Babies Born Healthy

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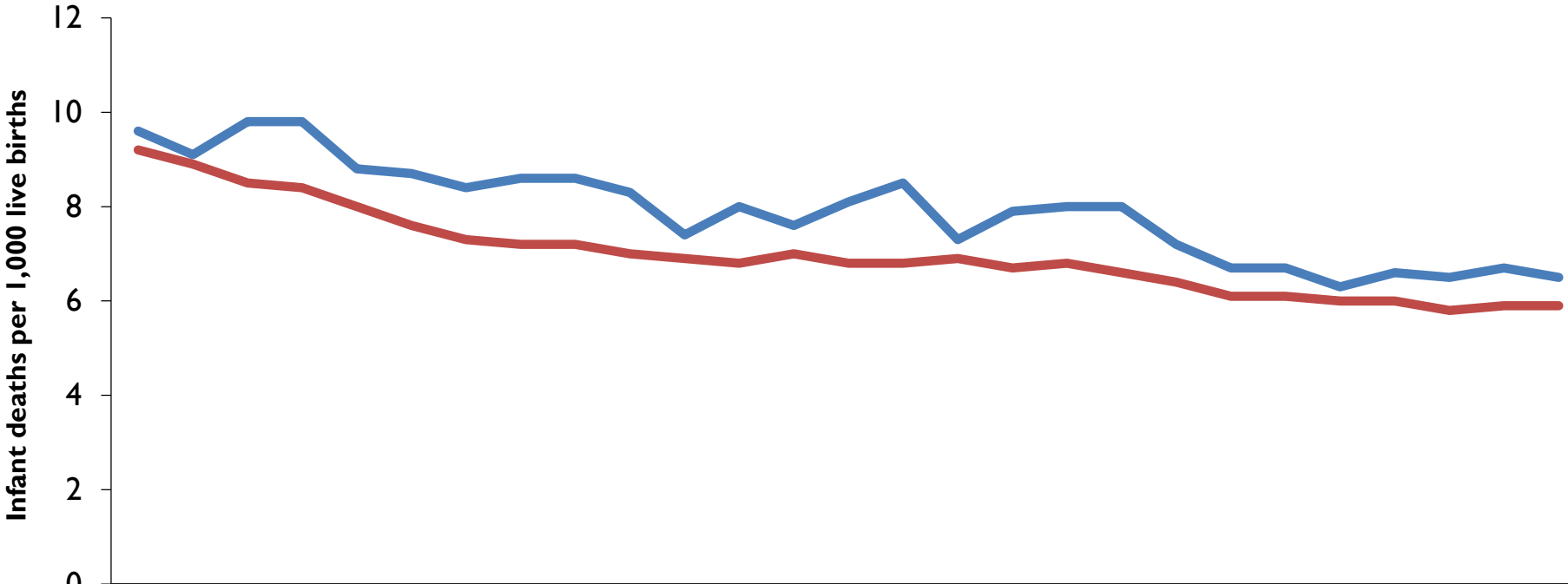
Maryland Department of Health
Maternal and Child Health Bureau
December 6, 2018

MARYLAND Department of Health

Maryland Infant Mortality Rates, Maryland & US, 1990 - 2016



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
MD	9.6	9.1	9.8	9.8	8.8	8.7	8.4	8.6	8.6	8.3	7.4	8.0	7.6	8.1	8.5	7.3	7.9	8.0	8.0	7.2	6.7	6.7	6.3	6.6	6.5	6.7	6.5
US	9.2	8.9	8.5	8.4	8.0	7.6	7.3	7.2	7.2	7.0	6.9	6.8	7.0	6.8	6.8	6.9	6.7	6.8	6.6	6.4	6.1	6.1	6.0	6.0	5.8	5.9	5.9

Maryland IMR's have declined 32% since 1990

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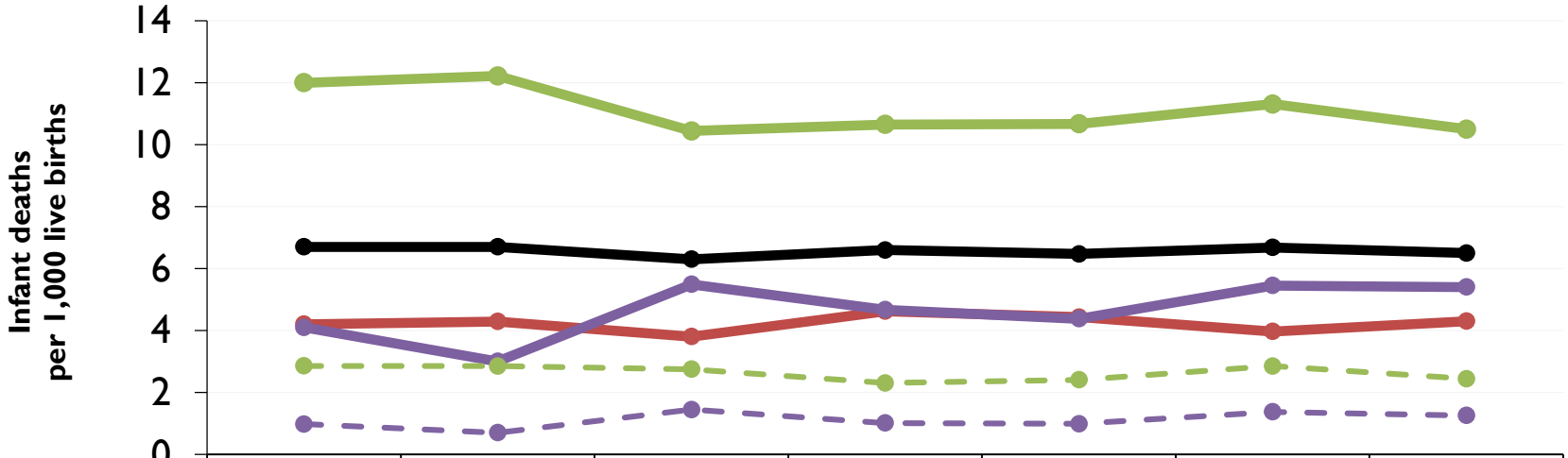
Source: Maryland Vital Statistics Administration

Maryland Infant Mortality Rates by Race/Ethnicity, 2010 - 2016



	2010	2011	2012	2013	2014	2015	2016
Total	6.7	6.7	6.3	6.6	6.5	6.7	6.5
White NH	4.2	4.3	3.8	4.6	4.4	4.0	4.3
Black NH	12.0	12.2	10.4	10.7	10.7	11.3	10.5
Hispanic	4.1	3.0	5.5	4.7	4.4	5.5	5.4
B/W Disparity	2.9	2.8	2.7	2.3	2.4	2.8	2.4
H/W Disparity	1.0	0.7	1.4	1.0	1.0	1.4	1.3

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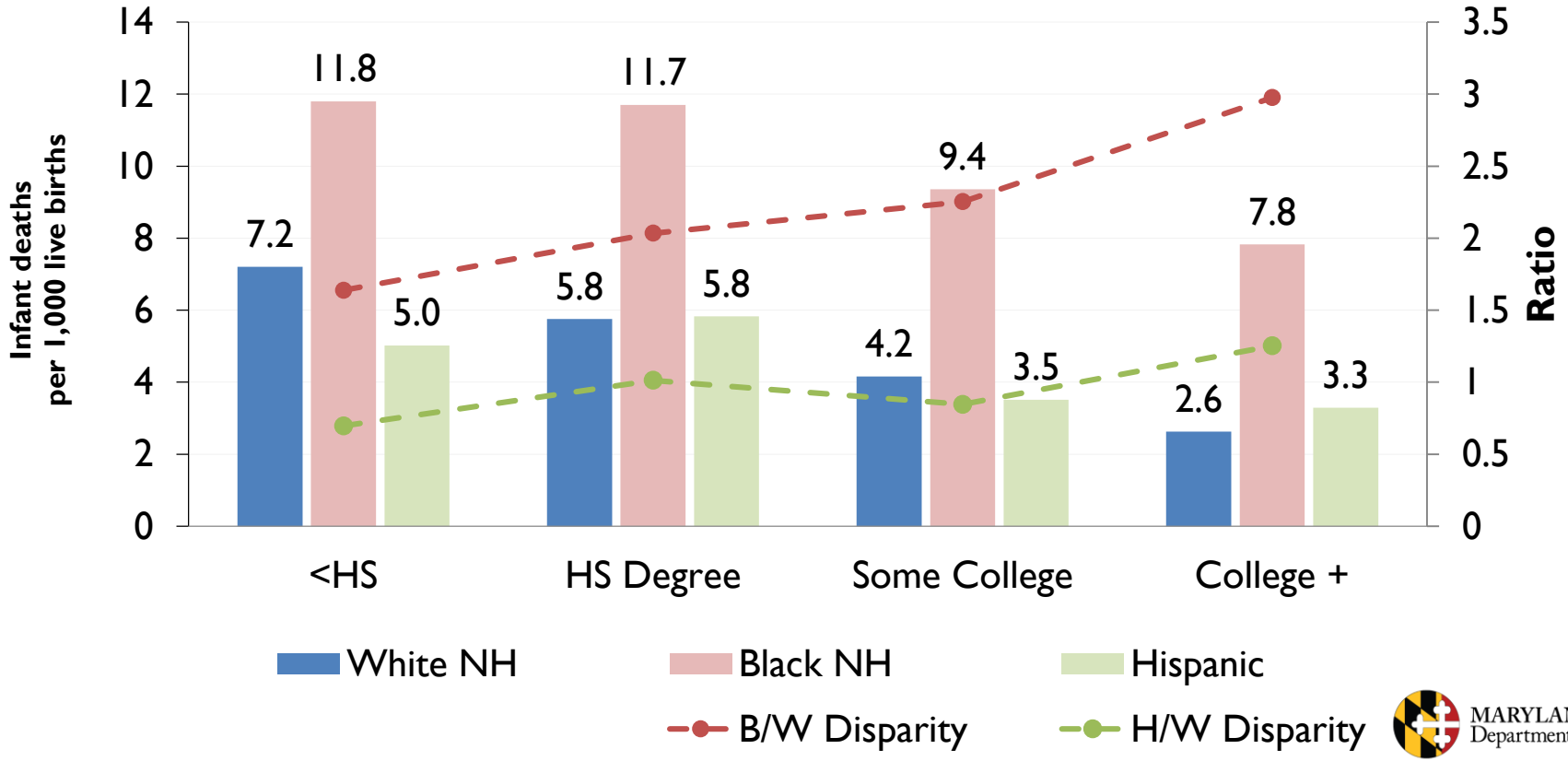
Source: Maryland Vital Statistics Administration

