

Combating Infant Mortality

Perinatal Periods of Risk Analysis

2003-2005 Birth Cohort

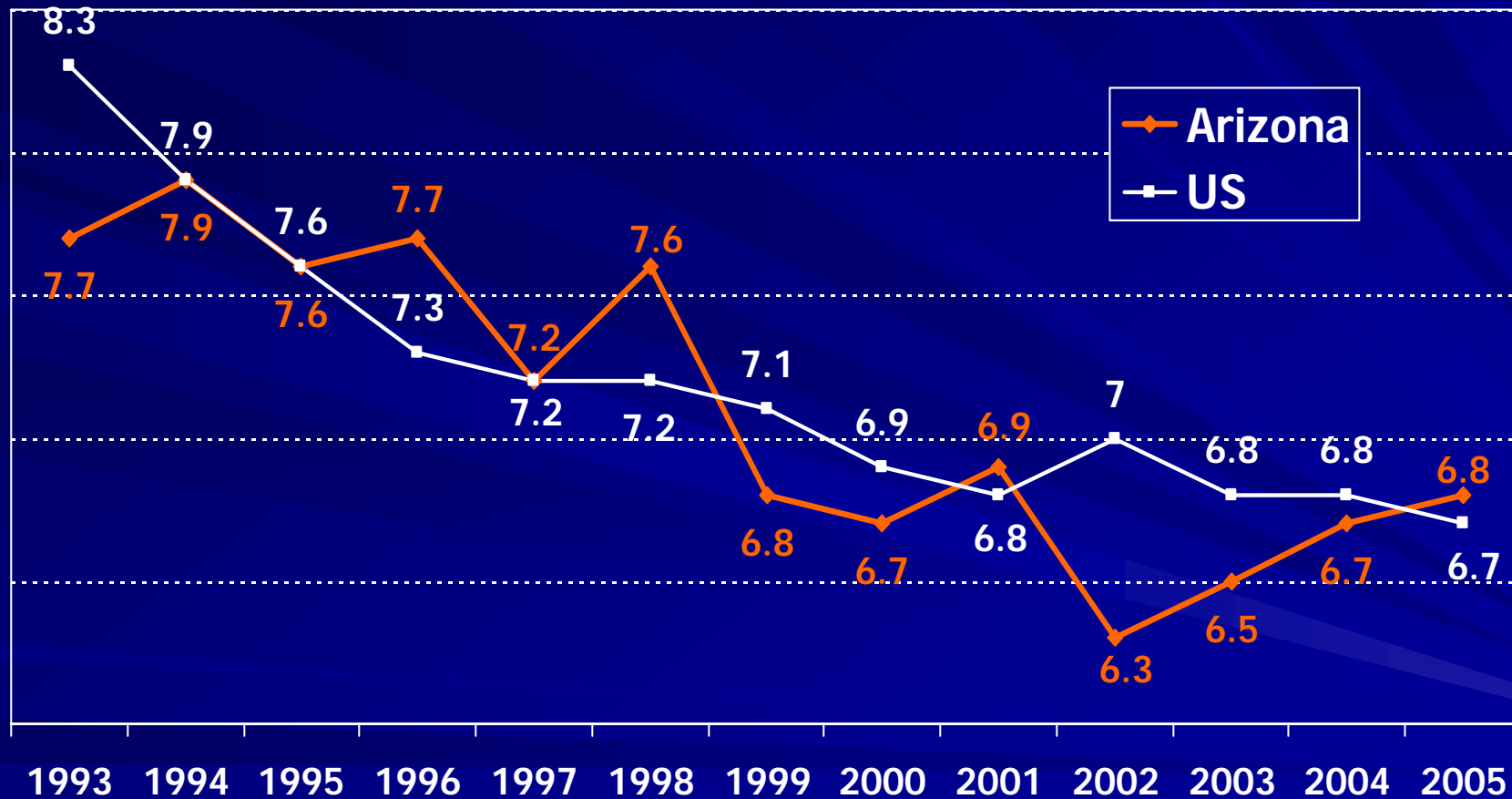
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Infant Deaths per 1,000 Live Births

