From Family Planning to Breast Feeding

Selected Findings from

Pregnancy Risk Assessment Monitoring System

Epi Grand Rounds, July 30, 2007

Judith Sackoff, Research Director

Bureau of Maternal, Infant and Reproductive Health

Goals

Bureau of Maternal, Infant & Reproductive Health

- All pregnancies are planned
- Prevent teen pregnancy
- Improve the health equity of mothers and infants
- Breastfeeding becomes the norm

What is PRAMS?

Pregnancy Risk Assessment Monitoring System

- Surveillance system of maternal behavior, attitudes and experiences before, during and shortly after pregnancy
- Population-based
- Ongoing data collection
- Timely data collection
- Used locally for program and policy

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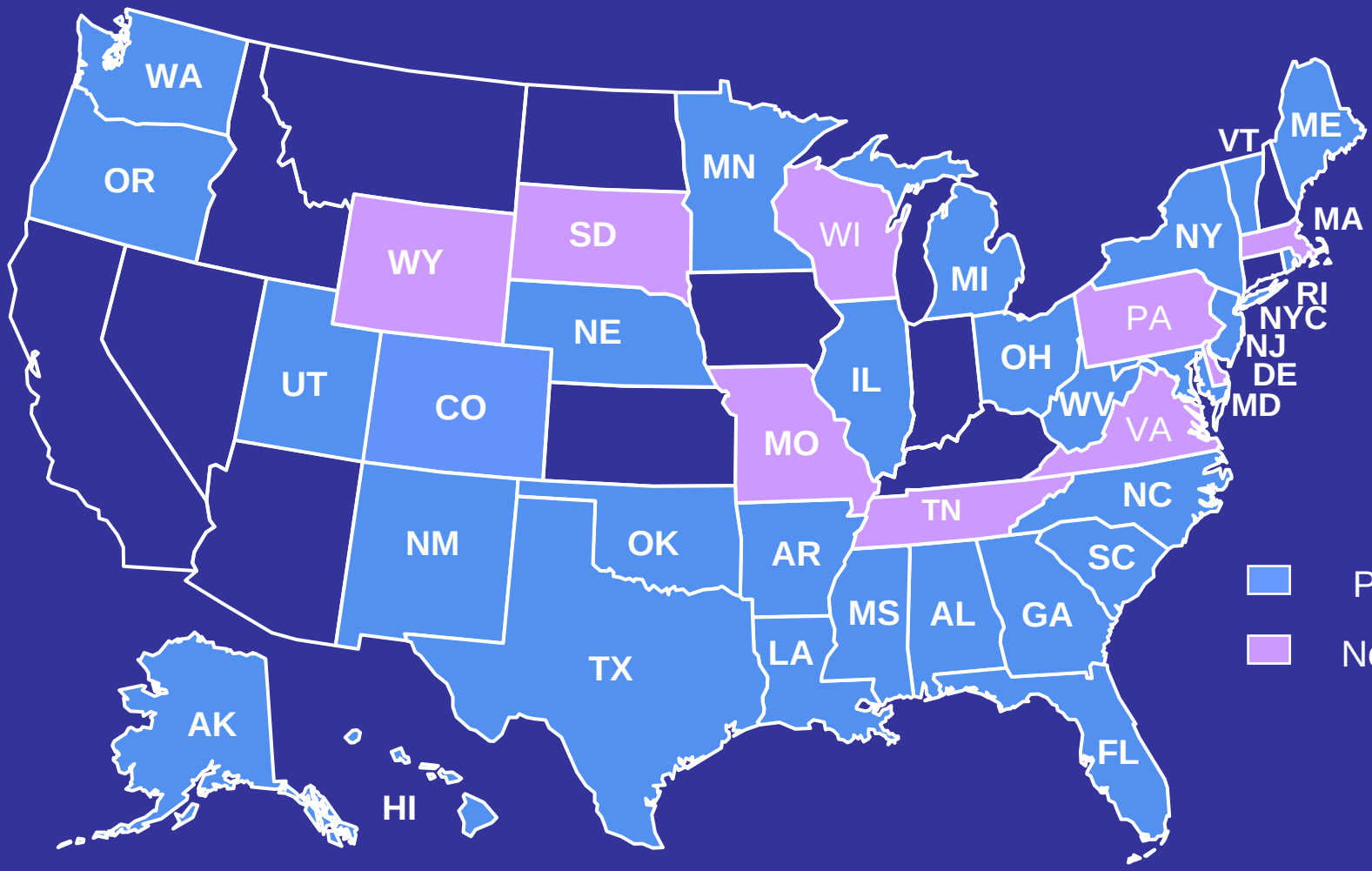
PRAMS represents 75% of US births

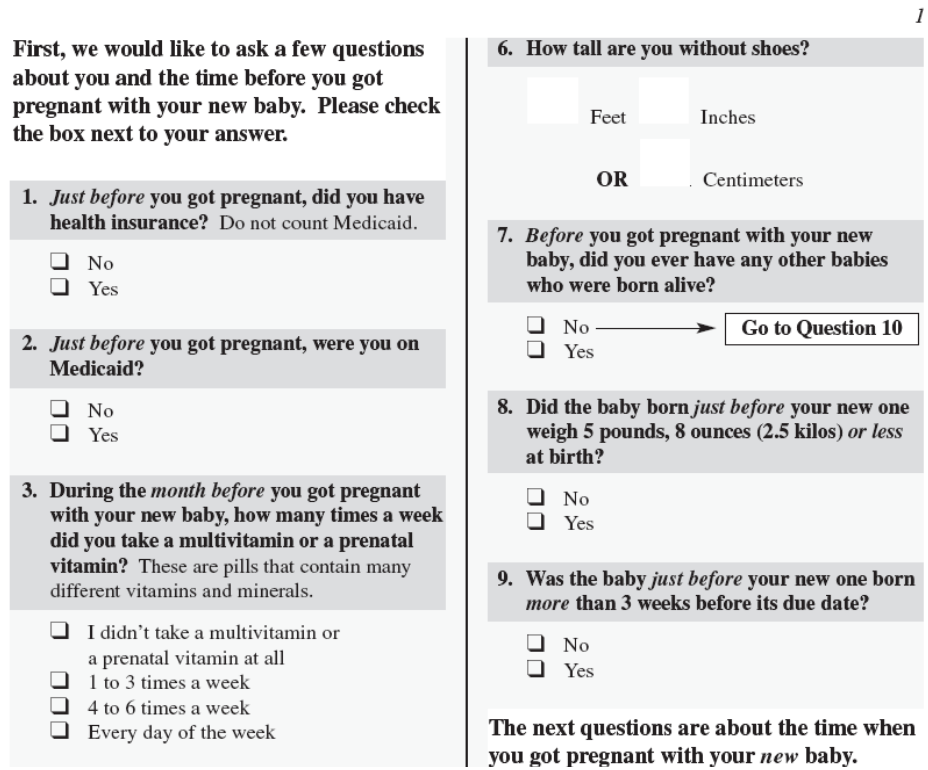


NYC PRAMS Sample

- **Who is in the sample?**
  - ~180 women with live births randomly selected monthly from NYC birth certificates
  - ~2,200 annually/1.5% of NYC live births
- **Sampling methodology**
  - Random sampling without replacement
  - Stratified by birth weight
  - Final dataset weighted for stratification, nonselection and nonresponse

Survey Instrument

- 80 items
  - 60 core items
  - 20 local items
- English and Spanish (Chinese translation in progress)
- 20-25 minutes to complete



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First, we would like to ask a few questions about you and the time before you got pregnant with your new baby. Please check the box next to your answer.

1. *Just before* you got pregnant, did you have health insurance? Do not count Medicaid.

- ❑ No
- ❑ Yes

2. *Just before* you got pregnant, were you on Medicaid?

- ❑ No
- ❑ Yes

3. During the *month before* you got pregnant with your new baby, how many times a week did you take a multivitamin or a prenatal vitamin? These are pills that contain many different vitamins and minerals.

- ❑ I didn't take a multivitamin or a prenatal vitamin at all
- ❑ 1 to 3 times a week
- ❑ 4 to 6 times a week
- ❑ Every day of the week

6. How tall are you without shoes?

Feet Inches

OR Centimeters

7. *Before* you got pregnant with your new baby, did you ever have any other babies who were born alive?

- ❑ No → **Go to Question 10**
- ❑ Yes

8. Did the baby born *just before* your new one weigh 5 pounds, 8 ounces (2.5 kilos) *or less* at birth?

- ❑ No
- ❑ Yes

9. Was the baby *just before* your new one born *more* than 3 weeks before its due date?

- ❑ No
- ❑ Yes

The next questions are about the time when you got pregnant with your *new* baby.

Data Collection Protocol

- Mail phase: women are sent up to 3 copies of the survey by mail
- Telephone phase: follow-up for non-responders; contacted up to 15 times by telephone
- 83% of interviews completed by mail; 17% by telephone

Response Rate

- 70% response rate required by CDC
  - 2004 was first year NYC reached 70%

- Ongoing challenge
  - Better phone numbers
  - Incentives: $20 MetroCard for all mothers; in 2007, additional $20 gift card for hard-to-reach women
  - Translate interview into other languages

NYC PRAMS Dataset

Linked PRAMS questionnaire-birth certificate dataset
July-December 2004, May-December 2005

PRAMS questionnaire

- Pregnancy intent
- Prenatal care
- Alcohol and tobacco use
- Domestic violence
- Breastfeeding
- Stressful life events
- And more…..

Birth certificate

- Demographics, including country of birth, race, age
- Pregnancy outcomes, including birth weight, gestation, method of delivery

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Strengths & Limitations

- Strengths
  - Population-based source of data on maternal & infant health in NYC
  - Links behavioral and clinical information

- Limitations
  - Minimum detail on any one topic
  - Small n for subgroup analysis
  - Self-report

Presentations

Unintended pregnancy and pregnancy risk

Elizabeth Needham Waddell

The health of women of reproductive age

Lindsay Senter

Breastfeeding in NYC

Candace Mulready-Ward

Unintended Pregnancy and Pregnancy Risk in NYC

Elizabeth Needham Waddell, PhD
Family Planning Research Coordinator
Bureau of Maternal, Infant & Reproductive Health

Scope of talk

- What is unintended pregnancy, and why is it important to the health of New Yorkers?
- Who is at risk for unintended pregnancy?
- Which populations have highest rates of unintended pregnancy?
- Which populations have highest rates of unintended births?

NYC Data Sources

- NYC Pregnancy Risk Assessment Monitoring System (PRAMS)
- Vital Statistics (2004-2005)
  - Births
  - Spontaneous terminations of pregnancy
  - Induced terminations of pregnancy
- NYC Community Health Survey (2006)

Definitions of pregnancy intention

- **Intended**: a pregnancy that was desired at the time (or sooner than) it occurred
- **Unintended**:
  - **Mistimed**: a pregnancy that was wanted, but at a later time than it occurred
  - **Unwanted**: a pregnancy that was not desired when it occurred or at any point in the future

Source: Guttmacher Institute

Unintended pregnancy associated with adverse birth outcomes

- National PRAMS study found unwanted pregnancy associated with increased odds of:
  - Delivering low birth weight infant
  - Premature rupture of membranes (leading identifiable cause of preterm delivery)
  - Premature labor

Source: Mohllajee, A. P., K. M. Curtis, et al. (2007). "Pregnancy intention and its relationship to birth and maternal outcomes." Obstet Gynecol 109(3): 678-686.

Healthy People 2010
Family Planning Goals

- Improve pregnancy planning and spacing and prevent unintended pregnancy
- Increase the proportion of females at risk of unintended pregnancy (and their partners) who use contraception

Who's at risk for unintended pregnancy?

- 2006 Community Health Survey

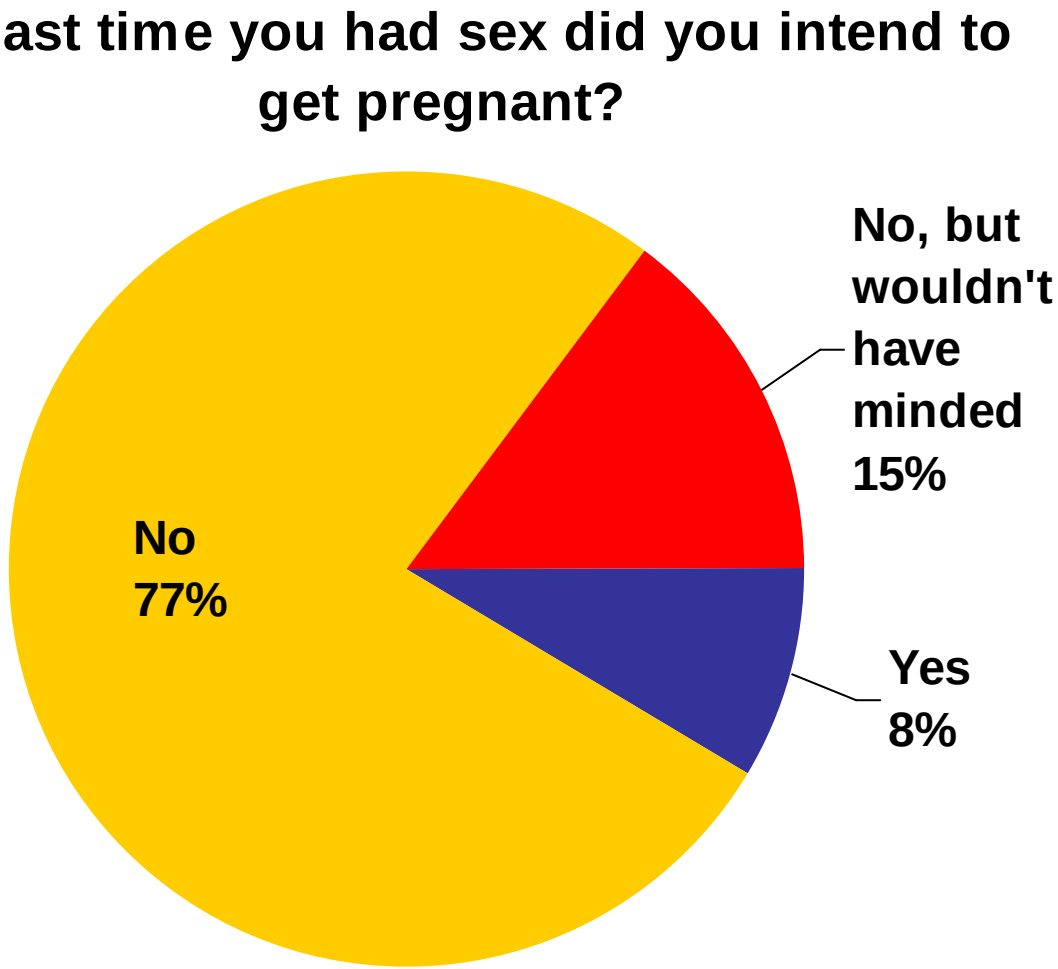
Community Health Survey identifies New Yorkers "at-risk for pregnancy"

2006 Community Health Survey sub-sample

- Females 18-44
- Exclusions
  - Women who did not have sex with a man in the past year: 15%
  - Women who did not respond to question about partners in the past year: 13%

Source: NYC DOHMH Bureau of EPI Services (calucations by Bureau of Maternal, Infant & Reproductive Health)

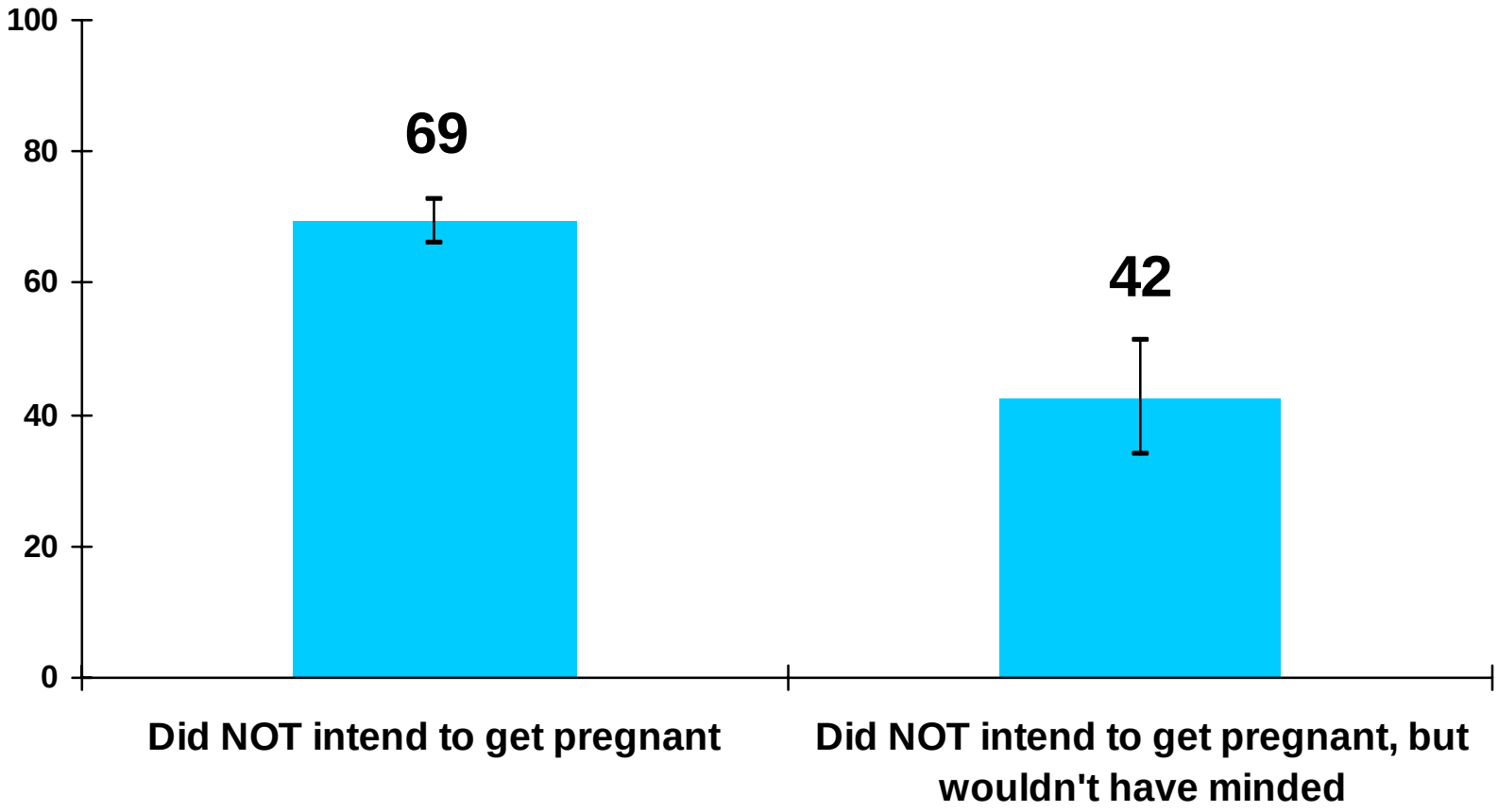
Most NYC women with a male partner in the last year were **NOT** trying to get pregnant



