

Current prevalence and trends of high weight-for-length in infants and young children

Cynthia L. Ogden, PhD, MRP
NHANES Analysis Branch Chief

The potential role of nutrition in the first 2 years of life in the prevention of child overweight and obesity: A Webinar
NASEM

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HARDEST AGE GROUP FOR OBESITY EPIDEMIOLOGY



Measurements and
definitions



Data sources



Measurements and
definitions



Data sources





0.8 cm difference between length and standing height

In CDC growth chart data

US DEFINITIONS, BIRTH-5 YEARS

| | Birth-<24 months | 2-<5 years |
|------------------|---|---|
| Indicator | Weight-for-length | BMI-for-age |
| Reference | WHO growth charts | CDC growth charts |
| Cut point | ≥ 2 SD (97.7 th percentile) | $\geq 95^{\text{th}}$ percentile $\geq 120\%$ of 95 th percentile |

Obesity

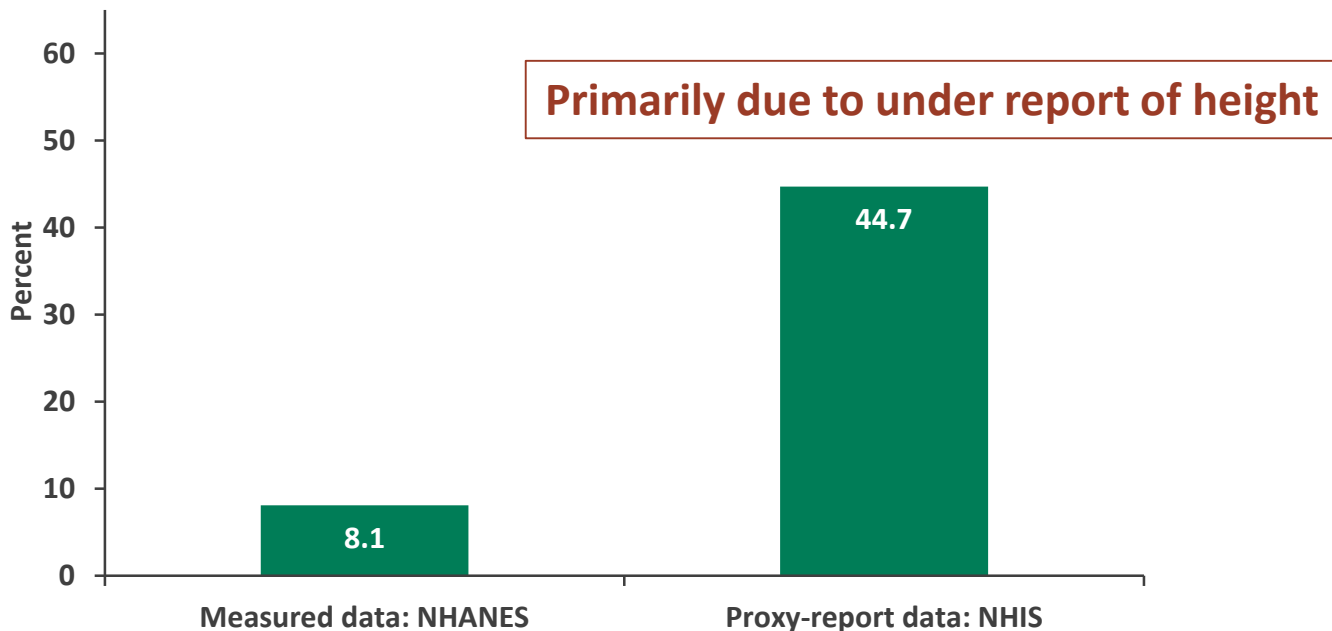
High weight-
for-length

Severe
Obesity





OBESITY HIGHER BASED ON PARENT/PROXY REPORT AMONG 2-3 YEAR OLDS



Source: National Health and Nutrition Examination Survey (NHANES) 1999-2004 US **BOYS**; Akinbami and Ogden. Childhood overweight prevalence in the United States: the impact of parent-reported height and weight. Obesity. 2009.; **Obesity is BMI-for-age $\geq 95^{\text{th}}$ percentile of CDC growth charts**

SMALL WEIGHT CHANGE OR MEASUREMENT ERROR LEADS TO WEIGHT-FOR-LENGTH CATEGORY CHANGE

| Boy, 60 cm (23.6 inches) | |
|--------------------------|----------------------------------|
| Weight (lb) | WHO Weight-for-length percentile |
| 14.0 | 75 th |
| 14.7 | 90 th |
| 15.2 | 95 th |
| 15.7 | 97.7 th |

0.5 pound {



Measurements and
definitions



Data sources



Nationally
representative



Examination
data



10,000 overall



2 year cycle
since 1999,
periodic prior



~600
Birth < 24 Mo

~75
Birth-2 Mo

Per 2 Y cycle



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Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)

