

# Use of Telemedicine in Perinatal Care

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# Disclosure Statement

## Dr. Sanjay Mitra

*Financial*— No relevant financial relationship exists.

*Nonfinancial* — Central Advisor Council Member for WV Perinatal Partnership: Receives no compensation as member of this council.

## Cathy Richards, RN, EMT-P, MCCN

*Financial*— No relevant financial relationship exists

*Nonfinancial*— No relevant nonfinancial relationship exists.

## Christy Dixon, RRT, RN

*Financial*— No relevant financial relationship exists

*Nonfinancial*— No relevant nonfinancial relationship exists.

# Objectives

- \* Health Care disparity in Perinatal Care
- \* Perinatal Care Status & Outcome in the state of West Virginia
- \* Review of the Golden Hour
- \* Technology in transport to overcome some of the barriers

# WV Statistics

- \* Almost 21,000 babies are born in the state of West Virginia every year.
- \* 40% of live births occur in three statewide level III/IV care perinatal center.
- \* 73 % of the birthing centers in the state have less than 750 deliveries /year.
- \* Almost 8 to 10 % of newborn infants in the state are admitted to level III/IV care NICU.

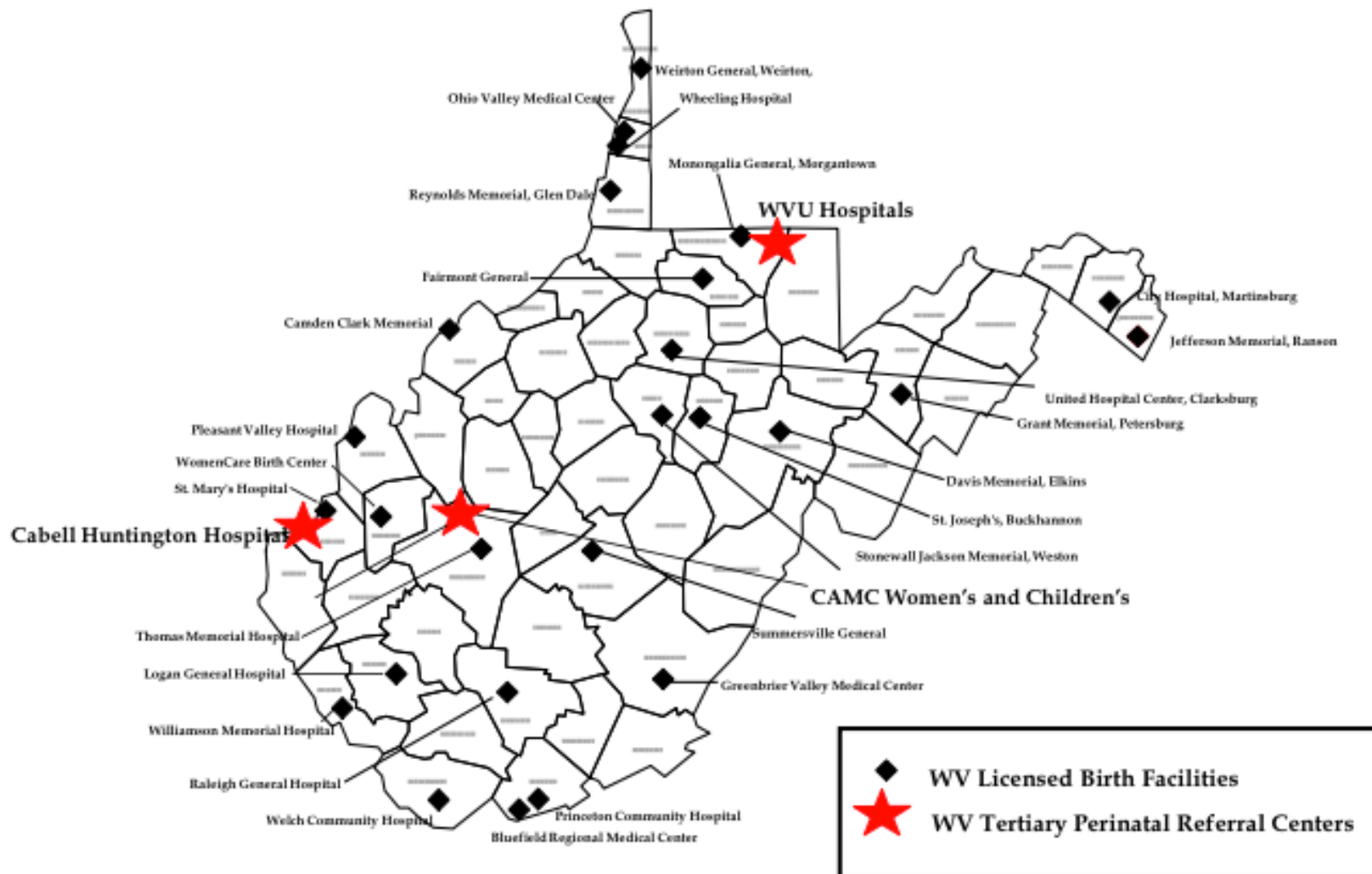
# Definition

- \* Health disparities are preventable differences in the burden of disease, injury, violence, or opportunities to achieve optimal health that are experienced by socially disadvantaged populations.
- \* Populations can be defined by factors such as race or ethnicity, gender, education or income, disability, geographic location (e.g., rural or urban), or sexual orientation.

