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Access to Maternity Care in Rural US Communities

Rural Health Research Gateway Webinar
November 14, 2024

Katy Backes Kozhimannil, PhD, MPA
Julia D. Interrante, PhD, MPH
University of Minnesota School of Public Health
University of Minnesota Rural Health Research Center

RHRC
Rural Health Research & Policy Centers
Funded by the Federal Office of Rural Health Policy
www.ruralhealthresearch.org

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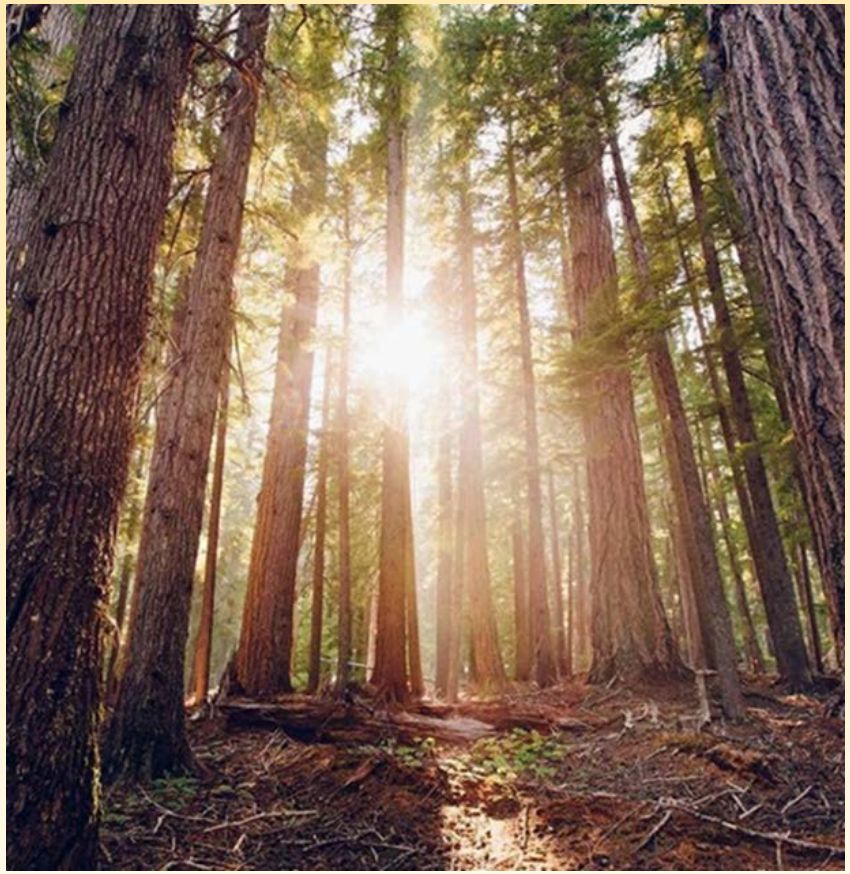
Land Acknowledgment

- We gratefully acknowledge this land where we live and work as the traditional, ancestral Indigenous territories of the Dakota people.
- We recognize the value of Indigenous wisdom about land and childbirth and encourage everyone to be respectful of the distinctive and permanent relationship that exists between Indigenous people and their traditional knowledge and territories.



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Funding acknowledgement

Research described in this presentation was supported by the Federal Office of Rural Health Policy (FORHP), Health Resources and Services Administration (HRSA), U.S. Department of Health and Human Services (HHS) under PHS Grant #5U1CRH03717.

The information, conclusions and opinions expressed are those of the authors and no endorsement by FORHP, HRSA, or HHS is intended or should be inferred.

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People acknowledgment

Thank you to all of the members of our UMN RHRC Maternity Care team!

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Topics for today

1. Maternal health disparities in US rural communities (Katy)
2. Declining access to obstetric care in rural communities (Julia)
3. Consequences of rural obstetric unit closures (Katy)
4. Why hospitals close obstetric units, and policy solutions that address maternal care access and equity (Katy)

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Maternal health disparities in rural US communities

