

# **Delaware Infant and Maternal Health, Access, and Workforce**

**September 27, 2022**

# Disclaimer/Disclosure

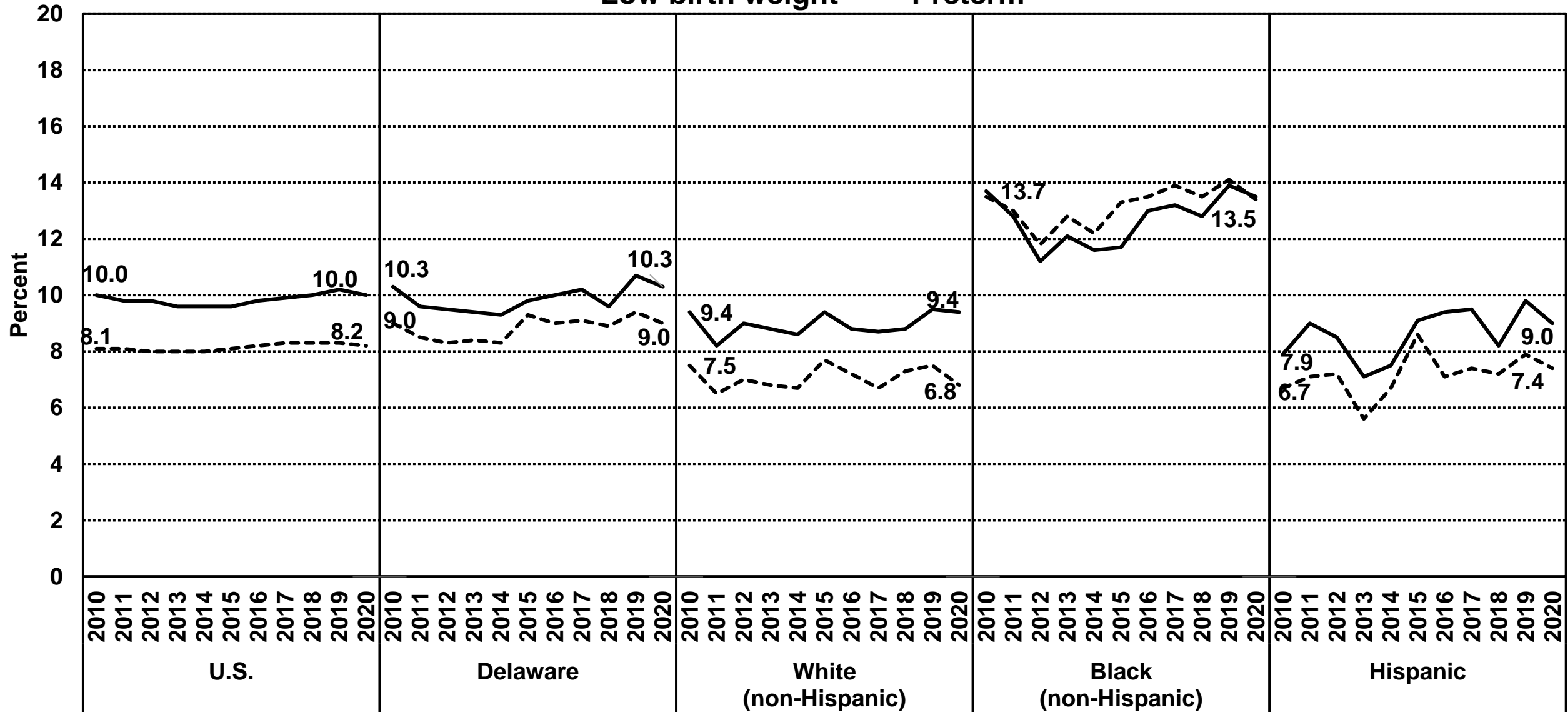
- The findings and conclusions in this presentation are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention (CDC).
- The views expressed in this presentation are those of the author and are not an official position of the Delaware Health and Social Services, Division of Public Health, Family Health Systems.
- The author/presenter has nothing to disclose.

# Outline

- Delaware overview
  - Trends in low birth weight, prematurity, and infant mortality rates (IMR)
  - Trends in severe maternal morbidity (SMM)
  - Prevalence of serious mental illness (SMI) in the U.S. and Delaware
- Maternal health access in Delaware
  - Trends in prenatal care initiation
  - Access and timing of care before, during, and after pregnancy
- Health Professional Shortage Areas (HPSAs)
  - Delaware medical and allied health professional workforce
- Maternity Care Target Areas (MCTAs)

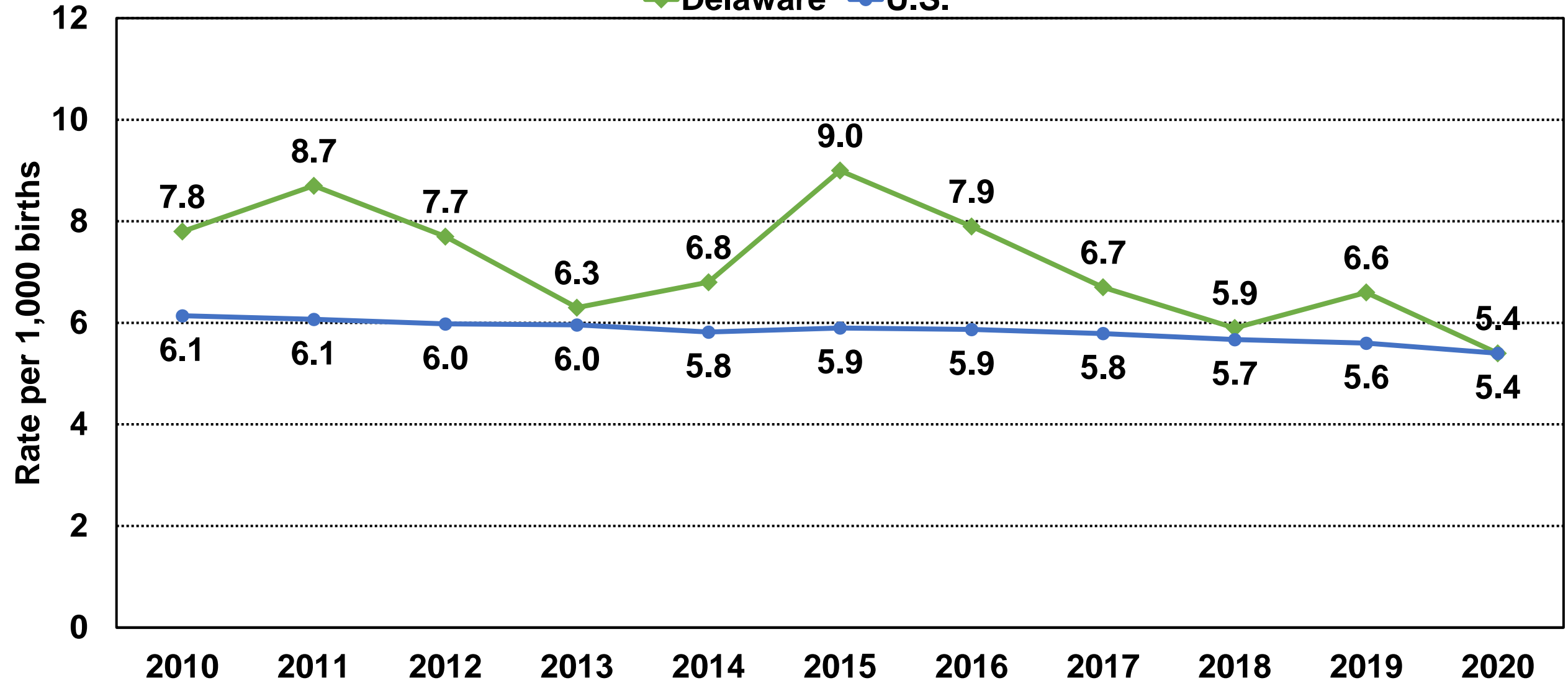
# Low birth weight and Preterm births in the U.S., Delaware, and by Delaware Race and Ethnicity, 2010-2020

--- Low birth weight — Preterm



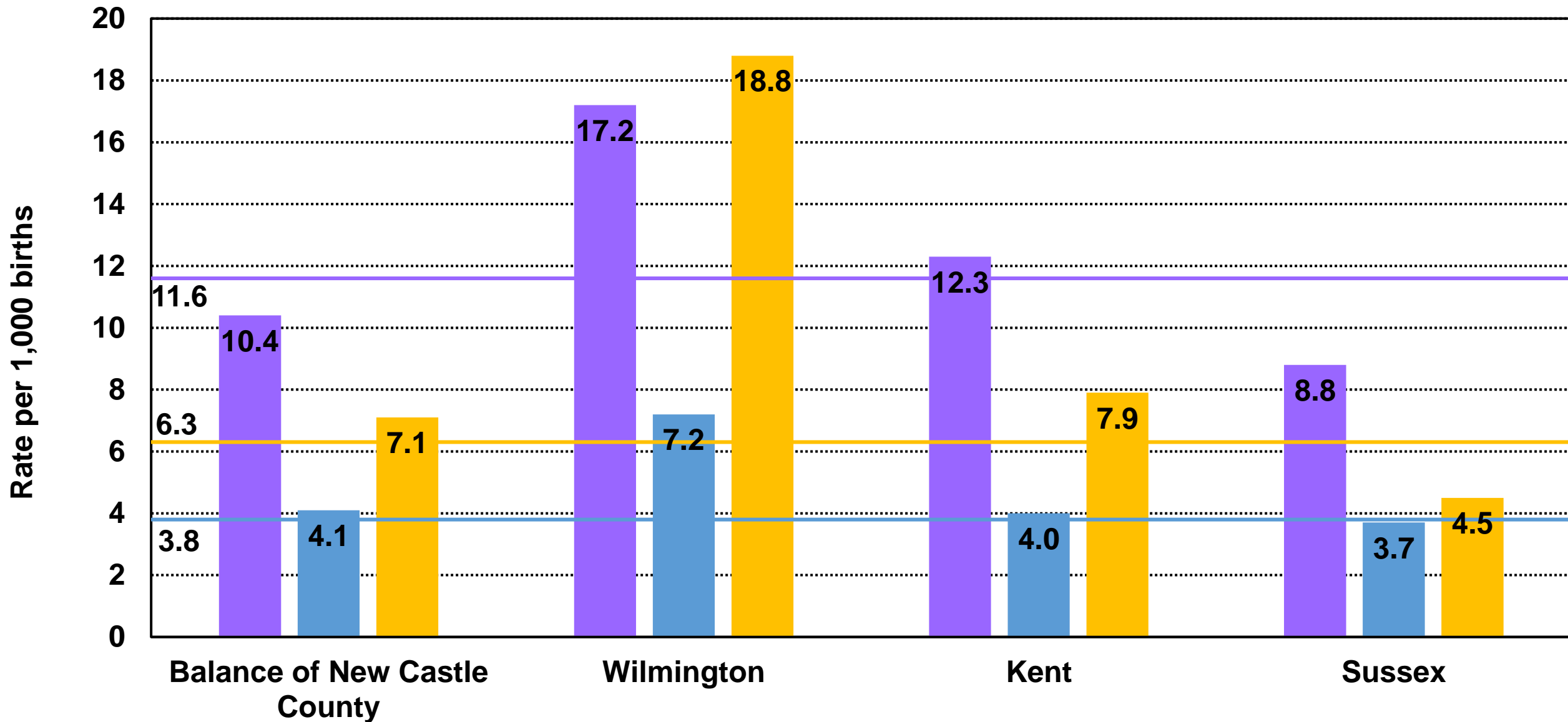
# Delaware and U.S. Infant Mortality Rates 2010-2020

◆ Delaware ● U.S.

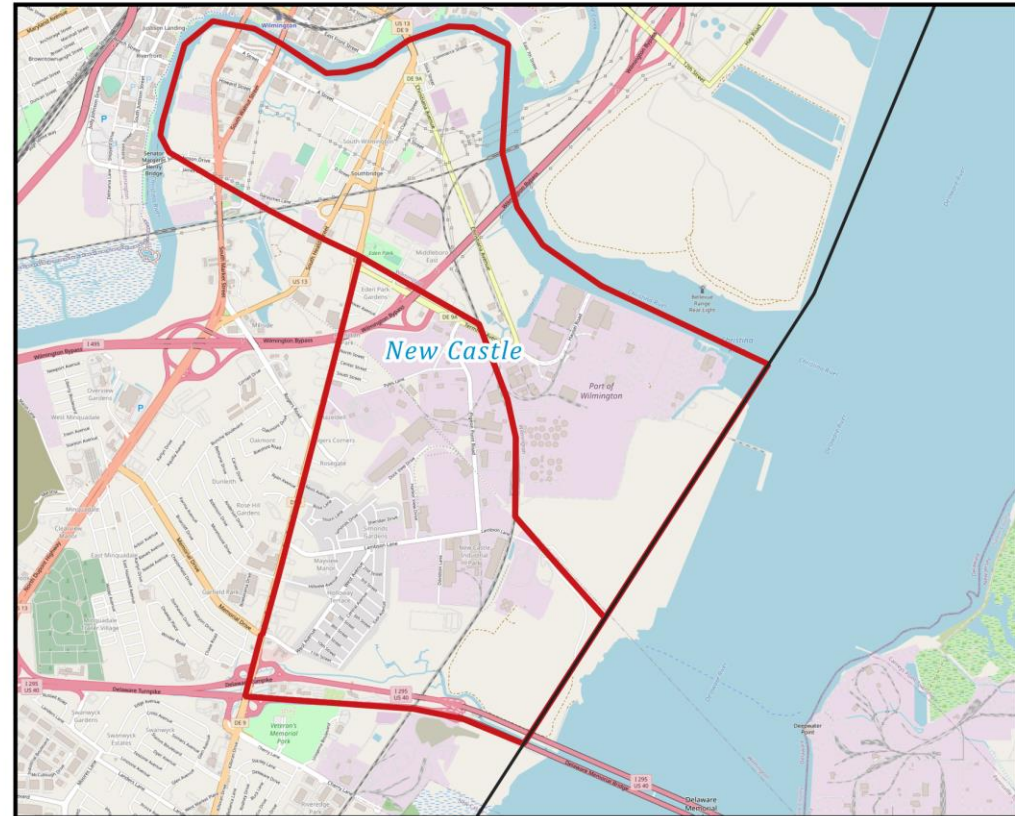
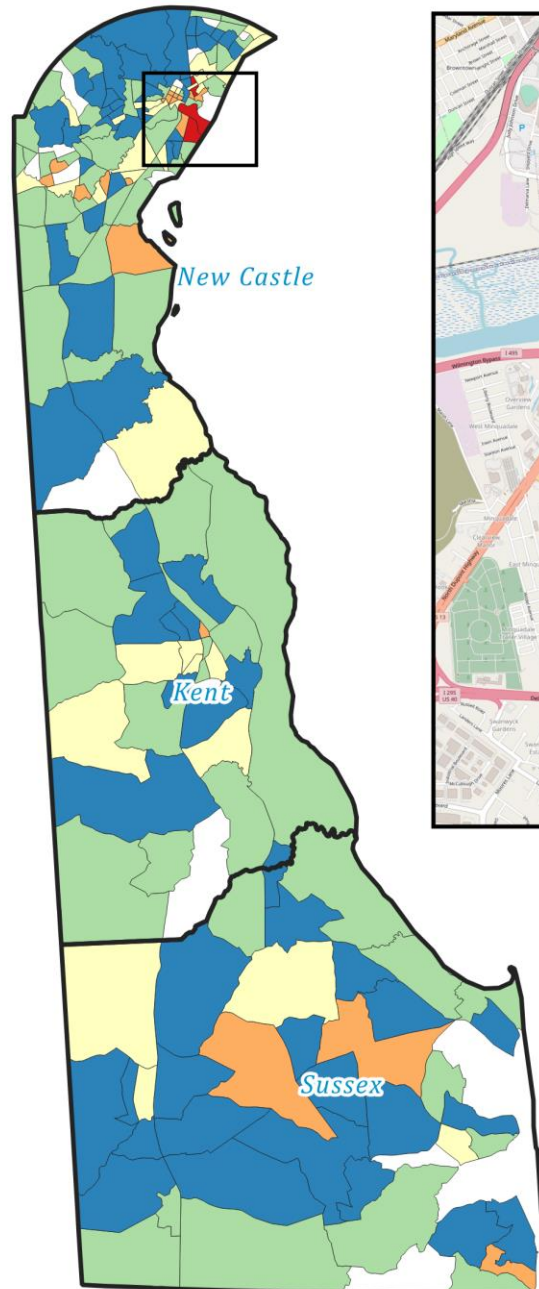


