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# Obstetric Care and Hospital Closures in Rural Areas

**Angela Thompson, MD, MPH, FACOG**

**Kristin DeArruda-Wharton, RN, PHN, IBCLC**

**Peiyin Hung, MSPH**

**Katy Kozhimannil, PhD, MPA**

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# Goal of the session

- Rural clinicians will relate the effects of closures on their patients.
- Research experts will respond, contributing data.
- Together, speakers will discuss administrative, clinical, and policy strategies for ensuring rural obstetric care access.



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# Learning objectives

- Describe the changing landscape of rural obstetric care, including closures
- List the effects of rural obstetric unit or hospital closures on access and care
- Discuss strategies rural hospitals, clinicians, and communities can employ to ensure access to high-quality obstetric care for rural women.



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# Format

- Introductions (all)
- Brief overview of rural obstetric care (Kozhimannil)
- Case studies (Thompson, DeArruda-Wharton)
  - Southern Minnesota (Mayo Clinic)
  - Northern Minnesota (Cook County, MN)
- Data: national picture (Hung)
- Strategies for ensuring access (Kozhimannil)



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# Panelist introductions

- Angela Thompson, MD, MPH, FACOG
- Kristin DeArruda-Wharton, RN, PHN, IBCLC
- Peiyin Hung, MSPH
- Katy Kozhimannil, PhD, MPA



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# Rural maternity care



- Childbirth is the most common and costly reason for hospitalization
  - Half a million babies each year!
  - Total costs of \$27 billion annually for hospital care; half of births covered by Medicaid (more in rural)
- Decline in access to obstetric services at rural hospitals
  - Potential effects: prenatal care, travel distances, costs, risks of complications, stress



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# **Case studies:**

**Southern MN (Mayo Clinic)**

**Northern MN (Cook County, MN)**



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# Southern Minnesota



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# Mayo Clinic Experience: Setting

- Mayo Clinic in Rochester, MN. Level IV maternal care academic center with approximately 2400 deliveries annually. Regional referral center. Large CNM practice.
- Mayo Clinic AZ and Mayo Clinic FL do not provide maternity care or obstetrical services



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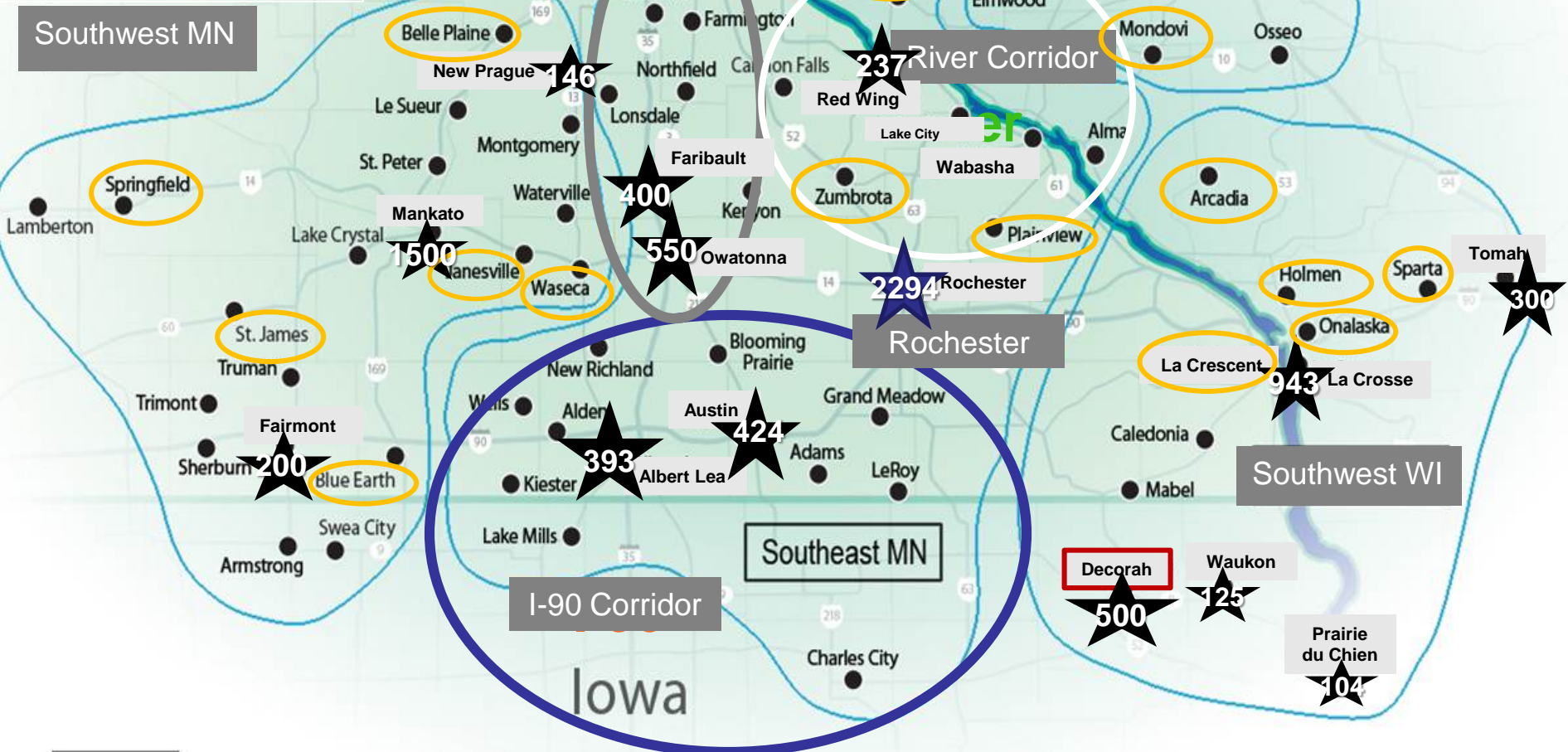
# Mayo Clinic experience

- Mayo Clinic Health System (MCHS)
  - 18 Mayo Clinic owned hospitals and management contracts with three additional hospitals
  - Serves more than 70 communities in MN, WI, and IA. There are nearly 1000 staffed beds in the MCHS which serves >500,000 patients annually
  - Approximately 6,000 deliveries annually



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- ★ MCHS hospitals/clinic
- ★ MCHS Clinic-Delivering Hospital non-MCHS
- MCHS outreach clinics-prenatal
- MCHS provider service agreement



# Mayo Clinic experience

- Distances between health system sites to Rochester site ranges from 19 to 125 miles.



