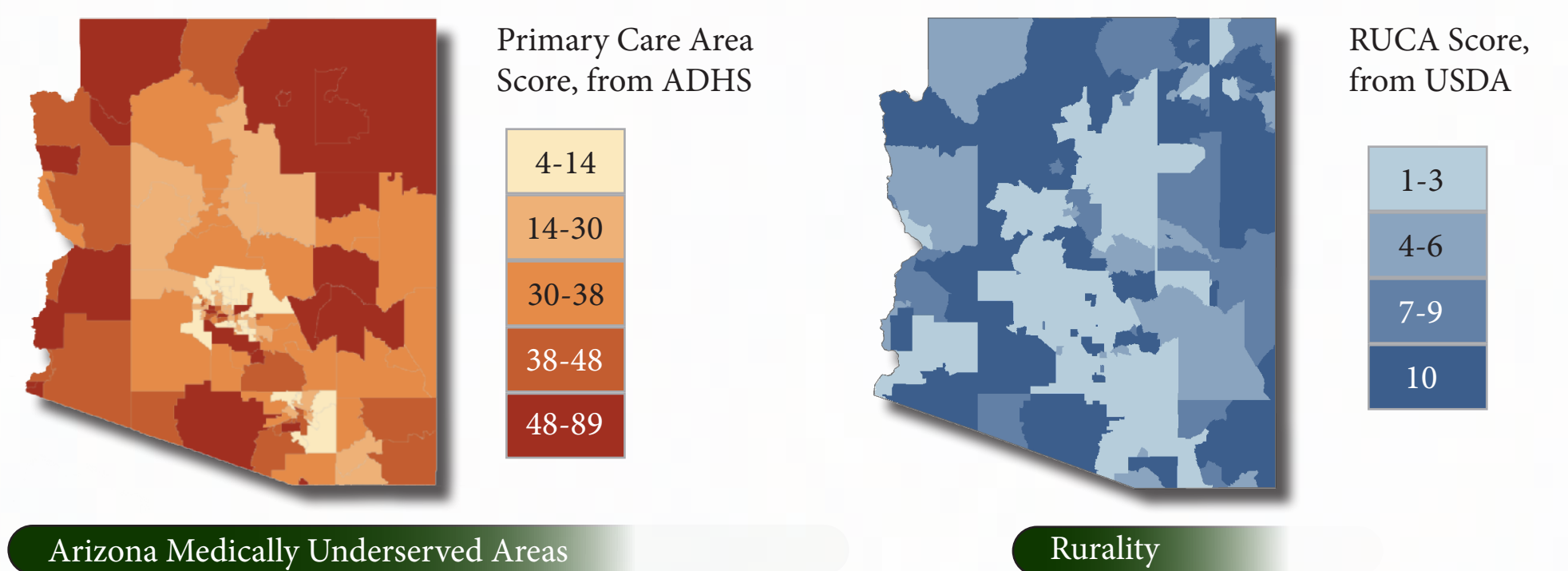
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KEY MESSAGE:

In urban centers, drive times are essentially the same (about 10 minutes) to reach Opioid Treatment Programs (OTPs) and Federally Qualified Health Centers (FQHCs). In remote, rural areas, it takes twice as long to reach an OTP (86 minutes) vs. an FQHC (44 minutes).

BACKGROUND:

Medication-Assisted Treatment (MAT) combines behavioral therapy with prescribed medication and is considered an effective treatment for Opioid Use Disorder (OUD).¹ Historically, MAT was only available at OTPs, which limited MAT availability and posed a barrier to access, especially for rural residents. Since 2002, the DEA has allowed waived physicians to prescribe OUD medication from office-based locations. The analysis compares drive times to OTPs with FQHCs to explore how MAT availability at primary care settings in Arizona may increase rural access.²

