HOW ARE YOUNG CHILDREN FARING IN QUÉBEC?

2021 Portrait

OBSERVATOIRE des tout-petits

Fondation Lucie et André Chagnon

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This document is available online in the Publications section of the Observatory's website at **tout-petits.org/Portrait2021**.

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MESSAGE FROM THE DIRECTOR

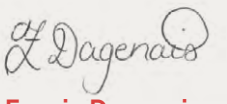
How are young children faring in Québec ?

When we started working on this Portrait in the winter of 2020-21, we weren't convinced that we would be able to provide an answer to that question. At the time, most of the recent data from population surveys and censuses dated from before the pandemic. How could we report on the situation of young children in Québec without taking into account the effects of the health crisis on their living conditions and those of their families?

How has the pandemic affected young children's diets and their time spent in front of screens every day? What were the impacts of job loss on their families' financial situation and their parents' ability to buy groceries? And what effect did all the upheavals caused by the pandemic have on their development and mental health?

During the course of discussions with the members of our committee of experts, we concluded that if ever there was a time when we needed data on the situation of young children, it was now! This Portrait on the health and well-being of young children living in Québec is therefore somewhat different from the Portrait we published in 2017. We began by compiling the most recent data available to us on conditions surrounding childbirth, early childhood development, and young children's physical and mental health. To this pre-pandemic status report, we added the results of a review of studies published on the effects of the pandemic on very young children and their families.

According to experts in public health, we will be feeling the socio-economic repercussions of the pandemic for several years to come. The choices we make as a society over the next few years will be decisive. We hope this status report will inspire reflection and encourage the implementation of collective measures that will most benefit the development of young children—the citizens of tomorrow.



Fannie Dagenais
Director

Fanny at 5

TABLE OF CONTENTS

5 HIGHLIGHTS

6 2021 PORTRAIT

HOW ARE YOUNG CHILDREN FARING AS THEY GROW UP?

10 WHO ARE THESE 0-5 YEAR-OLDS?

19 HOW ARE YOUNG CHILDREN FARING DURING PREGNANCY AND AT BIRTH?

48 PHYSICAL HEALTH

72 MENTAL HEALTH

80 DEVELOPMENT

103 ABOUT THE DATA PRESENTED

105 REFERENCES

HIGHLIGHTS

The 2021 Portrait has allowed us to provide a freeze-frame on the most recent data available to us on the conditions surrounding childbirth, early childhood development, and young children's physical and mental health. Even though the extent of the effects of the COVID-19 pandemic on early childhood development were as yet unknown at the time of publication, our Portrait presents the results of studies to date on the repercussions the pandemic has had or will have on the health and development of young children.

Children are generally coming into the world under better conditions than before. The rates of intrauterine growth restriction and stillbirth have declined in Québec, and the proportion of mothers who breastfeed or attempt to breastfeed their babies has been on the rise since the early 2000s. Certain aspects of young children's physical health have also improved over the past 10 years. Since 2006, there has been a significant increase in the proportion of children who are fully vaccinated, as well as a decrease in hospitalizations for asthma. The risk of being hospitalized for COVID-19 remains very low for children between the ages of 0 and 5 and, to date, there have been no deaths caused by the virus within that age group in Québec.

The 2021 Portrait also reveals certain facts that are cause for concern, however: the premature birth rate, the Caesarian rate, domestic violence during pregnancy, less physical activity and more screen time, anxiety and depression disorders, and the high proportion of kindergarteners who are vulnerable in at least one domain of development. There has also been a considerable decline in the proportion of children between the ages of 0 and 5 who have had their teeth examined by a dentist under the Québec health insurance's (RAMQ) dental care program. Studies have also shown that the negative effects of the pandemic on young children's cognitive, socio-emotional and language development are greater for those living in disadvantaged areas and could have long-term consequences on their health and well-being.

It is possible to take action as a society. The scientific literature has identified many possibilities for group action that could help young children to develop their full potential. Pregnancy notification systems, for example, enable doctors and midwives to offer services that meet the needs of future mothers. It is also possible to foster the development of children in situations of vulnerability by providing them with access to quality educational childcare services. Finally, awareness campaigns on the importance of looking after young children's dental and oral health could encourage parents to visit the dentist with their child.

According to experts in public health, we will be living with the socio-economic repercussions of the pandemic for several years to come. The choices we make as a society now and in the future will be critical.

2021 PORTRAIT
YOUNG CHILDREN LIVING IN QUÉBEC

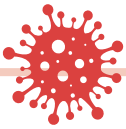
Established in April 2016, the Early Childhood Observatory is a project of the Lucie and André Chagnon Foundation. Its mission is to communicate the current state of knowledge to promote informed decision-making about early childhood in Québec. Our goal is to ensure that every young child living in the province has access to conditions that will enable them to develop their full potential, regardless of where they were born or where they are growing up. The Observatory's activities are focused on finding the answers to two fundamental questions:

HOW ARE YOUNG CHILDREN CURRENTLY FARING IN QUÉBEC?

AND

WHAT KIND OF ENVIRONMENTS ARE THEY GROWING UP IN?

The 2021 Portrait returns to the first question to evaluate **how the health and development of children between the ages of 0 and 5 have evolved since our first Portrait on the same theme in 2017 and, more broadly, over the past 10 years**. We have attempted to provide a freeze-frame on the most recent data available to us on conditions surrounding childbirth, early childhood development, and young children's physical and mental health. We have also included possible collective solutions that have been proven to be effective by practice on the ground as well as by scientific research in Québec and around the world.



The full extent of the effects of the COVID-19 pandemic on early childhood development is not yet known. Boxes like this one throughout the report, however, contain information on the results of studies conducted to date that have documented the effects that the pandemic has had or may have on the health and development of young children.

These data, which paint an up-to-date portrait of young children living in Québec today, have been drawn from administrative data banks, censuses and populations surveys. We were unfortunately unable to cover certain aspects of children's health and well-being, as they are not all measured by surveys or stored in administrative data banks. Since the data used was taken from different sources, reference years may vary. The data we have presented **are the most recent available to us and representative of all young children living in the province**. Regional portraits will be published by the Observatory in 2022.

This portrait could not have been produced without the assistance of many individuals, including the team at the *Institut de la statistique du Québec*, the members of the Observatory's scientific committee, and the many experts consulted at various stages in the process. The Observatory extends its most sincere thanks to all the dedicated professionals who were able to perceive the real people behind the figures.

HOW ARE YOUNG CHILDREN FARING AS THEY GROW UP?

WHO ARE THESE
0-5 YEAR-OLDS?

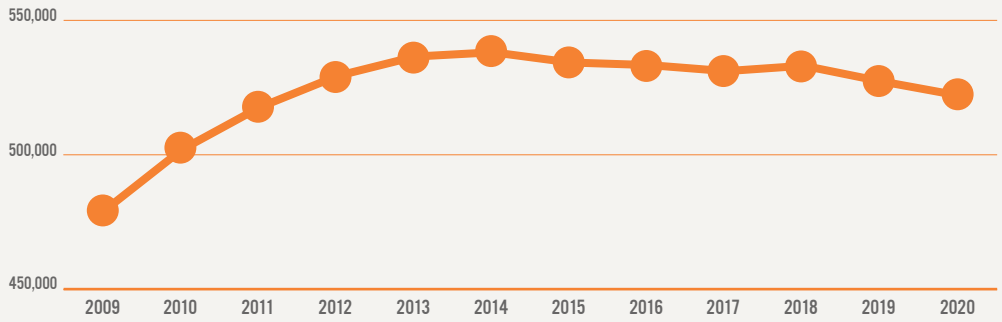
Number of children between the ages of 0 and 5 in Québec

521,952

The number of children between the ages of 0 and 5 living in Québec in 2020.

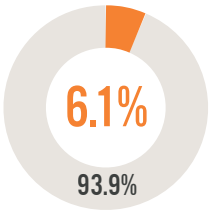
After increasing every year between 2009 and 2014, this figure declined between 2015 and 2020.

Change in the number of children between the ages of 0 and 5 in Québec



Source: Institut de la statistique du Québec and Statistics Canada. Population estimates, adapted by the Institut de la statistique du Québec, Provisional data for 2020.

Proportion of children between the ages of 0 and 5 in the population of Québec



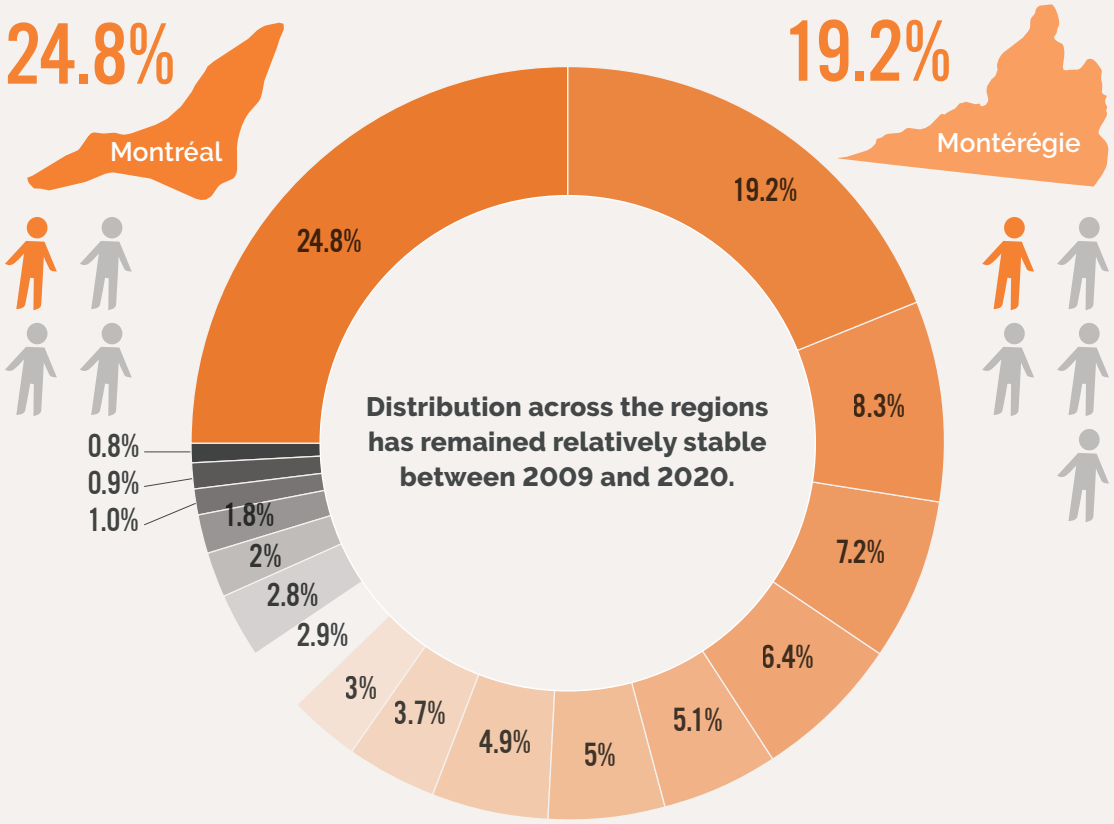
The 521,952 young children in this age group accounted for **6.1%** of the Québec population in 2020.

Source: Institut de la statistique du Québec Statistics Canada. Population estimates, adapted by the Institut de la statistique du Québec, Provisional data for 2020.

After the proportion of young children in the population of Québec increased between 2009 and 2011, it remained stable from 2011 to 2016, then gradually declined between 2016 and 2020.

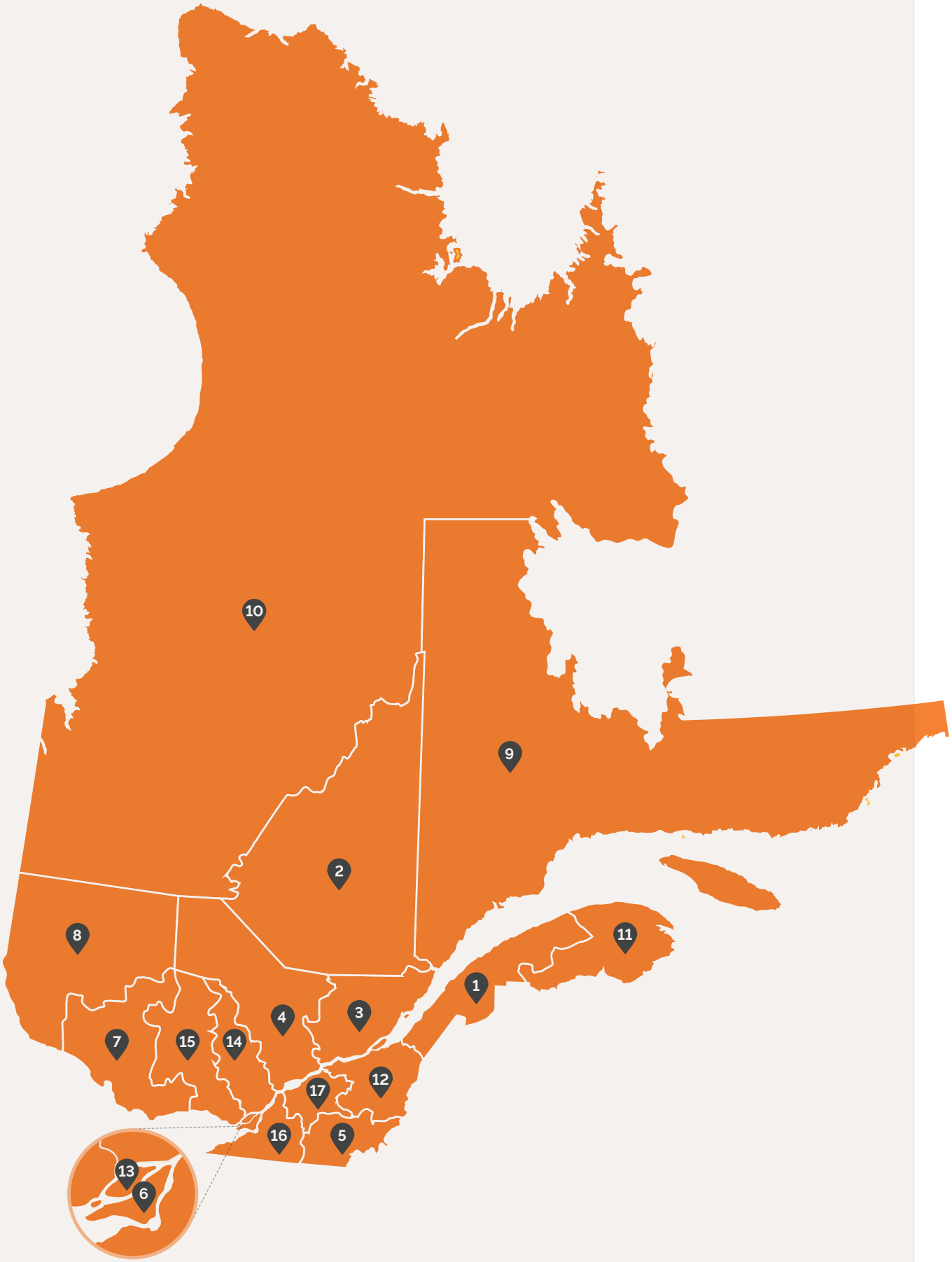
Source: Institut de la statistique du Québec and Statistics Canada. Population estimates (September 2019), adapted by the Institut de la statistique du Québec, Provisional data for 2020.