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# Mayo Clinic experience

- Within MCHS, consolidation of care services has become necessary given volumes of deliveries and staffing requirements. Most Level I centers have already consolidated.
- Examples of recent closure/consolidation:
  - Lake City, MN (level I consolidation)
  - I-90 Corridor (level II consolidation)



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# Mayo Clinic experience

- Lake City, MN
  - Population of 4,980
  - Located along Lake Pepin in between MN and WI
  - Lake City Medical Center: 65 deliveries annually
  - 2015 OB unit closure: consolidated with Red Wing (closest level II center 21 miles north)



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# Mayo Clinic experience

- Lake City, MN:
  - Majority of women travel to either Red Wing, MN (Level II, 21 miles north along Hwy 61); Winona MN (45 miles south along Hwy 61—outside MCHS); Rochester, MN (Level IV, 46 miles SW along Hwy 63)
  - High risk patients ideally receive all prenatal care and deliver in Rochester\*



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# Mayo Clinic experience

- Lake City, MN: Consequences of the OB unit closure
  - Majority of Family Medicine physicians left
  - No availability to perform non-scheduled surgeries by general surgeons (day surgeries only) given costs to main CRNA coverage at night
  - Change from hospital to transitional care unit
  - Staffing shortages met by physicians driving up from Rochester



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# Mayo Clinic experience

- Lake City, MN:
  - Maternity care in the form of prenatal care is still provided by the clinics there however ultrasounds, antenatal testing, and deliveries are no longer available
  - No data yet on how this affects outcomes
  - Transfer system/EMR capabilities to access records between sites ongoing
  - Anecdotes\*



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# Mayo Clinic experience

- I-90 corridor:
- Region of care west of southwestern WI between Rochester, MN and Mankato, MN
- Albert Lea, MN and Austin, MN
- 19 miles apart
- Each perform <500 deliveries annually



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# Mayo Clinic experience

- I-90 corridor:
  - Proposed consolidation will increase to one Level II site that performs all deliveries; would increase volume to nearly 1,000 at that center
  - Would allow for CNM practice, VBAC, 24 hour anesthesia coverage, expanded NICU, improved retention of maternity care providers as call demands are improved
  - Utilize providers to the highest level of care



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# Mayo Clinic experience

- I-90 Corridor:
  - The consolidation hasn't occurred yet:
  - Dichotomy between the constraints of providing maternity care services as aforementioned, yet the greater loss to community with such closures causes intense resistance to unit closures/consolidation on a local scale
  - Would consolidation improve maternal outcomes in low risk women?\*



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# Northern Minnesota



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# **Sawtooth Mountain Clinic, Inc.**

**A Federally Qualified Community Health Center**



## **North Shore Health**

**A County Hospital, Critical Access**

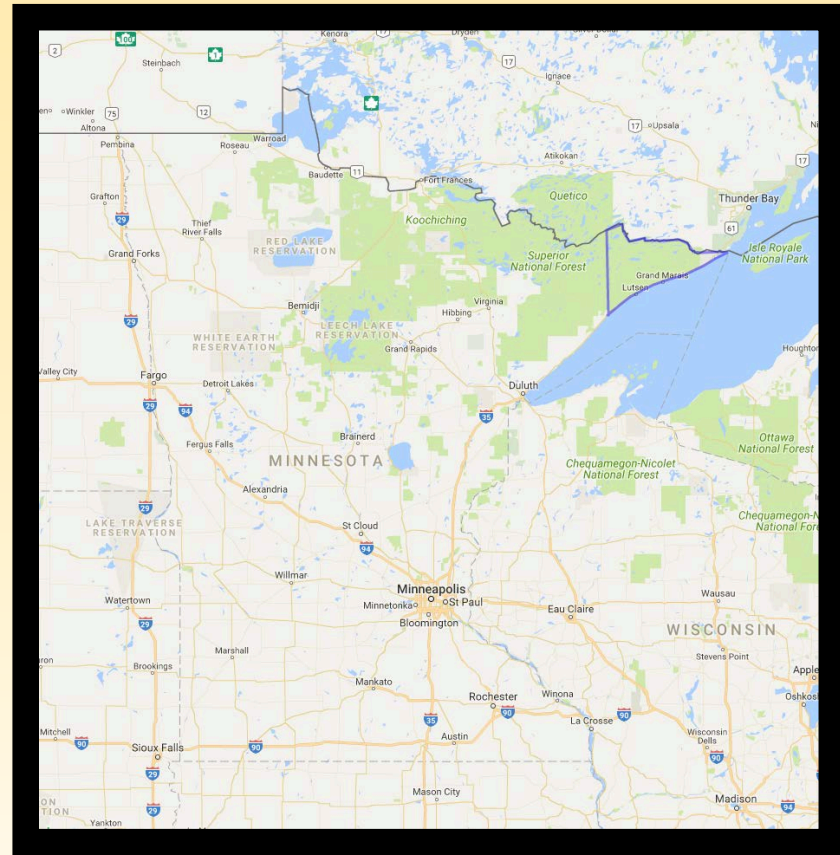
Credit: Sarah Stacke/STAT News



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# Cook County, Minnesota



“The End of the Road”



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# Play the Cards you are Dealt

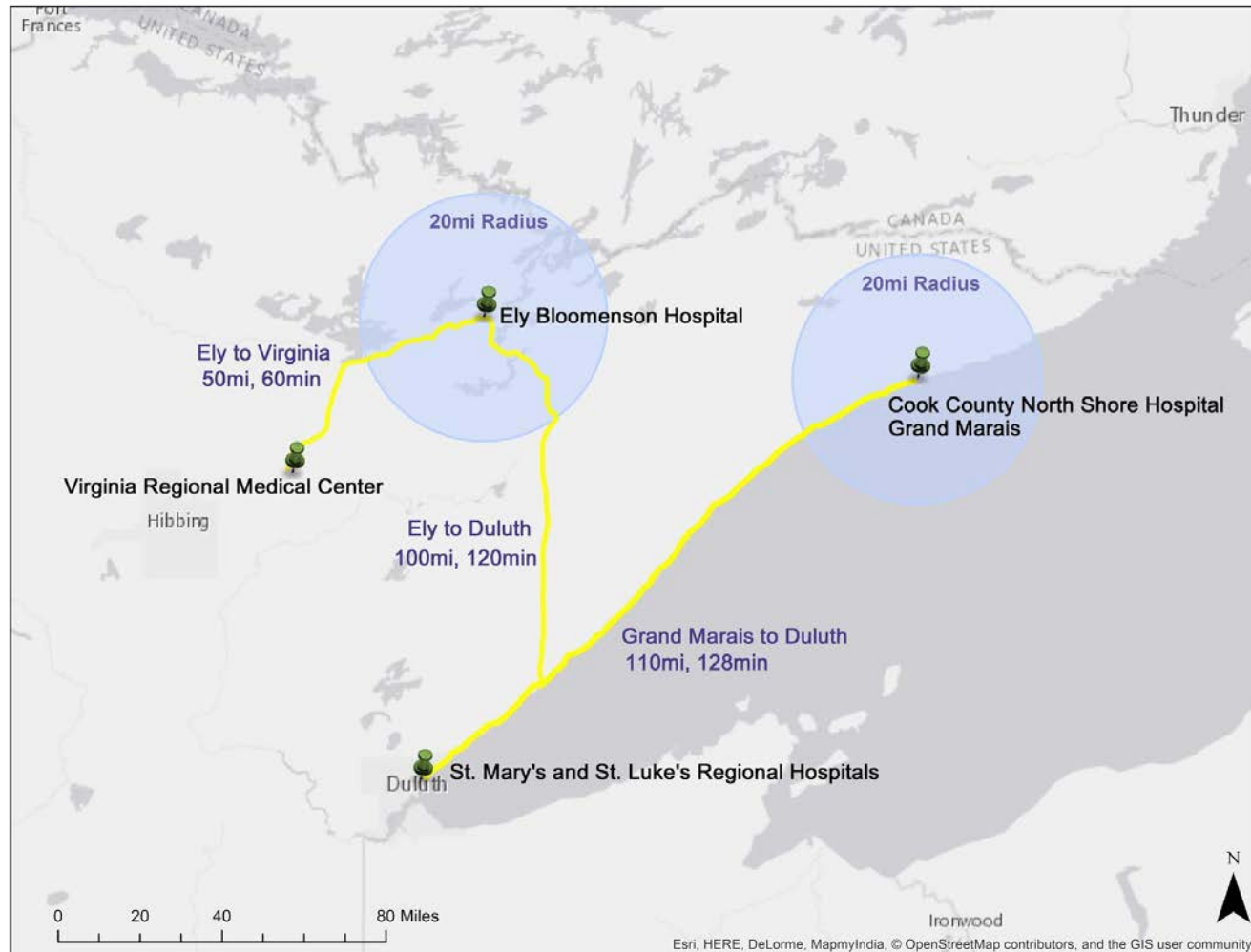
- Experienced OB care team for low-intervention birth
  - Rural MDs: cradle-to-grave medicine
  - “Be all you can be” Nurses: ER, acute care
  - Community: independent, self-sufficient
- Distance to nearest regional facility is 2-3 hours/ 111-135 miles
- No OR, C/S, epidurals