Maryland Infant Mortality Rates by Race & Education, 2010 - 2016



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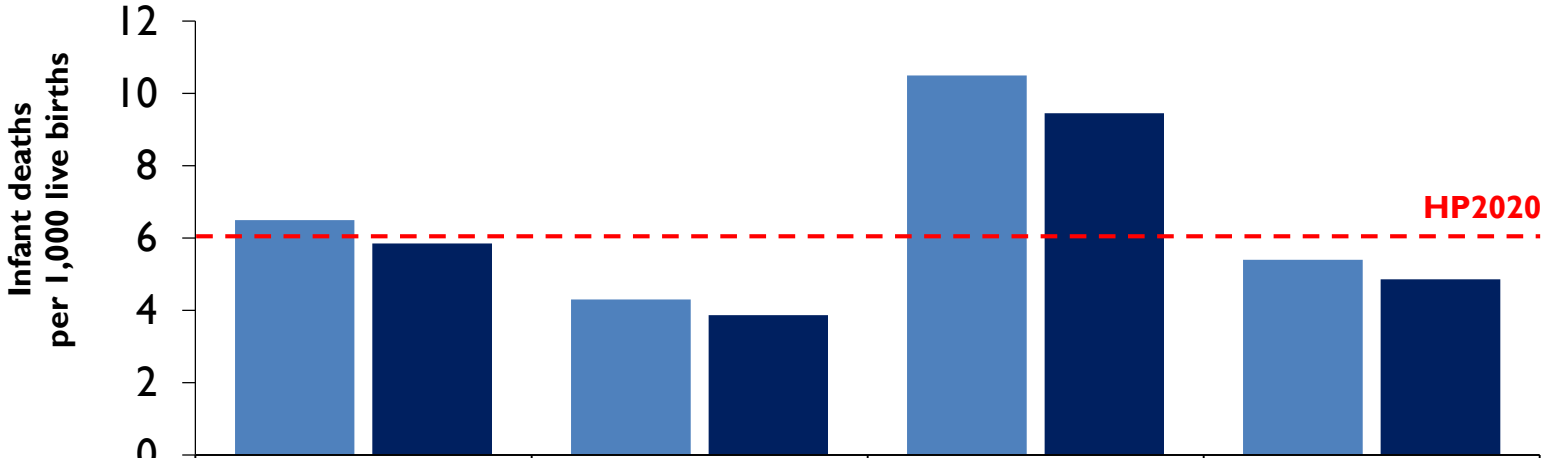
Source: Maryland Vital Statistics Administration

How to achieve HP2020 Infant Mortality Goal

HP2020 Goal of 6 deaths per 1,000 live births can be achieved with a 10% reduction in 2016 IM rates



	Total	White NH	Black NH	Hispanic
2016	6.5	4.3	10.5	5.4
10% Reduction	5.9	3.9	9.5	4.9

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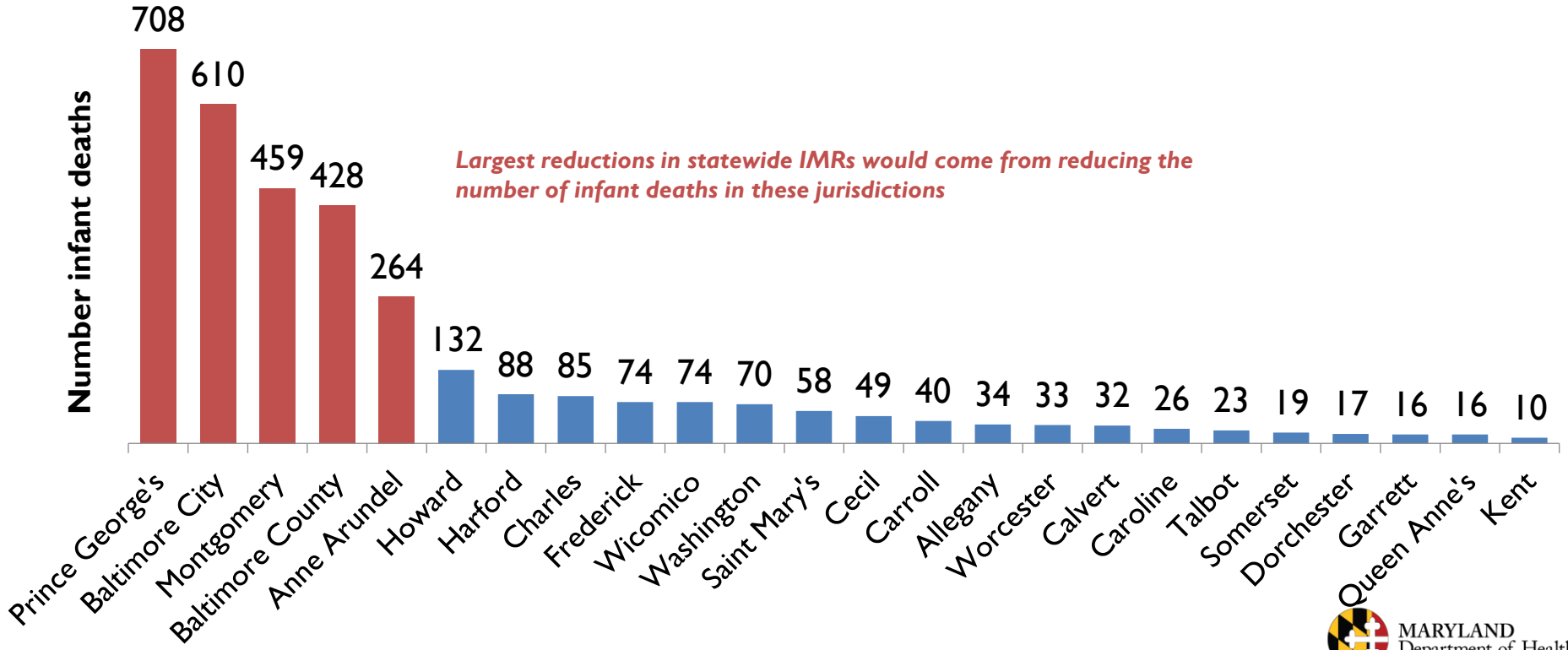
Source: Maryland Vital Statistics Administration

Number of Infant Deaths by Jurisdiction, 2010-2016



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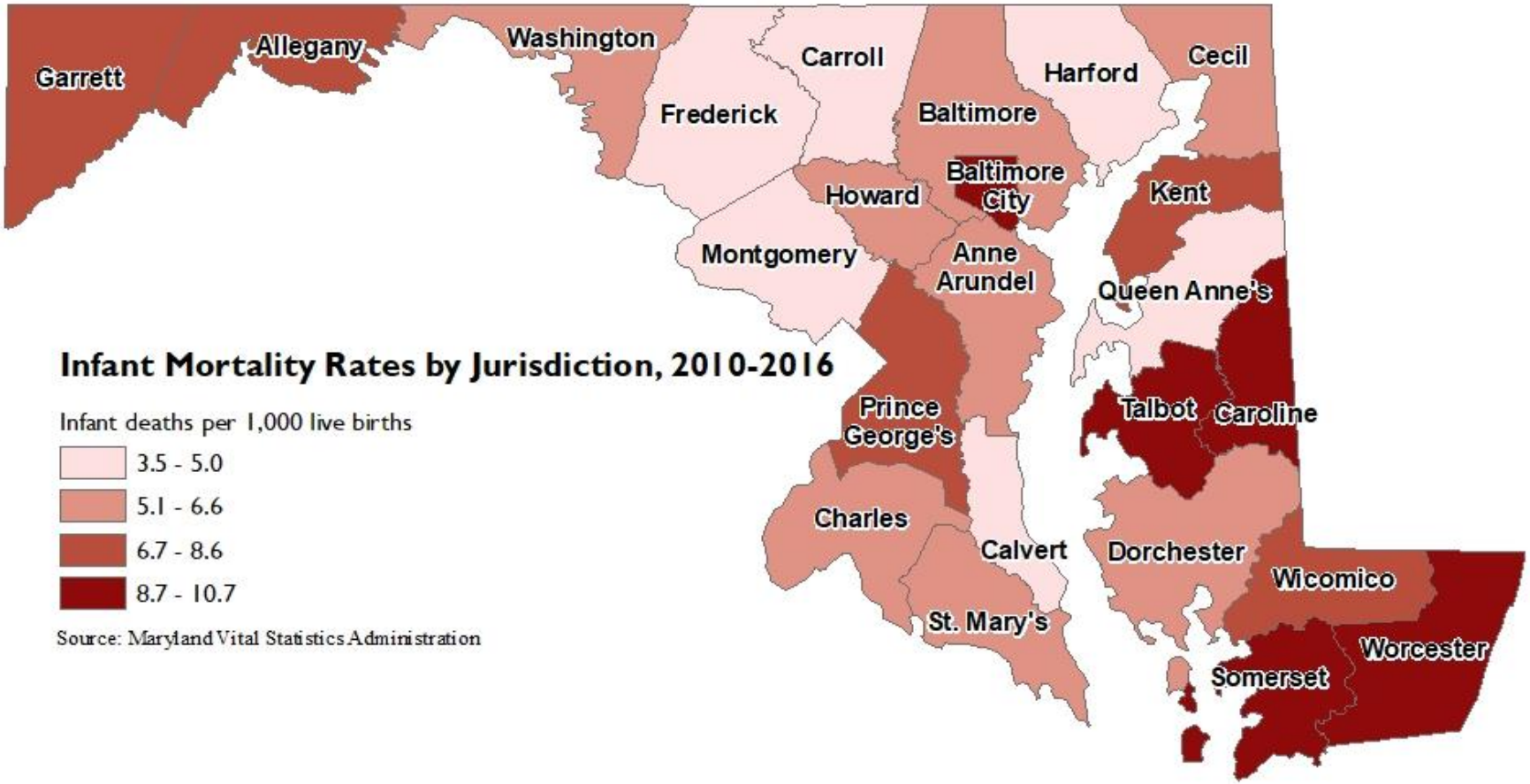
Source: Maryland Vital Statistics Administration.