WIC serves about half of
all infants born in the
United States



Prevalence and trends

8.9% infants/toddlers

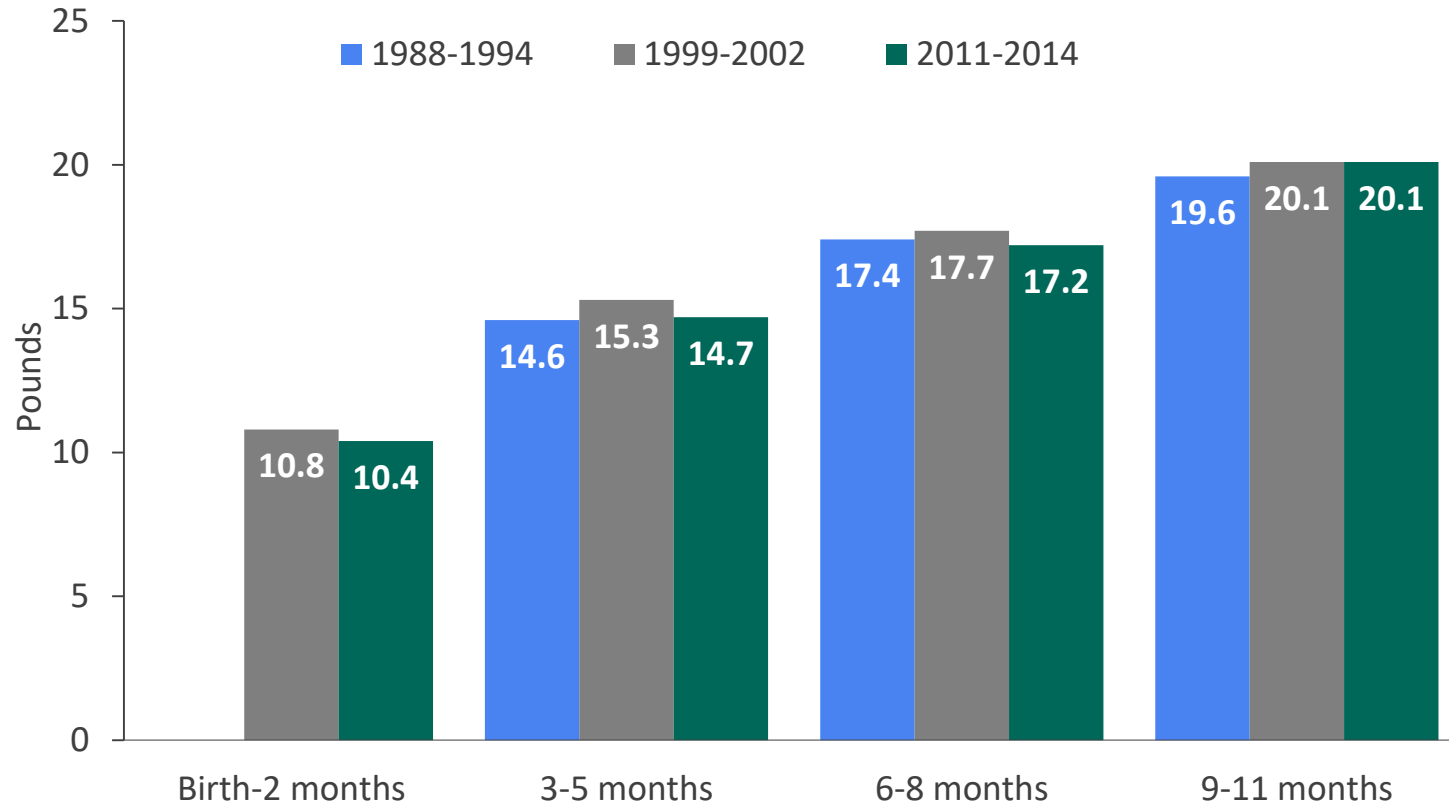
13.9% preschoolers

with excess weight/obesity in US, 2015-2016

https://www.cdc.gov/nchs/data/hestat/high_weight_recumbent_15_16/high_weight_recumbent_15_16.htm; High weight-for-length defined as $\geq 97.7^{\text{th}}$ percentile of WHO growth charts https://www.cdc.gov/nchs/data/hestat/obesity_child_15_16/obesity_child_15_16.htm Obesity BMI-for-age $\geq 95^{\text{th}}$ percentile of CDC growth charts