Source: 2006 CHS, NYC DOHMH Bureau of EPI Services (calucations by Bureau of Maternal, Infant & Reproductive Health)

But many NYC women forgo birth control

Percent used birth control by pregnancy intention (age-adjusted to US standard population)



Source: NYC DOHMH Bureau of EPI Services (calucations by Bureau of Maternal, Infant & Reproductive Health)

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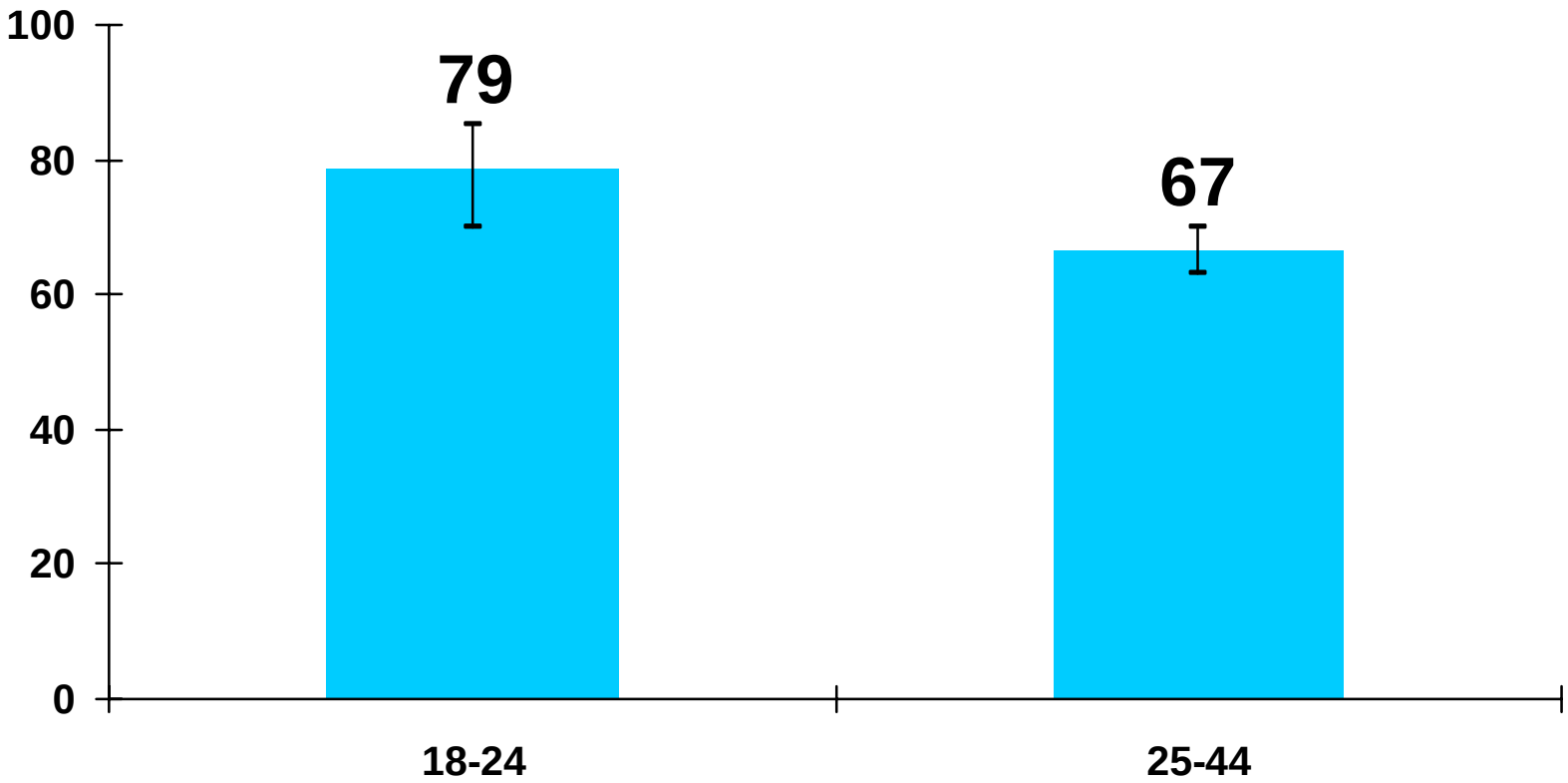
Birth control use declines with age

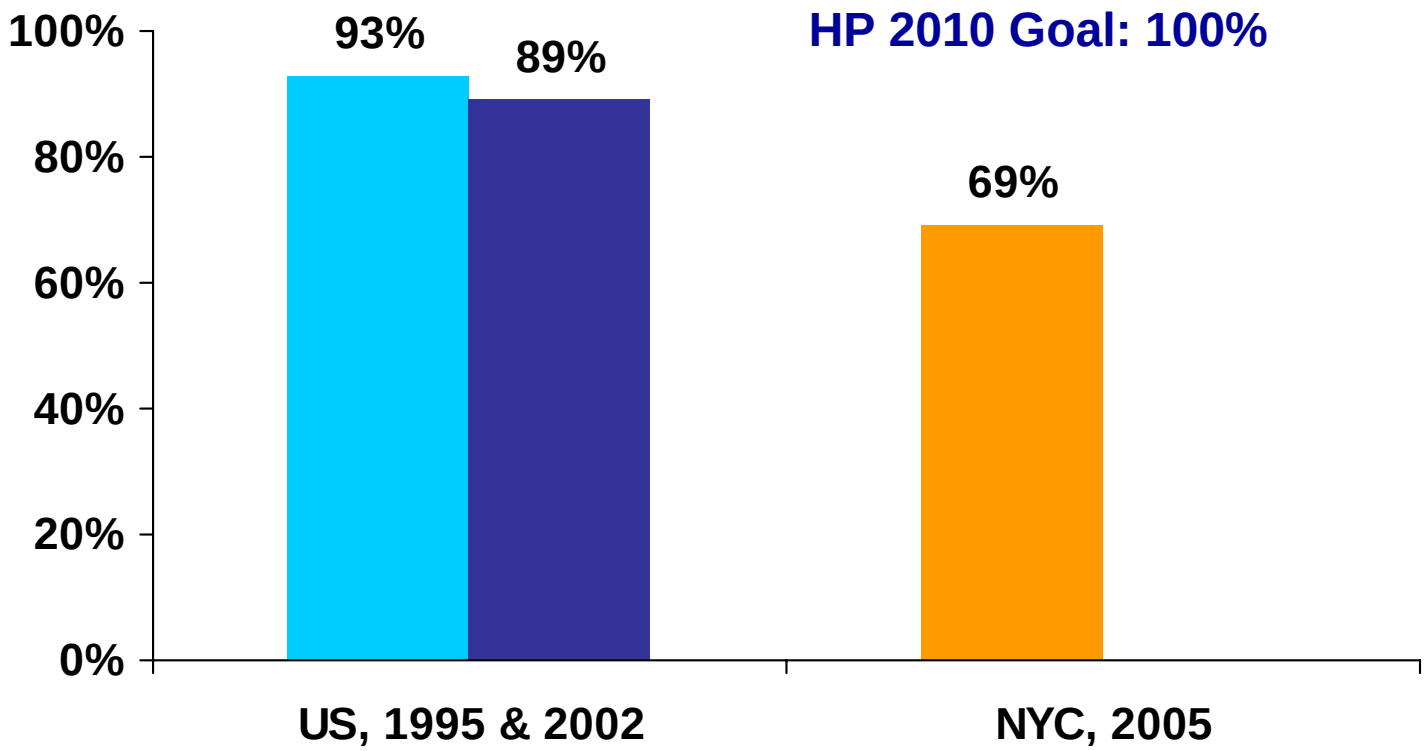
Percent used birth control among those NOT trying to get pregnant, by age group



Source: 2006 CHS, NYC DOHMH Bureau of EPI Services (calucations by Bureau of Maternal, Infant & Reproductive Health)

Healthy People 2010

Increase the proportion of females at risk of unintended pregnancy (and their partners) who use contraception



Sources: US -- HP2010 (data sources: National Survey of Family Growth 1995, 2002); NYC--CHS 2006

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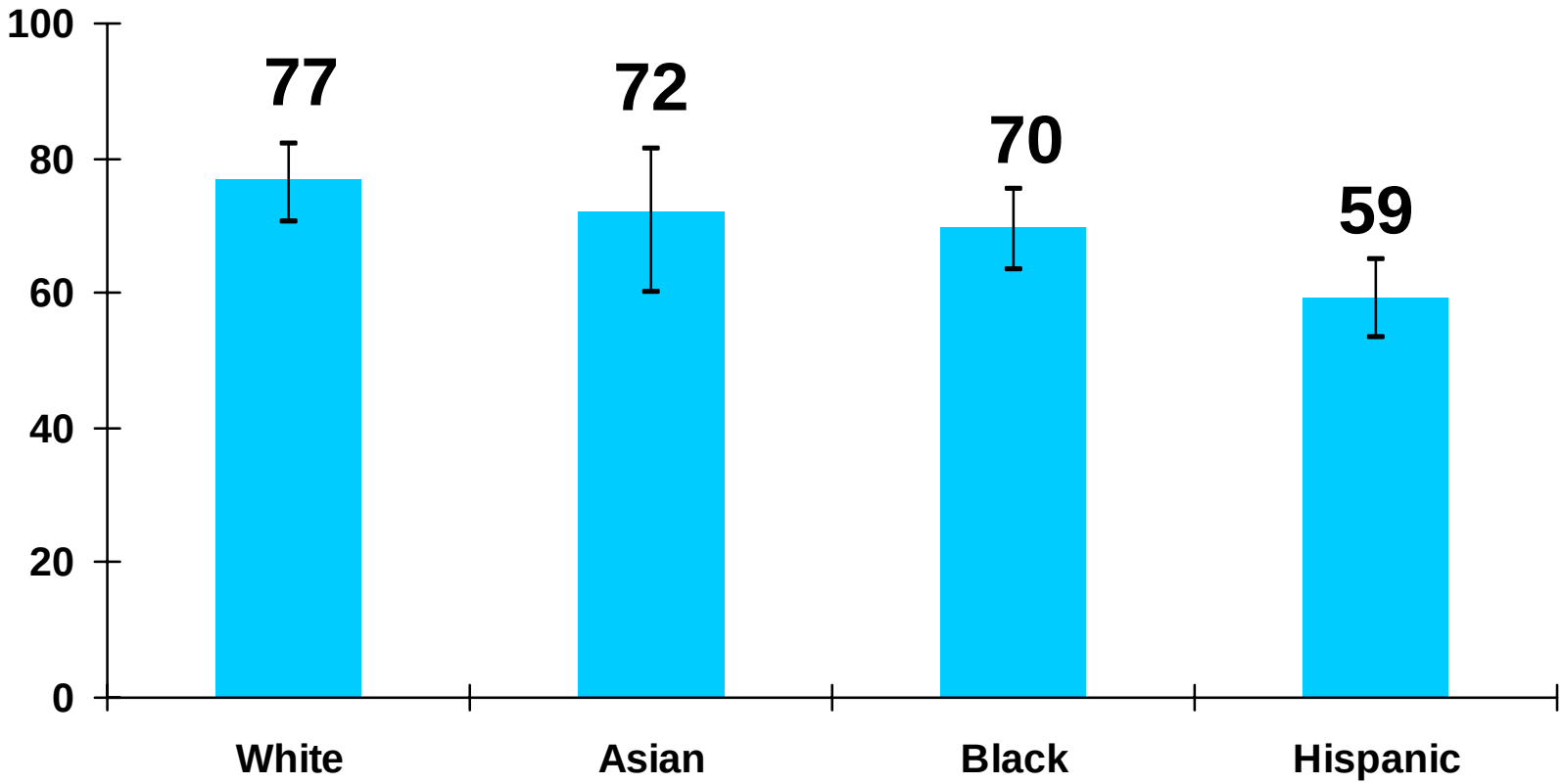
Hispanic women less likely to use BC

Percent used birth control among those NOT trying to get pregant, by race/ethnicity (age-adjusted to US standard population)



Source: 2006 CHS, NYC DOHMH Bureau of EPI Services (calucations by Bureau of Maternal, Infant & Reproductive Health)

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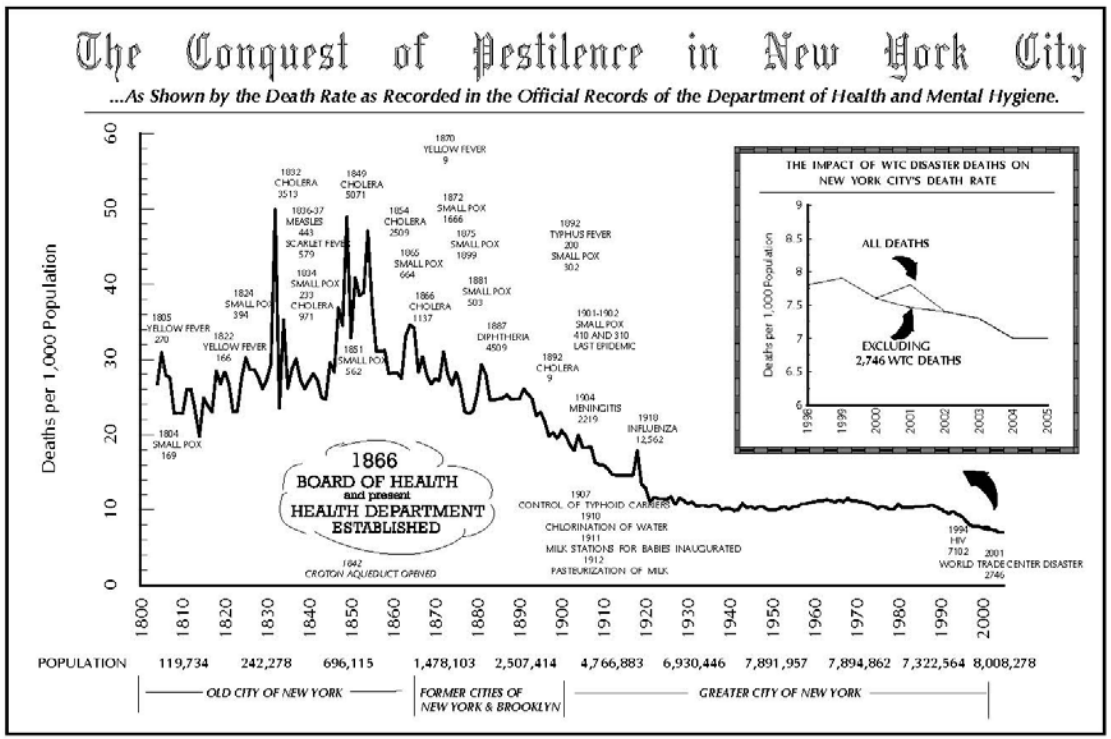
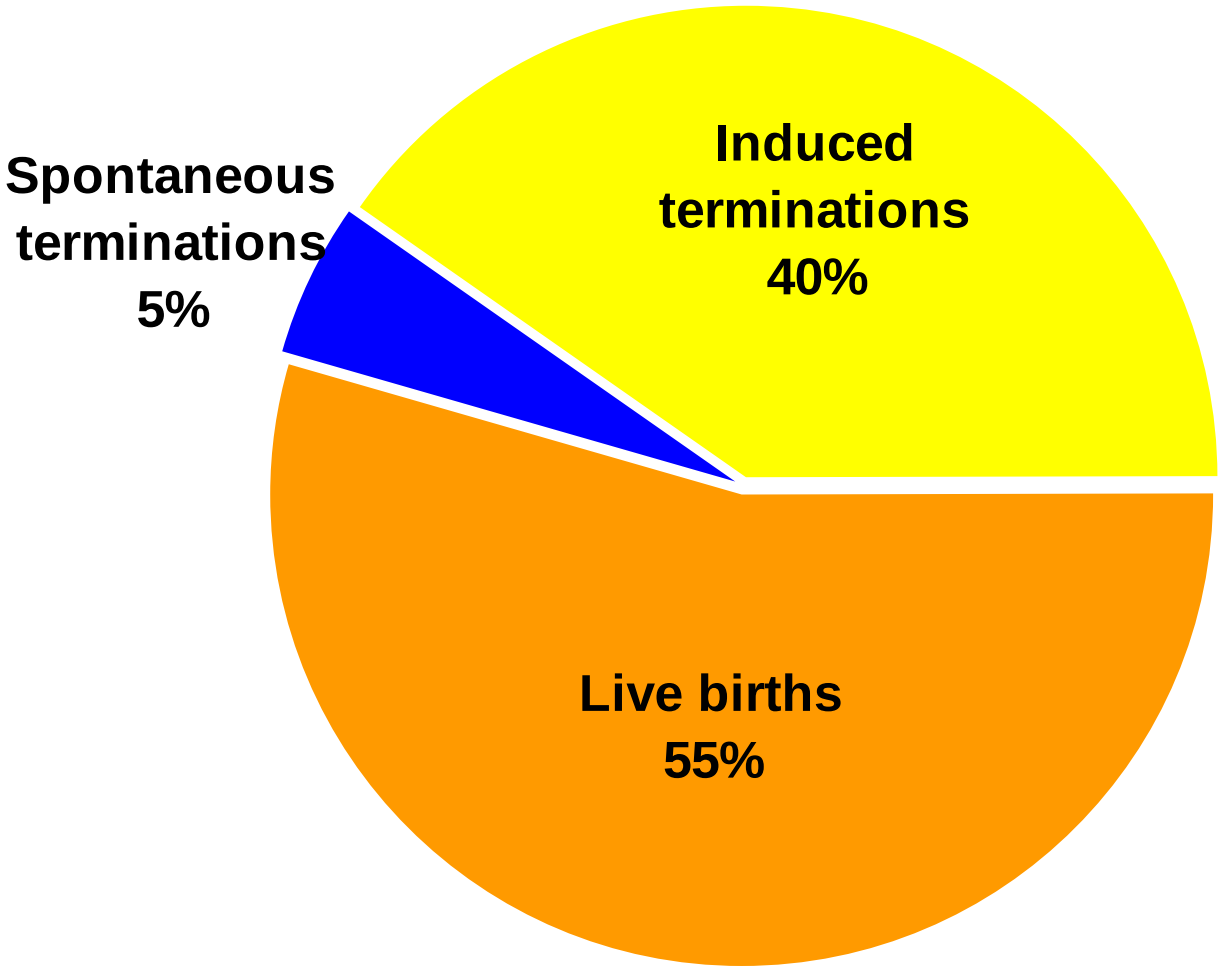
Who has unintended pregnancies?