Distribution of young children throughout the regions of Québec in 2020



1. Bas-Saint-Laurent 2%
2. Saguenay–Lac-Saint-Jean 3%
3. Capitale-Nationale 8.3%
4. Mauricie 2.8%
5. Estrie 3.7%
6. Montréal 24.8%
7. Outaouais 4.9%
8. Abitibi-Témiscamingue 1.8%
9. Côte-Nord 1.0%
10. Nord-du-Québec 0.9%
11. Gaspésie–Îles-de-la-Madeleine 0.8%
12. Chaudière-Appalaches 5%
13. Laval 5.1%
14. Lanaudière 6.4%
15. Laurentides 7.2%
16. Montérégie 19.2%
17. Centre-du-Québec 2.9%

Source: Institut de la statistique du Québec and Statistics Canada, Population estimates, adapted by the Institut de la statistique du Québec. Provisional data for 2020.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Siblings

In 2016, young children in Québec were living in families with:

1 child
26.3%

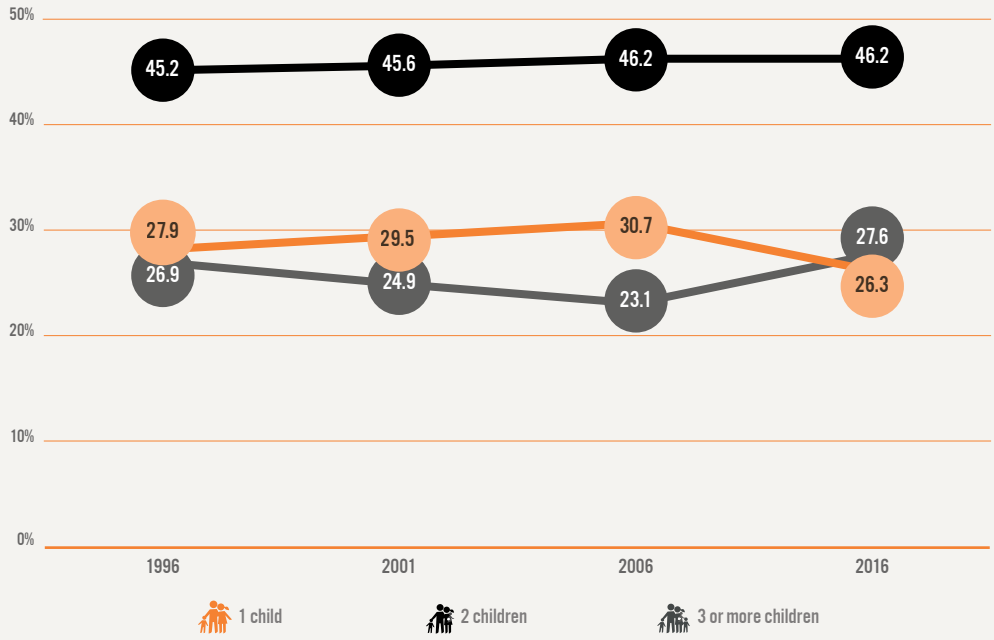
2 children
46.2%

3 or more children
27.6%

* Percentages may not total 100% due to rounding.

Between 1996 and 2006, the proportion of children in Québec between the ages of 0 and 5 living in **families with just one child increased, then decreased between 2006 and 2016**. The opposite trend was observed for children in families of three or more children.

Distribution of children between the ages of 0 and 5 based on the number of children per family



Source: Statistics Canada, 1996, 2001, 2006 and 2016 Censuses, adapted by the *Institut de la statistique du Québec*.

Family structure

In 2016, most children between the ages of 0 and 5 were living in intact families.

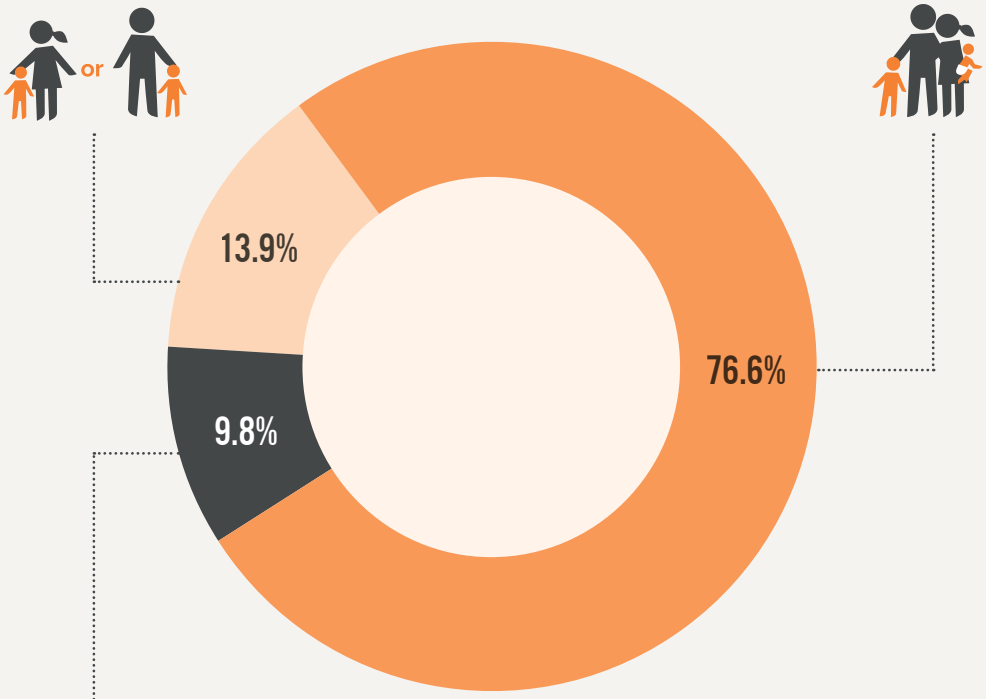
Distribution of children between the ages of 0 and 5 based on type of family in 2006

Single-parent family

Family consisting of a single parent (father or mother) living with one or more biological and/or adopted children

Intact family

Family in which all children are the natural and/or adopted children of both members of the couple.



Blended family

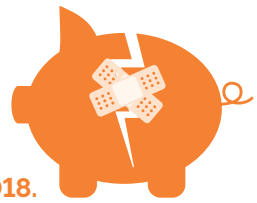
Family in which at least one child is not the natural/adopted child of one of their parents.

Source: Statistics Canada, 2016 Census, adapted by the *Institut de la statistique du Québec*.

Data from the *Québec Longitudinal Study of Child Development* (QLSCD) have shown that approximately 15% of 6-year-old children born in the late 1990s experienced at least two changes in their living arrangements because of events in their parents' conjugal history (such as separation and repartnering).

Economic situation

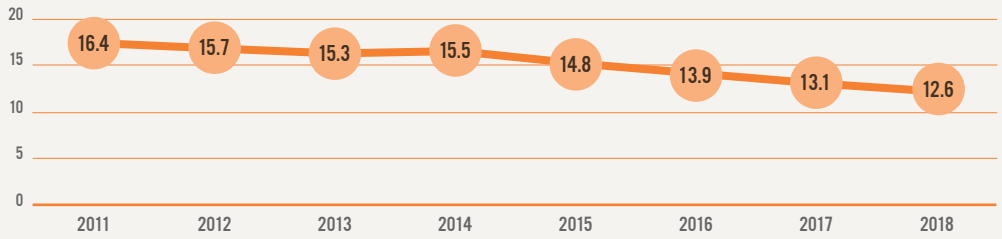
12.6% **of children in Québec between the ages of 0 and 5 were living in low-income families** in 2018 (based on the Low-Income Measure or LIM), representing about 66,800 children.



In Québec, the proportion of children between the ages of 0 and 5 living in a low-income* family declined from **16.4% in 2011 to 12.6% in 2018.**

* After taxes.

Proportion of children between the ages of 0 and 5 living in low-income families



Source: Statistics Canada, T1 Family File (T1FF), adapted by the *Institut de la statistique du Québec*.

Growing up in difficult living conditions can deprive children of stimulating experiences and certain opportunities[1,2]. A scarcity of books and toys, for example, could explain almost 12% of the developmental gap (in literacy and numeracy) between 5-year-olds[3]. in the poorest and wealthiest families. A lack of experiences linked to material and social deprivation can have negative effects on different areas of development in the medium and long term[4].

Poverty can have negative consequences for young children, both in terms of their physical health and their social and emotional development. These consequences can last a lifetime[5].

The brain structures of children living in poverty are generally less developed than those of more privileged children[6]. Studies have also shown that children who grow up in low-income households are more likely to be vulnerable in a domain of development when they start school and to have a below-average academic performance in the first year of primary school[7].

The socio-economic situation and environments in which young children grow up in Québec are presented in greater detail in the 2019 Portrait of young children in Québec ("What kind of environments are Québec's youngest children growing up in?") as well as in our 2021 Portrait of Public Policies. Both of these reports are available online at tout-petits.org.

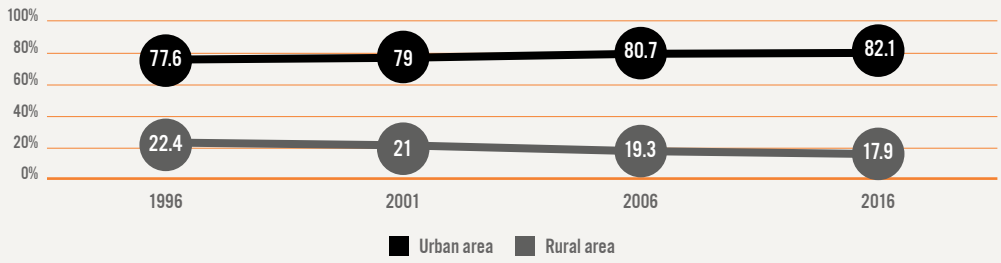
Studies have shown that the negative consequences of the COVID-19 pandemic on young children's cognitive, socio-emotional and language development have had a more pronounced effect on children living in disadvantaged environments and could have long-term effects on their health and well-being[8].

The pandemic has intensified certain early childhood development risk factors. It has been linked to an increase in parents' mental health problems[9], poverty and food insecurity. According to the 2020-2021 Québec Population Health Survey, 26% of the Québec population aged 15 and over experienced financial repercussions because of the COVID-19 crisis. That figure rises to 29% for couples with children and 35% for single-parent families. There has also been an increase in the risk of maltreatment caused by accumulated stress in the family environment[10].

Characteristics of the residential environment

82.1% **of young children in Québec were living in urban areas in 2016.**
This figure has risen significantly over the past 20 years.

Proportion of young children in Québec living in urban areas



Source: Statistics Canada, 1996, 2001, 2006 and 2016 Censuses, and 2011 NHS.

URBAN AREA
Area consisting of one or more neighbouring municipalities situated around a major urban centre, with a total population of at least 10,000.

VS

RURAL AREA
Cities and municipalities located outside of major urban centres.

HOW ARE YOUNG CHILDREN FARING DURING PREGNANCY AND AT BIRTH?

Pregnancy and childbirth are critical stages in a child's health and development. What happens during this period can have consequences throughout their entire life. Preventive interventions before and during birth have positive effects on children's physical, cognitive, social and emotional development[11]. In the long term, such interventions also reduce the risk of chronic disease[12]. From a societal point of view, by fostering the healthy development of the most vulnerable children, they help to reduce socio-economic inequality[13].

In Québec, the perinatal period is generally defined as the time between the decision to have a child (or the moment of conception, in the case of an unplanned pregnancy) until the child's first birthday.

PREGNANCY

Young children are particularly vulnerable to risk factors (maternal stress, difficult living conditions for their parents) at the time of conception, during pregnancy and their first years of life. Maternal stress in pregnant women, for example, is considered a risk factor in fetal development[14]. Some factors can also increase the risk of stillbirth: the mother's weight, her age (very young or over 40), health problems (such as infections, high blood pressure or diabetes), lifestyle (diet, tobacco use, consumption of alcohol, drugs or medication) and multiple pregnancies[15].

The COVID-19 pandemic has had repercussions on the mental health of pregnant women and new mothers, creating an overall increase in symptoms of anxiety and depression. Women whose mental health was already fragile before the pandemic were even more affected. A few factors may explain this increase: fear of contracting COVID-19 or developing other health problems, bereavements, reduced access to perinatal health care, social isolation and families' financial difficulties[16].

Pregnant women infected with COVID-19 are at greater risk of complications linked to the virus than women of similar age who are not pregnant. They are also more likely to be hospitalized in intensive care and to have severe complications. COVID-19 in pregnant women also appears to be associated with an increased risk of obstetrical complications, such as preeclampsia, preterm labour and premature birth[17].

Participation in prenatal classes

Prenatal group classes are an excellent way to help future parents prepare for the birth of their child and encourage lifestyle habits in mothers[18]. Pregnancy provides an opportunity for intervention, as both partners are more motivated to change their habits during the prenatal period to protect the health of their baby[19]. Although prenatal classes cannot modify a child's health on their own, they can affect certain health determinants on which mothers and fathers have an influence[20]. The scientific literature also shows that prenatal classes reduce parents' anxiety about the upcoming birth and strengthen the parent-child bond[21].

59.8% of parents of children between the ages of 0 and 5 had participated in prenatal classes in 2015.

There is no significant difference between figures for fathers and mothers.

Factors linked to participation in prenatal classes

The proportion of parents who participated in prenatal classes was lower among parents living in less socio-economically advantaged environments (42% as compared to 66% for their more privileged counterparts). This figure rises with parents' highest diploma obtained, going from 40% among parents who did not finish high school to 66% among those with a university degree. Results also showed that participation rates were higher among parents who were:

- born in Canada (65%)
- living in semi-urban areas (69%)

Proportion of parents with children between the ages of 0 and 5 who attended prenatal classes, based on certain characteristics of parents and families – 2015

Source: Institut de la statistique du Québec, *Québec Survey on the Experience of Parents with Children Aged 0 to 5 – 2015.*

Intrauterine growth restriction

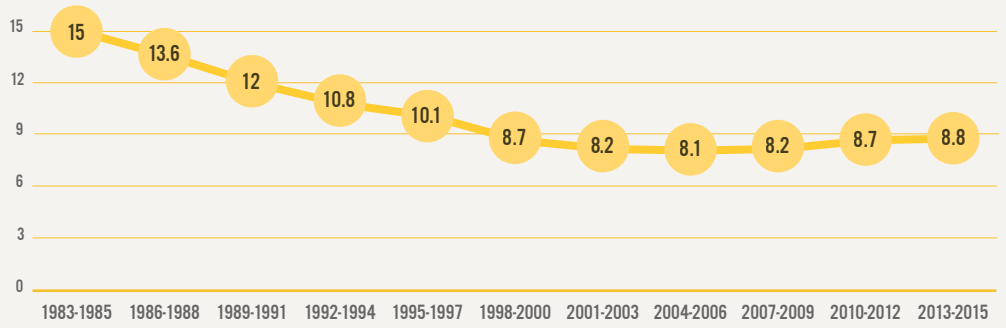
Newborns whose weight is below the 10th percentile of the standard weight curve for the number of weeks of pregnancy completed (10% of the smallest babies) are diagnosed with intrauterine growth restriction (IUGR). Most newborns who are small for their gestational age are "constitutionally" small—in other words, genetically small but otherwise normal. Some newborns, however, are small because they did not achieve their appropriate growth potential during pregnancy. This condition is called "intrauterine growth restriction." The most common cause of IUGR is placental insufficiency.

Babies with insufficient growth during pregnancy are two to three times more likely to fail to survive shortly after birth or during the first few years of life. They may also suffer from cognitive deficits, have less physical capacity and develop certain diseases[22]. Children with IUGR also experience neurodevelopmental difficulties more frequently than other children (language delays, learning difficulties, ADHD, etc.).

Newborns whose weight is low for their gestational age also risk presenting vision and hearing problems. Among babies with IUGR, premature newborns are even more likely to present these problems[23].

In Québec,
8.8% of babies were born with intrauterine growth restriction in 2013-2015.

Since the early 1980s, the proportion of babies born with IUGR has decreased significantly (15% in 1983-1985). The rate of intrauterine growth restriction for 2013-2015 was virtually the same as for 2011-2013 presented in our 2017 Portrait (8.7%). These rates were significantly higher than the 2002-2004 rate of 8.1% (the lowest rate).



Source: *Ministère de la Santé et des Services sociaux, Fichier des naissances* (electronic). Tab report *Plan national de surveillance* produced by the Infocentre de santé publique at the Institut national de santé publique du Québec, May 29, 2017.

WHAT DO WE KNOW ABOUT FETAL ALCOHOL SPECTRUM DISORDER?

