

LAMB Project

Los Angeles County is one of the most diverse places in the U.S. Over 150,000 babies are born in the County every year. Due to a lack of comprehensive maternal and infant health indicators in Los Angeles County, the Maternal, Child and Adolescent Health (MCAH) programs conducted the Los Angeles Mommy and Baby (LAMB) project to establish a surveillance system to monitor maternal and infant health in the County every two years since 2005.

The survey examined areas that are known to have an impact on birth outcomes, including

- Preconception health
- Prenatal care
- Maternal medical conditions
- Psychosocial risk factors
- Behavioral risk factors

Ideal Weight Gain

Helping women attain recommended weight gain during pregnancy is crucial for delivering healthy infants. Various studies suggest that gestational weight gain, especially late pregnancy weight gain, is associated with infant outcome¹. Low weight gain is associated with prematurity, and high weight gain is associated with preeclampsia, gestational diabetes, overweight offspring, and in extreme cases, fetal death.

Excessive weight gain during pregnancy is also positively associated with long-term postpartum weight gain². The prevalence of obesity has been increasing among American women, which makes prevention of excessive gestational weight gain ever more important.

Figure 1 displays the Institute of Medicine (IOM) recommended overall weight gain for pregnant women according to their body mass index (BMI). In addition, IOM also have recommendations for certain sub-populations. Young adolescents and black women should strive for gains at the upper end of the recommended range because of higher risks of low birth weight births. Shorter women should strive for gains in the lower end of the range. For twin gestations, recommended range is 35-45 lbs.

Fig. 1

Pre-pregnancy BMI	Recommended total weight gain
Low (<19.8)	28-40 lbs
Normal (19.8-26.0)	25-35 lbs
High (26.0-29.0)	15-25 lbs
Obese (>29.0)	15+ lbs

In this presentation, we will examine racial disparity and factors associated with ideal weight gain. We will also explore how recommendations from the healthcare providers affects women in achieving ideal weight gain.

Questions related to pregnancy weight gain in the LAMB survey include:

- Body weight just before pregnancy
- Body weight just before giving birth
- Preconception care nutrition and weight recommendation
- Prenatal care weight recommendation
- Food insecurity
- Exercise during pregnancy
- Skipping meals during pregnancy

Literature Cited

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Methods

Methodology: Population-based survey; Multi-level clustered sampling; over sampling on low birth weight and pre-term births (LBW/PT) as well as African American, Asian/Pacific Islander, and Native American births

Time frame: 2007

Eligibility: Women who recently gave birth in Los Angeles County

The questions in the LAMB questionnaire were primarily drawn or adapted from several validated state and national surveys including CDC's Pregnancy Risk Assessment Monitoring System (PRAMS). The survey was also available in Spanish and Chinese. It was piloted to improve readability and response.

To enhance the response rate, the LAMB Project followed CDC PRAMS procedures as described in figure 2. As an incentive to participate, all respondents were given a \$20 gift certificate.

Statistical Analysis

Bivariate and multivariate analysis were conducted using SAS. Risk factors that are found significant in bivariate analysis were fit into the logistic regression model. The odds ratios (OR) were adjusted for age, race, education level, and marital status.

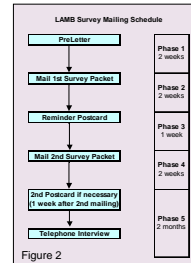


Figure 3. BMI categories by race

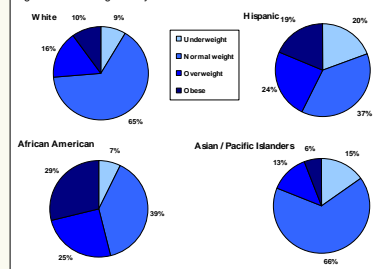


Figure 4. Weight gain during pregnancy by race

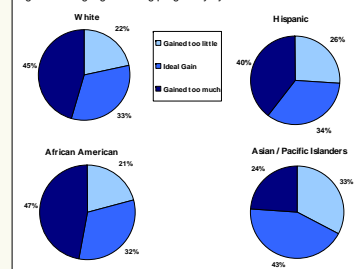
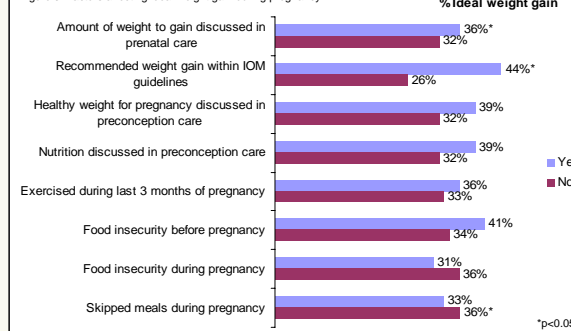


Figure 5. Factors affecting ideal weight gain during pregnancy



Results

The project is ongoing and preliminary results are shown here (N=1258).

Among the 1107 women who completed the questions about weight, about 35% of the mothers achieved ideal weight gain, 38% of mothers had excessive weight gain, and 27% of mothers gained too little.

Bivariate analysis (Figure 3) showed that African American (54%) and Latina (43%) mothers are more likely to be overweight or obese before pregnancy. African American (47%) and White (45%) mothers are more likely to gain too much weight during pregnancy (Figure 4).

Controlling for age, race, marital status and BMI, mothers who did not receive medical recommendations, or said to receive recommendations that are not ideal are about two times more likely to fall outside the recommended weight gain ranges (Figure 5). However, discussion of healthy weight and nutrition during preconception health visits do not seem to significantly affect achieving ideal weight gain. Mothers who are overweight/obese before pregnancy are more likely to gain excessive weight during pregnancy (50%, AOR=1.5 [1.1, 2.0]).

Relating to birth outcome, mothers who gained too little tend to give birth to low birth weight babies (<5 lb 8 oz) (OR=1.7 [1.0, 2.8]), and excessive weight gain is associated with macrosomia (birth weight more than 8 lb 13 oz) (OR=1.7 [1.1, 2.7]).

Conclusion

Our findings outline that only one in three women surveyed adhered to the ideal weight gain recommendations, and compliance varied among racial/ethnic populations. About one third of the women said they did not receive weight recommendation either. These results show that much effort is needed to emphasize the importance of appropriate weight gain during prenatal care, and to empower women to achieve healthy weight during preconception interventions. Healthcare workers should play a more important role to reduce preventable risks of obesity in this critical period.

This could be done by including accurate and culturally-appropriate weight gain recommendations in prenatal care visits, particularly for mothers with high body mass index. Healthcare providers should also emphasize on helping women lose the weight they gain during pregnancy. Nutrition counseling should be made available during and after pregnancy for mothers. Further research should focus on effective strategies of weight management to women during pre- and inter-conception periods.

Limitations and Next Steps

Previous studies indicated that self-reported height and weight are reasonable proxies of the actual height and weight. However, some mothers no longer remember weight gain recommendations made by the doctor 1/2 to 1 year after delivery. Other lifestyle recommendations besides a specific weight recommendation given by health care providers may not be captured in the survey. We plan to analyze the data further by neighborhood factors such as food establishments and availability of parks.

Acknowledgements

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