- NYC Vital Statistics Data, 2004-2005
- NYC PRAMS, 2004-2005



NYC resident pregnancy outcomes, 2004-2005 (N = 414,821)



Source: NYC PRAMS 2004-2005, NYC DOHMH Bureau of Vital Statistics (calculations by Bureau of Maternal, Infant & Reproductive Health); Guttmacher Institute

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What comprises the rate of unintended pregnancies?

The sum of:

- 100% Induced terminations (abortions)
- 40% Live births (can adjust for race/age group)
- 40% Spontaneous terminations (can adjust for race/age group)

Source: PRAMS 2004-2005 (% of live births); Guttmacher Institute (% spontaneous terminations)

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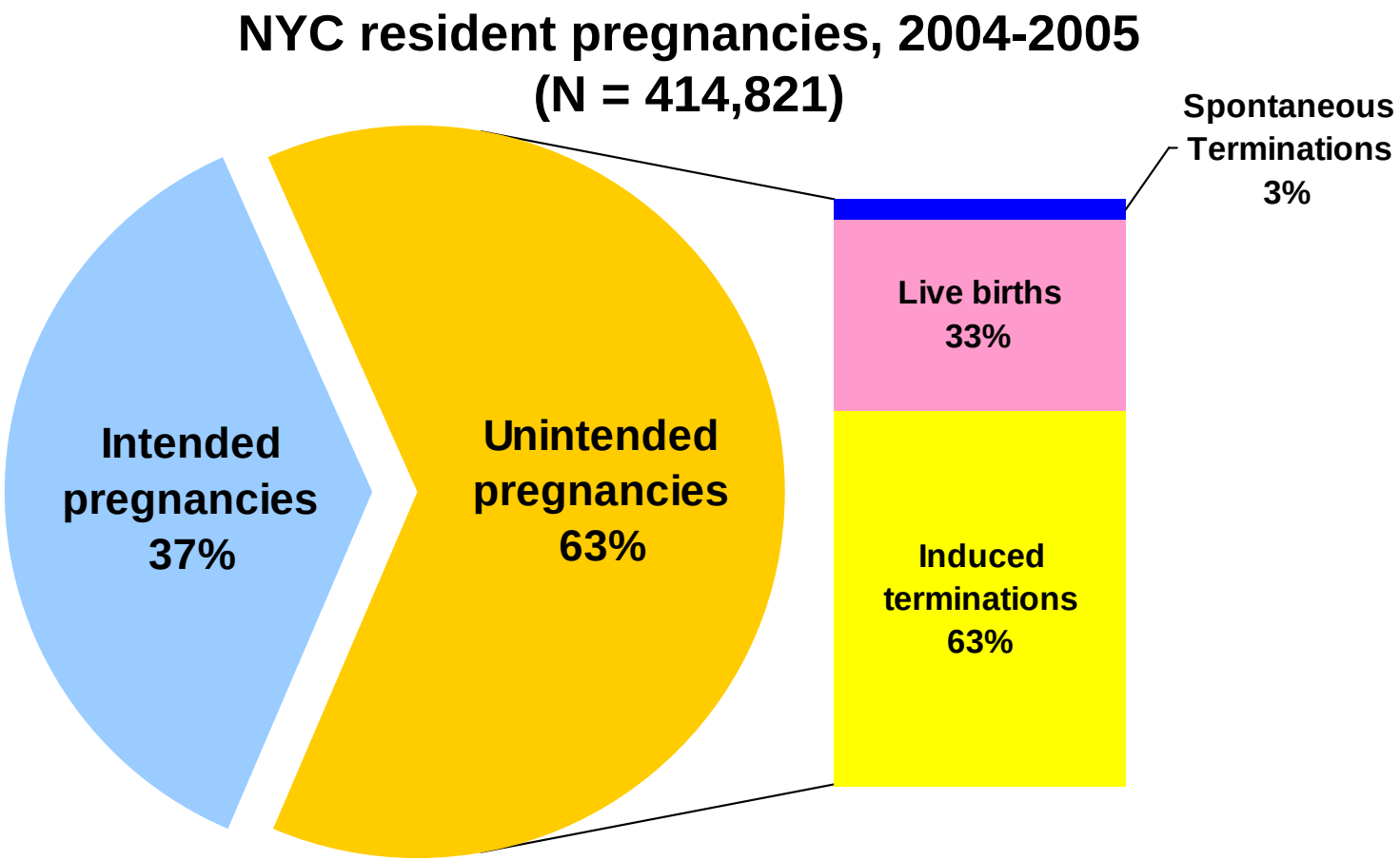
Most NYC unintended pregnancies are terminated



Source: NYC PRAMS 2004-2005, NYC DOHMH Bureau of Vital Statistics (calculations by Bureau of Maternal, Infant & Reproductive Health); Guttmacher Institute

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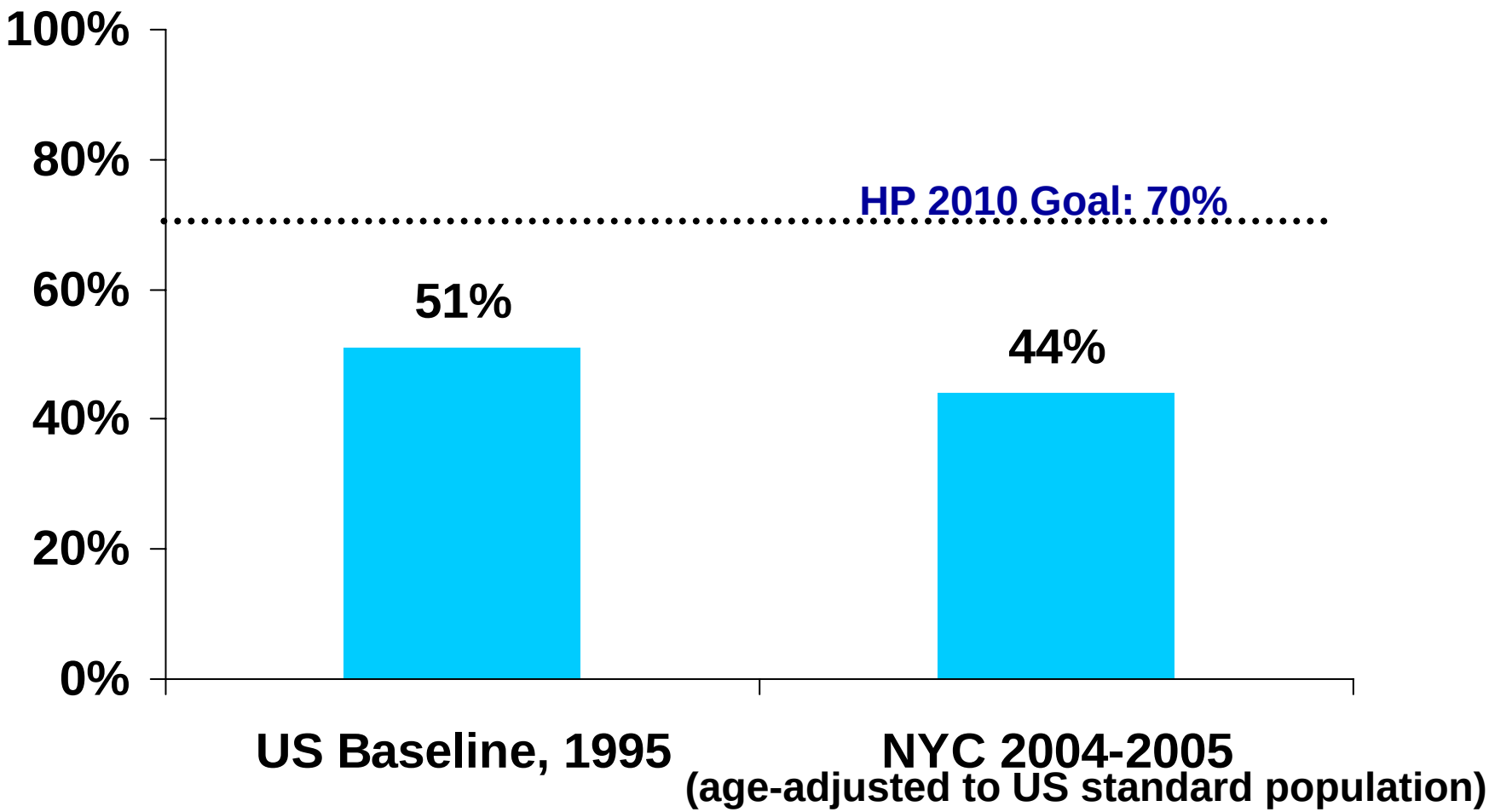
Increase the proportion of pregnancies that are intended



Sources: US -- HP2010 (data sources: National Survey of Family Growth, National Vital Statistics System, Guttmacher Abortion Provider Survey, CDC Abortion Surveillance Data; NYC -- NYC DOHMH vital statisitcs, NYC PRAMS, National Survey of Family Growth

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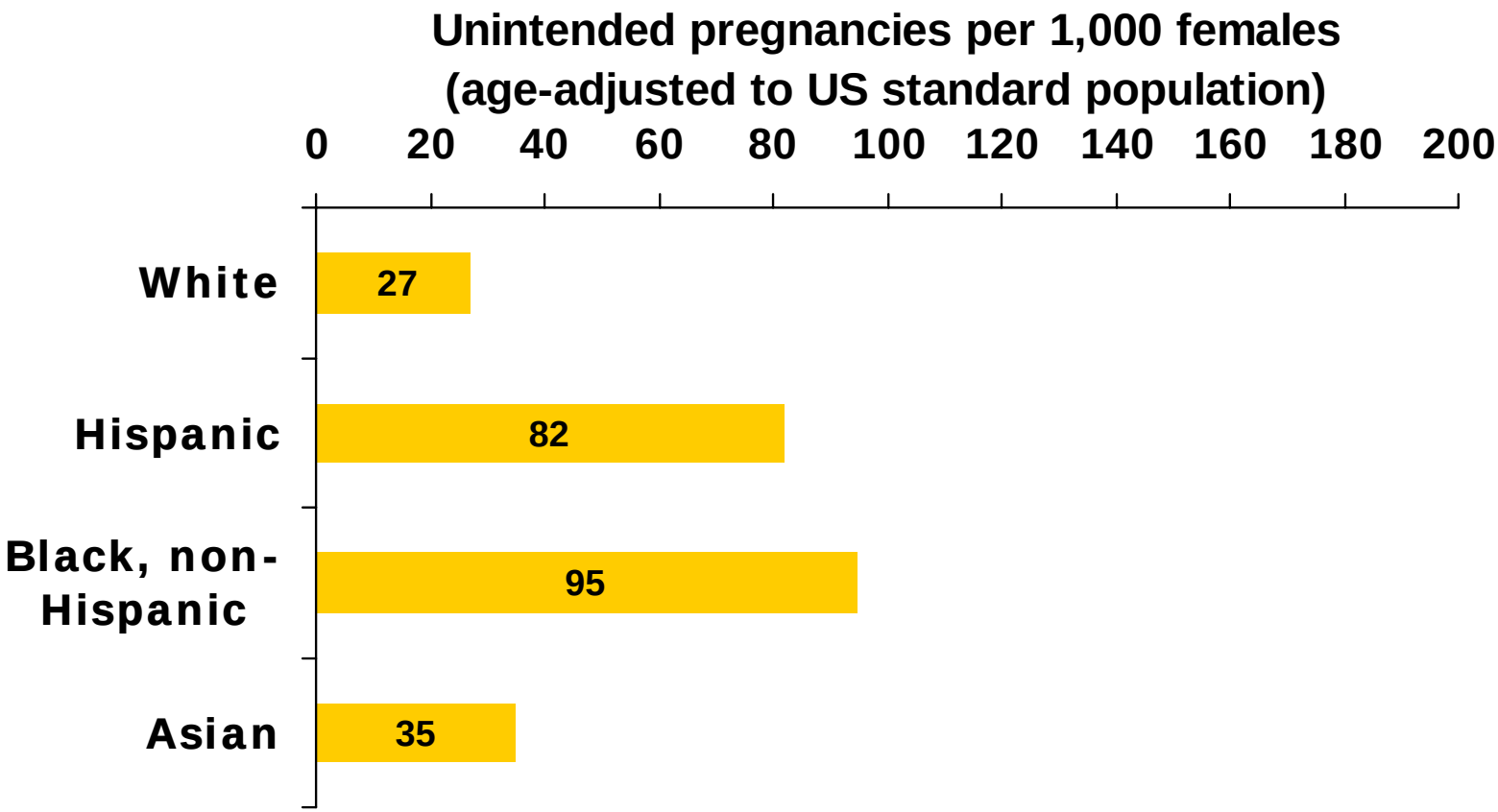
Rates of unintended pregnancy highest among NYC Blacks and Hispanics



Source: NYC PRAMS 2004-2005, NYC DOHMH Bureau of Vital Statistics (calculations by Bureau of Maternal, Infant & Reproductive Health); Guttmacher Instiute

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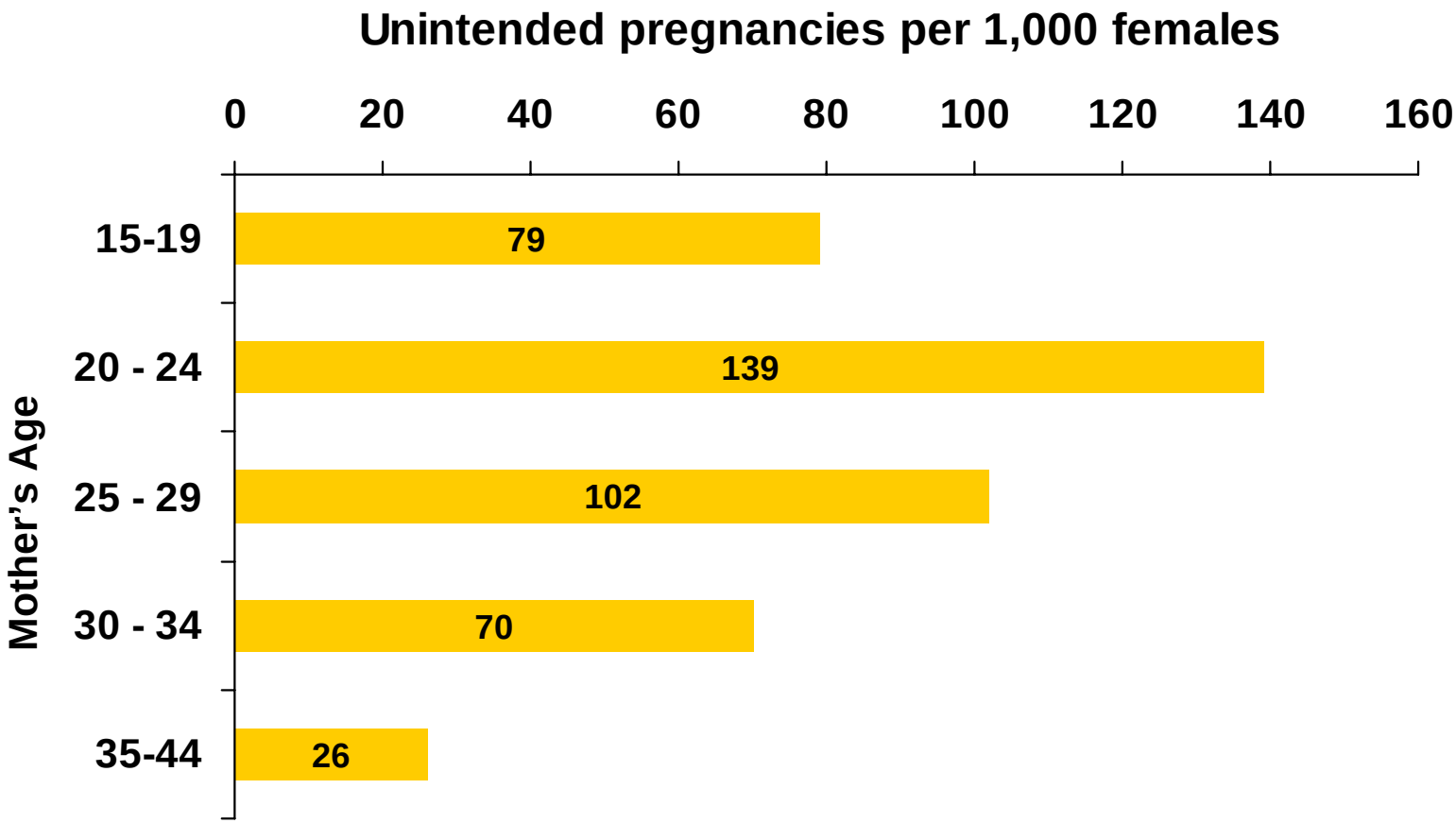
Rates of NYC unintended pregnancy decline with age



