

# Health Profile on Immigrant and Refugee Children and Youth in Canada: Section 3

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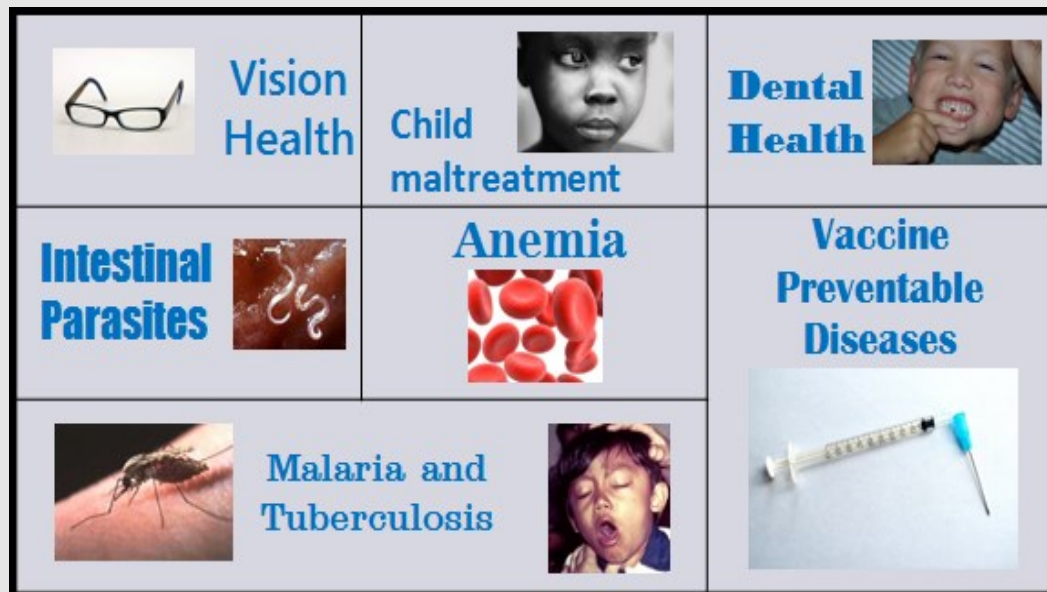


## The Health of Canada's Children and Youth: A CICH Profile

### Health Profile on Immigrant and Refugee Children and Youth in Canada

#### Section 3 – Priority Health Conditions Among Immigrant Children and Youth

##### 3.1.1 Introduction: Priority Health Conditions Among Immigrant Children and Youth



Graphic created by CICH using images from Microsoft PowerPoint and Big Stock Photo.

The health needs of newly arriving children and youth who are immigrants and refugees often differ from those of Canadian born children. The prevalence of disease differs with exposure to disease, migration patterns, living conditions, and genetic predispositions. Health care professionals, teachers, community workers and other citizens may be interested to know what some of the key preventable and treatable health issues are for immigrant and refugee children.

The priority health conditions among immigrant children and youth in this section were based on evidence-based guidelines developed by the [Canadian Collaboration for Immigrant and Refugee Health](#).

For a description of the methodology used to identify these conditions, [click here](#).



The [Canadian Collaboration for Immigrant and Refugee Health](#) (CCIRH), is a six year old interdisciplinary collaboration involving over 150 primary care practitioners, specialists, researchers, immigrant community leaders, and policy makers that shines an evidence-based lens on the emerging new discipline of migrant health. CCIRH began with an ambitious project aimed at producing evidence based guidelines for primary care practitioners that cover a broad range of infectious diseases; mental health and physical and emotional maltreatment; chronic noncommunicable diseases; and women's health; conditions identified by practitioners working with new immigrants.



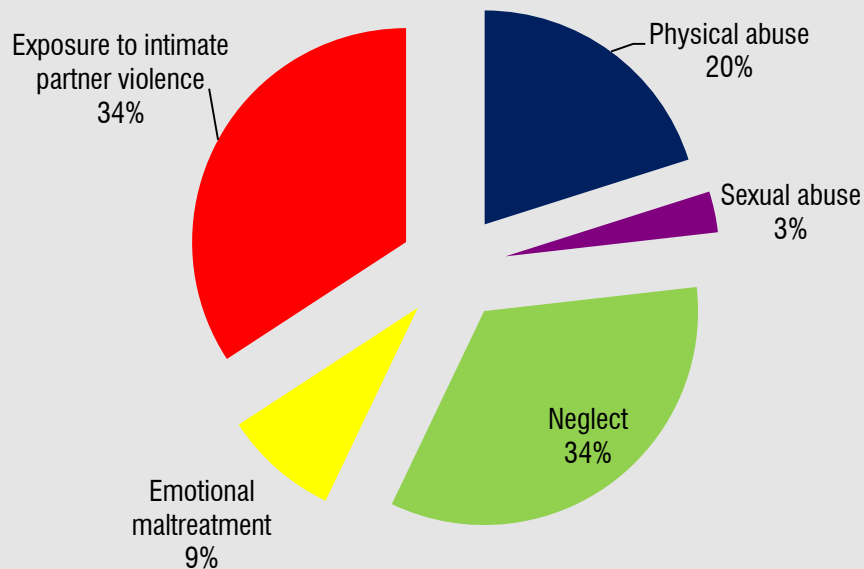


## The Health of Canada's Children and Youth: A CICH Profile

### Health Profile on Immigrant and Refugee Children and Youth in Canada

#### Section 3 – Priority Health Conditions Among Immigrant Children and Youth

### 3.2.1 Type of Child Maltreatment, Children 15 Years and Younger, Canada, 2008



Graphic created by CICH using data Adapted from the Public Health Agency of Canada. Canadian Incidence Study of Reported Child Abuse and Neglect – 2008: Major Findings. Ottawa, 2010.

Child maltreatment is an important public health issue. The prevalence and incidence of child maltreatment among immigrant and/or refugee children in Canada are unknown.

