Differences Between Urban and Rural Mothers in Virginia: An analysis of 2016-2020 VA Pregnancy Risk Assessment System Data

VIRGINIA PRAMS
Pregnancy Risk Assessment Monitoring System

Kenesha Smith Barber, MSPH, PhD

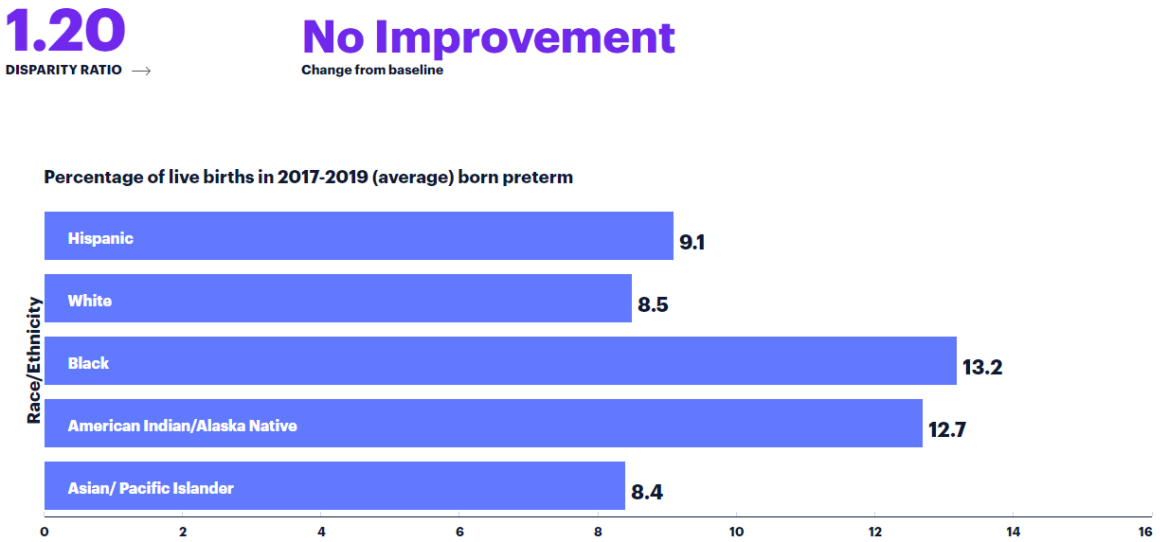
Previous VA PRAMS Coordinator

Community Health Epidemiology Program Manager

VDH, OFHS, Division of Population Health Data

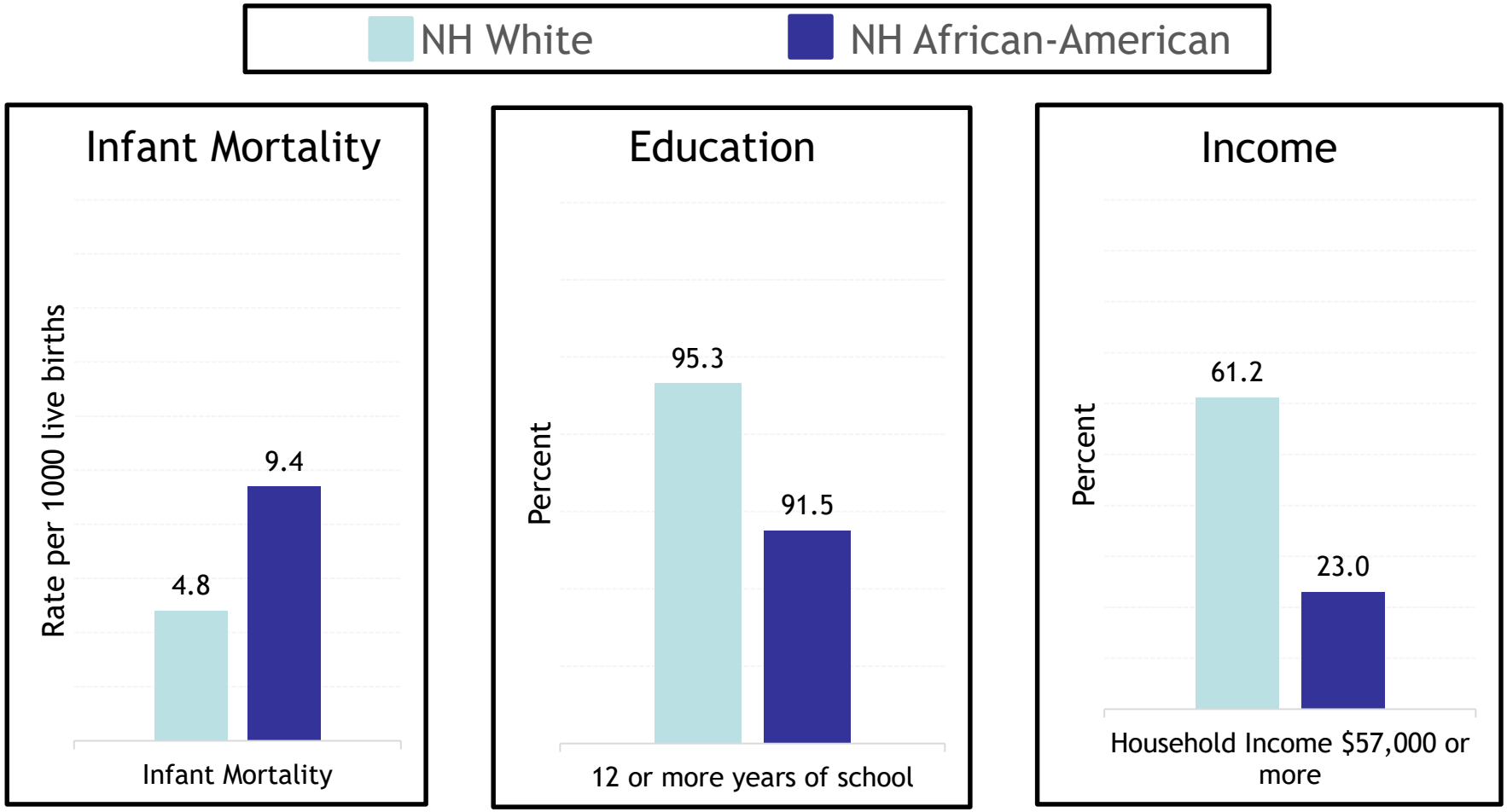
Background

- Persistent racial disparities in Virginia Maternal and Child Health outcomes
- In Virginia, the preterm birth rate among Black women is **54% higher** than the rate among all other women.



Source: March of Dimes (2021). *PeriStats March of Dimes Report Card.* Retrieved from https://www.marchofdimes.org/peristats/tools/reportcard.aspx?frmodrc=1&reg=51

Racial Disparities



Source: VDH Division of Health Statistics and Virginia PRAMS (2015), compiled by the Division of Population Health Data, Office of Family Health Services

Background

- Literature regarding MCH disparities and urbanicity are scarce for VA
  - Research reveals inner city and rural residents seem to have poorer health outcomes when compared to suburban residents
- Research Question:
  - Do Virginia mothers who live in rural areas have significantly different maternal behaviors and outcomes compared to those who live in urban areas?

Methods




PRAMS Background and Goals

- Established in 1987 as part of an Infant Health Initiative
- Congressional funding provided to CDC to establish state-based programs
- Reduce maternal and infant morbidity and mortality
  - Maternal and infant health programs
  - Health policies
  - Maternal behaviors