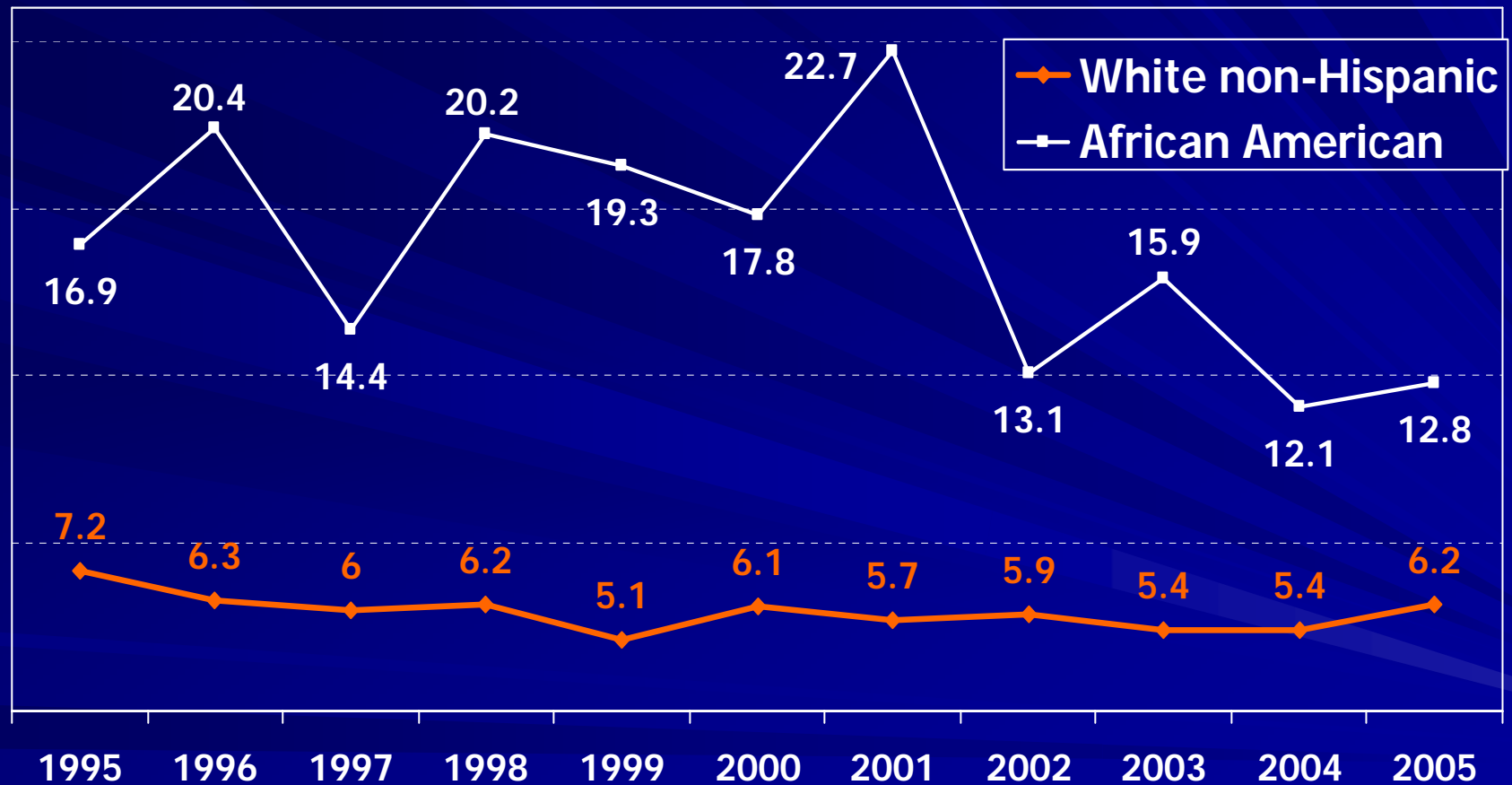


Source: Arizona Health Status and Vital Statistics, 2005

Mortality Rates

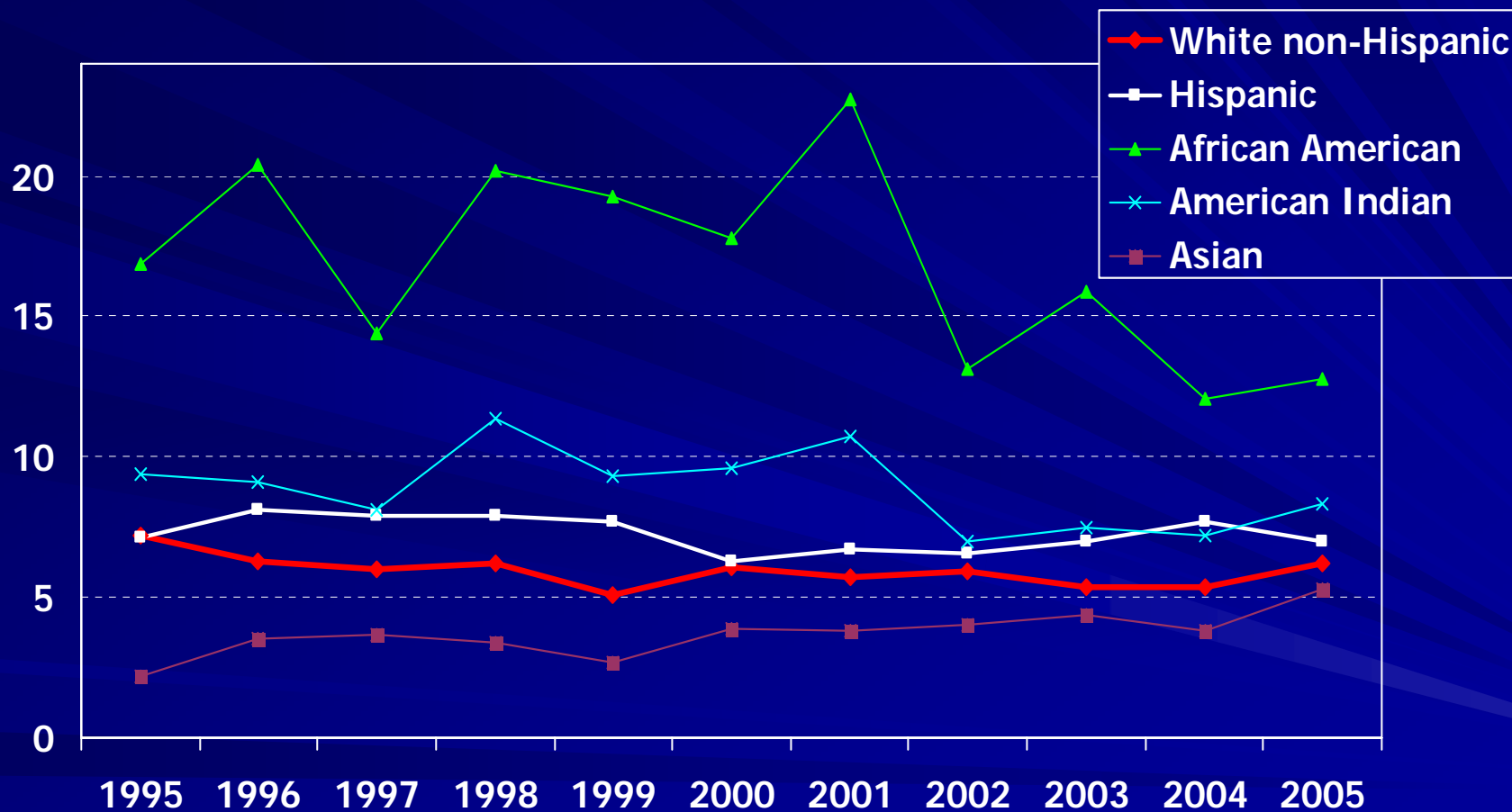
- Infant mortality
 - First year of life
- Neonatal
 - Birth through 27 days
- Post-neonatal
 - From 28 through 365 days
- Perinatal mortality
 - Neonatal deaths + fetal deaths

Black/White Disparity (per 1,000 Live Births) Arizona 1995-2005



Source: Arizona Health Status and Vital Statistics, 2005

Infant Mortality Rates by Race/Ethnicity (per 1,000 Live Births) Arizona 1995-2005



Source: Arizona Health Status and Vital Statistics, 2005

Perinatal Periods of Risk (PPOR)

- Widely used by health departments and supported by CDC, March of Dimes, WHO, and CityMatCH
- Used to identify potential opportunity gaps between population groups
- Used to guide further investigations and focus prevention efforts.

Perinatal Periods of Risk (PPOR)

- Method for identifying excess infant mortality
- Strategically targeting interventions to reduce disparities.

Assumptions

- Not all deaths are preventable
- Identifies excess deaths by comparing death rates among subgroups to a reference group known to have good birth outcomes.

Arizona Reference Group

- In general, rates tend to be lower for white, well-educated women between the ages of 20-35
- In Arizona, the reference group chosen was White, non-Hispanic women, with at least 13 years of education, who are at least 20 years of age at time of delivery.

Perinatal Periods of Risk Analysis

- Attributes fetal-infant deaths to periods of risk depending on birth weight and age at time of death
- Target interventions corresponding to periods with the most excess deaths.

Map of Feto-Infant Mortality

Age at Death

	Fetal death	Birth - 27 th day of life	28 th - 365 th day of life
Under 1,500 grams	Maternal Health /Prematurity		
1500+ grams	Maternal Care	Newborn Care	Infant Health

Map of Feto-Infant Mortality

Age at Death

	Fetal death	Birth - 27 th day of life	28 th - 365 th day of life
Under 1,500 grams	Maternal Health /Prematurity		
Birth weight in Grams			

Map of Feto-Infant Mortality

Age at Death

Birth weight in Grams

	Fetal death		
1500+ grams	Maternal Care		

Map of Feto-Infant Mortality

		Age at Death	
		Birth - 27 th day of life	
Birth weight in Grams			
	1500+ grams		Newborn Care