Infant Mortality Rates by Jurisdiction, Maryland, 2010-2016



Infant Mortality Rate Changes by Jurisdiction, 2010-2011 to 2015-2016

INCREASES			
Jurisdiction	2010-2011	2015-2016	% Increase
Washington	4.3	7.4	71%
Caroline	7.1	11.6	63%
Saint Mary's	4.8	7.7	59%
Worcester	13.5	16.4	21%
Wicomico	6.7	8.1	21%
Talbot	11.9	13.8	16%
Montgomery	4.8	5.5	14%
Charles	6.9	7.7	11%
Anne Arundel	4.9	5.3	9%
Howard	5.8	6.2	7%
Allegany	7.2	7.7	6%
Frederick	3.4	3.5	4%
Calvert	5.4	5.5	1%

DECLINES			
Jurisdiction	2010-2011	2015-2016	% Decrease
MARYLAND	6.7	6.6	-2%
Cecil	7.3	7.0	-4%
Dorchester	6.9	6.6	-5%
Baltimore County	6.5	6.0	-7%
Prince George's	9.2	8.3	-11%
Harford	4.6	4.1	-12%
Baltimore City	10.7	8.6	-20%
Carroll	3.8	2.9	-23%

Note: Only Baltimore City and Prince George's change was statistically significant ($p<0.05$)

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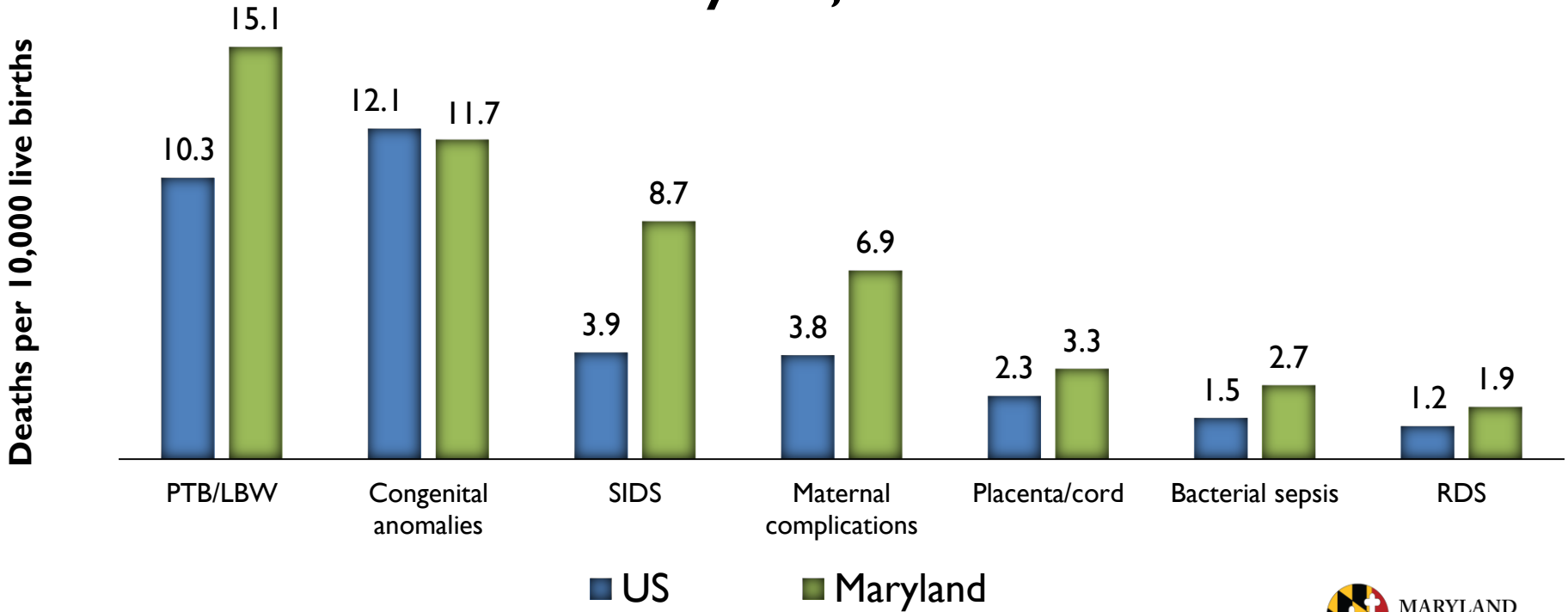
PPOR Phase 1 Results

Infant mortality rates by cause of death, United States and Maryland, 2015



Source: Maryland Vital Statistics Administration. NCHS, National Vital Statistics System.
PTB/LBW: preterm birth/low birthweight. SIDS: sudden infant death syndrome. RDS: respiratory distress syndrome.

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PPOR Phase 1 Results

Top 5 causes of neonatal (<28 days old) death by race/ethnicity, Maryland, 2011-2015			
Rank	**White NH (n = 489)**	**Black NH (n = 960)**	**Hispanic (n = 183)**
1	PTB/LBW (27.6%)	PTB/LBW (37.0%)	Congenital anomalies (26.8%)
2	Other (18.8%)	Maternal comps (15.0%)	PTB/LBW (24.6%)
3	Congenital anomalies (18.4%)	Congenital anomalies (12.0%)	Other (12.0%)
4	Maternal comps (7.8%)	Other (10.0%)	Maternal comps (10.4%)
5	Placenta/cord comps (7.2%)	Placenta/cord comps (8.0%)	Placenta/cord comps (7.7%)

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Source: Maryland Vital Statistics Administration. PTB/LBW: preterm birth/low birthweight.

PPOR Phase 1 Results

Top 5 causes of postneonatal (28-364 days old) death by race/ethnicity, Maryland, 2011-2015

Rank	White NH (n = 205)	Black NH (n = 351)	Hispanic (n = 65)
1	SIDS (39.0%)	SIDS (37.9%)	Congenital anomalies (26.2%)
2	Congenital anomalies (22.4%)	Other (16.8%)	Other (18.5%)
3	Other (10.7%)	Congenital anomalies (9.4%)	SIDS (18.5%)
4	Accidents (8.6%)	Infectious diseases (8.3%)	Assault (9.2%)
5	Infectious diseases (7.3%)	Accidents (7.4%)	Infectious diseases (9.2%)

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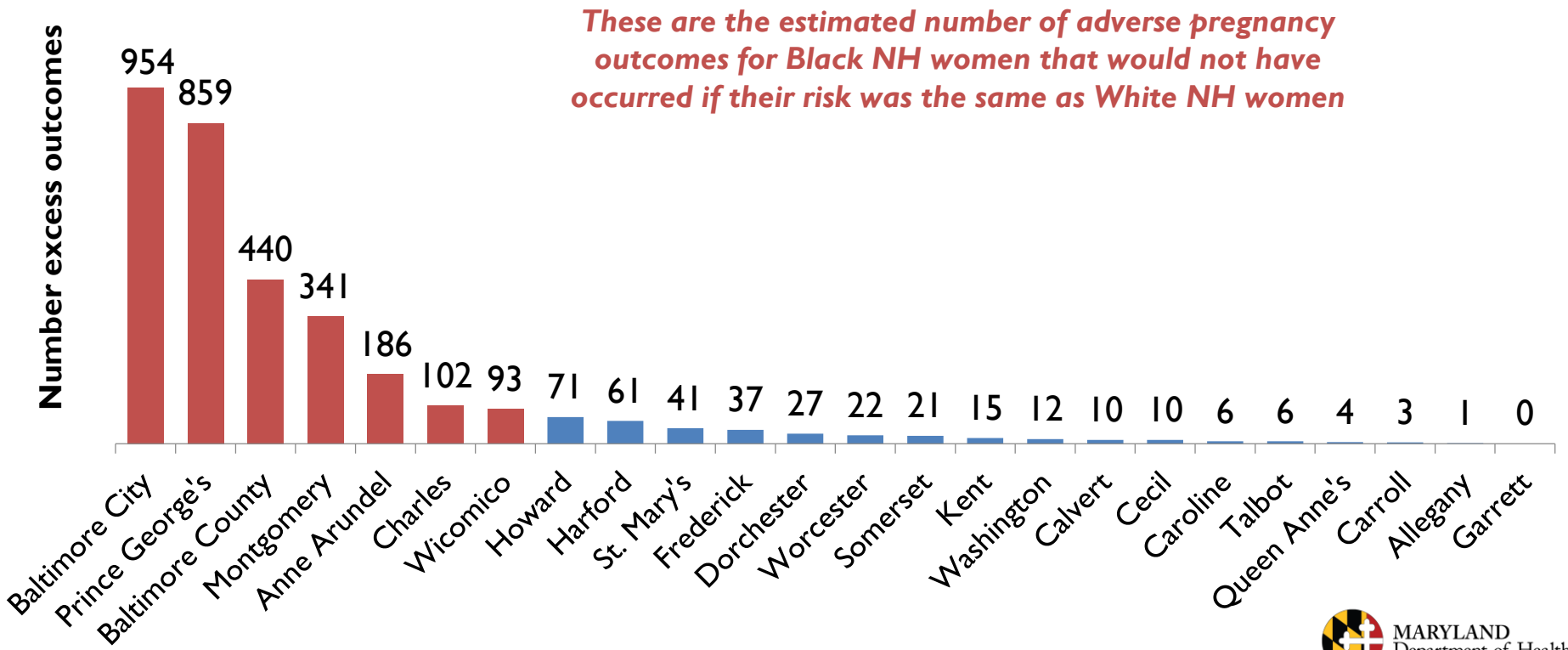
Source: Maryland Vital Statistics Administration. SIDS: sudden infant death syndrome

Excess Black NH Adverse Pregnancy Outcomes by Jurisdiction, 2010-2016



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Source: Maryland Vital Statistics Administration.

2017 BBH Program Assessment: Key Findings

- Goal of programs: identify at-risk, uninsured and under-insured women and connect them to services.
- Strengths: Perceive their staff to be known and trusted in the community; partnerships, which help them address SDOH.
- Gaps: identifying and engaging the most at-risk women; limited data systems and capacity for referrals (providers, behavioral health, transportation, child care, etc.).
- Ideas for improvement: perinatal health care coordination or navigation services and data systems.
- Want more direction from the State and ideas from other BBH programs.
- All collecting data by race/ethnicity but few using the data.
- Limited organizational or program cultural competency assessments.