Katy Backes Kozhimannil

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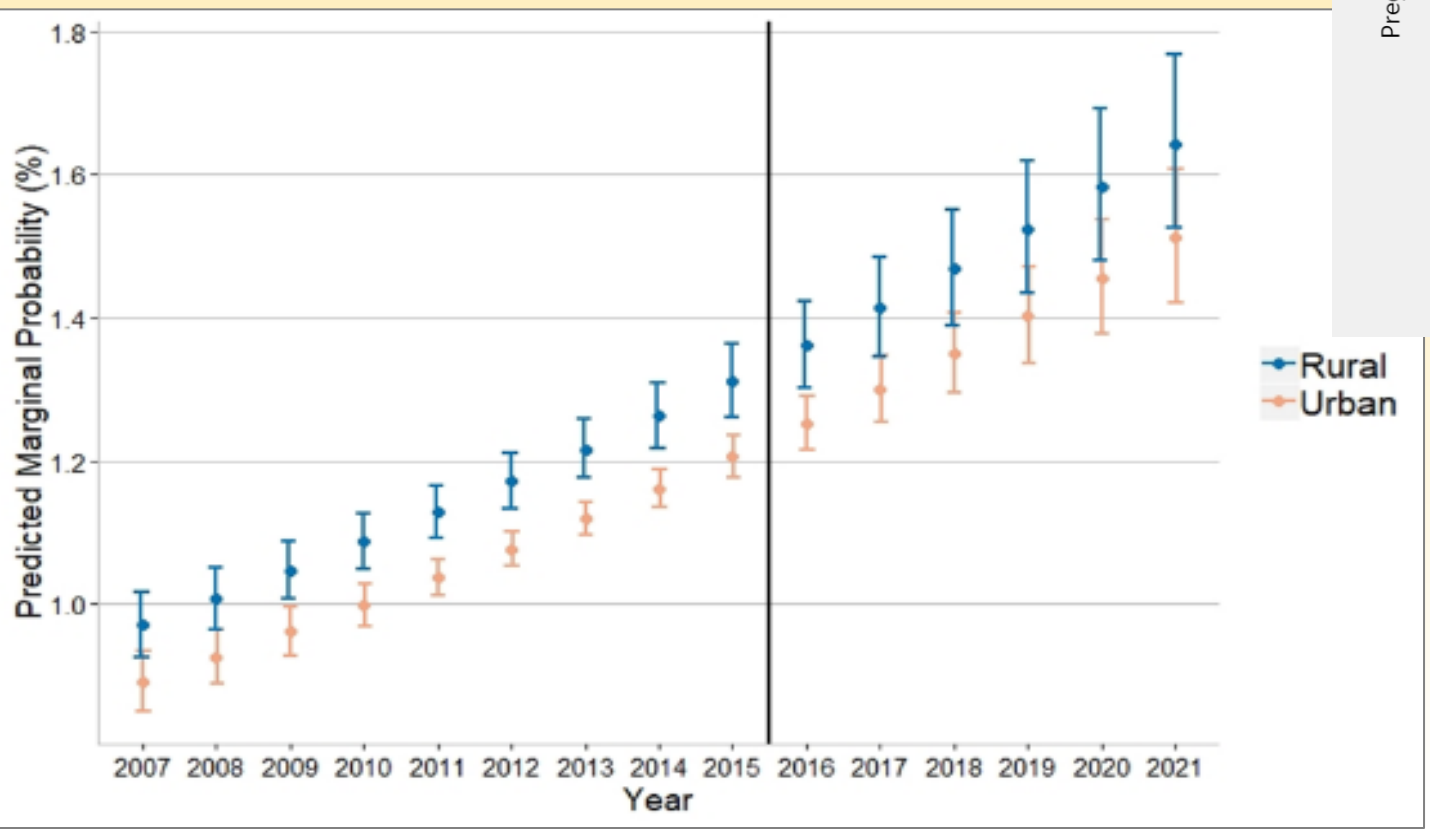
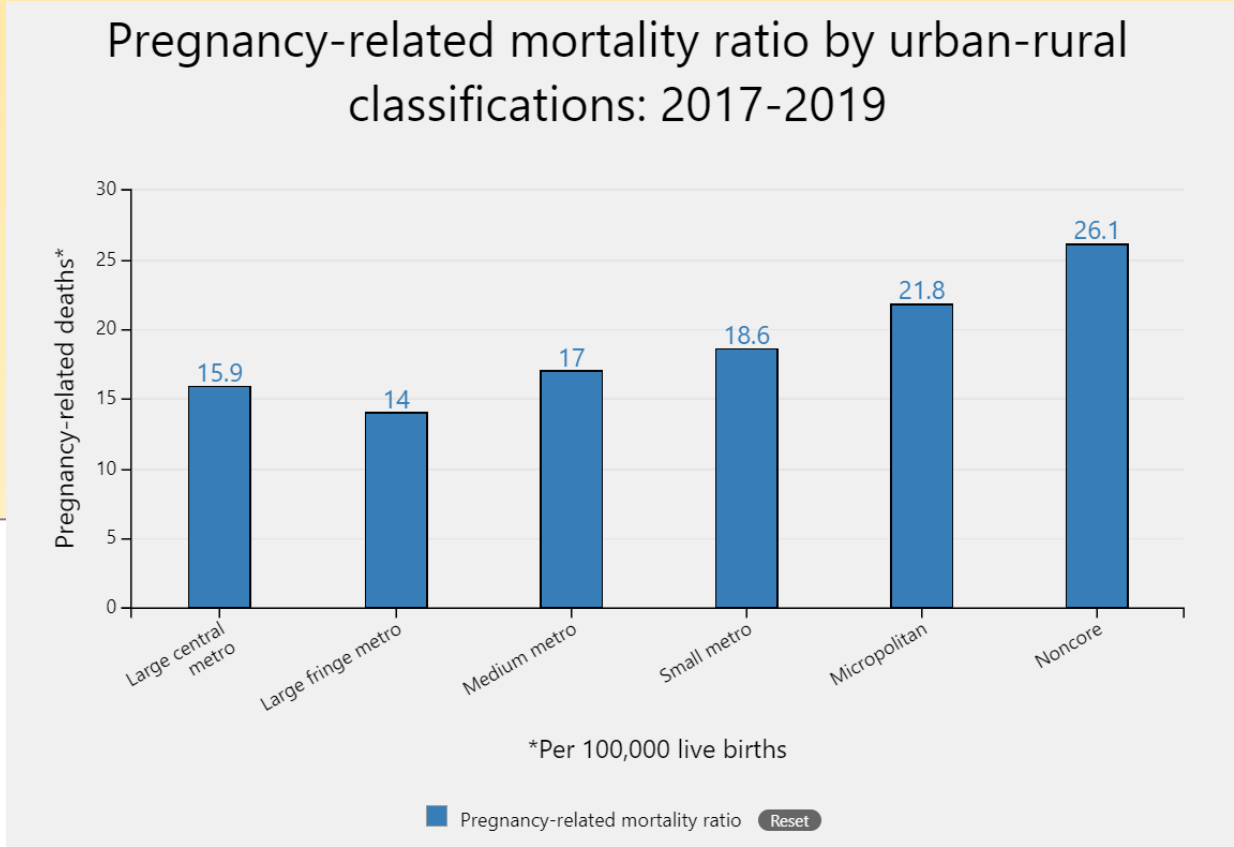
The US maternal mortality crisis deeply affects rural residents.





Wait, what is rural?

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Data + media coverage of pregnancy and childbirth in rural America reveal inequities

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Language matters: It's not "maternity care deserts"

- Communities without access to maternity care are not "deserts"
- Deserts are naturally occurring, and medically underserved areas are not.
- Deserts are not vacuous; they are thriving places, and home to Indigenous people and cultures for centuries.

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Declining access to obstetric care in rural U.S. communities

Julia D. Interrante, PhD

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It's actually quite hard to figure out which hospitals provide obstetric services.

- Development of enhanced methodology
- Two-stage assessment:
  - single-year assessments of obstetric unit status using multiple AHA variables and one variable from the POS data
  - multi-year assessments to check for and correct unit status inconsistencies, including cases of hospital mergers and acquisitions

Methodology Brief:
https://rhrc.umn.edu/wp-content/uploads/2023/04/UMN-OB-Unit-Identification-Methods_4.14-update.pdf

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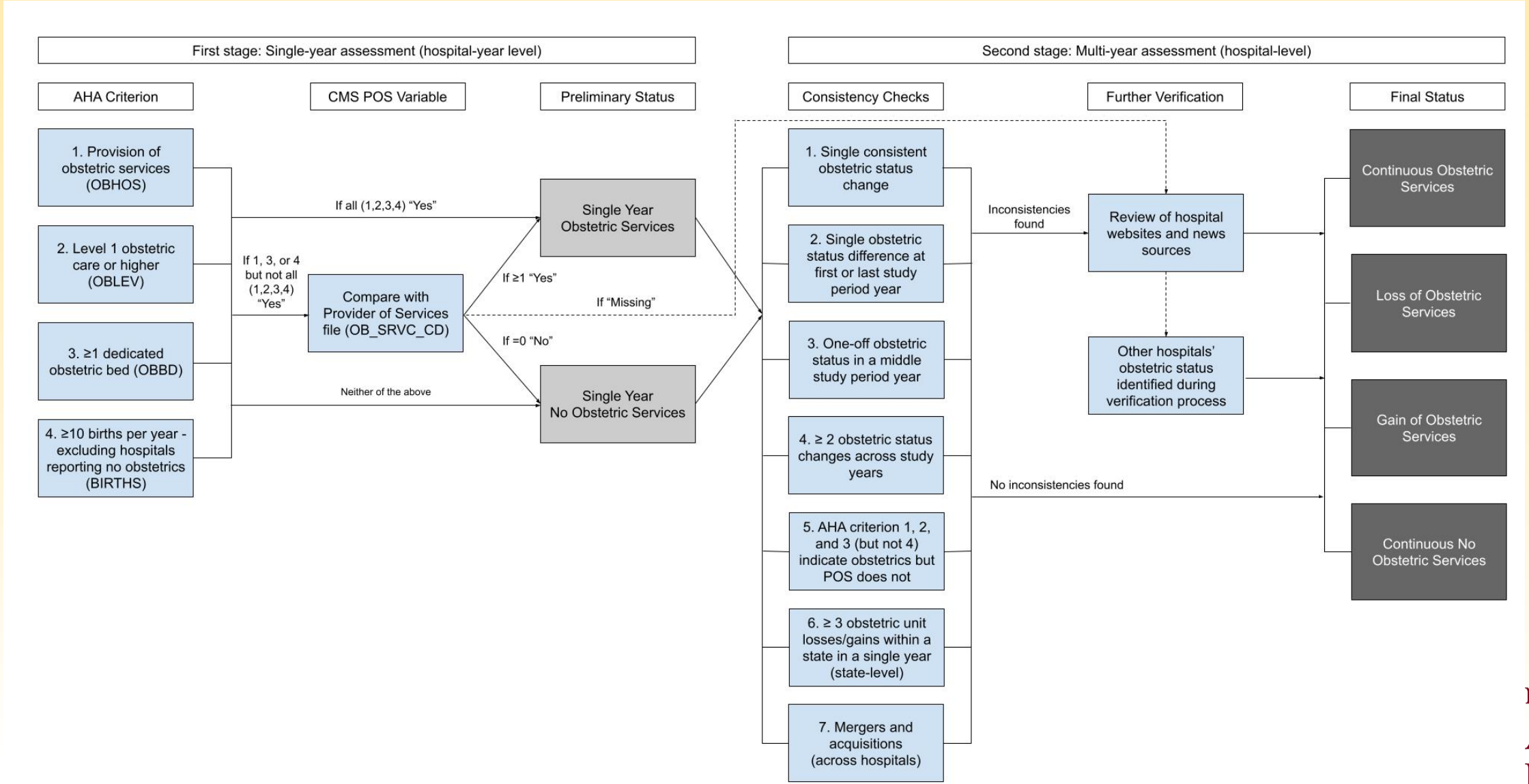
Measuring hospital obstetric unit status