While not specific to immigrant and refugee children and youth, the Canadian Incidence Study of Reported Child Abuse and Neglect (2008) found a total of 85,440 substantiated cases of child abuse and neglect out of a total of 235,842 investigations. This was 14.19 cases per 1,000 children. An additional 8% of investigations – an additional 17,918 investigations or 2.98 investigations per 1,000 children – found that there was insufficient evidence to substantiate maltreatment; however, maltreatment remained suspected by the worker at the completion of the intake investigation. Thirty percent of investigations were unfounded (i.e. the child had not been maltreated) and 26% were due to concerns about the risk of future maltreatment rather than actual cases of maltreatment.

Of the 85,440 total cases of maltreatment among children that were substantiated, 34% involved neglect, 20% involved physical abuse, 34% involved exposure to intimate partner violence, 3% involved sexual abuse and 9% involved emotional maltreatment.<sup>1</sup>

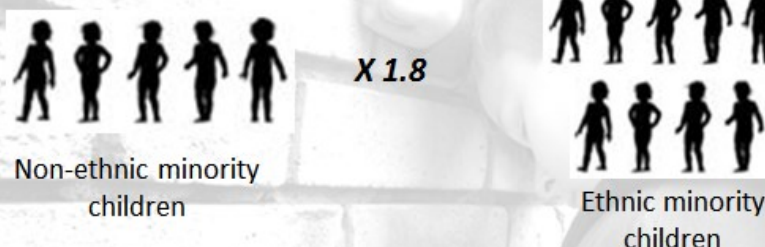
<sup>1</sup>Public Health Agency of Canada. Canadian Incidence Study of Reported Child Abuse and Neglect – 2008: Major Findings. Ottawa, 2010





#### 3.2.2 Child Maltreatment – Immigrant and Refugee Children

*In 2003, ethnic minority children from 0 to 15 years had a 1.8 times greater likelihood to be over-represented in child protection services.*



*For every 5 non-minority Canadian children in child protection services, there were 9 ethnic minority children in these services.*

Graphic created by CICH using data from Trocmé N, Fallon B, MacLaurin B, et al. Canadian incidence study of reported child abuse and neglect — 2003: major findings. Ottawa: Minister of Public Works and Government Services Canada; 2005.

Graphic created by CICH using an image from Vector Stock.

While the prevalence and incidence of child maltreatment among immigrant and/or refugee children in Canada are unknown, the evidence on maltreatment among ethnic minority children in the United States and Canada suggests that some ethnic minority children are disproportionately over- and under-represented in child protection services.<sup>1</sup>

The Canadian incidence study of reported child abuse and neglect (2003) found that ethnic minority children 0 to 15 years of age had a 1.8 times greater likelihood to be over-represented in child protection services, whereas white and Arab children were under-represented. The higher rates were found among Aboriginal, Black, Latino and Asian children (the latter group for only physical abuse).<sup>2</sup> Yet, there was no evidence that child maltreatment was higher in immigrant families. Immigrant and refugee families may be particularly vulnerable to the harms that can occur because of legal and institutional interventions consequent to false-positive screening results, such as over-reporting for child maltreatment and unnecessary separation of the child from his or her family.

<sup>1</sup>Pottie K, Greenaway C, Feightner J, Welch V, Swinkels H, Rashid M, Narasiah L, Kirmayer LJ, Ueffing E, MacDonald NE, Hassan G, McNally M, Khan K, Buhrmann R, Sheila Dunn S, Dominic A, McCarthy AE, Gagnon AJ, Rousseau C, Tugwell P, and coauthors of the Canadian Collaboration for Immigrant and Refugee Health. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011; 183(12): E824 – E925.

<sup>2</sup>Trocmé N, Fallon B, MacLaurin B, et al. Canadian incidence study of reported child abuse and neglect — 2003: major findings. Ottawa (ON): Minister of Public Works and Government Services Canada; 2005. Cited in Pottie K, Greenaway C, Feightner J, Welch V, Swinkels H, Rashid M, Narasiah L, Kirmayer LJ, Ueffing E, MacDonald NE, Hassan G, McNally M, Khan K, Buhrmann R, Sheila Dunn S, Dominic A, McCarthy AE, Gagnon AJ, Rousseau C, Tugwell P, and coauthors of the Canadian Collaboration for Immigrant and Refugee Health. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011; 183(12): E824 – E925

#### Implications

Immigrant children and youth and their families come from a wide variety of cultural and linguistic backgrounds. Upon arrival, new immigrants tend to be healthier than the Canadian-born population, both because of immigrant-selection processes and because of certain socio-cultural aspects of health behaviours. However, refugees are more vulnerable and not able to enjoy the same measure of good health at the time of arrival. However, at least for adults, there is a decline in this “healthy immigrant effect” soon after arrival.





#### 3.3.1 Why Are Vaccinations against Common Childhood Disease Important for Immigrant and Refugee Children, Youth and Families



Graphic created by CICH using an image from Big Stock Photo.

In the past 30 years the majority of Canadians who were born outside of Canada (more than 70%) have originated from countries where vaccination coverage may be suboptimal or where several of the childhood vaccines that are routine in Canada are not part of the national vaccination schedule.<sup>1</sup> These include vaccines against illnesses such as varicella (chickenpox), rubella (also known as German Measles), diphtheria, pertussis (whooping cough), and tetanus. Immigrant children are therefore at risk for these vaccine preventable diseases with their associated morbidity and mortality.<sup>2</sup> Children and youth (and adults) who are susceptible to vaccine-preventable diseases must be identified and vaccinated to protect them and maintain herd (community) immunity and prevent outbreaks.

<sup>1</sup>Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011;183:E824-925.

<sup>2</sup>Organization WH. WHO Vaccine- Preventable Diseases: Monitoring System. Geneva: The Organization; 2004.

#### Implications

There are many obstacles facing immigrant children, youth and their families regarding access to immunization. These are commonly low socioeconomic status, low parental education, younger maternal age, lack of knowledge about the illnesses and immunization, negative beliefs about immunization and fear of bad effects, lack of transportation, clinic hours and cost.<sup>3</sup> Effective interventions must be utilized to enable immigrant children and youth to gain access – including education, reducing out-of-pocket costs, reminder systems and providing clinics in non-traditional places such as schools and places of worship.

