Background
Recent research has found that maternal preconception dieting may be a risk factor for neural tube defects. The Multivitamin Research Council has concluded that folic acid supplementation beginning before pregnancy is the most effective method in preventing neural tube defects in children. However, little is known about the association between pre-pregnancy dieting and multivitamin use among women delivering a live birth.

Study Question
Is preconception dieting associated with preconception multivitamin use in the Michigan PRAMS population?

Methods
PRAMS 2009 data were used to measure exposure (dieting to lose weight at any time during the 12 months before pregnancy) and outcome (use of a multivitamin during the month before pregnancy) (N=1667). Logistic regression was used to estimate prevalence ratios for multivitamin use among women who were dieting before pregnancy compared to those who were not dieting.

Potential confounders considered were maternal age, race, education, insurance status, marital status, parity, pregnancy intention, BMI, number of stressors, and anemia. However, none of these had more than a 10% effect, so they were not included in the model.

Results
About 43% of Michigan mothers delivering in 2009 used multivitamins within the month before pregnancy began (Figure 1). The demographic characteristics of these mothers are shown in Table 1.

Women who were on a diet in the year before pregnancy were 1.18 times as likely to use a multivitamin in the month before pregnancy than those who were not on a diet [95% CI: (1.03, 1.36)] (Table 2).

Multinomial analysis indicated that the association was only present at the lowest frequency of vitamin use: dieters were 65% more likely (95% CI: [1.12, 2.37]) to take multivitamins 1-3 times per week than non-dieters (Table 3). Dieters were not more likely to take vitamins 4-6 times per week (PR: 0.86; 95% CI: [0.51, 1.45]) or every day (PR: 1.12; 95% CI: [0.91, 1.38]) than those not dieting before pregnancy (Table 3).

Conclusions
Dieting before pregnancy was associated with increased preconception multivitamin use, but not at the recommended daily frequency.

Public Health Implications
These findings from MI PRAMS suggest that women of reproductive age, regardless of dieting status, pregnancy intention or demographic characteristics, may benefit from increased public health interventions designed to increase daily multivitamin use before pregnancy, in order to help prevent neural tube defects.