Source: NYC PRAMS 2004-2005, NYC DOHMH Bureau of Vital Statistics (calculations by Bureau of Maternal, Infant & Reproductive Health); Guttmacher Instiute

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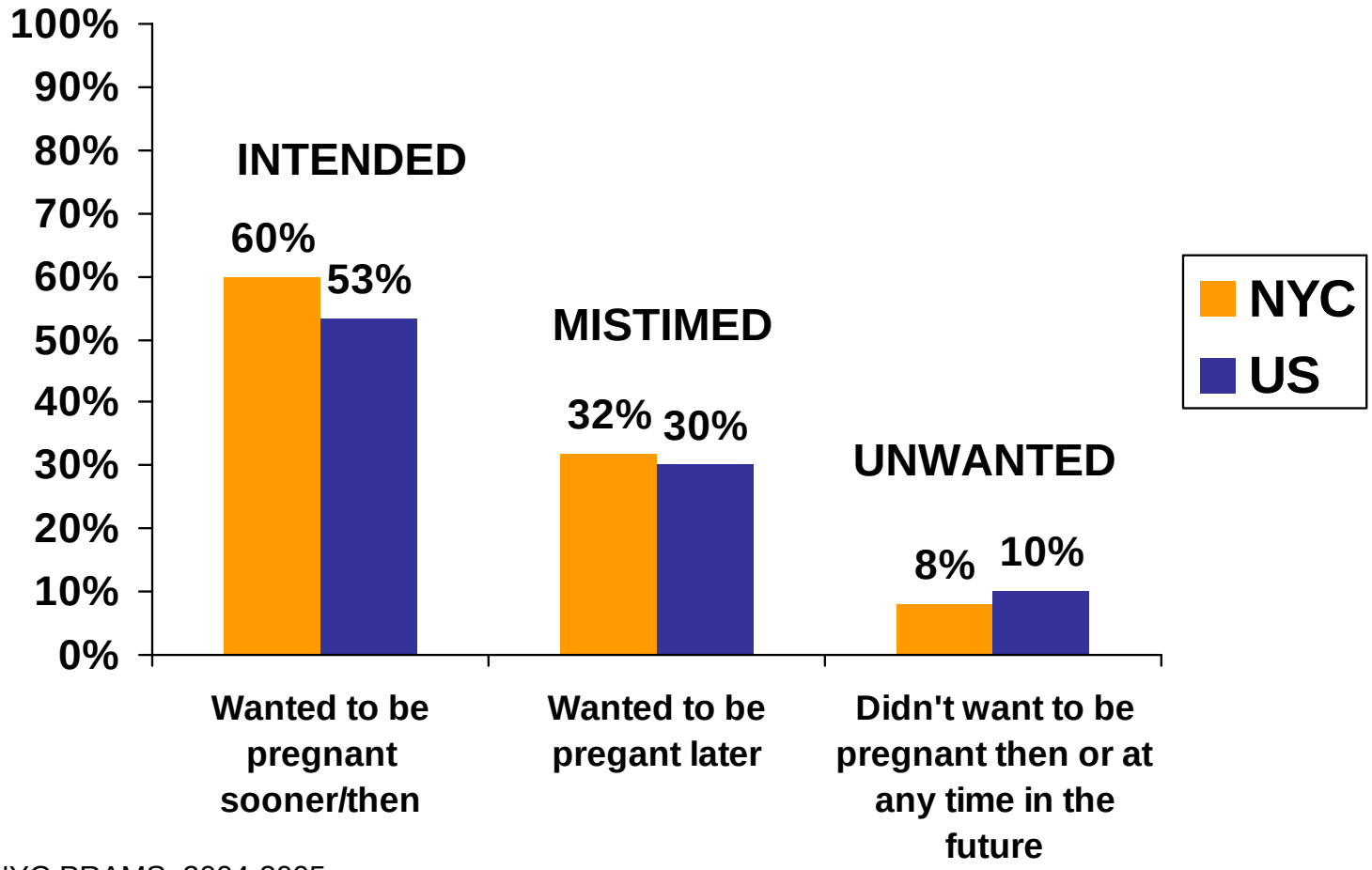
Who has unintended live births?

- NYC PRAMS, 2004-2005

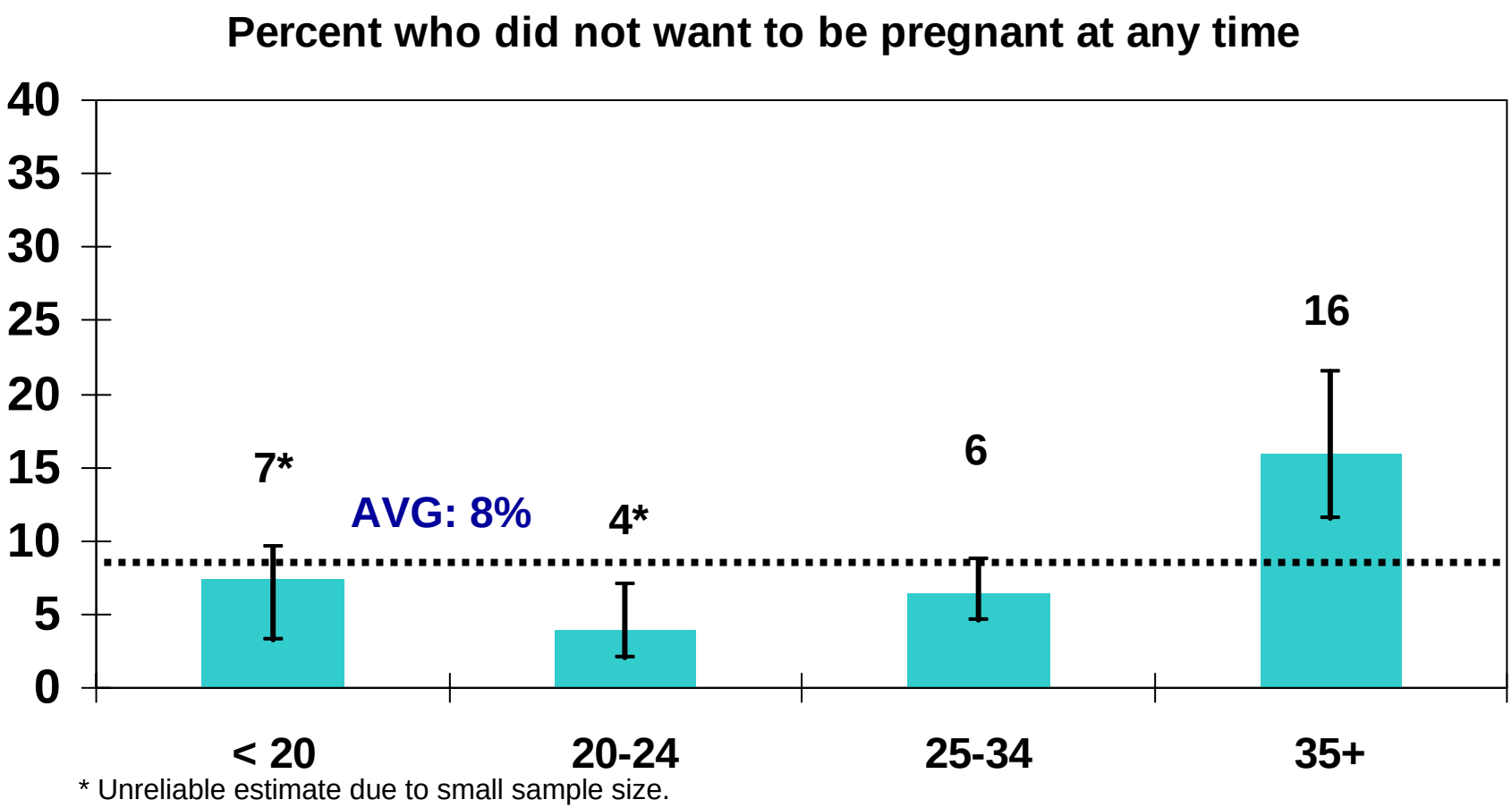
Most NYC births are intended

"Thinking back to *just before* you got pregnant with your new baby, how did you feel about becoming pregnant?"



Source: NYC PRAMS, 2004-2005

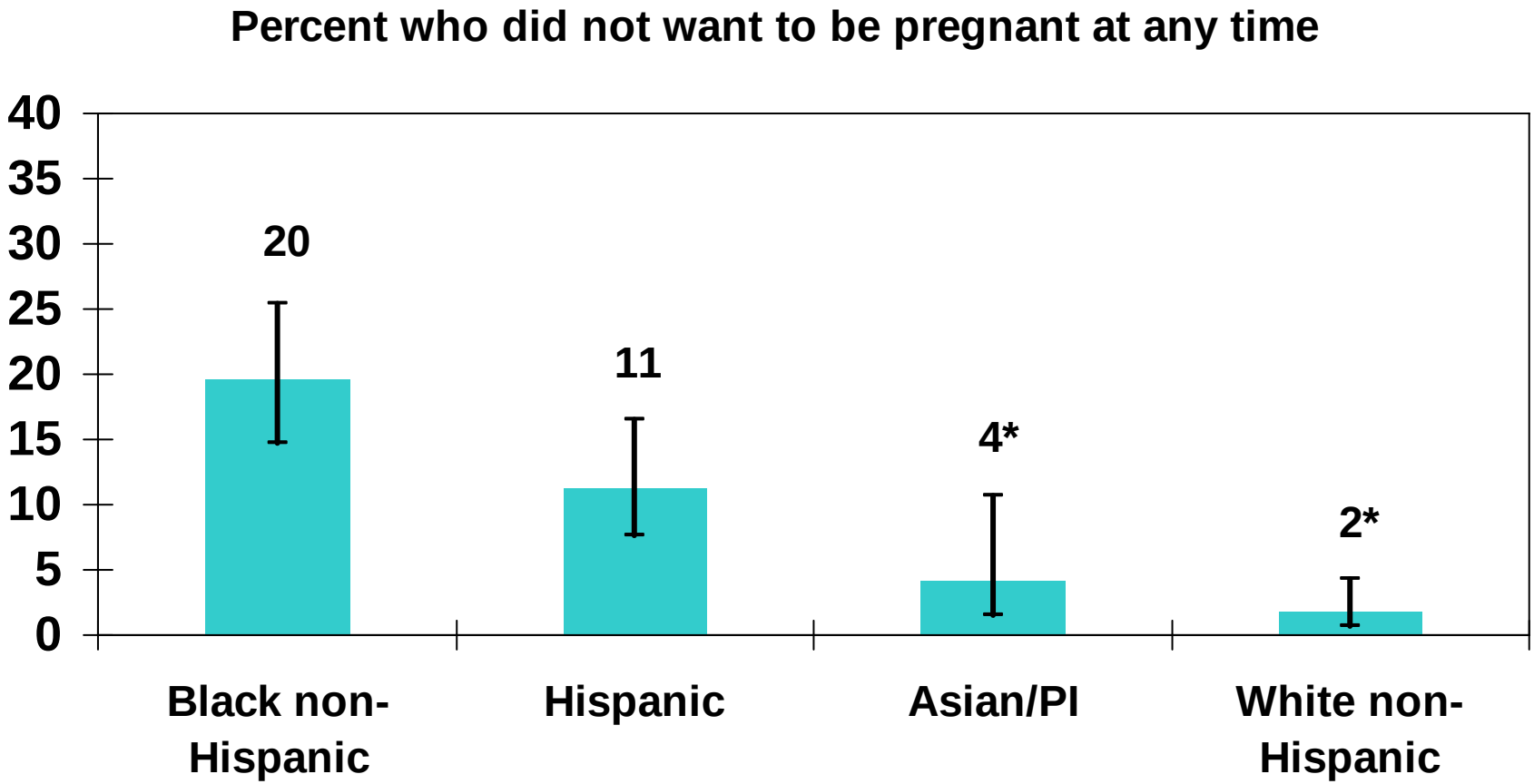
NYC women ages 35+ most likely to report “unwanted” births



* Unreliable estimate due to small sample size.

Source: NYC PRAMS 2004-2005

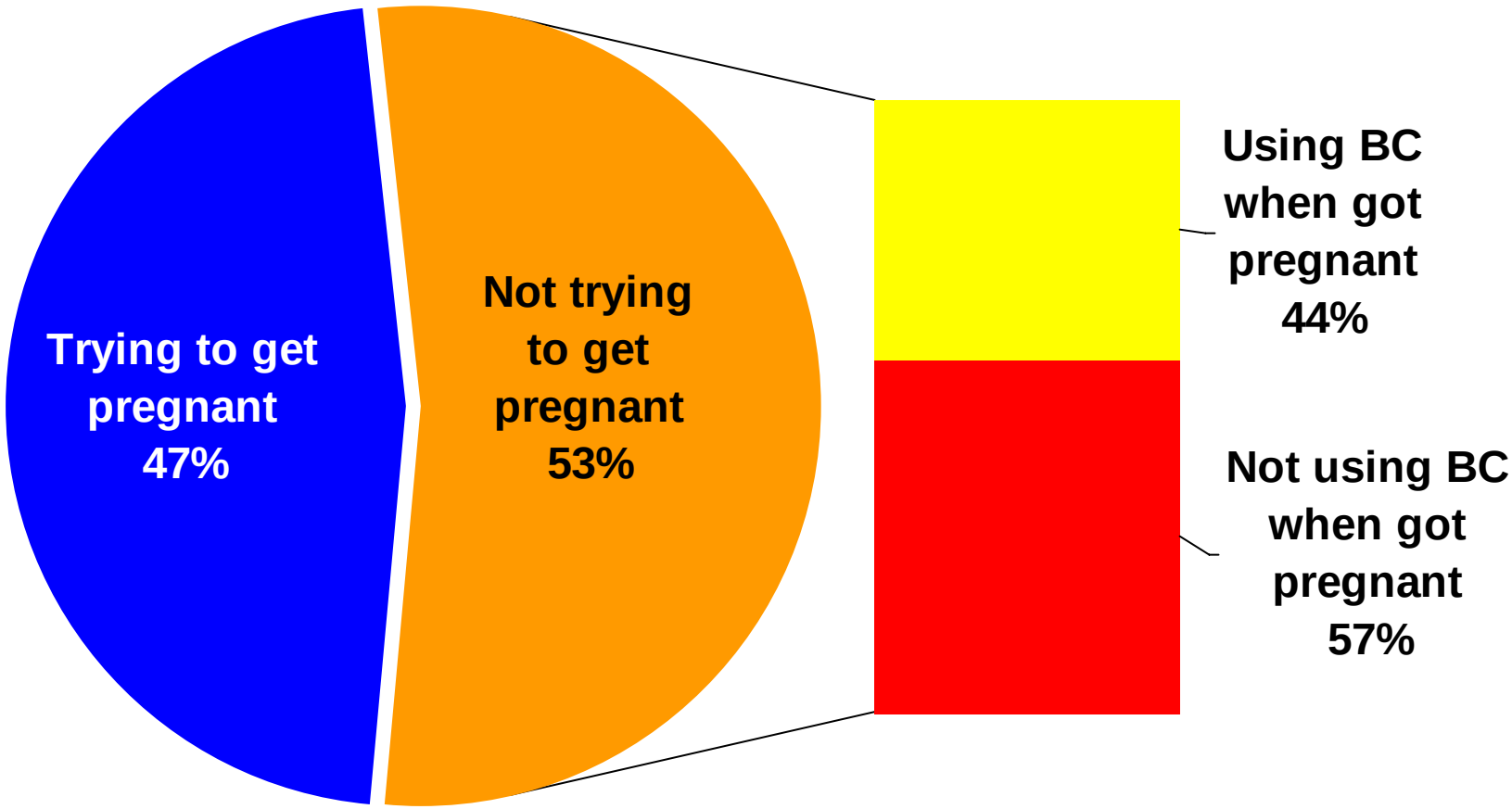
Black women in NYC most likely to report “unwanted” births



* Unreliable estimate due to small sample size.

Source: NYC PRAMS 2004-2005 (age-adjusted to US standard population)

About half of new moms were NOT trying to get pregnant



Source: NYC PRAMS, 2004-2005

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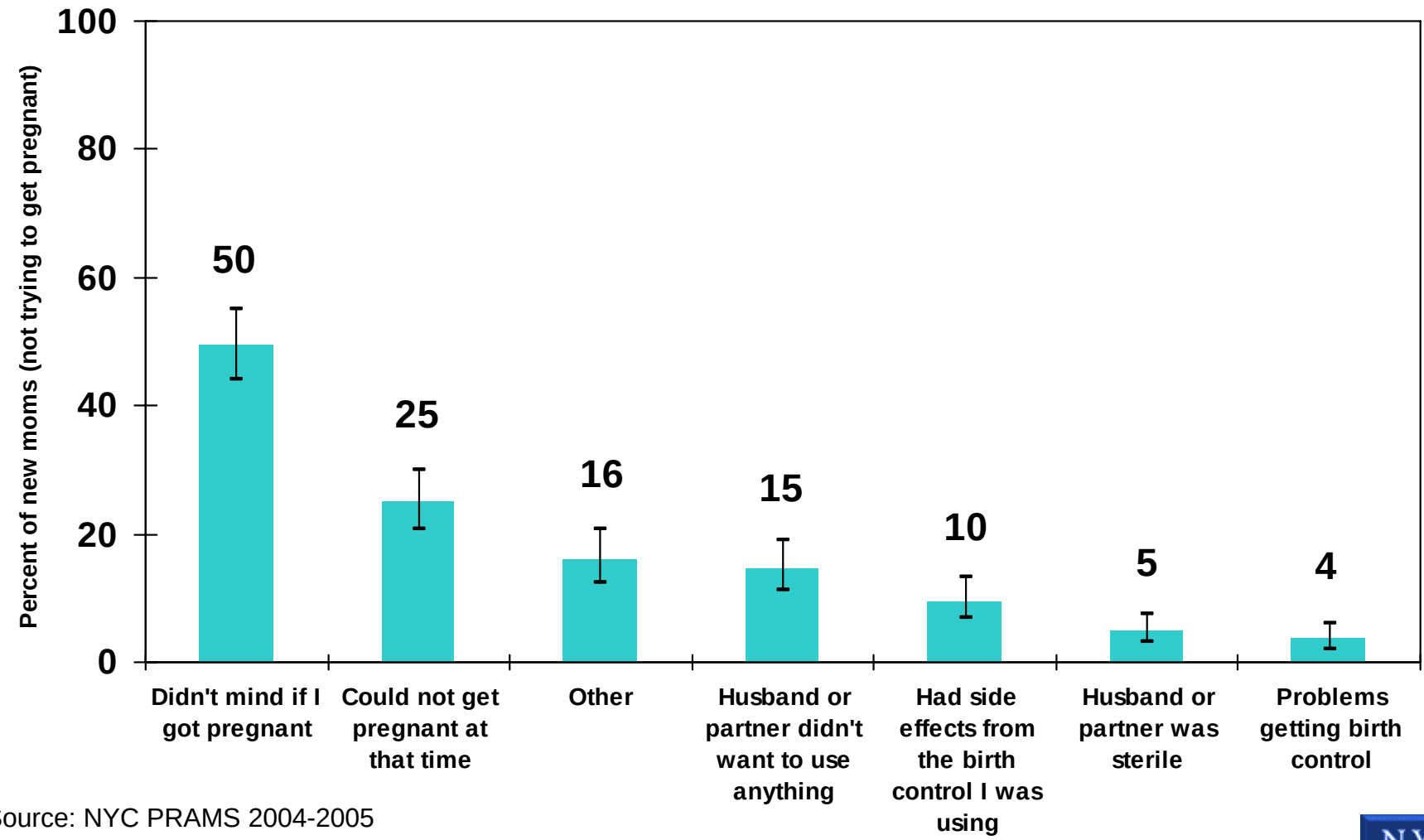
Reasons for not using BC

What were you or your husband's or partner's reasons for not doing anything to keep from getting pregnant?