# Delaware, 5-year Infant Mortality Rates by County and Race, 2016-2020

- Black (non-Hispanic)
- Hispanic
- Delaware Rate Black (non-Hispanic)
- Delaware Rate White (non-Hispanic)
- White (non-Hispanic)
- Delaware Hispanic



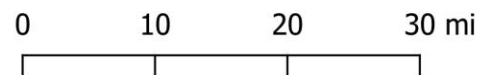
# Infant Mortality Rates (IMR) per 1,000 live births by census tracts in Delaware, 2010-2020



## Infant Mortality Rates (IMR)

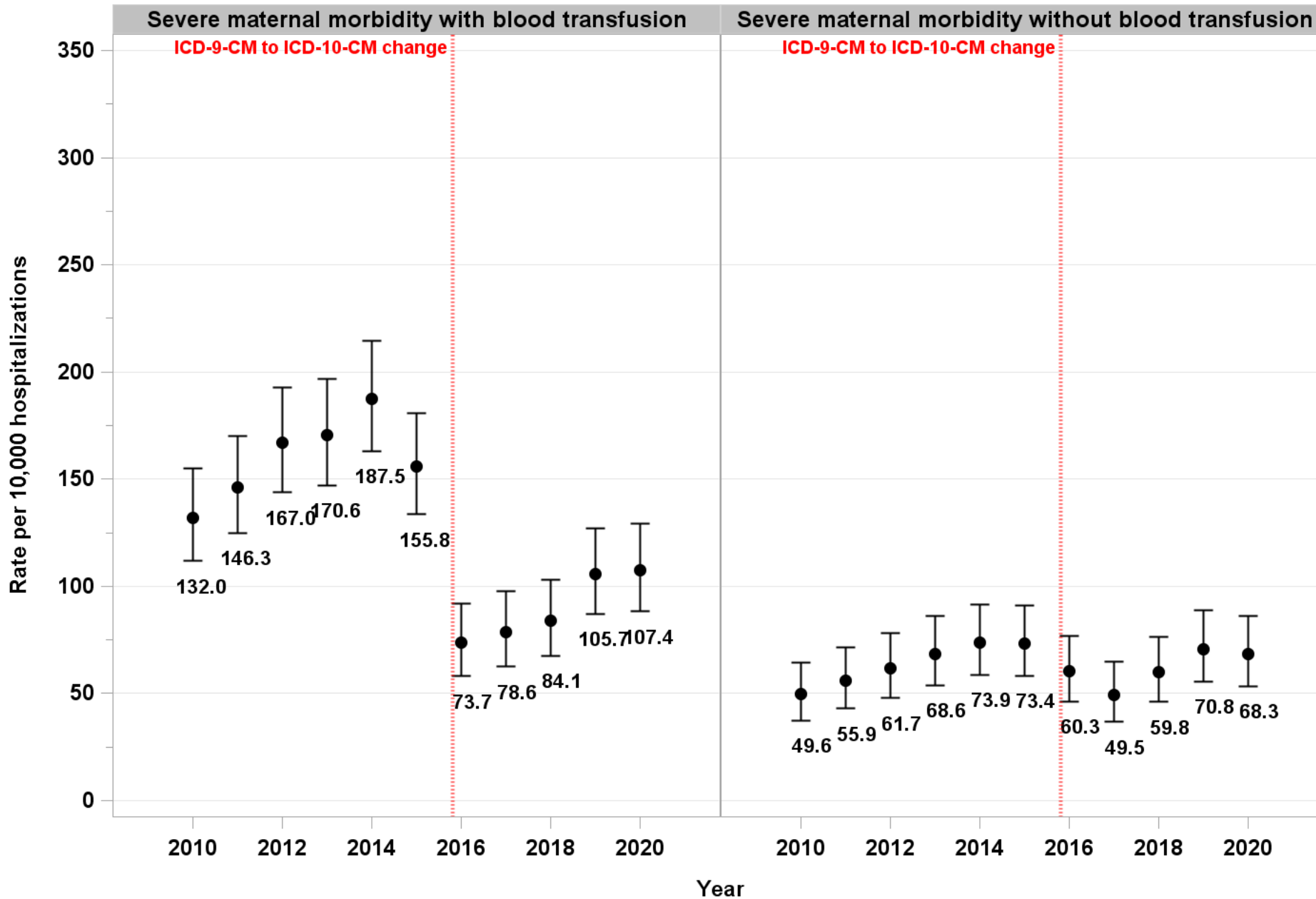
□ County boundaries

- 1.3 - 5.3
- 5.4 - 9.2
- 9.3 - 13.4
- 13.5 - 20.2
- 20.3 - 36.4



Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center  
Notes: Census tracts are based on 2010 shapefiles from U.S. Census Bureau. White or blank cells contain no data.

## Severe maternal morbidity (SMM)\* in Delaware, 2010-2020



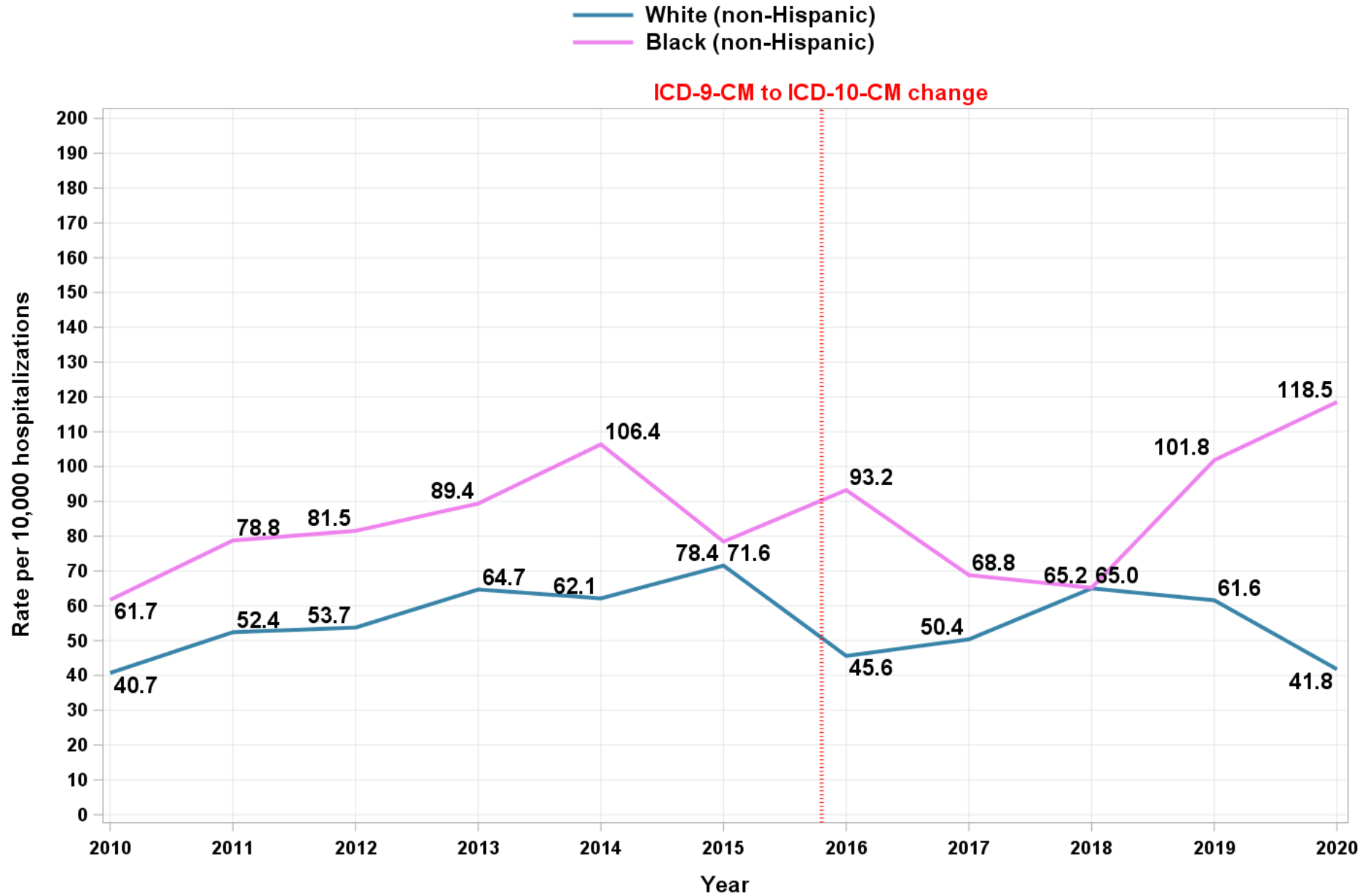
Irrespective how we define and measure severe maternal morbidity, we see increasing rates before and after ICD transition



# Serious Mental Illness (SMI) and Prevalence

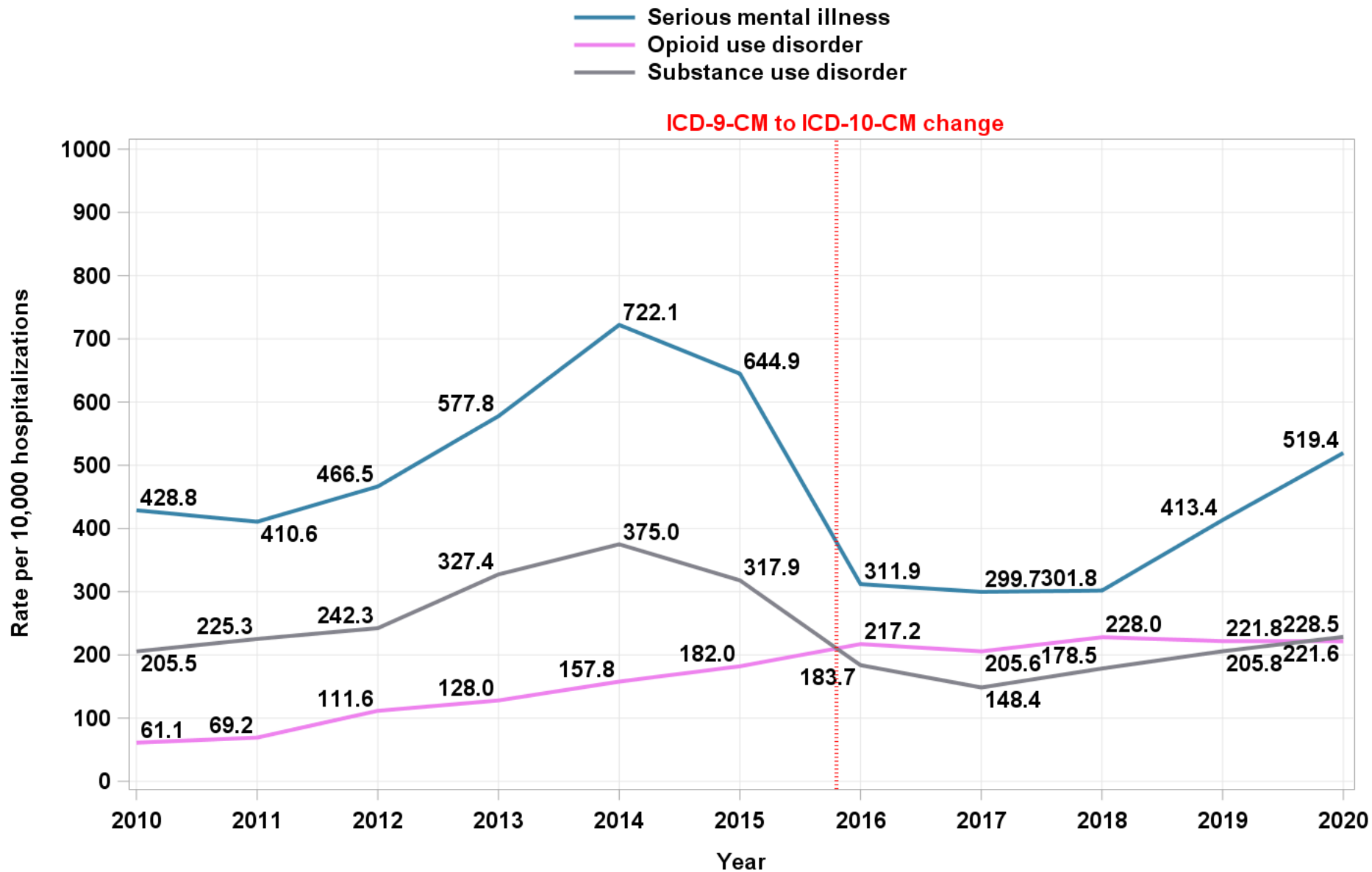
- Substance Abuse and Mental Health Services Administration (SAMHSA) defines SMI<sup>1</sup> among adults as:
  - ...a diagnosable mental, behavior, or emotional disorder that causes serious functional impairment that substantially interferes with or limits one or more major life activities.*
- SMI categories include: schizophrenia and other psychotic disorders, bipolar and related disorders, depressive disorders, anxiety disorders, obsessive-compulsive disorders, trauma-and stressor related disorders, dissociative disorders.
- As per 2020 National Survey on Drug Use and Health (NSDUH)<sup>2</sup> estimates:
  - 14.2 million adults 18 and older in the U.S. have SMI and this represents **one in 20 of all U.S. adults.**
  - Prevalence of SMI in the U.S. was **higher in females** (7.0%) versus male (4.2%).
  - Approximately two percent or 5.7 million people in the U.S. had **SMI and substance use disorder (SUD)**.<sup>3</sup>
- As per 2019-2020 NSDUH state<sup>4</sup> estimates:
  - Prevalence of SMI in Delaware for adults **18 and older was 5.4%.**

# Severe maternal morbidity (SMM)\* by race in Delaware, 2010-2020



Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center, 2010-2020  
\*SMM without blood transfusion

# Severe mental illness (SMI)\*, opioid use disorder (OUD), and substance use disorder (SUD) among women with a delivery hospitalization in Delaware, 2010-2020



