

An Innovative Partnership to Strengthen Diabetes Health Promotion and Birth Defects Prevention

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Introduction

Studies show that maternal diabetes is associated with an increased rate of birth defects. However, good control of the disease and folic acid supplementation before and during pregnancy can aid in prevention of neural tube defects and other adverse outcomes. Multiple programs within the Michigan Department of Community Health (MDCH) are collaborating with each other and with the Michigan Diabetes Outreach Network (MDON) to raise awareness of the risks for birth defects and possible prevention strategies for mothers with diabetes.

The MDCH Diabetes Prevention and Control Program works through MDON to promote innovative partnerships that strengthen prevention, detection and management of diabetes. Six regional networks serve as resource and information centers on current diabetes practice and education issues. Additional information about MDON can be found at www.diabetesinmichigan.org. The Diabetes Care Improvement Project (DCIP) provided a statewide data tracking system to investigate the impact of the regional networks.



The MDCH Birth Defects Team includes staff from the Michigan Birth Defects Registry (MBDR), Vital Records, Epidemiology, and Genomics, working together to monitor the occurrence of birth defects, promote prevention and assure that children with birth defects are linked with support services. The MBDR provides data for:

- ❖ Incidence of birth defects in Michigan
- ❖ Surveillance and epidemiologic studies on the causes of birth defects
- ❖ Birth defects prevention and intervention efforts, program planning and evaluation

Purpose

The Birth Defects Team partnered with Diabetes staff members to:

- ❖ Identify ways to strengthen interdisciplinary collaboration between internal and external partners to increase health promotion and birth defects prevention efforts targeting women with diabetes; and
- ❖ Explore the feasibility of linking data sets for potential use in assessing public health issues related to the occurrence of birth defects associated with maternal diabetes.



Methods

Multiple programs within MDCH work together to address the issue of maternal diabetes and birth defects.



- ❖ Forums for regular dialogue with partners were established. Diabetes staff participate on an internal birth defects steering committee and a genomics work group, while genomics staff participate on the external Diabetes Partners in Action Coalition (DPAC).
- ❖ In 2005, a pilot study was conducted to assess the feasibility and utility of linking data sets to evaluate the effects of diabetes on birth outcomes. Data files on women with pre-existing diabetes and those of their children were linked. A strategy was devised to measure the risk of birth defects and other outcomes in the population of women whose diabetes self-management indicators were being tracked by DCIP. Data used for the analysis were ascertained from DCIP records and Vital Records files including the resident birth file, death file, and birth defects registry.

Findings & Limitations

- ❖ **Better Communication:** Opportunities for dialogue among staff from multiple programs with different kinds of expertise (e.g. adult chronic disease, birth defects, genetics) led to heightened awareness of the need for better outreach education regarding maternal diabetes and the risk of birth defects.
- ❖ **Feasibility of Data Linkage:** Women in the DCIP database born after 1949 were linked to infants in the resident birth file. The final data set included singleton, resident births that occurred between 1992–2002. There were 1,774 infants matched to women in DCIP. The overall rate of birth defects in this group was 980.8 per 10,000.
- ❖ **Need for Better Data:** The pilot study identified a need for improvements in diabetes data collection. The utility of the linked data set as a performance measure was limited by missing information and lack of key variables relating to disease severity. Only live births were included, and the type and timing of maternal diabetes could not always be confirmed.

Conclusion

Our partnership draws from multiple disciplines within a state public health agency and the regional diabetes network to identify ways of improving birth outcomes for mothers with diabetes. The involvement of program, epidemiology, and vital records staff leads to a multi-faceted approach that encompasses assessment as well as assurance. The need for better health professional education about diabetes and birth defects prevention is now being addressed. The pilot linkage study played an important role in identifying further questions relevant to maternal diabetes and birth defects that could be examined at a later time using more rigorous data sets and methodologies.



Future Directions

- ❖ MDCH and MDON are currently working together to assure a competent health workforce for the care of women with diabetes by developing CEU approved training modules for live presentations and internet access. A web-based module on diabetes, genomics, and birth defects prevention is currently in progress. A course entitled "**Genomics, Family History and Diabetes**" has already been added to the standardized diabetes training curriculum, and is currently being disseminated through live presentations to diabetes educators statewide.
- ❖ Birth Defects staff will continue working not only with chronic disease but also with other maternal and child health programs to ensure that risks associated with diabetes are integrated into recommendations for preconception care, and that women with diabetes are made aware of prevention strategies before and during pregnancy.
- ❖ MBDR data on birth defects in relation to maternal diabetes will be shared with the MDON regions to reinforce the importance of promoting prevention. Exploration of additional data sources (i.e. hospital discharge data) for possible linkage to the MBDR is underway, with the hope of improving the reliability of data available for interdisciplinary program evaluation.

Acknowledgements

Joan Ehrhardt, MS, CGC, Birth Defects Coordinator, MDCH
Debra Duquette, MS, CGC, Adult Genetics/Genomics Coordinator, MDCH