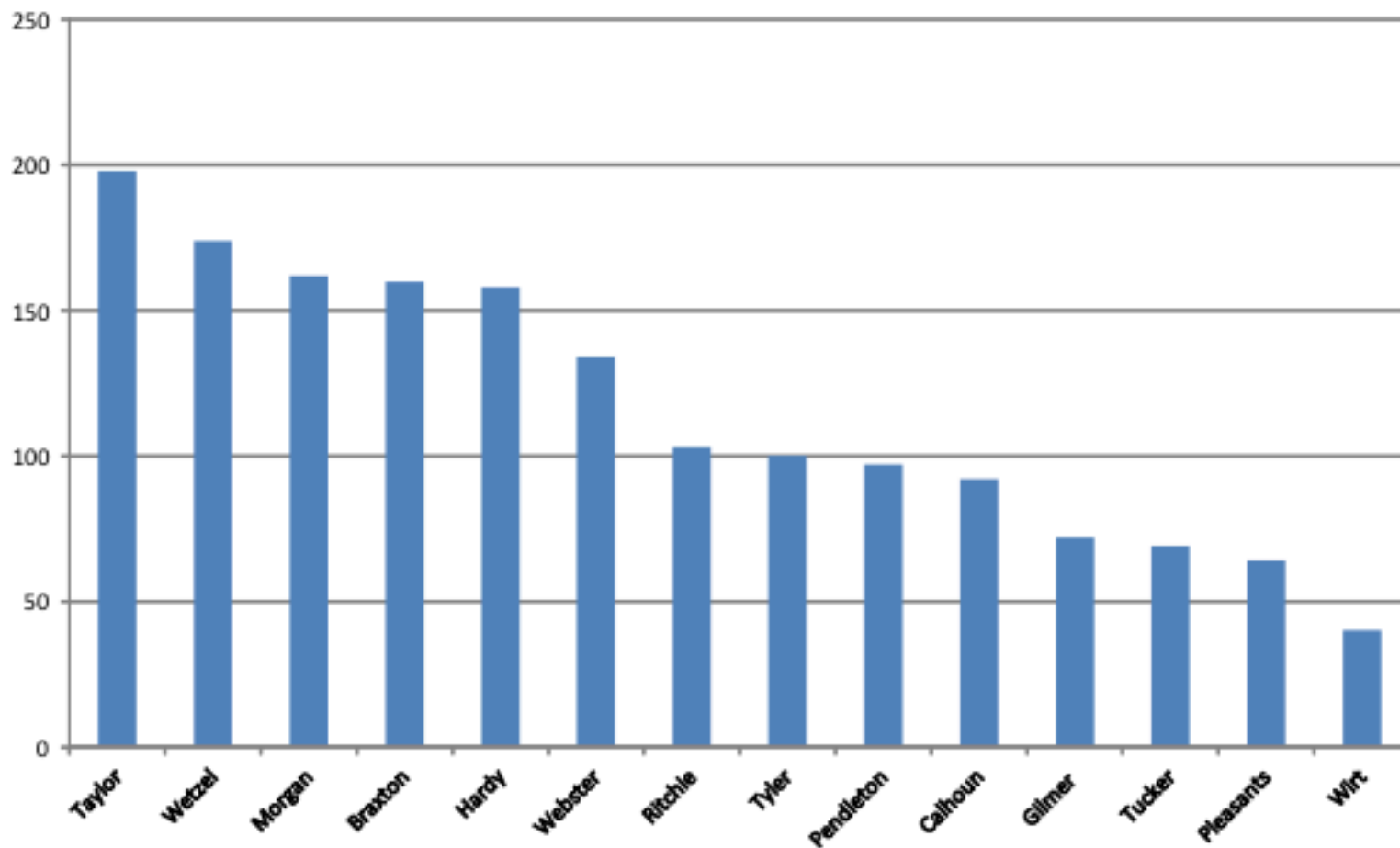
# Factors causing Health disparity

- \* Poverty
- \* Environmental threats
- \* Inadequate access to health care
- \* Individual and behavioral factors
- \* Educational inequalities

## Locations of West Virginia Licensed Birth Facilities in 2012



## Number of Births in Counties with No Maternity Services in 2009

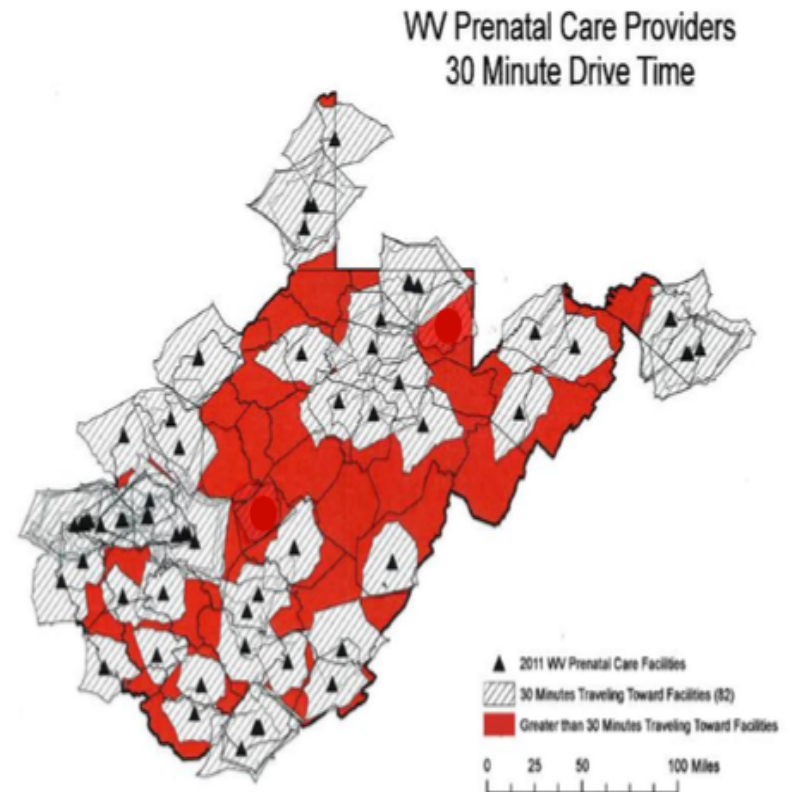
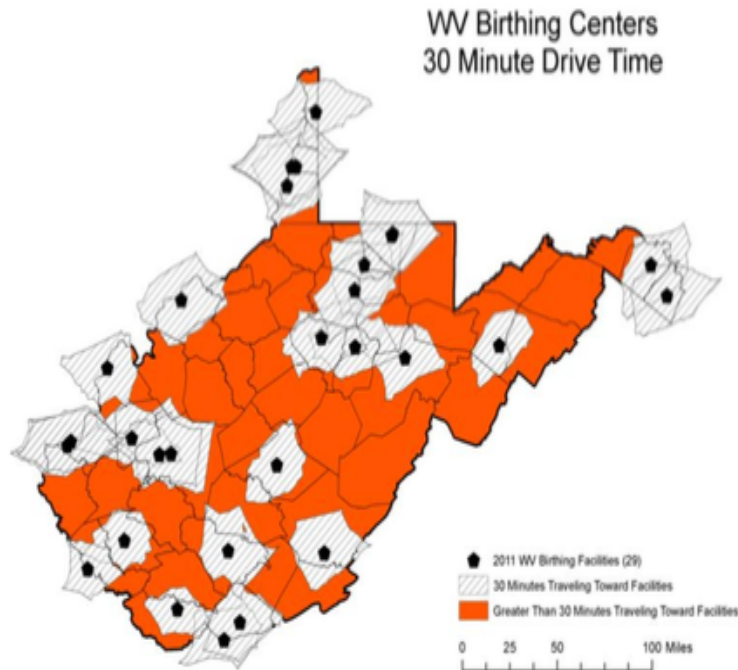