Exposure to alcohol in the womb is the primary avoidable cause of birth defects, developmental disorders and intellectual disabilities in children. The effects of alcohol on the unborn child are varied and irreversible[24]. Although a lack of recent data prevents us from providing an accurate picture of alcohol consumption among pregnant women, we felt it was important to present certain information of concern about fetal alcohol spectrum disorder (FASD), about which much is still unknown in Québec. According to a 2020 survey by the *Association pour la santé publique du Québec* (ASPQ) and the Léger firm, the subject of alcohol use during pregnancy was not discussed by professionals during pregnancy follow-up appointments in almost 50% of cases[25]. The same survey revealed that, among the pregnant women who reported drinking alcohol, 8% had increased their consumption during the first pandemic confinement (from March to June 2020). There is no data on the prevalence of FASD, but a recent WHO study indicated that between 2 and 3% of children in Toronto had FASD[26]. The *Association pour la santé publique du Québec* (ASPQ) is currently conducting an action research project called "*TSAF : en parler pour mieux agir*" (*Talking about FASD leads to action*) aimed J26 at documenting the situation in Québec. For more information on this project, visit the ASPQ site at **Nos priorités : TSAF**.

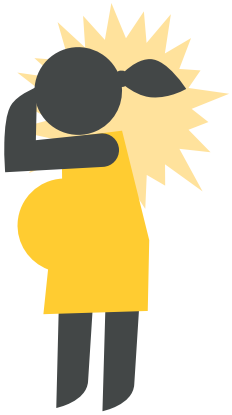
Mothers subjected to violence during pregnancy or the first two years of their child's life

Intimate partner violence is defined by a series of repetitive acts that become increasingly aggressive over time. These acts include psychological, verbal, physical and sexual abuse, as well as financial violence. Intimate partner violence is not the result of a loss of control; it is a means for the aggressor to dominate the other member of the couple (usually a woman) and to wield power and control over their victim[27].

Perinatal intimate partner violence refers to violence suffered by the mother during pregnancy and the first two years of her child's life. This violence may be perpetrated by the woman's partner or former partner[28].

This form of violence has consequences for the health and well-being of pregnant women, causing physical injury, depression, anxiety, a state of post-traumatic stress, social isolation, drug and alcohol abuse or suicidal thoughts[29]. It also negatively affects the woman's experience of maternity[30] and the mother-child bond[31].

Perinatal intimate partner violence occurs during a key period in fetal and infant development. It can cause damage to the placenta, increasing the possibility of miscarriage, preterm birth or low birth weight[32]. It can also negatively affect the cognitive, motor and socio-emotional development of an infant or child[33].



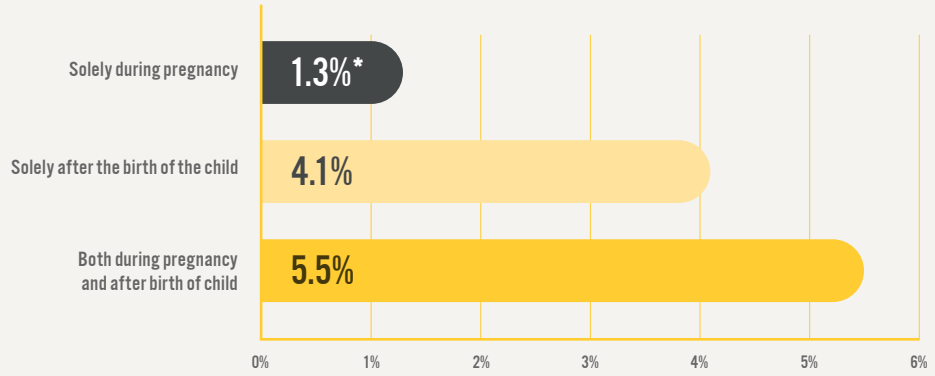
10.9%

The proportion of biological mothers of children between the ages of 6 months and 5 years who were victims of intimate partner violence during the perinatal period for that child in Québec, based on 2018 data[34].

N.B.: In this section, information provided is based on one of the biological mother's children, not all of them, as applicable.

During the COVID-19 pandemic, a significant increase in intimate partner violence was observed in several countries, including Québec[35]. According to data compiled by Statistics Canada between mid-March and early July 2020, several organizations that aid victims saw a rise in the number of victims of family violence requesting their services[36]. We do not, however, have any specific data on pregnant women who were subjected to such violence.

Proportion of mothers of children between 6 months and 5 years who were victims of perinatal intimate partner violence, based on 2018 data



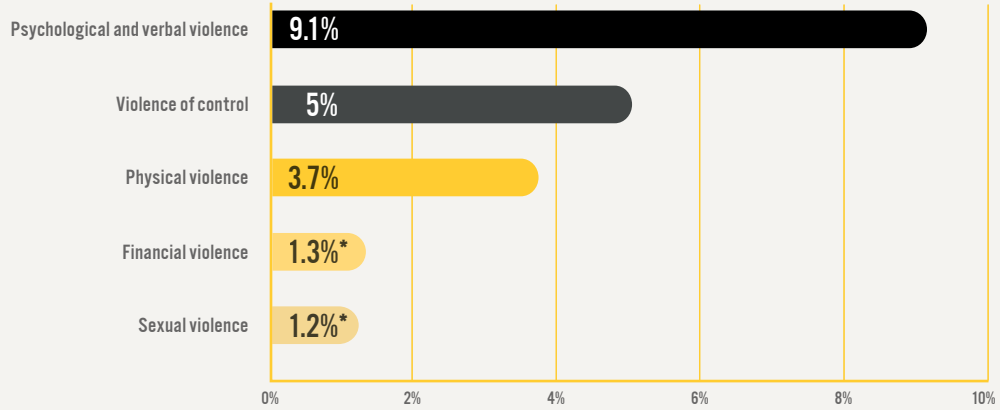
* Coefficient of variation greater than 25%: imprecise estimate provided for information purposes only.

Source: Institut de la statistique du Québec, *La violence familiale dans la vie des enfants du Québec, 2018 : les attitudes parentales et les pratiques familiales.*

There are several forms of perinatal intimate partner violence:

- **psychological** and verbal violence (e.g.: insults)
- violence of **control** (e.g.: limiting contact with family or friends)
- **physical** violence (e.g.: hitting, kicking, biting)
- **financial** violence (e.g.: preventing one's partner from working or depriving them of money)
- **sexual** violence (e.g.: forcing one's partner to have sex)

Proportion of mothers of children between 6 months and 5 years who were victims of perinatal intimate partner violence based on the form of violence – 2018 data



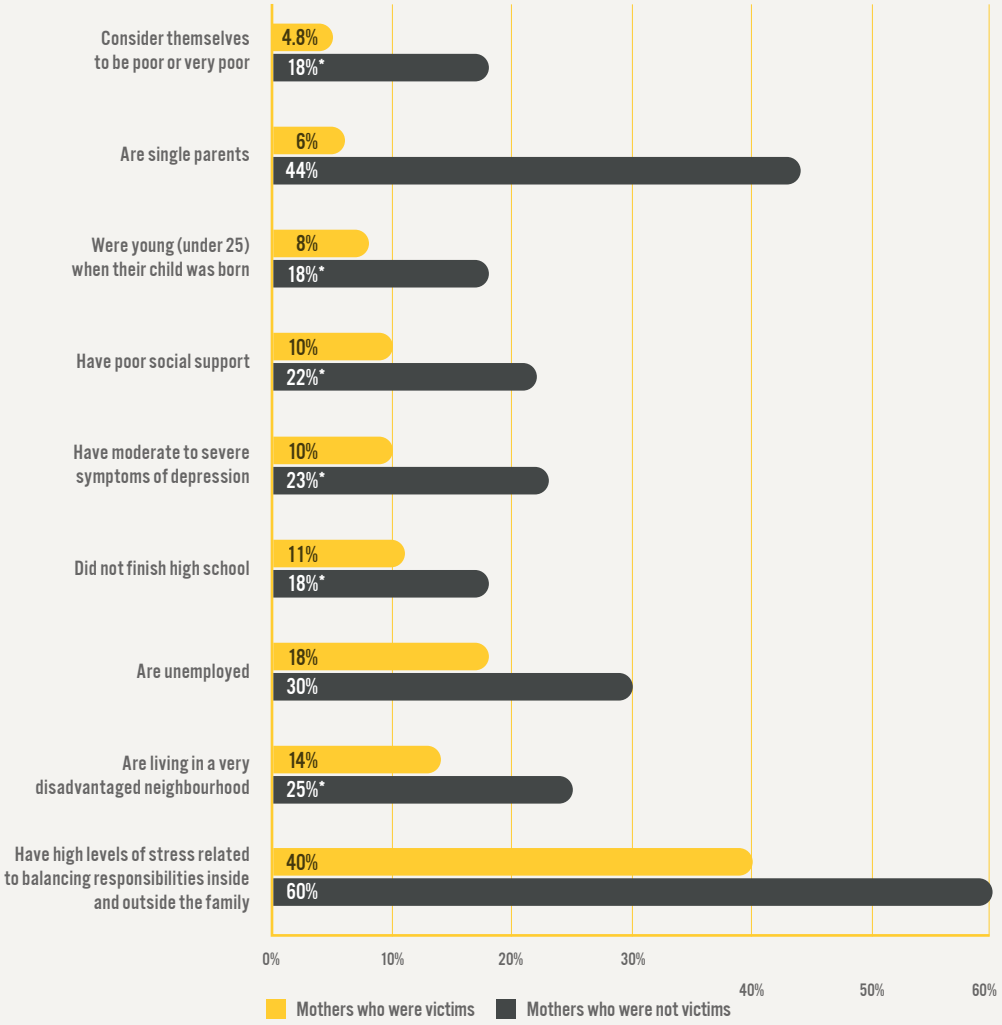
* Coefficient of variation greater than 25%: imprecise estimate provided for information purposes only.

Source: Institut de la statistique du Québec, *La violence familiale dans la vie des enfants du Québec, 2018 : les attitudes parentales et les pratiques familiales.*

In addition, 5.8% of mothers of children between 6 months and 5 years were subjected to more than one form of intimate partner violence during the perinatal period.

More mothers of children between 6 months and 5 years who were subjected to perinatal intimate partner violence were living in precarious environments or more difficult living conditions than mothers who were not victims of such violence.

Proportion of mothers of children between 6 months and 5 years who were victims of perinatal domestic partner violence based on certain characteristics of their living conditions – 2018 data



* Imprecise data: interpret with caution.

Source: Institut de la statistique du Québec, *La violence familiale dans la vie des enfants du Québec, 2018.*

Childbirth

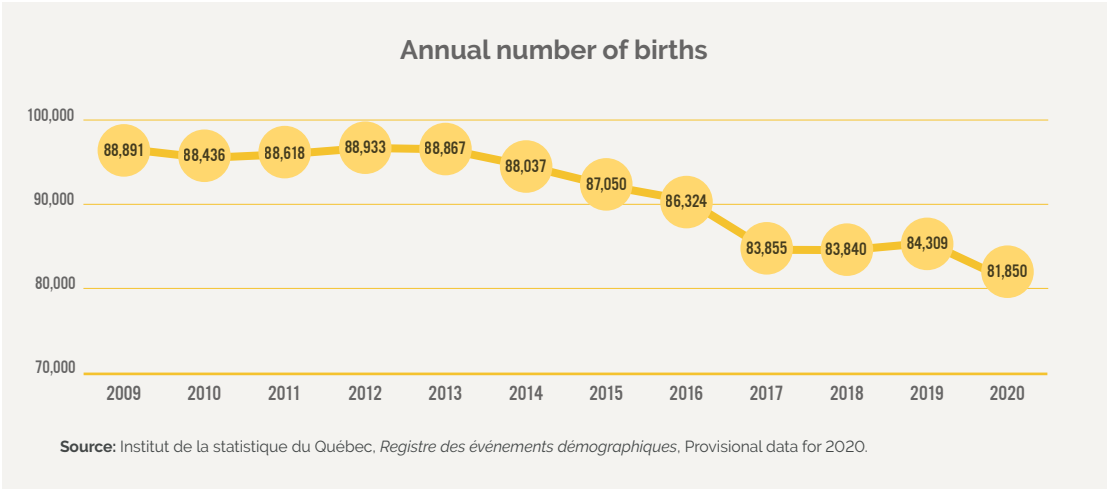
As during pregnancy, the first year of life is a period when a child's brain is very sensitive to influences, both negative and positive[37]. Since several areas of the brain undergo functional and structural changes during this time, different stresses during the first year will have physiological, behavioural and cognitive consequences[38].

Improving childbirth conditions is another way to give children a good start in life. Caesarian sections, for example, are not without risk, even though they are sometimes necessary for the safety of the mother or child[39]. Complications at birth can also negatively affect the child's health and development. Premature birth and low birth weight are both linked to problems that can arise later in the child's life[40],.

Number of births

81,850
Number of births in the province of Québec in 2020

In Québec, the annual number of births has been on the decline for the past several years. Since 2015, the number of births has been lower than figures observed from 2009 to 2014, when the annual figure exceeded 88,000. In 2012, the number of births reached 88,933.



Source: Institut de la statistique du Québec, *Registre des événements démographiques*, Provisional data for 2020.

The risk of COVID-19 transmission from a pregnant mother to her newborn is low—between 1.5% and 5% (including asymptomatic newborns or those with very few symptoms). Moreover, the risk is not increased when newborns room in with their mothers at the hospital, a practice that facilitates exclusive breastfeeding[41].

Although there was a decrease in emergency obstetric consultations during the first wave of the pandemic[42], it has been possible to provide quality health care for newborns and their parents during the health crisis.

What is important is the stringent application of measures aimed at preventing and controlling infections, such as mask-wearing by hospital personnel, adequate ventilation, vaccination, etc.[43].

Epidural anesthesia

Epidural anesthesia, which reduces the pain and stress of childbirth, also has negative consequences, such as limiting women's mobility during childbirth, which improves the flow of oxygen to the fetus and allows for more efficient uterine contractions[44]. This type of anesthesia has been found to decrease the risk of post-partum depression in mothers, however[45], as the pain and stress of childbirth are risk factors in the development of post-partum depression[46]. The World Health Organization recommends the use of epidural anesthesia for healthy pregnant women who want pain relief during labour[47].

3/4 In Québec in 2019-2020, close to 3 out of 4 vaginal births (74.3%) involved epidural anesthesia.

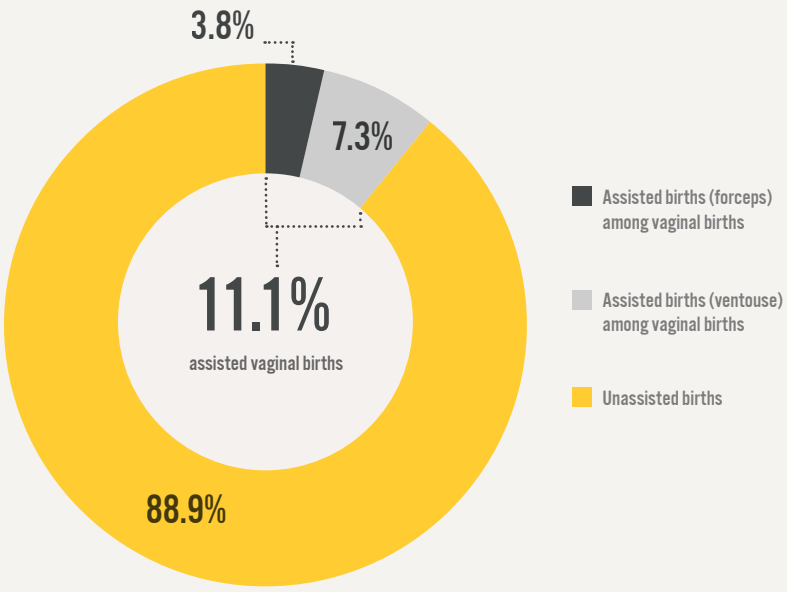
Source: Canadian Institute for Health Information, Discharge Abstract Database (DAD) and Hospital Morbidity Database (HMD), 2001-2002 to 2019-2020; Ministère de la Santé et des Services sociaux du Québec, *Fichier des hospitalisations MED-ECHO*, 2006-2007 to 2009-2010.

Assisted births (instrumental deliveries)

Even though the obstetric ventouse (vacuum) and forceps entail certain risks for the mother (episiotomy or tearing of pelvic floor muscles, for example[48]) or the baby (injury or fracture[49]), the use of these tools is sometimes necessary to help deliver the baby if contractions weaken or the baby is not tolerating maternal pushing.

In 2019-2020 in Québec, the total rate of assisted vaginal births (using obstetric ventouse or forceps) was 11.1%.

