As is clear from *Figure 2* - *Figure 5* the balance for both the low- and high-risk births improved after performing nearest neighbor matching. *Table X* and *Appendix Table X*further demonstrate the improvement in the balance between the treatment and control groups. These tables show that the means on key variables involved in the matching were much more similar than the statistics displayed in *Table W* and *Appendix Table W*. With these analyses complete I will perform logistic regression analysis of neonatal mortality and five minute apgar score on demographic variables, risk factors, and a midwife dummy to analyze the average treatment effect of being delivered by a midwife.

The results of my analyses are found in *Table Y* and *Table Z*. Column 1 shows the results of the regression model using the unmatched low-risk data. Column 2 is the regression model using the matched low-risk data. Analogously, Columns 3 and 4 represent the results of the logistic regression on the high-risk births for the unmatched and matched datasets, respectively. Each of the two risk groups had exactly even numbers of treated and control observations.

There are two striking results. First, the coefficient on mother’s age is negative for both all of the regressions. This is expected for the low-risk population since the age of these mothers is capped at 40. This seems surprising for the high-risk mothers since all of the births with women over the age of 40 fall into this group. This may be an indication that a squared age term should be added to the regression model. The second result is that, for all models, midwives had no impact statistically significant impact on the mortality of neonates. This result both confirms and refutes my hypothesis. It confirms that midwives before no worse than doctors when performing low-risk deliveries, but contrary to my hypothesis, high-risk babies fare no worse when delivered by midwives. Despite these results it is not clear that births delivered by midwives are equal with those delivered by doctors. It could be the case that midwives don’t cause additional neonatal deaths, but they may cause smaller health problems among infants they deliver prompting further testing and monitoring after birth that may offset any cost savings achieved by being delivered by a midwife. Though there is no perfect way to test for this scenario, I ran the OLS model using the same covariates used in the logit models in *Table Y* but using five minute apgar score as the dependent variable. This will serve as a measure of the overall health of the baby immediately after birth. [Talk about model fit, and marginal effects(?)]

The results in *Table Y* have the expected signs, with the exception of the *mpcb* and *nprevist* variables which have the same signs when I would expect them to have opposite signs.The model also has very good fit with adjusted R-squared greater than or equal to 0.96 for all of the models. Most important in this model is the coefficient on the midwife dummy. Low-risk babies delivered by midwives have apgar scores 0.012 lower than babies delivered by a doctor. The effects for high-risk babies is slightly more negative, -0.021. Although these results are significant at the one percent level, they have no substantive significance. An apgar score between seven and ten is considered to be healthy (citation) so a decrease of 0.012-0.021 is almost imperceptible within such a wide range.

Based on the results of the previous section as well as the studies cited in the literature review it is clear that midwives are just as effective as doctors at delivering babies. This is very important in light of the changes spurred by the ACA. Obamacare gives financial incentives to healthcare providers to cut costs without cutting the quality of care. As a simple comparison, the Bureau of Labor Statistics reports that in 2014 the average obstetrician made $214,750 compared to an average of $97,700 for nurse midwives (citation).  Although not all the doctors in our sample are obstetricians, the average pay for general practice physicians is $186,320, which is still nearly double the average salary for midwives. To be clear doctors and midwives are not perfect substitutes. An obvious example is that midwives are not allowing to perform cesarean sections. Therefore, it would be important to change the dynamic in the U.S. to ensure that doctors and midwives can work in cooperation with each other rather than in competition. Increasing competition between doctors and midwives may increase c-section rates because of laws in many states prohibiting midwives from attending a vaginal birth after cesarean section (vbac). Though investigating whether increasing market penetration of midwives drives doctors to perform more cesarean sections is beyond the scope of this paper, it is an important side effect to consider since cesarean sections may be are more expensive procedures than vaginal births which would counteract potential cost savings by increasing the proportion of midwife attended births.

This research proposal services as a starting point for future research on the effectiveness of midwife attended births in the U.S. Particularly, in future research I intend to increase my sample to include births in all fifty states and to expand my research by also including birth data from 2005-2010. Including data from other states will allow me to extrapolate my results to the entire United States as well as increase the diversity of my results to include geographic and demographic trends that exist outside of Georgia. Furthermore, an expanded analysis of all births should increase the statistical strength of my analyses. Finally, in future research I would also compare my results after several different matching algorithms (i.e. genetic matching) to ensure that my results are not contingent on the matching algorithm that I used. Finally, another aspect of this data that I will explore in future research are differences maternal mortality based on birth attendant. The data needed to perform this analysis were included the dataset I used.

In conclusion, my preliminary results have added to wide body of literature in healthcare that demonstrates that midwives are just as effective at delivering babies as doctors are. Specifically, my analysis of natality data from Georgia demonstrates that neonatal mortality rates are no different between doctors and midwives using the raw data and nearest-neighbor matched data. This finding holds both for low- and high-risk births. Moreover, there is no substantive difference in five-minute apgar scores for infants delivered by midwives or doctors in both the low- and high-risk birth groups. This research serves as a jumping-off point for further research into the effectiveness of midwife attended births in the U.S. The results of this research are likely to be important to healthcare policy makers in the U.S. that are interested in decreasing healthcare costs, while improving or maintaining healthcare outcomes.