Source: NYC PRAMS 2004-2005

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Summary of findings

- Rates of overall unintended pregnancy higher in NYC than in US, but NYC has fewer unintended births
- Most striking disparities in unintended pregnancy are by age group, not race/ethnicity
- Disconnect between pregnancy intention and birth control use – NYC is far from 100% HP 2010 goal for contraceptive use
- Need qualitative research to better understand pregnancy intention and barriers to contraceptive use

The Health of Reproductive-Aged Women in NYC

Using Survey Data to Assess Women's Preconception Health

Lindsay Senter, MPH
Bureau of Maternal, Infant and Reproductive Health
Epi Grand Rounds
July 30, 2007

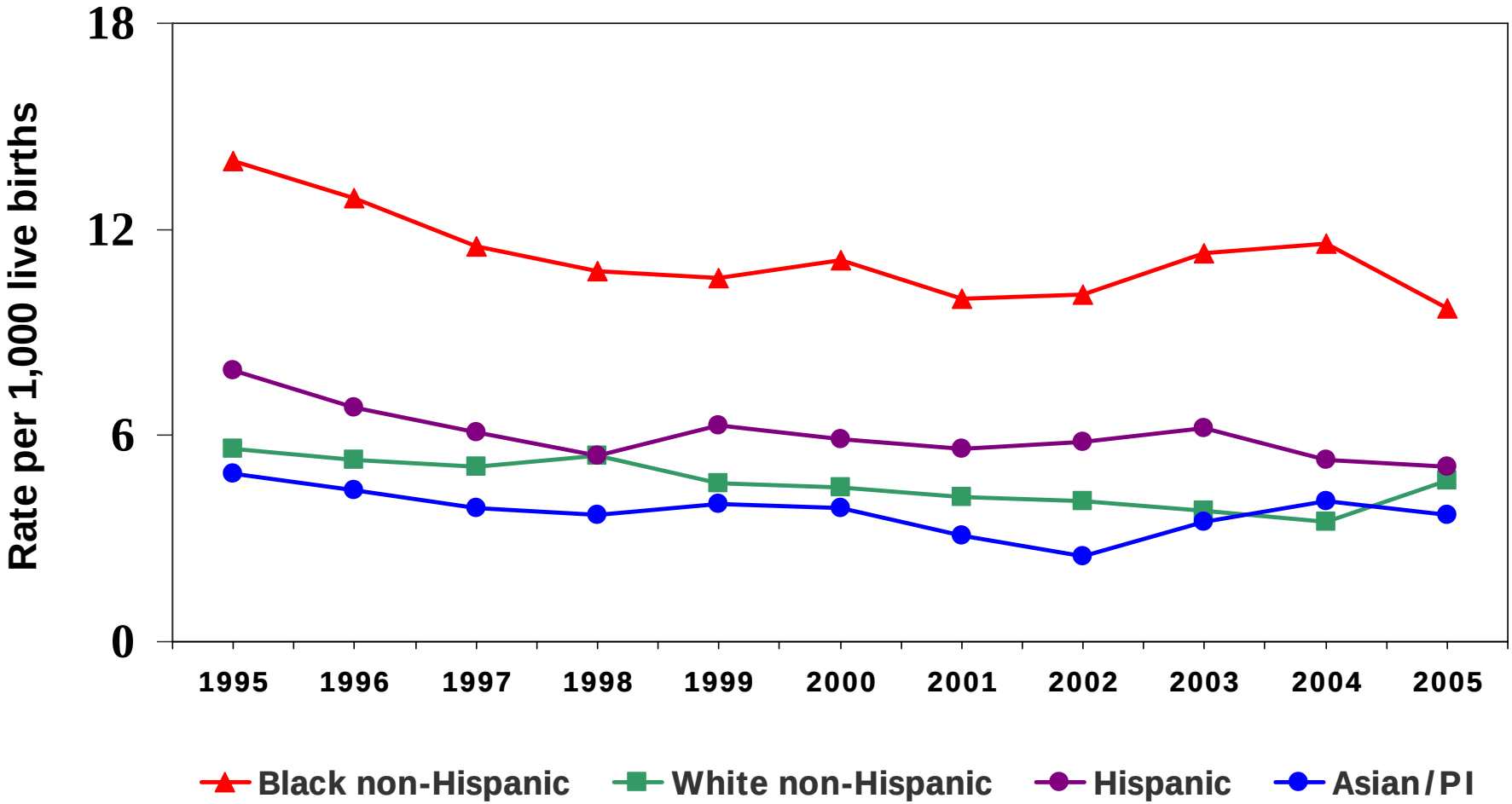
Scope of the talk

- Describe why a focus on preconception health is important
- Use PRAMS & CHS data to inform us about the health status of women of reproductive age and their preconception health risk factors
- Highlight obesity and diabetes as important risk factors

Why Preconception Health?

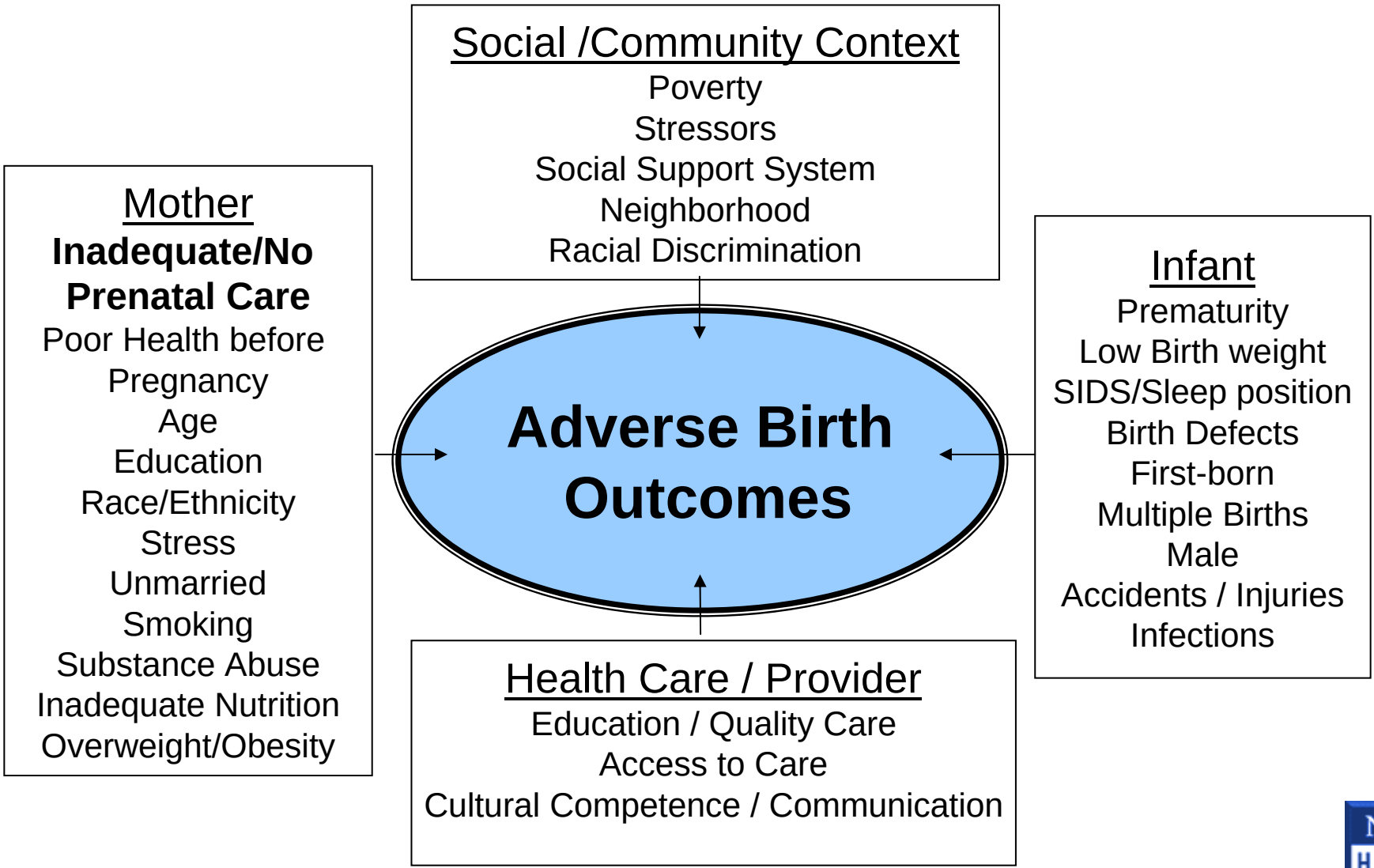
Infant mortality race/ethnic disparities continue at unacceptable levels

Trends in infant mortality by race/ethnicity: 1995-2005



Data Source: Office of Vital Statistics, NYC DOHMH, Compiled by BMIRH

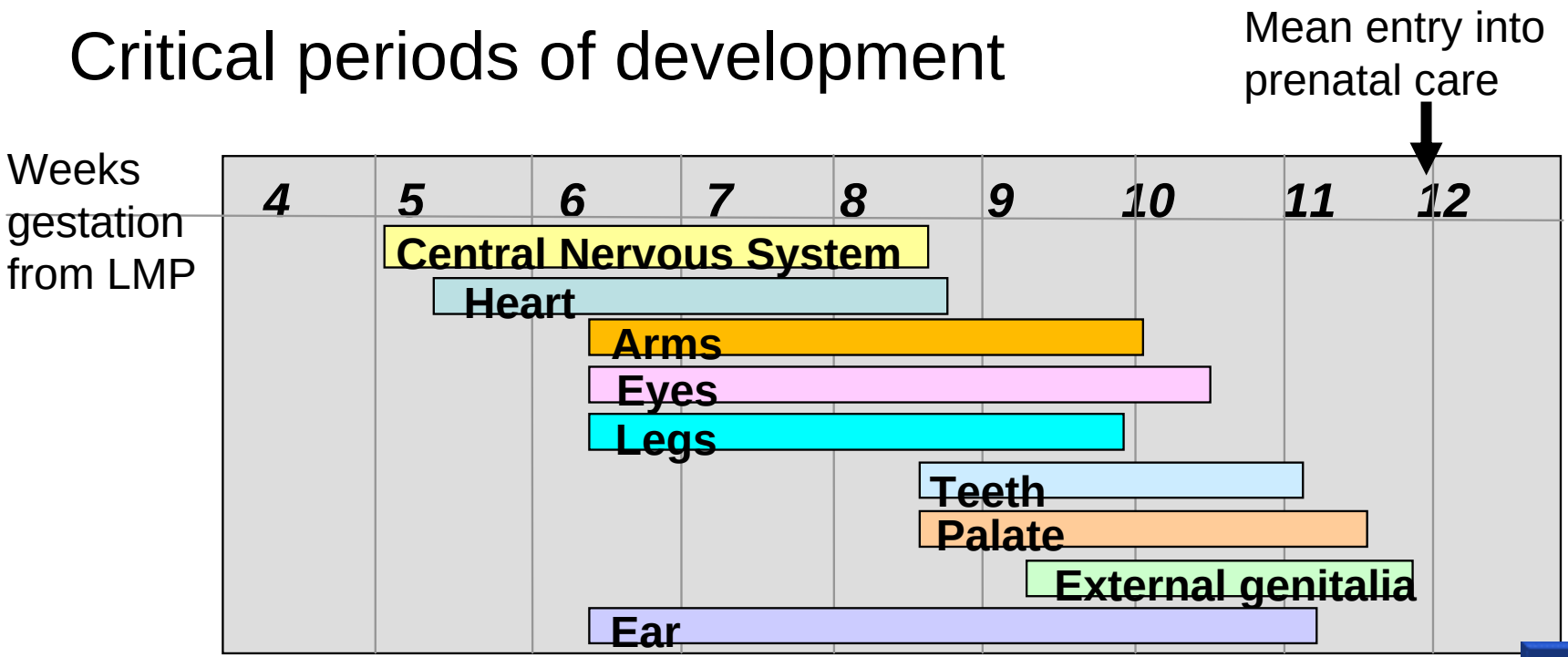
Multiple factors associated with adverse birth outcomes



Intervening at the time of prenatal care is too late

- Racial and Ethnic Disparities in Birth Outcomes: A Life-Course Perspective
  Michael Lu & Neal Halfon, Maternal and Child Health Journal, 2003

- Critical periods of development



“Every Woman, Every Time”

- Many women will benefit from this perspective
  - 40% of women in NYC are 18-44
  - 81% of US women will have had at least one child by age 44
  - 40% of all live births in NYC are unintended

Data Source: US Census Bureau, PRAMS 04-05

Nationally recognized preconception health guidelines

1. Undiagnosed, untreated, or improper treatment of **chronic and infectious diseases** (e.g. diabetes, HIV, rubella and Hep vaccine)

2. Women should be screened for **psychosocial concerns** (e.g. depression, intimate partner violence)

3. Living a healthy lifestyle by engaging in **healthy eating and exercise, maintaining a health weight, folic acid, eliminating/reducing substance use** (e.g. alcohol, tobacco)

4. Women & men should **routinely see a doctor** and providers should **screen for genetic conditions** and teratogenic risks associated with some medications (e.g. epilepsy treatment)