SMI increased by **67% during 2016-2020**

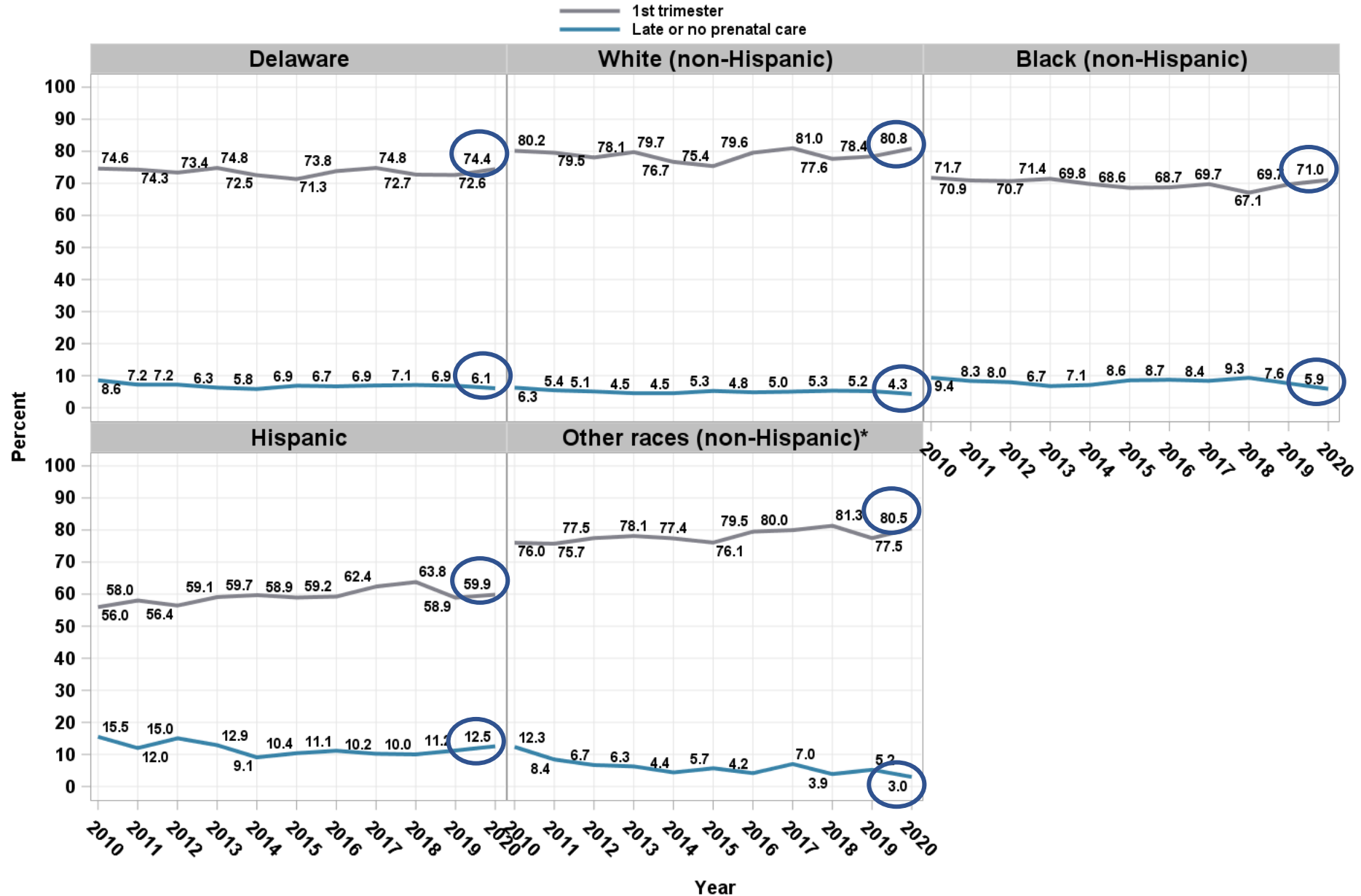
SUD increased by **24% during 2016-2020**

# Maternal Health Access

## U.S. 2020

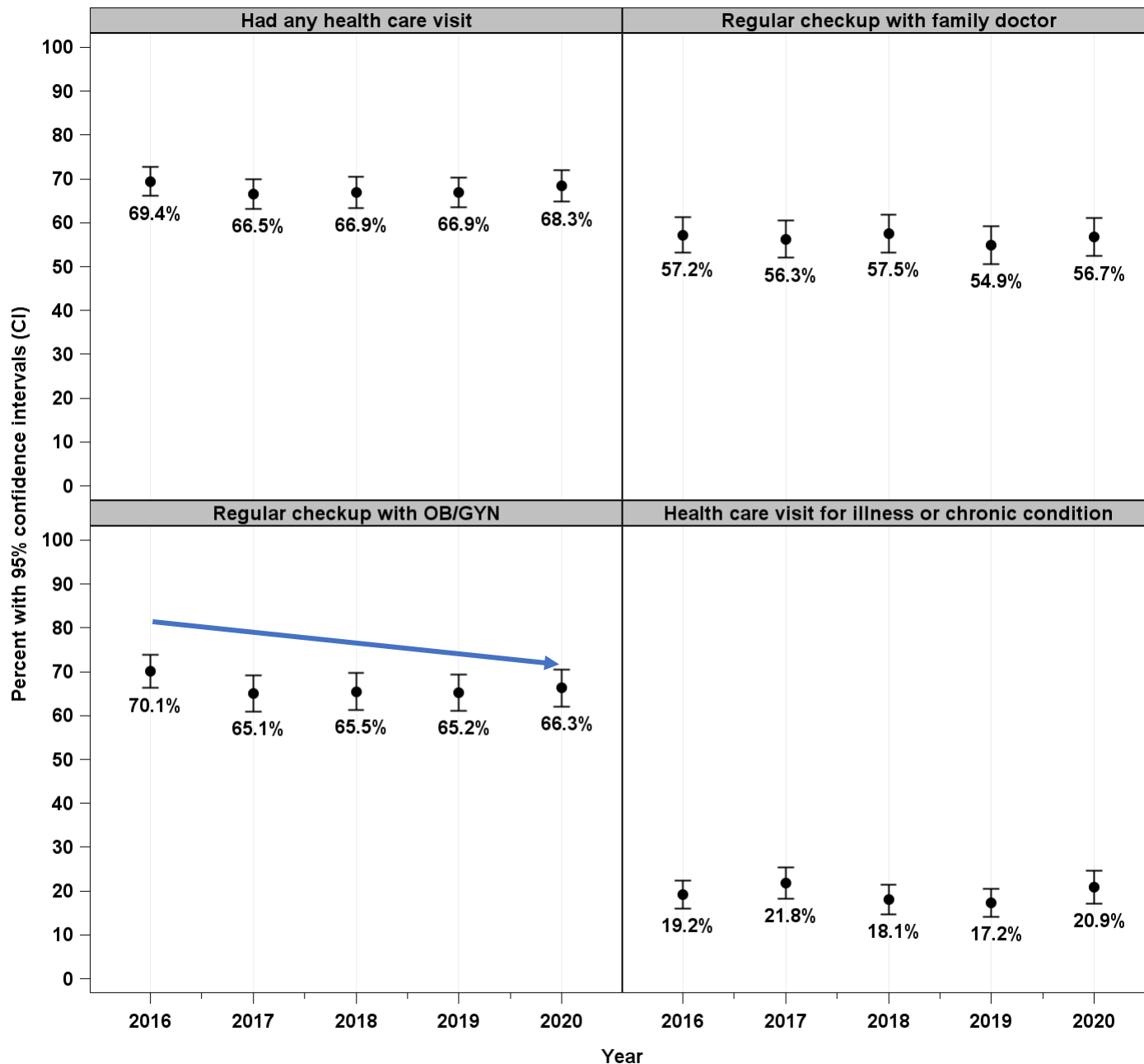
- 1<sup>st</sup> trimester prenatal care was **77.7%** (White 82.8%; Blacks 68.4%; Hispanic 72.3%)
- Late or no prenatal care was **6.2%** (White 4.5%; Blacks 9.1%; Hispanic 7.2%)

Timing of prenatal care\* by race and ethnicity in Delaware, 2010-2020



Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center, 2010-2020  
 \*Other races include American Indian/Alaska Native, Asian, Native Hawaiian/Pacific Islander, and Two or more races

Health care visits\* and type of visits\*\* 12-months before pregnancy in Delaware, 2016-2020



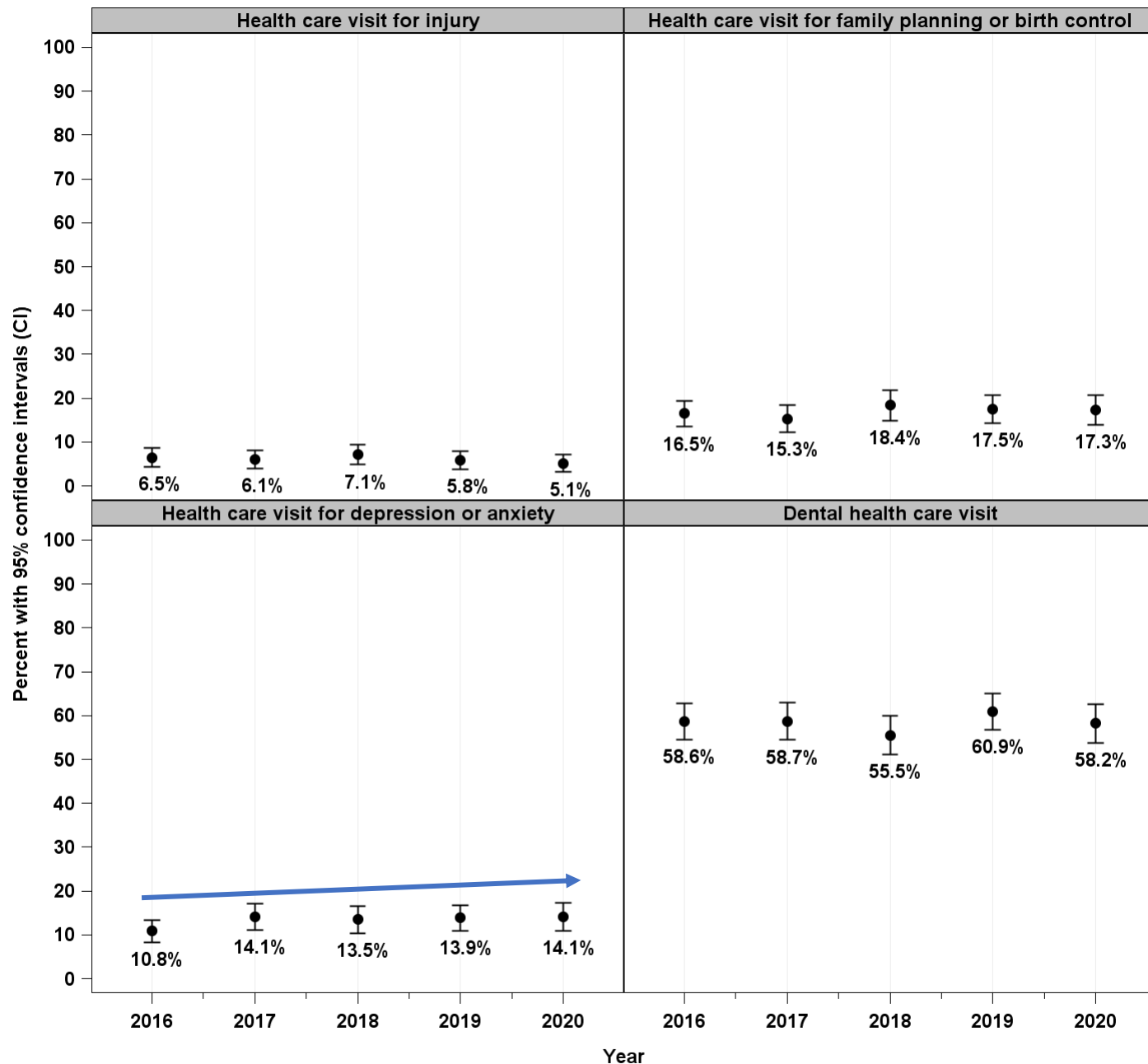
*In the 12 months before you got pregnant with your new baby, did you have any health care visits with a doctor, nurse, or other health care worker, including a dental or mental health worker? Yes/No*

*...If "Yes," What type of health care visit did you have in the 12 months before you got pregnant with your new baby?"*

Regular checkup with OB/GYN decreased by **4-percentage points during 2016-2020**

Source: Delaware Department of Health and Social Services, Division of Public Health, PRAMS 2016-2020  
 \*In the 12 months before you got pregnant with your new baby, did you have any health care visits with a doctor, nurse, or other health care worker, including a dental or mental health worker?  
 \*\*What type of health care visit did you have in the 12 months before you got pregnant with your new baby?

Health care visits\* and type of visits\*\* 12-months before pregnancy in Delaware, 2016-2020



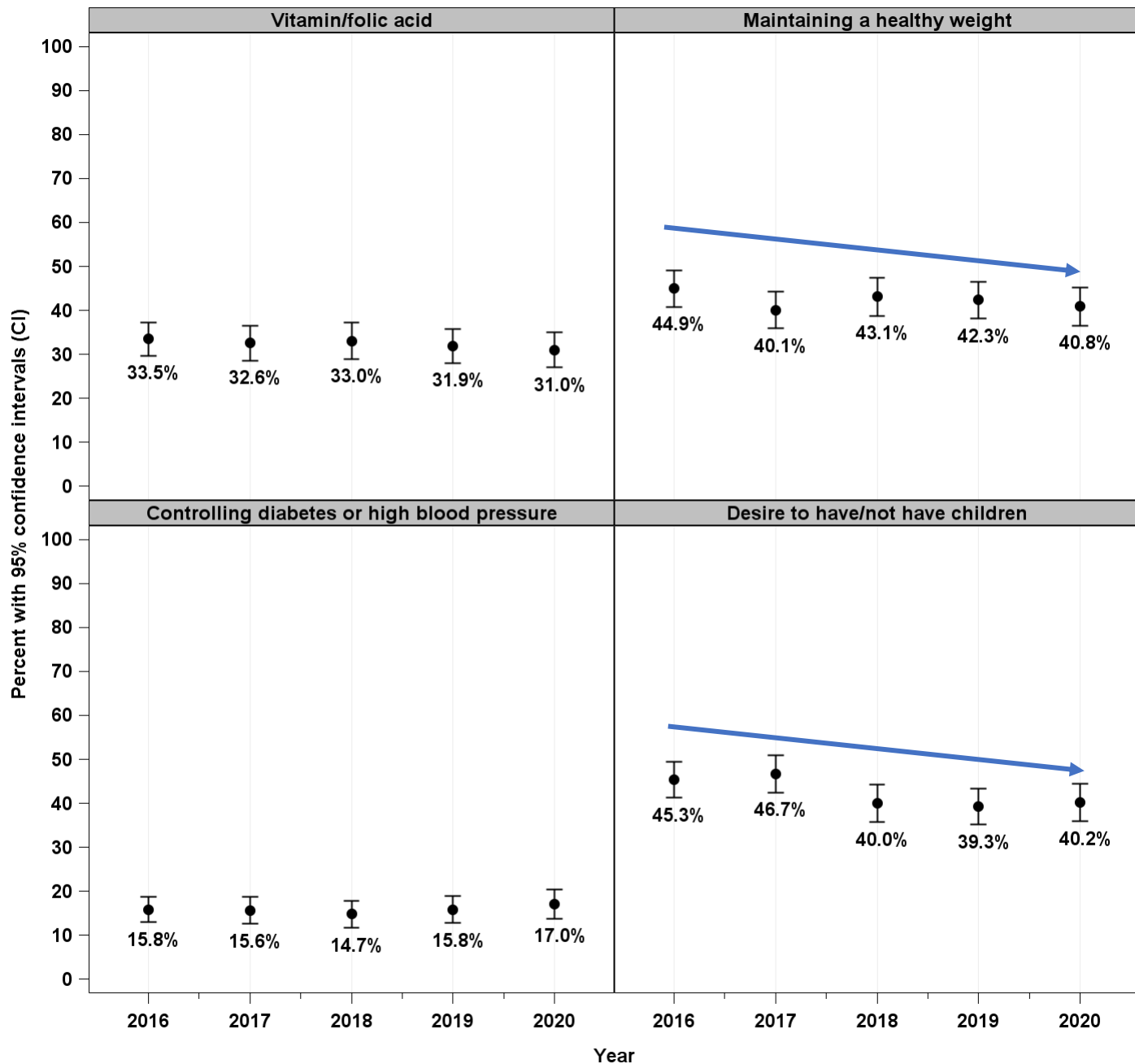
Health care visit for depression or anxiety increased by **3-percentage points during 2016-2020**

Source: Delaware Department of Health and Social Services, Division of Public Health, PRAMS 2016-2020

\*In the 12 months before you got pregnant with your new baby, did you have any health care visits with a doctor, nurse, or other health care worker, including a dental or mental health worker?

\*\*What type of health care visit did you have in the 12 months before you got pregnant with your new baby?

