18-month well-child screening

Health indicator report

Background

- The purpose of this health indicator report is to provide information about 18-month well-child screening for children living in Halton who were born between July 1st 2008 and June 30th, 2017.
- 18 months of age is a time when key developmental milestones are reached, including those related to speech and language development, literacy, social interaction, gross and fine motor skills, walking, and self-feeding.[1]
- The 18-month well-child visit is an important time for primary care providers to evaluate a child's physical and social development, and marks the last routine visit before school entry.[1]
- In October 2009, Ontario introduced an enhanced 18-month well-child visit. This enhancement shifted the focus of the 18-month visit from a basic 18-month well-baby checkup to a comprehensive assessment of developmental health through the use of standardized tools.[2,3] The enhanced visit encourages broader discussion between physician and caregiver,[4] and allows for early identification of concerns and referral to specialized services.[4]
- This health indicator report uses administrative data analyzed by ICES.

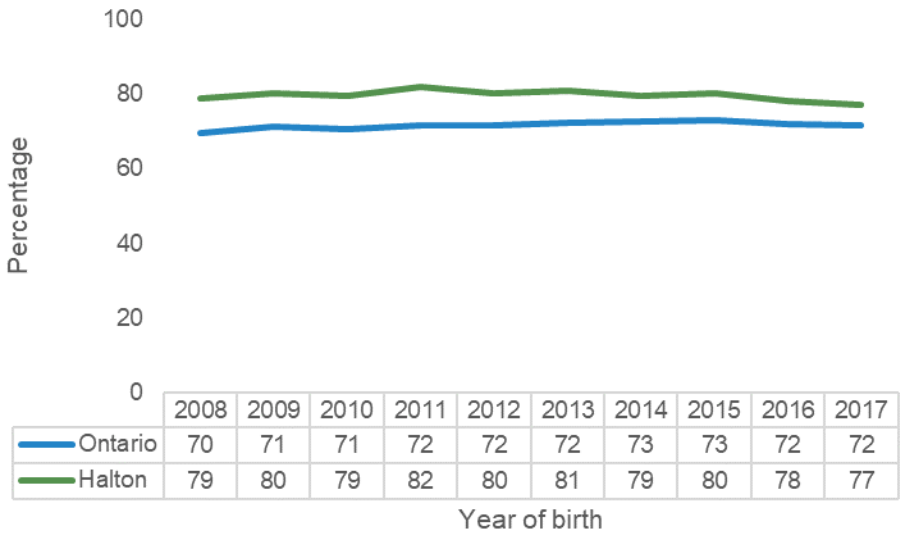
Key findings

- The proportion of Halton resident children receiving any form of 18-month well-child visit (enhanced or regular) remained stable at 77% for those born between 2008 and 2017.
- The proportion of Halton resident children receiving an enhanced 18-month well-child visit increased from 43.6% for those born in 2008 to 65.3% for those born in 2017.
- Halton resident children born between 2008 and 2017 were less likely to receive any kind of 18-month well-child visit overall if they were of low birth weight, had mothers who were less than 19 years of age at first delivery, or lived in low income neighbourhoods. They were also less likely to receive any kind of 18-month well-child visit if their usual healthcare provider was male, had been in practice for 21 years or more, or was internationally trained.
- A higher proportion of Halton resident children born between 2008 and 2017 received 18-month well-child visit screening when compared to Ontario resident children.

Proportion of Halton children who had an 18-month well-child visit

Halton vs. Ontario

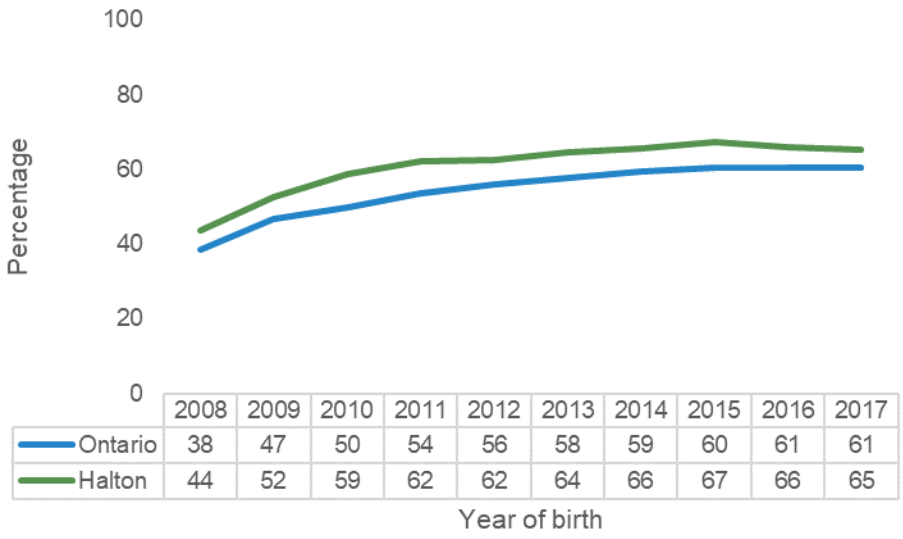
- 77% of Halton children born in 2017* had an 18-month well-child visit of any kind. This was not significantly different from children born in 2008.*
- 72% of Ontario children born in 2017 had an 18-month well-child visit of any kind. This was a slight but **statistically significant** difference from children born in 2008, among whom 70% had an 18-month well-child visit of any kind.