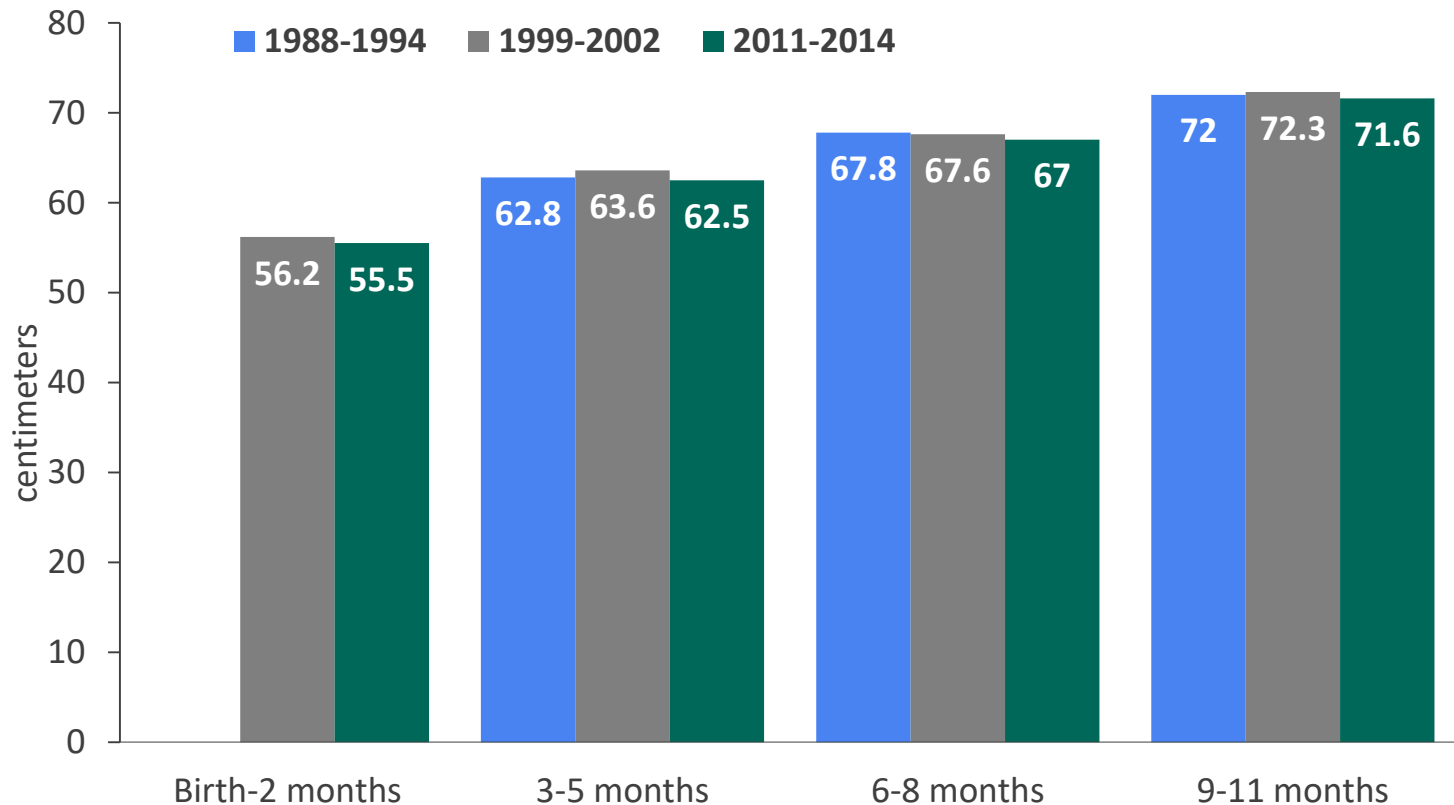


TRENDS IN MEDIAN WEIGHT AMONG INFANT GIRLS



Source: CDC/NCHS, National Health and Nutrition Examination Survey https://www.cdc.gov/nchs/data/series/sr_11/sr11_249.pdf; <https://www.cdc.gov/nchs/data/ad/ad361.pdf>; https://www.cdc.gov/nchs/data/series/sr_03/sr03_039.pdf

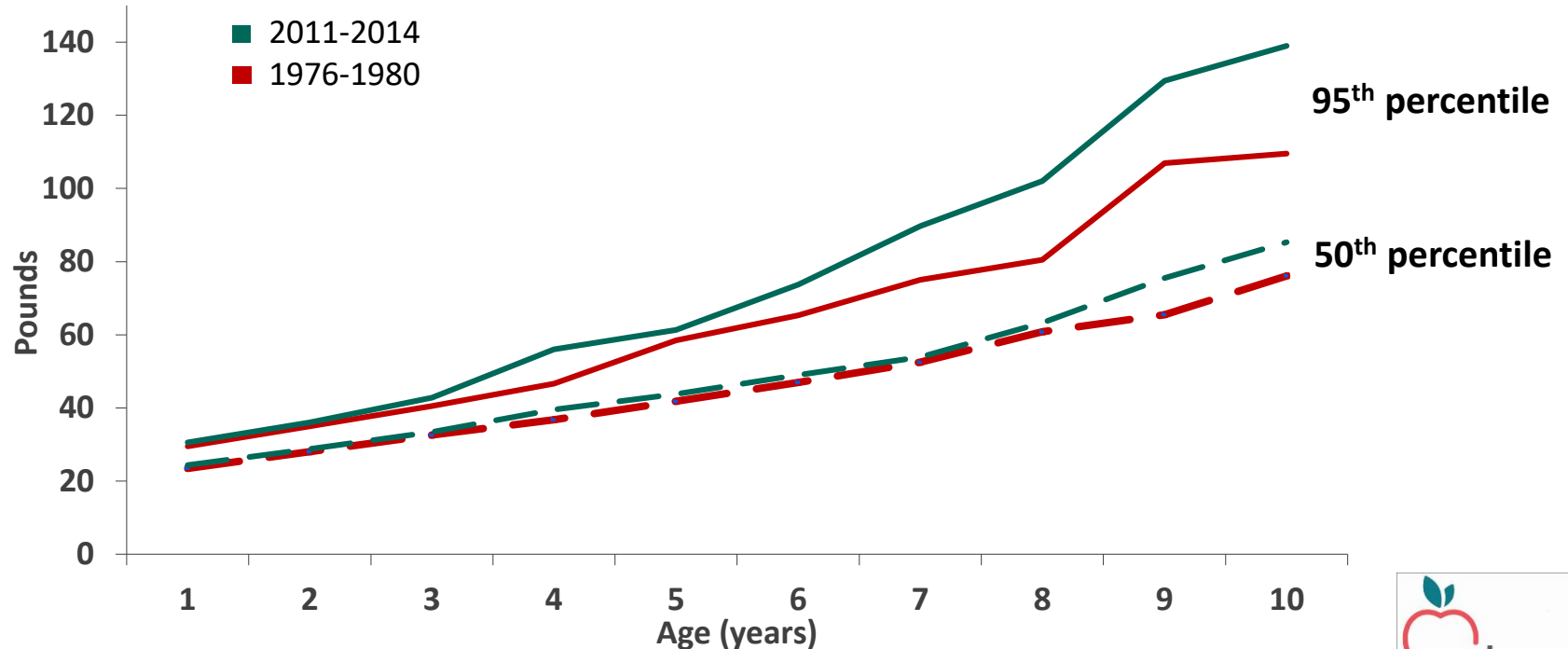
TRENDS IN MEDIAN LENGTH AMONG INFANT GIRLS



Source: CDC/NCHS, National Health and Nutrition Examination Survey https://www.cdc.gov/nchs/data/series/sr_11/sr11_249.pdf; <https://www.cdc.gov/nchs/data/ad/ad361.pdf>; https://www.cdc.gov/nchs/data/series/sr_03/sr03_039.pdf