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Some limitations of commonly-cited measures of maternity care access/closures

- March of Dimes
  - AHA data only for “closures” (single year)
  - Does not comprehensively include family physicians who provide obstetric care; includes all Ob/Gyn physicians as providers of obstetric care, some (many) do not
- Chartis group/AHA reports
  - Use of AHA hospital survey data on births, OB beds

Loss of hospital-based OB care in rural US counties

- Using 2010-2022 data
  - AHA Annual Surveys
  - CMS Provider of Services File
  - HRSA Area Health Resource File
  - Validation methodology, assessment of mergers, etc.
- Among rural counties, distinguishing micropolitan (town with 10-50k) and non-core (no town >10k)

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Figure 1. Percentage of all rural counties with in-county hospital-based obstetric care, 2010-2022 (N=1,976)

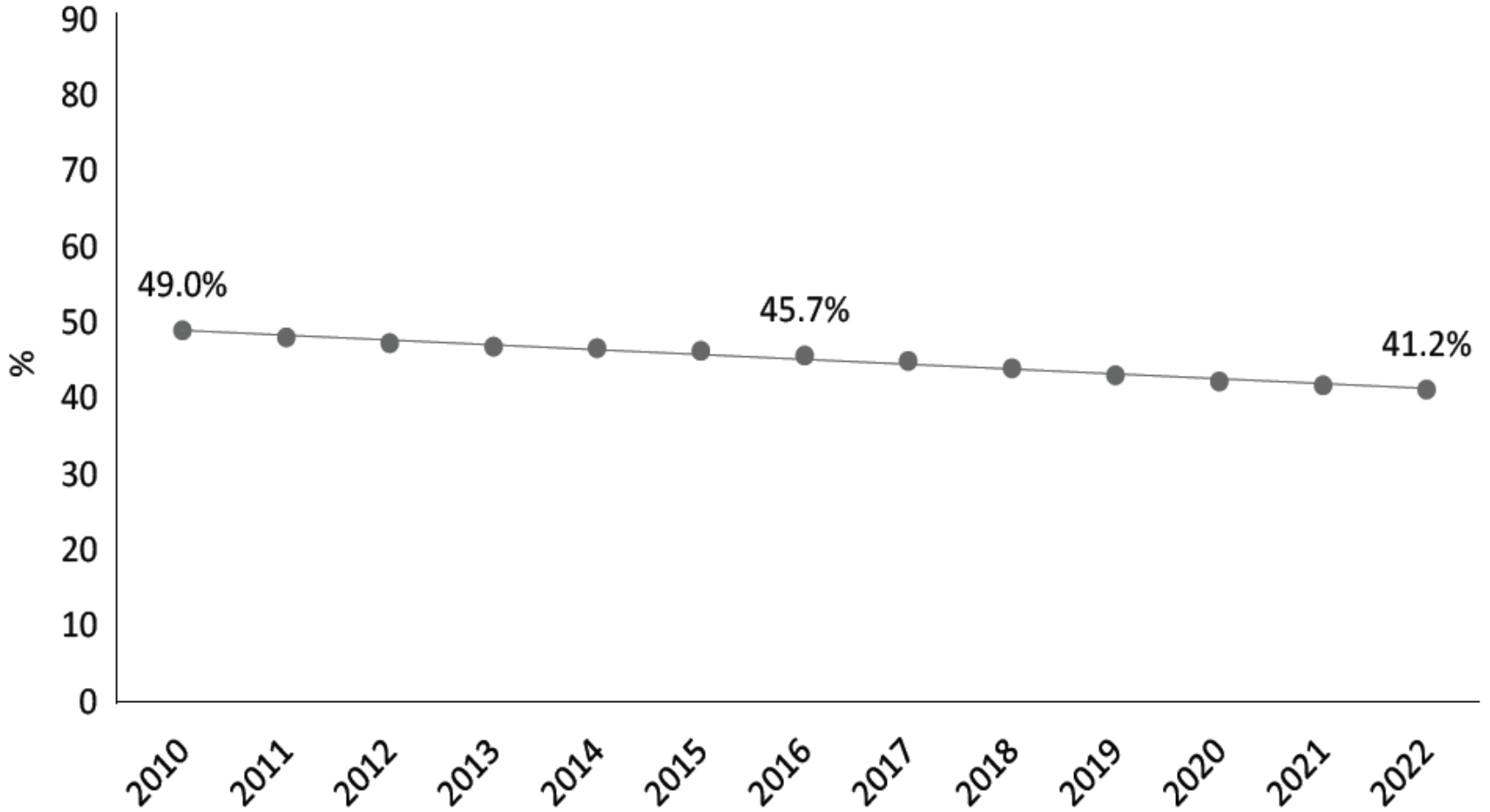

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Figure 2. Percentage of rural micropolitan (N=641) and rural noncore (N=1,335) counties with in-county hospital-based obstetric care, 2010-2022