Map of Feto-Infant Mortality

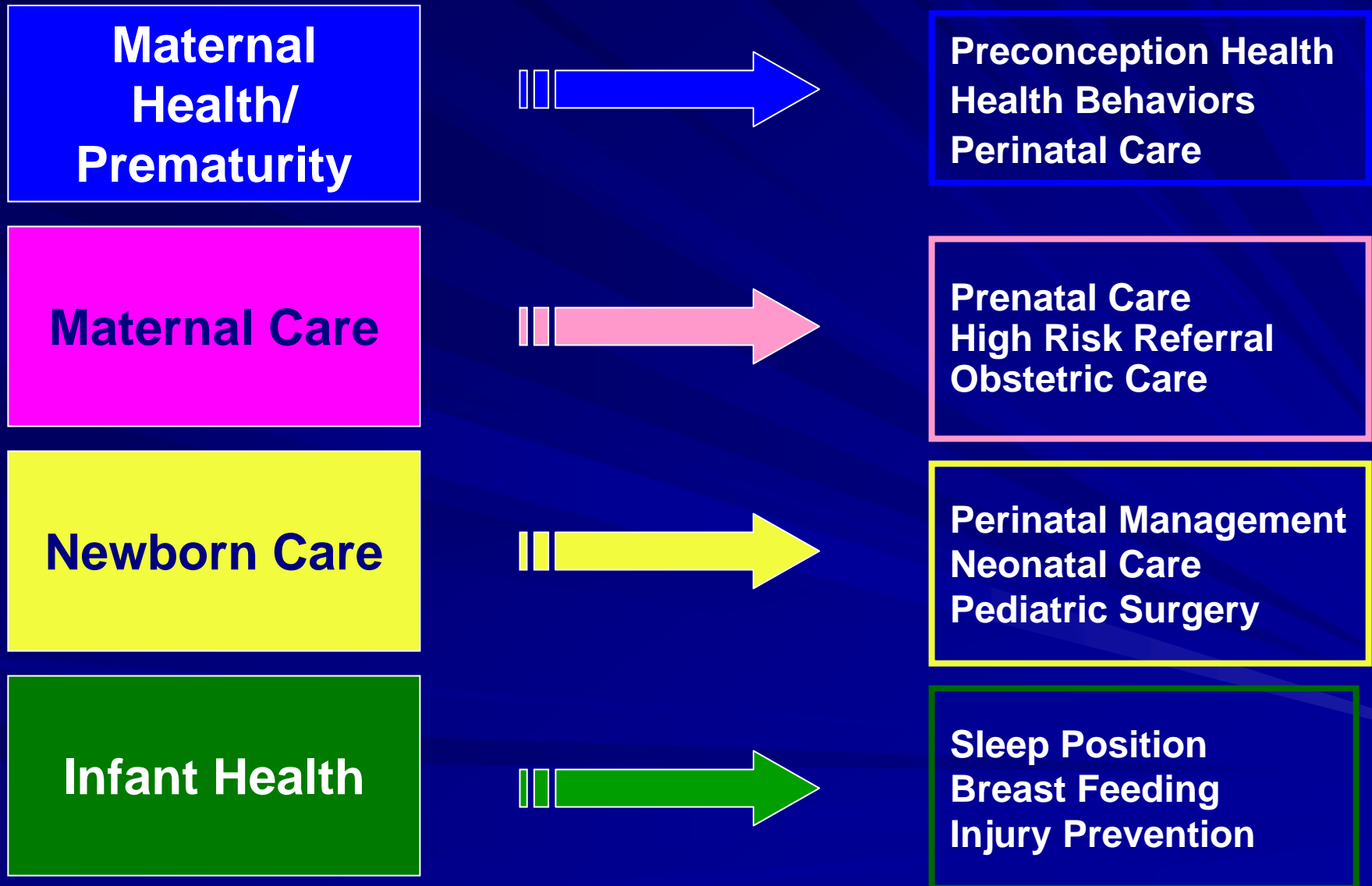
Age at Death

		Age at Death		
				28 th - 365 th day of life
Birth weight in Grams				
	1500+ grams			

Preventable Deaths

- Excess death rate is calculated by comparing mortality rates to reference group
- Calculation is done within each category to associate deaths with specific periods of risk
- Target prevention activities based on which period accounts for most excess deaths.

From Data to Potential Action



Maternal Health Period

- General health of women of childbearing age
- Health behaviors
 - Nutrition
 - Physical activity
 - Substance use (smoking, alcohol and other drug use)
- Family planning, birth spacing
- Perinatal care

Maternal Care Period

- Early and continuous prenatal care
- Risk assessment and management of high-risk pregnancies
- Good medical management of diabetes, seizures, and post-maturity and other medical problems
- Ensure women deliver at risk-appropriate facilities.

