

# Oral cancer incidence is associated with access to dental care: city and statewide analyses

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## Background

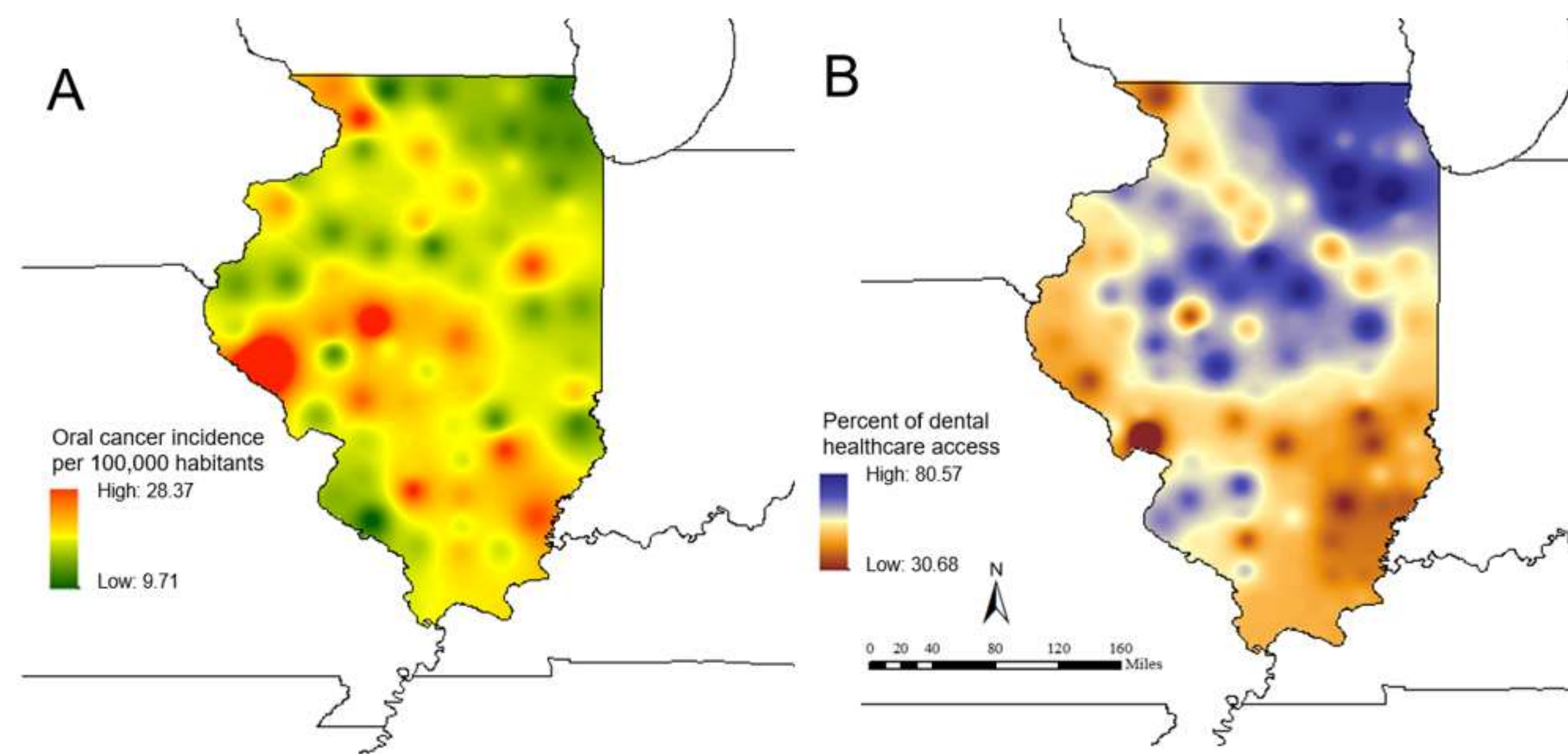
## Methods

Access to dental care and  $\geq 1$  dental care visit are associated with squamous cell carcinoma of the oral cavity in Illinois counties (model 1) and Chicago communities (model 2), respectively

