

Trends in Incidence of type 1 diabetes in children and adolescents in Nova Scotia Canada - 1994-2013

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Background: Rising incidence of type 1 diabetes (T1D) has been reported from various countries around the world. A recent study from the eastern Canadian province of Newfoundland reported a high incidence at 45/100,000 per year for 0-14 year olds.

Aim: We aimed to determine the current incidence rate and trends over time in the eastern Canadian province of Nova Scotia (NS).

Method: The Diabetes Care Program of NS (DCPNS) registry contains population-based data of **ALL** cases of diabetes in NS since 1992 in children and adolescents. Cases of T1D were identified and incidence grouped by 5 year (yr) time periods was determined beginning with 1994-1998 up to 2009-2013, for all cases and by sex and age group. Incidence with 95% confidence interval (CI) was calculated per 100,000 population for each age group based on national census data with intercensal estimates for non-census years. Mean age at diagnosis was determined and compared over time by ANOVA.

Results: 1283 cases occurred over 20 yrs. The table shows trends in incidence of T1D per 100,000 (95% CI) over time.

Age Group (yr)	1994-2013	1994-1998	1999-2003	2004-2008	2009-2013
0-4.9	25.30 (22.12, 28.47)	18.35 (13.36, 23.33)	26.81 (20.29, 33.33)	33.47 (25.79, 41.14)	24.49 (17.96, 31.02)
5-9.9	34.40 (30.87, 37.94)	29.37 (23.34, 35.41)	32.57 (25.92, 39.23)	39.35 (31.48, 47.22)	38.32 (30.17, 46.46)
10-14.9	39.35 (35.73, 42.97)	31.66 (25.42, 37.89)	41.03 (33.89, 48.16)	42.63 (35.04, 50.22)	43.20 (35.01, 51.38)
15-19.9	17.85 (15.50, 20.20)	18.92 (14.13, 23.71)	13.97 (09.84, 18.10)	17.13 (12.56, 21.70)	21.67 (16.32, 27.02)
0-14.9	32.35 (29.52, 35.18)	26.71 (23.35, 30.08)	34.04 (30.08, 37.99)	38.88 (34.40, 43.35)	35.65 (31.20, 40.11)
0-19.9	29.06 (27.47, 30.65)	24.69 (21.91, 27.48)	28.54 (25.45, 31.62)	32.42 (28.99, 35.84)	31.51 (28.00, 35.02)

Overall (1994-2013), T1D incidence per 100,000 (95% CI) was higher in males than females [M=31.34 (29.03, 33.65), F=26.69 (24.51, 28.87)]. This difference was most pronounced in 15-19 yr olds, [M=23.29 (19.52, 27.05), F=12.20 (9.42, 14.97)]. Mean age at diagnosis (0-14.9) was 8.6 yrs with no change observed over time ($p=0.83$).

Discussion: Overall incidence was highest in 10-14 yr olds and in males. Incidence of T1D in NS has risen significantly since the mid-1990's and among the 0-14 yr age group is 33% greater in the most recent compared to the earliest time period. However, the highest incidence was in the 2004-2008 time period and appeared to plateau or decline after that, which is a novel finding. This pattern was most prominent in the 0-4 yr age group.

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