Newborn Care Period

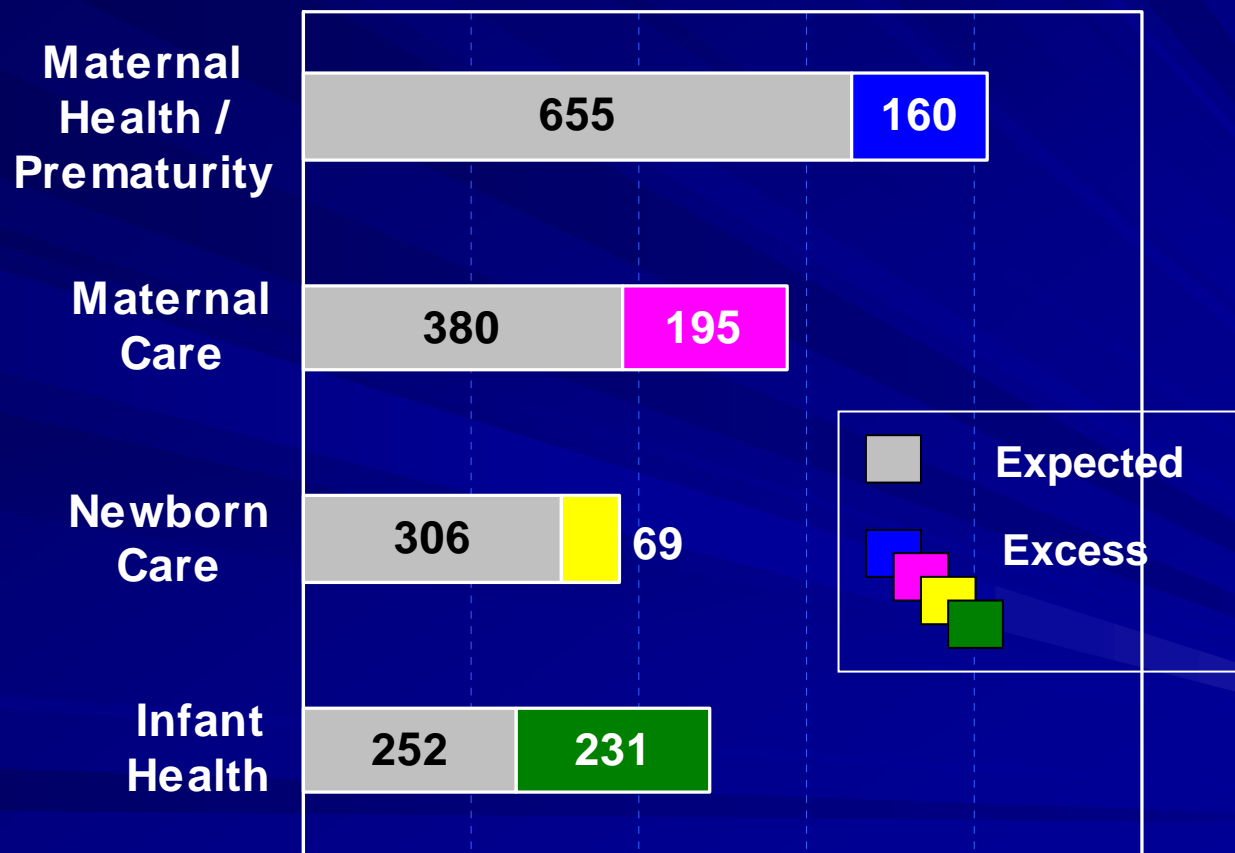
- Advanced neonatal care
- Treatment of congenital anomalies
- Perinatal management
- Pediatric surgery

Infant Health Period

- Injuries and illness
- SIDS
- Sleep position
- Breastfeeding
- Access to medical home

Results of PPOR Analysis for 2003-2005 Birth Cohort

Model estimates that 29% of fetal and infant deaths in Arizona were preventable



Total n= 2,248

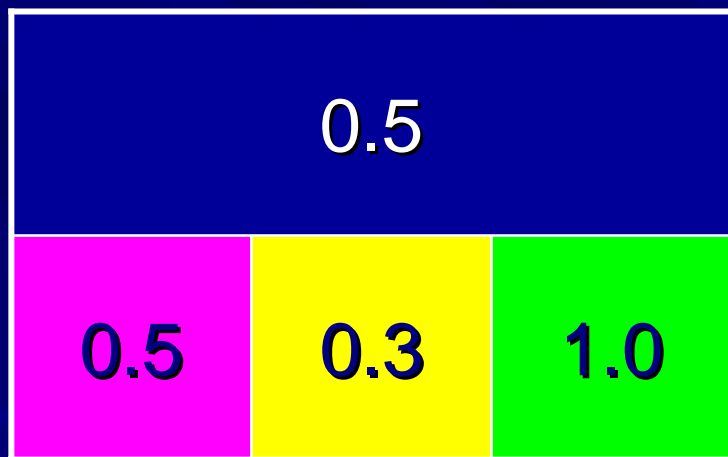
Source: Arizona Perinatal Periods of Risk Analysis, 2003-2005 Birth Cohort