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Ontario	70	71	71	72	72	72	73	73	72	72
Halton	79	80	79	82	80	81	79	80	78	77

Percentage of children that had an 18-month well-child visit of any type (regular or enhanced), Halton and Ontario residents, by year of birth, July 1st 2008 – June 30th, 2017*

- 65% of Halton children born in 2017 had an enhanced 18-month well-child visit. This was a **statistically significant** difference from children born in 2008, among whom 44% had an enhanced 18-month well-child visit.
- 61% of Ontario children born in 2017 had an enhanced 18-month well-child visit. This was a **statistically significant** difference from children born in 2008, among whom 38% had an enhanced 18-month well-child visit.



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Ontario	38	47	50	54	56	58	59	60	61	61
Halton	44	52	59	62	62	64	66	67	66	65

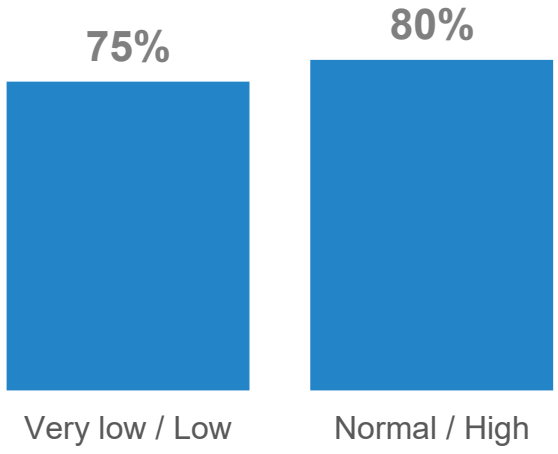
Percentage of children that had an enhanced 18-month well-child visit, Halton and Ontario residents, by year of birth, July 1st 2008 – June 30th, 2017

* For the year 2008, only children born between July 1st and December 31st were included in analyses; for the year 2017, only children born between January 1st and June 30th were included in analyses. For all other years, children born between January 1st and December 31st were included in analyses. This means that less children were included for 2008 and 2017 than in other years.

Proportion of Halton children who had an 18-month well-child visit

Birth weight

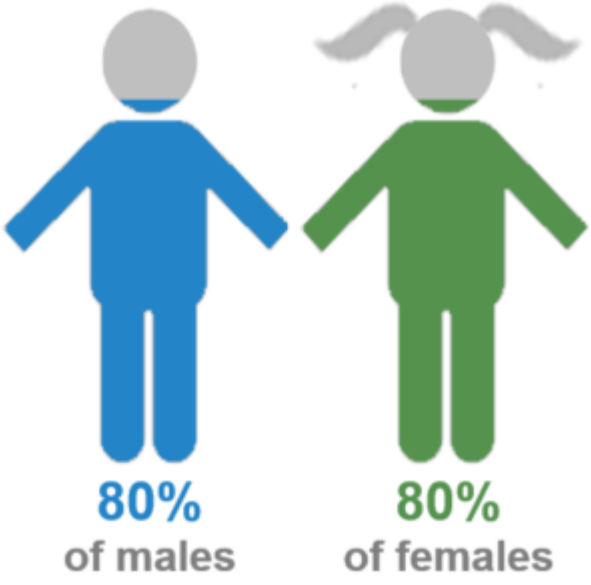
- Among children born from 2008-2017, 80% of those with normal or high birth weight had an 18-month well-child visit of any kind. This was higher than those with very low or low birth weight. This difference was **statistically significant.**
- Children of normal or high birth weight were also more likely to have an enhanced 18-month well-child visit (not shown). This difference was **statistically significant.**
- One potential explanation for these findings is that children of very low or low birth weight are more likely to be part of secondary prevention programs such as neonatal follow-up clinics that provide other developmental assessments to high-risk infants.[4]



Percentage of children born between 2008-2017 who had an 18-month well-child visit of any kind, by birth weight, Halton Region

Sex

- Among children born from 2008-2017, 80% of both males and females had an 18-month well-child visit of any kind.
- 62% of females had an enhanced 18-month well-child visit, while 61% of males had an enhanced 18-month well-child visit (not shown). This difference was not statistically significant.