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# Distance to Community vs. Regional Hospitals





Credit: Sarah Stacke/STAT News



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Credit: Sarah Stacke/STAT News



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Credit: Sarah Stacke/STAT News



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Credit: Patrick Knight/Good Measure Media



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# Health Care to Meet the Community's Needs

- 1900's: House calls by a single physician
- 1957: Hospital construction
- 1960's: A small clinic for 3 physicians
- 1979: HRSA awards first FQCHC grant



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# 1957- 2015:

## Components of Cook County Remote/Rural Obstetrics



- Providers
- Nurses
- Hospital
- Patient
- Community



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# Providers

- Trained & willing to do OB without bells and whistles: *no OR, epidurals, C/S*
- Willing hours: *unpredictable & long*
- Insurable: *FQHC provides federal tort*
- Support: *family, partners, team, Duluth MDs*
- Good clinical decision-making: *ability to choose appropriate low risk patients*



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# Nurses

- Trained in OB care
- Willing
- Insurable
- Supported: *by hospital, providers, colleagues*
- Trust the team



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# Hospital

- Willing to take on the financial responsibility to train staff: *increased risk & cost with low volume*
- Facilities: *adequate and up to date*
- Insurable



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# Patients

- Value a local birth
- Willing to use local OB service
- Willing to birth without epidural or C/S, & decreased experience of staff compared to regional OB services
- Some make choices based on limited resources to get to Duluth



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# Community

- Supportive of all of these circumstances
- A shared vision helps the community accept the economics & risks of local birth



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# A Shared Vision of Rural Birth

- **LOCAL**
- **LOW INTERVENTION**
- **NOT RISK FREE, BUT LOWER RISK**
- **TEAM BASED**
- **CLINICAL JUDGEMENT OF MDs**

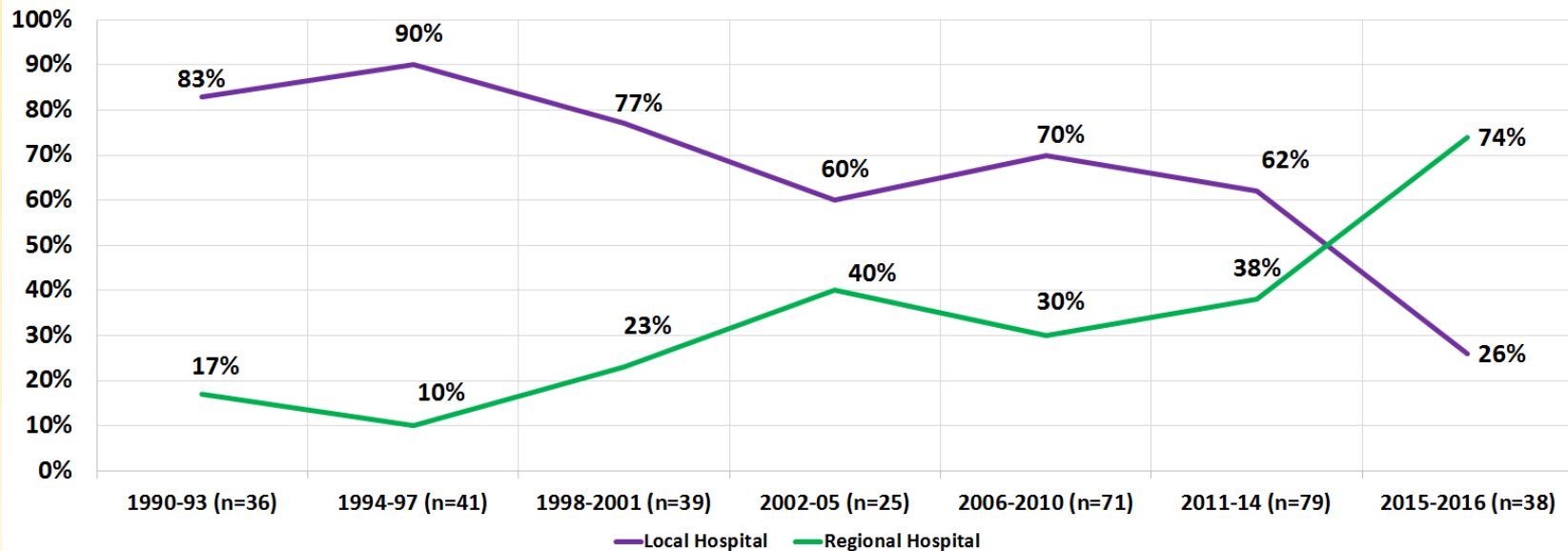
**NOT HAVING A LOCAL OPTION WAS  
WORSE FOR OUR PATIENTS AND  
COMMUNITY**



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# A Decline of Local Deliveries

Figure 2. Planned Delivery Location by Year of Birth  
Local\* vs. Regional†



\* Local Hospital = Ely Bloomenson Hospital & Cook County North Shore Hospital

† Regional Hospital = Virginia Regional Medical Center, St. Mary's Hospital- Duluth or St. Luke's Hospital- Duluth



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# A Change in 2015

Cook County North Shore Hospital faced the loss of liability insurance if continuing to provide elective deliveries