<sup>3</sup>Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011;183:E824-925







#### 3.3.2 Chickenpox (Varicella)



Graphic created by CICH using an image from Vector Stock.

A large proportion of immigrant youth are susceptible to chickenpox (varicella). Evidence indicates that up to 50% of youth at age 15 who are immigrants from tropical countries are at risk – and particularly at increased risk of severe illness. The average age at which chickenpox develops varies for different world regions: older children/youth are more likely to get chickenpox in tropical countries – the average age of onset is 15 years – while in temperate and cold countries the average age of acquiring chickenpox is 5 years.

#### Implications

Pregnant immigrant women and their babies are at particular risk for complications of chickenpox – up to 50% of babies born with congenital varicella are likely to die and survivors may have congenital anomalies.<sup>1</sup> For most children, being immunized against chickenpox means that they will never get the disease. For others, being immunized means that if they do get chickenpox, it will be very mild, and they will recover quickly.<sup>2</sup>

Canadian Immigrant Health Guidelines recommend that all immigrant children younger than 13 years be vaccinated with the chickenpox (varicella) vaccine without prior blood testing. It is also recommended that all immigrant and refugee children, youth and adults from tropical countries over 13 years be screened for serum varicella antibodies, and that those found to be susceptible (not yet immune) be immunized.<sup>3</sup>

For the Canadian Immigrant Health Guidelines [click here](#).

<sup>1</sup>Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011;183:E824-925.

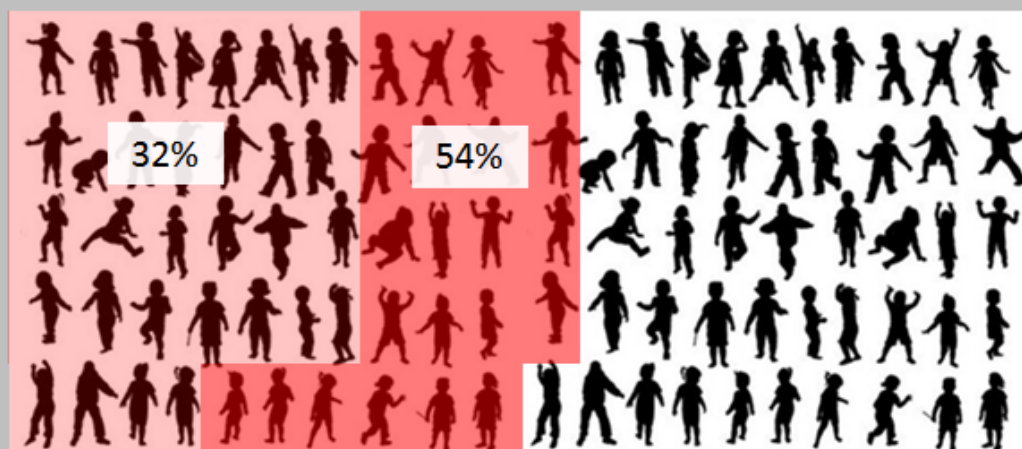
<sup>2</sup>Public Health Agency of Canada. What you need to know about varicella (chickenpox). <http://www.phac-aspc.gc.ca/im/ivc-vve/faq-dis-mal/varicell-eng.php>

<sup>3</sup>Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011;183:E824-925





#### 3.3.3 Measles, Mumps and Rubella



**32% to 54% of immigrant children and youth are susceptible to vaccine-preventable diseases such as measles, mumps, and rubella upon arrival in Canada.**

Source: Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011;183:E824-925.; Graphic created by CICH using an image from Big Stock Photo.

Many immigrant children and youth are susceptible to vaccine-preventable diseases upon arrival in Canada – such as measles, mumps and rubella (German Measles). Evidence indicates that 32%–54% are susceptible to these three diseases.<sup>1</sup> While routine childhood vaccination began in the mid-seventies in most developing countries – and many include measles - rubella and mumps vaccines are not administered routinely in most of these developing countries.<sup>2</sup> Most recent reported cases of congenital rubella syndrome and neonatal tetanus have occurred in children who were born to women who were not immunized and were foreign born.<sup>3</sup>

<sup>1</sup>Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011;183:E824-925.

<sup>2</sup>World Health Organization. WHO vaccine-preventable diseases: monitoring system. 2004 global summary. Geneva; The Organization; 2004. Cited in Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011;183:E824-925.

<sup>3</sup>Danovaro-Holliday MC, LeBaron CW, Allensworth C, et al. A large rubella outbreak with spread from the workplace to the community. JAMA 2000;284:2733-9. And Craig AS, Reed GW, Mohon RT, et al. Neonatal tetanus in the United States: a sentinel event in the foreign-born. Pediatr Infect Dis J 1997;16:955-9 cited in Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011;183:E824-925

#### Implications

Measles, mumps and rubella are highly contagious diseases that can have serious consequences. Measles infection can cause encephalitis in 1/1,000 children<sup>4</sup>; mumps can cause deafness and meningitis<sup>5</sup> and a baby born to a mother with no protection against rubella who has come in contact with the disease during her pregnancy could be born deaf, blind, or with heart or brain damage.<sup>6</sup> Measles-mumps-rubella vaccine is extremely effective against measles and rubella – protecting almost 100% of children immunized. While the mumps vaccine effectiveness is lower – it still protects the majority of children immunized.

Canadian Immigrant Health Guidelines recommend that all immigrant and refugee children and youth with missing or uncertain vaccination records be vaccinated for measles, mumps and rubella using age-appropriate vaccination.<sup>7</sup>

For the Canadian Immigrant Health Guidelines [click here](#).

