

ates is intriguing, we should gather more evidence before changing policy.

### J.A. Chris Delaney

Statistician  
Royal Victoria Hospital  
Montréal, Que.

### References

1. Ray JG, Vermeulen MJ, Meier C, Cole DEC, Wyatt PR. Maternal ethnicity and risk of neural tube defects: a population-based study. *CMAJ* 2004;171(4):343-5.
2. Aickin M, Gensler H. Adjusting for multiple testing when reporting research results: the Bonferroni vs Holm methods. *Am J Public Health* 1996;86(5):726-8.

DOI:10.1503/cmaj.1041540

Although Joel Ray and associates<sup>1</sup> may have adequately controlled for confounding in their study of neural tube defects among children born in Ontario, the study may suffer from bias in data collection, analysis and interpretation, and the conclusions drawn may therefore be premature.

The study included Ontario women who underwent antenatal maternal serum screening at 15 to 20 weeks' gestation over the period 1994 to 2000, with an uptake rate of about 70%.<sup>1</sup> The proportion of First Nations women in the study (1551/403 915, 0.38%) was much lower than the proportion of First Nations women in Ontario, as estimated by the 2001 Census (92 050 or 1.9% of the total female population).<sup>2</sup> Because First Nations women tend to have a higher fertility rate, the true proportion of pregnant women of First Nations origin in Ontario is likely at least 5 times the proportion reported in the study. As reported by others<sup>3</sup> and in our previous analysis,<sup>4</sup> First Nations women are less likely to access prenatal care and more likely to access it at a later stage of pregnancy than women in the general population. Therefore, Ray and associates probably missed a large number of First Nations women in Ontario who did not access maternal serum screening before 20 weeks' gestation. Failure to include all pregnant First Nations women in this study, particularly in the denominator for a risk calculation, could lead to overestima-

tion of the risk for neural tube defects among pregnant First Nations women in Ontario.

Using population-based registry data from the Alberta Congenital Anomalies Surveillance System combined with data from the Alberta Health Care Insurance Plan, which captures nearly all First Nations persons in Alberta with treaty status under the *Indian Act* of Canada, we examined the live-birth prevalence of congenital anomalies in 268 167 newborns, including 16 986 First Nations children, from 1995 to 2001.<sup>5</sup> We found 4 cases of neural tube defects, a rate of 0.24 per 1000 First Nations newborns (95% confidence interval [CI] 0.01-0.47). This result was similar to the rate for other Alberta newborns (0.33 per 1000, 95% CI 0.25-0.40). Thus, we did not witness a greater risk of neural tube defects for First Nations newborns. Our finding is consistent with that of an earlier report with a much larger sample size in British Columbia.<sup>6</sup>

Our data show that pregnancy terminations and stillbirths account for about 50% of all cases of neural tube defects registered in Alberta between 1997 and 2001. However, data on ethnicity are currently unavailable for cases of termination and stillbirth. Future collection of such data will allow a better estimation of the risk for neural tube defects among First Nations people and people of other ethnic origins.

### Fu-Lin Wang

Epidemiologist  
Health Surveillance  
Alberta Health and Wellness  
Edmonton, Alta.

### Hude Quan

Assistant Professor  
University of Calgary  
Calgary, Alta.

### Donald Schopflocher

Senior Biostatistician  
Health Surveillance  
Alberta Health and Wellness  
Edmonton, Alta.

### References

1. Ray JG, Vermeulen MJ, Meier C, Cole DEC, Wyatt PR. Maternal ethnicity and risk of neural tube defects: a population-based study. *CMAJ*

2004;171(4):343-5.

2. *Ethnic origin, sex and single and multiple responses for population, for Canada, provinces, territories, census metropolitan areas and agglomerations, 2001 Census - 20% sample data*. Ottawa: Statistics Canada; 2003 Jan 21. Cat no. 97F0010XCB01001.
3. Plunkett A, Lancaster P, Huang J; National Perinatal Statistics Unit (Australia). *Indigenous mothers and their babies, Australia 1991-1993*. Sydney: Australian Institute of Health and Welfare, National Perinatal Statistics Unit; 1996.
4. Wang FL, Larke B, Hanrahan A, Guyon G, Findlay L, Gabos S. Non-acceptance to HIV testing in a routine prenatal HIV screening program [poster]. International Epidemiological Association; 16th World Congress of Epidemiology; 2002 Aug 18-22; Montréal.
5. Wang FL, Lowry RB, Quan H, Sibbald BS, Nguyen TH, Schopflocher D, et al. Birth prevalence of congenital anomalies in Chinese, First Nations, Vietnamese, and Hutterites newborns, Alberta, 1995-2001 [oral presentation]. 2nd scientific meeting of Canadian Congenital Anomalies Surveillance Network; 2003 Oct 19-21; Edmonton.
6. Lowry RB, Thunem NY, Silver M. Congenital anomalies in American Indians of British Columbia. *Genet Epidemiol* 1986;3:455-67.