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# Insurance & Risk

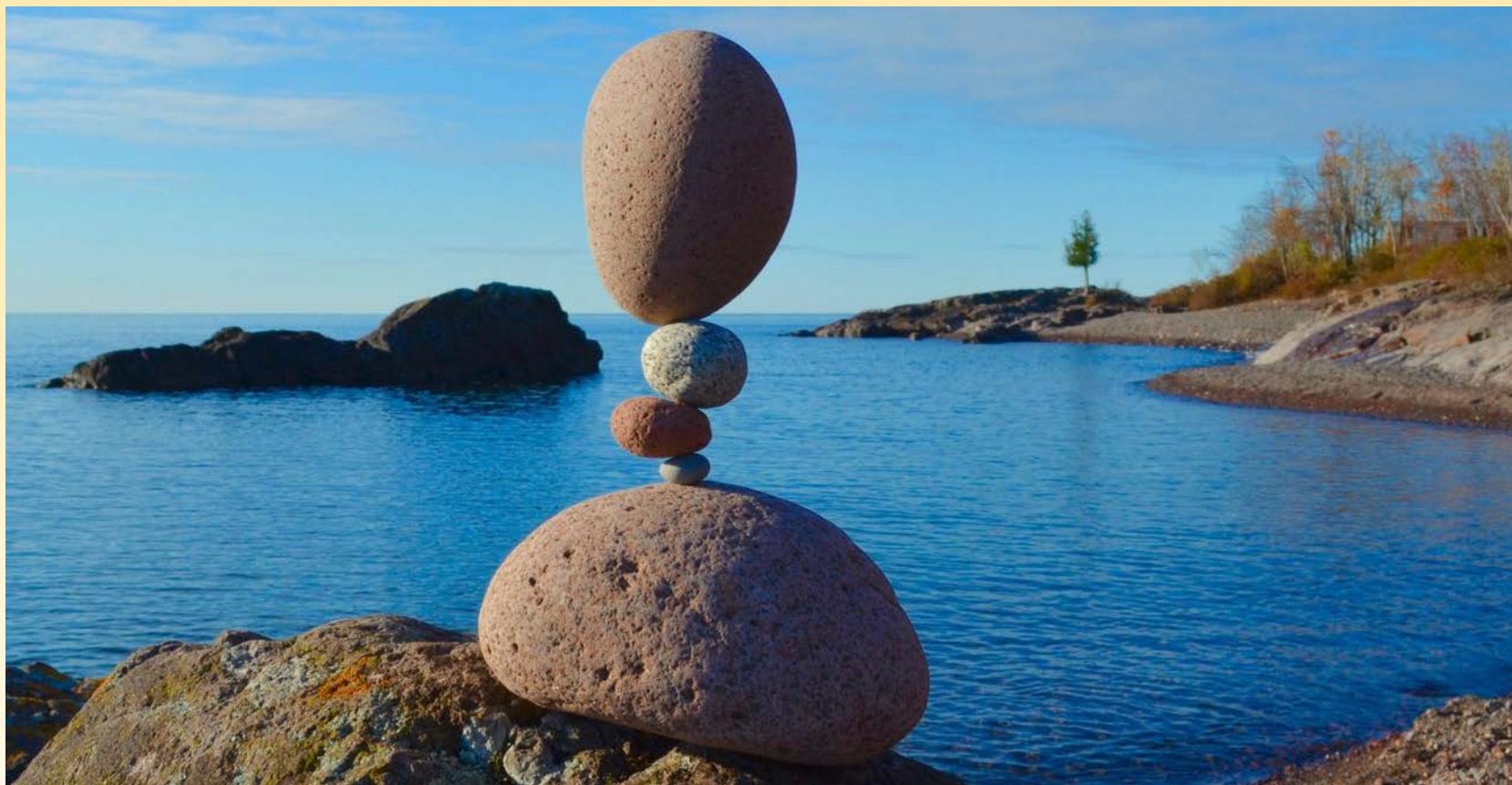
"The risk of birth has not changed, but our willingness to accept risk has.

With the loss of local birth services, risk is taken from the hospital/insurer and put on our families."

Dr. Jennifer Delfs  
Sawtooth Mountain Clinic



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# Together Through Life

- 1957-2015: Local Hospital Birth
- July 2015- Present: Emergent Birth Only
- 1979-Present: Sawtooth Mountain Clinic
  - Prenatal care
  - Coordination of maternity care with regional partners in Duluth (FP, OB, CNM)
  - Emergency birthing care at local hospital



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# Emergent Deliveries



**“[My contractions] were five minutes from the get-go. We skipped right over the 20 minutes. It was like, ‘OK, what do we do now?’”**

CLARE SHIRLEY

Credit: Sarah Stacke/STAT News



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# Rural Obstetric Use Study

Nathan L. Ratner MS2<sup>1</sup>, Kale Siebert MS2<sup>1</sup>, Sam Carlson MPH<sup>2</sup>, Jen Pearson MD<sup>1</sup>

<sup>1</sup> Department of Family Medicine & Community Health, University of Minnesota Medical School Duluth campus

<sup>2</sup> Department of Family Medicine & Community Health, University of Minnesota Medical School Minneapolis

## Patient Perspective Study

n = 600

30.1% survey response rate

2 communities: Cook County, MN & Ely, MN

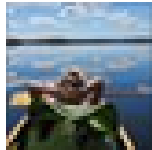
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Medical School

DULUTH CAMPUS

## Early analysis:

- Increasing trend in reports of feeling “anxious or very anxious”
- Concerns about the lack of local labor and delivery service and the need to travel elsewhere.



**Carol DeSain**

January 22, 2015 · 🌐

I believe that a community loses its soul  
when no longer can someone say  
"I was born and raised in Cook County".

When we no longer feel like we "belong" or "come from" rural America it  
establishes a disconnectedness that cannot be replaced. Rural people live  
with risk in all facets of life - it should be the choice of the community.



Like



Comment



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**“It’s already hard to make a living in Cook County.  
Now you can’t even be born here.”**

BETSY JORGENSEN, LOCAL RESIDENT

Credit: Casey Ross/STAT News



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# Health System Challenges

- Ability to provide physician back up for emergent births or transports as future MD's receive less training in OB
- Ability to maintain OB nursing competencies in ER and Hospital
- Stress on volunteer EMS
- Mitigating Cost, Logistics, Stress for families
- Ability to maintain a strong MCH system



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# Concerns for 2025 and beyond

- **MDs:** no elective deliveries, decreased skills, recruitment challenges
- **RNs:** even less comfort
- **Hospital:** must keep some equipment and have it ready



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- **Patients:** concerns about those who will intentionally wait to deliver locally, or use higher risk methods
- **Community:** will people choose care elsewhere for an increasing number of services due to decreased confidence in clinic/hospital



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# Public Health Lens

- “Birth Home” in Duluth
- Doula Program
- Funding to offset family expenses to travel for appointments and delivery
- Robust MCH programs
- Paid Medical Leave for all



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# Future Models for Rural OB?