Babies Born Healthy Program

- $1.9M (general) funds awarded to 7 jurisdictions since program inception
- Program intended to address infant mortality through varying activities implemented in each funded jurisdiction

Restructuring the program:

- In collaboration with Office of Minority Health and Health Disparities to increase focus on health equity
- Utilizing updated data analysis to focus on maternal health/care, prematurity/LBW in Black NH populations in recommended target areas for largest IM reductions (Baltimore City, Baltimore County, Prince George's, Montgomery, Anne Arundel, Charles and Wicomico)
- Utilizing input from funded programs gathered through surveys/program interviews of LHD staff
- Revised grant application with new required activities/performance measures

Babies Born Healthy Program

FY19 Required Strategies:

- Provide care coordination/navigation services throughout pregnancy until 12 weeks postpartum (and up to 12 months postpartum for women at risk for or using substances) to link women to essential services
- 1.0 FTE CHW/Navigator who is supervised by 0.5 FTE RN
- Partner with ACCU, health care providers, hospital system, agencies and CBOs for referrals of at-risk pregnant women (uninsured, previous adverse pregnancy outcome, social risks, adolescent)
- Targeted to identified census tracks at high risk for infant mortality

Babies Born Healthy Program

- Essential services identified to address modifiable determinants of adverse pregnancy outcomes:

  - Patient Centered Medical Home
  - Obstetric care
  - Substance use disorder treatment
  - Mental health treatment
  - STI services
  - Home visiting services
  - Dental care
  - Domestic violence services
  - Breastfeeding support
  - Family planning/birth spacing
  - Nutrition support
  - Safe sleep information
  - Tobacco cessation
  - Health insurance
  - Housing
  - Social services
  - Transportation

Babies Born Healthy Program

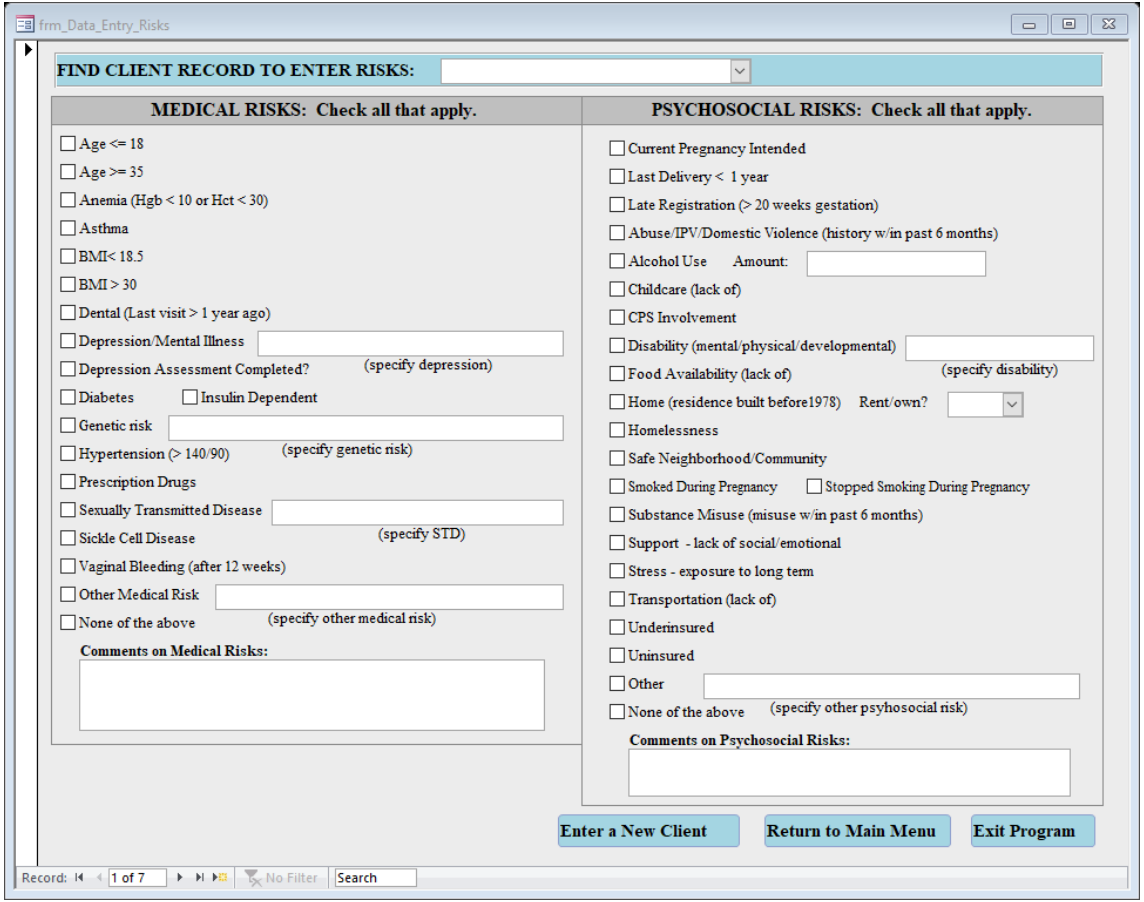
FY19 Required Strategies:

- Plan for comprehensive patient follow-up and patient engagement
- Align with Fetal and Infant Mortality Review (FIMR) and other Maternal and Child Health efforts, MOTA grantees
- Address health equity: CLAS (culturally and linguistically appropriate services) standards training; analyzing program data by race/ethnicity; promote health literacy; conduct community interviews or focus groups; and making data available to target communities.
- Quality Improvement, performance monitoring, and evaluation

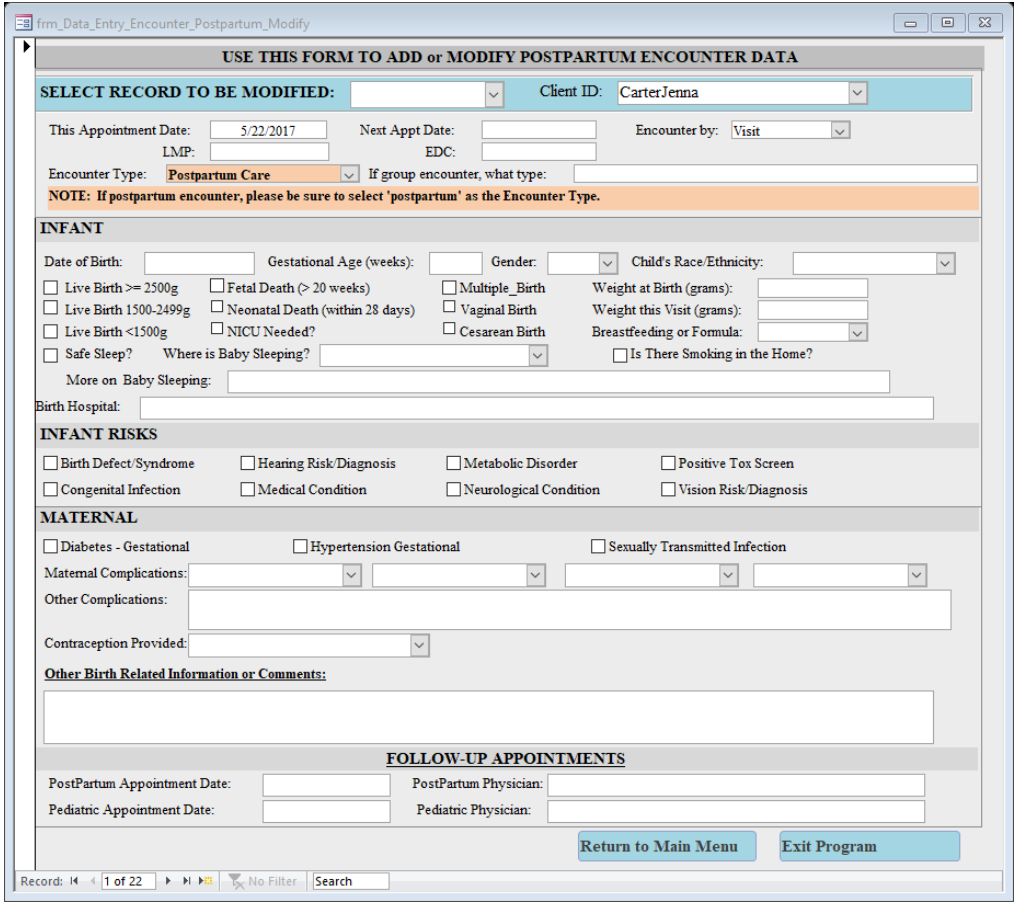
Training Needs

- Community Health Worker (CHW) training – National Healthy Start
- Managing CHWs
- Care Coordination
- Postpartum Risk Factors/American College of Obstetricians and Gynecologists Recommendations
- Substance Use Disorder (SUD)
- Neonatal Abstinence Syndrome (NAS)
- Screening, Brief Intervention, and Referral to Treatment (SBIRT)
- Motivational Interviewing
- Quality Improvement
- Implicit bias
- How to engage women around substance abuse
- Patient engagement and follow-up strategies
- Engaging health care providers
- Doing prenatal and postpartum risk assessments

Database: Client Risks



Database: Postpartum Encounter Information



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Quarter 1 BBH Client Characteristics

Age	Clients Referred	Women Enrolled in Care Coordination
<= 20	120 (21%)	67 (37%)
21-24	113 (20%)	59 (32%)
25-35	273 (47%)	42 (23%)
>35	69 (12%)	14 (8%)
	575	182

Race/Ethnicity	Clients Referred	Women Enrolled in Care Coordination
NH White	122 (21%)	10 (6%)
NH Black	334 (58%)	135 (74%)
Hispanic	99 (17%)	28 (15%)
Other	14 (3%)	3 (2%)
Unknown	6 (1%)	6 (3%)
	575	182

Quarter 1 BBH Client Characteristics

Trimester	Clients Referred	Women Enrolled in Care Coordination
1	96 (17%)	29 (16%)
2	59 (10%)	132 (72%)
3	22 (4%)	21 (12%)
"4" Postpartum	2 (.3%)	0
Unknown	396 (68.7%)	0
	575	182

Insurance Type	Clients Referred	Women Enrolled in Care Coordination
Medicaid	440 (77%)	137 (75.4%)
Private	13 (2.2%)	11 (6%)
XO2	0	2 (1%)
Medicare	3 (.5%)	1 (.6%)
Uninsured	117 (20%)	31 (17%)
Unknown	2 (.3%)	0
	575	182

Quarter 1 BBH Encounter Characteristics

Encounter Type	
Calls	158 (25%)
Visits	448 (71%)
Emails	7 (1.1%)
Texts	18 (2.9%)

Durables Provided	
Portable Bed or Playpen	172 (81.1%)
Car Seat	10 (4.7%)
Baby Basics Books	12 (5.7%)
Air Filters	2 (.9%)
Safety Gates	10 (4.7%)
Strollers	4 (1.9%)
Breast Pumps	1 (.5%)
Diapers	1 (.5%)

Quarter 1 Referrals Provided and Birth Outcomes

Referrals Made (by Type)	
Breastfeeding Support	19 (3%)
Contraception	18 (2.8%)
Dental Care	64 (10.1%)
Domestic Violence	6 (.9%)
Family Planning	20 (3.2%)
Group Interventions	0
Health Insurance	55 (8.7%)
Home Visiting	27 (4.3%)
Housing	27 (4.3%)
Mental Health	19 (3%)
Nutrition/WIC	111 (17.6%)
Obstetric Care	44 (7%)
Parent/Child Development Class	8 (1.3%)
Pediatric Care	34 (5.4%)
Postpartum Care	16 (2.5%)
Prenatal Care	75 (11.9%)
Primary Care Medical Home	6 (.9%)
Safe Sleep Education	26 (4.1%)
Smoking Cessation	8 (1.3%)
Social Services	35 (5.5%)
STI Prevention/Treatment	1 (.2%)
Substance Use	1 (.2%)
Transportation	12 (1.9%)

Live Births	
Live Births > 2,500 g	7 (70%)
Live Births < 2,500 g	3 (30%)
Live Births < 1,500 g	0

Challenges

- Identifying, engaging and enrolling the most at-risk women early in pregnancy
- Addressing social determinants of health
- Establishing appropriate case loads and levels of support
- Having places to refer women and infants
- How to engage and support women with substance use disorder
- Building referral networks and engaging physicians and the health care system

HEALTHY BABIES!
SMART MOMS!