DOI:10.1503/cmaj.1041688

The population-based study of neural tube defects by Joel Ray and associates<sup>1</sup> raises 2 important concerns. First, as noted by the authors in their discussion of study limitations, ethnicity may simply be a confounding factor in neural tube defects caused by poor folic acid intake. Second, perhaps the maternal serum screening form should be used to obtain additional information on risk factors for neural tube defects, to allow researchers to study this rare public health issue. Even a crude measure of folic acid intake (e.g., as low, medium or high) would be more helpful than no information at all.

### Vinita Dubey

Resident in Community Medicine  
University of Toronto  
Toronto, Ont.

### Reference

1. Ray JG, Vermeulen MJ, Meier C, Cole DEC, Wyatt PR. Maternal ethnicity and risk of neural tube defects: a population-based study. *CMAJ* 2004;171(4):343-5.

DOI:10.1503/cmaj.1041603

Joel Ray and associates<sup>1</sup> found that in Ontario the risk of neural tube defects was higher among First Nations

women than among women of other ethnic origins, independent of age, body weight and pregestational diabetes. The prevalence of type 2 diabetes among First Nations adolescents in Manitoba and northwestern Ontario is increasing, and the poor diabetes control and poor nutrition that often occur in these young women may constitute additional risk factors for neural tube defects in future offspring.

The high rate of adolescent pregnancy and the additional risk of neural tube defects in First Nations women raise the question of whether all young First Nations women with type 2 diabetes should receive advice regarding dietary and supplemental folic acid.

Several recent clinical practice guidelines have included recommendations on folic acid supplementation for mothers at high risk for neural tube defects. In 2003 the Society of Obstetricians and Gynaecologists of Canada recommended that all “women with insulin-dependent diabetes” should be advised to take high-dose folic acid (4–5 mg, taken as a pure folic acid supplement).<sup>2</sup> In 2002 Health Canada recommended that “women with diabetes” reduce the risk of neural tube defects in their babies by ensuring optimal diabetes control in the periconceptual period, noting that high-dose folic acid may or may not provide added benefit.<sup>3</sup> The 2003 guidelines of the Canadian Diabetes Association reviewed the evidence for reduction of the risk of neural tube defects with folic acid supplementation in diabetic pregnancies but stopped short of any specific recommendation regarding folic acid.<sup>4</sup> A 1997 recommendation by the Canadian Paediatric Society made no special recommendation for women with diabetes,<sup>5</sup> but this position statement is currently under revision.

Young First Nations women with type 2 diabetes may have multiple factors putting their future offspring at high risk for neural tube defects, namely ethnicity, poor diabetes control and poor nutrition. The evidence for risk reduction with optimal preconception control of diabetes in young women with type 1 diabetes<sup>3</sup> is proba-

bly applicable to young First Nations women with type 2 diabetes. However, the other unique clinical features of this population necessitate the development of specific consensus guidelines for folic acid supplementation for prevention of neural tube defects.

**Heather Dean**

**Kelly Watson**

**Elizabeth A.C. Sellers**

Department of Pediatrics and  
Child Health  
University of Manitoba  
Winnipeg, Man.

#### References

1. Ray JG, Vermeulen MJ, Meier C, Cole DEC, Wyatt PR. Maternal ethnicity and risk of neural tube defects: a population-based study. *CMAJ* 2004;171(4):343-5.
2. Wilson DR. The use of folic acid for the prevention of neural tube defects and other congenital anomalies. *J Obstet Gynaecol Can* 2003;138:1-7.
3. Van Allen MI, McCourt C, Lee NS. *Preconception health — folic acid for the primary prevention of neural tube defects*. A resource document for health professionals, 2002. Ottawa: Health Canada; 2002. Cat no. H39-607/2002E 2). Available: [www.hc-sc.gc.ca/english/folicacid/report/full\\_report.html](http://www.hc-sc.gc.ca/english/folicacid/report/full_report.html) (accessed 2004 Nov 16).
4. Canadian Diabetes Association 2003 clinical practice guidelines for the prevention and management of diabetes in Canada. *Can J Diabetes* 2003;27(Suppl 2):S94.
5. Periconceptual use of folic acid for reduction of the risk of neural tube defects. *Pediatr Child Health* 1997;2:152-4.

DOI:10.1503/cmaj.1041602

**J**oel Ray and associates<sup>1</sup> report a 5-fold greater risk for neural tube defects among pregnant women of First Nations origin than among women of other ethnic groups in Ontario, after adjustment for confounding factors.

Different results were obtained in a previous study from the British Columbia Health Surveillance Registry,<sup>2</sup> which had a much larger sample of live births and stillbirths (21 111 among First Nations mothers and 576 815 in the general population) for the 16-year period 1966 to 1981. In that study, the frequency of neural tube defects was lower in the First Nations group than the general population (1.03 v. 1.60 per 1000 total births).

In the study by Ray and associates,<sup>1</sup> ethnicity was self-declared; furthermore, no information is provided about