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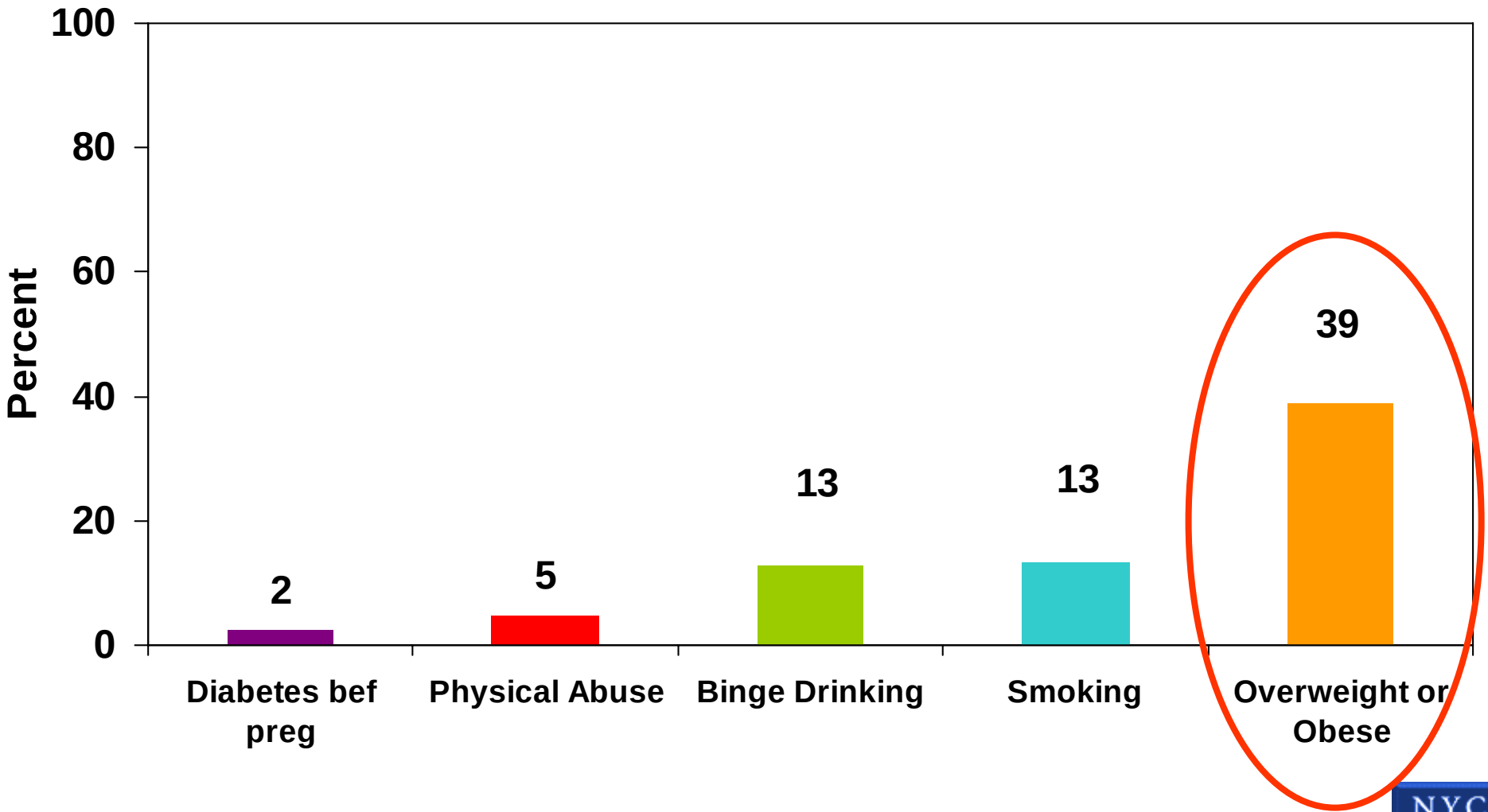
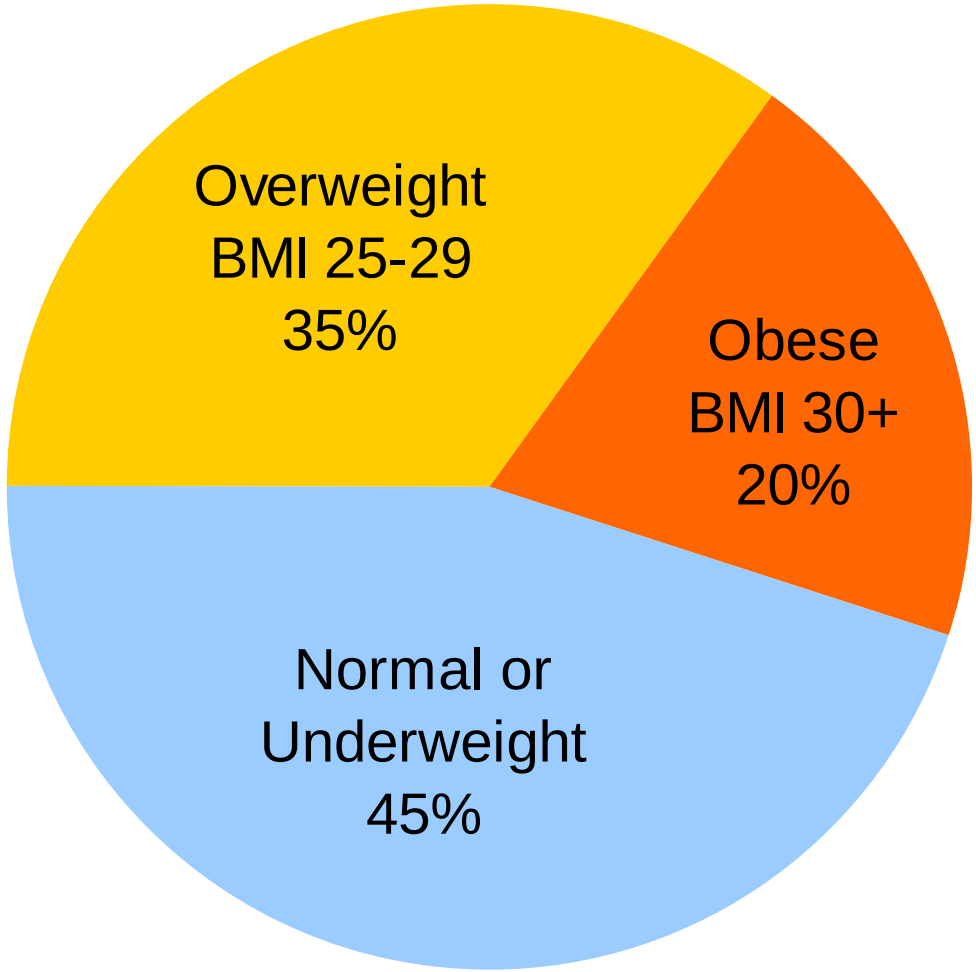
Using PRAMS to determine the prevalence of select preconception risk factors



Data Source: NYC PRAMS 04-05

Majority of New York City adults (18+) are overweight or obese, 2005



Data Source: CHS 05

Risks associated with overweight/obesity for women of reproductive age

- Hypertension
- Diabetes

Birth defects
Preterm
Stillbirths

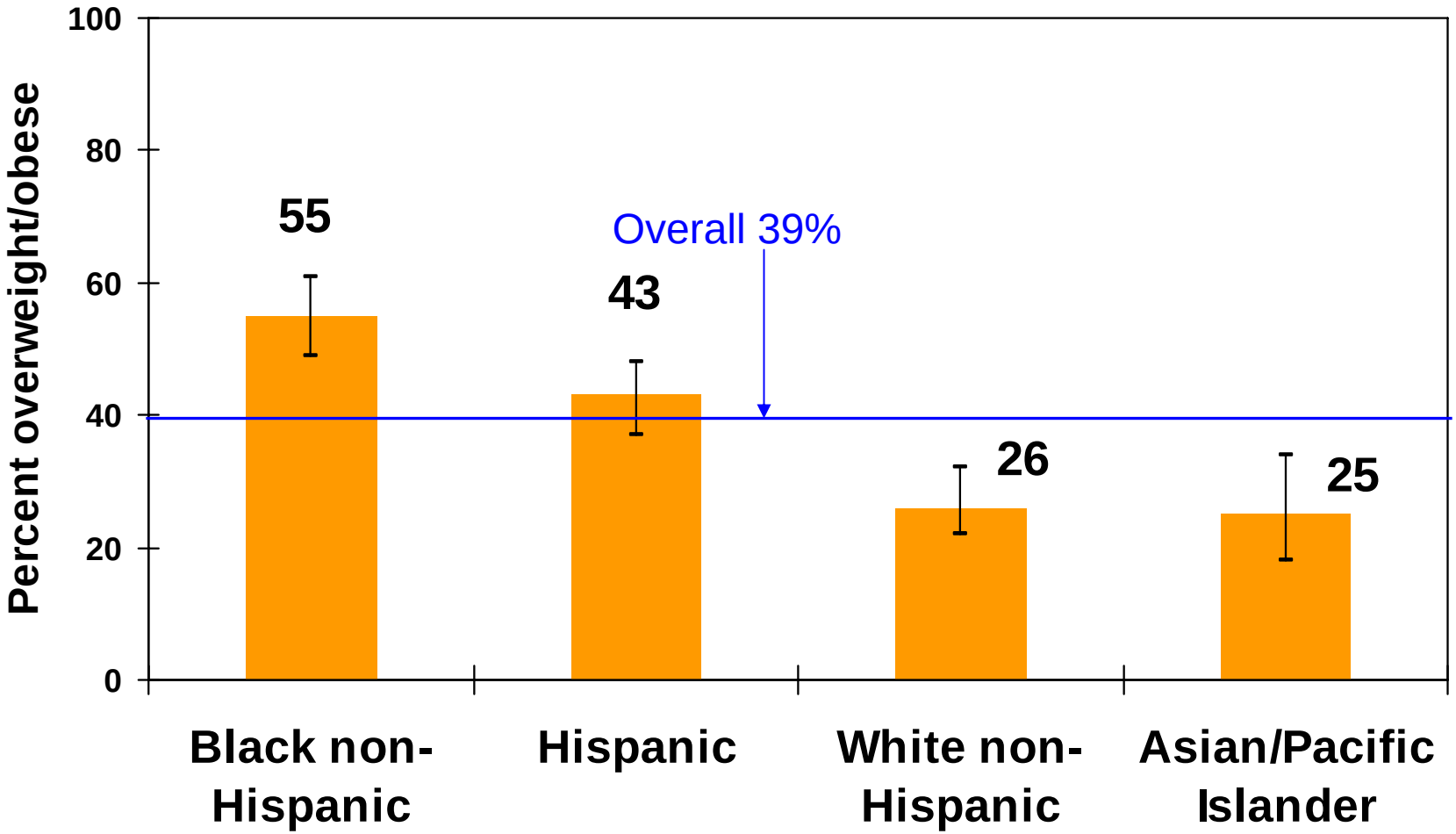
- Hypertension during pregnancy (preeclampsia/eclampsia)
- Gestational Diabetes

Birth defects
Preterm
Macrosomia

Other factors independent of chronic disease:

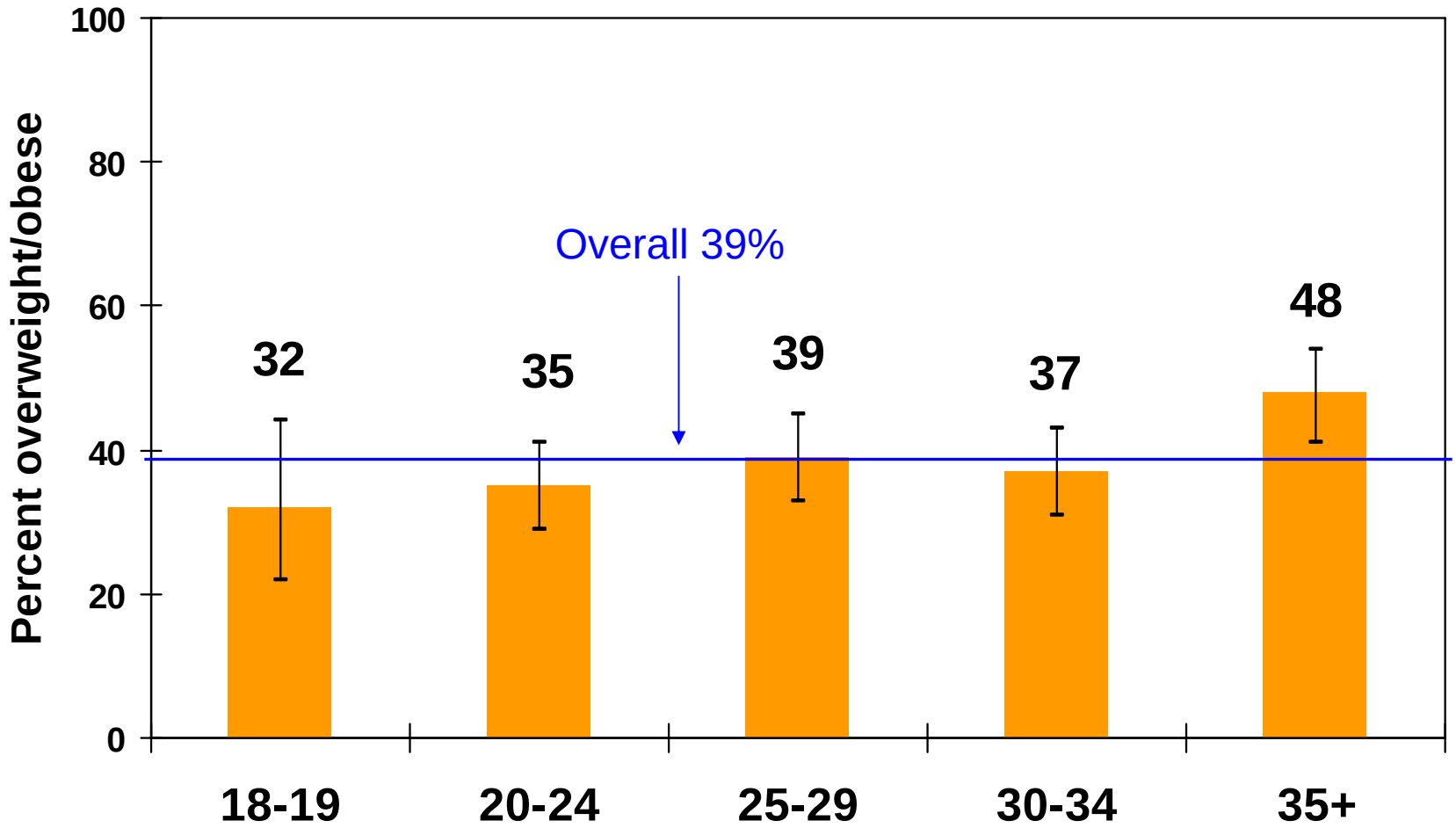
- C-section
- Birth defects
- Maternal morbidity

The rate of overweight/obesity is higher among Black non-Hispanic & Hispanic women with a live birth,18-44, in NYC



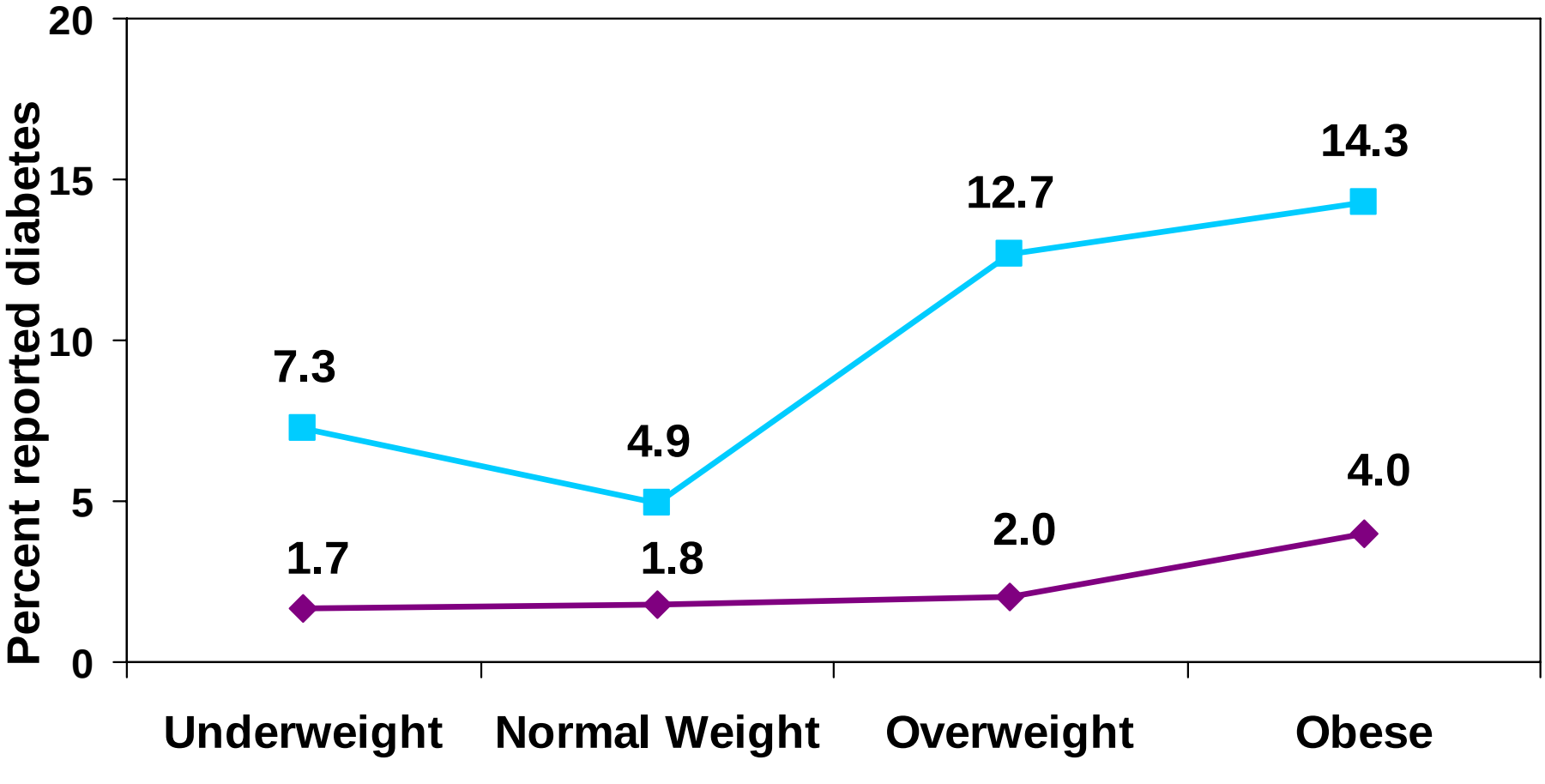
Data Source: NYC PRAMS 04-05

The rate of overweight/obesity is highest among older women with a live birth in NYC



Data Source: NYC PRAMS 04-05

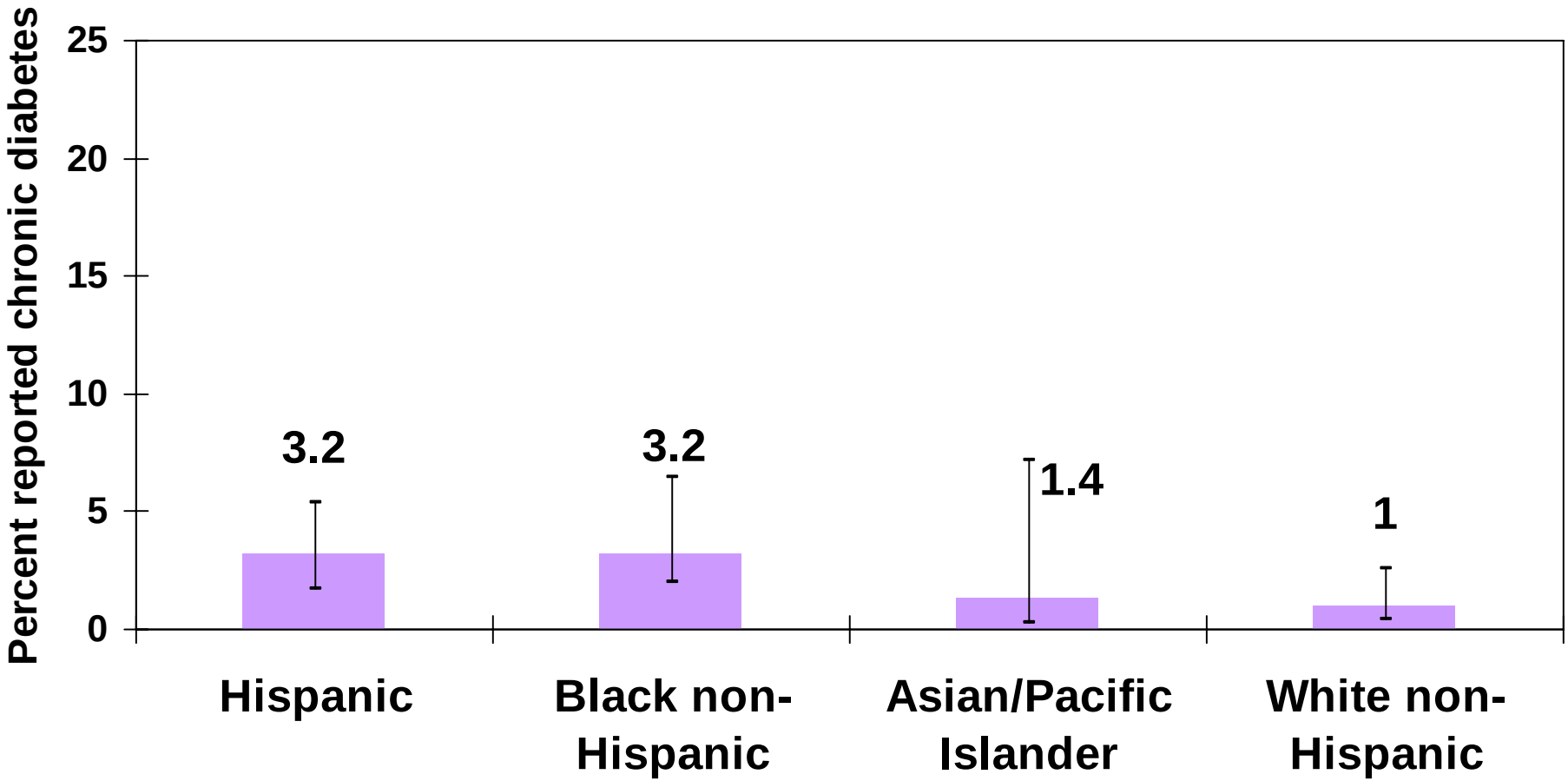
Prevalence of diabetes in NYC increases with maternal weight