- Regional plan exists for STEMI care
  - Partnership with regional hospitals & Duluth hub
  - Standard of care is door-to-cath lab in 30 min.
  - Regional plan allows for our ER to give thrombolytics, stabilize, and transport

Could there be a regional birth plan where appropriate, willing, low-risk patients could deliver locally?



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# Rural Health Care Services

**“Knowing that your neighbor is taking care of you, and cares about you.”**

**“It’s something that people who don’t live in remote areas take for granted”**

Sawtooth Mountain Clinic



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# National Data on Loss of Hospital-Based Obstetric Care in Rural Communities



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# Research Question

- Availability of rural obstetric services
- Scope of losing hospital obstetric services in rural U.S. counties
- County socio-demographic characteristics associated with loss of hospital obstetric services



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# Data Sources

Hospital-level	American Hospital Association Annual Survey	2004-2014
County-level	Area Health Resources Files	2004, 2014
	US Census data	2000, 2010
	Office of Management and Budget	2004

- 1,249 rural hospitals providing obstetric services in 2004
  - These hospitals located in 1,086 rural counties
  - Other 898 rural counties never had hospital-based obstetric services during 2004-2014



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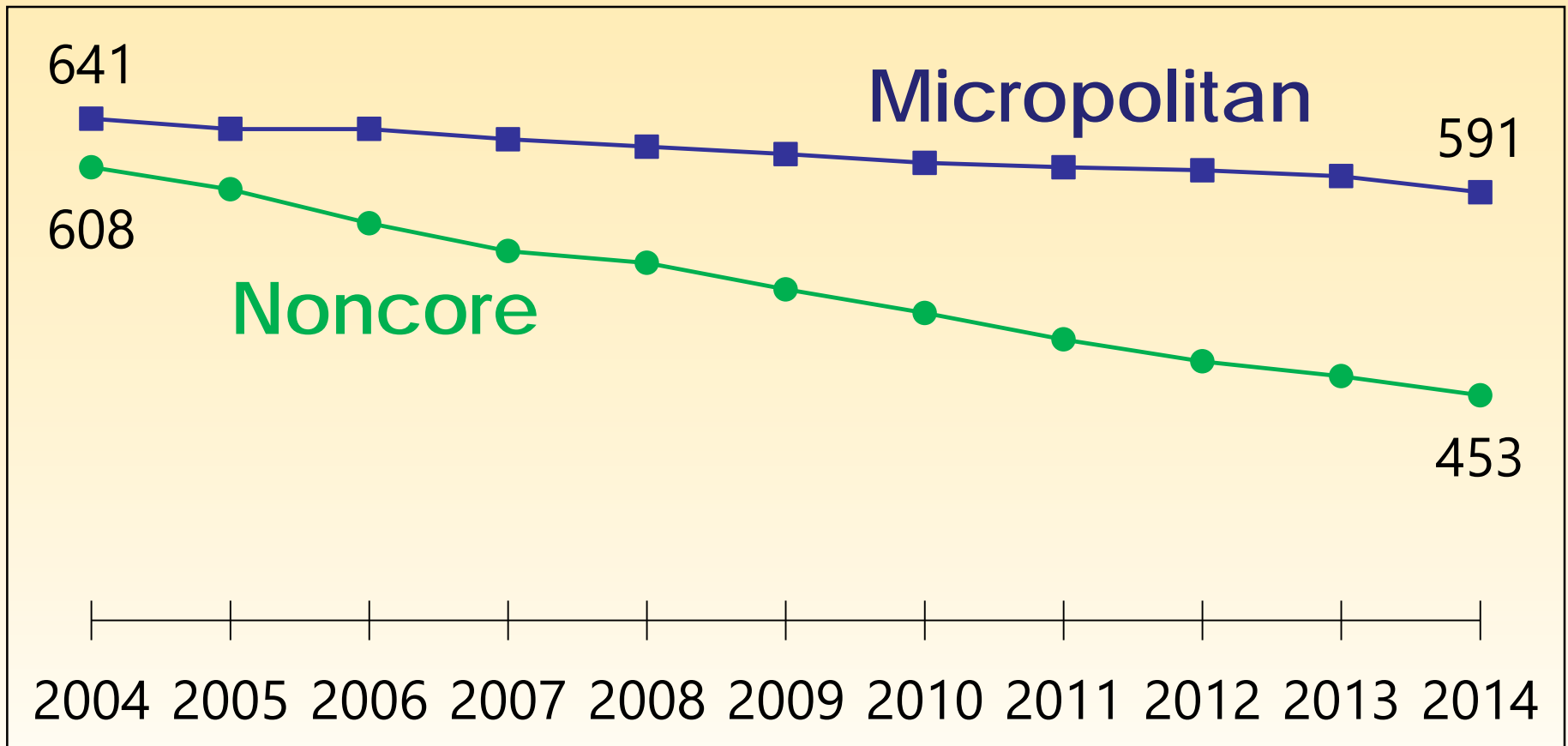
# Methods

- Outcomes:
  - Counties with continual obstetric services
  - Counties experiencing full closures of obstetric services
  - Counties without obstetric services during 2004-2014
- Analysis:
  - County-level multivariate regression
  - Covariates: number of annual births, number of women aged 15-44, workforce supply, race and ethnicity, and median household income, as well as states