Asian American Center of Frederick

Demographics of Frederick West End Corridor

	Frederick County	City of Frederick	Frederick West End
AI/AN	0.5%	0.5%	*
Asian	4.6%	5.6%	7.2%
Black/AA	10.0%	18.5%	21.6%
H/PI	0.1%	0.1%	*
H/Latino	9.6%	14.5%	49.5%
White	81.7%	64.0%	17.3%
2+ Races	3.0%	4.0%	4.4%

Monthly Baby Showers

- Educational presentation in English & Spanish
- Refreshments
- Child care for older children
- Door prizes
- Gift bags with diapers and wipes
- Gently used baby clothing
- Enroll women in F2F follow up through pregnancy

Baby Shower Educational Topics

- Labor & Delivery
- Nutrition and Health
- Postpartum
- Breastfeeding
- New Baby Care
- Immigration Services
- Health Insurance Enrollment
- Other Community Organizations/Agencies

Baby Shower Attendance.2017-18 – 175 visitors

- 108 Hispanic/Latino
- 28 Black/African American
- 17 listed N/A
- 9 Asian/Pacific Islander
- 7 White
- 2 American Indian
- 3 Mixed
- 1 Other
- 13 male
- 13 listed N/A under gender
- 149 female – 113 pregnant
  - ❖22 women attended multiple baby shower sessions

Birth Outcomes.2017-18

- 13 women followed
  - ❑F2F monthly visits
  - ❑connection to community resources
  - ❑Phone calls
- All delivered between 37-40 weeks gestation
- 11 vaginal deliveries, 2 C-section deliveries
- Infant weights 5 lb. 9 oz. – 9 lb. 8 oz.
- No NICU admissions

Initiatives to Prevent and Reduce Infant Mortality

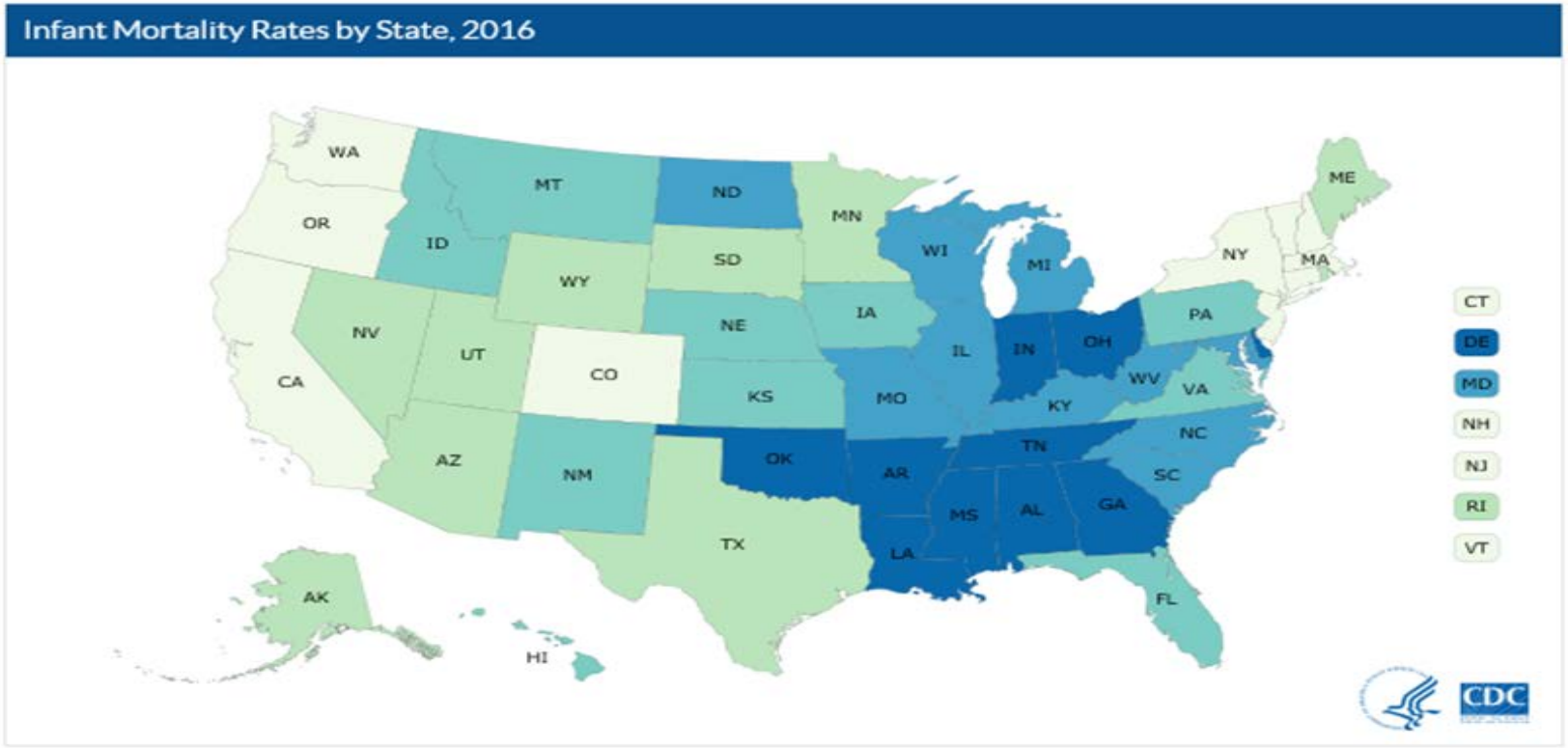
Maryland Office of Minority Health and Health Disparities 15th Annual Health Equity Conference

December 6, 2018

5 Leading Causes of Infant Deaths

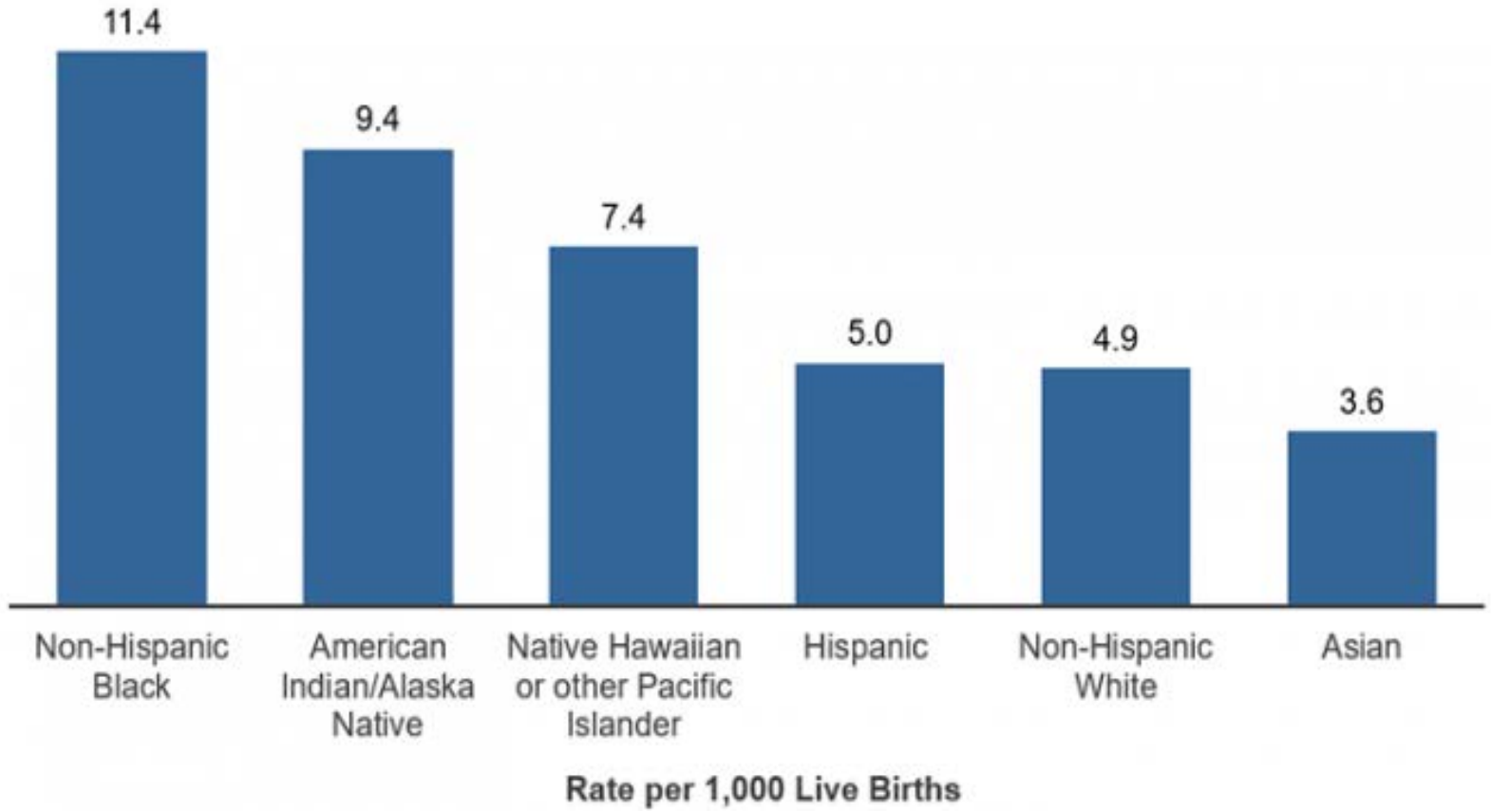
- Over 23,000 infants died in the United States in 2016. The five leading causes of infant death in 2016 were:

- Birth defects.
- Preterm birth and low birth weight.
- Sudden infant death syndrome.
- Maternal pregnancy complications.
- Injuries (e.g., suffocation).