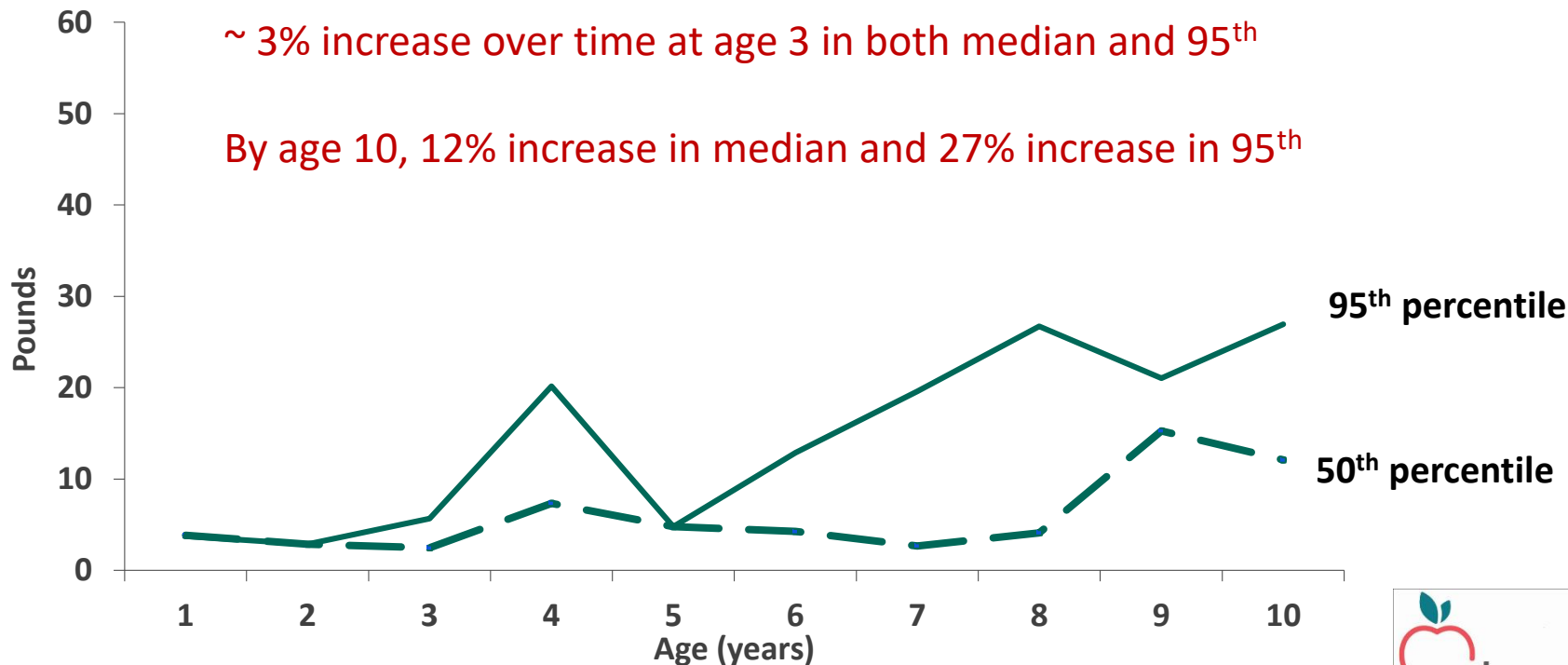


ABSOLUTE INCREASE BETWEEN 1976-80 AND 2011-14 IN WEIGHT AMONG GIRLS INCREASES WITH AGE



Source: NHANES 1976 and 2011-2014; https://www.cdc.gov/nchs/data/series/sr_11/sr11_238.pdf; https://www.cdc.gov/nchs/data/series/sr_03/sr03_039.pdf

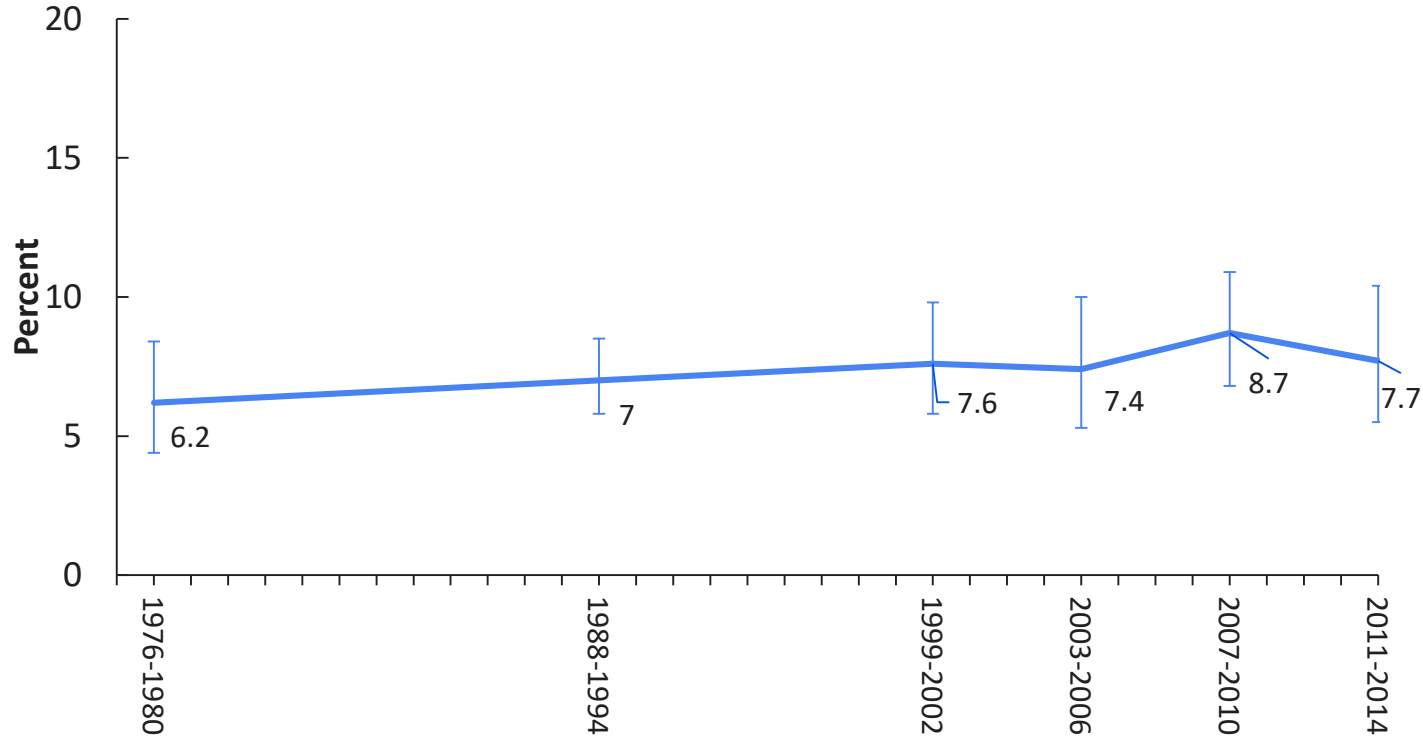
PERCENTAGE INCREASE IN WEIGHT BETWEEN 1976-80 AND 2011-14 AMONG GIRLS ALSO INCREASES WITH AGE