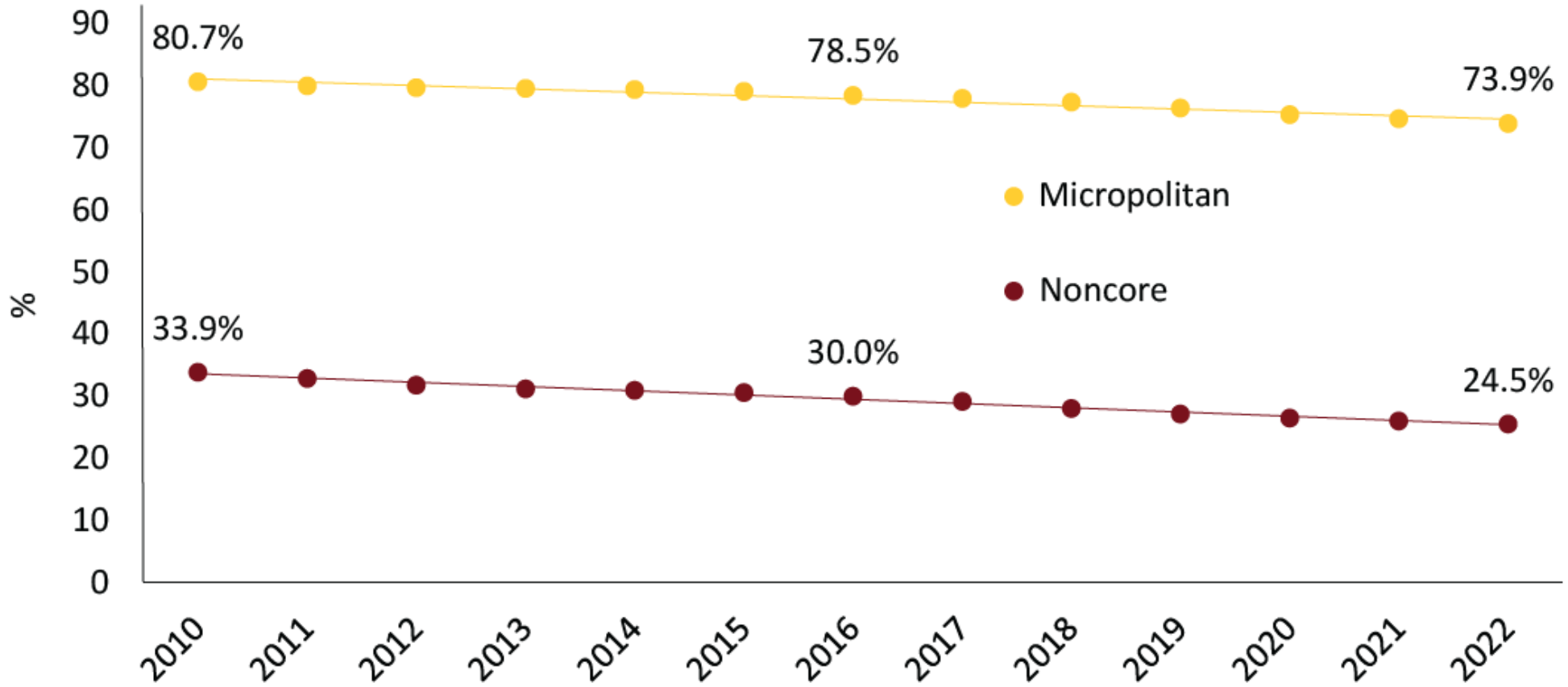

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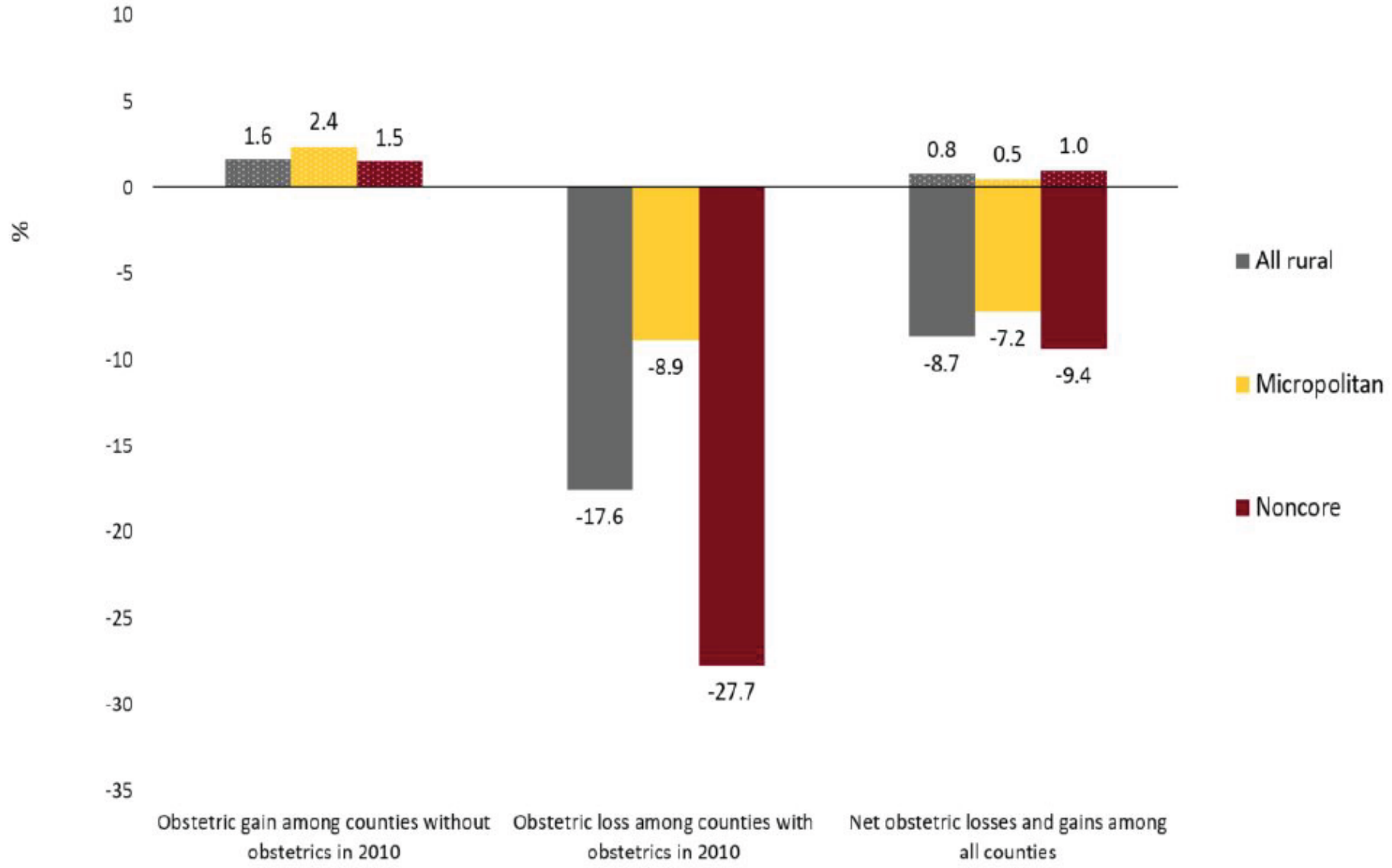
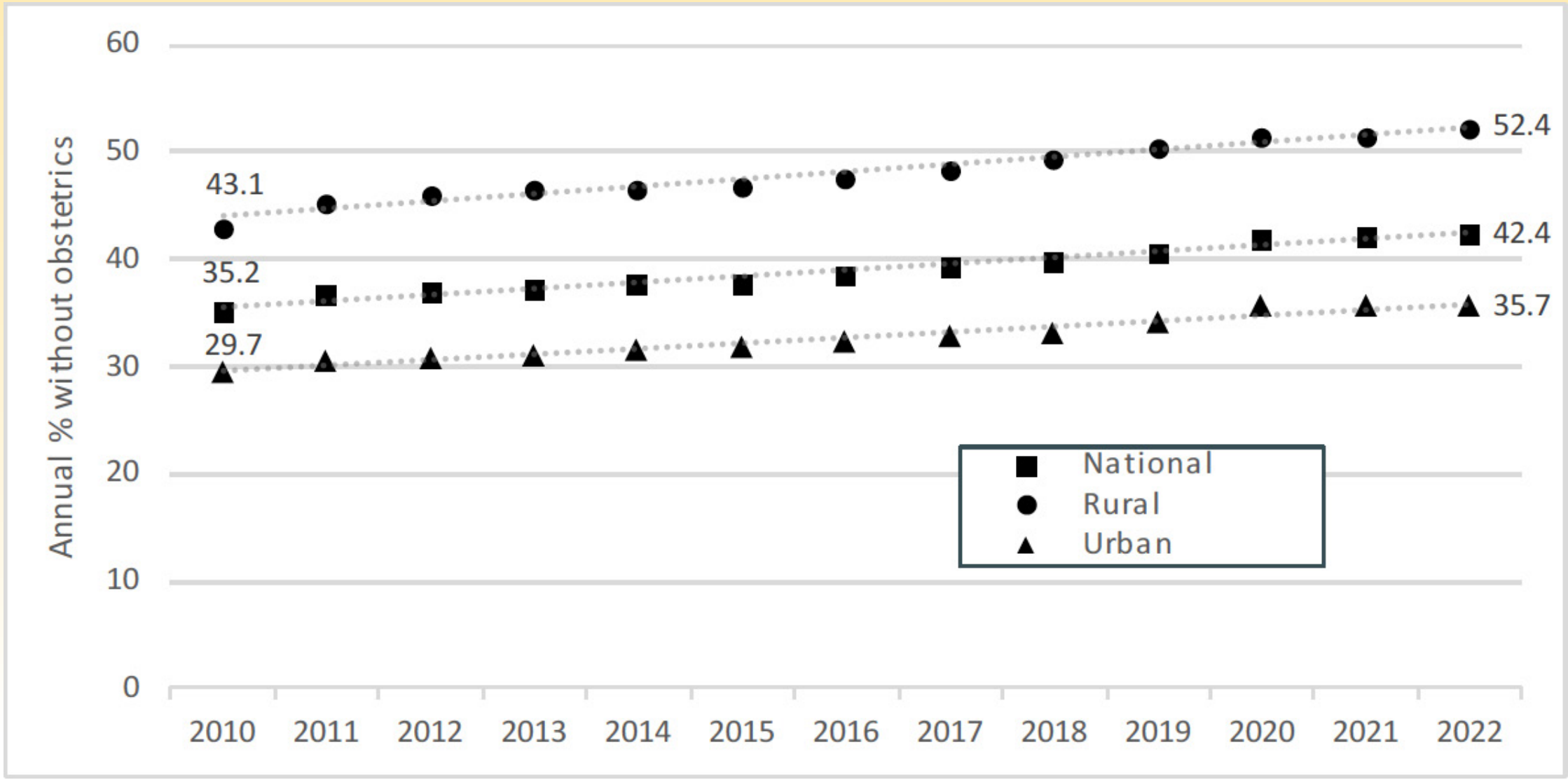
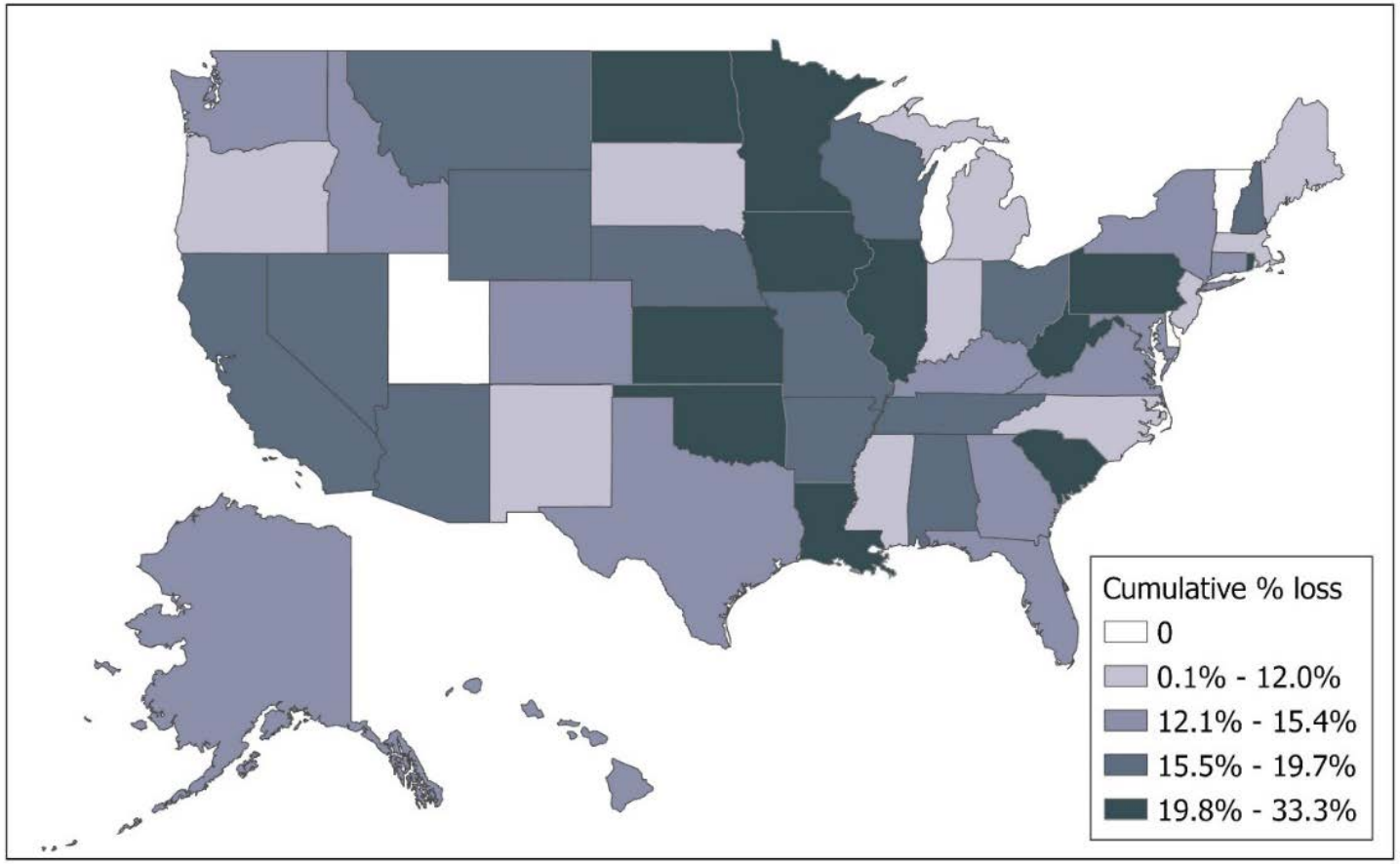