<sup>4</sup>Public Health Agency of Canada. What you need to know about measles. <http://www.phac-aspc.gc.ca/im/iyc-vve/faq-dis-mal/mumps-oreillons-eng.php>; <sup>5</sup>Public Health Agency of Canada. What you need to know about mumps. <http://www.phac-aspc.gc.ca/im/iyc-vve/faq-dis-mal/mumps-oreillons-eng.php>; <sup>6</sup>Public Health Agency of Canada. What you need to know about rubella. Public Health Agency of Canada. What you need to know about varicella (chickenpox). <http://www.phac-aspc.gc.ca/im/iyc-vve/faq-dis-mal/varicell-eng.php>

<sup>7</sup>Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011;183:E824-925





#### 3.3.4 Diphtheria, Pertussis (Whooping Cough), Tetanus and Polio



*Graphic created by CICH using an image from Big Stock Photo.*

Many immigrants are susceptible to vaccine-preventable diseases upon arrival in Canada. Evidence indicates that 30%–50% of new immigrants are susceptible to tetanus. Immunity against diphtheria is low among immigrants – 35% to 50%.<sup>1</sup> Vaccinating children against diphtheria, pertussis, tetanus and polio have dramatically reduced the incidence of these illnesses (92% to 99.9%) and have almost completely eliminated resulting deaths.<sup>1</sup>

<sup>1</sup>Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011;183:E824-925.

#### Implications

Canadian Immigrant Health Guidelines recommend that all immigrant children with missing or uncertain vaccination records be vaccinated using age-appropriate vaccination for diphtheria, pertussis, tetanus and polio.<sup>3</sup>

For the Canadian Immigrant Health Guidelines [click here](#).

<sup>3</sup>Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011;183:E824-925







#### 3.3.5 Hepatitis B



Graphic created by CICH using an image from Big Stock Photo.

In Canada, the rates of hepatitis B infection are low (less than 0.5%). During the past four decades most Canadian immigrants have come from countries with relatively high rates of hepatitis, including hepatitis B, and their rate of chronic infection is about 4%. Most of these people do not have symptoms for a long time. The mortality rate from chronic viral hepatitis is higher among immigrants than among those who are Canadian born – most likely because they have a higher rate of untreated, undiagnosed illness. Young children who live with someone with chronic hepatitis B virus are at increased risk of acquiring the infection. This puts immigrant children at higher risk as they are more likely to be living with someone with infection and no symptoms. Many immigrant children have not been immunized against hepatitis B.<sup>1</sup> Evidence indicates that immigrant children, youth and families do not have knowledge regarding the seriousness of hepatitis B infection and less than 50% have been screened.<sup>2</sup>

<sup>1</sup>Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011;183:E824-925.

<sup>2</sup>Hislop TG, Teh C, Low A, et al. Hepatitis B knowledge, testing and vaccination levels in Chinese immigrants to British Columbia, Canada. Can J Public Health 2007;98:125-9. cited in Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011;183:E824-925

#### Implications

Hepatitis B vaccine is an effective vaccine that significantly reduces the risk of getting the infection. Canadian Immigrant Health Guidelines recommend that susceptible children and youth from countries where Hepatitis B [seroprevalence](#) is moderate to high (i.e., > 2% HBsAg positive) be screened and vaccinated if susceptible.<sup>3</sup>

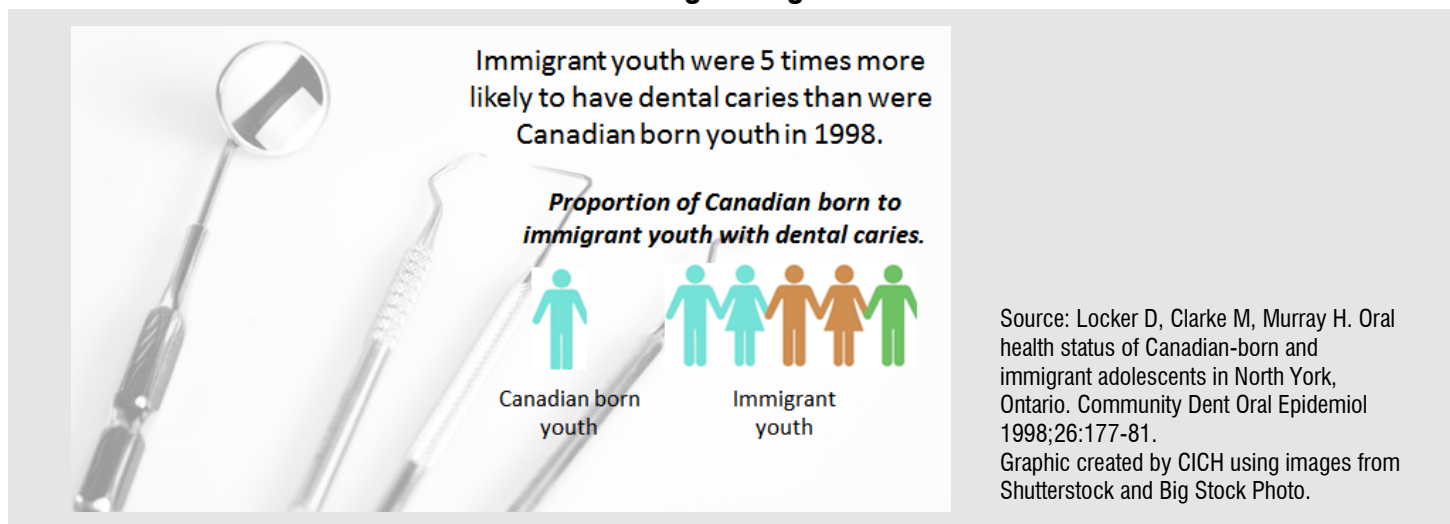
For the Canadian Immigrant Health Guidelines [click here](#).

<sup>3</sup>Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011;183:E824-925





#### 3.4.1 Dental Diseases among Immigrant Children and Youth



Evidence indicates that immigrant youth are at greater risk of having dental disease – in fact they were five times more likely to have dental caries than were Canadian born youth. One in five immigrant youth required restorative dental care for these caries – compared to less than 4% of Canadian born youth.<sup>1</sup> While the longer immigrant children and youth live in Canada, the less likely they are to have dental disease, they continue to have higher rates than Canadian born young people.

Recent evidence shows that the development of dental caries is increasing in African and Asian countries – it is thought that this is due to increasing consumption of sugar and lack of topical fluorides in toothpastes and professional dental products.<sup>2</sup> Poor oral health among immigrant children and youth may result from poor nutrition and diet, lack of fluoridated water, poor dental hygiene practices and limited dental care in the past. This is particularly true for refugee children and youth who are less likely than children and youth from other immigrant classes to have received dental care in the native countries.