AZ PPOR 2003-2005 Non-Hispanics

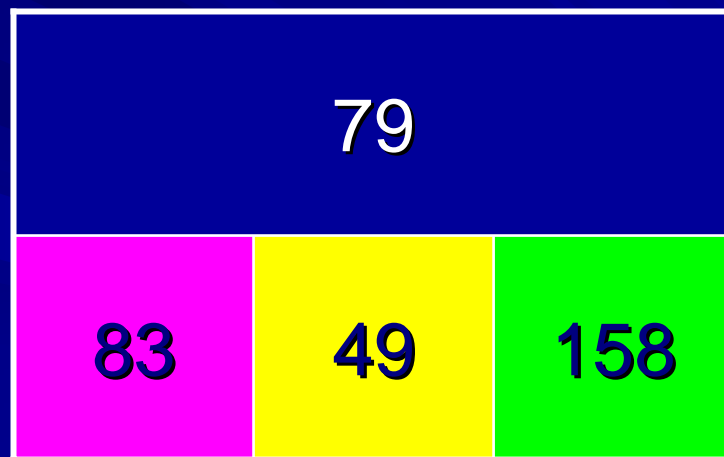
- Total Fetal-Infant Deaths: 1,259
- PPOR model estimates that 29 percent of deaths were excess (n=370).

AZ PPOR 2003-2005 Non-Hispanic Estimates

Excess Death Rate = 2.4



Excess Deaths = 370



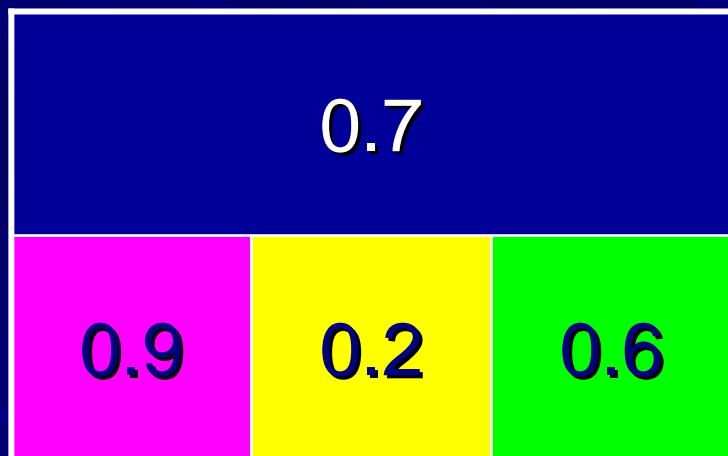
■ Maternal Health/Prematurity ■ Maternal Care ■ Newborn Care ■ Infant Health

AZ PPOR 2003-2005 Hispanics

- Total Fetal-Infant Deaths: 989
- PPOR model estimates that 29 percent of deaths were excess (n=285).

AZ PPOR 2003-2005 Hispanic Estimates

Excess Death Rate = 2.3



Excess Deaths = 285



■ Maternal Health/Prematurity ■ Maternal Care ■ Newborn Care ■ Infant Health

AZ PPOR 2003-2005 African Americans

- Total Fetal-Infant Deaths: 133
- PPOR model estimates that 59 percent of deaths were excess (n=78).

AZ PPOR 2003-2005 African American Estimates

Excess Death Rate = 8.1



Excess Deaths = 78



■ Maternal Health/Prematurity ■ Maternal Care ■ Newborn Care ■ Infant Health

AZ PPOR 2003-2005 American Indian

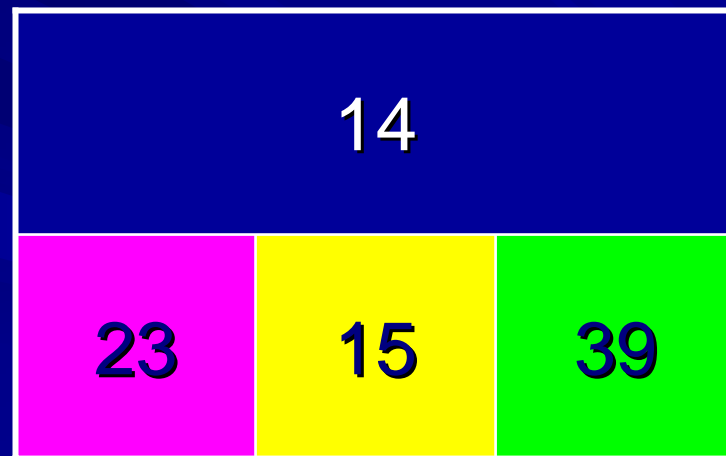
- Total Fetal-Infant Deaths: 196
- PPOR model estimates that 46 percent of deaths are excess (n=90).

