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The Landscape of Gastroschisis in Manitoba

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Background:

Gastroschisis (GS) is an abdominal wall defect resulting in evisceration of abdominal contents at birth. Historically, the estimated incidence of GS is 3-4 per 10,000 births worldwide. The current literature, however, suggests that the geographic distribution of incidence of GS is not homogenous. Several countries and regions have already identified "hot spots" with higher rates of GS.

Objective:

The purpose of this study was to examine the geospatial and temporal patterns of GS in Manitoba, Canada from 1992-2014 to assess if such "hot spots" exist.

Methods:

A population-based, longitudinal cohort review of all children treated for GS between January 1st, 1992 and December 31st, 2014 was performed at both tertiary care hospitals in Manitoba. The cohort was drawn from Winnipeg's Surgical Database and Outcomes and Management (WiSDOM). Manitoba population level data was derived fromCensus Canada.

Results:

The overall incidence of GS in Manitoba between 1992 and 2014 was 4.39/10,000 births. A log-linear regression model demonstrated that the provincial incidence of GS has increased by 6.35% per year (95% CI: 3.7%-9.2%), from 2.0/10,000 births in 1992 to 7.9/10,000 births in 2014. Significant regional variation was also seen (p=0.001) with an estimated average incidence 2.5-times higher in the northern region of Manitoba than in Winnipeg (unadjusted rates were 9.6/10,000 births vs. 3.8/10,000 births, p<0.001). With incidence growing multiplicatively, this also means that the incidence in the northern region increased 2.5-times faster in absolute terms than in Winnipeg.

Conclusion:

The results of this study demonstrate that the incidence of GS in Manitoba varies across the province. Specifically, the incidence of GS in the northern region was higher -- and grew faster, in an absolute

sense -- than in other parts of the province over the 23-year period. These findings urge us to investigate possible causes for this inequitable regional distribution of GS in Manitoba.