<sup>1</sup>Locker D, Clarke M, Murray H. Oral health status of Canadian-born and immigrant adolescents in North York, Ontario. *Community Dent Oral Epidemiol* 1998;26:177-81. Cited in Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. *CMAJ* 2011;183:E824-925.

<sup>2</sup>Petersen PE, Bourgeois D, Ogawa H, et al. The global burden of oral diseases and risks to oral health. *Bull World Health Organ* 2005;83:661-9. Cited in Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. *CMAJ* 2011;183:E824-925

<sup>3</sup>Caring for Kids New to Canada. Oral Health Screening. <http://www.kidsnewtocanada.ca/screening/oral-health>

#### Implications

Children and youth arriving from countries with limited dental care and where diets are high in sugar are at the highest risk for dental disease. Screening and referral for dental disease can facilitate treatment and prevention. Patients are twice as likely to go for dental treatment when they are actively examined and referred by a physician. Tooth-brushing twice daily with fluoridated toothpaste is effective in reducing the risk of dental decay.

Canadian Immigrant Health Guidelines recommend that clinicians screen all immigrant children and youth for dental pain by asking, “Do you have any problems or pain with your mouth, teeth or dentures?”. All immigrant children and youth should be screened for obvious dental caries and oral disease by examining their mouth with a penlight and tongue depressor. Children and youth with obvious dental disease should be referred to a dentist or oral health specialist. The guidelines recommend that primary care practitioners treat dental pain with nonsteroidal anti-inflammatory drugs (such as aspirin and ibuprofen) and refer patients to a dentist.<sup>3</sup>

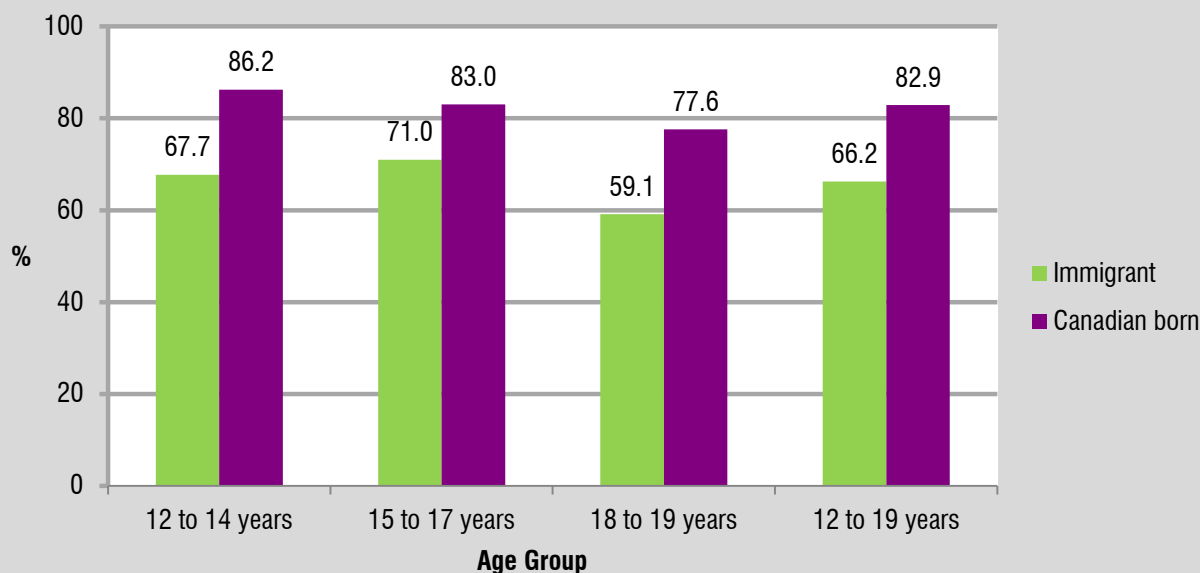
<sup>3</sup>Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. *CMAJ* 2011;183:E824-925





#### 3.4.2 Access to Dental Care – Immigrant Children and Youth

Children and youth who consulted a dentist/orthodontist in the last year, by age group and immigrant status, Canada, 2011-2012



Graphic created by CICH using CICH's Analysis of the Canadian Community Health Survey, 2011-2012 Public Use Microdata File.

The proportion of immigrant children and youth aged 12 to 19 years and 15 to 17 years who had consulted a dental professional in the last year (2009/2010) was lower than the proportion of Canadian-born children and youth.

There are a number of factors that decrease access - lower income/financial priorities, language barriers, past experiences, fear and history of inadequate care; and embarrassment about dental disease.<sup>1</sup>

<sup>1</sup>Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011;183:E824-925

#### Implications

Immigrant children and youth who are new to Canada are likely to see a medical doctor before seeking dental care. Since these newcomers to Canada often have unmet dental care needs, physicians and paediatricians should screen these youth and refer them to a dentist when needed.<sup>2</sup>

<sup>2</sup>Caring for Kids New to Canada. Oral Health Screening. <http://www.kidsnewtocanada.ca/screening/oral-health>