Health care provider discussion\* 12-months before pregnancy in Delaware, 2016-2020



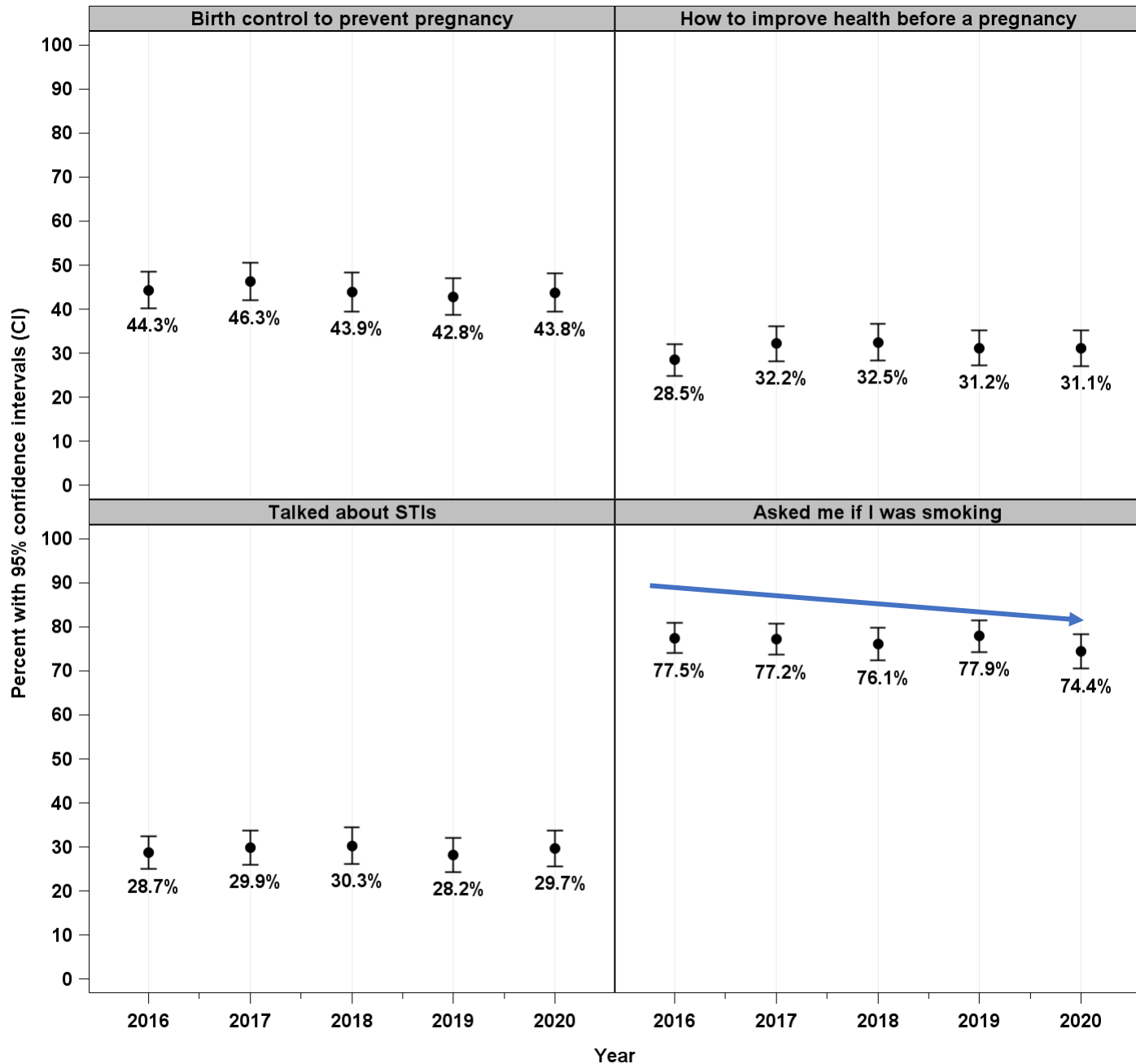
*During any of your health care visits in the 12 months before you got pregnant, **did a doctor, nurse, or other health care worker do any of the following things?... Yes/No***

***Tell/Talk/Ask/Test...***

- Asked about maintaining a healthy weight **decreased by 4-percentage points during 2016-2020**
- Talked about your desire to have/not have children **decreased by 5-percentage points during 2016-2020**

Source: Delaware Department of Health and Social Services, Division of Public Health, PRAMS 2016-2020  
 \*During any of your health care visits in the 12 months before you got pregnant, did a doctor, nurse, or other health care worker do any of the following things?

Health care provider discussion\* 12-months before pregnancy in Delaware, 2016-2020



*During any of your health care visits in the 12 months before you got pregnant, **did a doctor, nurse, or other health care worker do any of the following things?...** Yes/No*

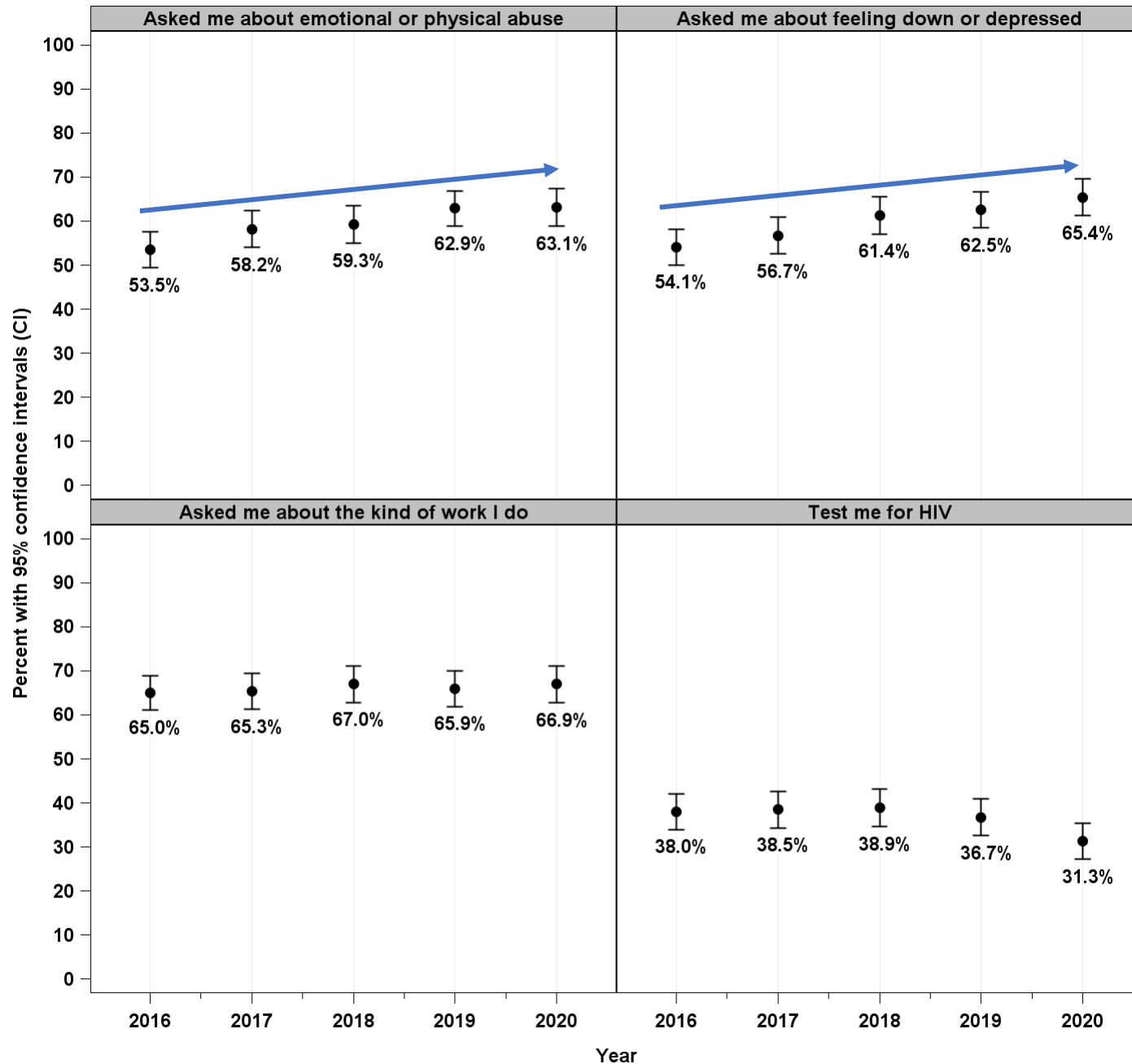
***Tell/Talk/Ask/Test...***

- Asked if you were smoking **decreased by 3-percentage points during 2016-2020**

Source: Delaware Department of Health and Social Services, Division of Public Health, PRAMS 2016-2020  
 \*During any of your health care visits in the 12 months before you got pregnant, did a doctor, nurse, or other health care worker do any of the following things?



Health care provider discussion\* 12-months before pregnancy in Delaware, 2016-2020



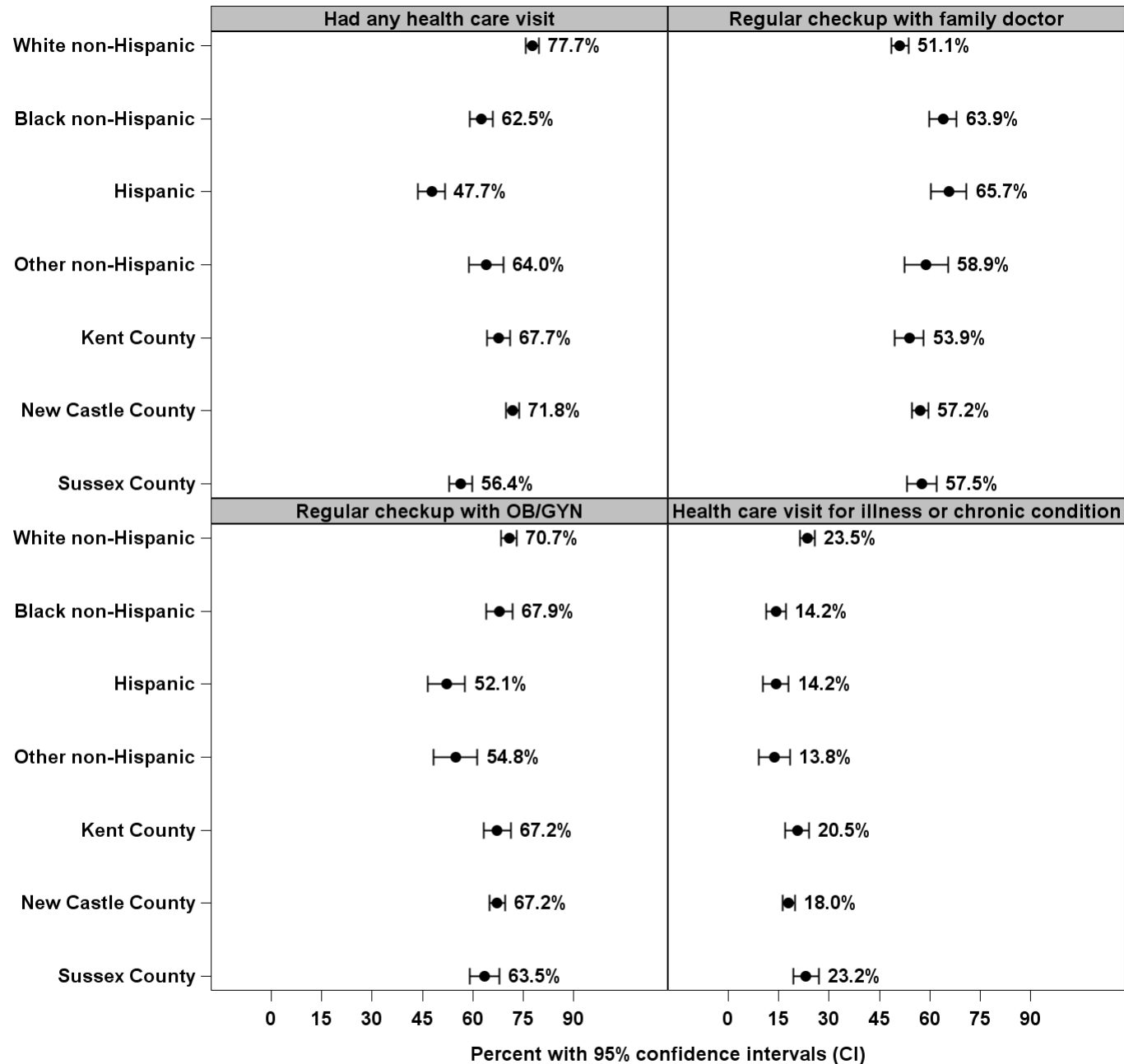
*During any of your health care visits in the 12 months before you got pregnant, **did a doctor, nurse, or other health care worker do any of the following things?...** Yes/No*

**Tell/Talk/Ask/Test...**

- Asked you about emotional or physical abuse **increased by 10-percentage points during 2016-2020**
- Asked you about feeling down or depressed **increased by 10-percentage points during 2016-2020**

Source: Delaware Department of Health and Social Services, Division of Public Health, PRAMS 2016-2020  
 \*During any of your health care visits in the 12 months before you got pregnant, did a doctor, nurse, or other health care worker do any of the following things?

Health care visits\* and type of visits\*\* 12-months before pregnancy in Delaware, 2016-2020

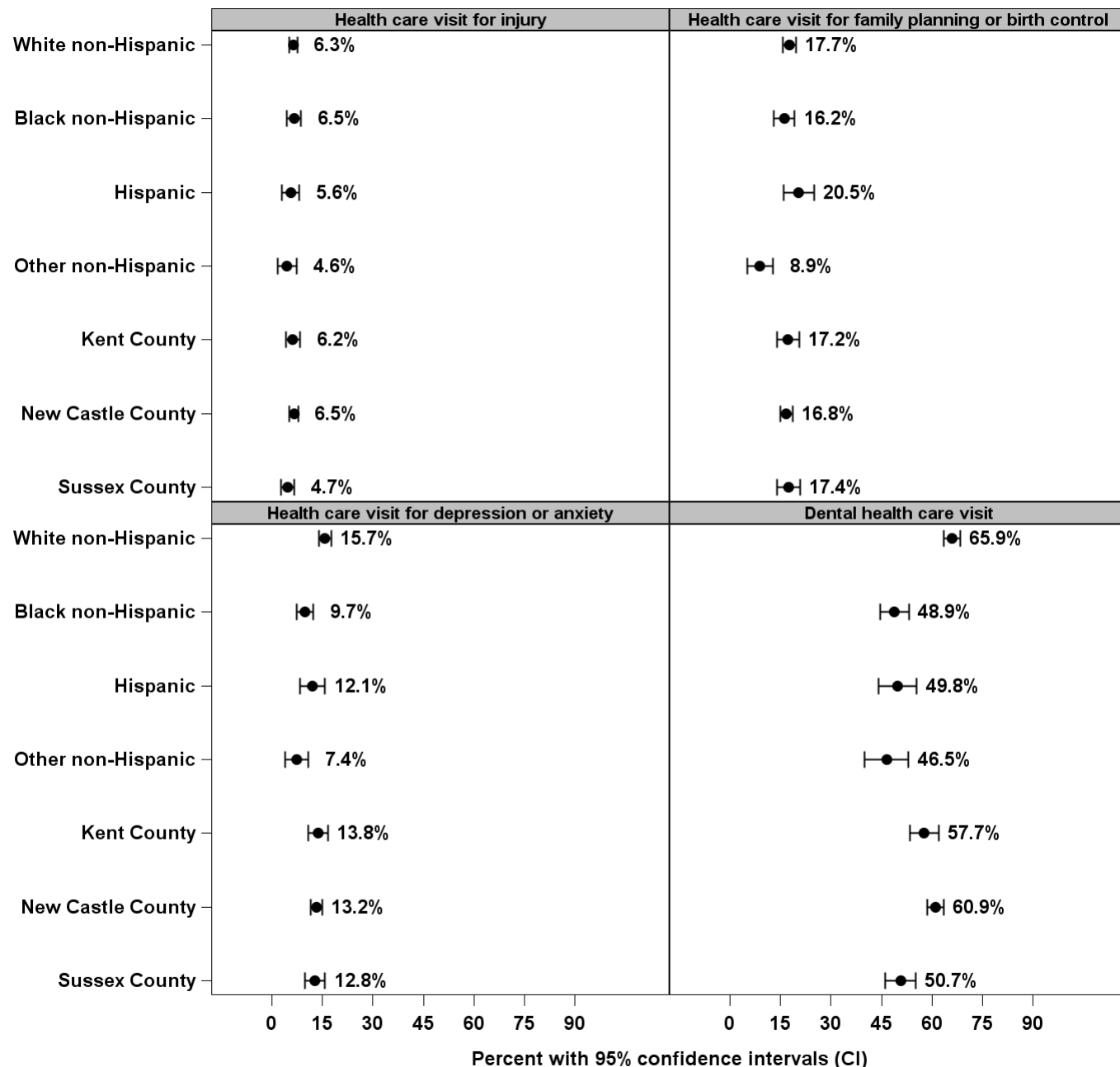


*In the 12 months before you got pregnant with your new baby, did you have any health care visits with a doctor, nurse, or other health care worker, including a dental or mental health worker?*  
**Yes/No**