Source: NHANES 1976 and 2011-2014; https://www.cdc.gov/nchs/data/series/sr_11/sr11_238.pdf; https://www.cdc.gov/nchs/data/series/sr_03/sr03_039.pdf

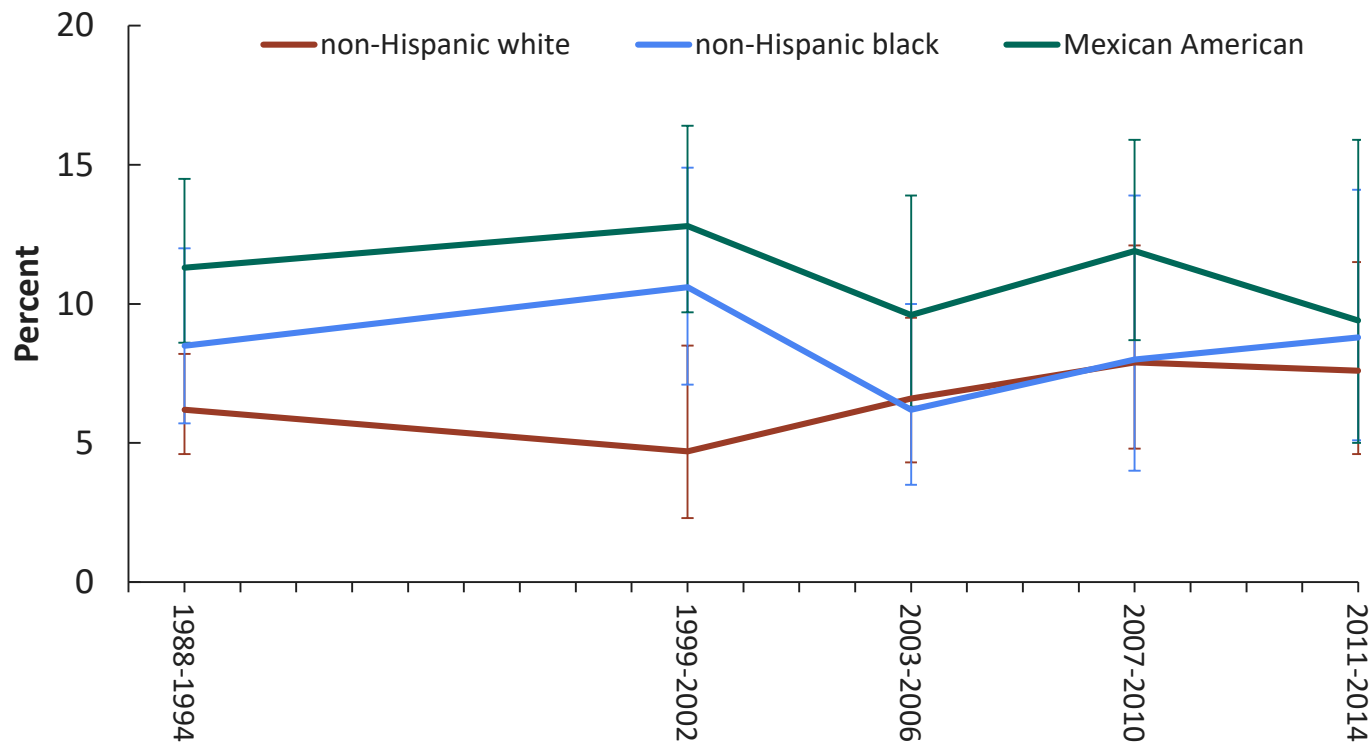


NO SIGNIFICANT TREND IN HIGH WEIGHT-FOR-LENGTH 1976-1980 TO 2011-2014, US, 6-<24 MONTHS

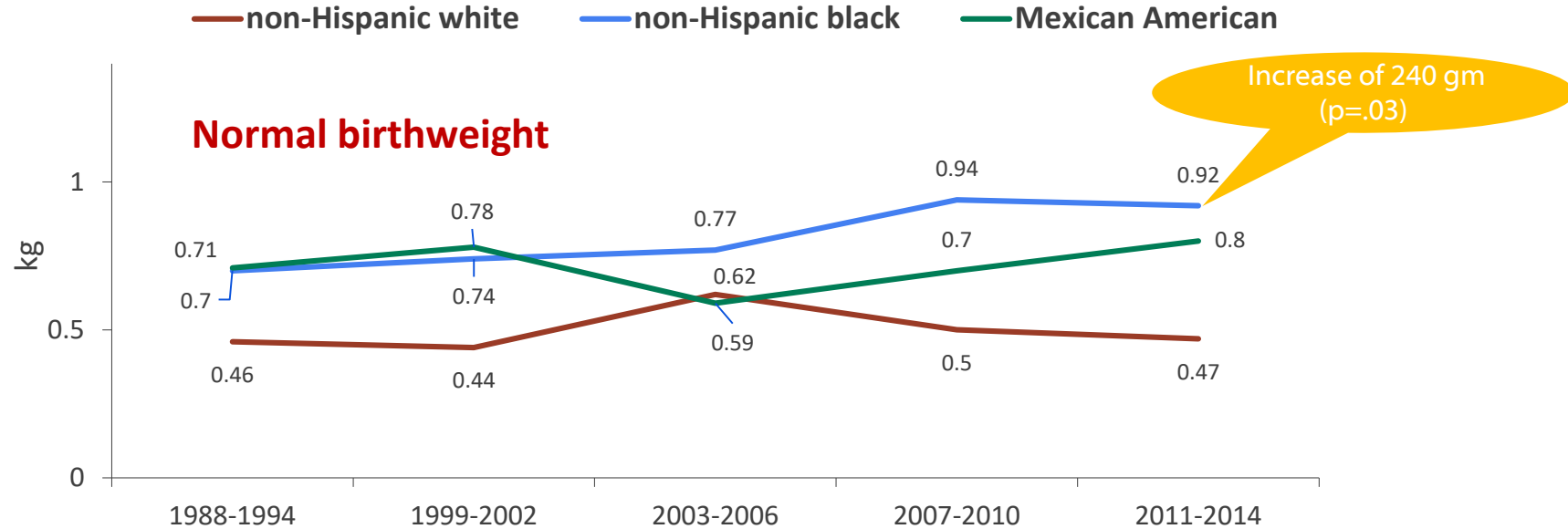