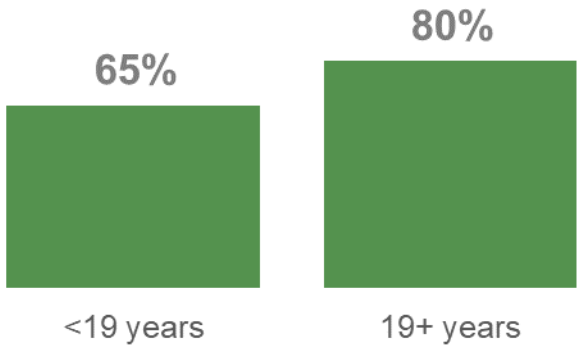


Percentage of children born between 2008-2017 who had an 18-month well-child visit of any kind, by sex, Halton Region

Proportion of Halton children who had an 18-month well-child visit

Age at First Delivery

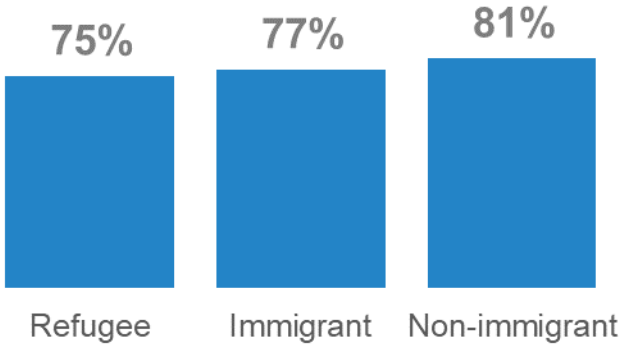
- Among children born from 2008-2017, those with mothers who were 19 years of age or older at the time of their first delivery were more likely to have an 18-month well-child visit of any kind when compared to children with mothers who were less than 19 years of age at the time of their first delivery. This was a **statistically significant** difference.
- Children were also more likely to have an enhanced 18-month well-child visit if their mothers were 19 years of age or older at the time of their first delivery (not shown). This was a **statistically significant** difference.



Percentage of children born between 2008-2017 who had an 18-month well-child visit of any kind, by maternal age at first delivery, Halton Region

Maternal Immigration Status

- Among children born from 2008-2017, those with mothers who were non-immigrants were more likely to have an 18-month well-child visit of any kind when compared to children with immigrant or refugee mothers. This was a **statistically significant** difference. There was no significant difference between children with refugee mothers and children with immigrant mothers.
- Children with immigrant mothers were just as likely to have an enhanced 18-month well-child visit as children with non-immigrant mothers. Children with refugee mothers were slightly less likely than children with immigrant mothers to have an enhanced 18-month well-child visit. This was a **statistically significant** difference. However, children with refugee mothers did not significantly differ from children with non-immigrant mothers (not shown).
- The category for immigrant mothers includes mothers who have ever immigrated to Canada, which may obscure differences between long-term and recent immigrants.

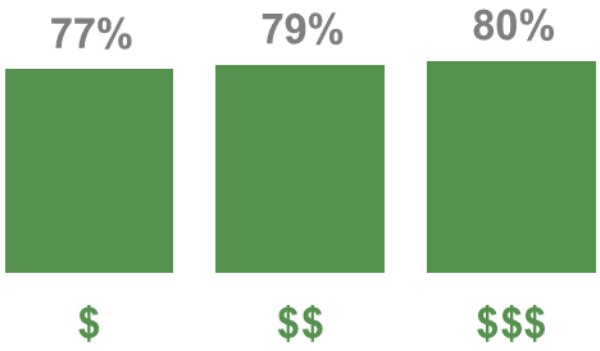


Percentage of children born between 2008-2017 who had an 18-month well-child visit of any kind, by maternal immigrant status, Halton Region