AZ PPOR 2003-2005 American Indian Estimates

Excess Death Rate = 4.9



Excess Deaths = 90



■ Maternal Health/Prematurity ■ Maternal Care ■ Newborn Care ■ Infant Health

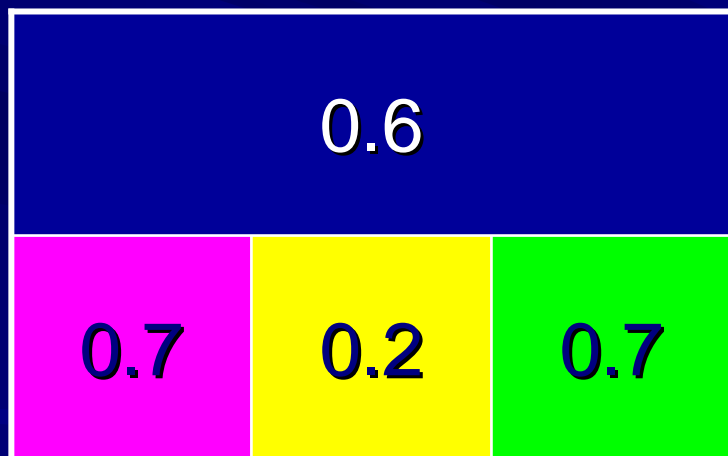
AZ PPOR 2003-2005

White

- Total Fetal-Infant Deaths: 1,825
- PPOR model estimates that 27 percent of deaths were excess (n=498).

AZ PPOR 2003-2005 White Estimates

Excess Death Rate = 2.1



Excess Deaths = 498



■ Maternal Health/Prematurity ■ Maternal Care ■ Newborn Care ■ Infant Health

AZ PPOR 2003-2005 Under 20 Years

- Total Fetal-Infant Deaths: 357
- PPOR model estimates that 43 percent of deaths were excess (n=155).

AZ PPOR 2003-2005

Under 20 Years Estimates

Excess Death Rate = 4.4



Excess Deaths = 155



■ Maternal Health/Prematurity ■ Maternal Care ■ Newborn Care ■ Infant Health

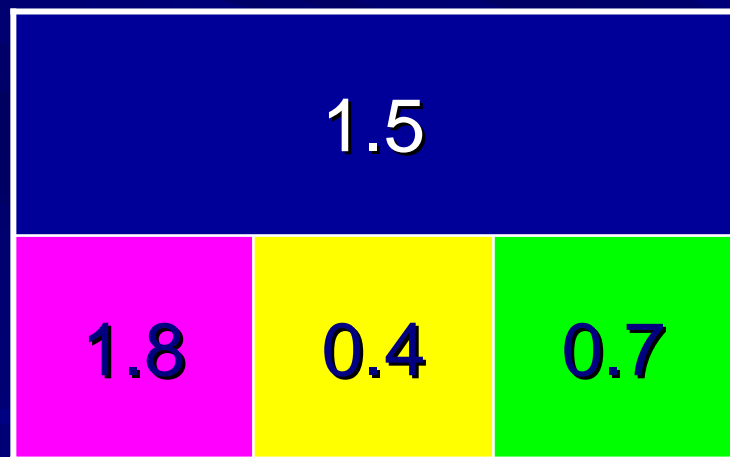
AZ PPOR 2003-2005 36 Years and Over

- Total Fetal-Infant Deaths: 245
- PPOR model estimates that 43 percent of deaths were excess (n=107).

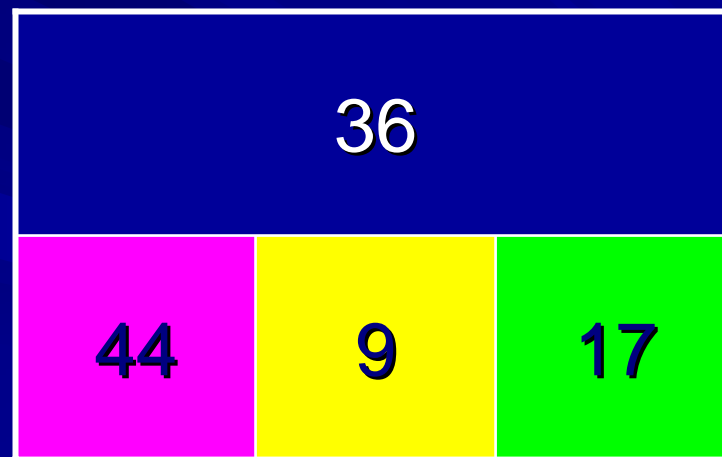
AZ PPOR 2003-2005

36 Years and Over Estimates

Excess Death Rate = 4.4



Excess Deaths = 107



■ Maternal Health/Prematurity ■ Maternal Care ■ Newborn Care ■ Infant Health

AZ PPOR 2003-2005

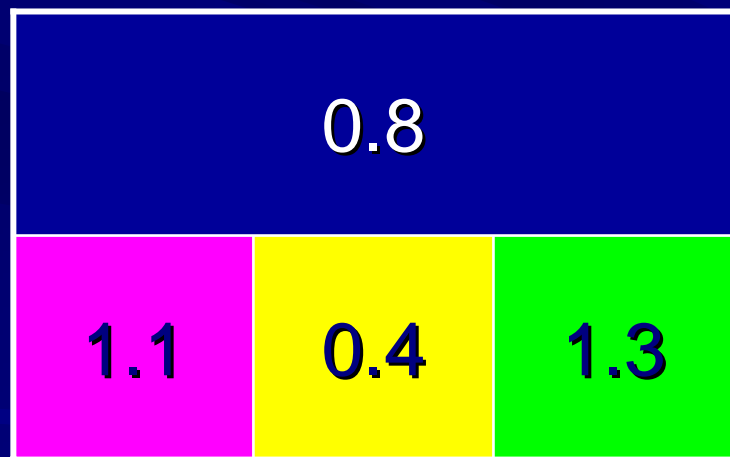
Less than 13 Years of Education

- Total Fetal-Infant Deaths: 1,524
- PPOR model estimates that 39 percent of deaths were excess (n=591).