Lara J. Akinbami et al. *Pediatrics* 2017;139:e20163374; High weight-for-length defined as $\geq 97.7^{\text{th}}$ percentile of the WHO growth charts

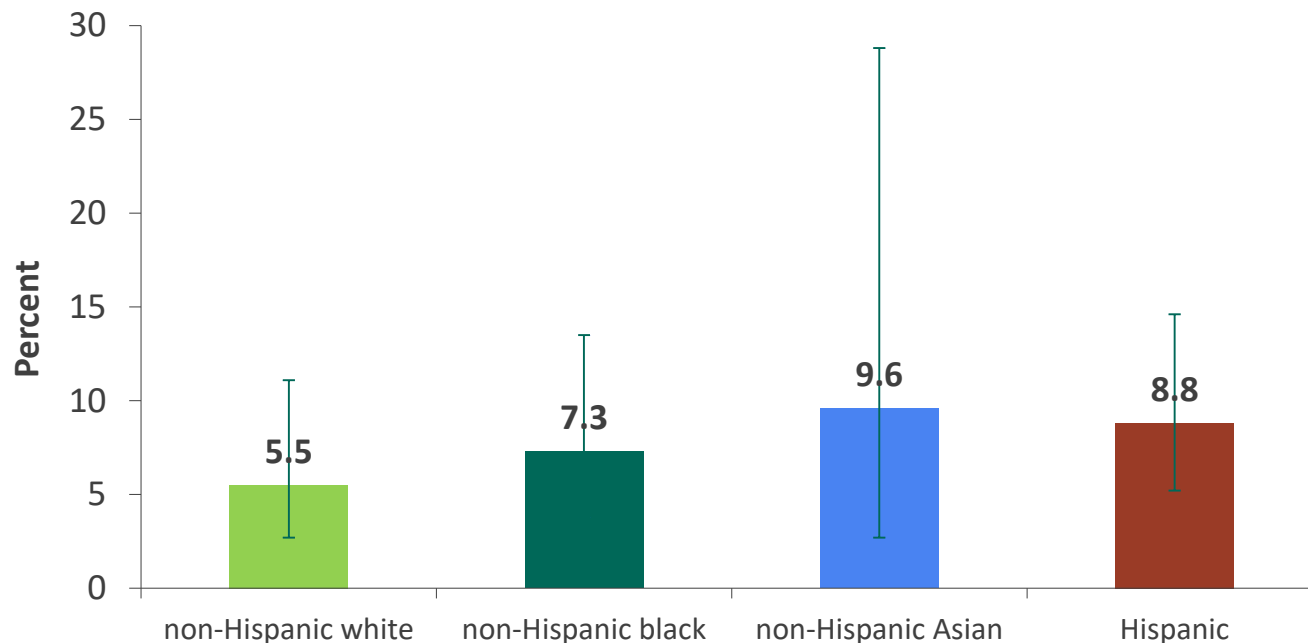
NO SIGNIFICANT TRENDS IN HIGH WEIGHT-FOR-LENGTH, 1988-1994 TO 2011-2014 BY RACE/HISPANIC ORIGIN, US, 6-<24 MO