Overview

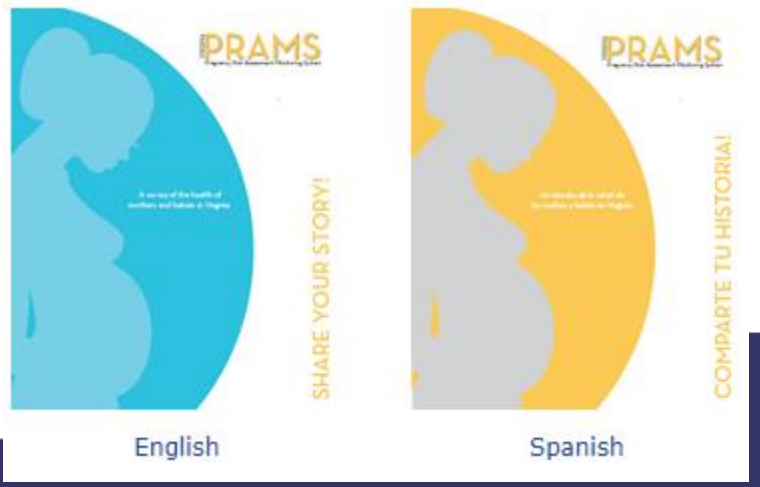
- Population-based surveillance system
- Self-reported maternal behaviors and experiences around the time of pregnancy
- Supplements birth certificate information
- State and near-national estimates

PRAMS Participants

- **Women who recently delivered a live infant**
- Random sample from birth certificate records
- Women are sampled when infants are 2 - 6 months old
- States sample ~100-300 mothers each month ~1000–3000 women per year
- 47 states, NYC, Puerto Rico, DC, and Great Plains Tribal Chairmen's Health Board
    - Representing approximately 83% of US live births

PRAMS Surveys

- Data collection primarily by mailed paper survey
- Survey booklets are 14 pages and around 85 questions in length
- Telephone follow-up
- Takes 20 - 30 minutes to complete



Methods

Inclusion Criteria

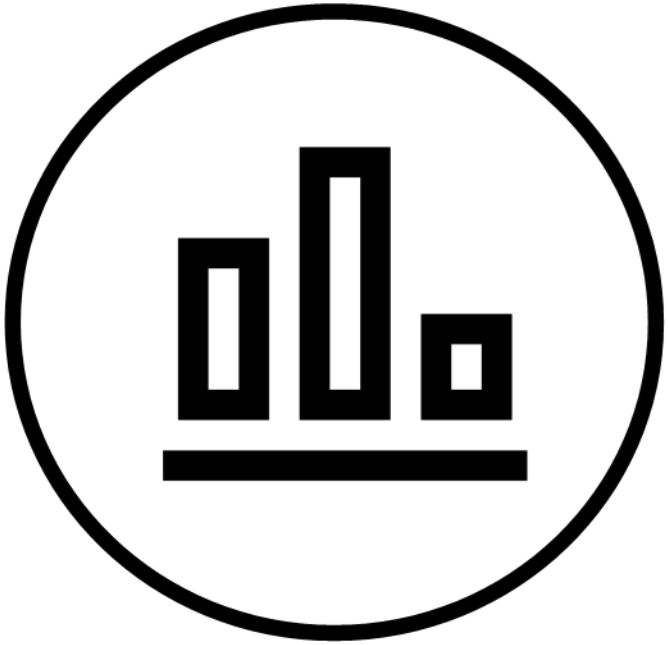
- All mothers who participated in VA PRAMS 2016-2020
- Complete information on urbanicity

Analyses

- Chi-square (Wald F) test of differences
- SAS, SAS-callable SUDAAN

Exposure	Outcomes
Rural	preterm birth, SGA, LBW pregnancy intention, maternal disease diagnoses, breastfeeding, healthcare provider visits, and other maternal experiences
Urban	