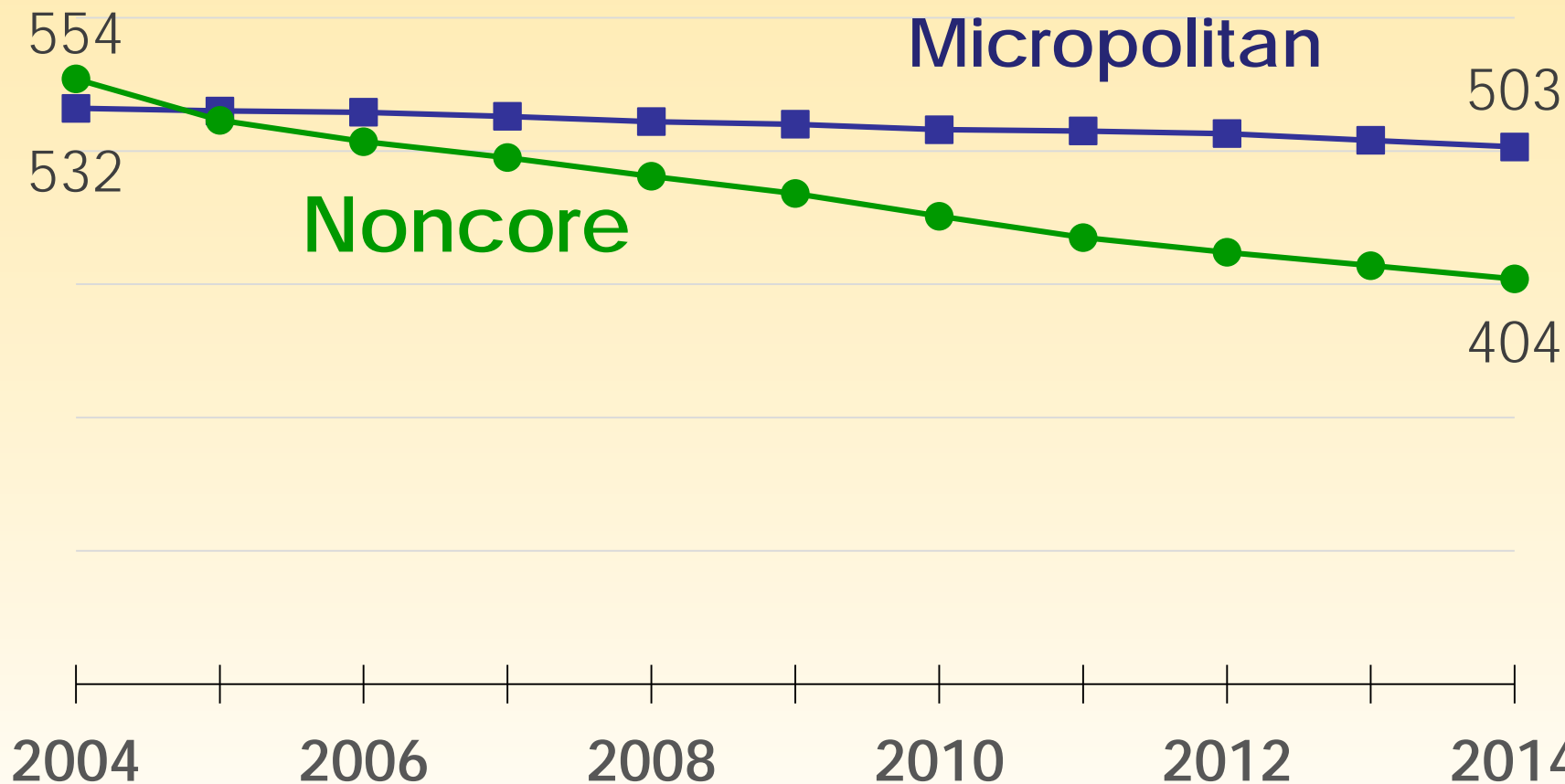
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# Rural Hospitals Providing Obstetric Services



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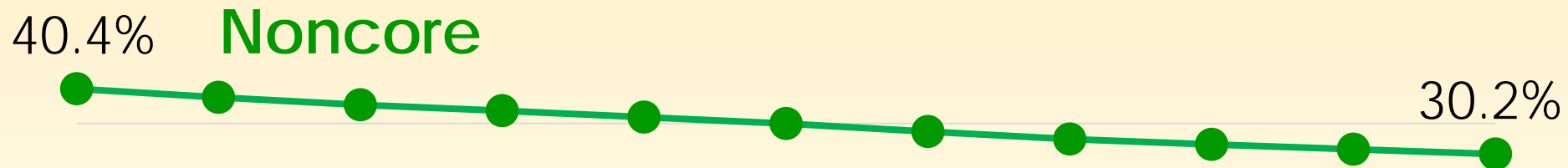
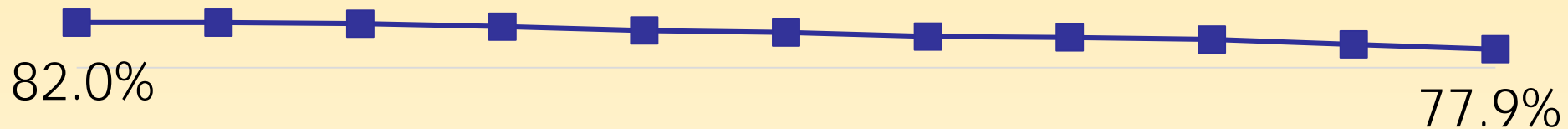
# Findings: Counties with Continual Obstetric Services



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# Proportion of Rural Counties with Hospital Obstetric Services