Data Source: NYC PRAMS 04-05

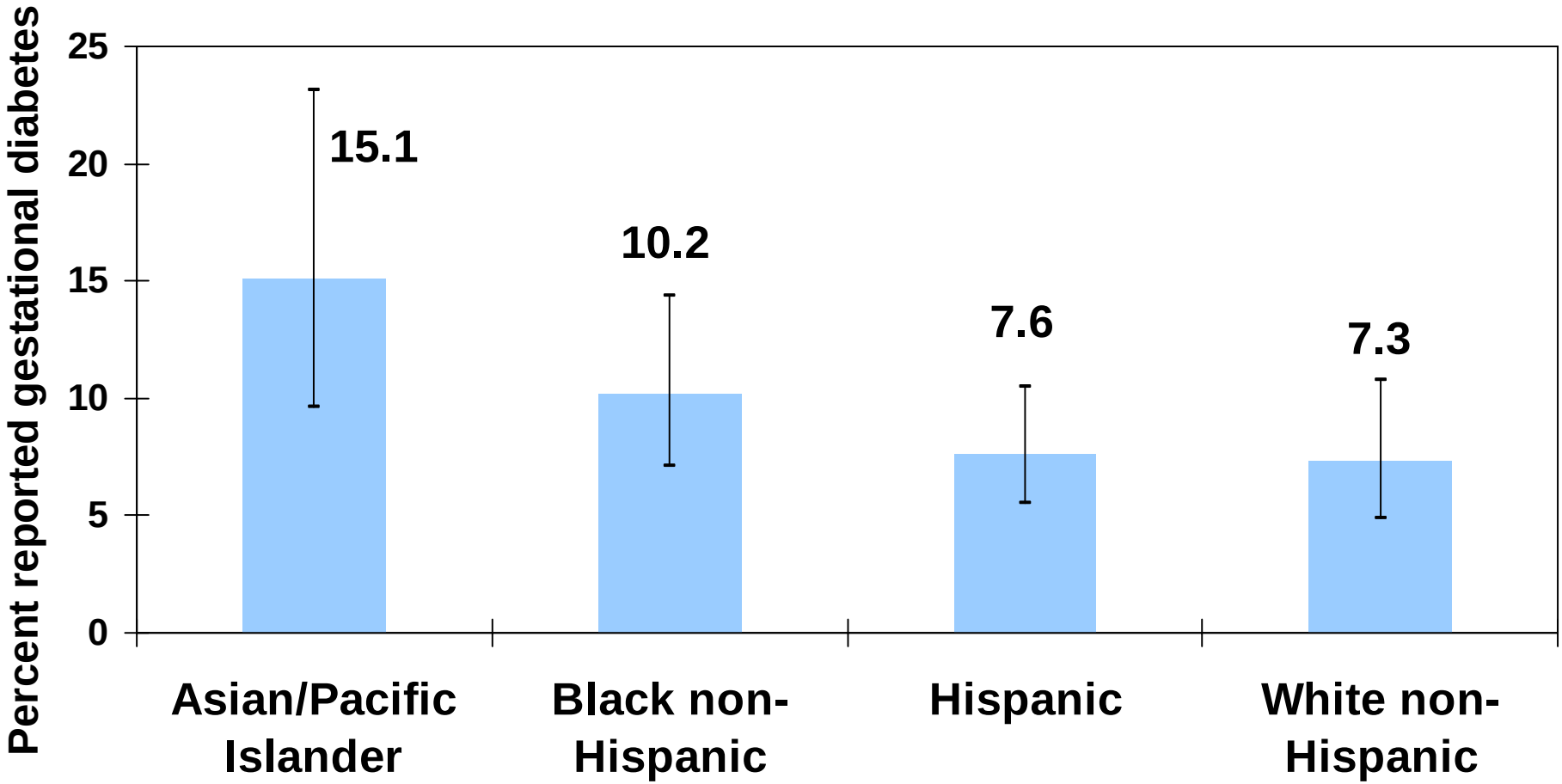
p-value for trend <.05

Chronic diabetes by race/ethnicity, women with a live birth,18-44, NYC



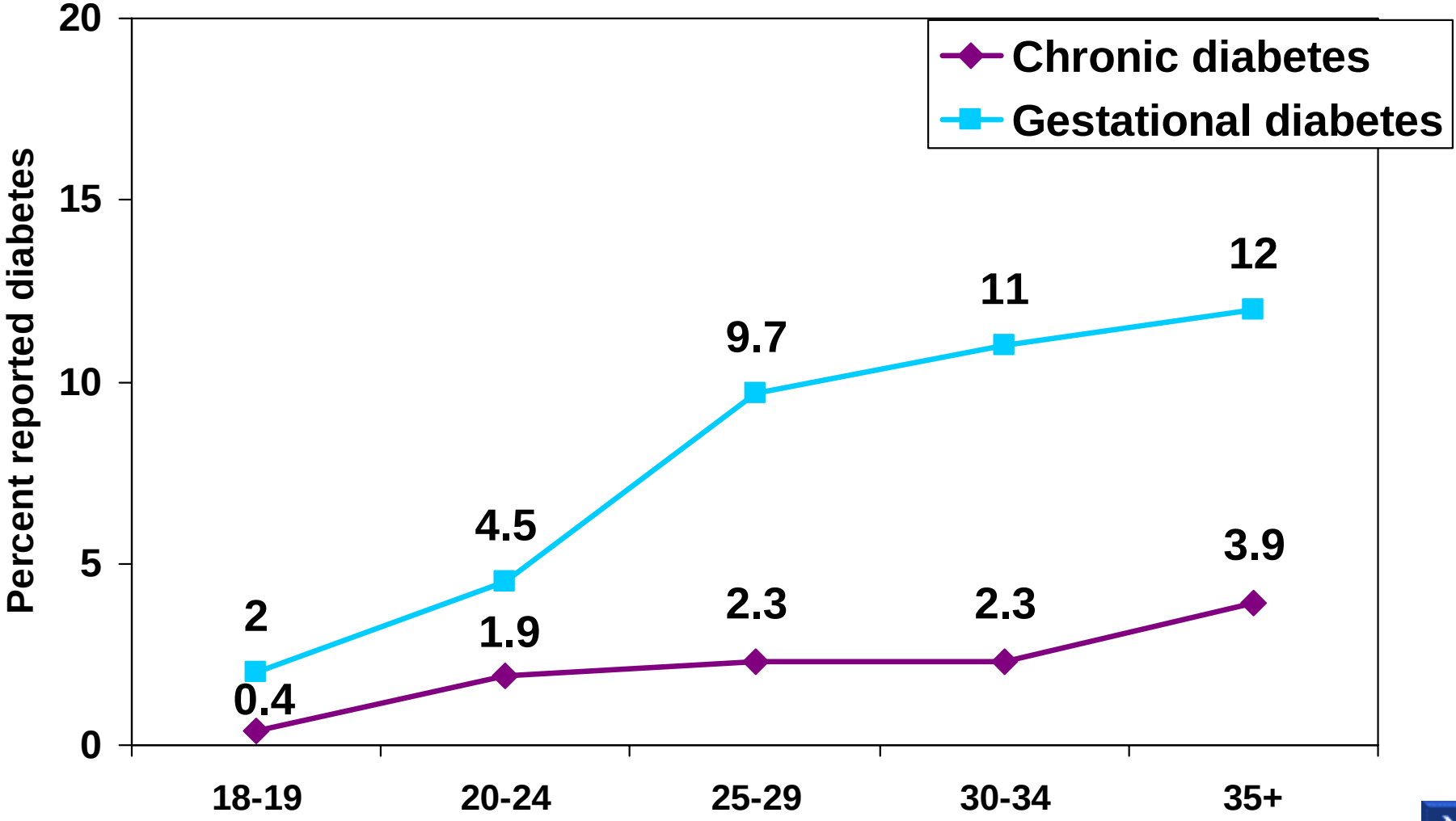
Data Source: NYC PRAMS 04-05

Gestational diabetes by race/ethnicity, women with a live birth,18-44, NYC



Data Source: NYC PRAMS 04-05

Chronic & gestational diabetes by maternal age, women with a live birth,18-44, NYC



Data Source: NYC PRAMS 04-05

p-value for trend <.05

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Can adverse reproductive outcomes be prevented among diabetic women by controlling their disease?

Women with chronic & gestational diabetes have:

- 3-5x the risk of having an infant with a birth defect[1]
- 3-5x the risk of delivering a macrosomic infant[2]
- 4-7x the risk of a stillbirth[3]

[1]Hampton, JAMA, August 2004, 292:7, 789-790

[2]Von Kries et al, European Journal of Pediatrics, November 1997, 156:12, 963-967;
Vangen et al, Diabetes Care, February 2003, 26:2, 327-330

[3]Cundy et al, Diabetes Medicine, January 2000, 17:1, 33-9;
Wood et al, Diabetes Medicine, September 2003, 20:9, 703-707

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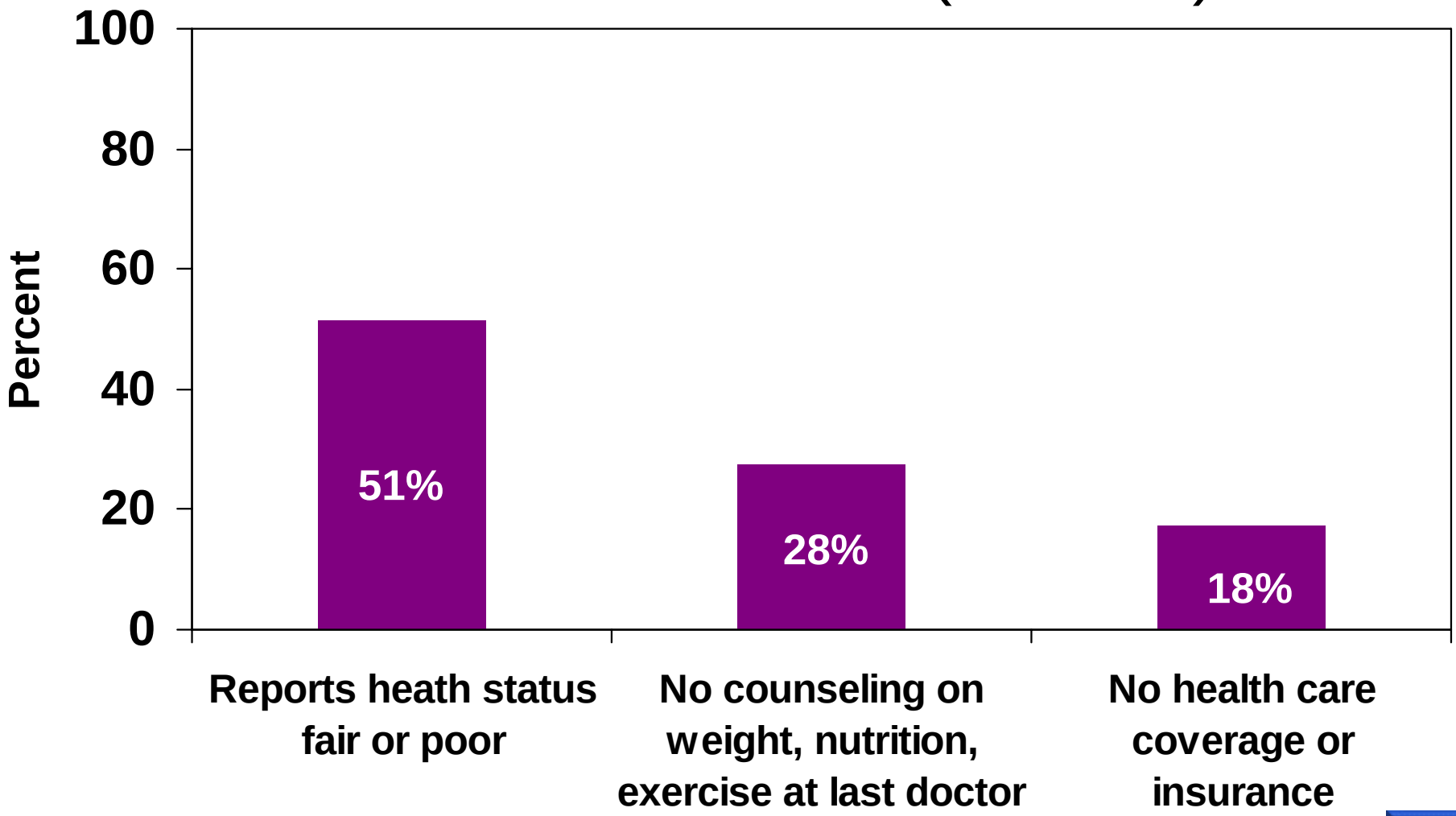
Self-reported health status and access to care among NYC women of reproductive-age with chronic diabetes (CHS 04)

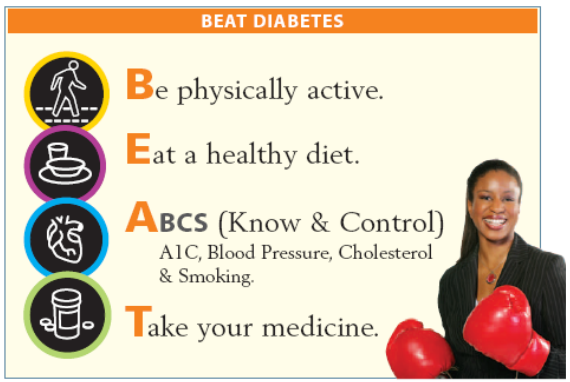


*Age-adjusted rates

Data Source: NYC CHS 04

Tailor & integrate existing effective interventions to the specific needs of reproductive-aged women

Harlem Mind, Body and Soul



TAKE CARE NEW YORK

DPHOs

Controlling "ABCS"

- ***A*1C control**
- ***B*lood pressure control**
- ***C*holesterol control**
- ***S*moking cessation**

A1C Registry

NYC Health

Conclusions

- Obesity and diabetes are two examples of important preconception health risk factors.

- “Every Woman, Every Time”: must consider a new paradigm for taking care of women which shifts the focus back to before she becomes pregnant.

Resources

- March of Dimes: http://www.marchofdimes.com/professionals/preconception.asp
- CDC Recommendations to Improve Preconception Health and Health Care http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5506a1.htm
- American College for Ob/Gyn (ACOG) http://www.acog.org/acog_districts/dist_notice.cfm?recno=1&bulletin=2283
- Every Woman, Every Time, California http://www.marchofdimes.com/files/exec.sum.pdf
- Institute of Medicine, The Best Intentions: Unintended Pregnancy and the Well-Being of Children and Families, National Academy Press: Washington, D.C. 1995

Breastfeeding in New York City

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7/30/07

Bureau of Maternal, Infant and Reproductive Health Goal:

BREASTFEEDING BECOMES THE NORM




Scope of Talk

- The benefits of breastfeeding
- Breastfeeding in NYC
  - Initiation
  - Duration
  - Exclusivity
  - Reasons for Discontinuation
- Hospital support for breastfeeding
- What DOHMH is doing to promote breastfeeding

Benefits of Breastfeeding to the Infant and Child

- Strengthens infant's immune system
- Strong evidence for decreased incidence of:
  - Acute otitis media
  - Non-specific gastroenteritis
  - Severe lower respiratory tract infections
  - Necrotizing enterocolitis
  - Atopic dermatitis
  - Asthma
  - Obesity
  - Type I and Type II diabetes
  - Childhood leukemia
  - Sudden Infant Death Syndrome (SIDS)

Source: Breastfeeding and Maternal and Infant Health Outcomes in Developed Countries, AHRQ, April 2007.

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Benefits of Breastfeeding to the Mother

- Decreased risk of:
  - Ovarian cancer
  - Breast cancer
  - Postpartum bleeding
  - Type II diabetes

Source: Breastfeeding and Maternal and Infant Health Outcomes in Developed Countries, AHRQ, April 2007.

Benefits of Breastfeeding to the Community

- Decreased:
  - Health care expenditures
  - Costs associated with WIC
  - Parental absenteeism to care for sick child
  - Environmental burden from disposal of formula cans and bottles
  - Energy demands for production and transport of formula

Source: Gartner LM, et al. AAP Policy Statement: Breastfeeding and the Use of Human Milk. *Pediatrics*. February 2005;115(2):496-506.