*...If "Yes," What type of health care visit did you have in the 12 months before you got pregnant with your new baby?"*

Source: Delaware Department of Health and Social Services, Division of Public Health, PRAMS 2016-2020  
 \*In the 12 months before you got pregnant with your new baby, did you have any health care visits with a doctor, nurse, or other health care worker, including a dental or mental health worker?  
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Health care visits\* and type of visits\*\* 12-months before pregnancy in Delaware, 2016-2020

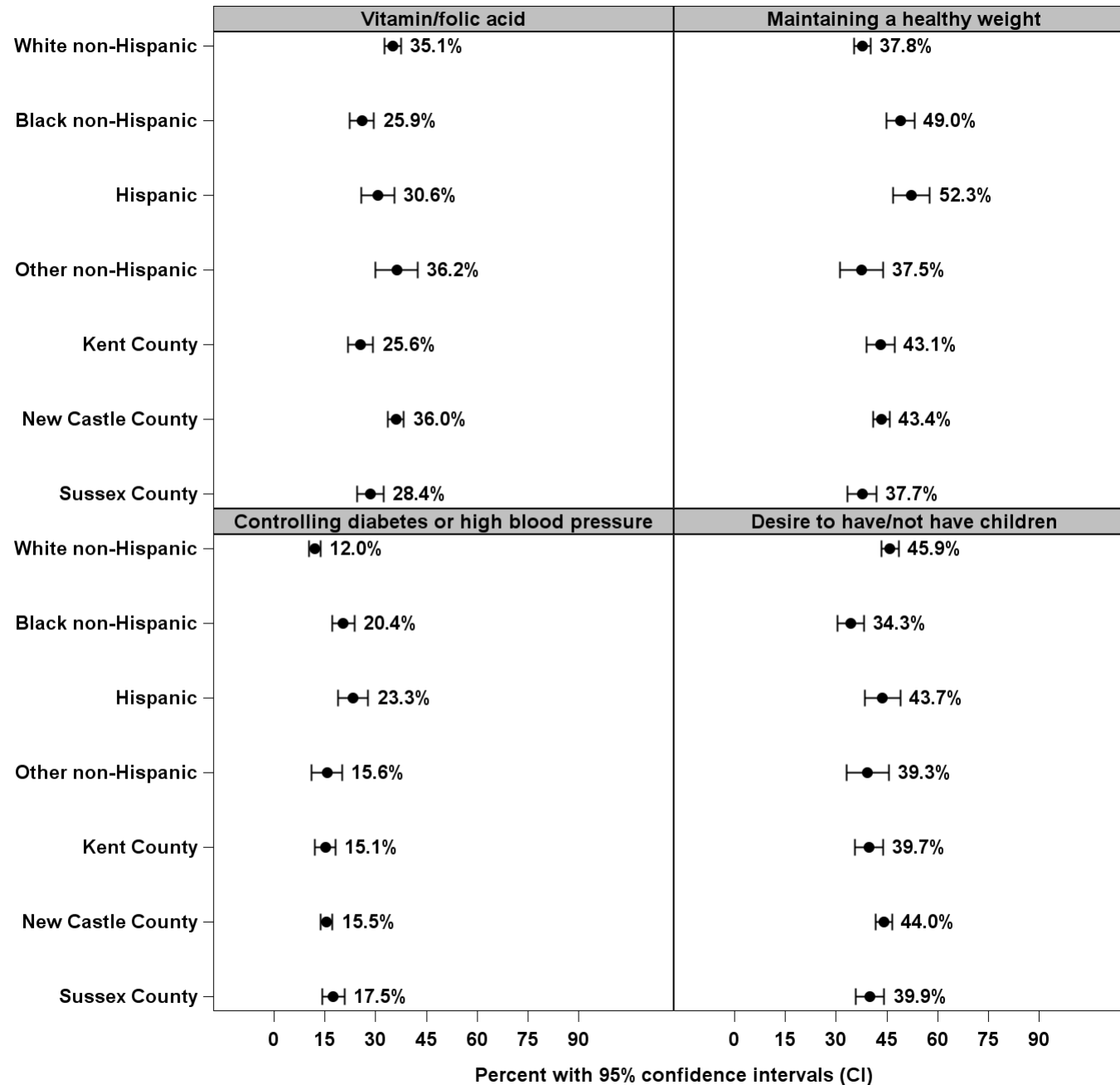


*In the 12 months before you got pregnant with your new baby, did you have any health care visits with a doctor, nurse, or other health care worker, including a dental or mental health worker?*  
**Yes/No**

*...If "Yes," What type of health care visit did you have in the 12 months before you got pregnant with your new baby?"*

Source: Delaware Department of Health and Social Services, Division of Public Health, PRAMS 2016-2020  
 \*In the 12 months before you got pregnant with your new baby, did you have any health care visits with a doctor, nurse, or other health care worker, including a dental or mental health worker?  
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Health care provider discussion\* 12-months before pregnancy in Delaware, 2016-2020

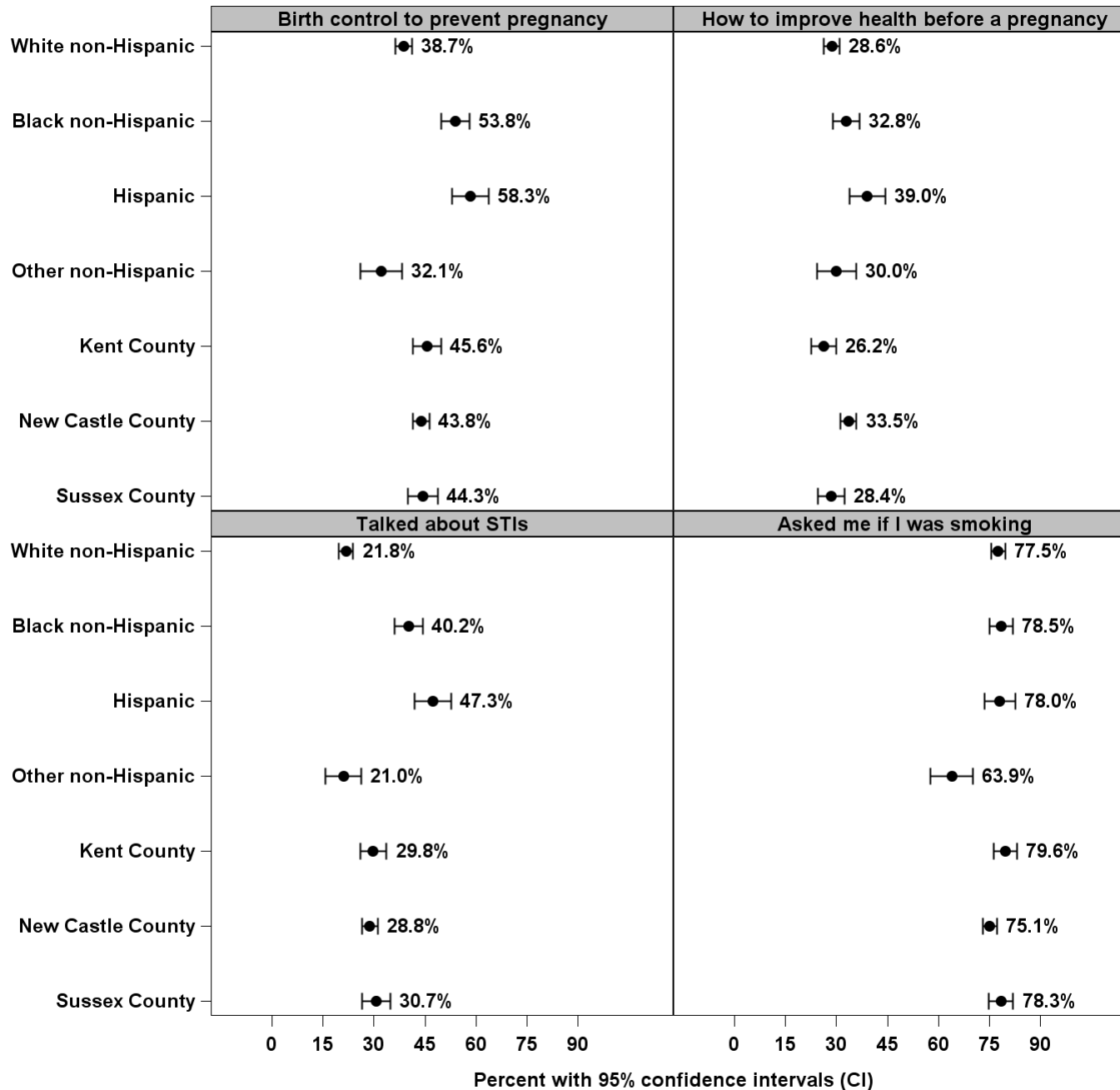


*During any of your health care visits in the 12 months before you got pregnant, **did a doctor, nurse, or other health care worker do any of the following things?...** Yes/No*

***Tell/Talk/Ask/Test...***

Source: Delaware Department of Health and Social Services, Division of Public Health, PRAMS 2016-2020  
 \*During any of your health care visits in the 12 months before you got pregnant, did a doctor, nurse, or other health care worker do any of the following things?

Health care provider discussion\* 12-months before pregnancy in Delaware, 2016-2020

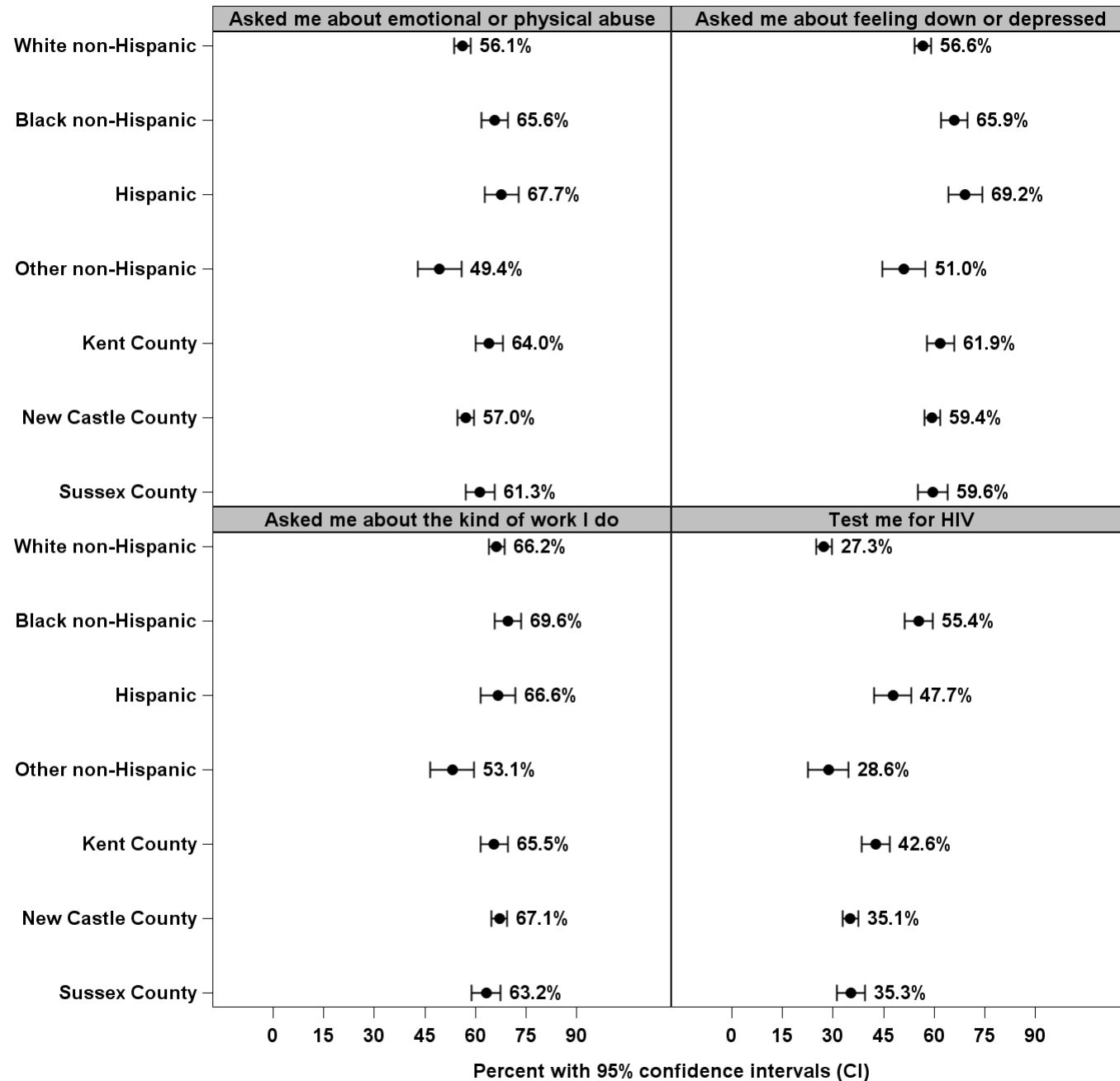


*During any of your health care visits in the 12 months before you got pregnant, **did a doctor, nurse, or other health care worker do any of the following things?...** Yes/No*

***Tell/Talk/Ask/Test...***

Source: Delaware Department of Health and Social Services, Division of Public Health, PRAMS 2016-2020  
 \*During any of your health care visits in the 12 months before you got pregnant, did a doctor, nurse, or other health care worker do any of the following things?

Health care provider discussion\* 12-months before pregnancy in Delaware, 2016-2020



*During any of your health care visits in the 12 months before you got pregnant, **did a doctor, nurse, or other health care worker do any of the following things?...***  
**Yes/No**

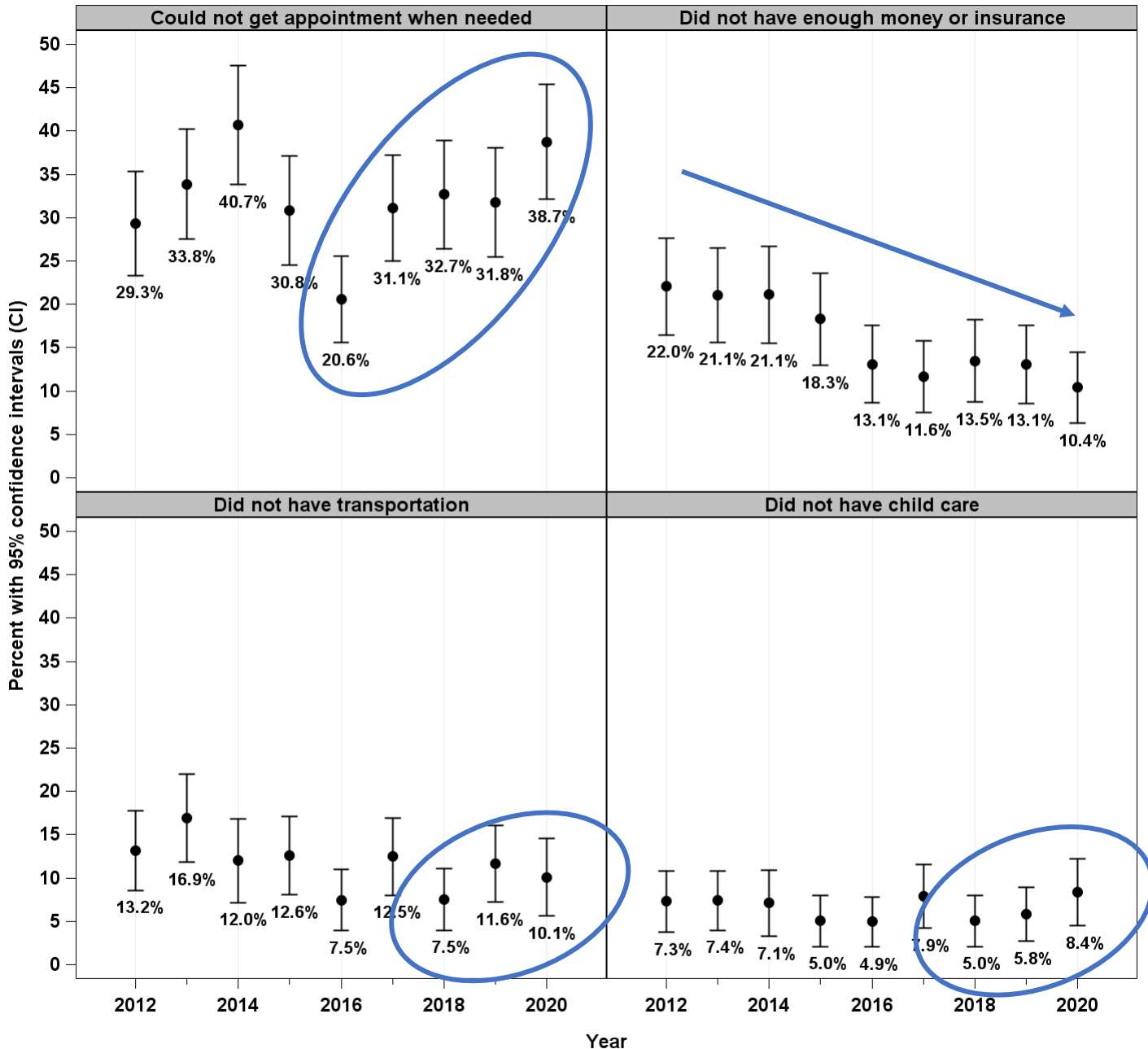
***Tell/Talk/Ask/Test...***

Source: Delaware Department of Health and Social Services, Division of Public Health, PRAMS 2016-2020  
 \*During any of your health care visits in the 12 months before you got pregnant, did a doctor, nurse, or other health care worker do any of the following things?