Micropolitan



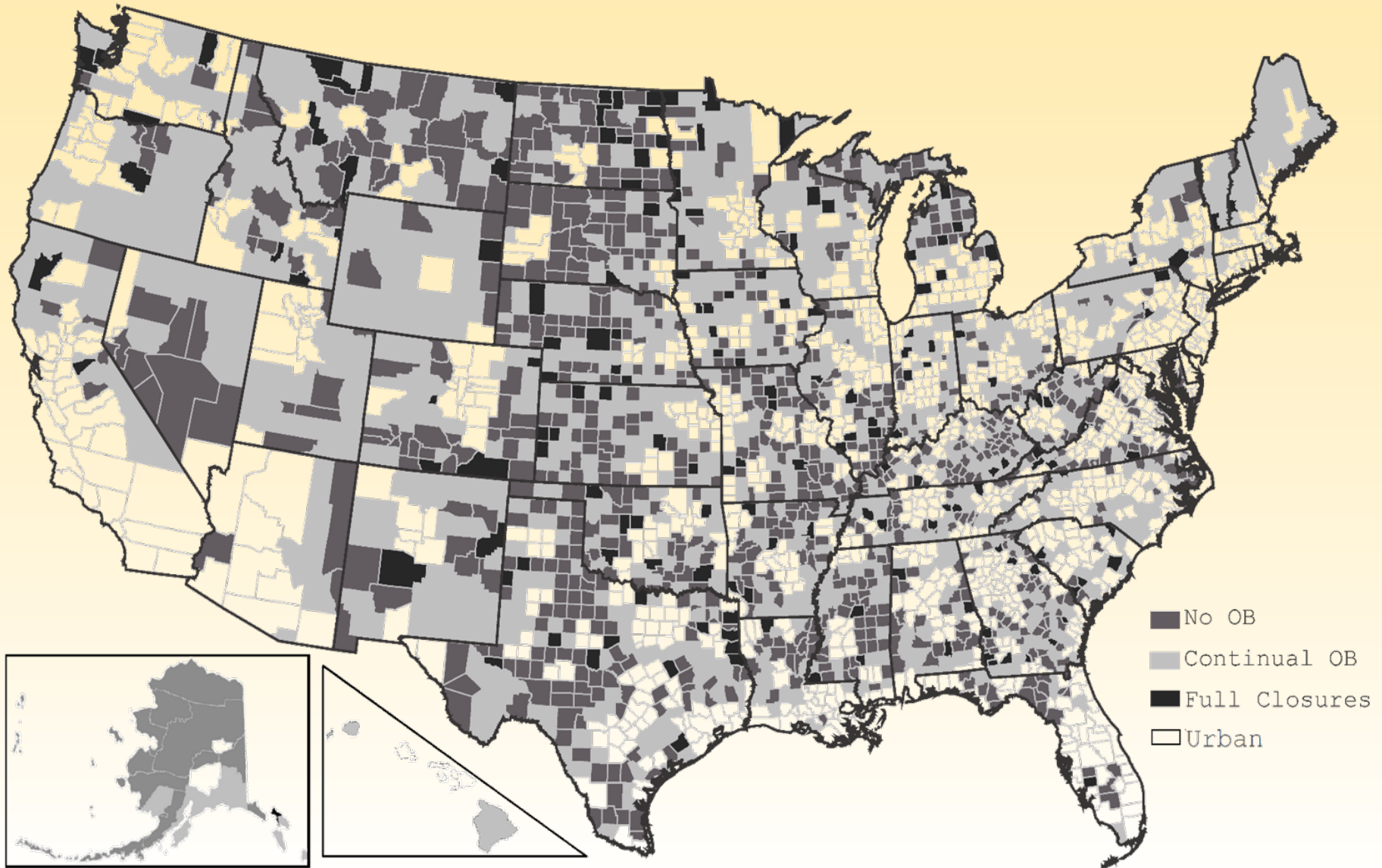
2004 2006 2008 2010 2012 2014



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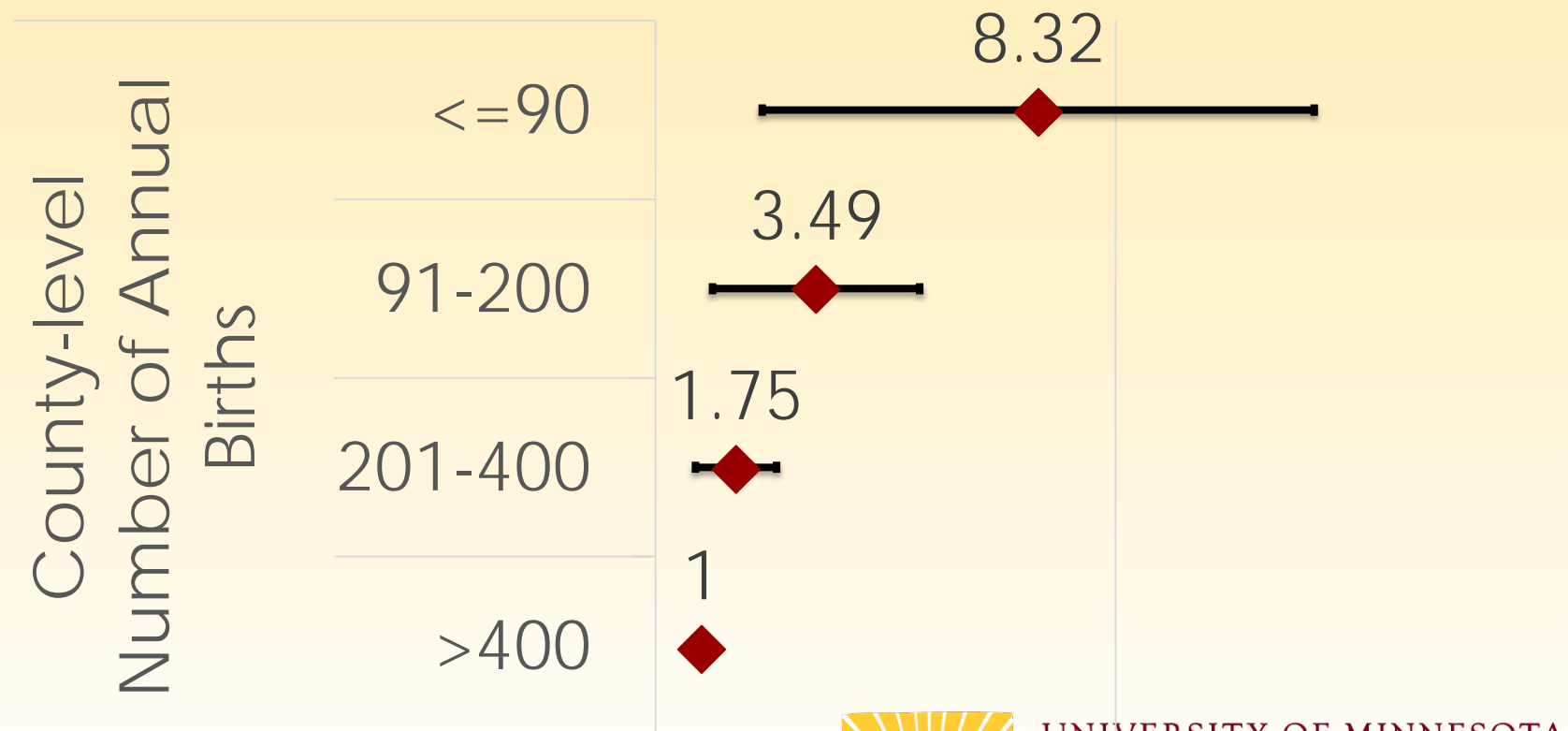


# County Map of Rural Hospital Obstetric Services 2004-2014



# Counties with Lower Birthrates Had Higher Odds of Full Closures

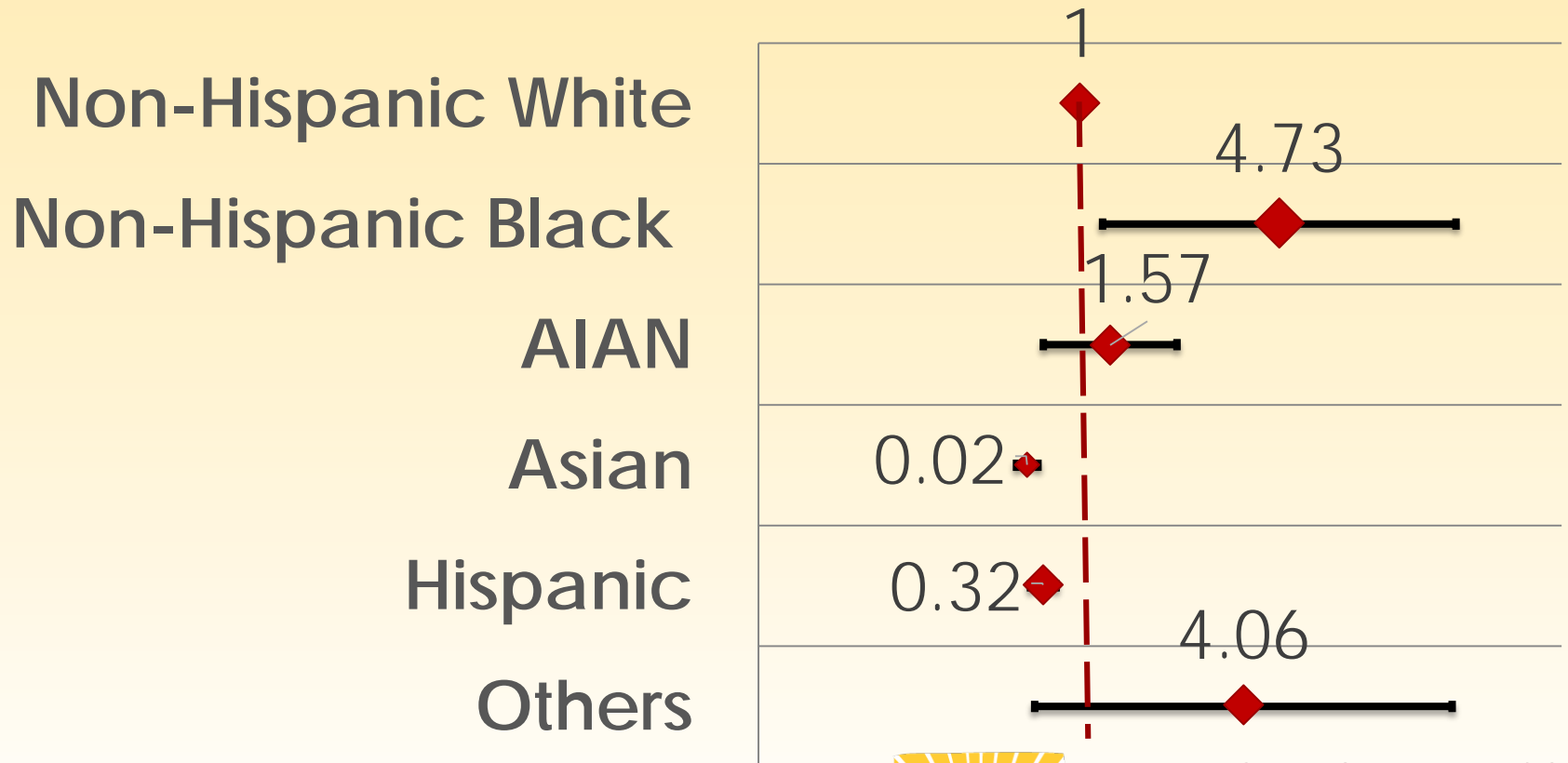
Adjusted Odds Ratio (95% CI)