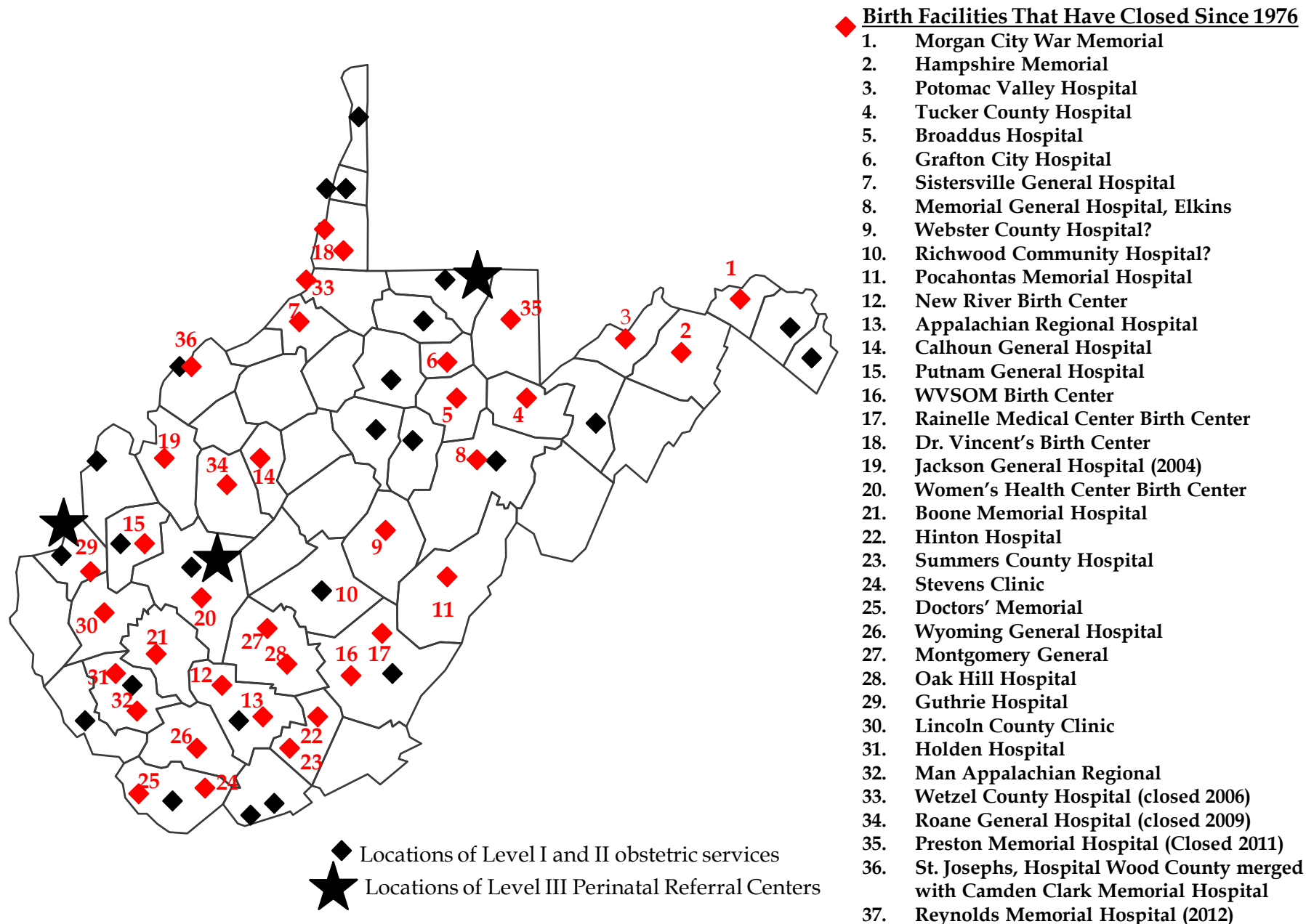
## 2013 WV Births by Hospital

Hospital	# Births	Hospital	# Births
Appalachian Regional	57	Princeton Community Hospital	697
Berkeley Medical Center	1,101	Raleigh General Hospital	1,275
Bluefield Regional	622	Reynolds Memorial Hospital	96
Cabell Huntington	2,733	Ruby Memorial Hospital	1,571
Camden Clark	1,707	St. Mary's Hospital	398
CAMC	2,669	St. Joe's (Buckhannon) Hospital	295
Davis Memorial	331	Stonewall Jackson Hospital	314
Fairmont General	419	Summersville Regional Med. Ctr	316
Garrett County Memorial	280	Thomas Memorial Hospital	1,085
Grant Memorial	263	United Hospital Center	986
Greenbrier Valley Medical Ctr	571	Weirton Medical Center	571
Jefferson Memorial	257	Welch Emergency Hospital	70
Logan Regional	332	Wheeling Hospital	1,275
Monongalia General	1,088	Williamson Memorial Hospital	100
Ohio Valley Medical Center	303	Woman Care	7
Pleasant Valley	146		

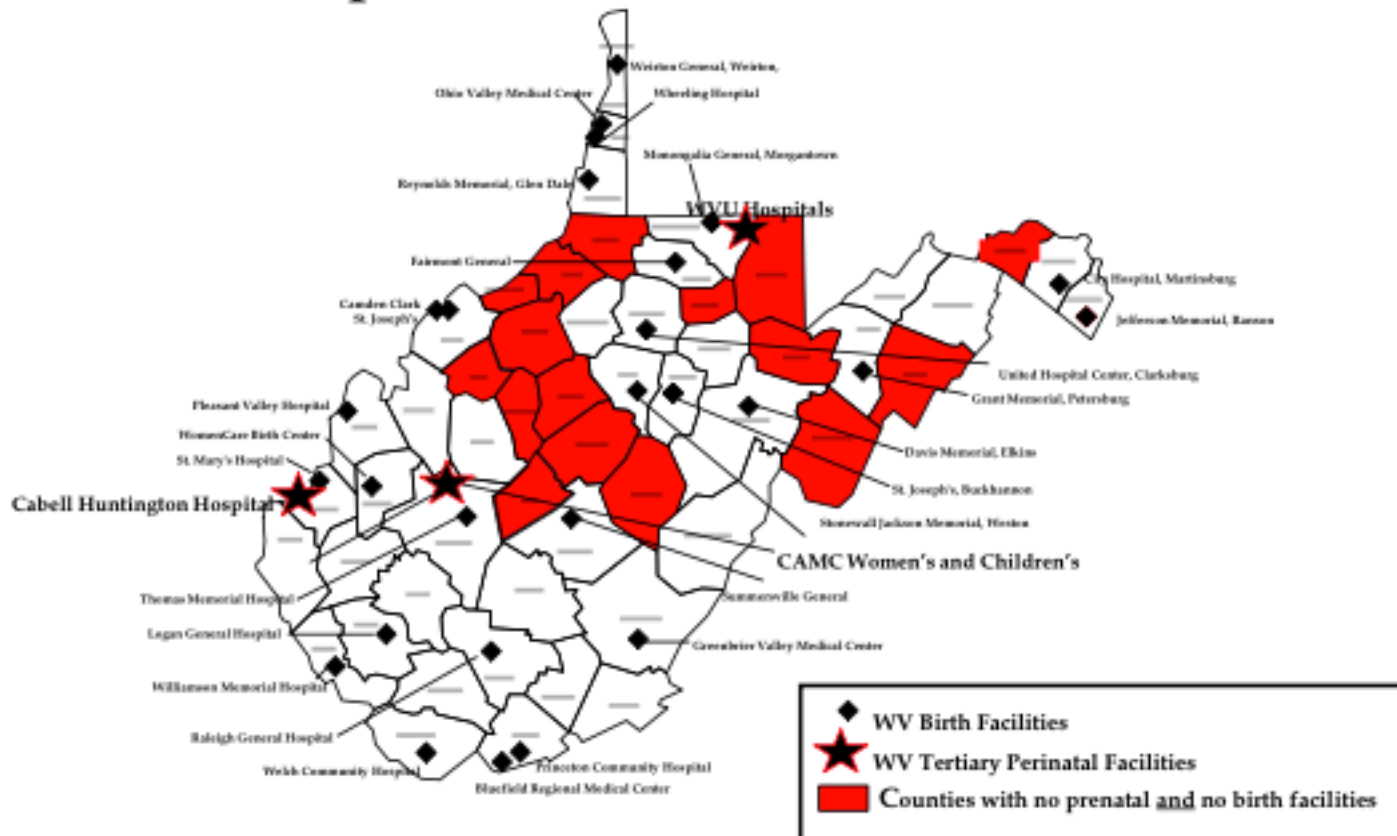
# Maternal Health Provider Shortage Areas



