

Childhood Obesity: Moms Make the Difference

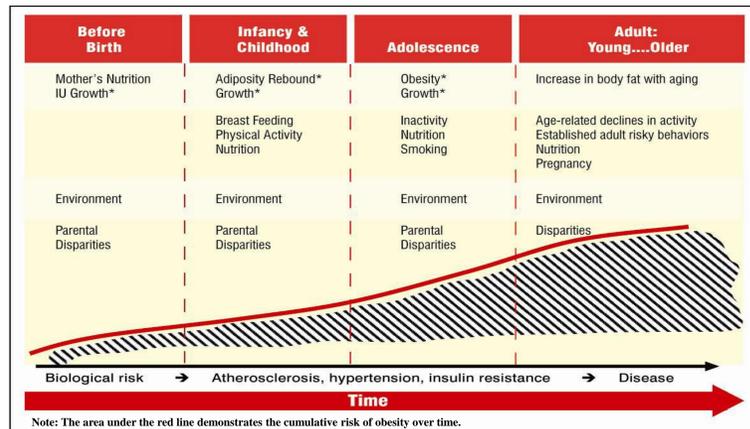
Women who are overweight or obese prior to conception, or gain excessive weight during pregnancy are more likely to deliver either under or overweight babies. Infants born either under or overweight are at increased risk for obesity later in life.

Breastfeeding is the infant feeding practice known to reduce the risk of childhood obesity¹⁻³. Babies born to women who are overweight or obese prior to conception are less likely to be breastfed, and are at increased risk for being overweight themselves.

Childhood Obesity, Maternal Health and the Life-Course Perspective

A series of interacting risk factors over the life-course contribute to the problem of obesity. Yet, current policies focus on interventions later in life, after other factors accumulate and interact thus predisposing a person to obesity. A life-course perspective can be used to develop comprehensive interventions that address the up-stream multiple determinants of obesity⁴.

Figure 1. Life course Perspective⁵



The life course perspective often focuses on duration, timing, and ordering of major life events and their consequences for later development. Interventions developed by MCAH to reduce childhood obesity are based on these premises⁶:

- developmental processes are continuous throughout life
- sequences of life events for mothers and their children are interconnected and have reciprocal effects on one another
- efforts to optimize human development will be most effective if they are sensitive to developmental needs and capabilities of particular age periods in the life span

References

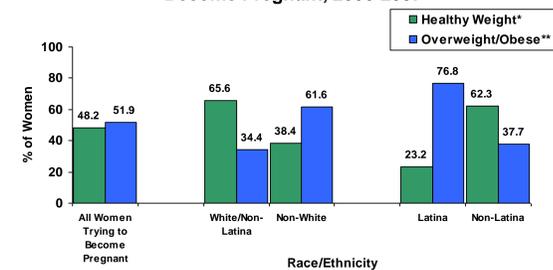
[1] Amir LH, Donath S. A systematic review of maternal obesity and breastfeeding intention, initiation and duration. BMC Pregnancy and Childbirth. 2007; 7:9.
 [2] Thompson DR, Clark CL, Wood B, Zeni MB. Maternal Obesity and Risk of Infant Death Based on Florida Birth Records for 2004. Public Health Reports, July-August 2008; 123: 487-493.
 [3] Association of Maternal and Child Health Programs (AMCHP)/CityMATCH Women's Health Partnership. Promoting Healthy Weight among Women of Reproductive Age. January 2006.
 [4] Johnson D, Gerstein D, Evans A, Woodward-Lopez G. Preventing Obesity: A Life Cycle Perspective. JADA. 2006. Vol. 1: 97-102.
 [5] The Secretary's Advisory Committee on National Health Promotion and Disease Prevention Objectives for 2020. Phase I Report: Recommendations for the Framework and Format of Healthy People 2020. October 2008. Accessed on 6/2/09. Available at <http://www.healthypeople.gov/HP2020/advisory/PhaseI/PhaseI.pdf>.
 [6] Lu, MC, Halfon, N. Racial and Ethnic Disparities in Birth Outcomes: A Life-Course Perspective.2 Maternal and Child Health.
 [7] Source: California Maternal and Infant Health Assessment (1999-2007) Notes: Pre-pregnancy body mass index (BMI) was calculated from self-reported weight and height. Maternal weight status categorized according to pregnancy-specific definitions issued by the Institute of Medicine (IOM), which classifies pre-pregnancy BMI as 'Underweight' (<19.8 kg/m2), 'Normal-weight' (19.8 to 26.0 kg/m2), 'Overweight' (26.1 to 29.0 kg/m2) or 'Obese' (> 29 kg/m2); 'Very Obese' is BMI > 35 kg/m2.
 [8] Source: California Women's Health Survey, 2006-2007.
 [9] Source: California Maternal and Infant Health Assessment (MIHA), 2005-2007.
 [10] Takahashi ER, Libet M, Ramstrom K, Jocson MA and Marie K (Eds). Preconception Health: Selected Measures, California, 2005. Maternal, Child and Adolescent Health Program, California Department of Public Health, Sacramento, CA: October 2007.