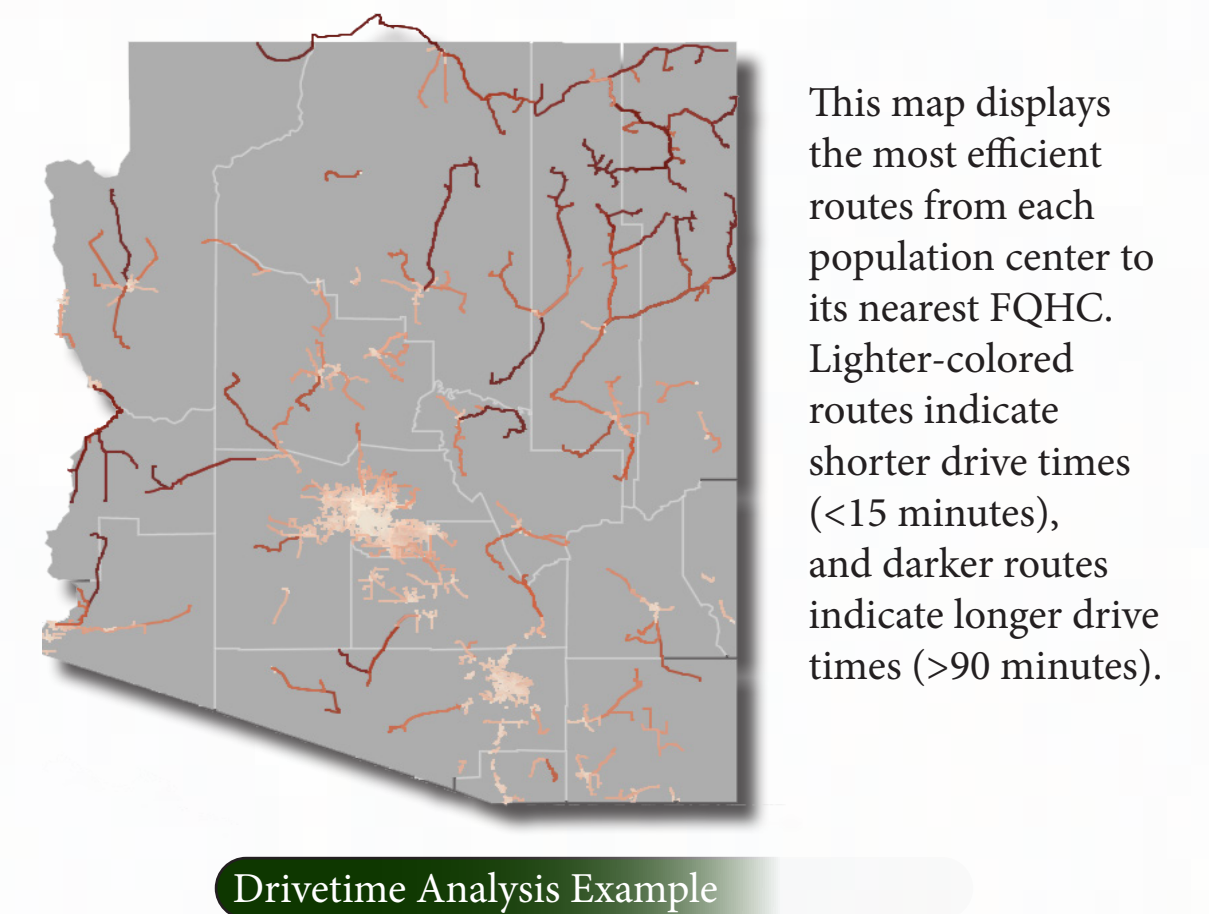


METHODOLOGY:

VARIABLES: Population centers are calculated from US Census population data (2010) and represent the geographic center of residents living in each block group.³ OTP and FQHC locations are public data; they were retrieved from the SAMHSA's OTP Directory and Arizona Department of Health Services (ADHS).^{4, 5} Data sets were verified for accuracy and batch geocoded using Google Maps API.⁶ 4,168 population centers, 58 OTPs, and 154 FQHCs were included in the analysis.

SPATIAL ANALYSIS: Using Esri ArcGIS closest facility analysis, drive times in minutes were computed from each block group population center to the nearest OTP and FQHC. Block group population centers were classified using US Department of Agriculture's (USDA) Rural-Urban Commuting Area (RUCA) codes (see map above), which designate census tracts based on urbanization, daily commuting, and population density.⁷ RUCA codes 1-3 indicate metropolitan, 4-6 micropolitan, 7-9 small town, and 10 rural areas; 79% of population centers were metropolitan.

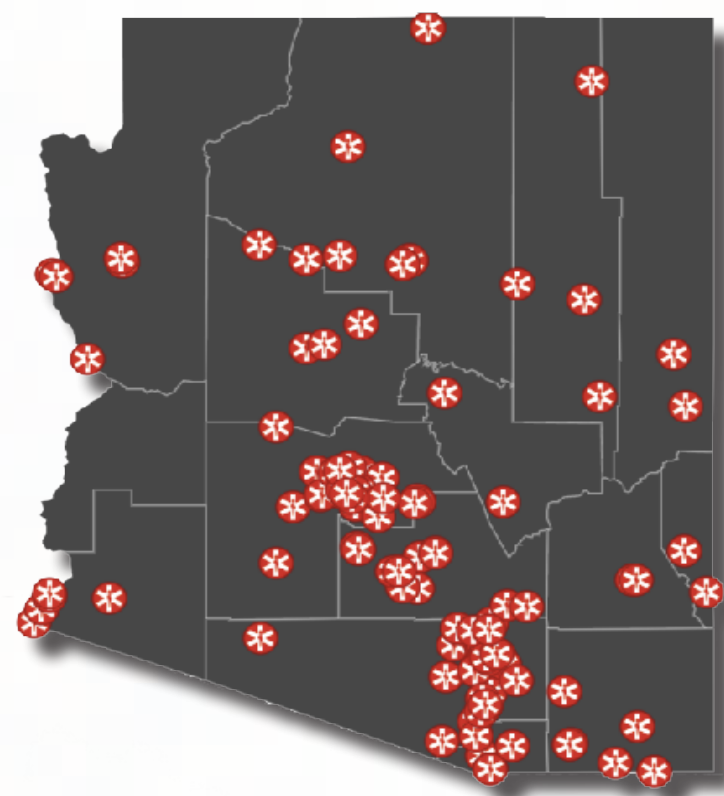
STATISTICAL ANALYSIS: One-way analysis of variance were used to compare drivetimes across RUCA classifications with post-hoc t-tests. Finally, paired, 2-sided t tests ($\alpha=0.05$, Bonferroni correction for multiple comparisons) compared mean drive times to the closest OTP and FQHC for each RUCA classification.