# Locations of Open and Closed Birth Facilities



## Counties with no birth facilities and no prenatal care in their borders

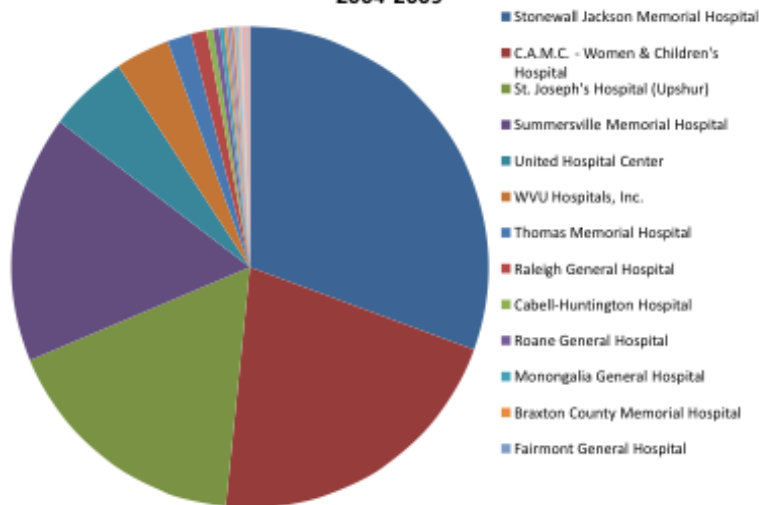


# Prenatal Care Shortage Areas delivering at Stonewall Jackson Level I

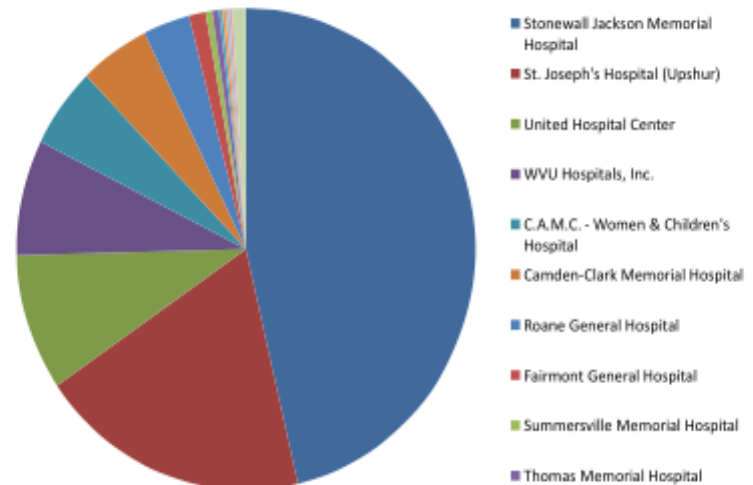
## Braxton

## Gilmore

WV Locations Where Braxton Women Gave Birth  
2004-2009



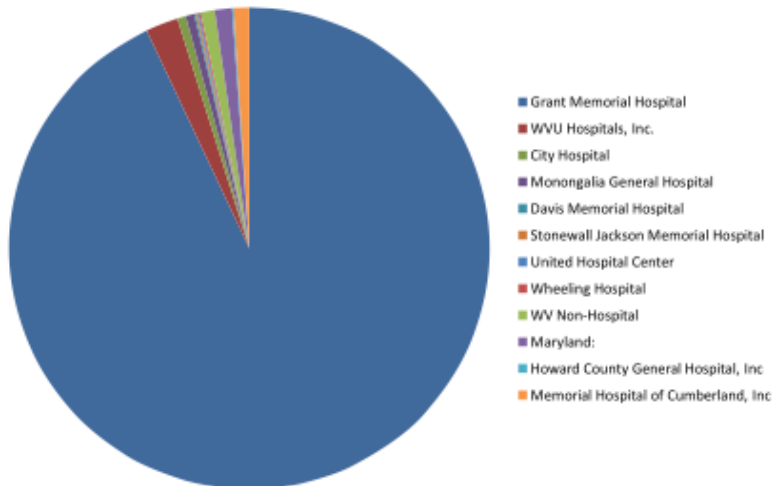
WV Locations Where Gilmer Women Gave Birth  
2004-2009



# Prenatal Care Shortage Areas delivering at Grant Memorial Level I

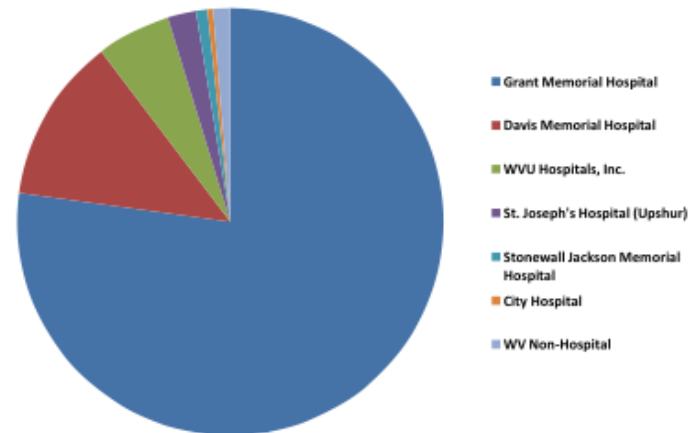
## Hardy

WV Locations Where Hardy Women Gave Birth  
2004-2009



## Pendleton

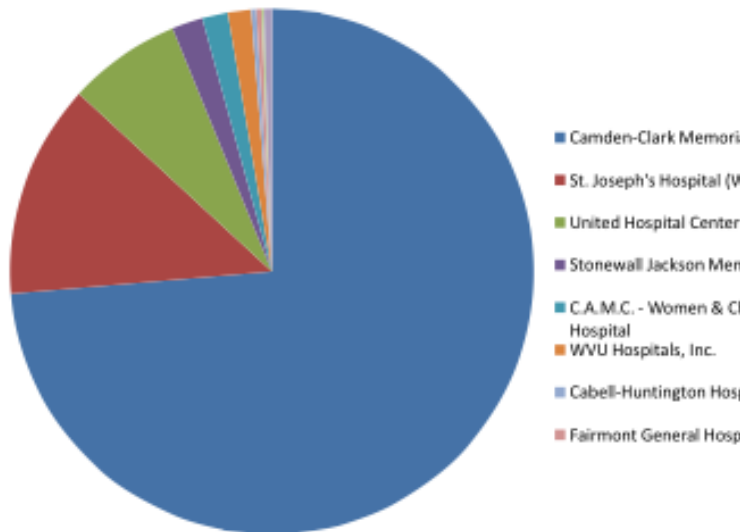
WV Locations Where Pendleton Women Gave Birth  
2004-2009