Rate of assisted vaginal births in 2019-2020



Source: Canadian Institute for Health Information, Discharge Abstract Database (DAD) and Hospital Morbidity Database (HMD), 2001-2002 to 2019-2020; Ministère de la Santé et des Services sociaux du Québec, *Fichier des hospitalisations MED-ECHO*, 2006-2007 to 2009-2010.

Caesarean births

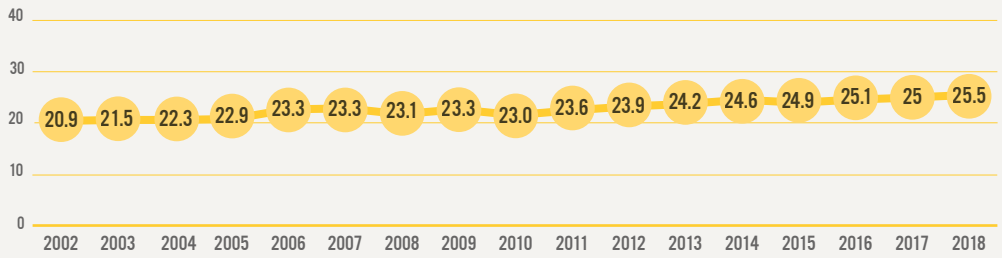
Although a Caesarean section is sometimes necessary to ensure the safety of the baby or the mother, it is not without risk (possibility of infection, hemorrhage, problems initiating breastfeeding, breathing problems in newborns, etc.)[50]. Despite its medical utility, a Caesarean section can lead to temporary complications, permanent disabilities and, in rare cases, death[51].

There are no data showing that a Caesarean birth can have positive consequences for the mother or baby in cases where it is not medically required. The World Health Organization recommends that the Caesarean birth rate remain between 10 and 15% within a given population[52]. The Society of Obstetricians and Gynecologists of Canada (SOGC) also promotes normal births without technical intervention whenever possible[53].

25.5% of all births in Québec in 2018* were by Caesarean section. In 2017, that figure was 25%.

In Québec, the Caesarean birth rate has been progressively on the rise, going from 20.9% in 2002 to 25.5% in 2018.

Rate of Caesarean births



* The percentage presented for this indicator is based on the number of Caesarean sections for every 100 births.

Source: Canadian Institute for Health Information, Discharge Abstract Database (DAD); Ministère de la Santé et des Services sociaux du Québec, *Fichier des hospitalisations MED-ECHO*.

Multiple births

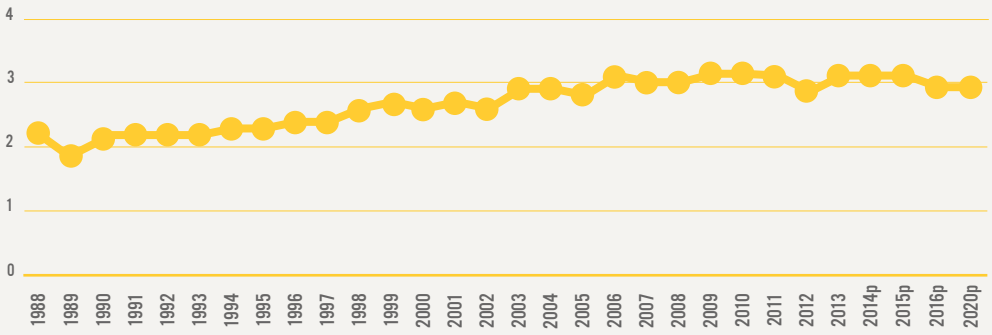
Becoming a parent is more challenging in the case of a multiple birth than a single birth[54]. For babies, multiple births are a risk factor linked to low birth weight. For mothers, they are linked to greater discomfort during pregnancy and shorter breastfeeding periods[55,56].

In 2020, multiple births accounted for approximately 3% of all births—almost exclusively twins. Births of triplets (or more) accounted for just 0.05% of all births.

Source: Institut de la statistique du Québec, *Registre des événements démographiques*. Provisional data for 2020.

Although the proportion of multiple births has risen over the past 30 years, going from 2.1% in 1988 to 2.9% in 2020, it has remained relatively stable since 2006.

Proportion of multiple births



Source: Institut de la statistique du Québec.

Premature births

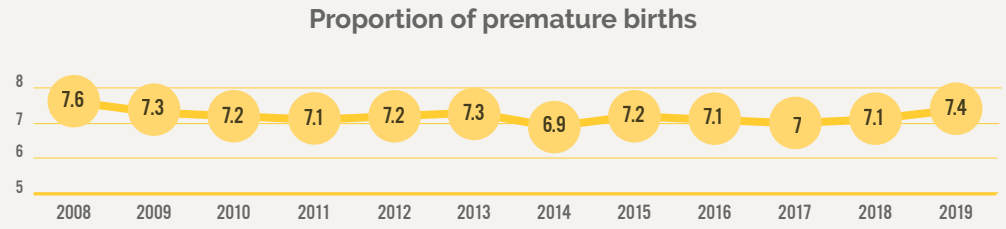
A baby born before 37 weeks of pregnancy is considered premature (or born too early).

Prematurity, especially severe prematurity (babies born before 28 weeks of pregnancy) is a major risk factor in infant mortality. Premature births continue to be the principal cause of death during the neonatal period, early childhood and childhood[57]. Premature babies are more likely to have difficulty adapting to life outside the womb, experience respiratory distress and contract bacterial infections[58].

Premature birth also disrupts early childhood development because it increases the risk of chronic disease, disability and cognitive disorders[59,60]. Prematurity is linked to negative consequences for a child's overall development. For example, babies born prematurely are more likely than full-term babies to present problems related to motor and cognitive development. They are also more likely to have memory and attention difficulties, and poorer academic results. Prematurity is also associated with language difficulties (vocabulary comprehension, ability to express oneself, etc.). The negative developmental consequences related to premature birth become more severe in childhood, particularly between the ages of 3 and 12. Risks associated with prematurity are increased in cases of severe prematurity[61].

In Québec, the proportion of babies born before 37 weeks of pregnancy fluctuated around 7% between 2009 and 2019.

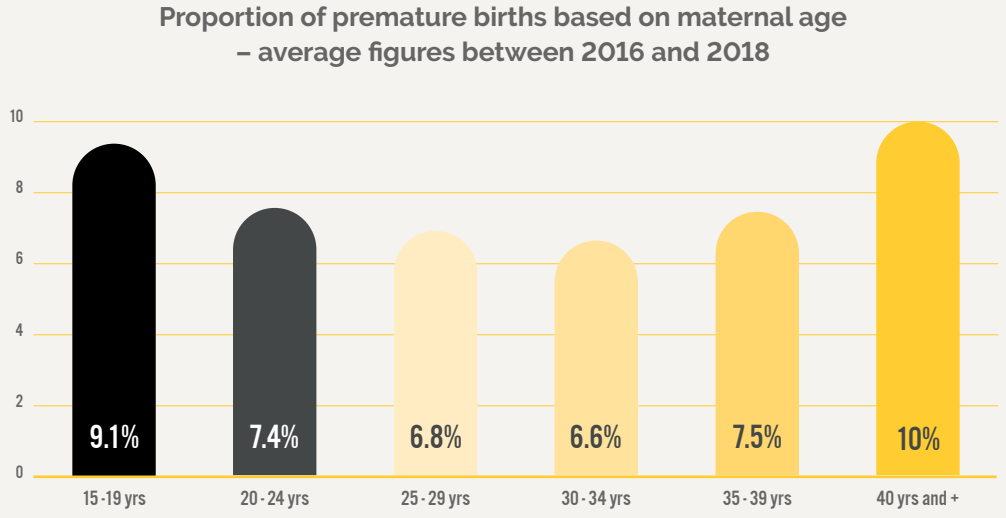
Although the proportion of premature births has remained relatively stable since 2009, this rate is still higher than it was in the early 1980s (5.6%).



Source: Institut de la statistique du Québec.

EFFECT OF MATERNAL AGE ON THE RISK OF PRETERM BIRTH

In Québec, between 2016 and 2018, the highest proportion of premature births was in women aged 40 and over (1 out of every 10 births, on average). The figure was also a little higher among mothers under 20 (9.1%).



Source: Institut de la statistique du Québec.

LINK BETWEEN TYPE OF BIRTH AND PREMATURITY

The average proportion of premature births in Québec between 2016 and 2018 was **5.6% for single births. Multiple births** were much more likely to be premature, with slightly over half of twins born preterm (54%).

Source: Institut de la statistique du Québec.

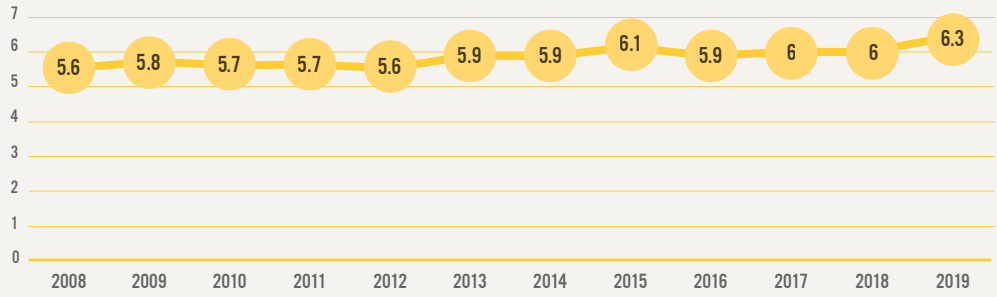
LOW BIRTHWEIGHT

Low birthweight is linked to higher levels of neonatal and perinatal mortality, failure to thrive, and motor and cognitive difficulties[62]. It is also associated with severe infections just before or just after birth, as well as with an increased risk of heart disease, high blood pressure and type 2 diabetes augmentation later in life[63,64]. Occurrences of low birthweight are more frequent in children living in disadvantaged families[65].

6.3% of babies born in 2019 weighed less than 2.5 kg (5.5 lb).

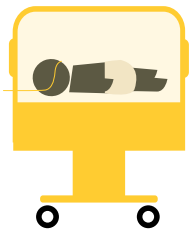
In Québec, the proportion of low birthweight babies has remained relatively unchanged over the past three decades.

Proportion of low birthweight babies



Source: Institut de la statistique du Québec, *Registre des événements démographiques.*

LINK BETWEEN TYPE OF BIRTH AND LOW BIRTHWEIGHT



The proportion of low birthweight babies is slightly under **5%** in the case of single births. That figure is much higher, however, for multiple births, with generally a little over half of twins born with a low birthweight.

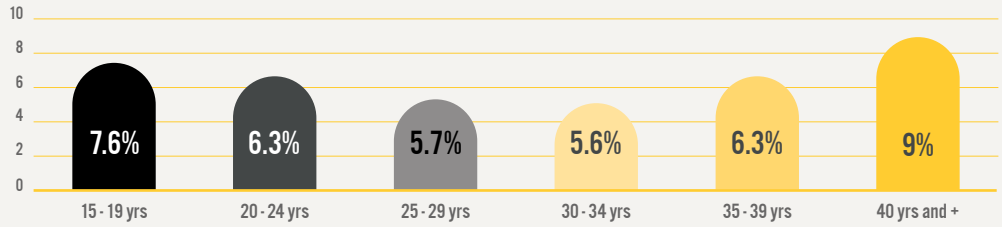
Source: Institut de la statistique du Québec.

Note: All children born during the same birth are called "twins", including triplets, quadruplets, etc. The vast majority of twin pregnancies are pregnancies with two babies.

LINK BETWEEN MATERNAL AGE AND LOW BIRTHWEIGHT

The highest proportion of low birthweight babies are born to mothers **aged 40 and over**: about 9% of births. The corresponding figure is also slightly higher among mothers under 20.

Proportion of low birthweight babies based on mother's age group – average figures between 2016 and 2018



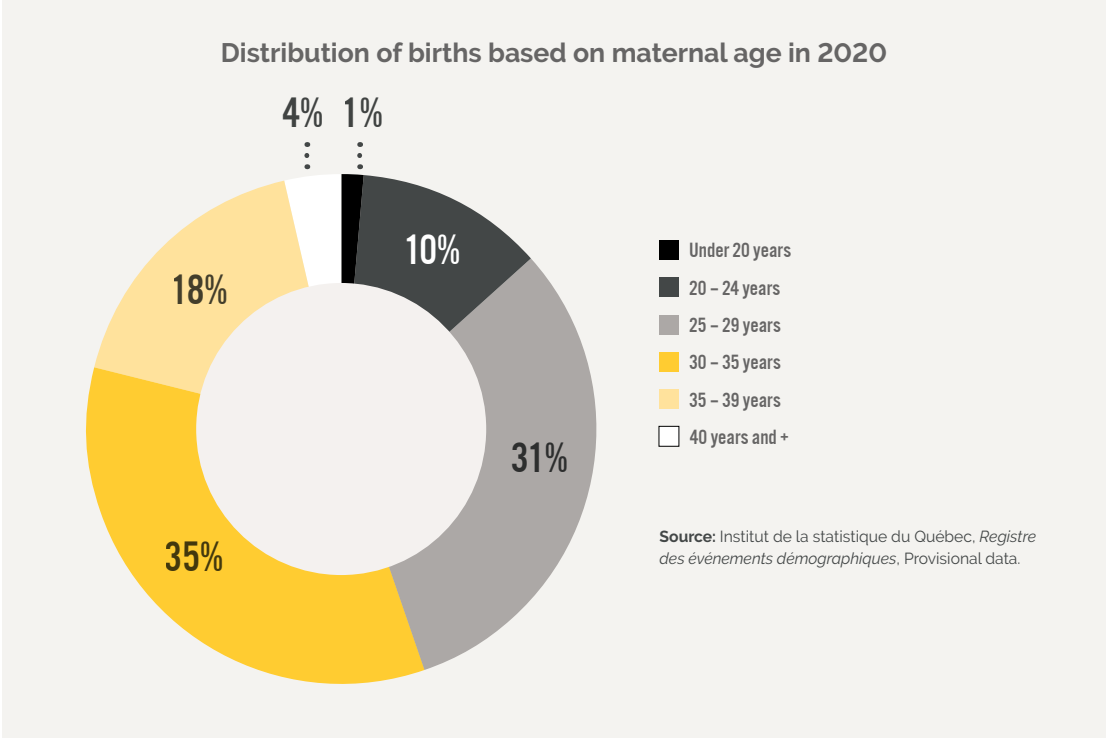
Source: Institut de la statistique du Québec, *Registre des événements démographiques*.

Mother's age at birth

Maternal age is one of the sociodemographic factors most associated with premature births. The risk of preterm babies is higher among adolescents under 18 and women over 40[66,67].

Very young mothers are more likely to experience complications during pregnancy[68]. From a social point of view, studies have shown that teenage mothers have lower levels of education than their peers who do not have children. Proportionally more of them rely on government financial assistance to meet their needs and those of their child(ren).

Older pregnant women are most likely to have babies with birth defects and experience such health problems as high blood pressure and gestational diabetes[69].



HOW HAS THE SITUATION EVOLVED OVER THE PAST 10 YEARS?

In 2010, of the 88,436 births recorded in Québec, 2.7% were born to mothers under the age of 20, 13,7% to mothers between 35 and 39, and 2.7% to mothers 40 and over.

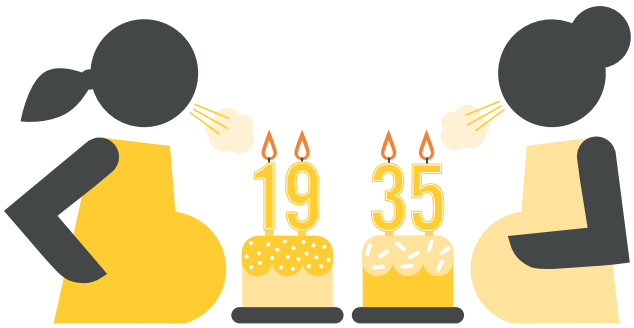
In 2020, of the 81,850 babies born in Québec*,

1% were born to mothers under age 20,

18% were born to mothers between 35 and 39,

5% to mothers aged 40 or over.

* Provisional data



Stillbirths

A stillbirth is the death of a fetus weighing 500 g or more or following a pregnancy of 20 weeks of longer. There are many causes of stillbirth, and half of deaths remain unexplained. A lack of follow-up or an inadequate medical follow-up during pregnancy could increase the risk of stillbirth[70].