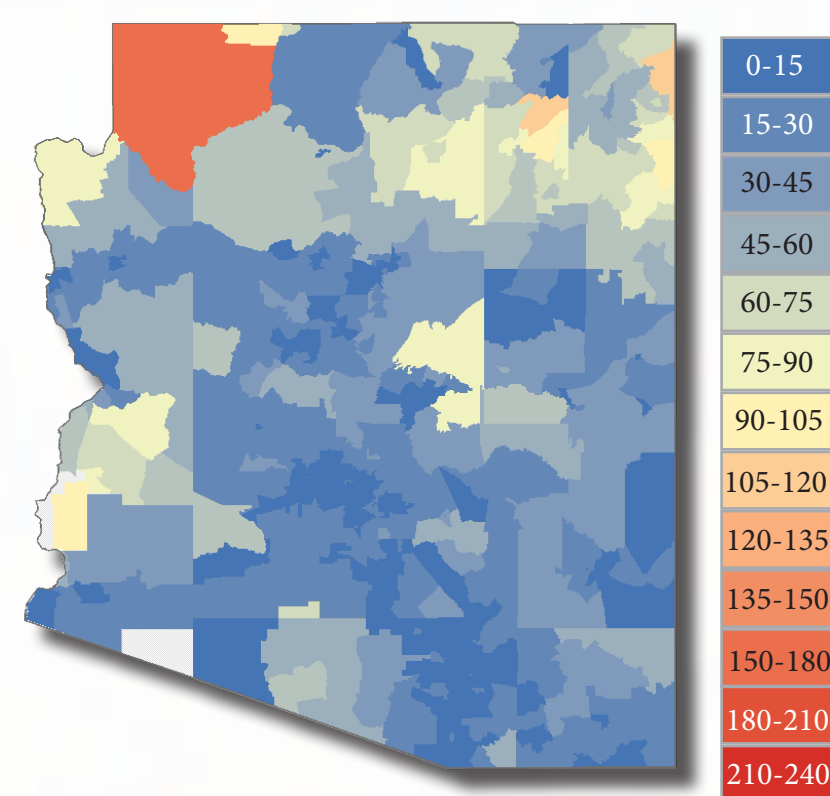
FQHC RESULTS:

Drive times to FQHCs increase significantly from metropolitan to rural block group designation.

Classification	Mean (95% CI), min	Significance
All block groups:	11.9 (11.2-12)	
Metropolitan:	9.4 (9.1-9.6)	p<.0001
Micropolitan:	15.4 (12.3-18.5)	p<.0001
Small Town:	33.1 (28.7-37.6)	p<.0001
Rural:	43.8 (38.8-48.8)	p<.0001