Proportion of Halton children who had an 18-month well-child visit

Neighbourhood Income

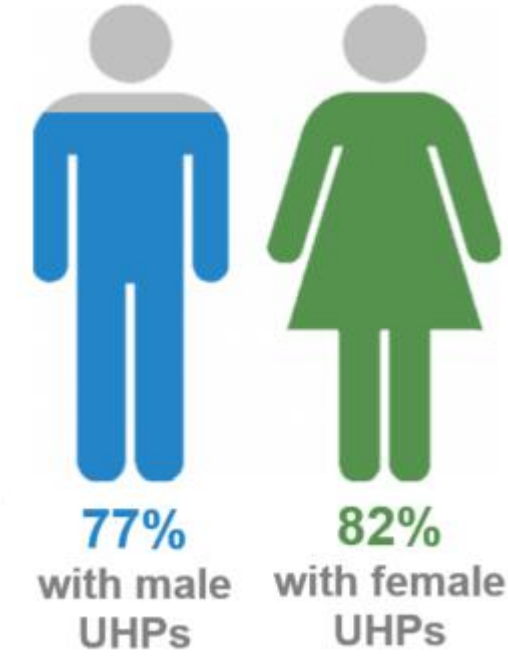
- Among children born from 2008-2017, those living in high income neighbourhoods were slightly more likely than children living in low or middle income neighbourhoods to have an 18-month well-child visit of any kind. This was a slight but **statistically significant** difference.
- Children living in high income neighbourhoods were also slightly more likely than children living in low or middle income neighbourhoods to have an enhanced 18-month well-child visit (not shown). This difference was also **statistically significant**.



Percentage of children born between 2008-2017 who had an 18-month well-child visit of any kind, by income group, Halton Region

Sex of Usual Healthcare Provider

- Among children born from 2008-2017, 82% of those with a female usual healthcare provider (UHP) had an 18-month well-child visit of any kind, compared to 77% of those with a male UHP. This difference was **statistically significant**.
- 65% of children with a female UHP had an enhanced 18-month well-child visit, compared to 56% of children with a male UHP (not shown). This difference was **statistically significant**.

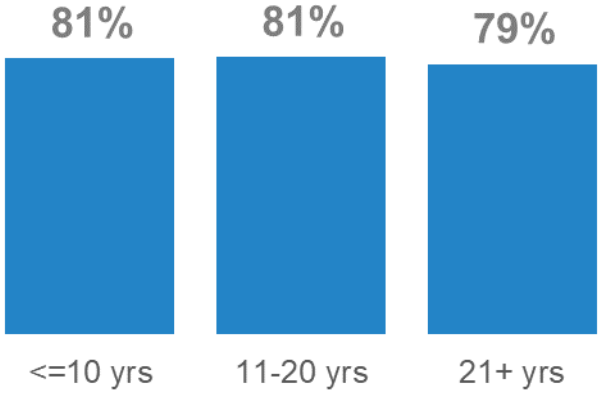


Percentage of children born between 2008-2017 who had an 18-month well-child visit of any kind, by sex of usual healthcare provider, Halton Region

Proportion of Halton children who had an 18-month well-child visit

Time in Practice of UHP

- Among children born from 2008-2017, 81% of those with a UHP who had been in practice for 20 years or less had an 18-month well-child visit of any kind. This was higher than children who had a UHP who had been in practice for 21 years or more, and was a **statistically significant** difference.
- 59% of children with a UHP who had been in practice for 21 years or more had an enhanced 18-month well-child visit, compared to 64% with a UHP who had been in practice for 10 years or less and 64% with a UHP who had been in practice for 11-20 years. These differences were **statistically significant** when comparing the group with a UHP who had been in practice for 21 years or more to the other two groups.



Percentage of children born between 2008-2017 who had an 18-month well-child visit of any kind, by time in practice of usual healthcare provider, Halton Region

Other UHP characteristics

- Among children born from 2008-2017, 82% of children with a UHP who was trained in Canada had an 18-month well-child visit of any kind. This was higher than children with a UHP who was trained outside of Canada, and this difference was **statistically significant** (not shown). Children with a UHP who was trained in Canada were also more likely to have an enhanced 18-month well-child visit than children with a UHP who was trained internationally (not shown). This difference was also **statistically significant**.
- An Ontario-level analysis of data for children born from 2008 to 2010 found similar relationships between UHP characteristics and 18-month well-child visits.[3]
- Note that indicators showing 18-month well-child visits by UHP characteristics only include children who had a UHP. For all indicators this means less than 1% of children have been excluded from analyses. Note that 18-month well-child visits performed by a nurse practitioner have also not been captured throughout, due to differences in billing practices.[3]

About ICES Analysis of Data

This report uses data from a study conducted by the Institute for Clinical Evaluative Sciences (ICES), which is funded by the Ontario Ministry of Health and Long-Term Care (MOHLTC).The opinions, results and conclusions are those of the authors and are independent from the funding source. No endorsement by ICES or the Ontario MOHLTC is intended or should be inferred. Parts of this material are based on data and/or information compiled and provided by the Canadian Institute of Health Information (CIHI). However, the analyses, conclusions, opinions and statements expressed in the material are those of the author(s), and not necessarily those of CIHI. These datasets were linked using unique encoded identifiers and analyzed at ICES.