# Prenatal Care Shortage Areas delivering at Camden Clark Level I

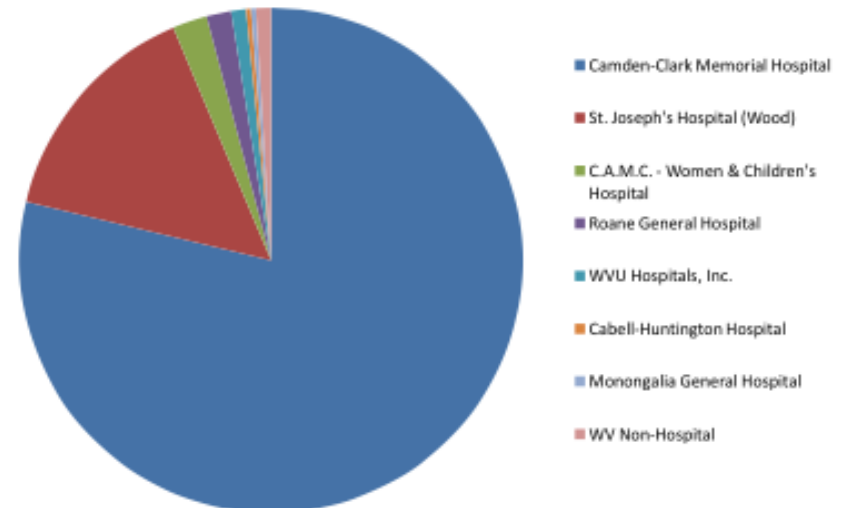
Richie

WV Locations Where Ritchie Women Gave Birth  
2004-2009



Wirt

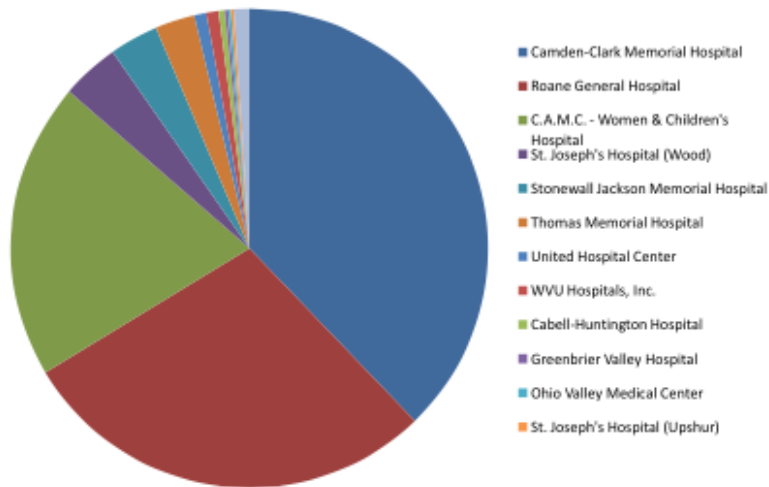
WV Locations Where Wirt Women Gave Birth  
2004-2009



# Prenatal Care Shortage Areas delivering at Camden Clark Level I

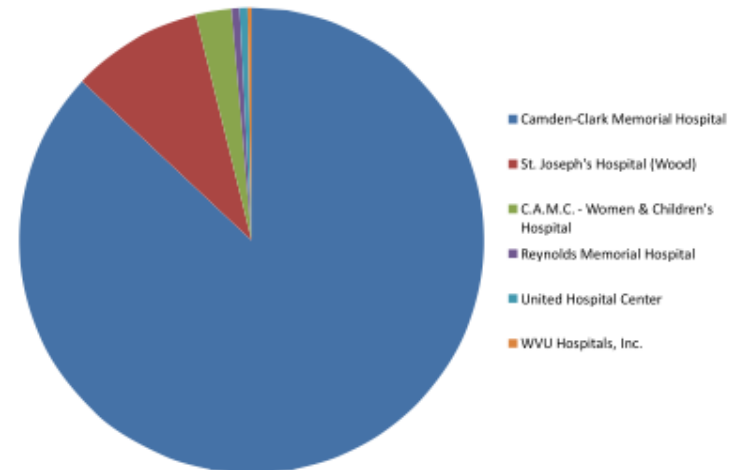
## Calhoun

WV Locations Where Calhoun Women Gave Birth  
2004-2009



## Pleasants

WV Locations Where Pleasants Women Gave Birth  
2004-2009

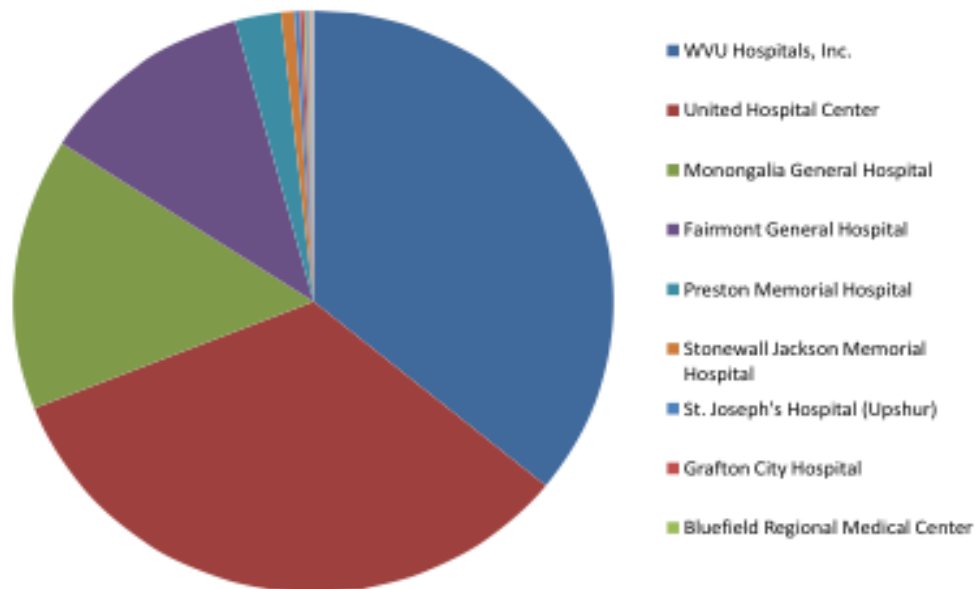




# Prenatal Care Shortage Areas delivering at UHC Level I

## Taylor

**WV Locations Where Taylor Women Gave Birth  
2004-2009**



# Status on Prenatal Care and Outcomes

# The State of Perinatal Health in West Virginia 2006-2013

## *Low Birth Weight (<2,500 GMS) Among WV Residents*

- \* 2006 9.8%*
- \* 2011 9.6%*
- \* 2012 9.2%*
- \* 2013 (preliminary) 9.4%*

Data Source: WV Health Statistics Center, Vital Statistics System

# Teen Pregnancy in West Virginia

NATIONAL  
**40**  
RANK

1 in 22



WV TEENAGE GIRLS WILL HAVE A BABY

## What goes wrong when teens have babies:

- **Dropping Out.** One in three girls cites pregnancy as her reason for dropping out of high school.
- **Poverty.** The poverty rate for kids born to teenage mothers who have never married and did not graduate from high school is 78%, compared to 9% of children born to married women over 20 who are high school graduates.
- **Unhealthy Babies.** Children born to teen mothers are at higher risk of being born under weight and dying within their first year of life. They are less likely to get the emotional and intellectual stimulation they need for healthy child development.