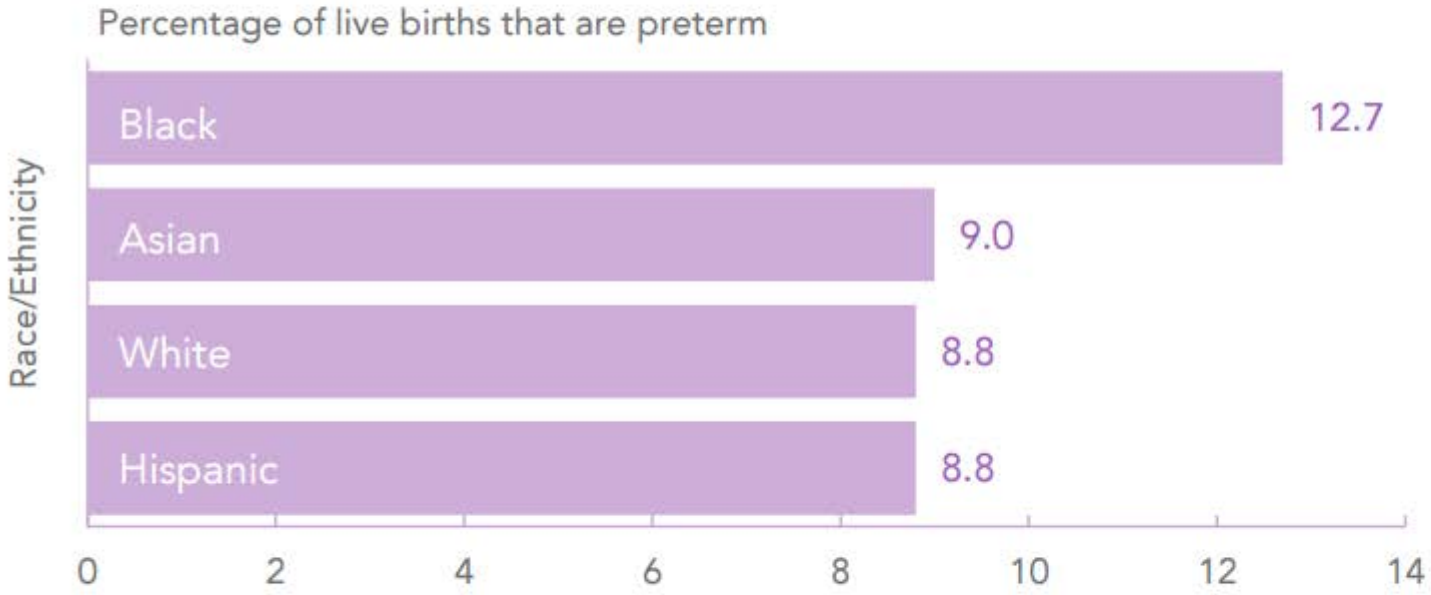
[1]The number of infant deaths per 1,000 live births.

Infant Mortality Rates by Race and Ethnicity, 2016



RACE & ETHNICITY IN MARYLAND

The March of Dimes ranks states and localities based on a disparity index, which provides a measure of differences in preterm birth rates across racial/ethnic groups within a geographic area. The index compares the rate within each racial/ethnic group to the lowest rate in the area (2011 to 2013 average). The state or locality with the lowest index number is ranked #1, and the highest is ranked #50.



Disparity index
16
State rank
#7

Gestational age is based on obstetric estimate. Race categories include only women of non-Hispanic ethnicity.
For more information on how we are working to reduce premature birth, contact the March of Dimes Maryland-National Capital Area Chapter at (410) 752-7990.

marchofdimes.org/reportcard

march of dimes
A FIGHTING CHANCE FOR EVERY BABY™

2015 PREMATURE BIRTH REPORT CARD

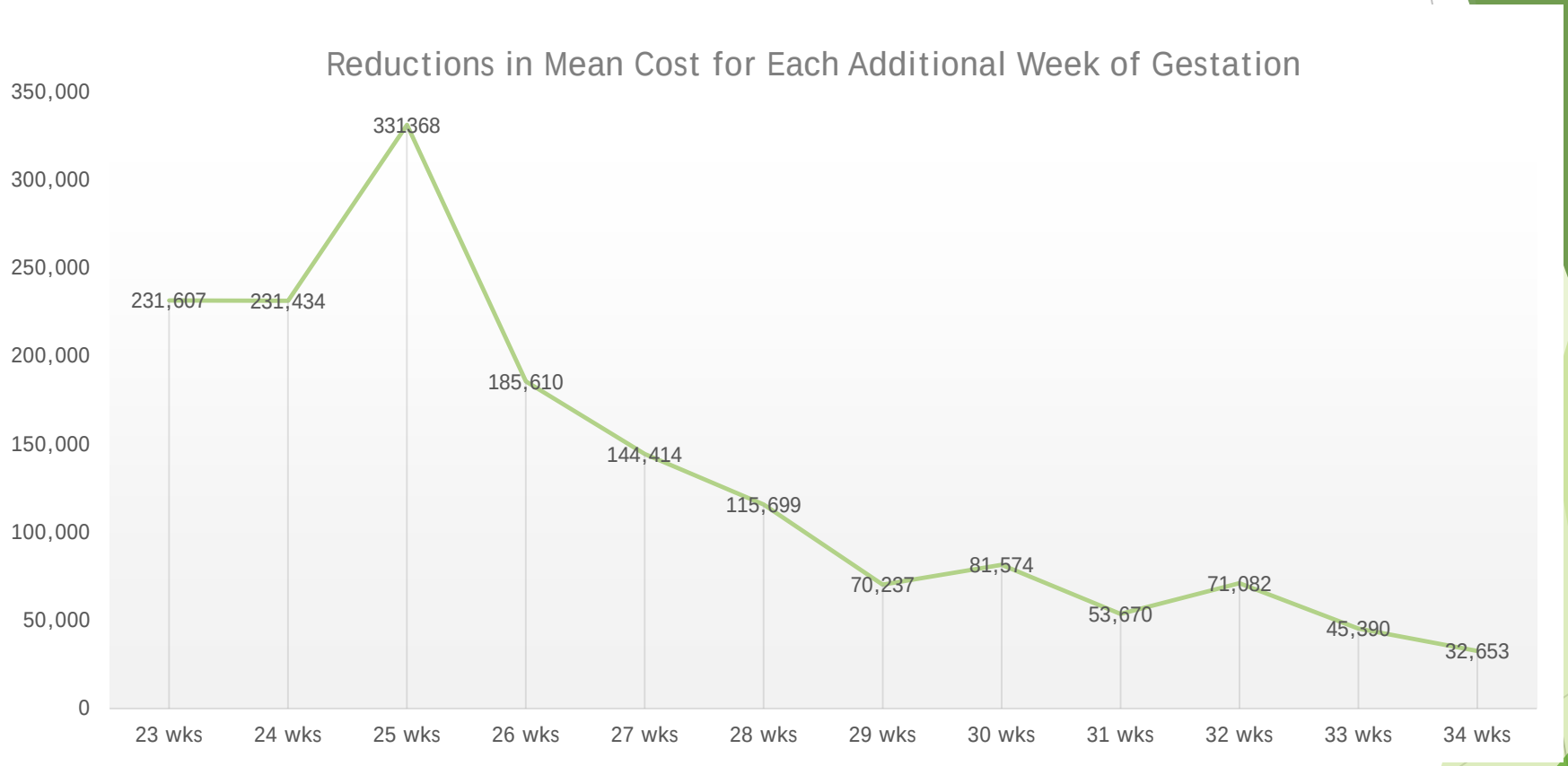
Maryland	Preterm Birth Rate	Grade
	10.1%	C

The March of Dimes Prematurity Campaign aims to reduce preterm birth rates across the United States. Premature Birth Report Card grades are assigned by comparing the 2014 preterm birth rate in a state or locality to the March of Dimes goal of 8.1 percent by 2020. The Report Card also provides city or county and race/ethnicity data to highlight areas of increased burden and elevated risks of prematurity.

COUNTIES

Counties with the greatest number of births are graded based on their 2013 preterm birth rates. The status indicator shows whether the 2013 county rate is higher (●), lower (●), or the same (●) as the 2013 state rate (9.8%).

County	Preterm birth rate	Grade	Status
Montgomery	9.1%	B	●
Prince Georges	10.5%	D	●
Baltimore	9.9%	C	●
Baltimore City	12.2%	F	●


Reductions in Mean Cost for Each Additional Week of Gestation
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
231,607
231,434
331368
185,610
144,414
115,699
70,237
81,574
53,670
71,082
45,390
32,653
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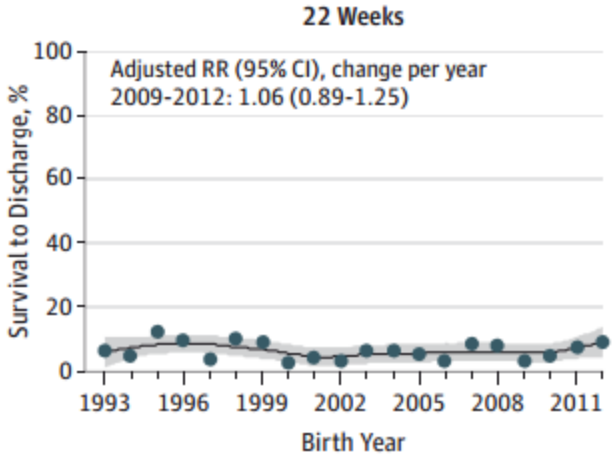
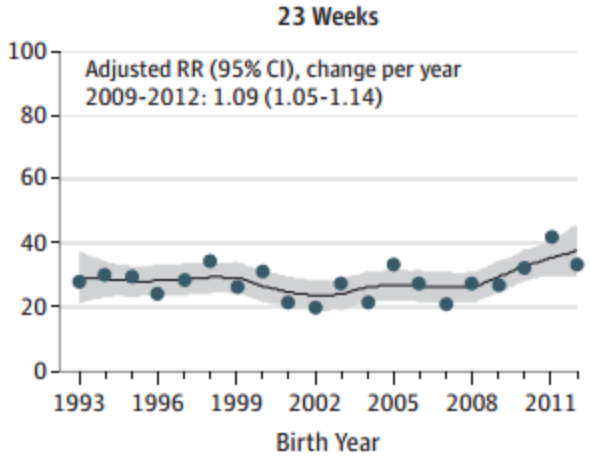
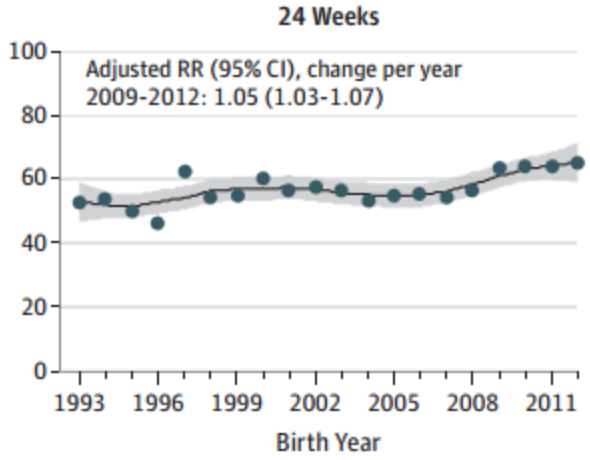
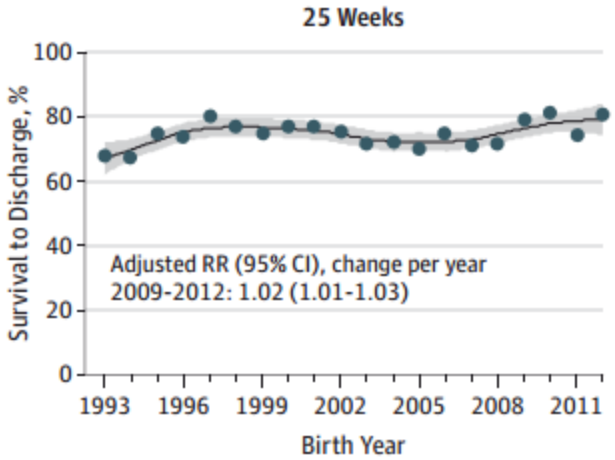
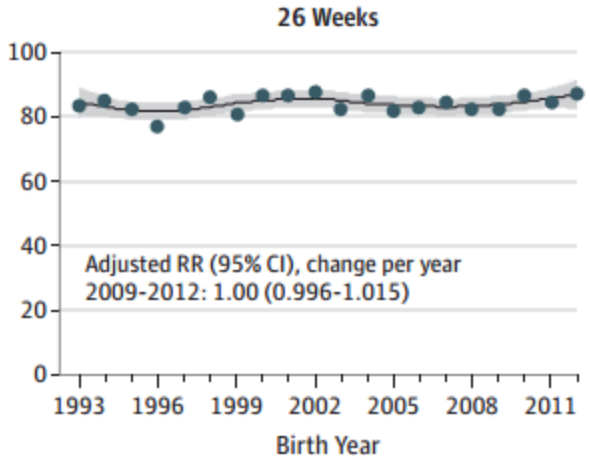
33 wks
34 wks