Results



Participant Demographics

	Urban (n=4,393)		Rural (n=370)	
Indicators	Number	Weighted Percent	Number	Weighted Percent
	N	(%)	N	(%)
Race/Ethnicity				
NH White	2,424	53.74	274	67.82
NH Black	968	18.45	61	22.45
NH Other	369	10.58	18	4.08
Hispanic	624	17.23	17	5.64
Age				
19 or younger	128	3.77	24	11.57
20-24	573	19.32	85	34.98
25-34	2,658	70.35	200	49.06
35 or older	276	6.56	14	4.40
Education				
Less than high school	450	10.29	28	11.85
High school graduate	946	25.44	145	43.80
Some college	1,009	22.46	129	33.89
College graduate or above	1,988	41.81	68	10.46
Income				
≤$24,000	1045	25.79	116	49.03
$24,001-57,000	777	22.82	89	24.62
≥$57,000	2,161	51.39	141	26.35
Insurance Type				
Private	2,558	56.82	198	41.20
Medicaid	575	12.10	86	35.40
Other	499	15.04	33	9.89
None	677	16.03	47	13.51

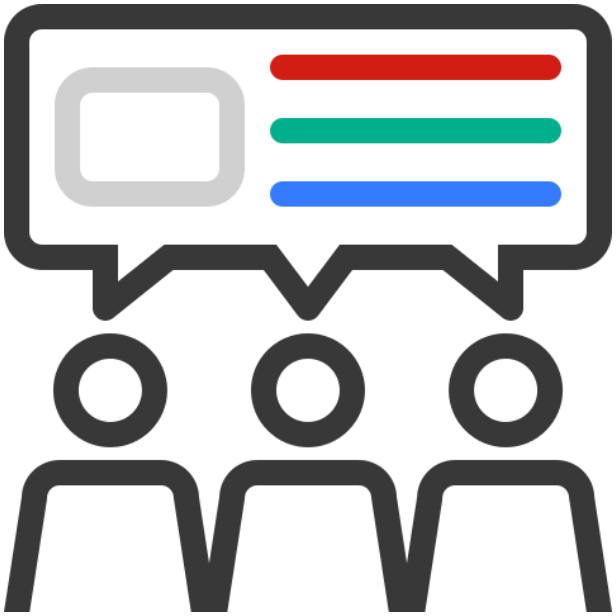
Non-Statistically Significant Results

	Urban weighted percent	Rural weighted percentage	p-value
Preterm birth	8.04	10.22	.3563
Low birth weight	6.65	8.40	.3993
Small for Gestational age	9.58	12.57	.2837
Diabetes	2.31	1.79	.5943
Hypertension	3.85	7.73	.0768
Drinking during pregnancy	12.06	9.35	.4213
Postpartum depression	6.13	4.73	.4427

Statistically Significant Results

	Urban weighted percent (%)	Rural weighted percent (%)	p-value
Ever Breastfed	89.74	76.11	.0003*
Breastfed 2-6 months	35.74	56.75	<.0001*
Adequate Prenatal Care	80.89	73.57	.0277*
Unintended Pregnancy	23.65	30.98	.0070*
Depression during pregnancy	11.24	19.55	.0131*
Smoke during pregnancy	4.94	12.25	.0088*
WIC enrolled	21.83	43.91	<.0001*

Discussion



Discussion

- Mothers residing in rural areas were less likely to participate in certain maternal behaviors
  - Breastfeeding at discharge
  - Attend healthcare visits
- Mothers residing in rural areas were more likely to
  - Be enrolled in supplemental programs
  - Participate in risky health behaviors (i.e. smoking)
- No statistically significant findings regarding birth outcomes

Limitations

- Relatively small population
  - Weighted to be representative
  - Relatively high response rates
- Self-reported information
  - Birth certificate variables- urbanicity, birth outcomes
- Potential for selection bias
  - Random selection, however women who chose to participate may differ from those who did not
- Preliminary study, did not take potential confounders into account.

Conclusions and Recommendations

- Future research
  - Larger population
  - Examine racial disparities within urban/rural regions
  - Control for other demographic factors that may affect relationship
- Public Health Implications
  - Examine social support programs in rural areas
  - Examine contributions of individual or area-level factors to health disparities

Acknowledgments

- VDH Office of Family Health Services
  - Division of Population Health Data Epidemiologists
- CDC PRAMS
  - Provision of data in accordance with grant agreement