INCREASE IN RELATIVE WEIGHT GAIN FROM BIRTH BETWEEN 1988-1994 AND 2011-2014 IN NON-HISPANIC BLACK CHILDREN 6-<24 MO

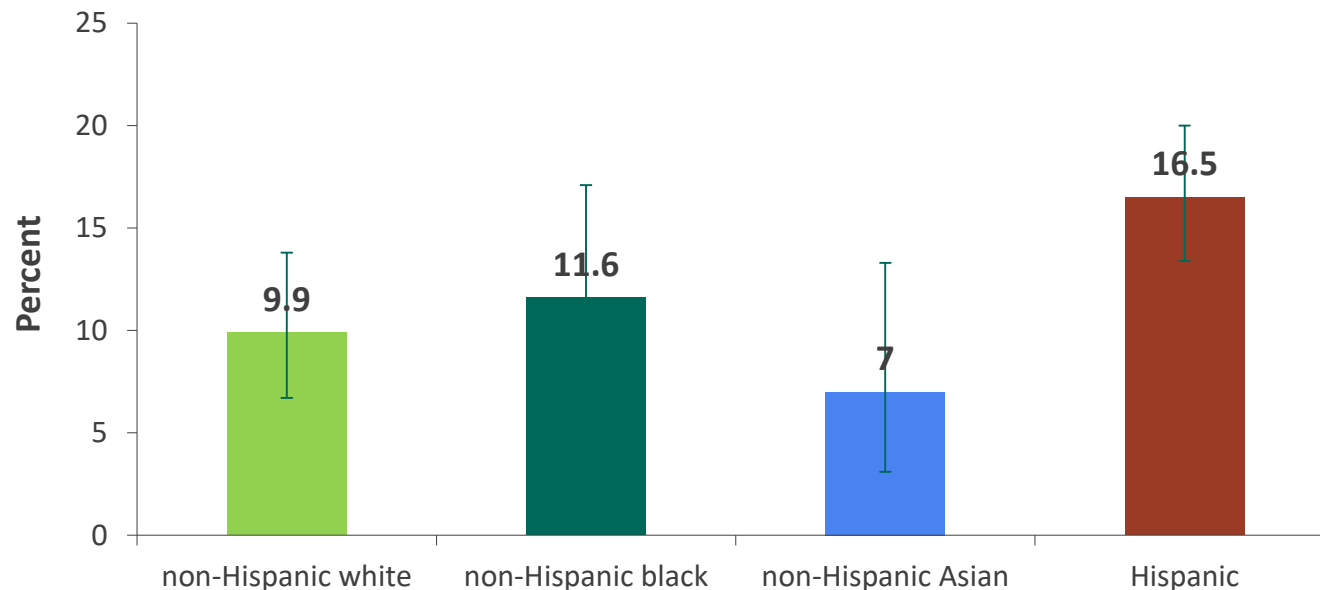


NO SIGNIFICANT DIFFERENCE BY RACE/HISPANIC ORIGIN IN HIGH WEIGHT-FOR-LENGTH, BIRTH<24 MONTHS, 2011-2012



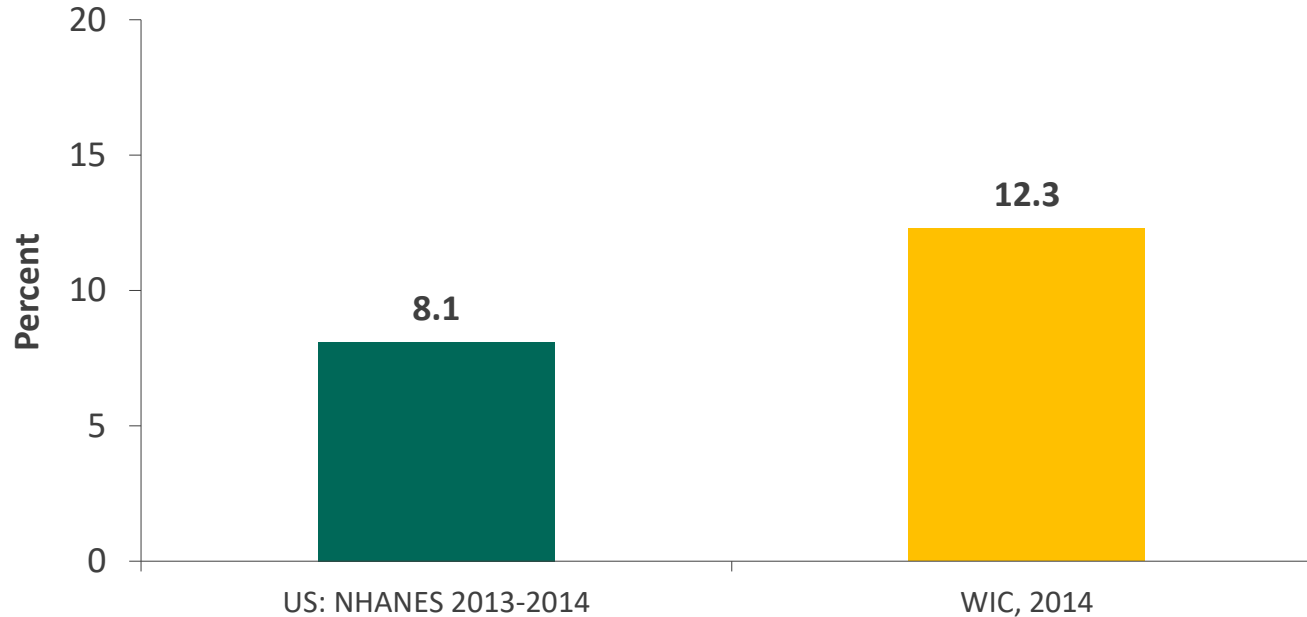
Ogden, CL et al. JAMA February 2014; High weight-for-length defined as $\geq 97.7^{\text{th}}$ percentile of the WHO growth charts

OBESITY PREVALENCE HIGHER IN HISPANIC CHILDREN, 2-5 YEARS, 2013-2016



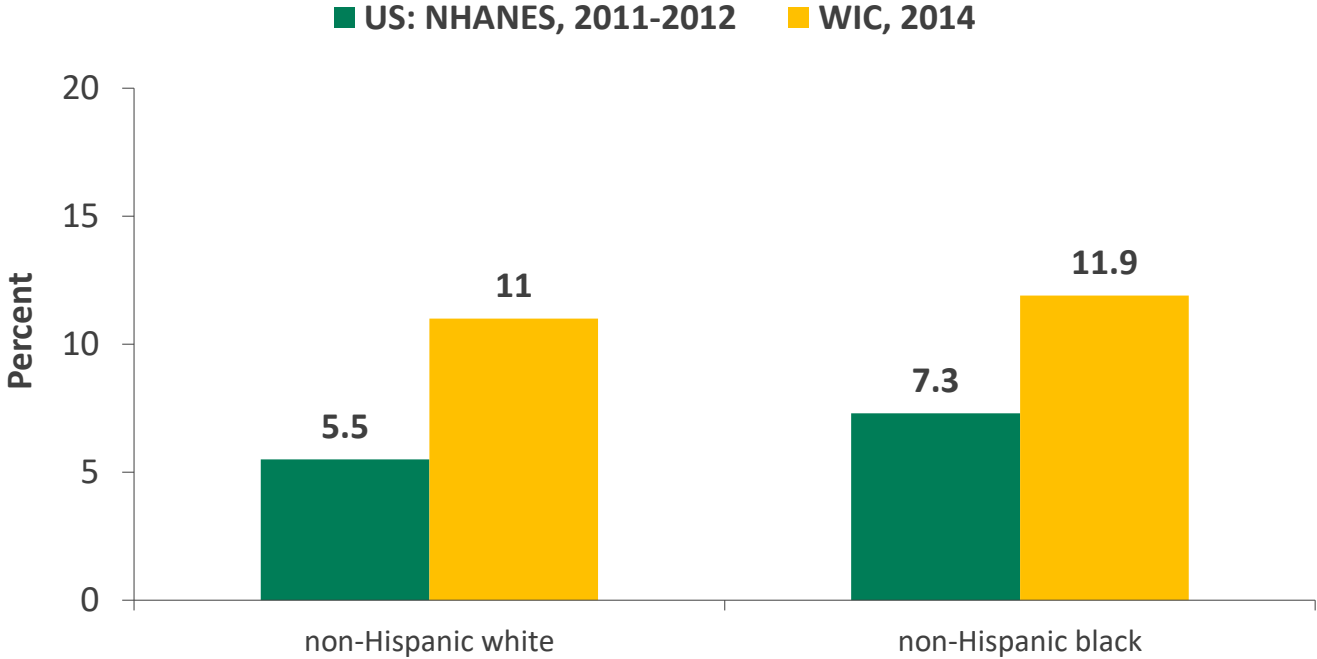
Ogden, CL et al. JAMA June 2018; obesity defined as $\geq 95^{\text{th}}$ percentile of BMI-for-age of the CDC growth charts