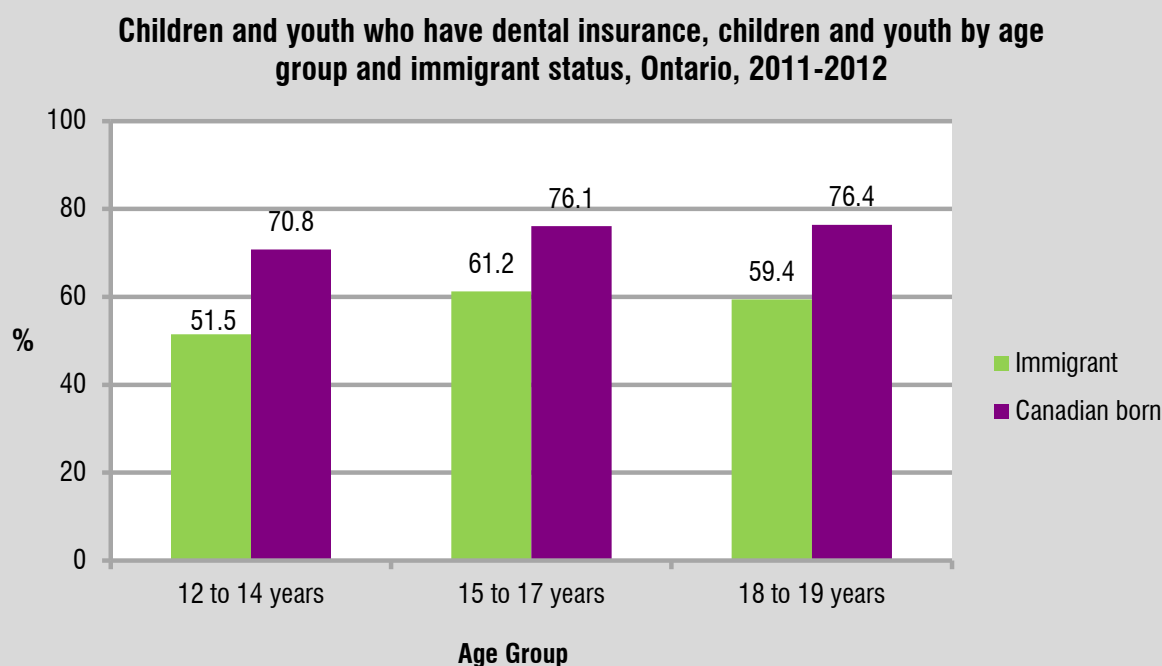


# The Health of Canada's Children and Youth: A CICH Profile

## Health Profile on Immigrant and Refugee Children and Youth in Canada

### Section 3 – Priority Health Conditions among Immigrant Children and Youth

#### 3.4.3 Access to Dental Insurance – Immigrant Children and Youth



Graphic created by CICH using CICH's Analysis of the Canadian Community Health Survey, 2011-2012 Public Use Microdata File.

Dental care is not insured by the Canadian health care system in each province and territory. In Ontario (the only province for which data are available), immigrant children and youth aged 12 to 19 years were less likely than were Canadian-born children and youth to have dental insurance. This is certainly a barrier to accessing care.





#### 3.5.1 Strongyloidiasis and Schistosomiasis



Graphic created by CICH using an image from Big Stock Photo.

Many immigrant and refugee children may have been exposed to intestinal parasites either in their country of origin or during time spent in refugee camps. Most types of intestinal parasites will resolve naturally once a child or adult has left the region where the parasites are commonly found, but two will not. Refugee children and youth, in particular, are at potential risk for strongyloidiasis and schistosomiasis.

Strongyloidiasis is disease caused by an intestinal parasite, usually spread through contact with infected soil. Schistosomiasis is a disease also caused by parasitic worms – spread through contaminated water. These diseases can persist for years to decades and consequently can cause serious suffering or death long after an immigrant resettles in a new country.

The burden of strongyloidiasis appears greatest in refugee populations originating from Southeast Asia and Africa, whereas the burden of schistosomiasis is greatest in refugee populations from Africa. Detection of strongyloidiasis or schistosomiasis is limited because infection can persist below the clinical detection level and because detection by stool microscopy is difficult. Serologic blood testing substantially enhances diagnostic sensitivity for these intestinal parasites.

#### Implications

Canadian Immigrant Health Guidelines recommend that a blood test for strongyloidiasis should be offered to all recently arrived African and Southeast Asian refugees and a blood test for schistosomiasis should be offered to all recently arrived African refugees.

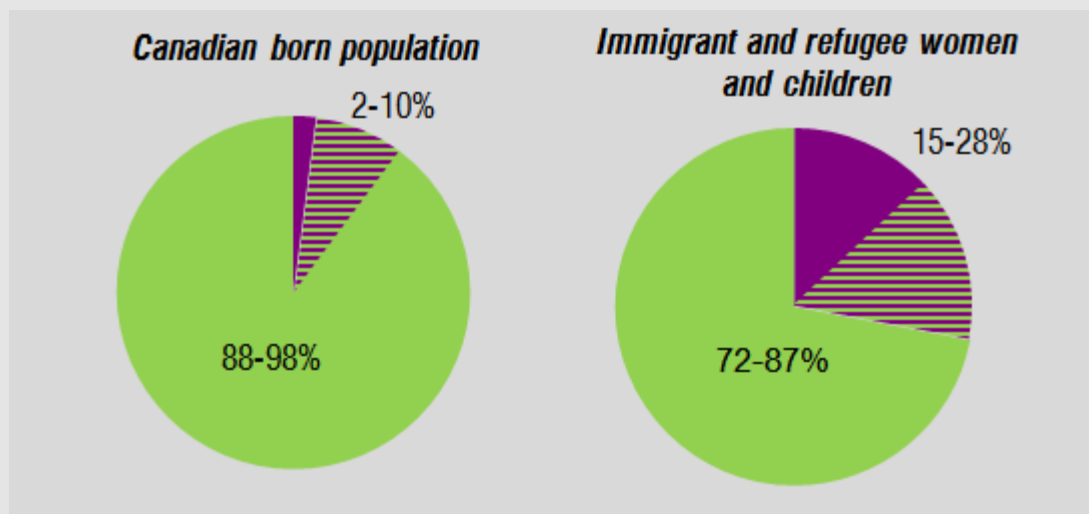
For the Canadian Immigrant Health Guidelines [click here](#).







#### 3.6.1 Iron-Deficiency Anemia



Graphic created by CICH using data from Bindra GS, Gibson RS. Iron status of predominantly lacto-ovo vegetarian East Indian immigrants to Canada: a model approach. *Am J Clin Nutr* 1986;44:643-52.