6.98 / 1,000

In 2020, the rate of stillbirths was approximately 7 out of every 1,000 births.

Between the mid-1970s and the mid-1990s, the stillbirth rate in Québec dropped by about half. It then remained relatively stable at around 4.2/1,000 until 2018. A change in the definition of stillbirth* in October 2019 prevents us from comparing 2020 data with prior figures.

Source: Institut de la statistique du Québec, *Registre des événements démographiques*, Provisional data for 2020.

* The stillbirth rate is the number of stillbirths divided by the total number of live births and stillbirths, multiplied by 1,000. In Québec, up until October 2019, only intrauterine deaths of fetuses weighing 500 g or more were recorded as stillbirths. The new definition is broader, including non-living fetuses weighing under 500 g or those that had reached a gestational age of at least 20 weeks.

According to the World Heath Organization, all countries should aim to reduce their stillbirth rate to fewer than **10 out of every 1,000 births** by 2035[71]. Québec therefore has a good record in this respect.

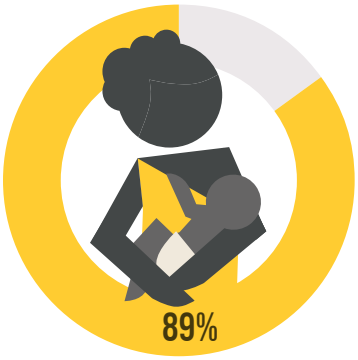
A link has been established between the COVID-19 pandemic and an increased risk in stillbirths. A link has also been noted between the rise in the risk of maternal mortality and ruptured ectopic pregnancies (when the fetus implants outside of the uterus, which can cause severe, sometimes fatal hemorrhaging)[72]. Among possible explanations, apart from the direct effects of the virus, studies point to a decrease in emergency consultations for obstetrical reasons as well as in routine prenatal appointments. Confinement policies combined with the fear of being infected by COVID-19 in hospital may explain why pregnant women went to emergency departments and visited their obstetrician less frequently during the pandemic[73].

Breastfeeding

Breastfeeding is an important protective factor for the health of babies after birth and throughout their lifetime. Not only does breast milk provide all the nutritional elements that babies need for healthy development, it also provides protection against several types of infection (for example, ear infections, pneumonia and gastroenteritis)[74].

Studies have also shown that breastfeeding lowers the risk of sudden infant death syndrome and certain chronic diseases (celiac disease, inflammatory bowel disease, obesity and diabetes)[75].

Breastfeeding helps the mother's uterus shrink back to its normal size, reduces bleeding, delays the return of menstruation and promotes weight loss. It also decreases the risk of breast, ovarian and endometrial cancers[76].



According to data from 2017-2018, approximately 89% of mothers* breastfed or attempted to breastfeed their last child. This proportion is not statistically different from that for 2015-2016. The corresponding figure for 2011-2012 (89%) is higher than those recorded for 2009-2010 (83%), 2007-2008 (84%), 2005 (82%) and 2000-2001 (73%).

* Women between 15 and 55 who had given birth to a child during the five years prior to the survey.

Source: Statistics Canada, Canadian Community Health Surveys (CCHS), 2000-2001 to 2017-2018, Data sharing files, adapted by the Institut de la statistique du Québec.

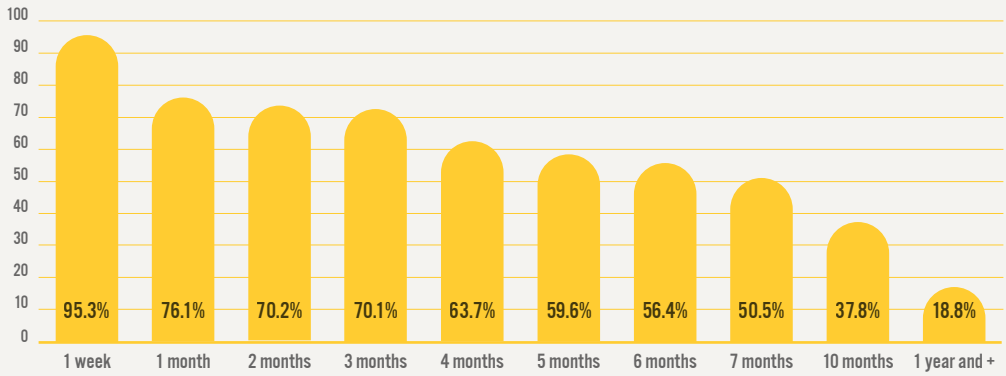
Methodological notes

Because of the methodological changes that resulted from the redesign of the *Canadian Community Health Survey*, we do not recommend that data from 2015-2016 and 2017-2018 be compared to data from prior surveys.

Based on data from 2017-2018, however, the proportion of breastfeeding mothers declines during the first year of their child's life.

The proportion of mothers who breastfeed or attempt to breastfeed their youngest child has increased, but many mothers stop breastfeeding during the first few months. Although 95.3% of mothers were breastfeeding their baby during the first week, that figure dropped to 76.1% at one months and 56.4% at six months.

Proportion of mothers[1] who were still breastfeeding at various points in their baby's life, among mothers who breastfed or attempted to breastfeed in 2017-2018*

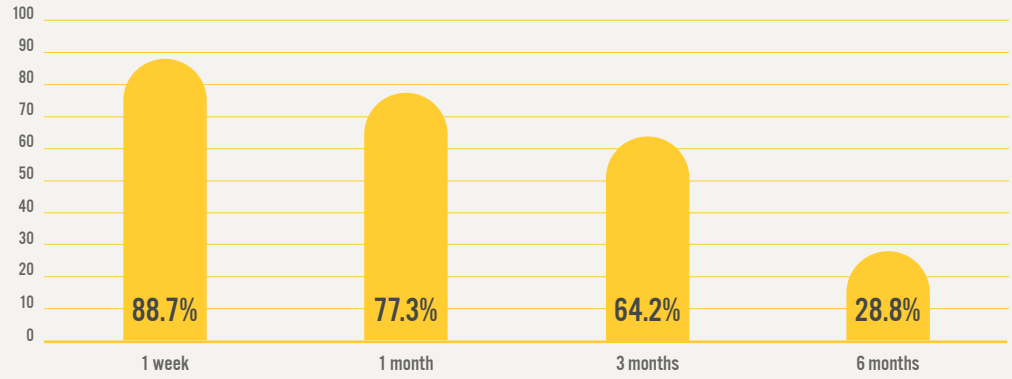


[1] Women between 15 and 55 who had given birth to a child during the five years prior to the survey.

* Among mothers who had stopped breastfeeding at the time of the survey.

Source: Statistics Canada, Canadian Community Health Surveys (CCHS) 2017-2018, Data sharing files, adapted by the Institut de la statistique du Québec.

Proportion of mothers[1] who breastfed exclusively at various points in their baby's life, among mothers who breastfed or attempted to breastfeed* in 2017-2018



[1] Women between 15 and 55 who had given birth to a child during the five years prior to the survey.

* Among mothers who, at the time of the survey, had added other liquids or solid foods to their child's diet.

Source: Statistics Canada, Canadian Community Health Surveys (CCHS) 2017-2018, Data sharing files, adapted by the Institut de la statistique du Québec.

In 2017-2018, 71.2% of mothers who breastfed their baby and introduced other liquids or solid foods into their child's diet did so before six months.

The World Health Organization recommends that babies be exclusively breastfed for the first six months of their lives. The Canadian Paediatric Society reminds us, however, that there are factors other than age that are equally important in deciding when to begin introducing other foods into a baby's diet (such as the infant's signs of readiness)[77]. Once solid foods have been introduced, breastfeeding may continue for another two years or more[78].

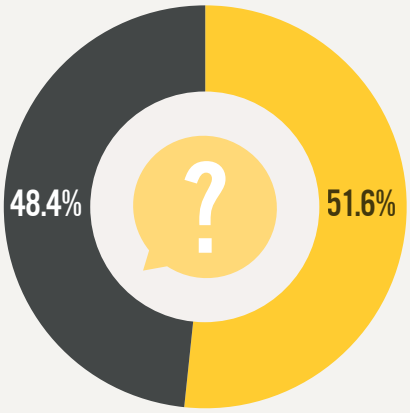
No viable COVID-19 virus (i.e., that would pose a risk of contagion) has been detected in breastmilk. Since the mother's antibodies against the virus are also present in her breastmilk, they protect her baby against COVID-19[79].

Breastfeeding support services

In Québec, in addition to measures introduced by health care facilities that have obtained "Baby Friendly" certification, there are various other forms of support for breastfeeding mothers: breastfeeding support groups, breastfeeding clinics, breastfeeding drop-in centres and lactation consultants.

Proportionally fewer nursing mothers living in low-income households used breastfeeding support services: 40% as compared to 56% in more privileged households. Statistics also showed that the more formal education breastfeeding women had, the more likely they were to use breastfeeding support services[80].

Percentage of mothers who used breastfeeding support services, 2015



* To be precise, this cohort consisted of mothers of children between 0 and 5, excluding those who explained that they hadn't needed breastfeeding support because they didn't breastfeed their children.

Source: Institut de la statistique du Québec, *Québec Survey on the Experience of Parents of Children Aged 0 to 5, 2015.*

63% of the mothers who did not use breastfeeding support services said they didn't need them, and approximately 10% didn't know such services were available[81].

PREGNANCY AND CHILDBIRTH KEY POINTS

The general state of health of newborns in Québec is improving:

The rate of intrauterine growth restriction has declined since the 1980s.

After dropping by almost half between the mid-1970s and the mid-1990s, the rate of stillbirths in Québec has remained relatively stable. With a rate (1 out of every 1,000 births) well below the target set by the World Health Organization (10 out of every 1,000 births), Québec is doing well is this respect.

The proportion of mothers who breastfeed or attempt to breastfeed their baby has increased since the early 2000s.

The data available to us indicates that the COVID-19 virus is having very little effect on newborns.

The risk of a pregnant woman transmitting the COVID-19 virus to her newborn is low, i.e., between 1.5 and 5%. This figure includes newborns who are asymptomatic or who have very few symptoms.

No COVID-19 virus capable of transmitting the disease has been detected in breastmilk.

Certain facts continue to give cause for concern:

Despite a slight decline over the past few years, **the premature birth rate (babies born before 37 weeks of pregnancy) was higher in 2019** than it was in 1980.

The rate of Caesarean births has been progressively rising, going from 20.9% in 2002 to 25.5% in 2018. This rate is significantly higher than that recommended by the World Health Organization (10-15%).

Although there was a rise in the proportion of mothers who breastfed or attempted to breastfeed their most recent child, **most of them stopped breastfeeding during the first few months**. Although 95.3% of mothers breastfed their baby during the first week, that figure dropped to 76.1% at one months and 56.4% at six months.

In 2015, 10% of mothers of children between the ages of 0 and 5 **who did not take advantage of breastfeeding support services** were not aware that such services existed.

In 2015, **just 59.8% of parents of children between the ages of 0 and 5 participated in prenatal classes**. That figure is even lower for parents in less privileged socioeconomic environments (42.4%).

In 2018, **10.9% of mothers of children between the ages of 6 months and 5 years were victims of intimate partner violence** during the perinatal period.

60% of mothers who were victims of intimate partner violence reported **high levels of stress** related to their attempts to balance their responsibilities inside and outside the family.

44% of mothers who were victims of intimate partner violence were **single parents**.

During the COVID-19 pandemic, there was a significant increase in intimate partner violence in several countries, as well as in Québec. We do not currently have any data, however, on pregnant women who were subjected to this form of violence.

DURING PREGNANCY AND CHILDBIRTH

Something can be done

There are many ways we can take collective action to improve conditions that affect pregnancy and childbirth—options that have been shown to be effective or promising on the ground or in scientific research in Québec and around the world. Here are a few examples:

- Measures aimed at improving the living conditions of pregnant women living in disadvantaged socioeconomic environments by offering them support (e.g.: Olo program[82], the Maison Bleue's social perinatal care model[83], SIPPE program[84], follow-up by the Montréal Diet Dispensary[85], financial support) have proven their ability to have positive effects on newborn health, improving birthweights, the rate of premature births and breastfeeding figures. After childbirth, programs like L'Envol[86] can offer subsidized housing to young mothers living alone with their children who want to go back to school or obtain professional training.

- To help vulnerable young children, it is important to establish contact with their families during the mother's pregnancy. Pregnancy notification systems enable doctors and midwives to refer pregnant women to a health facility in her territory where she can receive certain prenatal services[87]. When the pregnancy notification system was set up in in 2016 in Lanaudière, the Olo and SIPPE programs were able to reach out to more pregnant women who needed help. Such a system also provides personalized follow-up for every child until they start school, with more extensive support for vulnerable families. This is the approach recommended by the social perinatal care model. Various formats of pregnancy notification systems are currently being implemented across Québec.

- The QUARISMA study conducted in 32 Québec hospitals between 2008 and 2011 showed that training childbirth professionals and self-assessment of clinical practices were effective in safely reducing the number of Caesarean births[88]. According to a report produced by the *Institut national d'excellence en santé et en services sociaux* (INESSS), individual support for pregnant women during labour and childbirth effectively reduces obstetrical intervention overall, which also contributes to more successful breastfeeding[89].

- Helping women to feel more comfortable breastfeeding in public is a good way to provide support[90]. Municipalities can help by adopting "baby-friendly" measures[91]. Local breastfeeding support groups also provide women with positive support and information on community breastfeeding resources. Finally, when a group of merchants gets together to set up a "milky way" to encourage and support public spaces for breastfeeding, the act becomes customary and accepted within the population[92].

- Appropriate support can prevent many problems associated with breastfeeding by acting quickly (before pain becomes an impediment, for example) and helping to ensure that breastfeeding is a positive experience[93]. Québec mothers stress the importance of standardizing the information provided by professionals in childbirth settings[94]. Upgrading and harmonizing initial training in breastfeeding helps to reinforce professionals' skills, resulting in better support for women who want to breastfeed[95].

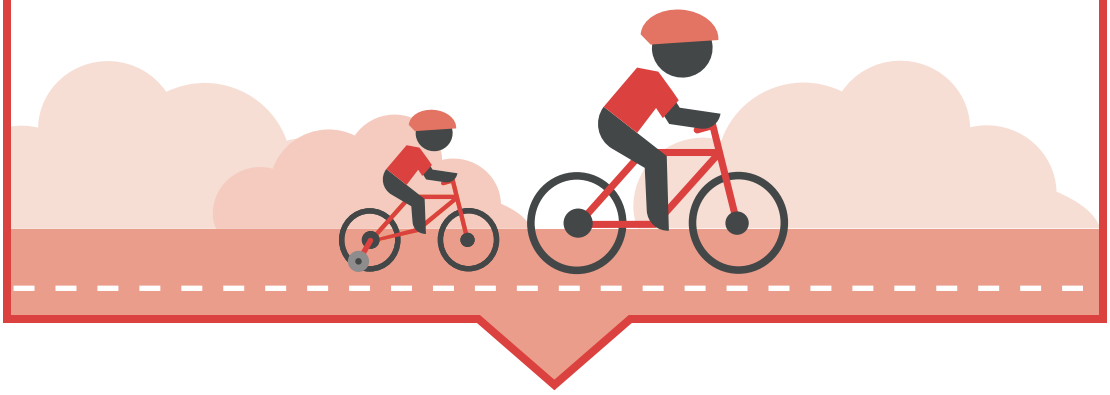
Some of these measures have already been implemented in Québec. They must be maintained and consolidated to preserve progress made to date.

How could these measures be more effectively applied? Are there other measures we need to consider? We hope our 2021 Portrait will contribute to further reflection on these issues.

PHYSICAL HEALTH

To achieve their full development potential, the very young must be able to rely on good physical health. Physical health problems that go untreated can negatively affect not only children's overall physical health but their mental health and development as well. Most of these problems can be at least partially avoided through preventive intervention, thus reducing their impact on the very young.

To lower the risk of consequences later in life, prevention and rapid intervention are essential. For that reason, environments that are favourable to early childhood development, and timely access to health care and services in the community are critical for young children. Any delay in receiving treatment can have a negative impact on a child's health and quality of life. Inadequate access to health care is associated with higher levels of pain, complications and emotional distress[96].