Borgundvaag, E., An, D., Plumptre, L, et al. Implementation of a physician incentive program for 18-month developmental screening in Ontario, Canada, Applied Health Research Questions (AHRQ) #2022 0950 118 000. Toronto: ICES 2021.

Analyses of 18-month well-child visits according to various characteristics are bivariate analyses and do not account for many other factors that could explain the observed relationships.

Data sources

- Discharge Abstract Database (DAD)
- Ontario Health Insurance Plan Claims Database (OHIP)
- ICES Physician Database (IPDB)
- Registered Persons Database files (RPDB)
- Postal Code Conversion File (PCCF)
- Ontario Mother-Baby Linked Data Client Agency Program Enrolment (CAPE)
- Immigration, Refugees, and Citizenship Canada (IRCC)'s Permanent Resident Database
- Community Health Centre (CHC) Database

See **ICES Data Dictionary** for detailed descriptions.

Data exclusions

- Infants with an invalid IKN (ICES key number)
- Infants with an invalid birth date
- Infants with an invalid death date
- Infants with missing or invalid sex
- Infants who died before 24 months
- Infants who moved out of Ontario before 24 months
- Infants with missing birth weight, or a birth weight <400 grams or ≥ 7000 grams.

For more health indicator and health status reports, visit the Halton Health Statistics webpage at **halton.ca**.

Last updated: March 2023

Definitions

"Regular" vs. "Enhanced" 18-month well-child visits
Regular 18-month well-child visits are basic check-ups that usually include a physical health assessment and immunizations.[2] They rely on clinical judgment to identify developmental challenges.[2]
Enhanced 18-month well-child visits are more comprehensive assessments of a child's development,[2] incorporate standardized tools,[2] encourage broader discussion between physician and caregiver,[4] and allow for early identification of concerns and referral to specialized services.[4]

Birth weight
Very low birth weight refers to children that weighed less than 1,500 grams at the time of birth.
Low birth weight refers to children that weighed between 1,500 – 2,499 grams at the time of birth.
Normal/high birth weight refers to children that weighed 2,500 grams or more at the time of birth.

Immigrant status
Nonimmigrant refers to a person who is a Canadian citizen by birth.
Immigrant refers to a person who is, or who has ever been, a landed immigrant or permanent resident and has been granted the right to live in Canada permanently by immigration authorities, including sponsored families, economic class, humanitarian and compassionate cases, and public policy consideration cases. Immigrants who have obtained Canadian citizenship by naturalization are included in this group.
Refugee refers to resettled refugees and protected persons in Canada, and includes privately sponsored refuges, government-assisted refugees, blended Visa office-referred refugees, refugees landed in Canada (Asylum seekers) and dependents.

Neighbourhood income
Neighbourhood income quintiles were assigned at the provincial level based on the average neighborhood household income, adjusted for household size and housing costs. Since Halton had a large proportion of neighbourhoods that fell within the 3rd to 5th quintile, this indicator was recategorized.
Lowest income refers to individuals living in neighbourhoods that fell within the 1st - 2nd quintile.
Middle income refers to individuals living in neighbourhoods that fell within the 3rd quintile.
Highest income refers to individuals living in neighbourhoods that fell within the 4th - 5th quintile.

References

1. Mousmanis P, Watson WJ. The 18-month well-child visit in primary care: Clinical strategies for early intervention. Paediatr Child Health 2008;13(10):845-9.
2. Williams R, Clinton J, and the Canadian Paediatric Society, Early Years Task Force. Getting it right at 18 months: In support of an enhanced well-baby visit. Paediatr Child Health 2011;16(10):647-50.
3. Guttman A, Cairney J, MacCon K, Kumar M. Uptake of Ontario's enhanced 18-month well-baby visit: An AHRQ report. Toronto, ON: ICES. 2016.
4. Guttmann A, Saunders NR, Kumar M, et al. Implementation of a physician incentive program for 18-month developmental screening in Ontario, Canada. J Pediatr 2020;226:213-2.