Figure 3. Changes in county-level hospital-based obstetric care by rural county type (all rural, micropolitan, and noncore), 2010-2022



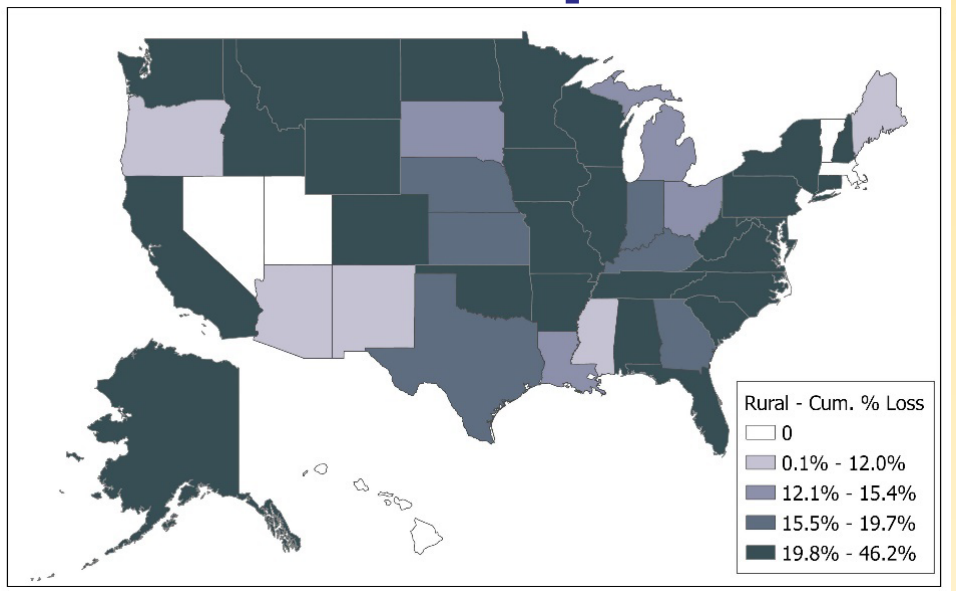
Percent of short-term acute care hospitals without obstetric care, 2010-2022