Anemia is a condition where the blood lacks adequate healthy red blood cells that carry oxygen to the tissues of the body. Iron-deficiency anemia is due to a lack of iron. It is the most common kind of anemia and the most common nutritional illness in the world. Iron-deficiency anemia can result in poor pregnancy outcomes and impaired physical and cognitive development in children. No routine iron-deficiency screening or supplementation program is offered in Canada for immigrants, either before or after their arrival.<sup>1</sup> Immigrant and refugee women and children have a higher prevalence of anemia (15%–28%) than the Canadian-born population (2%–10%), excluding First Nations populations.<sup>2</sup> According to the World Health Organization the prevalence of iron-deficiency anemia among preschool children ranges from 21% to 68% and for women of childbearing age it is 18% to 48%.<sup>3</sup> It can occur for several reasons including intestinal parasitic infections, dietary iron deficiency, menstrual blood loss, and pregnancy. Immigrants and refugees coming from regions with limited access to iron-rich foods, higher rates of infectious disease and higher numbers of births are at risk for iron deficiency.

#### Implications

Canadian Immigrant Health Guidelines recommend that to improve their cognitive development, growing children aged one to four years should be screened for iron deficiency by means of hemoglobin measurement. They also recommend that to improve hemoglobin levels and work productivity, immigrant and refugee women of reproductive age should also be screened by means of hemoglobin measurement.

<sup>1</sup>Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. *CMAJ* 2011;183:E824-925.

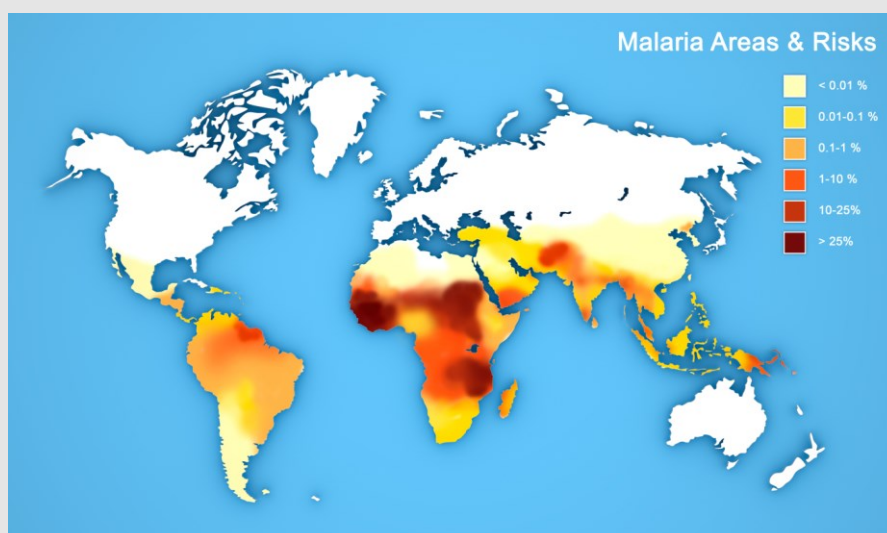
<sup>2</sup>Bindra GS, Gibson RS. Iron status of predominantly lacto-ovo vegetarian East Indian immigrants to Canada: a model approach. *Am J Clin Nutr* 1986;44:643-52.

<sup>3</sup>World Health Organization. Worldwide prevalence of anaemia 1993–2005. Geneva (CH): The Organization; 2008. Available: [http://whqlibdoc.who.int/publications/2008/9789241596657\\_eng.pdf](http://whqlibdoc.who.int/publications/2008/9789241596657_eng.pdf) (accessed 2008 Sept. 10).





#### 3.7.1 Malaria



Graphic created by CICH using an image from Big Stock Photo.

Malaria causes hundreds of millions of infections and an estimated one million deaths per year worldwide, many of which occur in children. Sub-Saharan Africa bears a significant proportion of the worldwide burden of malaria. The intensity and seasonality of malaria transmission varies significantly both within and among countries in the region and thus risk of malaria will vary between geographical locations, the age and ethnicity of the child and the time of year.

The symptoms of malaria (malaise, myalgia, headache and fever) are not exclusive to malaria and thus primary care practitioners may not readily recognize them as symptoms of malaria. Delays in the diagnosis and treatment of *P. falciparum* infection (the most dangerous type of malaria) may lead to severe disease and even death. Migrants who have lived or travelled in malaria-endemic areas are vulnerable to acute malaria, particularly within the first three months after arrival in Canada.

#### Implications

Routine screening of immigrant children and youth (and adults) for malaria is not recommended in the Canadian Immigrant Health Guidelines, but clinicians should be vigilant for symptoms of malaria – particularly when caring for children who have lived or traveled in malaria-endemic regions within the previous three months – particularly if they have fever. They should perform timely diagnostic inquiry and testing.<sup>1</sup>

Improved surveillance for malaria is needed in Canada, as well as more research related to the utility of screening immigrants and refugees for this disease.

For the Canadian Immigrant Health Guidelines [click here](#).

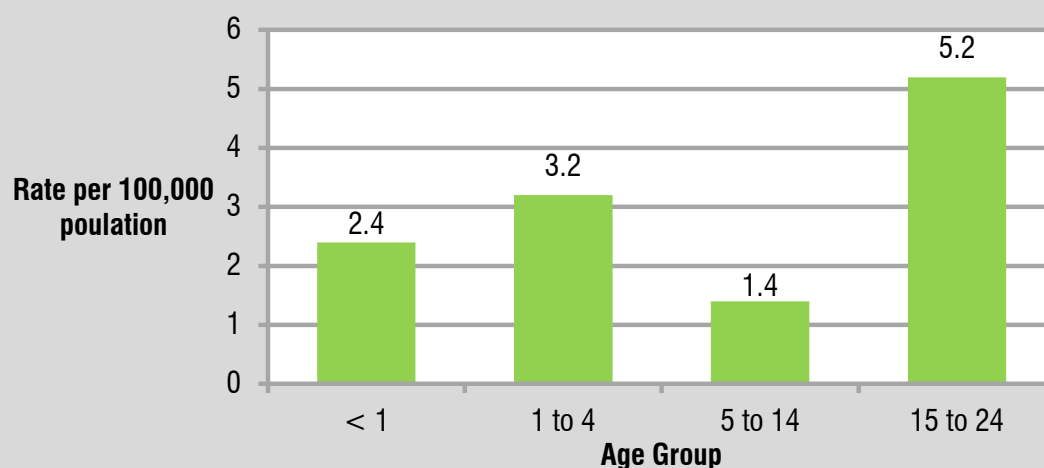
<sup>1</sup>Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011;183:E824-925.