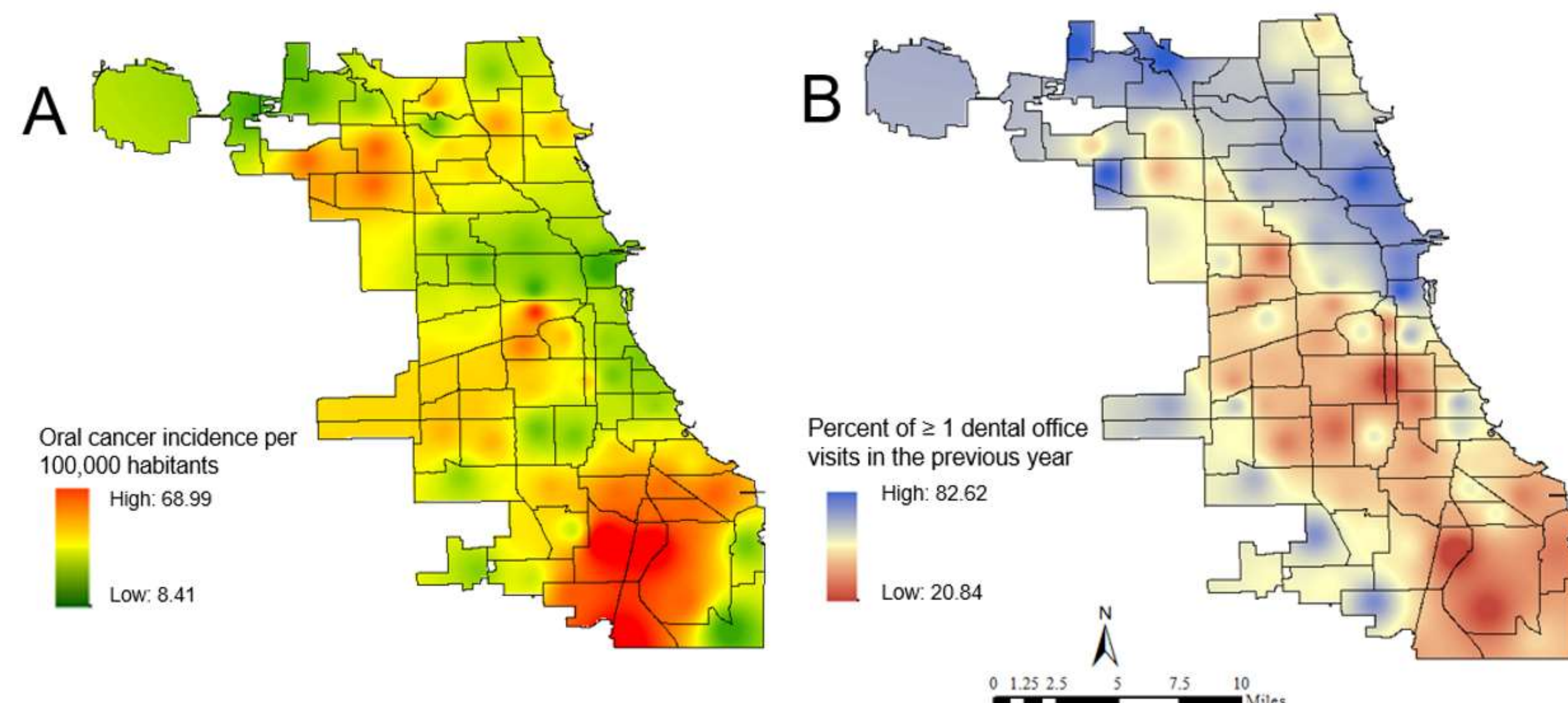
Variables <sup>a</sup>	Model 1			Model 2		
	OR	p value <sup>b</sup>	95% CI	OR	p value <sup>b</sup>	95% CI
<b>Dental care</b>						
Access to dental care insurance	<b>0.89</b>	<b>0.01</b>	<b>0.82, 0.97</b>			
$\geq 1$ dental care visit in the previous year				<b>0.90</b>	<b>0.04</b>	<b>0.81, 0.99</b>
<b>Cigarette smoking</b>	2.55	0.04	1.01, 6.73	1.06	0.16	0.98, 1.15
<b>Heavy/binge alcohol use</b>	0.42	0.35	0.07, 2.60	0.87	0.06	0.75, 1.00
<b>Age</b>						
Less than 18 years old	0.62	0.43	0.18, 2.05	0.89	0.70	0.48, 1.64
More than 65 years old	0.97	0.94	0.42, 2.22	0.92	0.72	0.59, 1.44
<b>Gender</b>						
Females	0.75	0.61	0.25, 2.25	1.02	0.93	0.65, 1.59
<b>Race</b>						
White	1.66	0.30	0.64, 4.33	1.07	0.49	0.88, 1.29
Black	<b>3.38</b>	<b>0.08</b>	<b>0.88, 13.03</b>	<b>1.06</b>	<b>0.47</b>	<b>0.90, 1.26</b>
Hispanic	0.97	0.96	0.33, 2.89	1.05	0.52	0.90, 1.22
<b>Education</b>						
No High School				0.23	0.18	0.03, 2.02
High School or more	1.06	0.76	0.72, 1.56	0.94	0.26	0.83, 1.05
<b>Household income</b>						
Less than \$25,000	1.01	0.04	1.00, 1.02	1.02	0.35	0.97, 1.07
<b>Employment</b>						
Unemployed	2.17	0.40	0.36, 13.18	0.93	0.68	0.65, 1.32
<b>Access to healthy food</b>	0.42	0.02	0.20, 0.89	0.91	0.01	0.85, 0.97