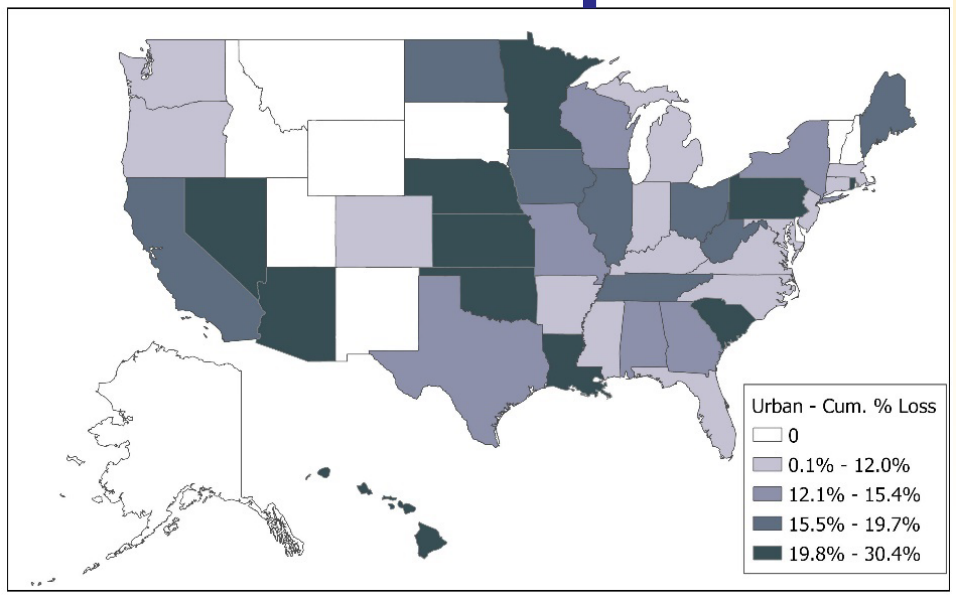
Percent of hospitals that lost obstetrics