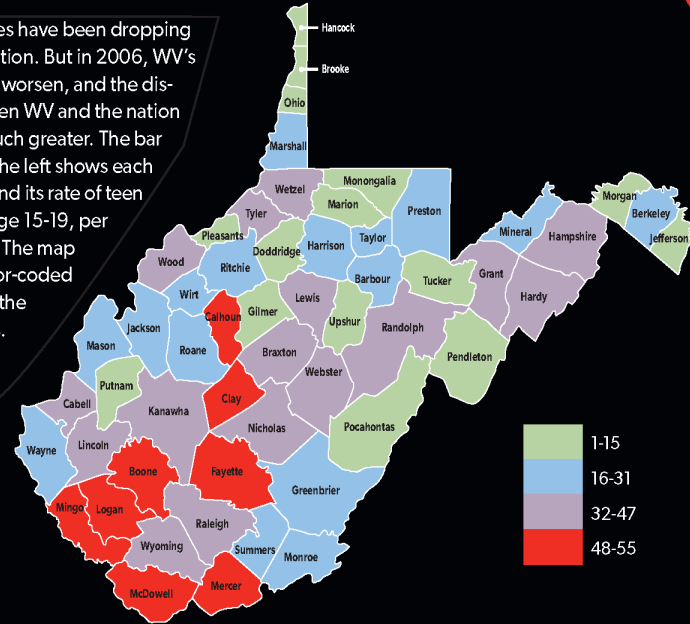
1 in 8



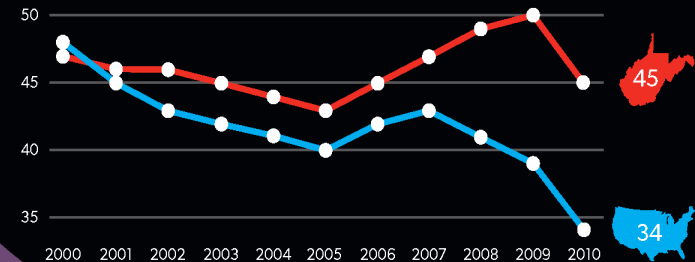
WV BABIES IS BORN TO A TEEN MOTHER



Teen pregnancy rates have been dropping in WV and the nation. But in 2006, WV's rates began to worsen, and the disparity between WV and the nation became much greater. The bar graph to the left shows each county and its rate of teen births age 15-19, per 1,000. The map is color-coded with the bars.



## WV vs US Teen Pregnancy Rate



## What we can do:

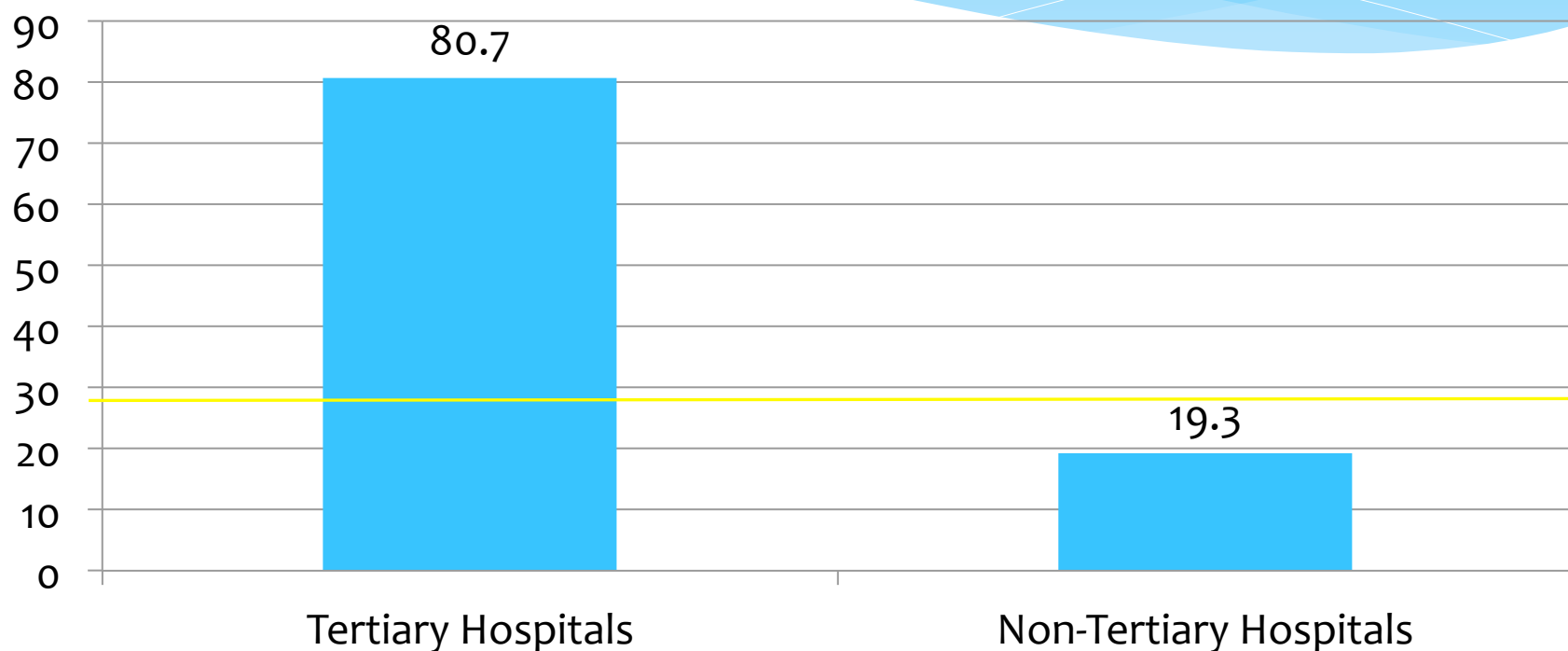
- Implement the state's comprehensive sex education curriculum
- Give young people a credible vision of a positive future
- Help parents succeed as sex educators
- Help adults provide good information about how to reduce risk-taking behaviors
- Create community-wide action plans for teen pregnancy prevention

# Very Low and Low Birth Weight By Age of Mother, WV Residents

Age Of Mother	2006 % Very Low and Low BW	2012 % Very Low and Low BW	2013* % Very Low and Low BW
10-14	18.2%	12.5%	9.5%
15-17	12.5%	12.0%	10.1%
18-19	11.3%	10.5%	11.3%
20-24	10.7%	9.0%	9.1%
25-29	8.9%	8.2%	8.9%
30-34	9.1%	9.0%	9.0%
35+	8.6%	11.2%	11.0%
			*Preliminary Data