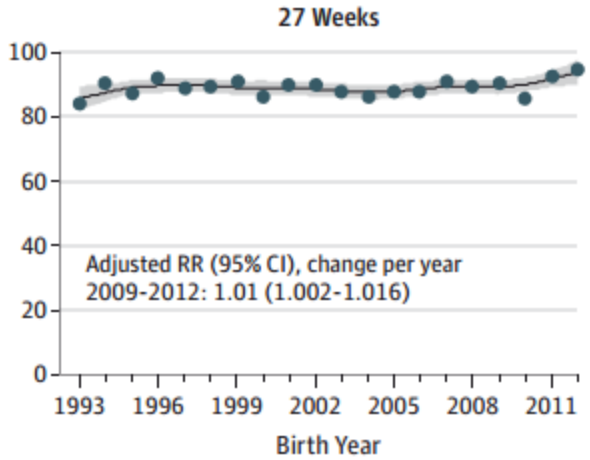

22 Weeks
Survival to Discharge, %
Adjusted RR (95% CI), change per year
2009-2012: 1.06 (0.89-1.25)
Birth Year


23 Weeks
Adjusted RR (95% CI), change per year
2009-2012: 1.09 (1.05-1.14)
Birth Year


24 Weeks
Adjusted RR (95% CI), change per year
2009-2012: 1.05 (1.03-1.07)
Birth Year


25 Weeks
Survival to Discharge, %
Adjusted RR (95% CI), change per year
2009-2012: 1.02 (1.01-1.03)
Birth Year


26 Weeks
Adjusted RR (95% CI), change per year
2009-2012: 1.00 (0.996-1.015)
Birth Year


27 Weeks
Adjusted RR (95% CI), change per year
2009-2012: 1.01 (1.002-1.016)
Birth Year

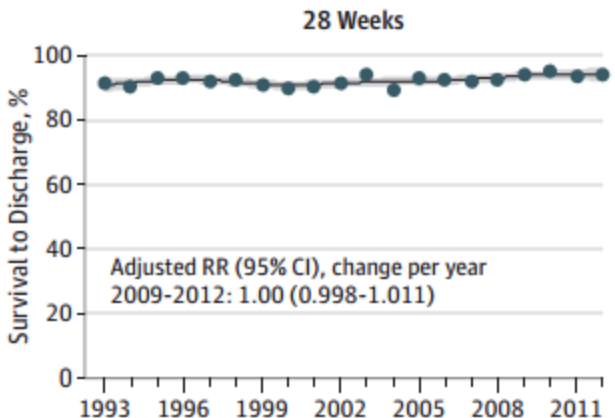
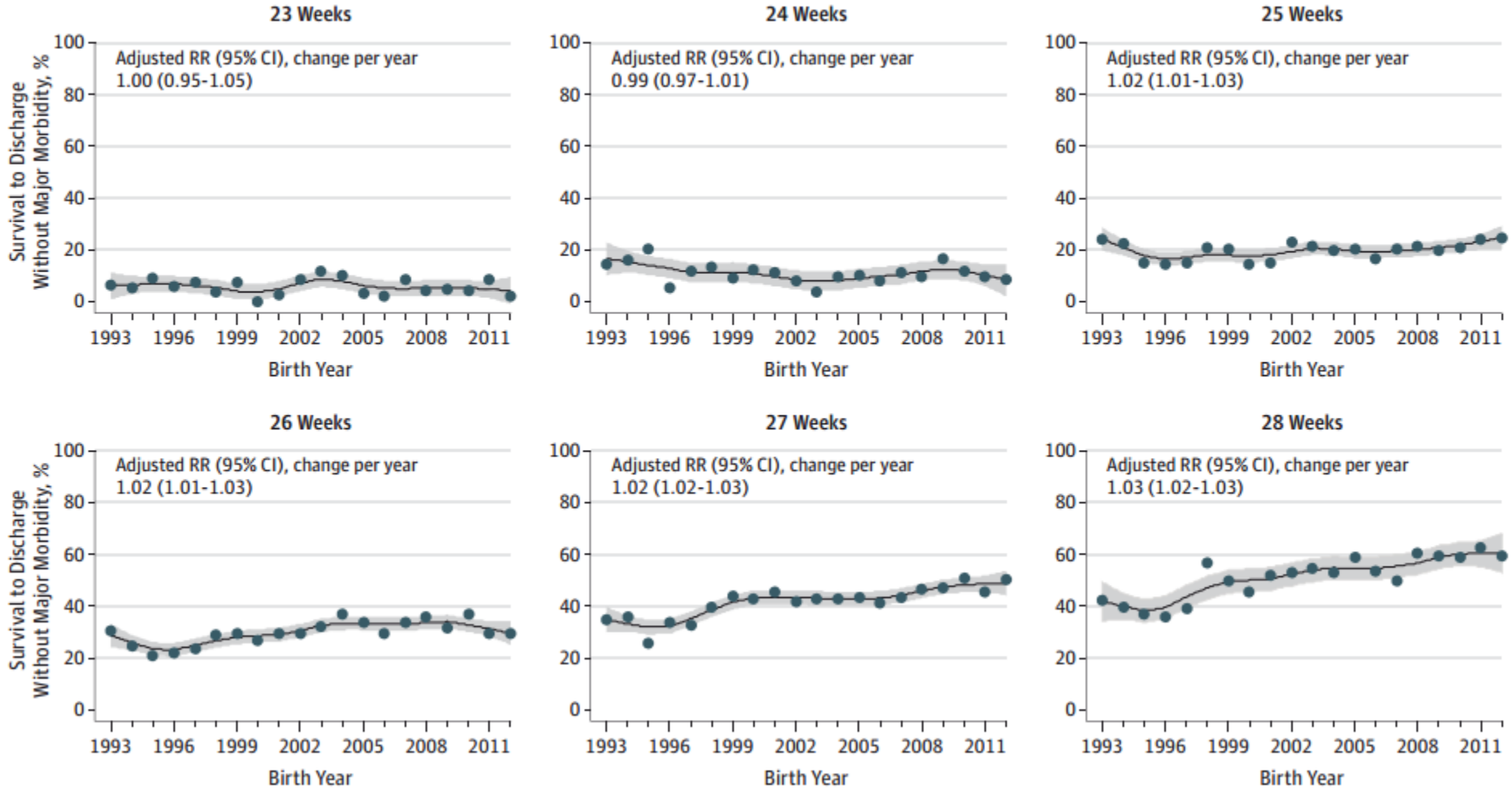
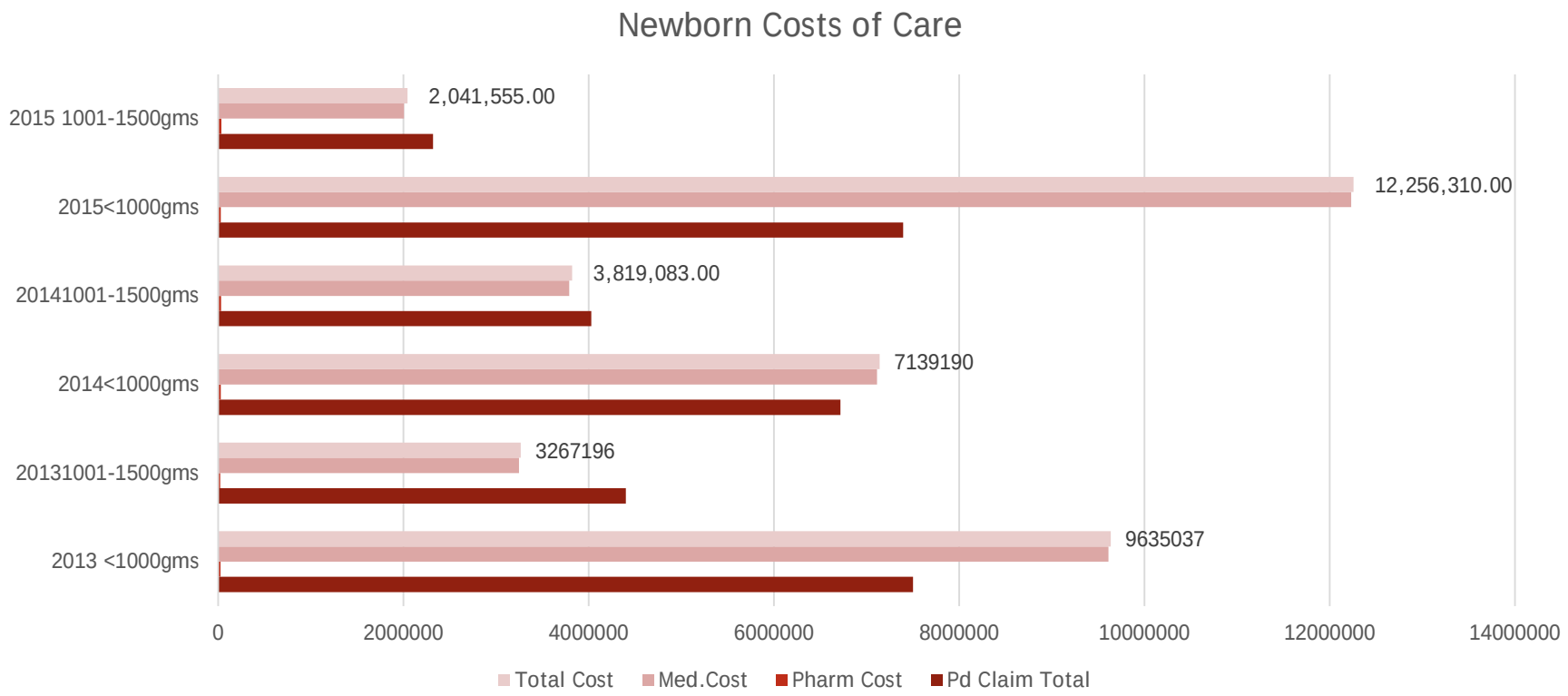
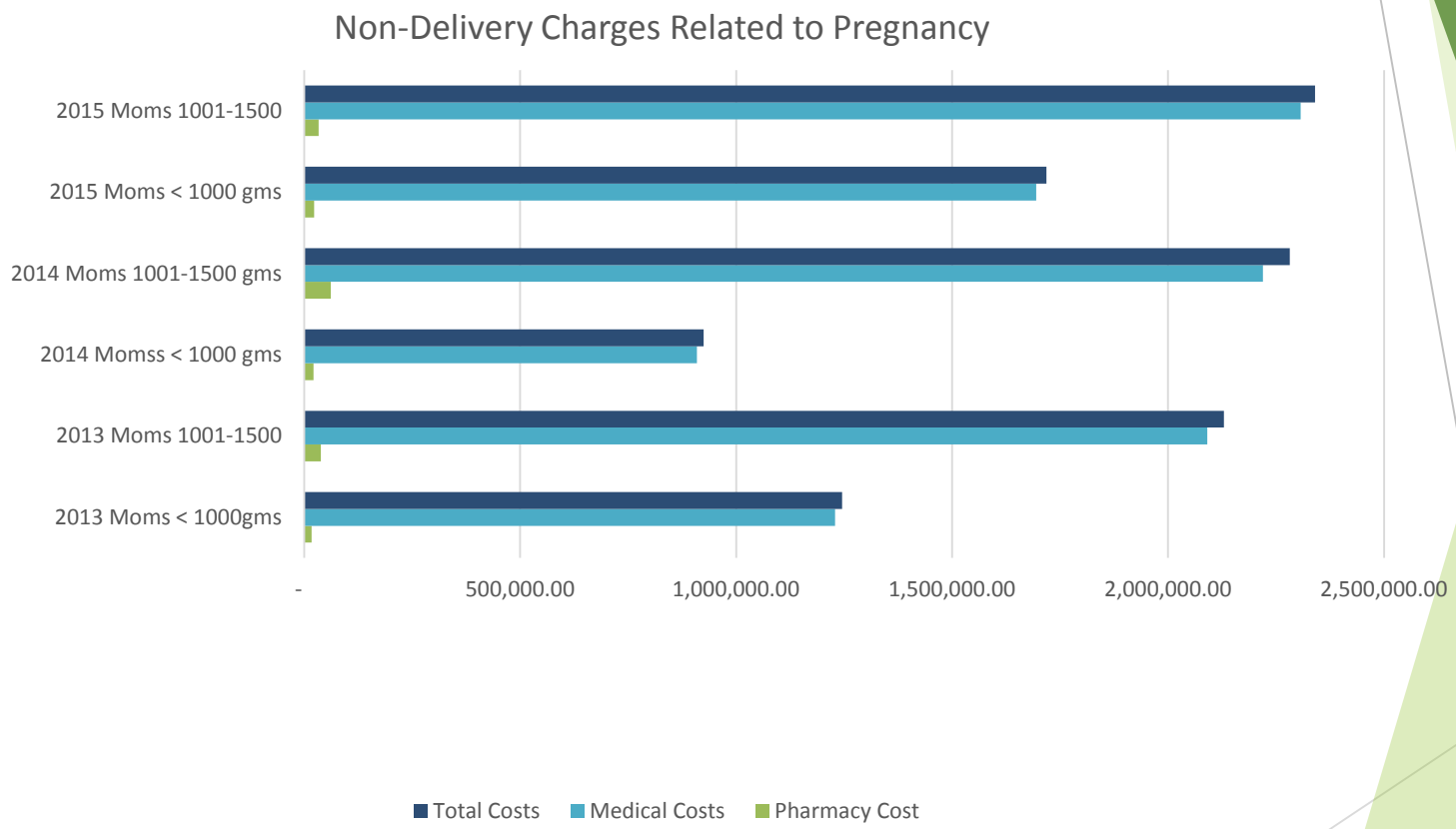