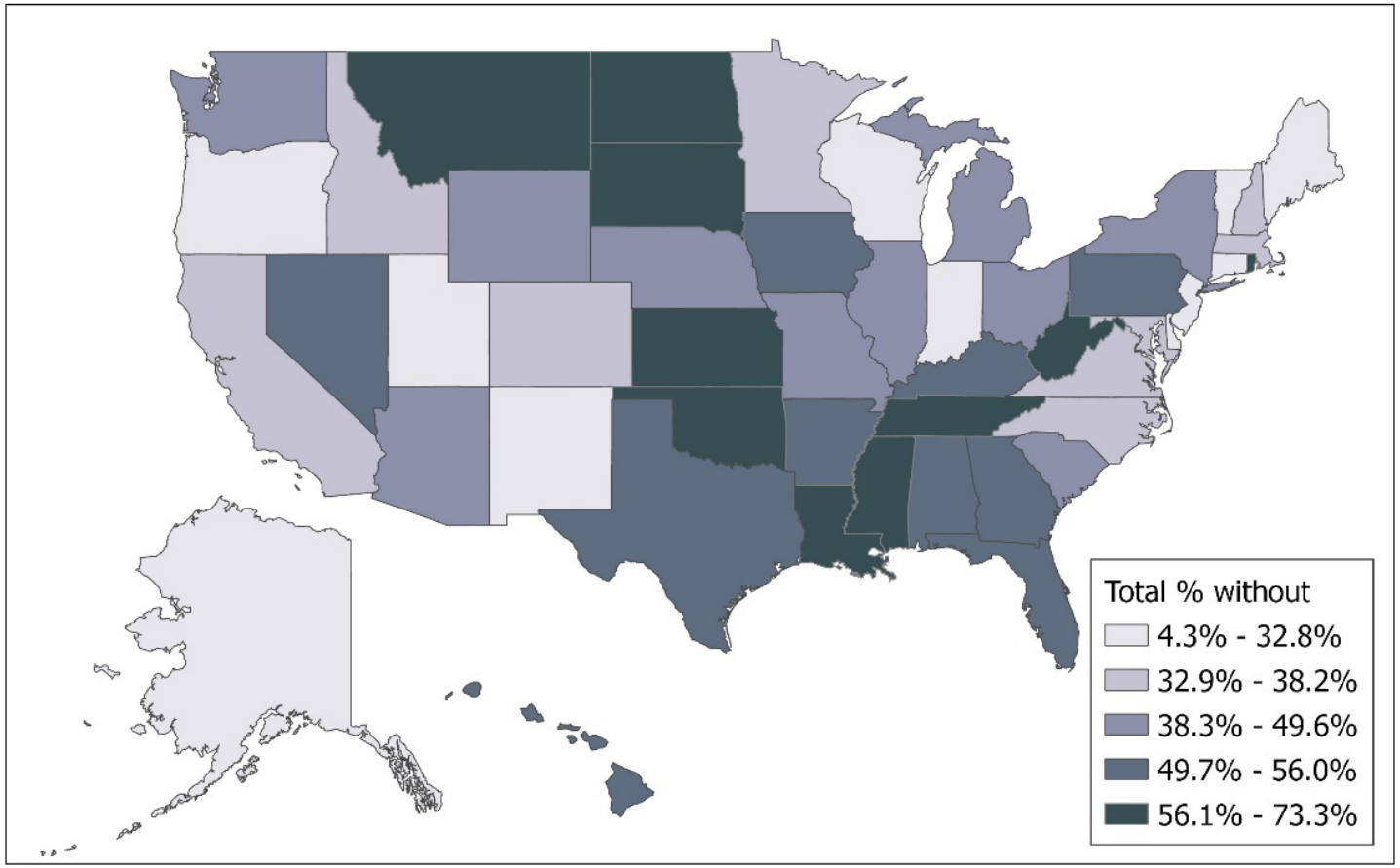
Rural Hospitals



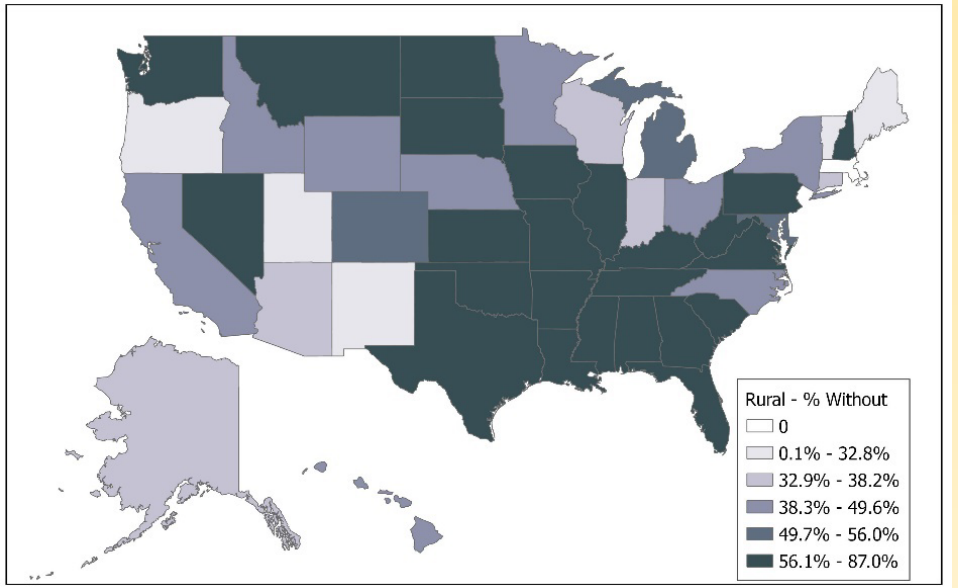
Urban Hospitals



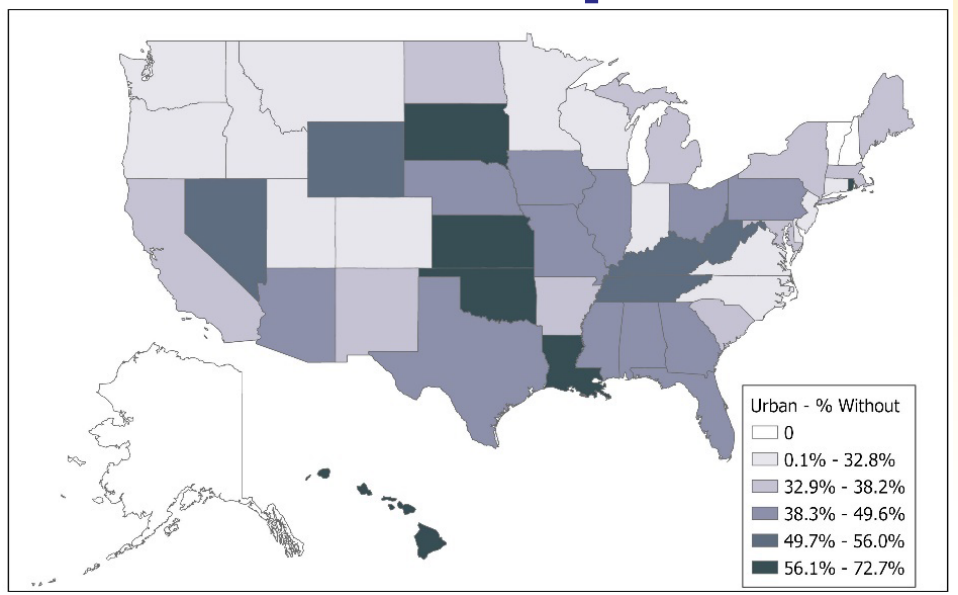
Percent of hospitals without obstetrics



Rural Hospitals



Urban Hospitals



What happens when rural communities lose obstetric services?

Katy Backes Kozhimannil

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Rural obstetric unit closures have consequences for births and babies.

- Increased risks (in non-adjacent rural counties)
  - Preterm birth
  - Out-of-hospital birth
  - Births in hospitals without obstetric units (also a risk in urban-adjacent counties, but declined over time)
- Greater travel distances

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We also surveyed emergency departments at rural hospitals without obstetrics.

- 2020 study
- Goal: using WHO criteria, describe emergency obstetrics capacity at rural US hospitals that do not routinely provide childbirth services
- Using AHA data, we identified a random sample of rural EDs at hospitals without obstetrics.

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Rural hospitals without obstetrics struggle to provide emergency care.

- Most (65%) located 30+ miles away from a hospital with obstetric services.
- Challenges faced in the past year:
  - emergency room births (28%)
  - a close call or an unanticipated adverse birth outcome (32%)
  - delay in urgent transport for a pregnant patient (22%).
- Majority (80%) reported the need for additional training or resources to handle emergency obstetric situations.

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We asked rural hospital administrators about decisions to continue or close obstetrics services, and about care in their communities.

- In 2021, we developed and conducted a national survey of rural hospitals that were providing obstetrics in 2018 – some had closed their units.
- We asked about safety, financial viability, community need for obstetrics and about local services and support for pregnant people.

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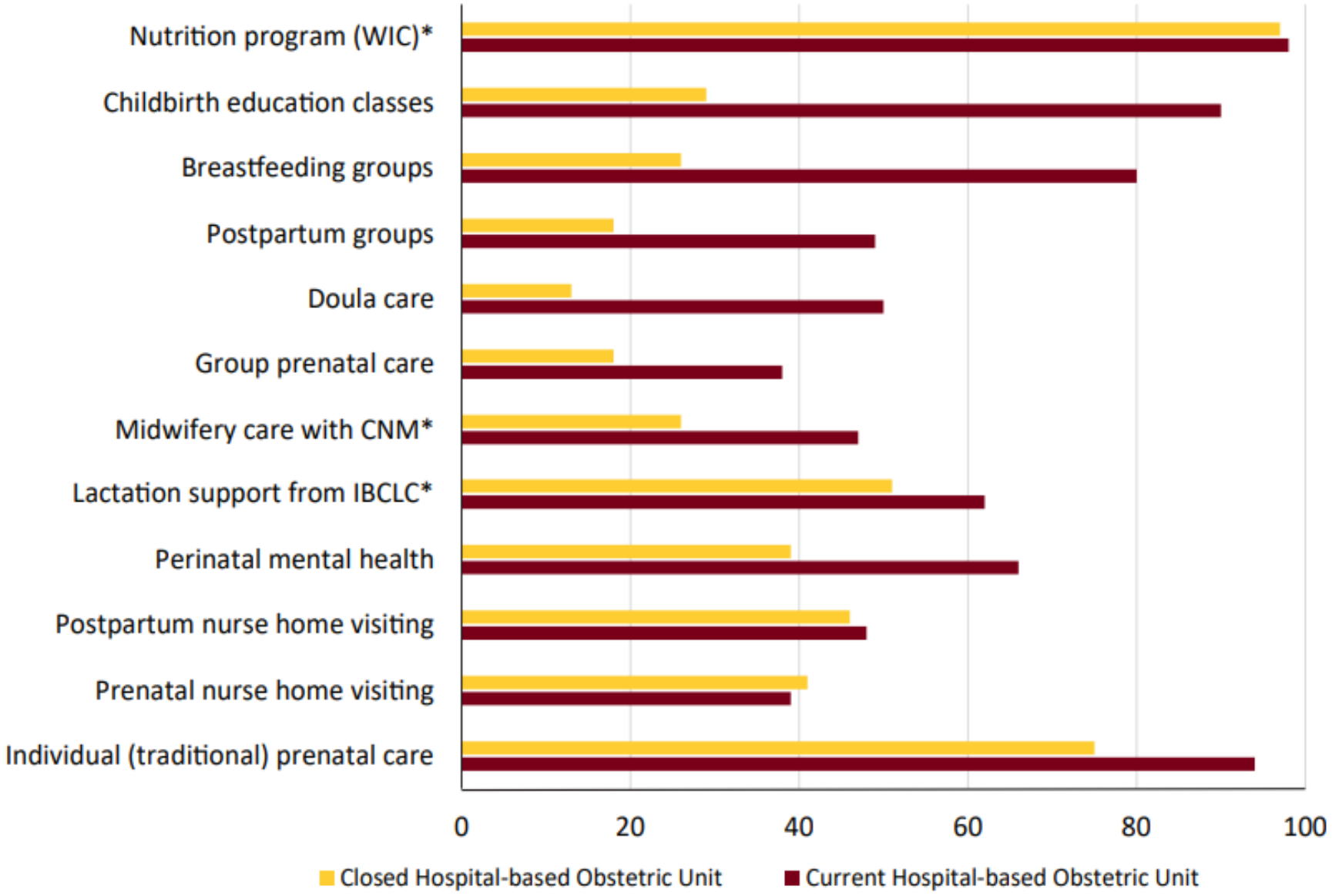
Percent of Surveyed Rural Communities with Evidence-Based Supports by Status of Obstetric Units in 2021 (n=133)



In 2023, we examined the volume-outcome relationship for rural and urban hospitals.