- Squamous cell carcinoma of the oral cavity (OSCC) is among the most common forms of head and neck cancer. In the United States (US), OSCC is expected to account for approximately 54,540 new cases and 11,580 deaths in 2023 (Oral Cancer, WHO, 2023).
- Despite advances in OSCC treatment, mortality from this disease has not changed in the last 40 years, in part due to diagnostic delay, yielding a high percentage of advanced stage cancers (González-Ruiz et al, 2023; Peacock et al, 2008).
- One underexplored area that intersects both concepts is how access to oral health providers affects the incidence of OSCC. Indeed, the existing literature exploring the role of significant sociodemographic factors, such as income, employment status, and education level, in the context of the relationship between access to adequate dental care and OSCC is notably limited.
- We extracted 5-year averages of the county and city-level OSCC incidence from 2015 to 2019 from the Illinois Department of Public Health.
- Dental care access information was also collected for each county for the same period, as well as the percentage of people that had at least one visit to a dentist in the previous year in Chicago.
- Multivariate logistic and linear regressions were used to investigate the relationship between county-level access to dental care (and city-level dentist visits) and OSCC incidence, controlling for confounders.

Average (2015-2019) oral cancer incidence-rate (A) and dental healthcare access (B) in Illinois counties



Average (2015-2019) oral cancer incidence-rate (A) and  $\geq 1$  dental care visit in the previous year (B) in Chicago communities



## Study Objectives

## Limitations

- Our findings reflect associations at the population and not individual level; thus, we cannot draw conclusions about individual cases.
- The city-wide analysis had less power than the state-wide one, due to fewer communities available to analyze.

## Conclusions

- We are one of the first studies to show that low access to dental care is associated with increased incidence of OSCC in a major US state and a large urban city.
- Our results have implications for future policy discussions surrounding healthcare reform that can focus on targeting at-risk populations for improved oral health preventative services.

## References

<https://www.who.int/news-room/fact-sheets/detail/oral-health>. Accessed July 24, 2023.  
 González-Ruiz I, et. al. Early Diagnosis of Oral Cancer: A Complex Polyhedral Problem with a Difficult Solution. *Cancers (Basel)*. 2023.  
 Peacock ZS, et. al. Exploring the reasons for delay in treatment of oral cancer. *J Am Dent Assoc*. 2008.