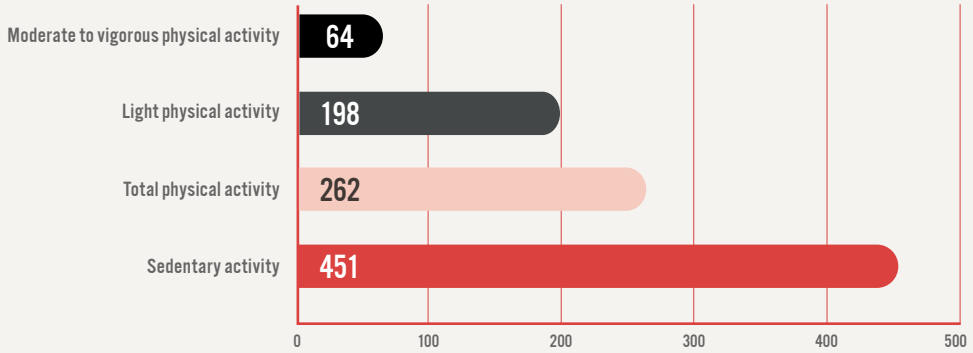


PHYSICAL ACTIVITY

Acquiring healthy living habits at a very young age can decrease certain risk factors for chronic diseases. In addition to preventing obesity, children who engage in physical activity have a better chance of developing healthy bones and muscles, good motor, social and cognitive skills, and emotional well-being[97].

In 2016-2019, young children between the ages of 36 and 60 months (3 to 5 years) spent, on average, much more time in sedentary activities than in physical activity[98].

Average number of minutes of sedentary or physical activity for children between ages 3 and 5, based on data for 2016-2019

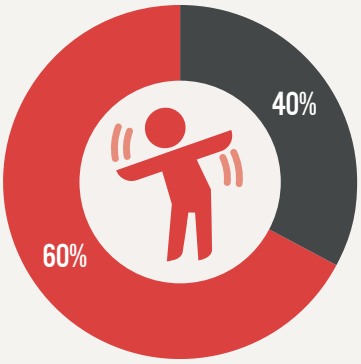


Source: Statistics Canada, *Canadian Health Measures Survey* (CHMS), Cycles 5 (2016-2017) and 6 (2018-2019) combined, adapted by the Institut de la statistique du Québec.

For children aged 3 to 5, an activity is considered sedentary if it requires fewer than 100 movements per minute. Light physical activity requires between 100 and 1,152 movements per minute, while moderate to vigorous physical activity requires more than 1,152 movements per minute.

About 60% of children between the ages of 3 and 5 complied with physical activity guidelines in 2016-2019. That means 40% of children —71,000 children— in that age group did not.

Percentage of children between the ages of 3 and 5 who complied with physical activity guidelines, based on data for 2016-2019



Complied with physical activity guidelines

Failed to comply with physical activity guidelines

Source: Statistics Canada, *Canadian Health Measures Survey* (CHMS), Cycles 5 (2016-2017) and 6 (2018-2019) combined, adapted by the Institut de la statistique du Québec.

CANADIAN 24-HOUR MOVEMENT GUIDELINES

Children under age 1
Being physically active several times in a variety of ways.

Children 1-2 years
At least 180 minutes spent in a variety of physical activities at any intensity, including energetic play.

Children 3-4 years
At least 180 minutes spent in a variety of physical activities spread throughout the day, of which at least 60 minutes is energetic play[99].

Children 5 years of age
An accumulation of at least 60 minutes per day of moderate to vigorous physical activity involving a variety of aerobic activities. Vigorous physical activities, and muscle and bone strengthening activities should each be incorporated at least 3 days per week[100].

The COVID-19 pandemic has been linked to a significant decrease in physical activity among children of all ages, as well as an increase in sedentary activities, especially screen time. These changes are particularly pronounced for children living in disadvantaged environments[101].

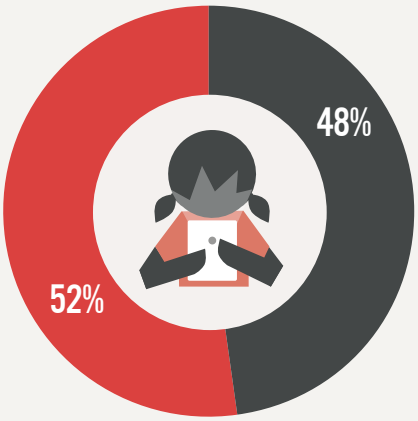
Screen time

High exposure to screens at an early age has been linked to:

- **poorer motor skills** when starting school
- **poor social skills** due to a lack of interaction with others
- **less developed cognitive skills**, especially in the areas of short-term memory, language development and learning reading and arithmetic
- **poor control of emotions** and behaviours
- **attention difficulties**
- **sleeping problems**
- **low self-esteem**
- **health problems** (excess weight, obesity, fatigue, headaches, myopia, posture problems, poor diet, high blood pressure, type 2 diabetes, long-term cardiovascular problems, etc.)[102].

1/2 A little under half of children between the ages of 3 and 5 (48%) complied with guidelines for screen time in 2016-2019, while 52% did not. That figure corresponds to 92,000 children in this age group.

Percentage of children between the ages of 3 and 5 who complied with screen time guidelines, based on data for 2016-2019



Failed to comply with screen time guidelines

Respected screen time guidelines

Source: Statistics Canada, *Canadian Health Measures Survey* (CHMS), Cycles 5 (2016-2017) and 6 (2018-2019) combined, adapted by the Institut de la statistique du Québec.

CANADIAN 24-HOUR SCREEN TIME GUIDELINES

Children under age 2
Screen time is not recommended.

Children 2-4 years
Sedentary screen time should be no more than one hour[103].

Children 5 years of age
No more than 2 hours per day of recreational screen time[104].

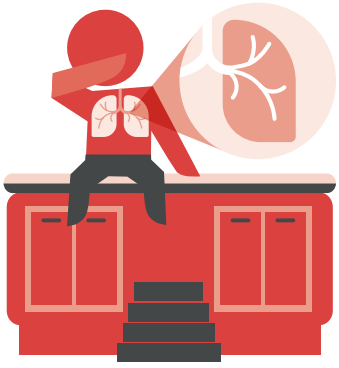
School closures and periods of confinement during the COVID-19 pandemic were responsible for the largest increase in screen time and sedentary activities among children[105].

Chronic diseases and conditions that affect childhood development

Asthma

Although asthma is the most common chronic disease in young children and one of the main reasons for hospitalization among children and young people[106], it is underdiagnosed and undertreated in very young children. When inadequately controlled, asthma can result in frequent hospitalizations, especially between 0 and 4 years of age[107].

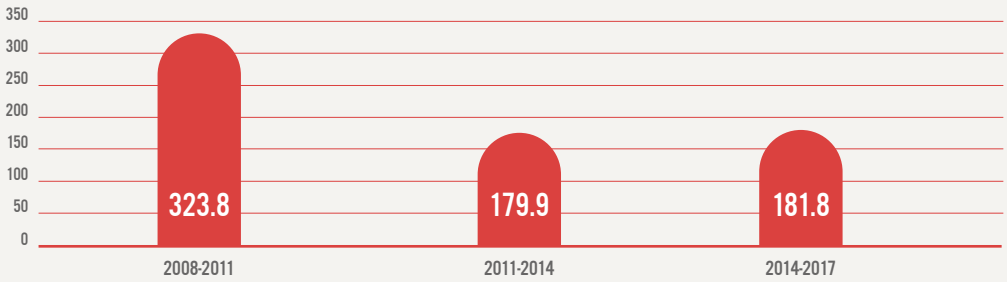
A higher proportion of children who suffer from asthma also present such problems as attention deficit disorder with or without hyperactivity (ADD/ADHD), depressive symptoms, anxiety, poor social skills (difficulty getting along with others, for example), sleep problems and behavioural problems. The incidence of these problems is higher among children who suffer from severe asthma, as well as those who live in disadvantaged families and whose mothers have a low level of education[108].



In Québec, the average rate of short-stay hospitalizations for an asthma-related problem in children between the ages of 0 and 4 declined significantly between 2008 and 2014, remaining stable thereafter until 2017. **From 2008 to 2017, the rate dropped from 324 to 182 hospitalizations out of every 100,000 children in that age group.**

According to an analysis done in 2018, children between the ages of 0 and 4 show higher rates of asthma-related hospitalization than do older children. Asthma-related hospitalization rates are also higher for boys than girls between the ages of 0 and 14[109].

Annual number of short-stay hospitalizations for asthma-related causes (out of every 100,000 children between 0 and 4 years of age)



Source: MSSS, Québec hospitalization database MED-ECHO (electronic), *actualisation découpage territorial* version M34-2017 Canadian Institute for Health Information, Discharge Abstract Database, *actualisation découpage territorial* version M34-2017 ; MSSS, *Estimations et projections démographiques*, electronic (1981-1995: April 2012 version, 1996-2036: May 2017 version). *Plan national de surveillance* tab report produced by the *Infocentre de santé publique* at the *Institut national de santé publique du Québec*, November 26, 2018.

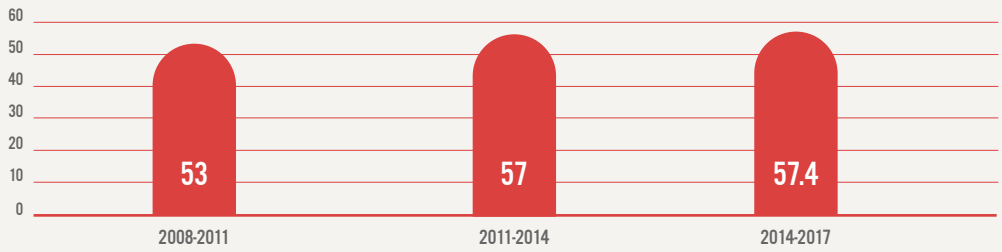
Epilepsy

Epilepsy is one of the most common and most debilitating neurological conditions that can negatively affect children's overall physical health, development and mental health. Epilepsy is associated with a higher risk of cognitive difficulties, motor limitations, behavioural problems, depressive symptoms, anxiety and attention deficit disorders with or without hyperactivity (ADD/ADHD). Children with epilepsy are three times more likely to suffer from mood disorders (such as depression or bipolar disorder), and more likely to have learning difficulties[110].

Parents of children with epilepsy may also suffer from negative consequences related to their child's condition. They are more likely to present depressive symptoms, high levels of parental stress, lack of sleep and negative effects on the quality of their social relationships[111].

In Québec, the average annual number of short-stay hospitalizations for epilepsy in children between the ages of 0 and 4 has remained stable over the past 10 years. **Between 2014 and 2017, the average annual rate was 57.4 hospitalizations for every 100,000 children between the ages of 0 and 4.**

Rate of short-stay hospitalizations for epilepsy (for every 100,000 children between 0 and 4)



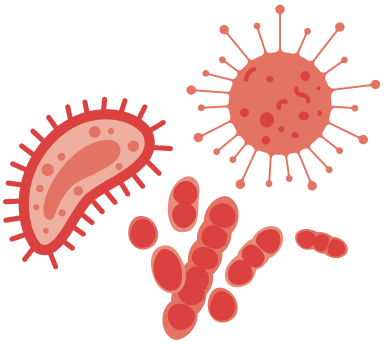
Source: MSSS, Québec hospitalization database MED-ECHO (electronic), *actualisation découpage territorial* version M34-2017 Canadian Institute for Health Information, Discharge Abstract Database, *actualisation découpage territorial* version M34-2017; MSSS, *Estimations et projections démographiques*, electronic (1981-1995: April 2012 version, 1996-2036: May 2017 version). *Plan national de surveillance* tab report produced by the *Infocentre de santé publique* at the *Institut national de santé publique du Québec*, November 26, 2018.

Infectious diseases

Infectious diseases include all diseases caused by the transmission of a pathogen, such as bacteria, viruses, parasites, prions and fungi[112].

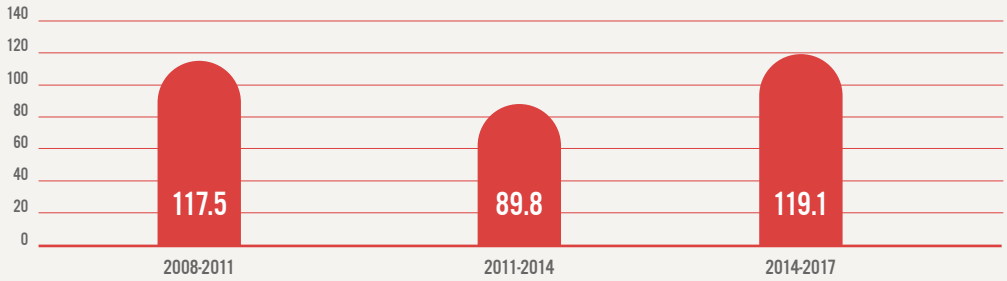
Although the consequences of infectious diseases in children are often minor, they can be very severe in certain cases (including brain damage, deafness, paralysis, liver damage, severe breathing difficulty, etc.). These physical health problems can influence many areas of early childhood development[113].

Influenza (flu)



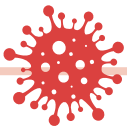
In Québec, the average annual hospitalization rate for influenza dropped significantly during 2008-2011 and 2011-2014 (from 118 to 90 hospitalizations for every 100,000 children between the ages of 0 and 4). **In 2014-2017, however, it rose again to a rate comparable to that observed in 2009-2011 (119 hospitalizations for every 100,000 children between 0 and 4).**

Rate of short-stay hospitalizations for influenza (for every 100,000 children between the ages of 0 and 4)



Source: MSSS, Québec hospitalization database MED-ECHO (electronic), *actualisation découpage territorial* version M34-2017, Canadian Institute for Health Information, Discharge Abstract Database, *actualisation découpage territorial* version M34-2017; MSSS, *Estimations et projections démographiques*, electronic (1981-1995: April 2012 version, 1996-2036: May 2017 version). *Plan national de surveillance* tab report produced by the *Infocentre de santé publique* at the *Institut national de santé publique du Québec*, November 28, 2018.

SARS-COV-2 (COVID-19)

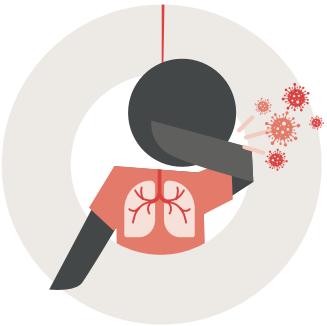


Between August 23, 2020 and March 20, 2021, children under age 5 had the lowest incidence of COVID-19 cases, while school-aged children, especially high-school students, had the highest[114]. During that period, 8,445 new COVID-19 cases were reported in children under age 5 in Québec, while the corresponding figure for 5–9-year-olds was 12,919, and 15,556 for 10-14 year-olds[115].

CONTINUED...

Most children infected with COVID-19 present very few symptoms, if any, and the risk of developing a severe form of the disease, or of death, continues to be very low. A significant link has been observed between children's age and the risk of developing severe COVID-19 symptoms: while younger children are less affected, adolescents present a similar risk to that of young adults[116].

Among children between the ages of 0 and 5, the risks of hospitalization and death linked to COVID-19 are similar or lower than those associated with influenza[117], and much lower that those associated with the respiratory syncytial virus (RSV)[118]. To date, there have been no deaths due to COVD-19 reported for this age group, and only one death among all children under 18[119].



The risk of hospitalization due to COVID-19 is approximately 0.3% among 0 to 17-year-olds. The risk is 2.5 times greater for children with a chronic disease, but even in such cases, the risk is low[120].

Some studies have reported prolonged COVID-19 symptoms ("long COVID") in infected children. The risk continues to be very low, however, compared to the control group, and is generally similar to that observed for other childhood respiratory viruses (such as a persistent post-infectious cough). For example, a prospective longitudinal study[121] showed that 4% of children with COVID-19 antibodies had presented symptoms that lasted for over two months, as compared to 2% of children without antibodies. Among children who were infected with COVID-19, 4.4% had symptoms lasting over one month and 1.8% had symptoms for over two months. Severity of symptoms was low, on the average, generally diminishing over time in children who had symptoms for over a month[122].

Vaccine-preventable diseases

The vaccine-preventable infectious diseases that affect the largest number of young children are whooping cough and invasive pneumococcal disease (IPD).