Early prenatal care\* and reasons for not getting prenatal care\*\* in Delaware, 2012-2020

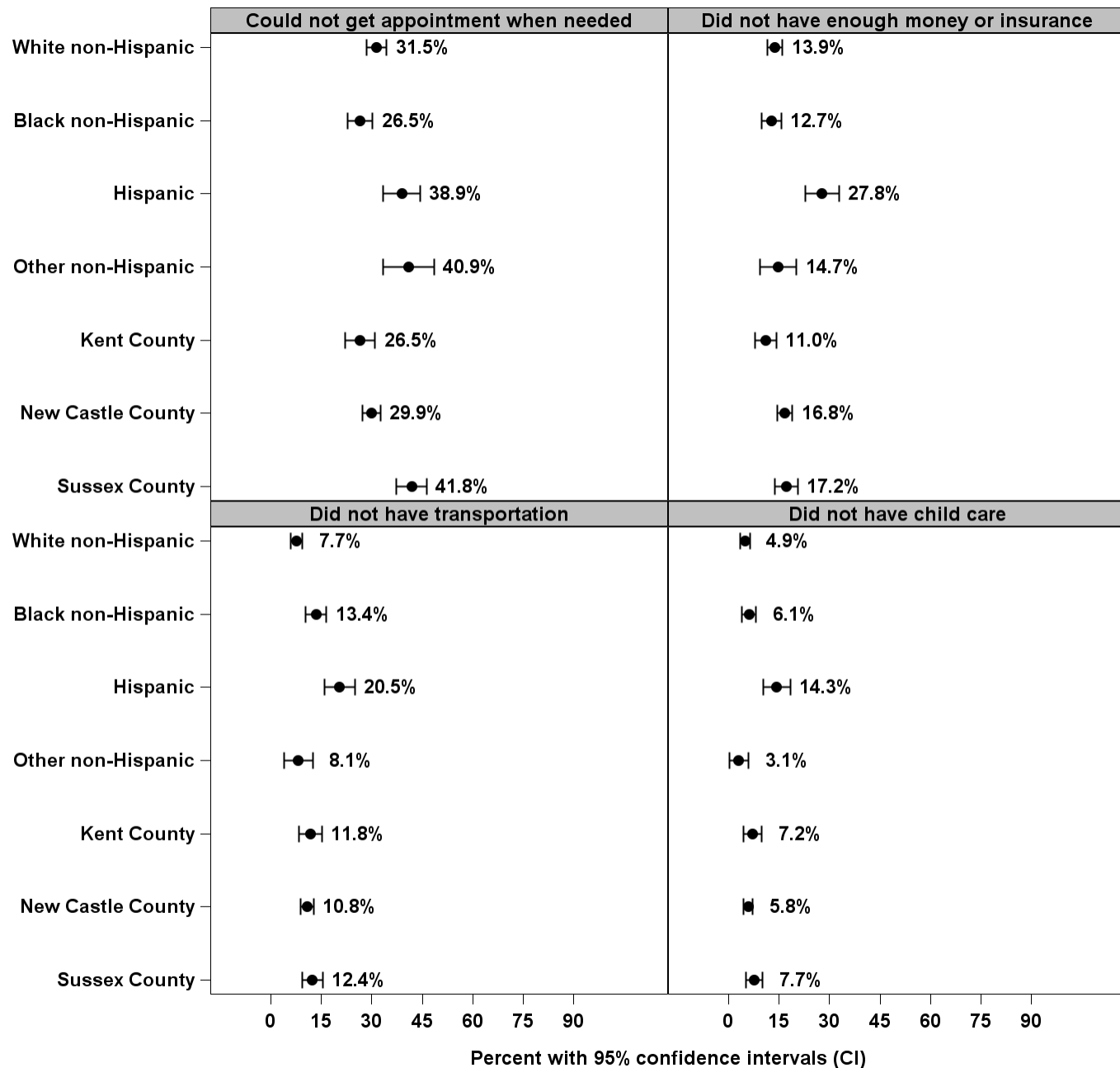
*Did you get prenatal care as early in your pregnancy as you wanted?  
Yes/No...If "No"...?*

- Couldn't get appointment when needed **increased by 18 percentage points** during 2016-2020
- Did not have transportation **increased by three percentage points** during 2018-2020
- Did not have childcare **increased by three percentage points** during 2018-2020
- Did not have enough money/insurance to pay for visits **decreased by 12 percentage points** during 2012-2020



Source: Delaware Department of Health and Social Services, Division of Public Health, PRAMS 2016-2020  
\*Did you get prenatal care as early in your pregnancy as you wanted (Yes/No)  
\*\*If "No"...Did any of these things keep you from getting prenatal care when you wanted it?

Early prenatal care\* and reasons for not getting prenatal care\*\* in Delaware, 2012-2020



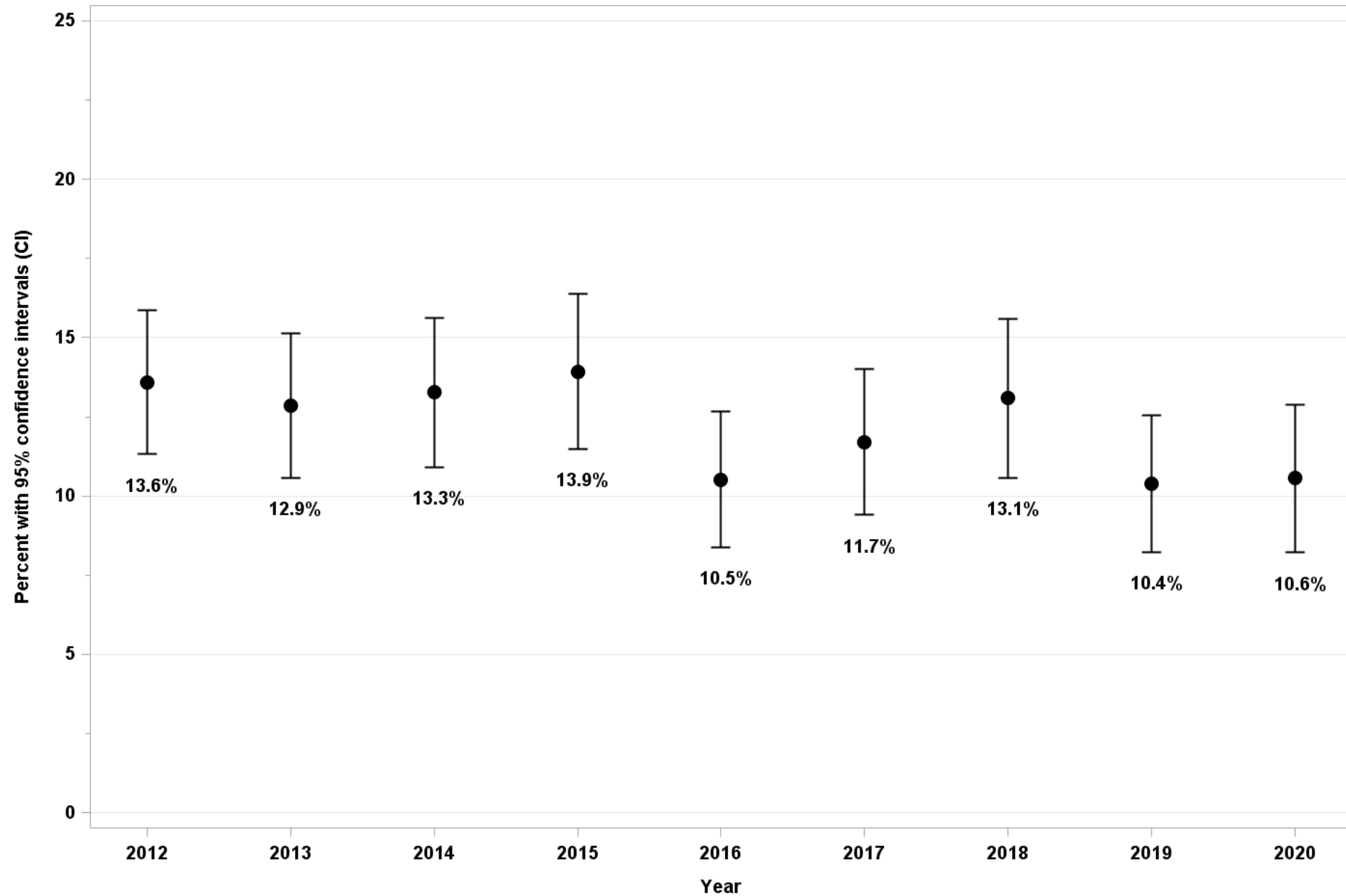
*Did you get prenatal care as early in your pregnancy as you wanted? Yes/No...If “No”...?*

- **Higher percentage of other non-Hispanic women (i.e., American Indian/Alaska Native, Asians, Native Hawaiian/Pacific Islander, and two or more races) and Hispanic women** indicated not getting an appointment when needed.
- **42% of women** residing in **Sussex County** indicated not getting appointments when needed.
- **28% of Hispanic women** indicated not having enough money or insurance to get early prenatal care.
- **One in five Hispanic women** indicated not having transportation to get early prenatal care.
- **14% of Hispanic women** indicated not having childcare to get early prenatal care.

Source: Delaware Department of Health and Social Services, Division of Public Health, PRAMS 2016-2020  
 \*Did you get prenatal care as early in your pregnancy as you wanted (Yes/No)  
 \*\*If “No”...Did any of these things keep you from getting prenatal care when you wanted it?



## Postpartum depressive symptoms\* prevalence in Delaware, 2012-2020

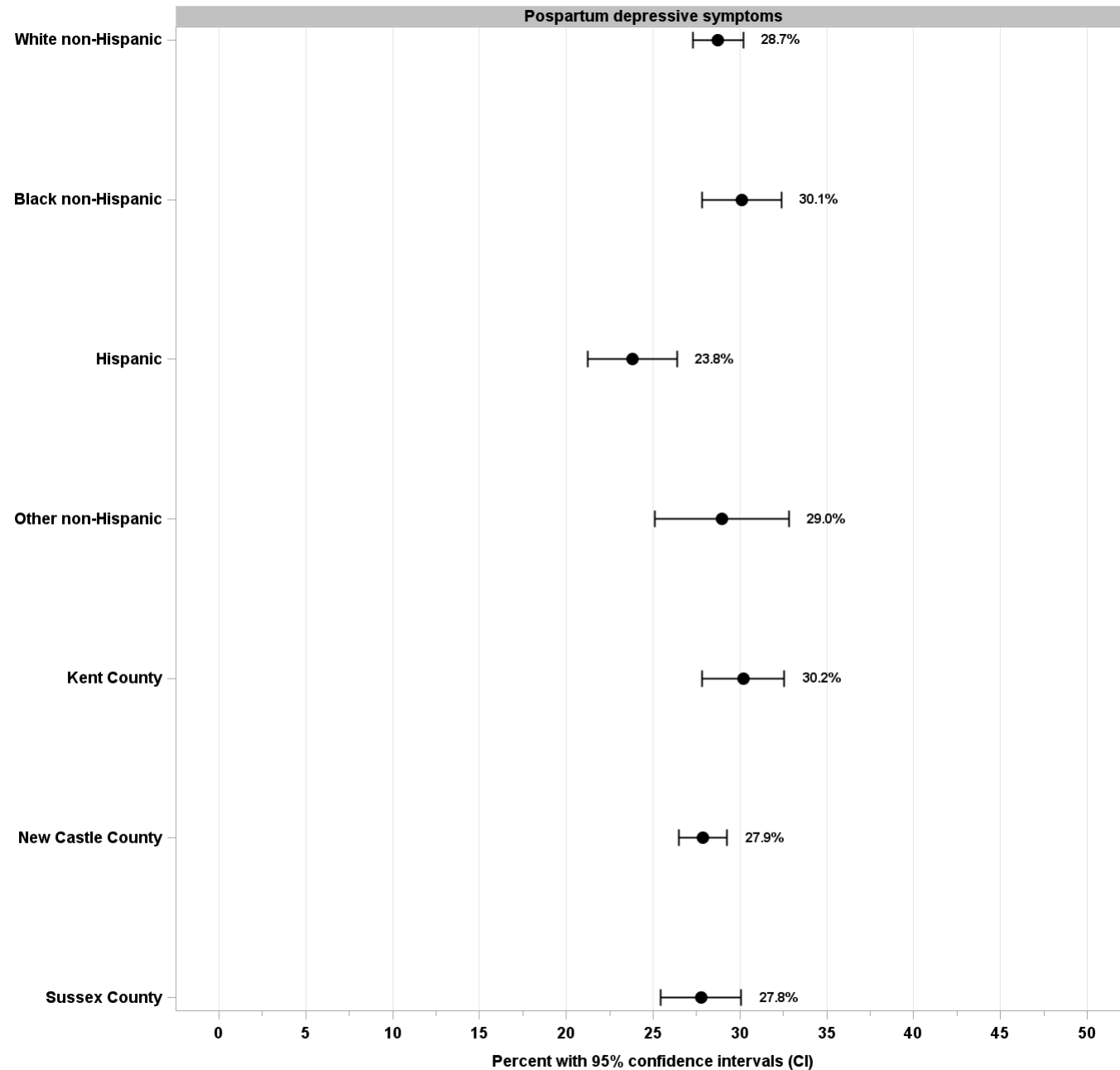


Source: Delaware Department of Health and Social Services, Division of Public Health, PRAMS 2012-2020

\*Since your new baby was born, how often have you felt down, depressed, or hopeless? response options: a) always; b) often; c) sometimes; d) rarely; and never.

\*Since your new baby was born, how often have you had little interest or little pleasure in doing things? response options: a) always; b) often; c) sometimes; d) rarely; and never.