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# Black Communities Had Higher Odds of Full Closures

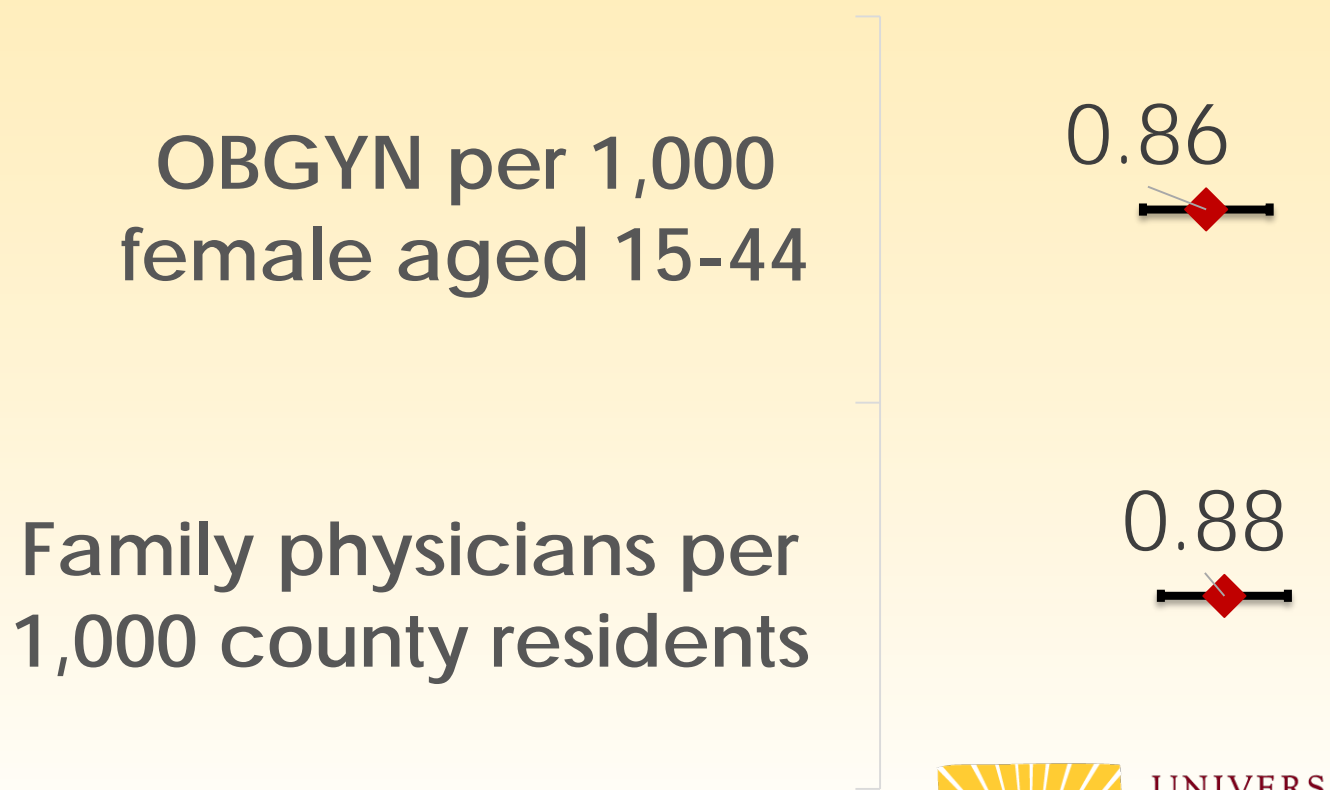
Adjusted Odds Ratio (95% CI)



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# Higher Workforce Supply was Associated with Lower Odds of Full Closures

Adjusted Odds Ratio (95% CI)



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# Implications

- **Substantial Declines in Hospital Obstetrics**
- **Rural Noncore Counties:** Facing increasing access barriers to obstetric care services.
- **Community Socio-Demographics:** Many forces lie outside of the control of a local community.
- **Workforce Shortages:** Rural women in more isolated areas face challenges accessing obstetric care.



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# Policy Strategies and Discussion



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# The way forward – federal policy

- Federal policy efforts to address workforce shortages.
  - Improving Access to Maternity Care Act
- Federal policy efforts to improve maternity care quality
  - Quality of Care for Moms and Babies Act



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# The way forward – state policy

- Medicaid policy
- State scope of practice laws
- State and local efforts
  - Subsidies; “home-grown” rural workforce
  - Education and training; rotations that include obstetrics in rural areas
  - Capacity building/training: CME support
  - Collaboration between clinicians, health care systems
  - Continuous quality improvement



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# The goal for rural communities

- Workable solutions to the challenges that rural communities face to ensure
  - Maternity care access
  - Maternity care quality



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# Discussion

- What are the challenges for maternity care access in your communities?
- What are the ways you have addressed these challenges?
- What do these challenges and successes imply for other communities, for researchers, and for policy?



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# For additional information

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**Shawnda Schroeder, PhD**

Principal Investigator

701-777-0787 • [shawnda.schroeder@med.und.edu](mailto:shawnda.schroeder@med.und.edu)

Center for Rural Health  
University of North Dakota  
501 N. Columbia Road Stop 9037  
Grand Forks, ND 58202



# Thank You!



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