Whooping cough	Pneumococcal infections
56 cases were reported in 2017 for every 100,000 children between the ages of 0 and 5	**15 cases** were reported in 2017 for every 100,000 children between the ages of 0 and 5

Cases of Hib (Haemophilus influenzae type b infection) are the third most common with very low rates: fewer than one case for every 100,000 children between the ages of 0 and 5 (0.55). Mumps are the next most common, at 0.37. Finally, no cases of the seven other diseases in this category were reported in 2017: diphtheria, tetanus, acute hepatitis B, meningococcal serogroup C, measles, German measles (rubella) and congenital rubella.

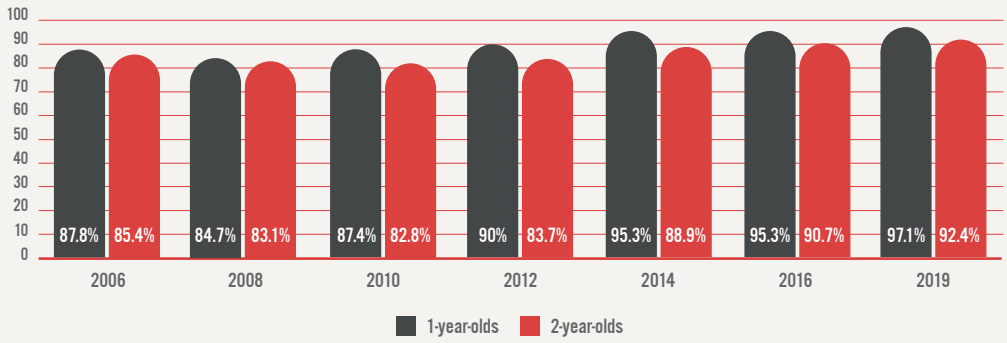
Source: Bureau de surveillance et de vigie de la Direction de la protection de la santé publique (DGSPSP), based on reports produced by the Infocentre at the INSPQ, extracted from MADO files, November 28, 2018.

Immunization

In 2019, almost all 1-year-olds (97%) had received all their recommended vaccinations.

The corresponding figure for 2-year-olds was 92%. Both these figures represent significant increases in the proportion of fully vaccinated children as compared to 2006.

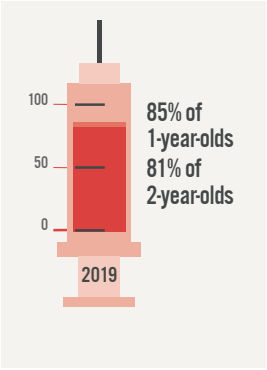
Proportion of children who have received all recommended vaccinations*



* Not including the hepatitis B or rotavirus vaccines..

Source: Institut national de santé publique du Québec (INSPQ), *Enquête sur la couverture vaccinale des enfants québécois*, 2006, 2008, 2010, 2012, 2014, 2016 and 2019.

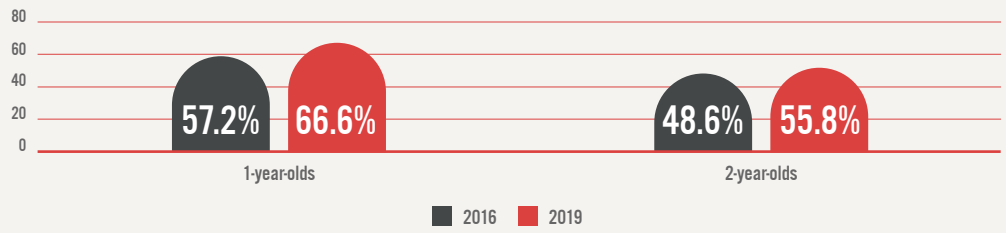
These protections do not include vaccinations for the rotavirus or hepatitis B, however. Data on those vaccinations are available only as of 2014 (rotavirus) and 2016 (hepatitis B).



When these vaccinations are included, the figures are generally lower. In 2019, for example, total vaccination rates were 85% for 1-year-olds and 81% for 2-year-olds. According to experts at the INSPQ (Québec institute for public health), this difference reflects parents' hesitation regarding the introduction of a new vaccine.

The proportion of complete, timely vaccination increased between 2016 and 2019, even if rotavirus and hepatitis B vaccines are included. This shows that vaccination delays decreased during this period.

Complete, timely vaccination
(including hepatitis B and rotavirus vaccines)



Source: Institut national de santé publique du Québec (INSPQ), *Enquête sur la couverture vaccinale des enfants québécois*, 2006, 2008, 2010, 2012, 2014, 2016 and 2019.

During the initial months of the COVID-19 pandemic, a significant decrease in the administration of routine vaccines in young children was observed in many countries compared to previous years. This caused major delays in the vaccination calendar for 0 to 5-year-olds, exposing them to a greater risk of vaccine-preventable diseases. Every period of confinement is likely to result in delays in vaccinating young children[123].

Although young children are not yet being vaccinated for COVID-19, clinical trials are currently being conducted with thousands of American and Canadian children to determine whether vaccines are safe for children and to establish the optimal dosage. In October, the American pharmaceutical company Pfizer submitted data from a clinical trial on children between the ages of 5 and 11 and has applied for official authorization for this age group in the U.S. and Canada.

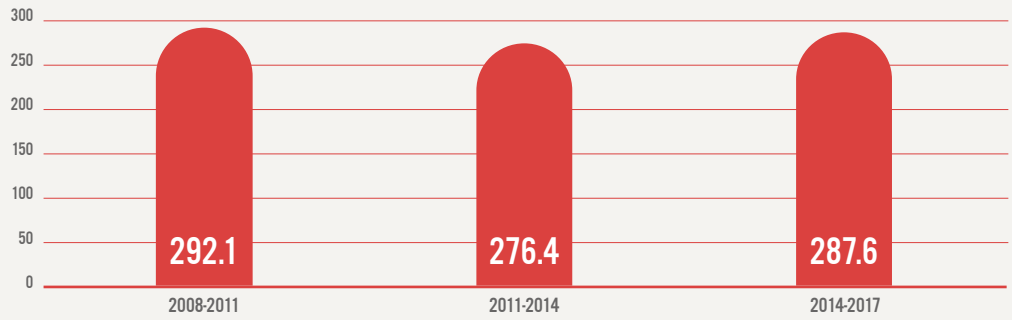
At the time of going to press, the United States had authorized the Pfizer COVID 19 vaccine for children between the ages of 5 and 11.

Accidental injury

Unintentional physical trauma is the main cause of death among children between 1 and 4 years of age[124]. A large proportion of these injuries are severe enough to justify hospitalization. Fatal injuries or those requiring hospitalization can result from an accident (such as a fall), breathing difficulties, motor vehicle collisions, medication poisoning, fire or drowning[125]. Accidental injuries can damage motor functioning and cause permanent disability[126]. The rate of injury-related hospitalization is higher for children in disadvantaged areas[127].

In Québec, the average annual rate of hospitalization for accidental injury has remained stable over three periods of observation. In 2014-2017, it was 288 hospitalizations for every 100,000 between the ages of 0 and 4.

Rate of hospitalizations for accidental injury (for every 100,000 children between 0 and 4)



Source: MSSS, Québec hospitalization database MED-ÉCHO (electronic), *actualisation découpage territorial version M34-2017*; Discharge Abstract Database, Canadian Institute for Health Information, *actualisation découpage territorial version M34-2017*; MSSS, *Estimations et projections démographiques*, electronic (1981-1995: April 2012 version, 1996-2036: May 2017 version). Tab report *Plan national de surveillance* produced by the Infocentre de santé publique at the Institut national de santé publique du Québec, November 23, 2018.

Mortality

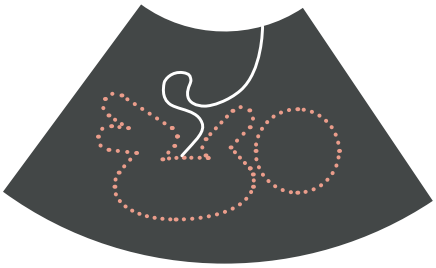
Infantile mortality

Infantile mortality refers to children born alive who do not survive until their first birthday. Infantile mortality includes **neonatal mortality** and **postneonatal mortality**.

Neonatal mortality
refers to deaths of children less than 28 days after birth (early neonatal mortality refers to deaths within the first six days of life, and late neonatal mortality to deaths after seven days and before 28 days).

Postneonatal mortality
refers to deaths of children between 28 and 364 days of life.

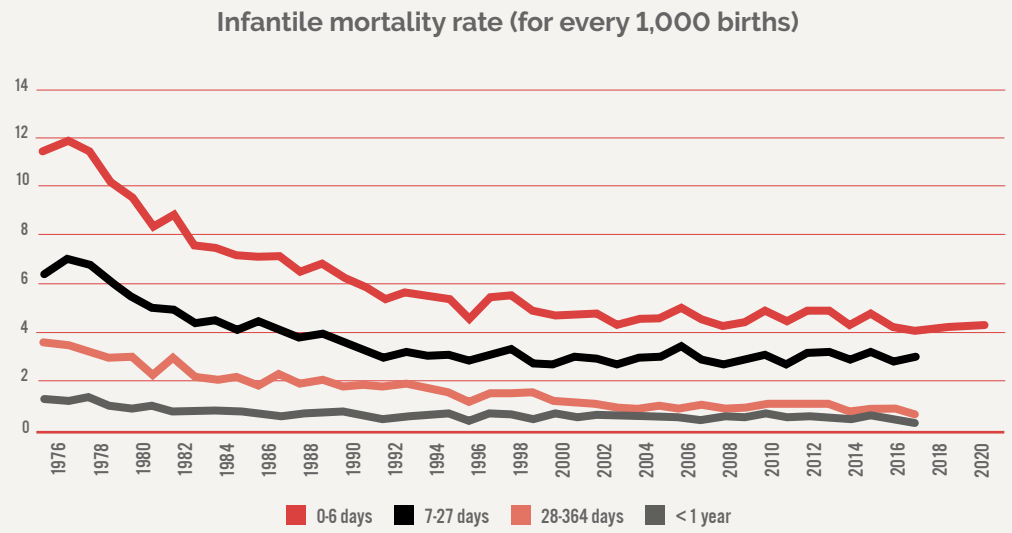
There are many causes of infantile death: sepsis (generalized infection of the organism), neurological problems (cerebral palsy), respiratory problems (pneumonia, flu), cardiovascular problems, infections, cancer, sudden infant death syndrome, etc.[128].



In Québec in 2020, the infantile mortality rate before a child's first birthday was 4.26 children out of every 1,000*.

From the mid-1970s to the mid-1990s, all types of infantile mortality decreased by about half. Since then, the neonatal mortality rate (both early and late) has remained relatively stable, while postneonatal mortality continued to decline between the mid-1990s and the mid-2000s. Minor annual variations aside, all indicators appear to have been relatively stable for the past several years.

* Provisional data for 2020.

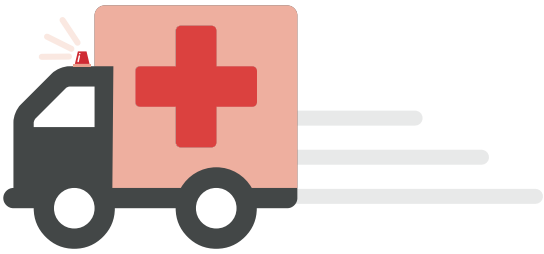


Source: Institut de la statistique du Québec, *Registre des événements démographiques*.

Juvenile mortality

Juvenile mortality refers to the death of children between 1 and 4 years of age. The main natural causes of juvenile mortality in industrialized countries are birth defects, cancer, neurological disorders (meningitis, cerebral palsy), respiratory problems (pneumonia, flu), cardiovascular problems and infections. Road traffic accidents and drowning are the primary causes of accidental death in young children[129].

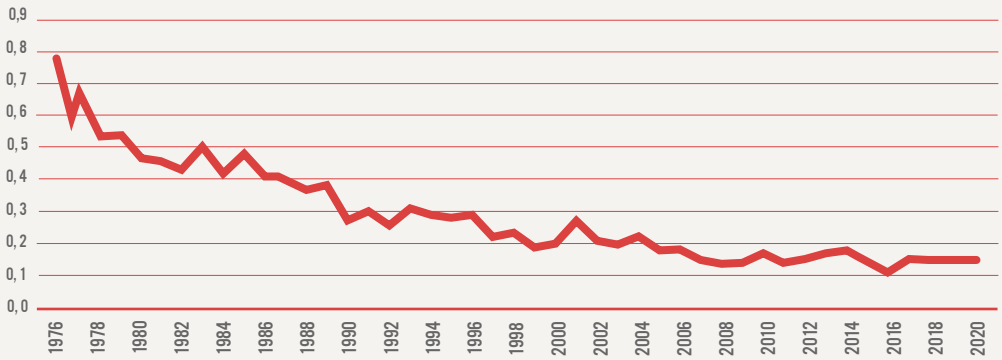
In Québec in 2020, the juvenile mortality rate was 0.15 children out of every 1,000*.



From the mid-1970s to the mid-1990s, juvenile mortality (between a child's first and fifth birthday) decreased by about half, then continued to decline until the mid-2000s. Minor annual variations aside, the juvenile mortality rate has remained relatively stable since 2006 at about 0.2 deaths per 1,000 children (or 2 out of 10,000).

* Provisional data for 2020.

Juvenile mortality rate (out of 1,000 children)



Source: Institut de la statistique du Québec, *Registre des événements démographiques.*

Access to health care

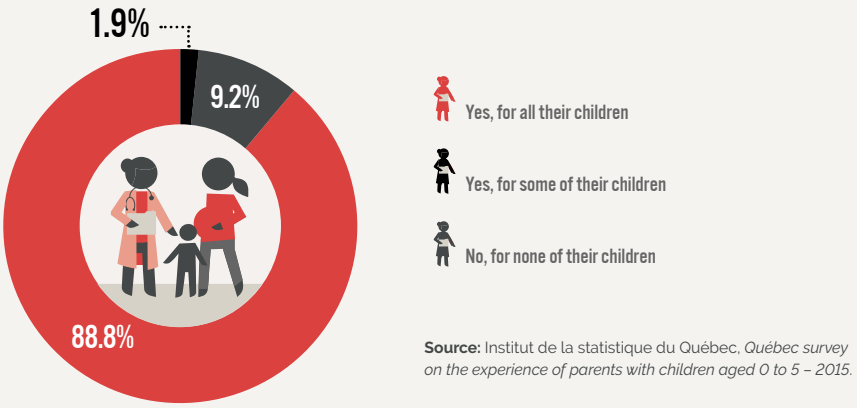
Access to health services during pregnancy can reduce the risks of low birthweight and infantile mortality. Medical follow-up also helps to prevent diseases, disabilities and injury in very young children[130]. Regular checkups allow doctors to assess a child's growth, motor development and living habits, and to screen for various health problems. Checkups also provide an opportunity for vaccinating children and keeping parents informed about their development[131]. Children who are not seen regularly by a healthcare provider are seen more frequently in emergency departments and hospitalized more often[132].

There was a sharp decline in use of pediatric healthcare services during the initial months of the pandemic, in terms of emergency visits, hospitalizations, medical appointments and outpatient follow-up appointments. This decrease was observed primarily during periods of confinement when parents were avoiding taking their children to hospital[133]. The negative repercussions for access to perinatal healthcare during the COVID-19 pandemic were more severe in disadvantaged areas than in more privileged neighbourhoods[134].

Family doctor or pediatrician

In 2015, approximately 89% of families had a family doctor or pediatrician for all their children between the ages of 0 and 5, while 2% said they had a family doctor or pediatrician for just some of their children under 5. In other words, close to **one family out of 10 (9%) said they did not have a family doctor or pediatrician** for their children between the ages of 0 and 5.

Distribution of Québec families with children between the ages of 0 and 5 based on whether or not they have a family doctor or pediatrician for their children, 2015



Source: Institut de la statistique du Québec, *Québec survey on the experience of parents with children aged 0 to 5 – 2015.*

In the October 2020 volume of her 2021-2021 report, the Auditor General of Québec observed that **of the 597,484 people who were on the waiting list for a family doctor, 185,237 were considered vulnerable—a category that includes pregnant women and children under the age of 2**. The number of persons considered vulnerable rose from 106,820 in 2017 to 185,237 in 2019: **an increase of 73%**. The wait time for persons considered vulnerable increased from 237 to 367 days. The target wait time for these health care users is a maximum of three weeks[135]. One study showed, however, that children under 18 had a 61% better chance of obtaining a family doctor more quickly than an adult in good health[136].