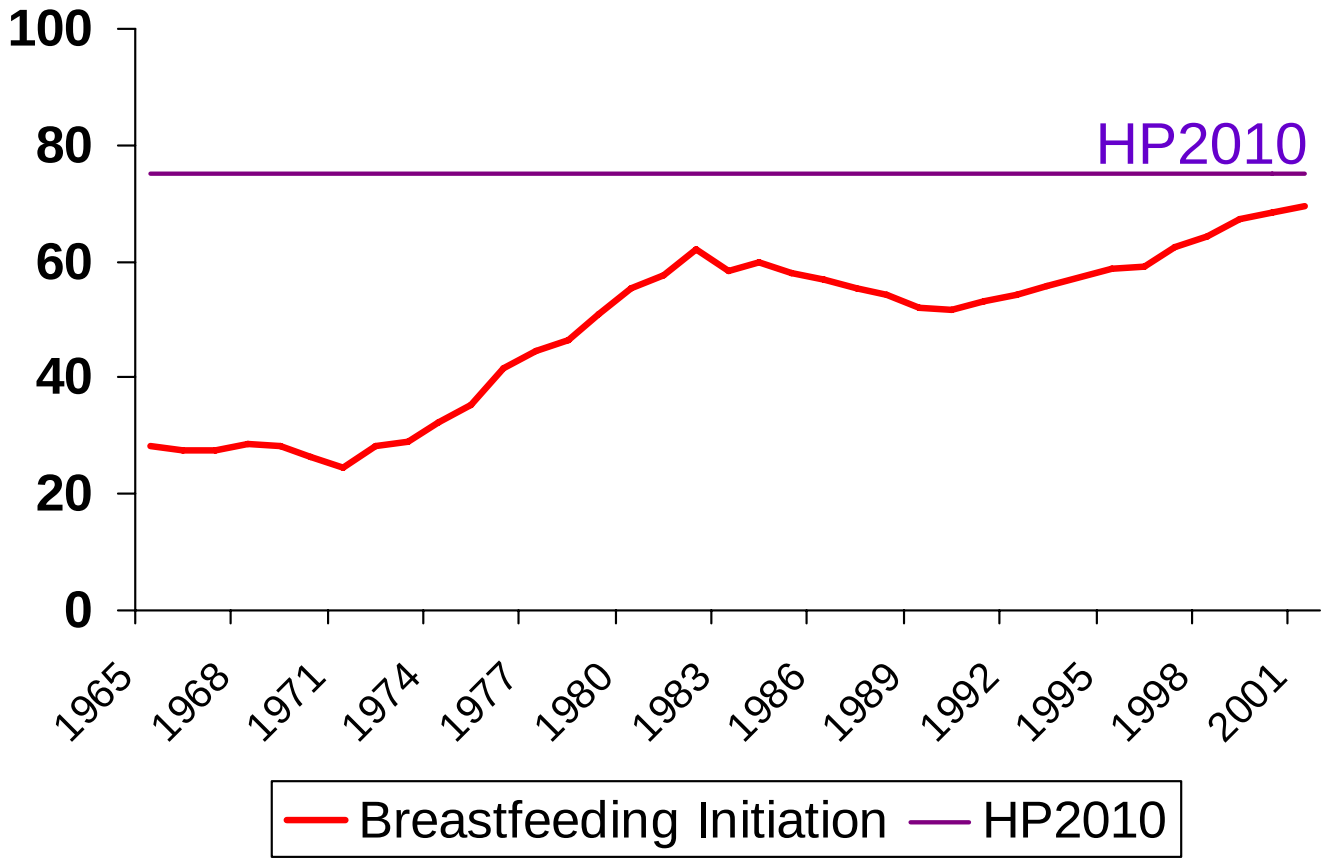
Guidelines for Breastfeeding
American Academy of Pediatrics

- Almost all infants should be breastfed (BF)
- Initiate BF within 1 hour of birth
- Exclusive, on-demand BF for 6 months
- Supplement BF with iron-enriched solid food after 6 months

Healthy People 2010
Breastfeeding Objectives

Birth	3 Months	6 Months	1 Year
75% Initiate Breastfeeding	60% Exclusively Breastfeed	50% Breastfeed 25% Exclusively breastfeed	25% Breastfeed

Trends in Breastfeeding Initiation, USA, 1965-2001



Source: Ross Laboratories Mothers' Survey, Ross Products Division, Abbott Laboratories.

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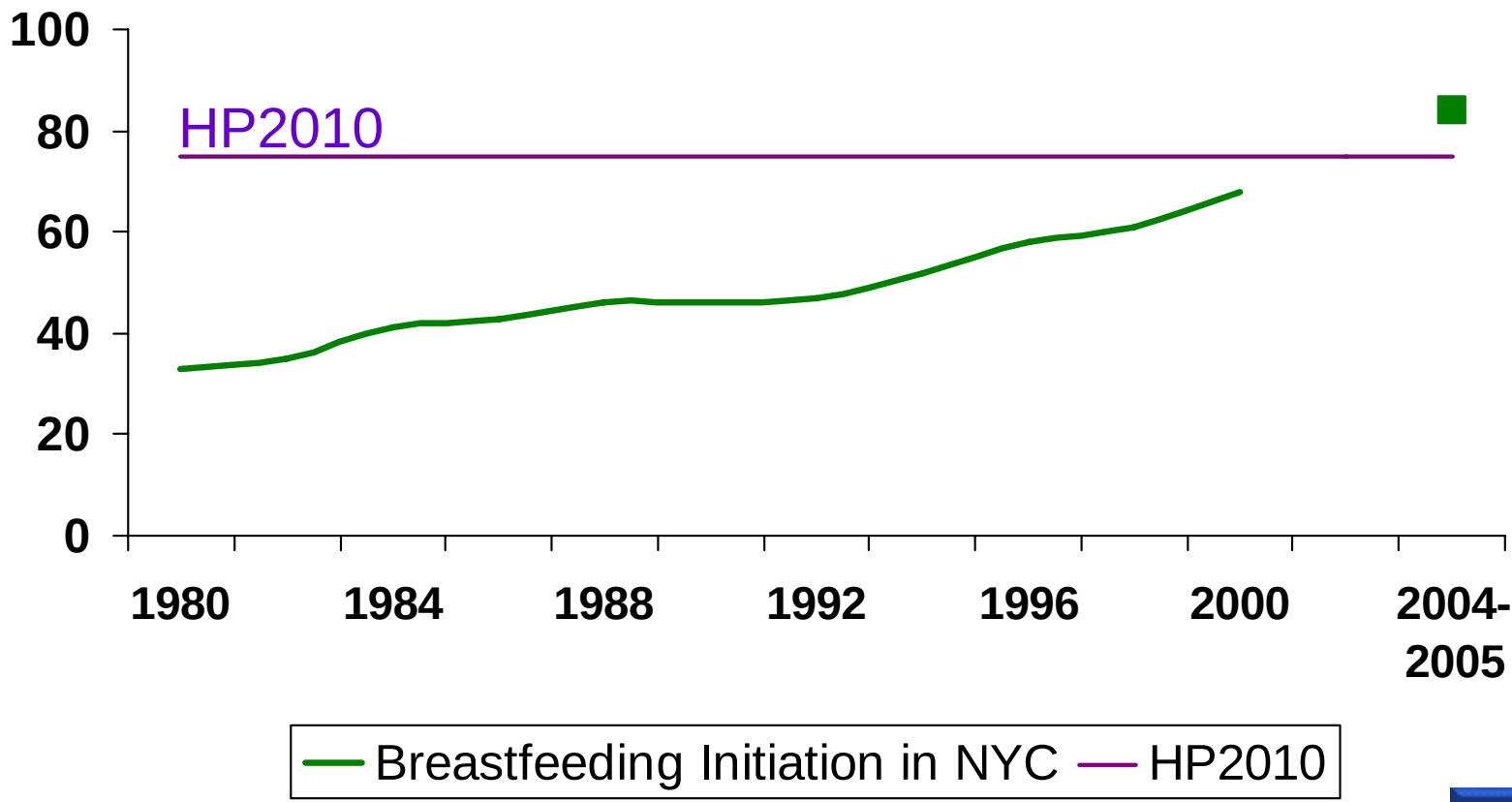
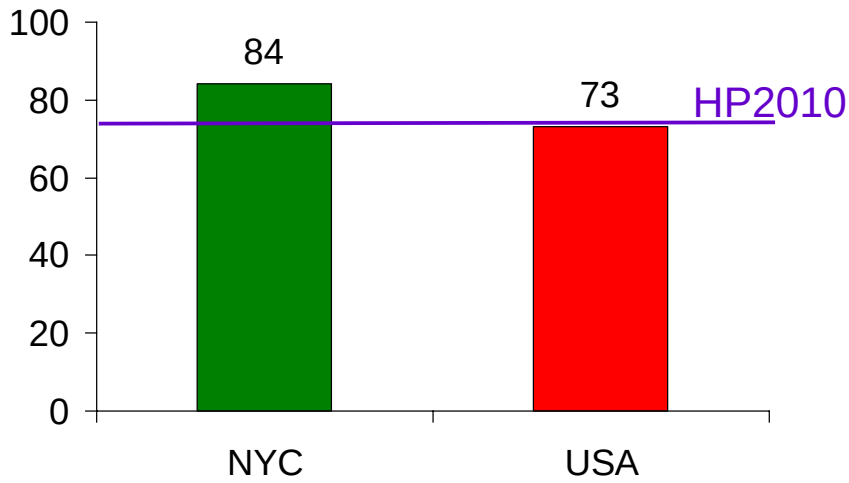
Trends in Breastfeeding Initiation, NYC, 1980-2005



Source: BMIRH Infant Feeding Survey, 1980-2000; NYC PRAMS 2004-05

Breastfeeding Initiation: NYC vs. USA

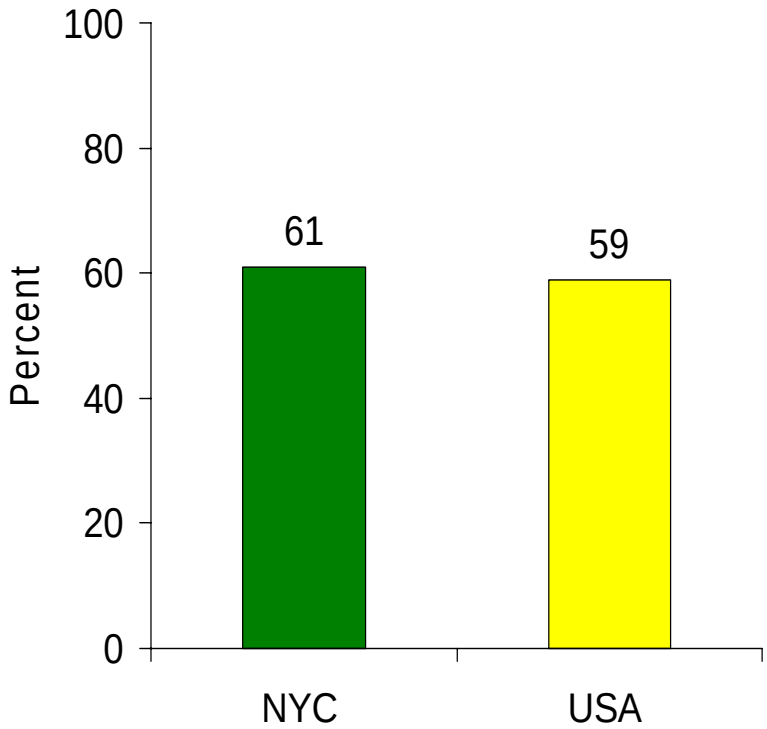
- Did you ever breastfeed or pump breast milk to feed your new baby after delivery?



NYC PRAMS, 2004-2005, National Immunization Survey, 2005

Duration of Any Breastfeeding for 8 + Weeks, NYC vs. USA

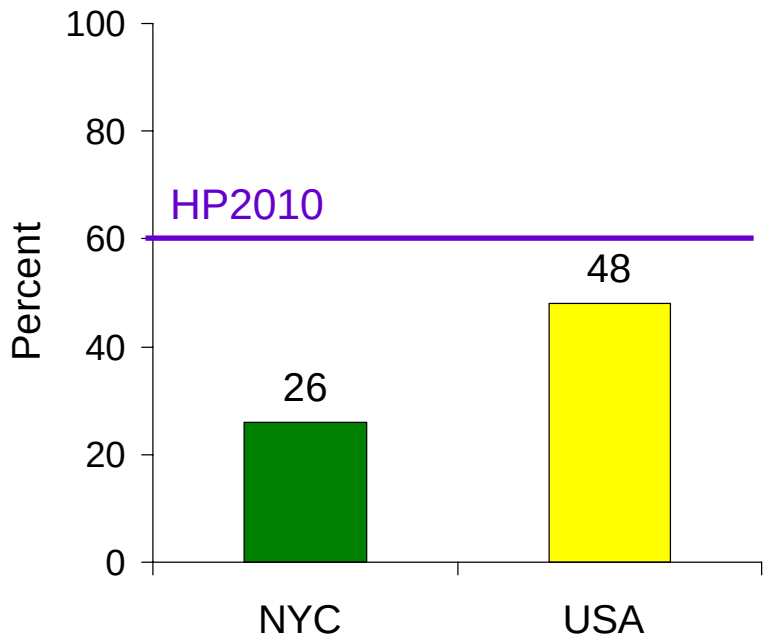
How many weeks or months did you breastfeed or pump milk to feed your baby?



NYC PRAMS, 2004-2005, National Immunization Survey, 2005

Duration of Exclusive Breastfeeding for 8 + weeks, NYC vs. USA

- How old was your baby the first time you fed him or her anything besides breast milk?



NYC PRAMS, 2004-2005, National Immunization Survey, 2005

Factors Influencing Breastfeeding Initiation, Duration and Exclusivity in NYC

- Logistic Regressions:
  - Initiation: Not breastfeeding
  - Duration: **Any** breastfeeding < 8 wks
  - Exclusivity: **Exclusive** breastfeeding < 8 wks

What factors influence breastfeeding initiation, duration and exclusivity in NYC?

- Maternal demographic factors:
  - Race/Ethnicity, Nativity, Age, Education, Marital Status, WIC status
- Maternal health factors:
  - Smoking status, BMI, depression
- Infant health factors:
  - Gestational age
- Other factors:
  - Infant feeding in hospital, pregnancy intention

Factors Influencing Breastfeeding Initiation in NYC

- Outcome variable : Not Breastfeeding

Which groups do not initiate breastfeeding in NYC?

Independent Variable	Adj OR	95% CI
Smoker (vs. non-smoker)	3.71	(1.07, 12.95)
Less than high school (vs. some college)	3.22	(1.62,6.14)
High school graduate (vs. some college)	2.33	(1.28, 4.22)
Obese (vs. normal weight)	2.34	(1.40, 3.93)
Foreign born (vs. US born)	**0.48**	**(0.31, 0.74)**
Hispanic (vs. white non-Hispanic)	**0.51**	**(0.27, 0.97)**

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Factors Influencing Duration of Any Breastfeeding in NYC

- Outcome variable:

  Breastfeeding for < 8 weeks

Which groups in NYC breastfeed for less than 8 weeks?

Independent Variable	Adj. OR	95% CI
< 19 years old (vs. 25-34 years old)	4.64	(2.14, 10.05)
Infant fed something other than breast milk in hospital (vs. exclusive in hospital)	2.45	(1.55, 3.88)
Hispanic (vs. white non-Hispanic)	2.31	(1.35, 3.93)
Asian/Pacific Islander (vs. white non-Hispanic)	2.30	(1.18, 4.47)
Obese (vs. normal weight)	1.96	(1.15, 3.33)
Foreign born (vs. US born)	**0.54**	**(0.37, 0.80)**

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Factors Influencing Duration of Exclusive Breastfeeding in NYC

- Outcome variable:
  - Exclusive Breastfeeding for < 8 weeks

Which groups in NYC **exclusively** breastfeed for less than 8 weeks?

Independent Variable	**Adj. OR**	**95% CI**
Infant fed something other than breast milk in hospital (vs. exclusive in hospital)	4.11	(2.81, 6.02)
Obese (vs. normal weight)	2.65	(1.46, 4.82)
Preterm (vs. term infant)	2.13	(1.26, 3.62)

Reasons for Discontinuing Breastfeeding

- Not producing enough milk 45%
- Breast milk didn't satisfy baby 42%

- Baby had difficulty breastfeeding 24%
- Nipples sore, cracked or bleeding 17%

- Returned to work/school 16%
- Too many household duties 14%

NYC PRAMS 2004-2005

Baby Friendly Hospital Initiative (BFHI)

- UNICEF/WHO Initiative
- Addresses hospital influence in breastfeeding initiation and duration
- Established ten steps to successful breastfeeding

NYC Report Card on Baby Friendly Hospital Initiative Steps for Successful Breastfeeding

1.	Inform mothers of benefits of breastfeeding	88%
2.	Give no pacifier	73%
3.	Encourage breastfeeding on demand	65%
4.	Refer for help with breastfeeding	64%
5.	Show mothers how to breastfeed	63%
6.	Baby rooms in with mother	58%
7.	**Initiate breastfeeding within 1 hr of birth**	**31%**
8.	**Give infants only breast milk in hospital**	**22%**
9.	**Do not provide gift pack with formula**	**14%**

NYC PRAMS, 2004-2005

What DOHMH is Doing to Promote Breastfeeding

Five Point Strategy

1. Research and Evaluation
2. HHC Breast Milk Friendly Hospital Initiative
3. Provider and Community Education
4. Breastfeeding Friendly Workplaces
5. Policy Change

HHC Breast Milk Friendly Hospital Initiative

- Modeled on Baby Friendly Hospital Initiative
- HHC Hospitals will
  - Encourage baby rooming-in with mother
  - Ensure breastfeeding within 1 hour of birth
  - Offer no artificial feeding or pacifiers
  - Display no formula company incentives or materials
  - Train staff in Baby Friendly Hospital policies and practices

Resources

- **AAP Initiatives**: www.aap.org/breastfeeding
- **AAFP Policy**: www.aafp.org/online/en/home/policy/policies/b/breatfeedingpositionpaper.html
- **ILCA Clinical Guidelines**:

  www.ilca.org/educatgion/2005clinicalguidelines.php
- **Baby Friendly Hospital Initiative**:

  www.cdc.gov/breastfeeding/compend-babyfriendlywho.htm

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