28 Weeks
Survival to Discharge, %
Adjusted RR (95% CI), change per year
2009-2012: 1.00 (0.998-1.011)

Figure 4. Infant Survival to Discharge Without Major Morbidity by Birth Year and Gestational Age




Newborn Costs of Care
2015 1001-1500gms
2015<1000gms
20141001-1500gms
2014<1000gms
20131001-1500gms
2013 <1000gms
2,041,555.00
12,256,310.00
3,819,083.00
7139190
3267196
9635037
0
2000000
4000000
6000000
8000000
10000000
12000000
14000000
Total Cost
Med.Cost
Pharm Cost
Pd Claim Total


Non-Delivery Charges Related to Pregnancy
2015 Moms 1001-1500
2015 Moms < 1000 gms
2014 Moms 1001-1500 gms
2014 Momss < 1000 gms
2013 Moms 1001-1500
2013 Moms < 1000gms
-
500,000.00
1,000,000.00
1,500,000.00
2,000,000.00
2,500,000.00
Total Costs
Medical Costs
Pharmacy Cost

National Quality Forum –Perinatal and Reproductive Health Standing Committee Meeting (May, 2017)

- What process and outcome measures could be the most useful for identifying disparities in infant mortality and low birth weight?
- How can appropriate perinatal care for women at social risk be measured?
- What policy recommendations could incentive a reduction in disparities in infant mortality and low birth weight?

Effective Interventions and Measure Gaps

- Identification of eligible patients, access and timely administration of 17-P
- Access to family planning and contraception
- Screening for psychosocial factors, including illicit substance use
- Short and long term treatment and effective management of co-morbid conditions (especially Hypertension and Diabetes)
- Regionalization of maternal and newborn care
- Appropriate care transitions
- Addressing disparities in deaths caused by congenital anomalies
- Addressing systemic factors – housing, education, and nutrition

Opportunities for Improvement

- Lack of a centralized database to quickly identify women who are pregnant and at high risk for delivery of a preterm or complex newborn
- Inadequate use of supplemental data from HRAs, surveys, focus groups, other encounter data
- Low participation rate in prenatal programs
- ER visits and Hospital admissions for Moms during pregnancy and newborns in the 1st year of life
- Frequent transfers
- Outcome disparities
- Postpartum Follow-up (OB-PCP transfer of care)
- Newborn Follow-up
- Continued eligibility and insurance coverage beyond pregnancy
- Aggressive treatment of infants that are on the border of viability or with terminal conditions

Data Issues

- Collection of REAL-L data
- Comprehensive ICD-10 and beyond code development to capture all of the factors that determine outcomes
- Interoperability of EMRs
- Capturing longitudinal data across all points of care for a lifetime

Policy Drivers for Improvement

- Episode based payment models
- Development of policies that incentivize access to “patient-centered” care
- Policies that ensure continuous coverage of Medicaid
- Funding for the development of measures in maternal and infant health outcomes

Recommendations

- Develop and nurture strategic relationships
  - Establish Centers of Excellence for Perinatal Care
    - Perinatal Advisory Committee
    - Establish Benchmarks – preconception, pregnancy, delivery, post-partum care, newborn care and follow-up
    - Develop clinical guidelines (including palliative care, appropriate transfers)
    - Benchmark risk adjusted benchmarks for UM goals and create meaningful and attainable goals for providers
- Close the disparity gaps
  - Collaborate with SPH, community organizations, academic centers, national, state, and local organizations that have similar programs
  - Make achieving health equity foundational in our mission, strategies and interventions

Recommendations (cont)

- Develop a database strategy for early ID of complicated pregnancies and adverse outcomes
  - Pregnancy and newborn registry to develop a predictive model for preterm delivery, other poor pregnancy outcomes, and long term health needs of the newborn.
  - Review and increase the sources of data
  - Create a centralized database for storage
- Early introduction of palliative care for micro-premies and other newborns with terminal conditions
- Continue efforts to mitigate regulatory mandates with financial penalties:
  - Perinatal Workgroup – DHMH Representatives and MCO Medical Directors
    - 2nd low birth weight penalty
    - Post-Partum VBP

Recommendations (cont)

- Clinician led robust case management and UM management
  - Increase participation rate in prenatal programs and newborn complex care management
    - Establish benchmarks for successful outreach and enrollment
    - Frequent reporting and referral information flow between UM staff and Care Managers.
- Offer an integrated home health team
- Develop programs that improve communication
- Review hospital contracts carefully
  - Early ID of DRG outliers
  - Identify level of care savings (including bedrest for high risk pregnancies, palliative and comfort care for newborns)

Potential Solutions for SDOH Factors

- Stakeholders realize the self-interest in SDOH interventions
  - Investments vs Charity (Donations)
- Health plans, hospital systems, employers, community health centers, provider networks, county health and social service departments collaborate via a “trusted broker” on identified SDOH needs of their service area
  - The broker plays facilitation, communication, and data analytic roles
  - Calculates the price that each stakeholder must pay for the implementation of the desired intervention.
  - Baltimore Family League model – promotes collaborative initiatives and aligned resources to create lasting outcomes for Baltimore’s children.

Examples of Social Determinant Programs that Improve Healthcare Outcomes and Reduce Spending

- Non-Medical Transportation programs
- Housing First
- Nutritional support for new mothers (WIC)
- Meals on Wheels
- Case management and home visitation programs
- Supplemental Nutrition Assistance Program (formerly known as food stamps)

Applicable Economic Principals that Lead to Underfunding SDOH Initiatives

- Social determinants are “Public Goods” (vs. “Private Goods”)
  - Deliver benefits to different people and different sectors simultaneously (nonrivalrous) and those benefits cannot be efficiently limited to those who pay directly for them (non excludable)
- “Free Rider” problem
  - Investors cannot prevent nonpayers from benefitting and capturing some of the return on investment
- “Wrong Pocket” problem
  - Investments from one part of the government are not reimbursed by the benefits that accrue to another part of government, discouraging cross-agency investment

Barriers to Multi-Stakeholder Collaboration

- Credible estimates of the full net value of investments are difficult
  - Lack of high quality data on costs and benefits across different locales and systems
- Uncertainty that social services can be efficiently delivered to the target group
  - Most work done outside of hospital or clinic walls by non-medical personnel
  - Lack of trust in local social service systems
- Fear of losing the benefit from investments if a patient switches insurance plans or providers after the investment is made but before the benefit is realized.
  - Medicaid churn, plan switch between commercial enrollees
  - Important in many chronic diseases – e.g. Diabetes prevention

The journey of a thousand miles starts with a single step.

Lao Tzu

Thank you for your attention!

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Reference

Nichols, L and Taylor, L “Social Determinants as Public Goods: A New Approach to Financing Key Investments in Healthy Communities”

Health Affairs, August 2018, Vol. 37 No. 8