In 1990, the Institute of Medicine (IOM) published guidelines for gestational weight gain based on a woman’s pre-pregnancy body mass index (BMI). These guidelines have not been updated for nearly two decades.

Recently, the IOM released a report recommending new guidelines where maternal BMI is based on World Health Organization cut points rather than those taken from the Metropolitan Life Insurance tables and an upper bound for gestational weight gain is specified for women classified as obese (Table 1). Provisional guidelines have also been released for mothers of twins and are based on women delivering at term (37-42 weeks) with infant birth weights of greater than or equal to 2500 grams. Although the differences between the old and new BMI cut points are not drastic, the changes should have some effect on prevalence estimates for weight gain above and below recommendations for each BMI category and on the reporting of maternal and infant outcomes such as gestational diabetes, hypertensive disorders during pregnancy, low birth weight, preterm birth and Cesarean delivery.

The Michigan Pregnancy Risk Assessment Monitoring System collects self-reported pre-pregnancy weight and height which is used to calculate BMI. Women were also asked if they experienced high blood sugar (diabetes) that started during their most recent pregnancy, also called gestational diabetes, and if they experienced high blood pressure before pregnancy or hypertension (including pregnancy-induced hypertension, preeclampsia, or toxemia).

Table 1. Definition of pre-pregnancy BMI categories for 1990 IOM guidelines and the new recommendations with the corresponding gestational weight gain recommendations for singleton pregnancies.
Table 2 compares the differences in proportions of women who fall below, within and above the recommended gestational weight gain for each BMI category according to both recommendations. With the new recommendations, a higher proportion of normal weight women are not gaining enough gestational weight compared to the 1990 guidelines (38.6% vs. 27.5%, respectively). Also, with obese women recommended to gain at least 15 lbs with the 1990 guidelines, only the proportion of obese women gaining below that could be determined. The new recommendations specify an upper limit to appropriate weight gain and shows that more than half (54.2%) of obese women are gaining too much gestational weight. The distribution of gestational weight gain for overweight women is similar between the two recommendations, and both show that nearly 60% are gaining above the recommended weight.

To compare gestational weight gain below, within, and above the 1990 IOM recommendations for obese women, an upper bound for appropriate weight gain was designated as 20 lbs. Thus, gestational weight gain below IOM guidelines was considered to be less than 15 lbs, gestational weight gain within the guidelines was 15-20 lbs, and gestational weight gain exceeding the 1990 IOM guidelines was weight gain above 20 lbs.

Figures 4, 5 and 6 (page 3) show the percent change from the 1990 guidelines to the new recommended guidelines for select maternal and infant outcomes. The small changes in the BMI cut points when using the WHO

Provisional Guidelines for Mothers of Twins

The new recommendations provide guidelines for women having twins. Women with a normal prepregnancy BMI should gain between 37-54 lbs, women who are considered overweight should gain 31-50 lbs and women considered obese should gain 25-42 lbs. Table 3 (right) shows the distribution of below, within and above the recommendations for MI PRAMS mothers who had twins from 2004-2006.

Table 3. Distribution of the proportion (%) of women with gestational weight gain below, within and above the current recommendations for twin pregnancies.

<table>
<thead>
<tr>
<th></th>
<th>Lean</th>
<th>Normal</th>
<th>Overweight</th>
<th>Obese</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below</td>
<td>-</td>
<td>43.0</td>
<td>45.3</td>
<td>34.4</td>
</tr>
<tr>
<td>Within</td>
<td>-</td>
<td>35.0</td>
<td>43.2</td>
<td>45.2</td>
</tr>
<tr>
<td>Above</td>
<td>-</td>
<td>22.0</td>
<td>11.5</td>
<td>20.4</td>
</tr>
</tbody>
</table>

*Insufficient data for lean women (BMI <18.5) to offer guideline.
BMI cut points has had a large impact of prevalence estimates for most outcomes. For women gaining within the recommended gestational weight according to their pre-pregnancy BMI, there was an 8.37% increase in gestational diabetes and a 7.33% increase in low birthweight births compared to the prevalence when using the old guidelines (Figure 4).

For women gaining below the recommended gestational weight for their pre-pregnancy BMI, the prevalence of gestational diabetes was 7.69% lower and the prevalence of low birthweight births was 3.67% higher compared to the prevalence when using the old guidelines.

For women gaining above the recommended gestational weight for their pre-pregnancy BMI, the prevalence of gestational diabetes was unchanged and the prevalence of low birthweight births was 2.08% higher compared to the prevalence when using the old guidelines.

Public Health Implications:
Providers should be aware of the new recommended gestational weight gain guidelines and that different guidelines will change the reporting of maternal and infant outcomes. Women planning on conceiving or currently pregnant should be educated about the appropriate amount of gestational weight to gain according to their pre-pregnancy BMI.
The Pregnancy Risk Assessment Monitoring System (PRAMS), a population-based survey, is a CDC initiative to reduce infant mortality and low birthweight births. It is a combination mail/telephone survey designed to monitor selected self-reported maternal behaviors and experiences that occur before and during pregnancy, as well as early-postpartum periods of women who delivered a live infant in Michigan. Information regarding the health of the infant is also collected for analysis. Annually, over 2,000 mothers are selected at random to participate from a frame of eligible birth certificates. Women who delivered a low birthweight infant were over-sampled to ensure adequate representation. The results are weighted to represent the entire cohort of women who delivered a live infant during that time.

**Suggested Citation**