Life-Course Weight Trends Among California Women

There has been an upward trend in the prevalence of pre-pregnancy overweight and obesity in California. In 1999, 12.7% of women were overweight and 18.3% were obese prior to pregnancy; these figures grew to 15.6% overweight and 20.5% obese in 2007⁷.

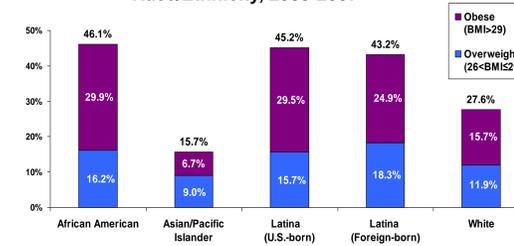
Many California women trying to become pregnant are overweight or obese

Figure 1: California Women ages 18-44 Trying to Become Pregnant, 2006-2007⁸



Notes: Sample Size=214. *Healthy weight includes women with a BMI of 18.5 - 24.9; underweight women (BMI <18.5) excluded. **Overweight/Obese includes women with a BMI of >25 (Figure 1)

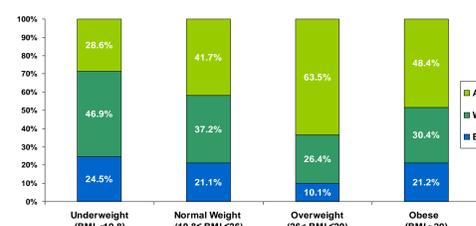
Figure 2: Pre-pregnancy Overweight and Obesity by Race/Ethnicity, 2005-2007⁹



During 2005-2007, one in three women entered pregnancy either overweight (14.3%) or obese (20.6%). African Americans (46.1%) and Latinas had the highest prevalence of pre-pregnancy overweight and obesity, followed by Whites (27.6%) and Asian/Pacific Islanders (15.7%). Latinas born in the U.S. appeared more likely to be obese (29.5%) than their foreign-born counterparts (24.9%). (Figure 2)

When pregnant, overweight and obese women are more likely to gain above the recommended weight.

Figure 3: Weight Gain During Pregnancy by Pre-pregnancy Weight Status, 2005-2007⁹



Nearly half (45%) of women gained weight in excess of the IOM recommended total weight gain ranges for pregnant women. African American (53.0%) and White (51.9%) women, and those who were either overweight (63.5%) or obese (48.4%) prior to pregnancy, had the highest prevalence of weight gain above the IOM recommendations (Figures 3 & 4).

Figure 4: Weight Gain During Pregnancy by Race/Ethnicity, 2005-2007⁹

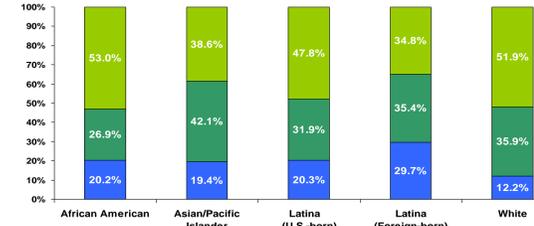


Table 1: Recommended Total Weight Gain Ranges for Pregnant Women by Pre-Pregnancy Weight Status

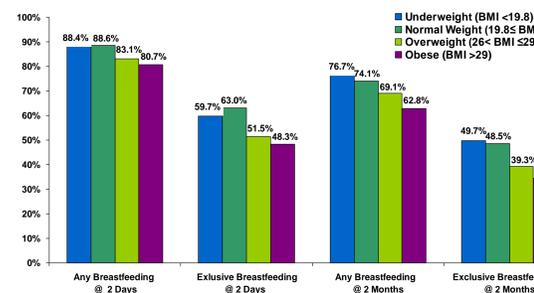
Underweight (BMI < 19.8)	28 – 40 lbs
Normal Weight (19.8 ≤ BMI ≤ 26)	25 – 35 lbs
Overweight (26 > BMI ≤ 29)	15 – 25 lbs
Obese (BMI > 29)	At least 15 lbs

Note: Maternal weight status (BMI) and weight gain (Figures 2-5) were categorized according to pregnancy specific definitions issued by the Institute of Medicine (IOM) 1990. These analyses were conducted prior to the release of their updated guidelines for weight gain during pregnancy (May 2009).



