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MAKING METHODS AND PRACTICE MATTER FOR WOMEN, CHILDREN AND FAMILIES

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### **Epidemiological and Biostatistical Limitations of Measuring the Impact of Pre and Interconceptional Care Case Management on Birth Outcomes of High-Risk Women**

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**BACKGROUND:** The Magnolia project was initiated in 1999 in a predominantly African American Jacksonville area with considerable environmental and socio-economical deficits that impact maternal and infant health. The primary approach of the Magnolia Project is a case management approach that links social and behavioral counseling to culturally sensitive and community based clinical services for high risk women before they become pregnant (again). An evaluation was conducted to develop a retrospective quasi-experimental design to test statistical inferences related to projects impact on birth outcomes and the factors influencing birth outcomes.

**STUDY QUESTIONS:** Does pre – and inter- conceptional care case management have a significant impact on birth outcomes on high risk women?

**METHODS:** The intervention group consisted of closed cases (2000-2005) of Magnolia case management clients (n=222). A control group was selected using Health Management System (HMS) service records (2000-2005) of clients utilizing similar DCHD services within the Project's area who matched with Magnolia's risk assessment criterion. A multiple matching criteria were established at a 1:2 ratio to increase statistical power, reduce sampling error, and reduce Type I error. Statistical tests were used to assess statistically significant differences at the .05 level and .10 level (marginal significance) between the control and intervention groups after datasets were linked and stripped of personal identifiers.

**RESULTS:** Preliminary findings revealed statistically significant reductions in STDs ( $p < .05$ ) and low-birth-weights ( $p = .06$ ) among the participating women. Highly meaningful reductions in infant mortality (over 40/1000) were observed, but due to small number of live births these reductions were not statistically significant.

**CONCLUSIONS:** Although the results were promising with improved birth outcomes and STDs of Magnolia case management clients, limitations presented challenges in demonstrating conclusive results. According to power estimation, a sample size of 11,604 live births is needed within the intervention group for a 1% change to be statistically significant.

**PUBLIC HEALTH IMPLICATIONS:** Expansion of the project to include larger numbers of participants or to involve other locations with additional high risk populations is warranted by these results. Also, the study demonstrates the need to focus on birth outcomes that are more common and on the factors that are highly related to birth outcomes when measuring the intervention's impact.