Data Source: WV Health Statistics Center, Vital Statistics System

## Percentage of Very Low Birth Weight Infants (450-1499 gm) by Place of Birth, 2000-2009



Data Source: WV Health Statistics Center, Vital Statistics System

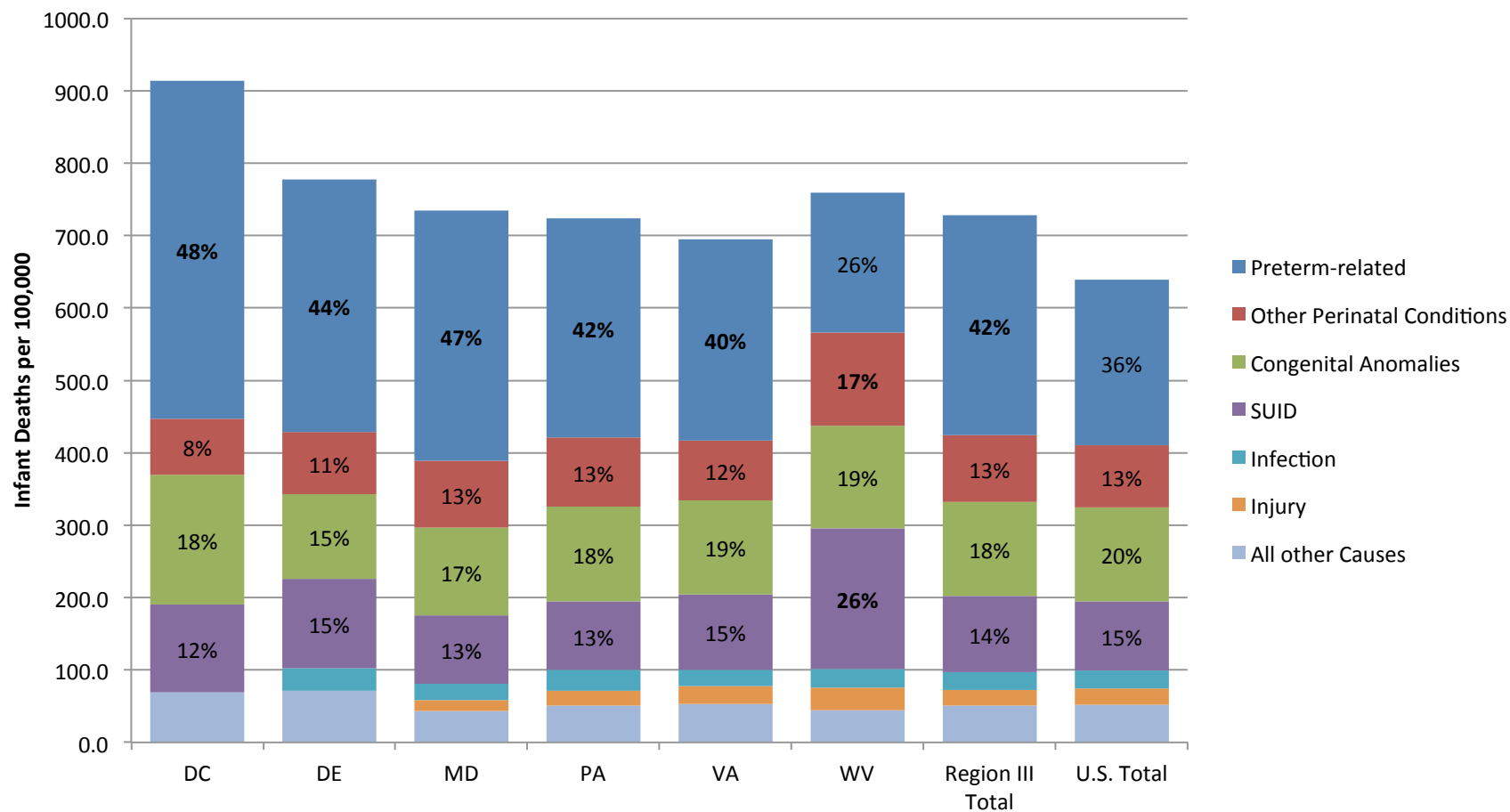
# WV Birth Outcome Rankings, 2013

Birth Outcome	WV	U.S.	WV Rank
Cesarean Delivery	35.9%	32.8%	6 <sup>th</sup>
Preterm Births	12.4%	11.5%	13 <sup>th</sup>
Low Birth Weight	9.2%	8.0%	7 <sup>th</sup>
Very Low Birth Weight	1.5%	1.4%	18 <sup>th</sup>
Teen Birth Rate	44.1 per 1,000	29.4 per 1,000	6 <sup>th</sup>

*Data Source: National Center for Health Statistics*

# Infant Mortality Rates

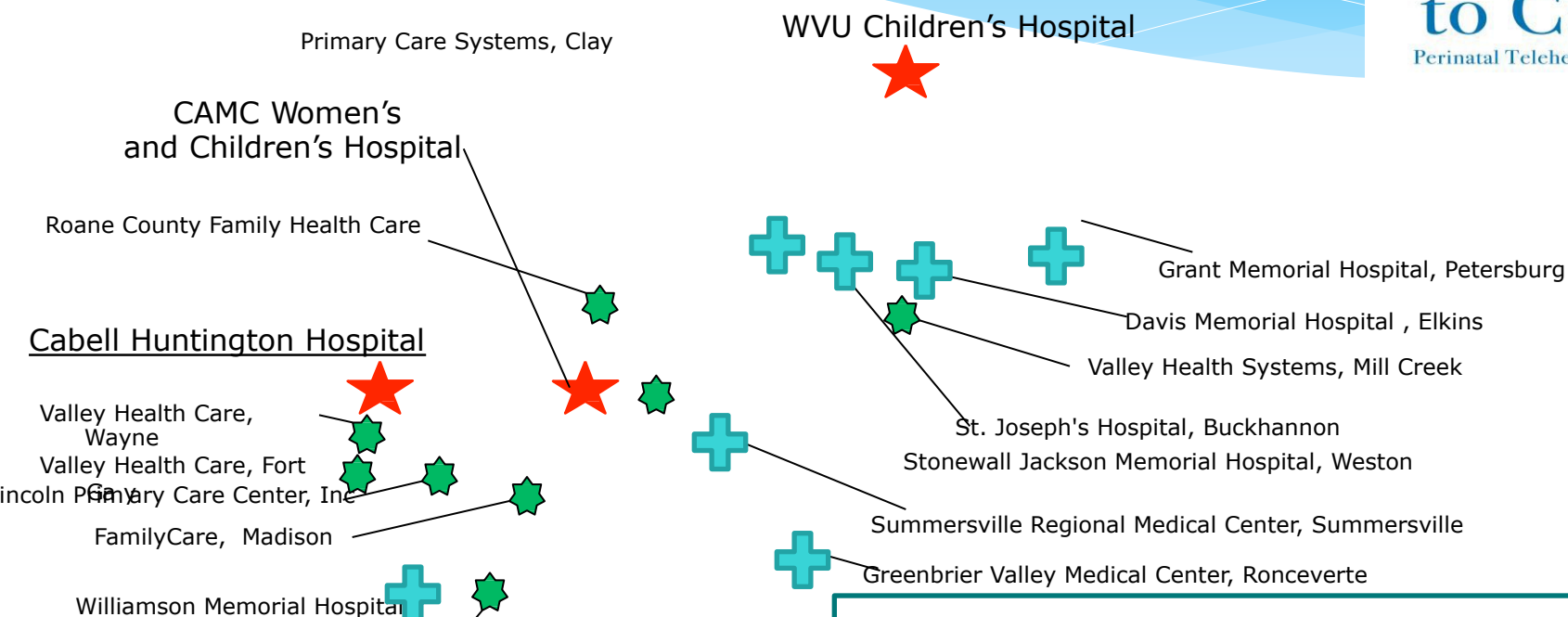
## Mortality Rates by Cause,\* 2008-2010









# Connect To Care

## West Virginia Perinatal Telehealth Project



-  WV Tertiary Perinatal Referral Centers
-  Telemedicine sites
-  WV Obstetric Hospitals Telemedicine sites
-  Prenatal Clinics Telemedicine sites

# The Golden Hour

The standardized, evidence-based process of care for the VLBW infant in the first hour of life to prevent complications that may have lifelong effects on the infant.