Distribution of FQHCs

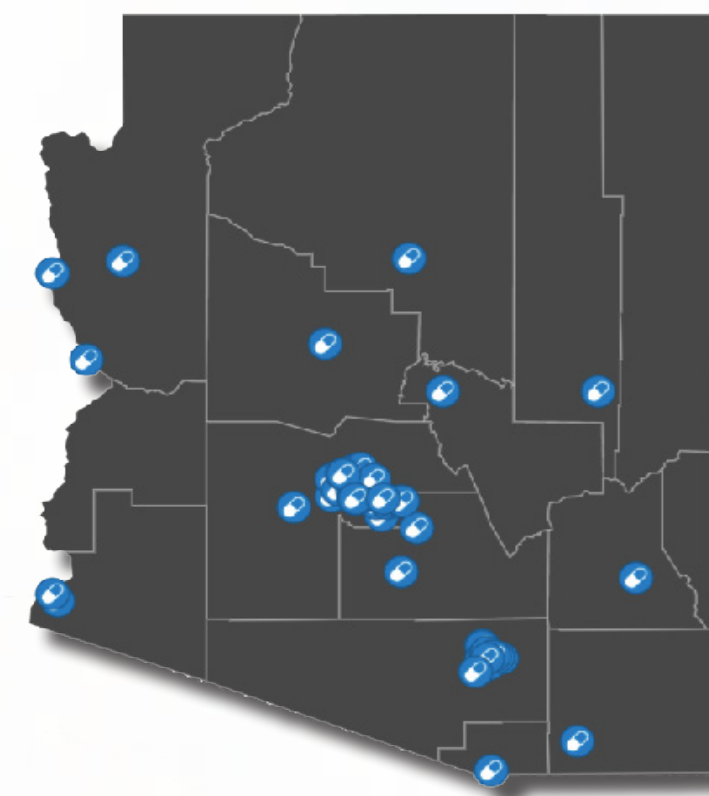


Drivetimes to Nearest FQHC, min

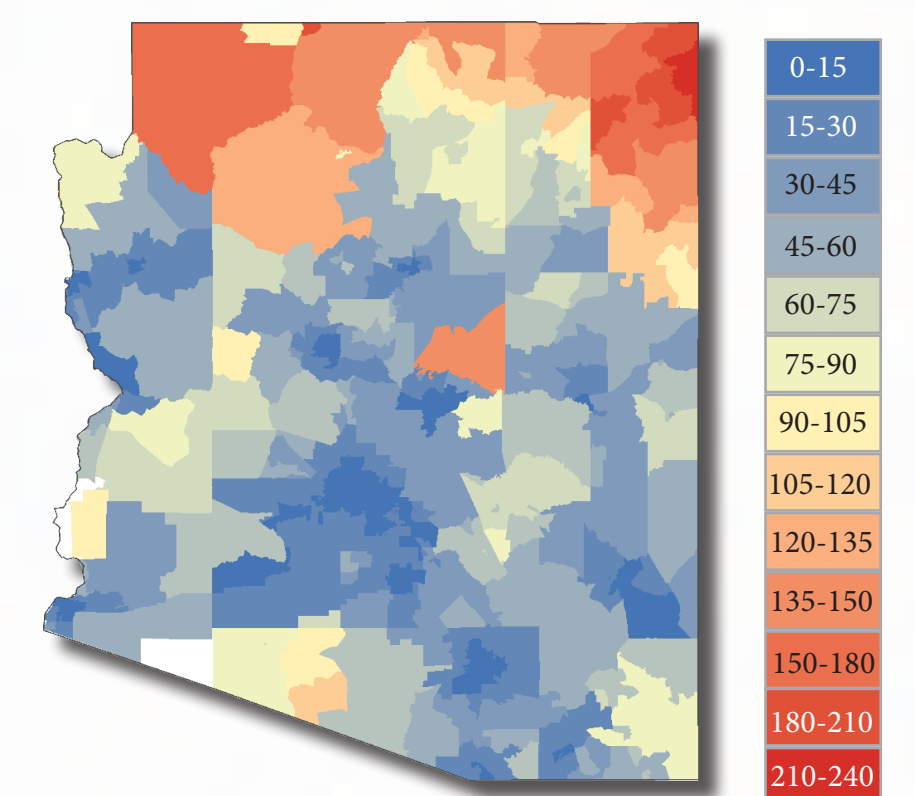
OTP RESULTS:

Drive times to OTPs also increase significantly with rurality.

Classification	Mean (95% CI), min	Significance
All block groups:	17.3 (16.5-18.1)	
Metropolitan:	11.6 (11.2-12)	p<.0001
Micropolitan:	33 (28-38.1)	p<.0001
Small Town:	74.1 (66.6-81.6)	p<.0001
Rural:	83.7 (73.6-93.9)	p<.0001



Distribution of OTPs



Drivetimes to Nearest OTP, min

COMPARISON:

Drive times to OTPs were significantly longer than drive times to FQHCs across metropolitan, micropolitan, small town, and rural areas (all p<.001).

FQHC				OTP				
RUCA	N	Mean Drive Time	SD	RUCA	N	Mean Drive Time	SD	Significance
Metropolitan	3653	9.4	7.3	Metropolitan	3653	11.6	12.5	p<.001
Micropolitan	239	15.1	22.4	Micropolitan	239	33.0	39.7	p<.001
Small Town	163	33.4	28.7	Small Town	163	75.0	49.7	p<.001
Rural	114	43.8	27.2	Rural	114	85.7	57.1	p<.001

DISCUSSION:

- Rurality was associated with increased drive times to OTPs which may indicate limited access to MAT.
- MAT provision at FQHC locations could increase access to care by reducing drive-time barriers.
- The results represent average drive times for block groups; individuals' drive times vary.
- Further analyses should include SAMHSA-waivered physicians and public transportation routes. Similar methodology could be used to investigate rural access to other types of specialty care.

References:

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