# Postpartum depressive symptoms\* prevalence in Delaware, 2012-2020



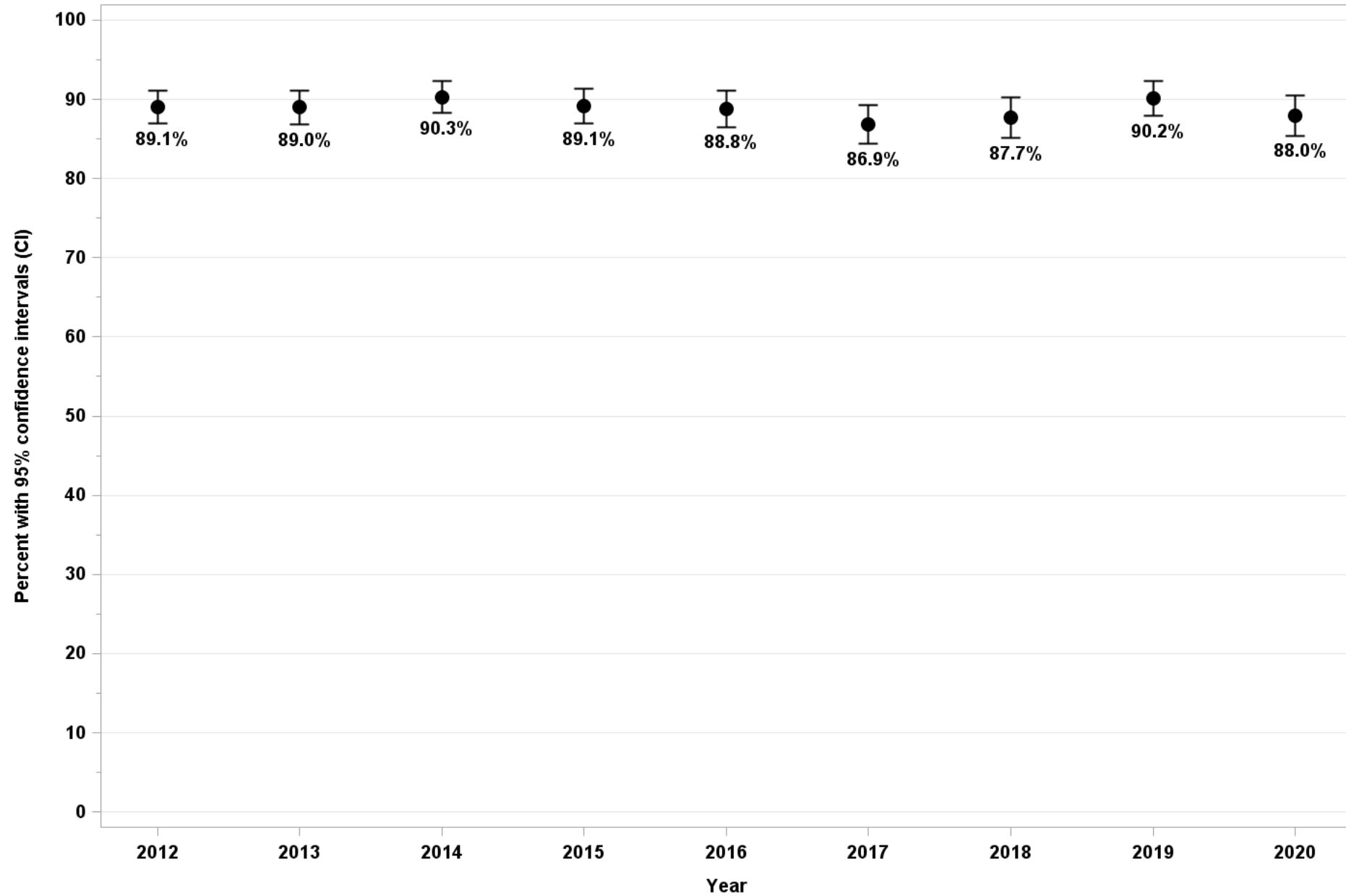
**Hispanic women had lower prevalence (23.8%) of postpartum depressive symptoms as compared to White (non-Hispanic) women (28.7%).**

Source: Delaware Department of Health and Social Services, Division of Public Health, PRAMS 2012-2020

\*Since your new baby was born, how often have you felt down, depressed, or hopeless? response options: a) always; b) often; c) sometimes; d) rarely; and never.

\*Since your new baby was born, how often have you had little interest or little pleasure in doing things? response options: a) always; b) often; c) sometimes; d) rarely; and never.

## Postpartum check-up\* prevalence in Delaware, 2012-2020

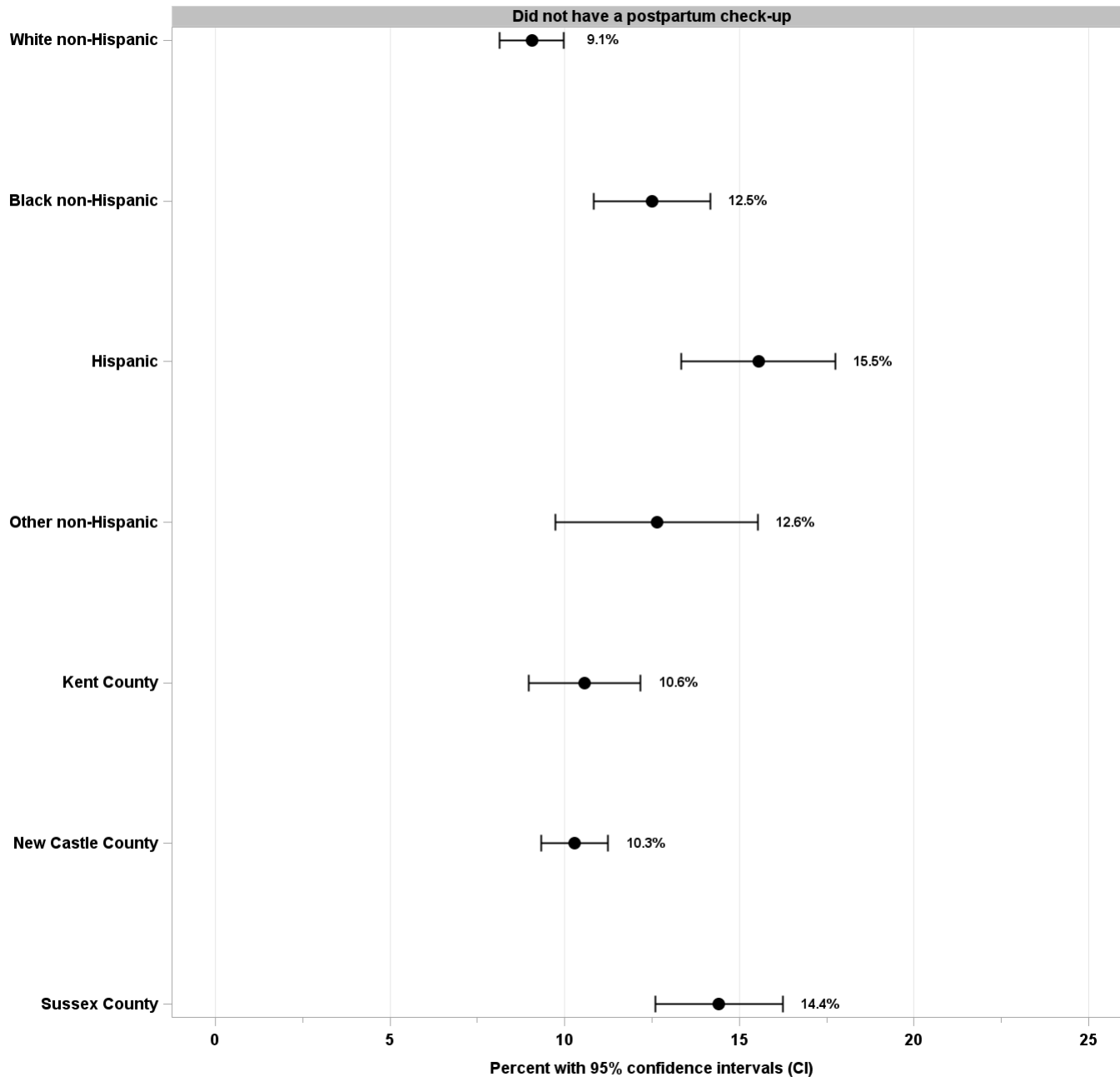


Source: Delaware Department of Health and Social Services, Division of Public Health, PRAMS 2012-2020

\*Since your new baby was born, have you had a postpartum checkup for yourself?

\*A postpartum checkup is the regular checkup a woman has about 4-6 weeks after she gives birth.

### Lack of postpartum check-up\* prevalence in Delaware, 2012-2020



Percent of women who did not have a postpartum check up **was higher among Hispanic women (15.5%)** as compared to **White (non-Hispanic) women (9.1%)**.

Percent of women who did not have a postpartum check up **was higher among Black (non-Hispanic) women** as compared to **White (non-Hispanic) women**.

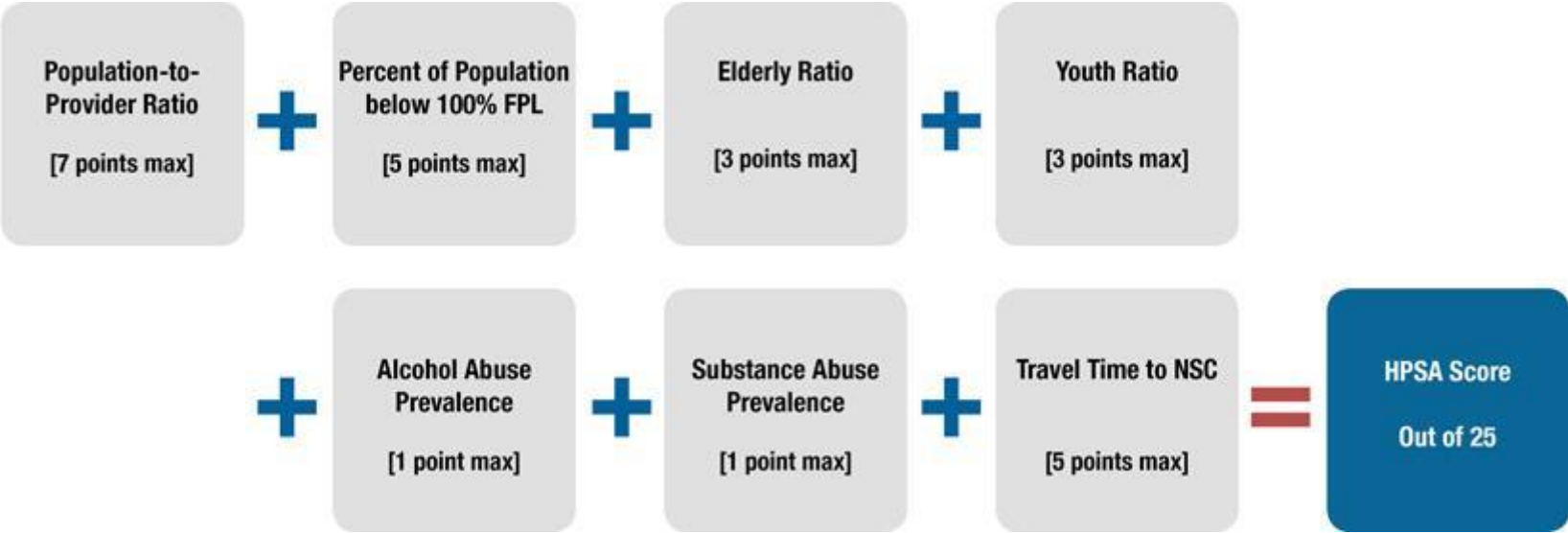
Source: Delaware Department of Health and Social Services, Division of Public Health, PRAMS 2012-2020  
footnote2 \*Since your new baby was born, have you had a postpartum checkup for yourself?  
\*A postpartum checkup is the regular checkup a woman has about 4-6 weeks after she gives birth.

# Health Professional Shortage Areas (HPSA)

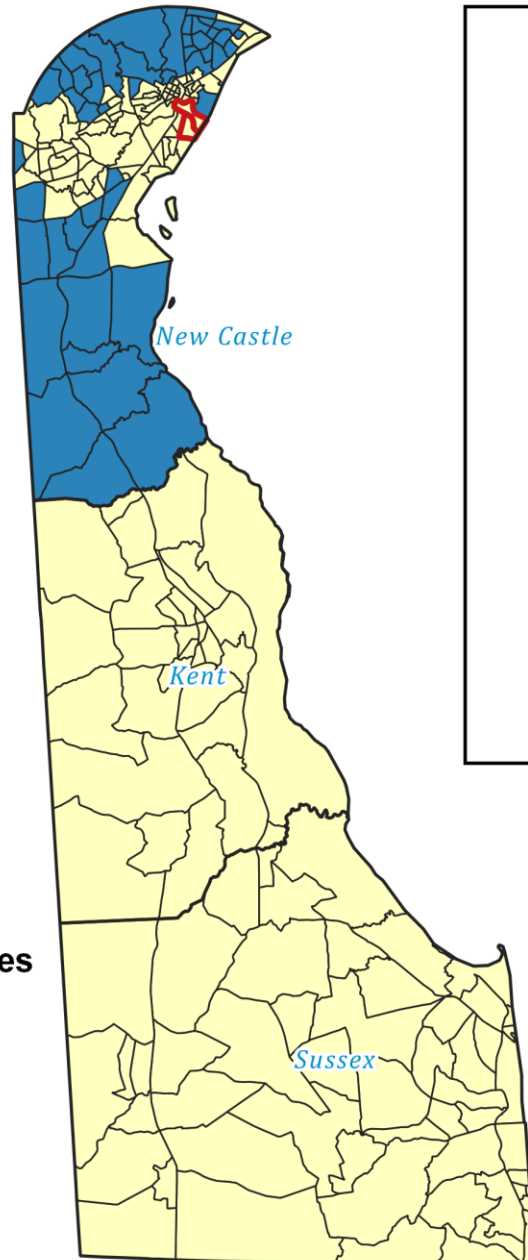
## Primary Care HPSA Scoring



## Mental Health HPSA Scoring

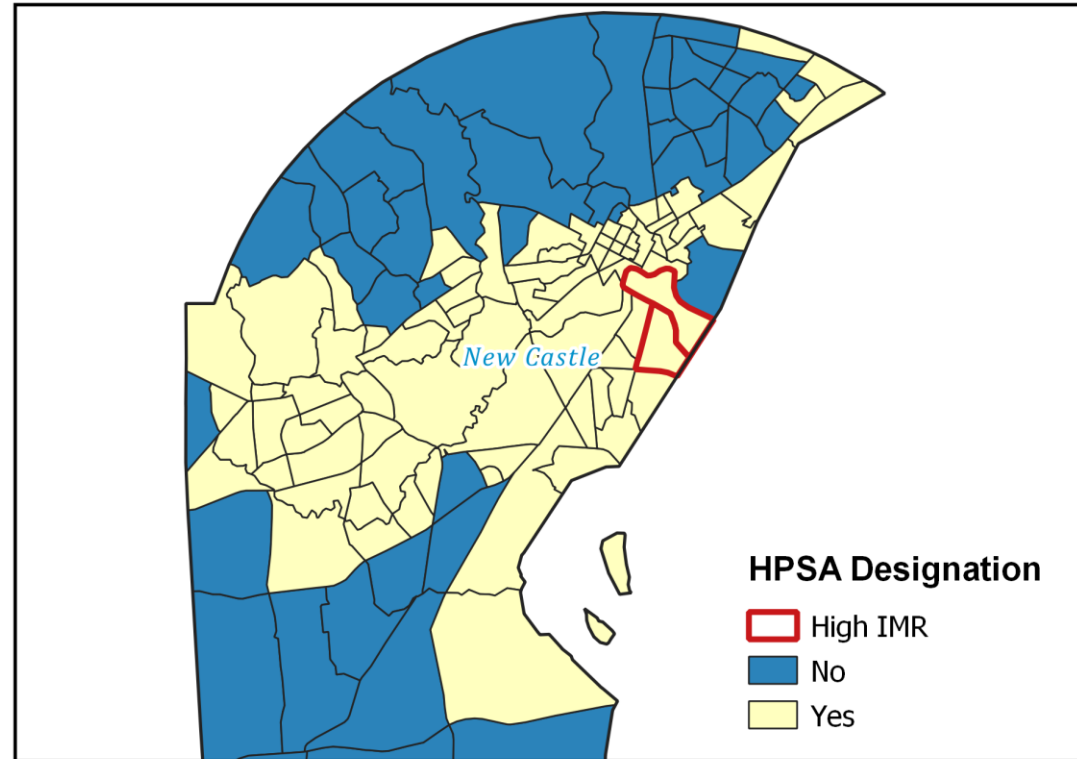


# Delaware Health Professional Shortage Areas (HPSAs) by census tracts for Primary Care, 2021



**HPSA Designation**  
County Boundaries  
No  
Yes

0 10 20 mi



**HPSA Designation**  
High IMR  
No  
Yes

Source: Delaware Department of Health and Social Services,  
Division of Public Health, Primary Care Office  
Notes: Health Professional Shortage Areas (HPSAs) compiled using data from Health  
Resources and Services Administration (HRSA) shapefiles and Census Bureau files.