## Immediate

- \* Hypothermia
- \* Intraventricular Hemorrhage

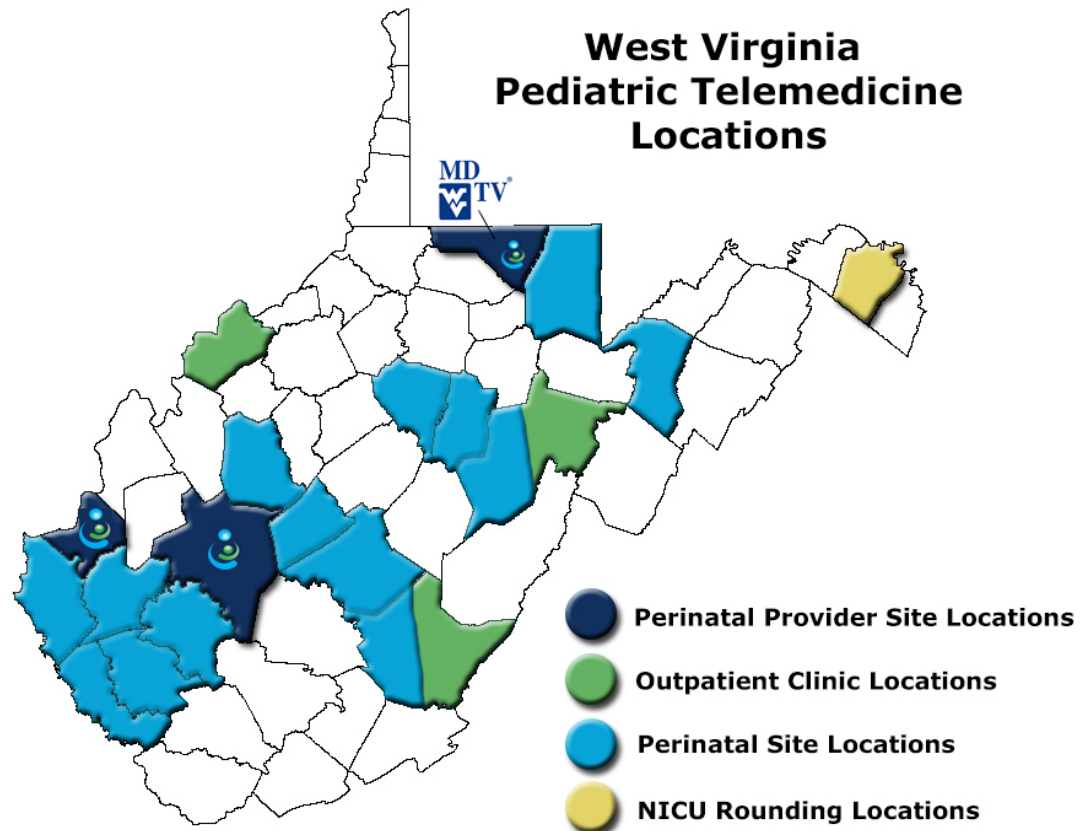
## Sequelae

- \* Chronic Lung Disease
- \* Retinopathy of Prematurity
- \* Death
- \* Neurodevelopmental Impairment

# Care During Golden Hour

- \* Critically sick neonate needs immediate ICU care for better outcomes.
- \* Birthing centers ( Level I/II ) needs immediate assistance and transfer
- \* Level III/IV perinatal care centers send team to assist and transfer to the center equipped with desired level of care
- \* Delay can occur due to poor weather conditions and travel time.

# WV Pediatric Telemedicine Services



# WVUMedicine Children's Transport Team & Telemedicine

- \* WVUMedicine Children's Transport Program integrated telemedicine into transport request.
- \* Assists birthing centers in the stabilization of critically care sick infant while transport is en route.
- \* Provides family centered care.

# Case Study 1

- \* 31 weeks gestational age
- \* Significant respiratory distress syndrome, who required immediate ventilator assistance and transfer to NICU.
- \* Hazardous road conditions due to snowstorm.
- \* Telemedicine equipment assisted NICU team to assess infant's color, perfusion, vital signs, chest radiographs and compliance loops on the ventilator.
- \* Assisted stabilization at referring center.
- \* Infant was transferred once weather condition improved.
- \* Outcome: The infant required ventilator support for two days only and hospital LOS was less than two months in our NICU.

# Advantages of Telemedicine

- \* Telemedicine proved to be an effective tool to improve communication, patient care and ultimately improve outcomes of patients with utmost safety of patient and transport crew.
- \* Ability for tertiary care and community hospitals to utilize telemedicine in the neonatal and pediatric transport requests

# Barriers

- \* Cost
- \* Infrequency of use
- \* Proficiency/Education
- \* Portability



# Perinatal Outreach Education

- \* To improve outcomes for mothers and babies through educational programs and quality improvement activities for regional perinatal care providers.
- \* Collaboration with the Division of Neonatology, Maternal-Fetal Medicine and MDTV to offer education to providers in level I and II perinatal centers.

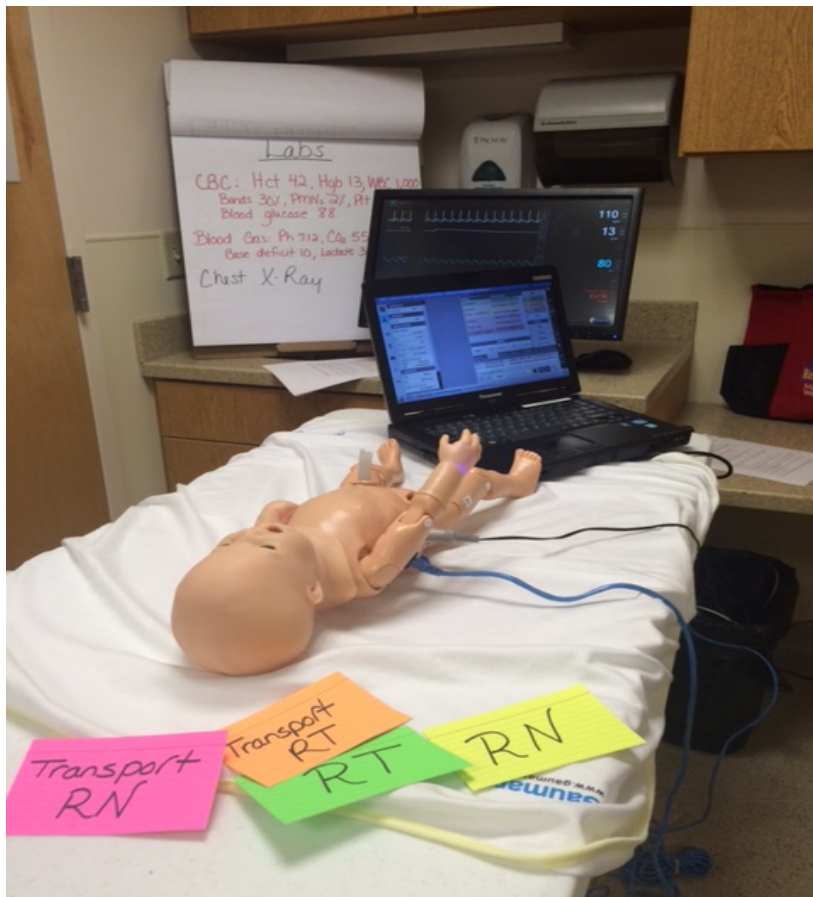
# Statistics

- \* There is limited data about use of simulation during the golden hour to improve outcomes
- \* Helping Babies Breathe Study

# Benefits of Simulation

- \* Promotes Teamwork
  - \* Teams utilize the same equipment and supplies
- \* Develops Communication Skills
- \* Improves Confidence
- \* Improves Performance
- \* Improves Outcomes
- \* Safety

# This is Baby Hal



- \* Loaned to us by WV Perinatal Partnership
- \* Purchased a monitor
- \* WVU Steps helped our team with the software application
- \* Perinatal outreach simulation to improving outcomes

# In Summary

- \* Perinatal education team utilizes simulation based case scenarios on optimization of the care during golden hour. Perinatal education team has recently integrated distant learning via use of simulation and telemedicine.

# Special Thanks

- \* WV Perinatal Partnership
- \* WVU Steps
- \* Staff at Grant Memorial Hospital
- \* MDTV
  - \* Cindy Barnes , MDTV Program Manager
  - \* Donovan Monday ,MDTV/ITCSS

Unity is strength... when there  
is teamwork and collaboration,  
wonderful things can be  
achieved.

Mattie Stepanek

# Perinatal Outreach Team