COMPARISON BETWEEN US AND WIC IN HIGH WEIGHT-FOR-LENGTH PREVALENCE, BIRTH-<24 MONTHS



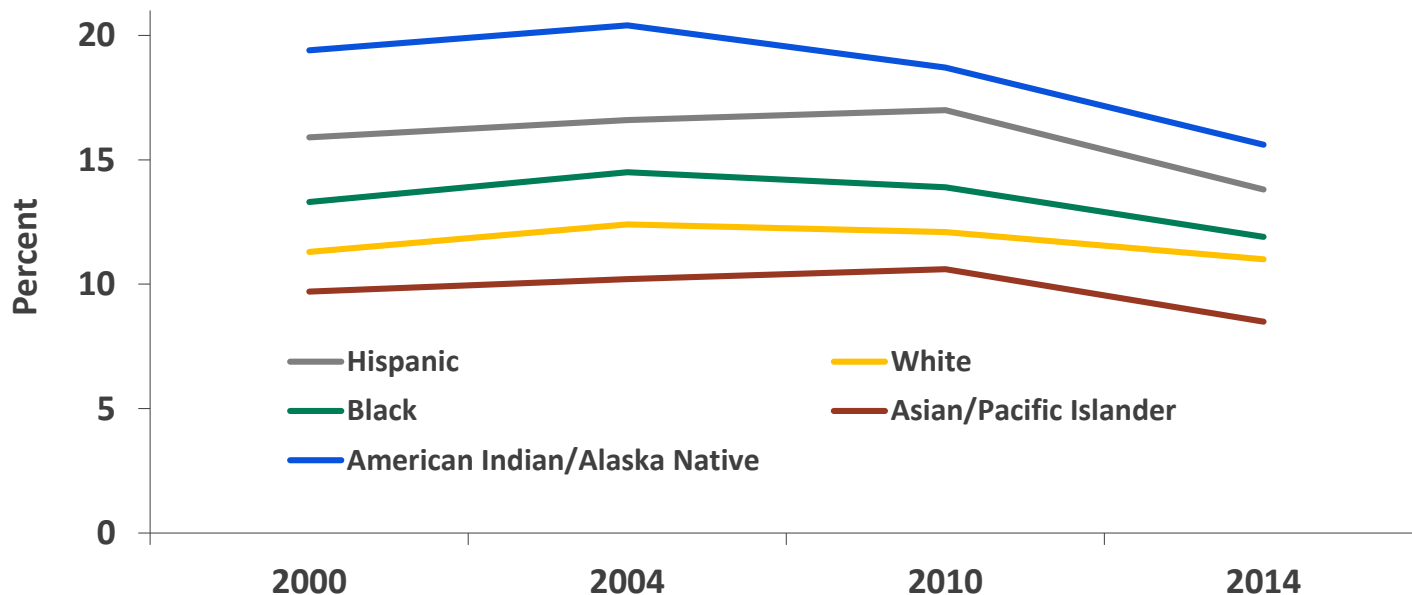
Sources: NHANES 2013-2014; https://www.cdc.gov/nchs/data/hestat/high_weight_recumbent_15_16/high_weight_recumbent_15_16.htm; Freedman et al Pediatrics 2017; **High weight-for-length defined as $\geq 97.7^{\text{th}}$ percentile of the WHO growth charts**

COMPARISON BETWEEN US AND WIC IN HIGH WEIGHT-FOR-LENGTH PREVALENCE, BIRTH-<24 MONTHS: NON-HISPANIC WHITES AND BLACKS



Sources: NHANES; Ogden CL et al JAMA February 2014; Freedman et al Pediatrics 2017;
High weight-for-length defined as $\geq 97.7^{\text{th}}$ percentile of the WHO growth charts

2010-2014: **DECREASE** IN HIGH WEIGHT-FOR-LENGTH, WIC PARTICIPANTS BIRTH-<24 MONTHS BY RACE/HISPANIC ORIGIN



WIC

Freedman et al. Trends in weight-for-length among infants in WIC 2000 to 2014. Pediatrics. 2017;
High weight-for-length defined as $\geq 97.7^{\text{th}}$ percentile of the WHO growth charts

METHODOLOGICAL NOTES: birth-<24 months

1

Small measurement errors impact categorization

2

Switch in definition at age 2 years

3

Small sample sizes in national data

DISPARITIES: birth-<24 months

1 Prevalence higher in WIC participants than US

2 No significant race/Hispanic differences in US

TRENDS: birth-<24 months

- 1 No significant trend high weight-for-length in US**
- 2 Decrease high weight-for-length in WIC participants**

Colleagues
Craig Hales
Kendra McDow



Cynthia L Ogden, PhD
cogden@cdc.gov

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

[Icons – Noun Project](#)

height by Creative Mahira from the Noun Project

chart by Vivian Ba from the Noun Project

Scale by Patrick Straub from the Noun Project

ask by Setyo Ari Wibowo from the Noun Project

[PHOTOS – toes & scale](#)

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