Overweight and obese women are less likely to breastfeed, which predisposes their offspring to childhood obesity

Figure 5: Infant Feeding Practices by Pre-pregnancy Weight Status, 2005-2006⁹



Overweight and obese women were less likely to breastfeed, any or exclusively at 2 days and at 2 months post-partum (Figure 5).

Title V: Maternal, Child and Adolescent Health Interventions

The California Department of Public Health (CDPH), Maternal Child and Adolescent Health (MCAH) Division utilizes Title V funding to encourage women to enter pregnancy at an optimal weight, gain appropriate weight during pregnancy, return to a healthy postpartum weight, and breastfeed, all of which may reduce the risk of childhood obesity.

Since over 40 percent of births in California are unplanned¹⁰, MCAH encourages all women of reproductive age to maintain a healthy weight in order to minimize chronic illnesses and pregnancy-related health risks.

Examples of life course perspective strategies to reduce childhood obesity employed by MCAH during the pre-conception, conception and post-partum period to reduce childhood obesity are presented (Table 2).

Table 2: Title V Obesity Interventions during preconception, pregnancy, and post-partum life-course

Health Jurisdiction	Activities	Pre-conception	Pregnancy	Post-partum
Social Marketing				
Alameda, Colusa, Contra Costa, Fresno, Glenn, Imperial, Long Beach (City), Los Angeles, Mendocino, Merced, Pasadena (City), Riverside, Sacramento, San Bernardino, San Diego, San Francisco, San Joaquin, Santa Barbara, Santa Clara, Solano, Stanislaus, Trinity, Tulare, Tuolumne	Retail Outlet Promotions (farmers markets, health fairs, grocery stores)	•	•	•
Monterey, Sacramento, San Bernardino, Ventura, Yolo	Television/Radio Advertising and Public Service Announcements	•	•	•
Alameda, Amador, Placer, San Bernardino, San Francisco, San Joaquin, Santa Clara, Sacramento	Paid Print Media (Clinical, Multilingual)	•	•	•
Infrastructure Building and Outreach				
California MCAH Division, Los Angeles	Resource Development	•	•	•
California MCAH Division, Los Angeles	Research and Data	•	•	•
Alameda, Calaveras, Los Angeles, Modoc, Monterey, San Benito, San Joaquin, San Francisco	Outreach Program and Toolkit Development	•	•	•
Placer, Santa Cruz	Multilingual Services	•	•	•
Breastfeeding and Lactation				
California MCAH Division	Promulgate breastfeeding data and evidence-based resources	•	•	•
California MCAH Division, Alameda, Amador, Butte, Calaveras, Colusa, El Dorado, Fresno, Humboldt, Imperial, Kings, Lassen, Long Beach (City), Los Angeles, Madera, Marin, Mendocino, Merced, Mono, Monterey, Napa, Nevada, Pasadena (City), Riverside, Sacramento, San Benito, San Bernardino, San Diego, San Francisco, San Joaquin, Santa Barbara, Shasta, Siskiyou, Solano, Stanislaus, Sutter, Ventura, Yolo	Breastfeeding Education, Support, and Resources	•	•	•
California MCAH Division, Alameda, Butte, Contra Costa, El Dorado, Humboldt, Imperial, Kings, Long Beach (City), Los Angeles, Monterey, Nevada, Plumas, San Diego, San Francisco, San Joaquin, Santa Barbara, Shasta, Siskiyou, Solano, Sonoma, Trinity, Tuolumne, Ventura, Yolo	Lactation Accommodation	•	•	•
Nutrition/Physical Activity-related Education				
California MCAH Division	Promote Medi-Cal coverage to support breastfeeding	•	•	•
California MCAH Division, Alameda, Alpine, El Dorado, Fresno, Kings, Long Beach (City), Los Angeles, Mendocino, Merced, Placer, Sacramento, San Diego, Sonoma, Ventura	Conferences	•	•	•
California MCAH Division, Lassen, Kern, Madera, San Mateo	Provider Training	•	•	•
California MCAH Division, Alameda, City of Berkeley, Monterey, Napa, Orange, San Francisco, San Joaquin, Yuba	Nutrition Education Program	•	•	•
Policy Development				
California MCAH Division	Hospital, CPSP, Diabetes and Pregnancy, Adolescent Health	•	•	•
Kern, Lake, Orange	Workplace: Nutrition, Physical Activity and Breastfeeding Policies	•	•	•
Collaborations				
California MCAH Division, All Counties	Nutrition, Physical Activity and Breastfeeding	•	•	•

Conclusion

The life-course perspective has far-reaching policy implications for reducing childhood obesity. Public health interventions need to be integrated, and should include multiple factors interacting over the life course (biological, psychological, behavioral, and social determinants of women's health). The life-course perspective, especially before, during and after pregnancy is an opportunity for other community and state organizations to collaborate with MCAH to reduce the incidence of childhood obesity.