# Delaware Healthcare Workforce

Total Active Licenses  
(N = 62,557)

Delaware Licenses  
(N = 36,205 or 57.8%)

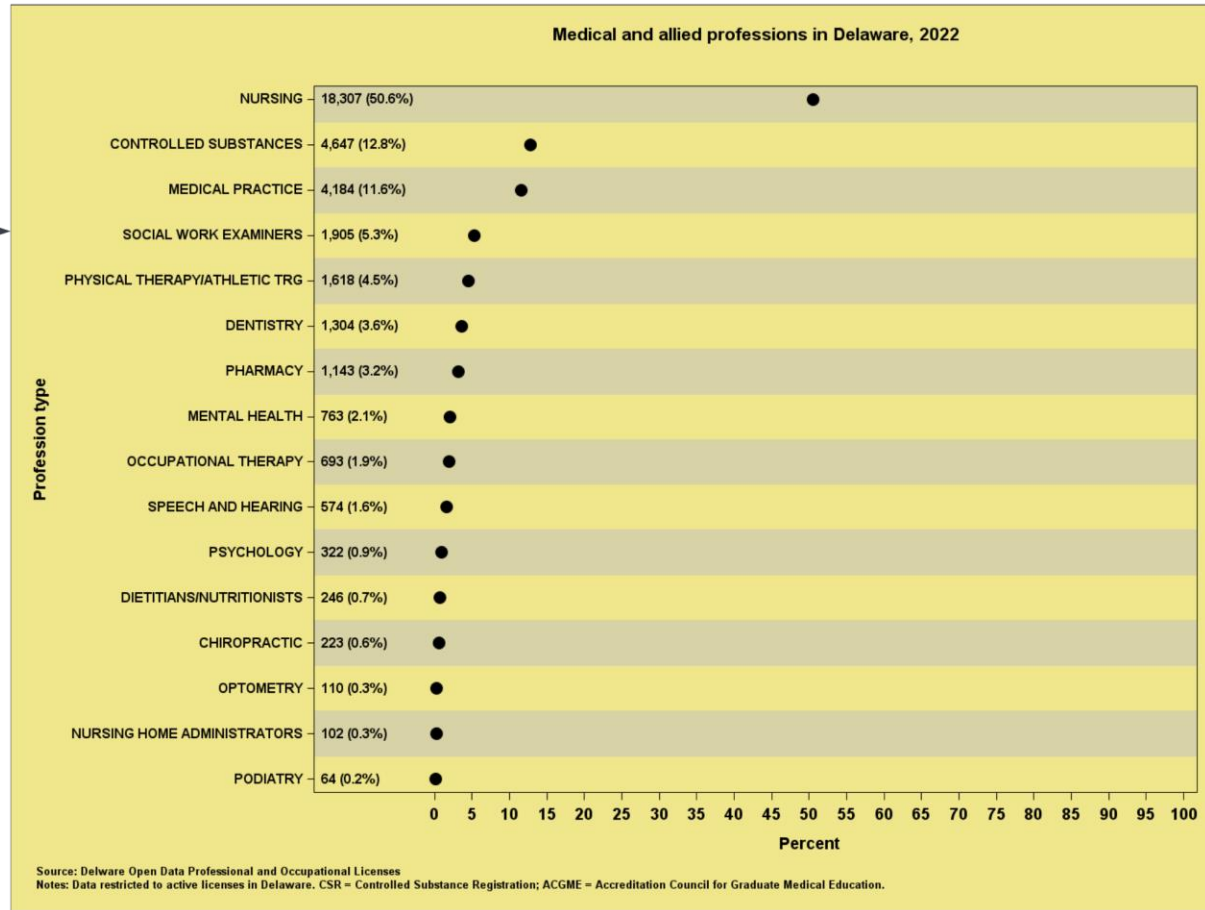
Pennsylvania Licenses  
(N = 11,085 or 17.7%)

New Jersey Licenses  
(N = 2,982 or 4.8%)

Maryland Licenses  
(N = 2,902 or 4.6%)

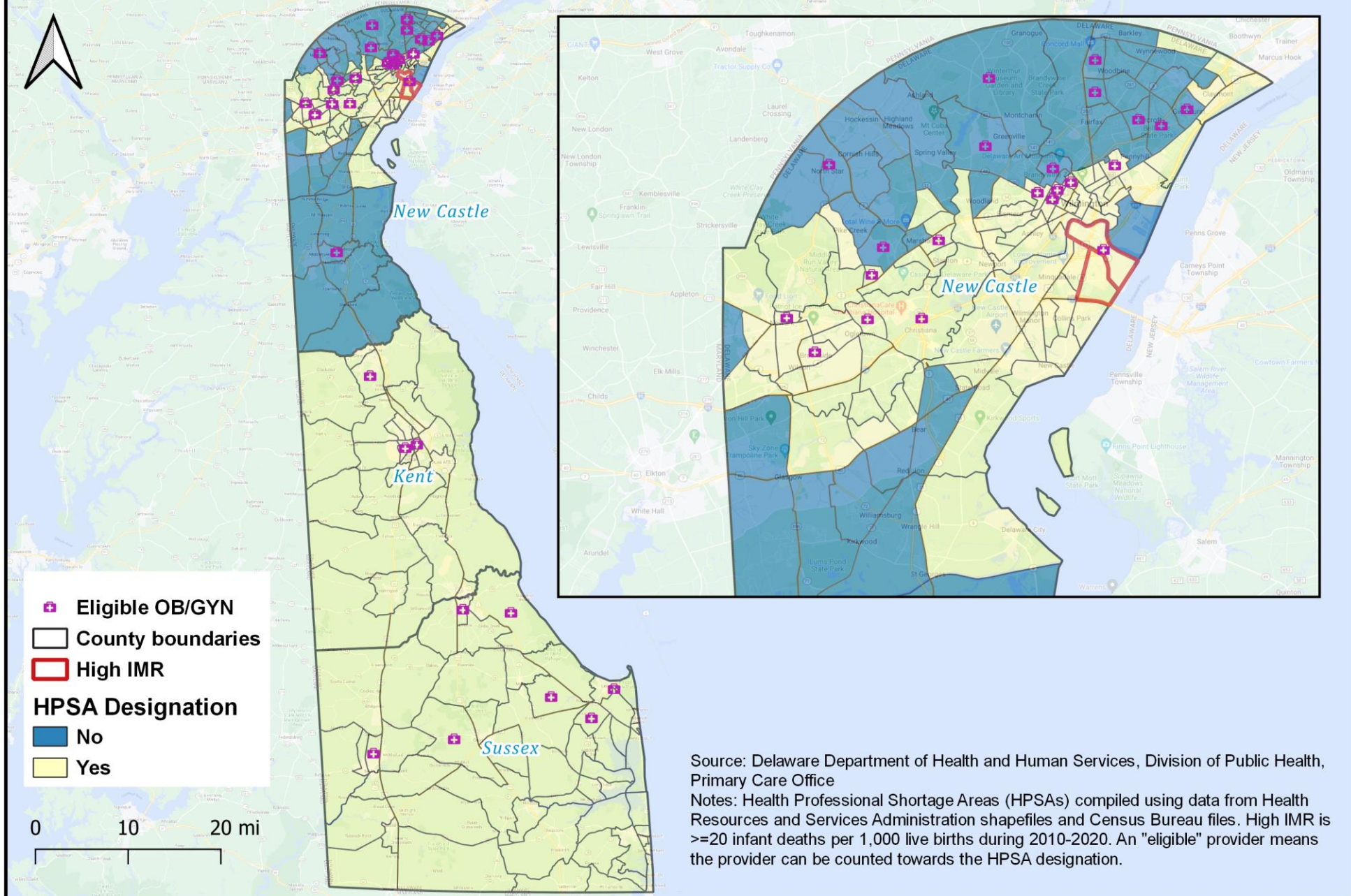
New York Licenses  
(N = 1,232 or 2.0%)

Cumulative  
total  
54,494 or  
87%





# Eligible OB/GYNs in Health Professional Shortage Areas (HPSAs) in Delaware, 2022



- Eligible OB/GYN
- County boundaries
- High IMR
- HPSA Designation**
- No
- Yes

0 10 20 mi

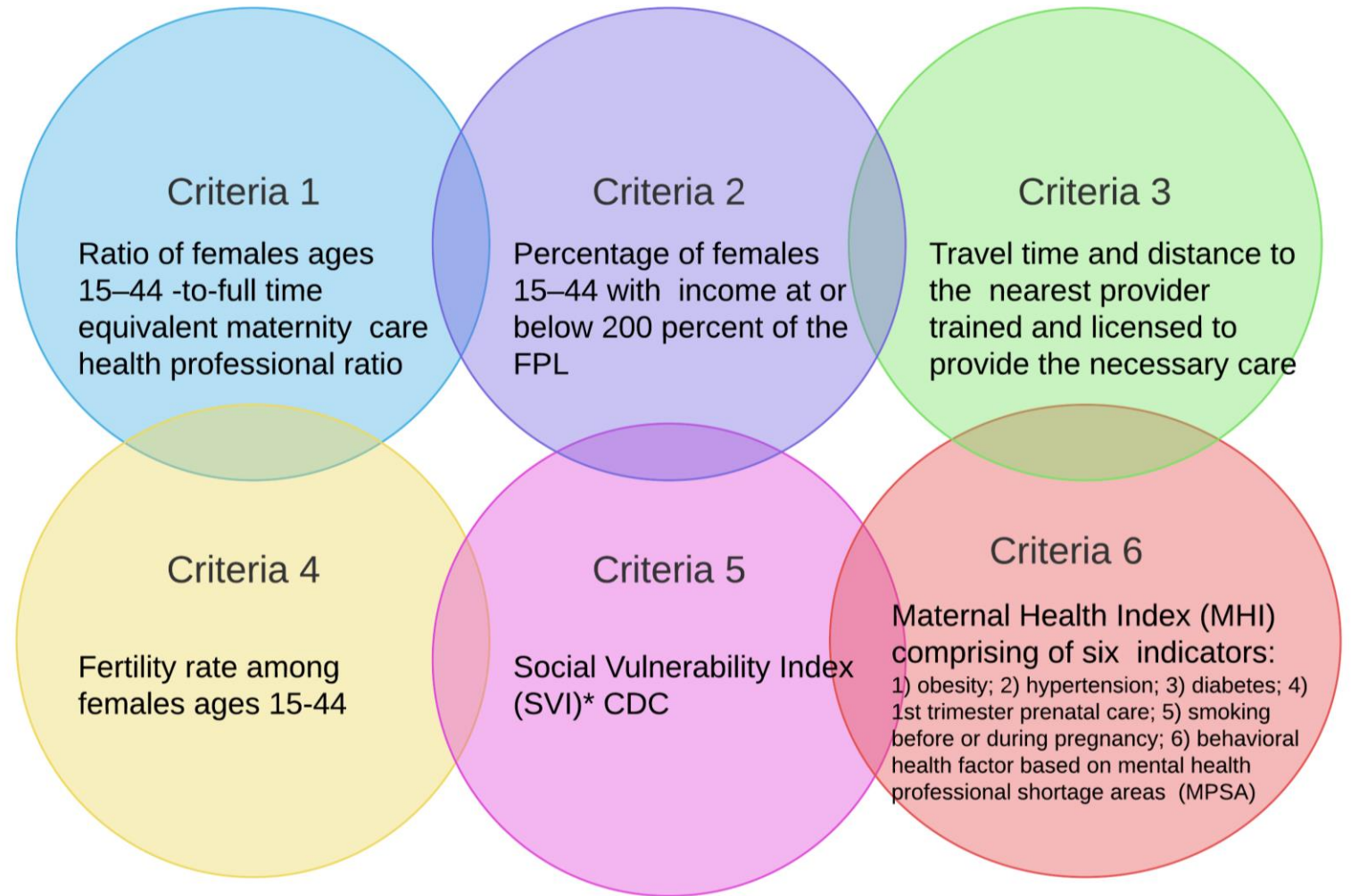
Source: Delaware Department of Health and Human Services, Division of Public Health, Primary Care Office

Notes: Health Professional Shortage Areas (HPSAs) compiled using data from Health Resources and Services Administration shapefiles and Census Bureau files. High IMR is  $\geq 20$  infant deaths per 1,000 live births during 2010-2020. An "eligible" provider means the provider can be counted towards the HPSA designation.



# Maternal Care Target Areas (MCTAs)

Section 332 of the Public Health Service Act (PHSA) directs the Department of Health and Human Services (HHS), through the Health Resources and Services Administration (HRSA), to identify Maternity Care Target Areas (MCTA), or geographic areas within health professional shortage areas that have a shortage of maternity care health professionals, for the purpose of providing maternity health care assistance to such health professional shortage areas.



**\*Social Vulnerability Index (SVI) indicators**

- Socioeconomic Status (Below Poverty, Unemployed, Income, No High School Diploma)
- Household Composition & Disability (Aged 65 or Older, Aged 17 or Younger, Civilian with a Disability, Single-Parent Households)
- Minority Status & Language (Minority Aged 5 or Older who Speaks English "Less than Well")
- Housing Type & Transportation (Multi-Unit Structures, Mobile Homes, Crowding, No Vehicle, Group Quarters)

# Sources

1. Mental Health and Substance Use Disorders: Accessed March 17, 2022.  
<https://www.samhsa.gov/find-help/disorders#:~:text=Serious%20mental%20illness%20is%20defined,or%20more%20major%20life%20activities> **(SLIDE 9)**
2. National Survey on Drug Use and Health: Accessed March 17, 2022.  
<https://www.nimh.nih.gov/health/statistics/mental-illness> **(SLIDE 9)**
3. National Survey on Drug Use and Health 2020 Annual Report. Accessed March 17, 2022.  
<https://www.samhsa.gov/data/sites/default/files/reports/rpt35325/NSDUHFFRPDFWHTMLFiles2020/2020NSDUHFFR1PDFW102121.pdf> (p. 34). **(SLIDE 9)**
4. National Survey on Drug Use and Health 2019-2020 Model-Based Prevalence Estimates (50 States And The District Of Columbia). March 17, 2022.  
<https://www.samhsa.gov/data/sites/default/files/reports/rpt35339/2020NSDUHsaePercents012422/NSDUHsaePercents2020.pdf> (p. 56) **(SLIDE 9)**

# References

1. Adane AA, Bailey HD, Morgan VA, et al. The impact of maternal prenatal mental health disorders on stillbirth and infant mortality: a systematic review and meta-analysis. *Arch Womens Ment Health*. 2021;24(4):543-555. doi:10.1007/s00737-020-01099-9
2. Heun-Johnson H, Seabury SA, Menchine M, Claudius I, Axeen S, Lakshmanan A. Association between maternal serious mental illness and adverse birth outcomes. *J Perinatol*. 2019;39(5):737-745. doi:10.1038/s41372-019-0346-5
3. McKee K, Admon LK, Winkelman TNA, et al. Perinatal mood and anxiety disorders, serious mental illness, and delivery-related health outcomes, United States, 2006-2015. *BMC Womens Health*. 2020;20(1):150. Published 2020 Jul 23. doi:10.1186/s12905-020-00996-6
4. Brown CC, Adams CE, George KE, Moore JE. Mental Health Conditions Increase Severe Maternal Morbidity By 50 Percent And Cost \$102 Million Yearly In The United States. *Health Aff (Millwood)*. 2021;40(10):1575-1584. doi:10.1377/hlthaff.2021.00759
5. Judd F, Komiti A, Sheehan P, Newman L, Castle D, Everall I. Adverse obstetric and neonatal outcomes in women with severe mental illness: to what extent can they be prevented?. *Schizophr Res*. 2014;157(1-3):305-309. doi:10.1016/j.schres.2014.05.030