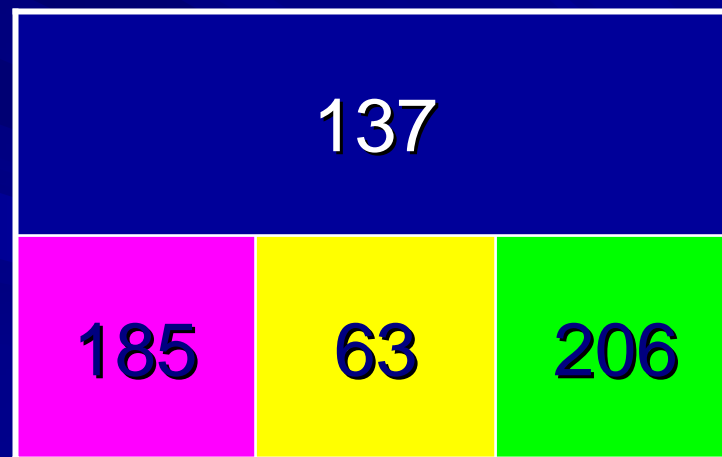
AZ PPOR 2003-2005

Less than 13 Years of Education Estimates

Excess Death Rate = 3.6



Excess Deaths = 591



■ Maternal Health/Prematurity ■ Maternal Care ■ Newborn Care ■ Infant Health

AZ PPOR 2003-2005

13 or More Years of Education

- Total Fetal-Infant Deaths: 678
- PPOR model estimates that 6 percent of deaths were excess (n=41).

AZ PPOR 2003-2005

13 or More Years of Education

Estimates

Excess Death Rate = 0.4



Excess Deaths = 41



Maternal Health/Prematurity Maternal Care Newborn Care Infant Health

Summary of Excess Death Rates AZ PPOR 2003-2005

	Maternal Health	Maternal Care	Newborn Care	Infant Health	Total Excess
<20 years old	1.55	0.92	0.26	1.63	4.4
20-35 years old	0.31	0.53	0.23	0.71	1.8
36 or more years old	1.48	1.80	0.38	0.70	4.4
≤ 12 years education	0.84	1.12	0.38	1.26	3.6
13+ years education	0.21	0.00	-0.01	0.16	0.4
White - All Ethnicities	0.56	0.69	0.22	0.66	2.1
African American - All Ethnicities	3.57	1.86	0.26	2.42	8.1
American Indian - All Ethnicities	0.73	1.22	0.79	2.11	4.9
Hispanic - All Races	0.65	0.91	0.16	0.59	2.3
Non-Hispanic - All Races	0.51	0.53	0.31	1.01	2.4

Source: Arizona Perinatal Periods of Risk Analysis, 2003-2005 Birth Cohort

Summary of Excess Deaths

AZ PPOR 2003-2005

	Maternal Health	Maternal Care	Newborn Care	Infant Health	Total Excess
<20 years old	55	33	9	58	155
20-35 years old	68	116	50	156	390
36 or more years old	36	44	9	17	107
≤ 12 years education	137	185	63	206	591
13+ years education	24	0	-1.5	18	41
White - All Ethnicities	131	161	52	154	498
African American - All Ethnicities	34	18	2	23	78
American Indian - All Ethnicities	14	23	15	39	90
Hispanic - All Races	81	112	20	73	285
Non-Hispanic - All Races	79	83	49	158	370

Source: Arizona Perinatal Periods of Risk Analysis, 2003-2005 Birth Cohort

Now What?

- These are the groups we should be focusing on in Arizona:
 - African Americans
 - Teens
 - Older women
 - Women with less than 13 years of education
 - American Indians
- These are the periods we should be focusing on in Arizona:
 - Maternal health/prematurity
 - Maternal care
 - Infant health

What Are We Doing to Address This at ADHS?

- Black Nurses Association
- Teen pregnancy prevention
- Family planning services and preconception health for African American women
- Preconception health

Sources

- Arizona Department of Health Services. Public Health Services. *Arizona Health Status and Vital Statistics*. Phoenix, AZ: Arizona Department of Health Services, 2005.
- PPOR “How To Do” Workshop Materials. Available at: <http://www.citymatch.org/>

Thank You!

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