#### 3.7.2 Tuberculosis (TB) among Immigrant and Refugee Youth

**Incidence of new and re-treatment tuberculosis cases among children and youth per 100,000, by age group, Canada, 2012**



Graphic created by CICH using data adapted from Public Health Agency of Canada. Tuberculosis in Canada 2012: Pre-Release. <http://www.phac-aspc.gc.ca/tbpc-latb/pubs/tbcan12pre/tab-eng.php#tab2>

Tuberculosis is an infection that is transmitted through airborne particles. It is an uncommon infection in Canada, but is still seen in indigenous populations and populations who are homeless. Immigrant and refugee children who have come from regions in the world where TB remains common are more likely to have TB. Foreign-born children, youth and adults account for 65% of all people with active tuberculosis in Canada, and some subgroups have up to a 500-fold greater risk of active tuberculosis relative to the non-Aboriginal Canadian-born population.<sup>1</sup>

In 2012 the rate of TB among children and youth ranged from 2.4 to 5.2 per 100,000 – depending on the age group. The rate of TB in the entire Canadian population in 2012 was 4.8 per 100,000 population. It was 13.6 among foreign-born children and adults, 29.4 among Canadian-born Aboriginal people and 0.7 among Canadian-born non-Aboriginal people.<sup>1</sup>

<sup>1</sup>Public Health Agency of Canada. Tuberculosis in Canada 2012: Pre-Release. <http://www.phac-aspc.gc.ca/tbpc-latb/pubs/tbcan12pre/tab-eng.php#tab2M>

#### Implications

Canadian Immigrant Health Guidelines recommend that immigrant children and youth under 20 years of age from countries with a high incidence of tuberculosis should be screened for TB with a tuberculin skin test as soon as possible after their arrival in Canada. It is recommended that they be treated for latent tuberculosis infection if the results are positive and active tuberculosis is ruled out. It is recommended that all newly arrived refugees, including children, should be assessed for latent

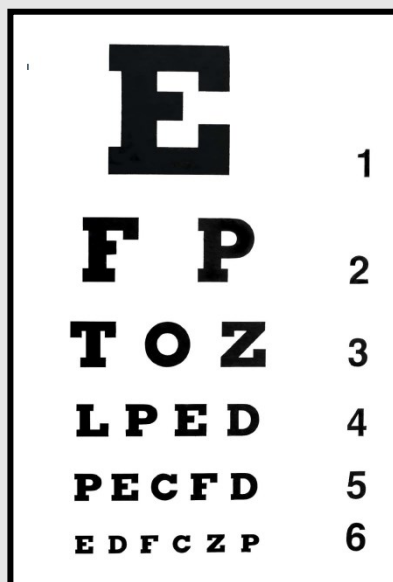
TB infection – with the exception of those with past tuberculosis disease documentation.<sup>2</sup>

<sup>1</sup>Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011;183:E824-925.





#### 3.8.1 Vision Assessment



Graphic created by CICH using an image from Big Stock Photo.

All immigrant children and youth can benefit from having their visual acuity (vision) assessed soon after arriving in Canada. Loss of vision and undiagnosed sight-threatening eye diseases are more common among new immigrants and refugees than in the general population. Preventive screening by an optometrist or ophthalmologist can help identify visual impairment and strabismus for children younger than five years of age. Assessing for a red reflex and inspecting the external eye can begin when a child is a newborn.

Regionally prominent “tropical” eye diseases, such as onchocerciasis (river blindness), active trachoma and xerophthalmia, have not been reported in immigrants or refugees to Canada. Asymptomatic forms of these diseases should resolve or stabilize after the children arrive in Canada.

#### Implications

New immigrant children and youth should be screened for vision loss within their first year in Canada and should be referred to an optometrist or ophthalmologist if their vision is less than 20/40.<sup>1</sup>

<sup>1</sup>Pottie K, Greenaway C, Feightner J, et al. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011;183:E824-925.





### **3.9.1 Caring for Kids New to Canada**



A guide for health professionals working with  
immigrant and refugee children and youth

[Caring for Kids New to Canada](http://profile.cich.ca/) is a web portal that helps health professionals provide quality care to immigrant and refugee children, youth and families. It was developed by the Canadian Paediatric Society with experts in newcomer health. The site has a number of key resources including: medical assessment, using interpreters, travel related illness, cultural competence, case studies and community resources.







#### 3.9.2 Metropolis

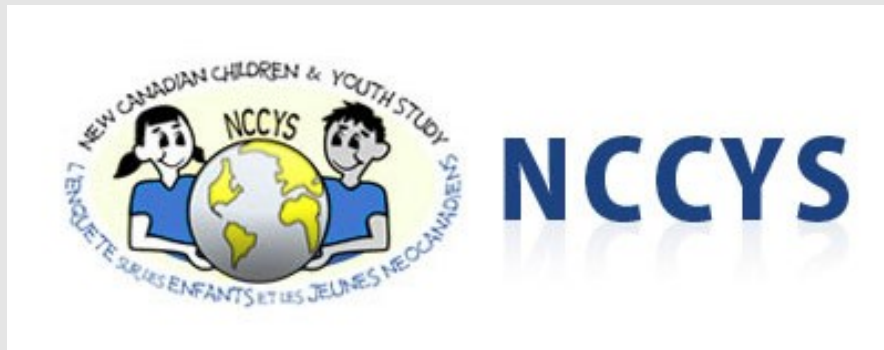


[Metropolis](#) is an international network for comparative research and public policy development on migration, diversity, and immigrant integration in cities in Canada and around the world.





#### 3.9.3 New Canadian Children and Youth Study



[The New Canadian Children and Youth Study](http://profile.cich.ca/) is a longitudinal study of more than 4,000 children and youth of various ethnocultural backgrounds who have immigrated to Canada. The families of these children are also included in the study. The NCCYS focuses on the physical and mental health of these immigrant children and other factors that affect their health and development. The findings shed light on the challenges encountered by this population and how these children may be able to overcome these challenges and thrive in Canada.

The website presents several reports, publications, and projects stemming from this research.

