The purpose of this study was to determine if nationally there is a difference in the frequency of abnormal second trimester maternal serum screen results between ethnicities and, if so, what is causing this difference. Some type of maternal serum screening is recommended for all women during pregnancy to determine if she is at an increased risk of having a child with an open neural tube defect (ONTD), Down syndrome, or trisomy 18. Several previous studies have recommended that laboratories separate their patients into at least four different ethnic categories and make analyte adjustments for ethnicity. However, in Houston we have noticed a larger number of Black women referred for abnormal serum screens than other ethnicities.

Deidentified data of all women who underwent a quad screen through LabCorp during their second trimester of pregnancy between April 2006 and December 2006 was obtained. Of the 269,623 patient results provided, 253,244 screen results met all criteria and were analyzed in this study.

Results revealed that a higher percentage of Black women received positive screen results compared to Caucasian and Other groups. As predicted, the study revealed that diabetic status was the best predictor of whether she would have a positive screen result for an ONTD and that maternal age is the best predictor as to whether or not a woman will screen positive for Down syndrome. Interestingly, diabetic status was also the best predictor of whether she would have a positive screen for trisomy 18. In terms of ethnicity, when other significant parameters were controlled for, Black and Other women were more likely to screen positive for an ONTD and Down syndrome than Caucasian women.

We conclude that there is a difference in the frequency of positive quad screen results among ethnicities, with Black women having the highest proportion. However, additional studies should be conducted to further evaluate other factors and variables that could account for differences between ethnicities and to evaluate the effect diabetes plays in all analyte levels.