- What is the association between birth volume and severe maternal morbidity in rural and urban hospitals?
  - Does it differ for low and higher-risk patients?
- Data: linked birth certificates and hospital discharge data for births in CA, MI, PA, and SC (2004-2020)
- Different volume categories for rural and urban hospitals.

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Many rural hospitals close obstetric units, remaining low volume rural units struggle with poor outcomes.

Table 1. Associations Between Annual Birth Volume Category and Severe Maternal Morbidity (SMM) for Hospitals in Urban and Rural US Counties

Birth volume category	Total patients, No.	SMM incidence, No. (%)	Risk ratio (95% CI)	
			Unadjusted	Adjusted
Urban counties				
Low (10-500 births)	261 553	1316 (0.50)	0.69 (0.61-0.79)	1.00 (0.90-1.11)
Medium (501-1000 births)	860 892	4908 (0.57)	0.78 (0.66-0.93)	1.01 (0.90-1.13)
Medium-high (1001-2000 births)	2 535 466	16 476 (0.65)	0.89 (0.80-1.00)	1.03 (0.96-1.10)
High (>2000 births)	7 365 512	53 507 (0.73)	Reference	Reference
Rural counties				
Low (10-110 births)	8182	57 (0.70)	1.48 (1.01-2.18)	1.65 (1.14-2.39)
Medium (111-240 births)	59 374	324 (0.55)	1.16 (0.90-1.49)	1.37 (1.10-1.70)
Medium-high (241-460 births)	175 176	967 (0.55)	1.17 (0.96-1.44)	1.26 (1.05-1.51)
High (>460 births)	277 221	1304 (0.47)	Reference	Reference

This is true for both low- and higher risk obstetric patients at rural hospitals.

Table 4. Association Between Birth Volume Category and Severe Maternal Morbidity for Higher-risk and Low-risk Obstetric Patients at Hospitals in Rural Counties

	Risk ratio (95% CI)			
	Higher-risk patients		Low-risk patients	
Annual birth volume	Unadjusted	Adjusted	Unadjusted	Adjusted
Low (10-110 births)	1.29 (0.87-1.90)	1.49 (1.01-2.20)	2.37 (1.31-4.30)	2.32 (1.32-4.07)
Medium (111-240 births)	1.09 (0.84-1.41)	1.30 (1.03-1.65)	1.60 (1.15-2.22)	1.66 (1.20-2.28)
Medium-high (241-460 births)	1.05 (0.85-1.29)	1.16 (0.95-1.43)	1.54 (1.13-2.10)	1.68 (1.29-2.18)
High (>460 births)	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]

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Misinterpretation of research findings can have consequences

On Mon, Oct 21, 2024 at 11:08 AM Elodie Reed <ereed@vermontpublic.org> wrote:

Hi Dr. Kozhimannil,

I'm a reporter for Vermont Public, and I'm covering a recent report commissioned by our state health system regulators that recommends radical transformation of our hospital system here. I believe your 2023 study, "Obstetric Volume and Severe Maternal Morbidity Among Low-Risk and Higher-Risk Patients Giving Birth at Rural and Urban US Hospitals," is referenced in this report to determine the health of OB departments here, with a threshold of 240 births per year.

I understand Dr. Peter Stuart recently reached out about how you feel your study should be used in this report — the report recommends that because Dr. Stuart's hospital has under 240 deliveries/year, it should stop all but emergent deliveries. For context, this hospital is in one of the most rural regions of Vermont, and is 45 miles from the next-closest hospital.

Do you feel it's fair to use this 240-deliveries threshold to determine the health/sustainability of OB departments at rural hospitals in Vermont?

If you could send an emailed response, or hop on a phone call today, I would appreciate it!

Thanks so much.

All best,
Elodie

Why do rural hospitals close their obstetric units?

Or why do they keep them open?

Katy Backes Kozhimannil

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Why do rural hospitals close obstetric units?

- Financial constraints
  - Fixed costs are constant, and revenue is variable and depends on volume
  - Payer mix and the role of Medicaid
- Workforce constraints
  - Yes, it's physician shortages, but also nursing, administration
- Patient safety concerns
  - Clinicians worried about providing safe care
  - Low birth volume challenges

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The correct people to answer this question are rural hospital administrators, who make these decisions every day.

- Reminder of the survey we conducted in 2021 (administrators at rural hospitals that had OB in 2018)
- From both a financial and safety perspective, those with obstetrics said they needed 200 births a year
  - They gave us an answer, but the answer is a response to policy incentives – different policies may change the answers they give

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What do rural communities need and deserve?

- One-third of hospitals we surveyed kept obstetrics open, even below minimum thresholds for safety and financial viability.
- Why? Community need.

"Many of the people who live here are poor and do not have vehicles to go elsewhere. They would come up here to deliver [babies] even if we did not have an obstetrics department."

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Rural communities are helping make maternity care accessible.

- Case studies
  - Baldwin, WI: Western Wisconsin Health
  - Lakin, KS: Kearny County Hospital
  - Russellville, AR: ANGELS at the University of Arkansas for Medical Sciences and the Millard-Henry Clinic
  - Bethel, AK: Yukon-Kuskokwim Delta Regional Medical Center
  - Alamosa, CO: San Luis Valley Health
  - Andrews, TX: Permian Regional Medical Center
  - Kotzebue, AK: Maniilaq Health Center

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PRACTICAL IMPLICATIONS
September 2024

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Information for Rural Stakeholders About Access to Maternity and Obstetric Care: A Community-Relevant Synthesis of Research

Katy B. Kozhimannil, PhD, MPA
Julia D. Interrante, PhD, MPH
Alyssa H. Fritz, MPH, RD, CLC
Emily C. Sheffield, MPH
Caitlin Carroll, PhD
Sara C. Handley, MD, MSCE

Key Findings

Purpose

This document aims to inform rural stakeholders about challenges related to access to and quality of hospital-based childbirth care in rural US communities. It summarizes available data on:

- Challenges of providing obstetric services in rural settings
- Quality and outcomes of care at low-volume rural obstetric units

Summary of research:

What is known about clinical safety, low-volume OB units, and OB unit closures in rural communities?

1. Among rural hospitals with OB, increased risk of SMM in low-volume hospitals
2. Inconsistent quality outcomes by OB volume among rural hospitals
3. Among rural counties that lose OB, increased risk of preterm birth, out-of-hospital birth
4. After closures, travel distance increases, and there are worse outcomes with longer travel distances
5. Rural counties without OB have reduced access to evidence-based maternal health services

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Summary of research:

What is known about supporting birthing people and families in rural communities with low-volume OB units?

1. Many low-volume units stay open to meet community need
2. Clinical support strategies:
   - Perinatal quality collaboratives
   - Provider-to-provider telehealth infrastructure
   - Regional partnerships
3. Financial support strategies:
   - Standby payments
   - Low-volume payment adjustments

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Summary of research:

What is known about supporting birthing people and families in rural communities without hospital-based obstetric care?

Support strategies

1. Emergency OB training and preparedness (clinicians, first responders)
2. Telemedicine support and regional partnerships for emergency OB and neonatal care
3. Investment in community access to other maternal-infant health services
4. Targeted financial support for non-obstetric facilities to manage pregnancy complications, and OB and newborn emergencies

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Thank you so much

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