Dental care

Tooth decay can affect growth

Early childhood is an essential period for the acquisition of good life habits, including diet and oral hygiene[137]. By affecting children's eating and disturbing their sleep, tooth decay can hinder growth and healthy weight gain[138]. Since it can be painful and result in the premature loss of certain teeth, tooth decay can also affect children's physical health[139].

Affecting language and self-confidence

Tooth decay can also have an impact on other areas of development. It can negatively affect the proper positioning of teeth and pronunciation. The effect of tooth decay on appearance can result in problems with self-confidence throughout a child's entire life[140].

In Québec in 2020, 126,099 children between the ages of 0 and 5 had their teeth examined by a dentist under the dental care program offered by the RAMQ (Québec public health insurance), which corresponds to less than 1/4 of all children between 0 and 5 years of age (24.2%).

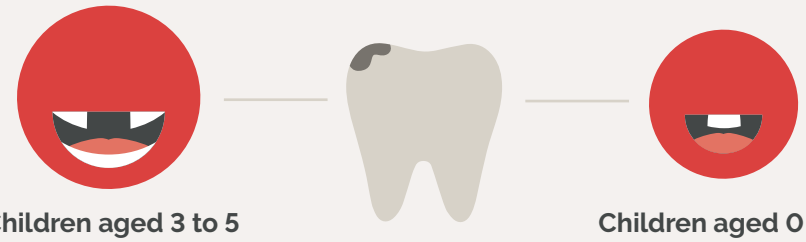
This rate is lower than it was in 2016 and 2006 (30.6% and 28.3%, respectively).

In 2020, among all the children between the ages of 0 and 5 who visited the dentist for a checkup, there were more 3- to 5-year-olds (89%) than children 2 years old and under (11%).

Source: Régie de l'assurance maladie du Québec (RAMQ), Direction de l'analyse et de la gestion de l'information, *Fichier des services rémunérés à l'acte 2020*.

In 2020, more older children (between the ages of 3 and 5) received some form of dental treatment (having a cavity filled or tooth pulled, for example) compared to children 2 years of age and under.

Children between the ages of 0 and 5 who received dental treatment in 2020



Children aged 3 to 5

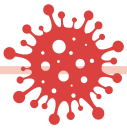
6.71%

Children aged 0 to 2

0.22%

Source: Source: Régie de l'assurance maladie du Québec (RAMQ), Direction de l'analyse et de la gestion de l'information, *Fichier des services rémunérés à l'acte.*

The Canadian Dental Association recommends that infants be assessed by a dentist within six months of the eruption of the first tooth or by one year of age.



The COVID-19 pandemic has been linked to an increase in children's consumption of foods with little nutritional value (such as sugary snacks and fast food) and to increased food insecurity among disadvantaged people with limited resources, households with children and young adults[141].

In contrast, certain positive nutritional changes have been observed in more privileged households, including more time spent cooking meals at home[142].

PHYSICAL HEALTH
KEY POINTS

Babies, toddlers and preschoolers are faring better than they were 10 years ago in terms of certain aspects of their physical health.

In 2019, almost all 1-year-olds (97%) had received all the recommended vaccines for the first year of life. The corresponding figure for 2-year-olds was 92%. In both cases, this represents a significant increase in the proportion of fully vaccinated children compared to 2006.

Hospitalizations for asthma declined significantly from 2008 to 2014 among children between the ages of 0 and 4 and remained stable until 2017.

The lowest number of COVID-19 cases is among children under 5 years of age as compared to other age groups.

The risk of children being hospitalized for COVID-19 is approximately 0.3% among 0- to 18-year-olds, and probably even lower in children under age 6.

To date, **no COVID-related deaths** have been reported in Québec in the 0-5 age group.

Certain aspects continue to give cause for concern, however.

A little over half (52%) of children between the ages of 3 and 5 did not comply with guidelines regarding **screen time** from 2016 to 2019.

40% of children between the ages of 3 and 5 **failed to comply with guidelines regarding physical activity** between 2016 and 2019.

The COVID-19 pandemic has been linked to a marked decline in physical activity among children of all ages and an increase in sedentary activities, especially time spent in front of screens. These changes are particularly pronounced among children living in disadvantaged areas.

The COVID-19 pandemic has also been associated with a deterioration in children's diets (an increase in sugary snacks and fast food, for example) and greater food insecurity, especially in low-income households. In contrast, certain positive nutritional changes have been observed in more privileged households, including more time spent cooking meals at home.

In 2020, under one-quarter of children (24.2%) between the ages of 0 and 5 had their teeth examined by a dentist under the dental care program offered by the RAMQ (Québec public health insurance). The corresponding figure for 2016 was 30.6%.

In the October 2020 volume of her 2021-2021 report, the Auditor General of Québec observed that of the 597,484 people **who were on the waiting list for a family doctor**, 185,237 were considered vulnerable—a category that includes pregnant women and children under the age of 2.

PHYSICAL HEALTH

Something can be done

There are many ways we can take collective action to improve conditions affecting children's physical health—options that have been shown to be effective or promising on the ground or in scientific research in Québec and around the world. Here are a few examples:

- The adoption of public policies or collective measures such as imposing taxes on sugary drinks[143] and creating safe areas in municipalities[144] that are conducive to physical activity can contribute to creating environments that foster healthy eating habits and a physically active lifestyle.
- The "Gazelle and Pumpkin" framework was developed to support the creation of environments that encourage healthy eating, active play and motor development in educational daycares[145].
- The community social pediatrics centre model is a holistic health approach designed to detect, reduce or eliminate stressors that can compromise a child's development and well-being[146]. Collaboration among various health disciplines and professionals is another approach that makes it easier for very young children to have access to medical care[147].
- Preventive measures need to be included in strategies for children's health to reduce accidental injuries[148] (campaigns promoting the wearing helmets while cycling, for example).
- The EMMIE program *(Entretien motivationnel en maternité pour l'immunisation des enfants)* uses motivational interviews in the maternity ward to reinforce new parents' attitudes in favour of vaccination. According to a study conducted in four hospital centres in Québec, this program has been effective in bolstering parents' intention to vaccinate their children and reducing their hesitation[149]. It is obviously also important to ensure that vaccines are universally available and that sufficient services are offered to comply with the normal immunization schedule[150].

- Countries that provide universal coverage for children's dental care have better success in fighting tooth decay[151]. Unfortunately, although the dental care program offered by the RAMQ for children under 10 years of age includes a complete yearly checkup and treatments for cavities and other dental problems, no preventive services are provided[152]. It has been shown, however, that preventive care plays in important role in preventing oral disease[153]. Since September 2020[154], dental hygienists have been permitted to work without the presence of a dentist, assessing patients' oral health and providing preventive care. Since the law does not however permit dental hygienists to bill the RAMQ[155], access to their services are restricted. Recognizing and responding to this change in legislation could result in more children under 5 having their teeth examined.

- A program of supervised tooth-brushing with fluoridated toothpaste in educational childcare centres and primary schools is currently being implemented. The Ministry of Health and Social Services is aiming to have the program offered in 65% of establishments by 2015[156].

Some of these measures have already been implemented in Québec. They must be maintained and consolidated to preserve progress made to date.

How could these measures be more effectively applied? Are there other measures we need to consider? We hope our 2021 Portrait will contribute to further reflection on these issues.

MENTAL HEALTH

It is difficult to estimate the number of children who are living with a mental health problem. Since mental health problems are difficult to detect in very young children and can evolve differently from one child to another, professionals prefer to be cautious and closely monitor a child's situation and condition before making a diagnosis.

Mental health problems in the very young are more common than most people think. Although there is little data available on this subject for children aged 5 and under, it is estimated that the frequency for that age group would be similar to that observed in school-aged children[157].

Generally speaking, children are among those whose mental health was most affected during the COVID-19 pandemic[158]. Although the data does not apply solely to young children, studies done in several countries observed that the health crisis resulted in an increase in symptoms of anxiety and depression, behavioural disorders and psychosomatic disorders (i.e., physical problems that are thought to be caused, or made worse, by mental factors); and a decrease in attention capacity and in both the quantity and quality of sleep[159]. Studies that examined the effects of the pandemic on children between the ages of 2 and 12 generally reported an increase in behavioural and emotional problems, such as anxiety, depression and conduct disorders[160].

Since young children are extremely sensitive to any stressors in their environment, they are more likely to experience the negative effects of the COVID-19 pandemic, the impacts of which have aggravated parents' stress and mental health issues, as well as poverty, domestic violence, substance abuse, etc.[161]. For example, according to the 2020-2021 Québec population health survey, 30% of respondents with high levels of psychological stress attributed their mental state entirely to the pandemic. Among couples with children, the corresponding figure was 35%[162].

Several factors seem to have contributed to an increased risk of mental health problems in children during the pandemic, including families' social isolation, pandemic-related stress (job loss and financial difficulties), and difficulty accessing mental health resources[163].

When left untreated, 50% of the mental disorders affecting very young children will persist into later childhood[164]. It is therefore important that these problems be detected early in order to intervene more rapidly. Since the brain is much more malleable early in life, interventions in early childhood are much more effective than in school-aged children, adolescents and adults[165].

Most children and adolescents who were already suffering from a mental health problem prior to the COVID-19 health crisis (a psychotic disorder, for example) saw their symptoms deteriorate during the pandemic[166].

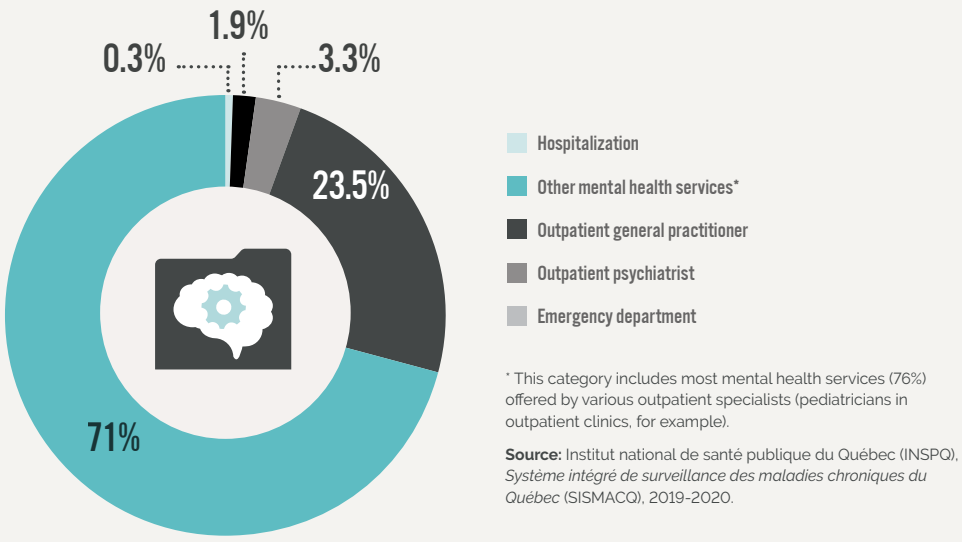
Use of services

In 2019-2020, the mental health services most frequently used by children between the ages of 1 and 5 living with mental disorders were:

- services provided by an outpatient **psychiatrist** (4%)
- services provided by an outpatient general practitioner (23.5%)
- other **mental health services**, including those provided by **pediatricians** (71%).

The breakdown was similar in previous years.

Breakdown of the mental health service user profile in children between the ages of 1 and 5 living with mental disorders in 2019-2020



* This category includes most mental health services (76%) offered by various outpatient specialists (pediatricians in outpatient clinics, for example).

Source: Institut national de santé publique du Québec (INSPQ), *Système intégré de surveillance des maladies chroniques du Québec* (SISMACQ), 2019-2020.

Anxiety-depressive disorders

Although it was originally believed that very young children did not suffer from anxiety-depressive disorders, studies over the past 10 years have shown that they can indeed be afflicted by social phobia, separation anxiety, generalized anxiety and depression. These conditions are difficult to detect in very young children, who are usually not yet able to verbalize their emotions. Certain factors can increase a child's risk of experiencing an anxiety-depressive disorder: a difficult family environment, problematic relationships with peers, or living through a stressful event[167].

The main anxiety-depressive disorders that affect very young children are social phobia, separation anxiety, generalized anxiety and depression.

Later in a child's life, anxiety-depressive disorders are linked to greater use of health services, a higher rate of absenteeism in school, the risk of dropping out, and the presence of suicidal ideation. These disorders also affect young children's daily lives, resulting in difficulties going to daycare, socializing or sleeping[168].

1,696 children between the ages of 1 and 5 (0.4%) were diagnosed with an anxiety disorder or depressive symptoms in 2019-2020.

The proportion of children affected has remained stable at around 0.4% since the early 2000s.

Source: : Institut national de santé publique du Québec (INSPQ), *Québec Integrated Chronic Disease Surveillance System* (QICDSS), 2019-2020.

Note: The modernization of the billing system for fee-for-service medical services by the *Régie de l'assurance maladie du Québec* (RAMQ) in 2016 resulted in a decrease in the entry of diagnostic codes in the fee-for-service medical services file. Data for 2016–2017 and subsequent years should therefore be interpreted with caution, as a slight underestimation is suspected.

It is too early to determine the extent of short- and long-term effects of the COVID-19 pandemic on the various aspects of early childhood development[169]. The negative effects of social isolation on the mental health of children and adolescents were well known prior to the pandemic, however. Longitudinal studies have shown that social isolation in children and their parents is associated with an increased risk of depression and anxiety disorders during the period of actual isolation, but also years later in the case of children. The duration of the social isolation seems to have more of a negative effect than its actual *intensity*[170].

MENTAL HEALTH
KEY POINTS

The mental health of young children in Québec needs to be monitored.

In 2019-2020, 1,696 children between the ages of 1 and 5 were diagnosed with an anxiety disorder or symptoms of depression. The main anxiety-depressive disorders that affect young children are social phobia, separation anxiety, generalized anxiety and depression. The proportion of children affected has remained stable at around 0.4% since the early 2000s.

Children are among those whose mental health was most affected during the COVID-19 crisis. Since the beginning of the pandemic, an increase has been observed in symptoms of anxiety and depression and behavioural disorders, as well as decreases in attention capacity and the quantity and quality of sleep.

Several factors seem to have contributed to an **increased risk of mental health problems in young children during the pandemic**, such as families' social isolation, pandemic-related financial stress, and difficulty accessing mental health resources.

Social isolation is linked to an increased risk of depression and anxiety disorders—not only during the period of isolation, but also years later. The duration of the period of social isolation appears to have more negative repercussions than does its intensity.

Very little data is available, however, to assess young children's mental health. Mental health problems are difficult to detect in young children and can evolve differently from one child to another. Since mental health problems are difficult to detect in very young children and can evolve differently from one child to another, professionals prefer to be cautious and closely monitor a child's situation and condition before making a diagnosis.

MENTAL HEALTH

Something can be done

There are many ways we can take collective action to improve conditions that affect children's mental health—options that have been shown to be effective or promising on the ground or in scientific research in Québec and around the world. Here are a few examples:

We can support young children's mental health by improving the quality of their family or educational environments.

- Financial support programs or measures that ensure access to affordable housing help families meet their basic needs, which reduces stress[171].
- Accessible family-work balance measures[172] can help to reduce parental stress and improve young children's family environment[173].
- Offering parents assistance and supporting them in their efforts to provide their children with an environment that fosters healthy lifestyle habits could also have a positive effect on young children's mental health[174, 175].
- The quality of a child's educational facility can influence his or her stress levels[176]. When facilities offer a combination of trained educators[177] and specialized services, it is possible to ensure prompt intervention in the daily lives of toddlers and preschoolers.

We can also make it easier to detect and diagnose mental disorders in very young children.

- Waiting lists for mental health services and difficulty accessing professional help are serious issues. Accessibility to health care and social services must be a priority[178].

- There are several measures that could reduce barriers to accessing services for vulnerable families. For example, it would be possible to ensure that all families receive the necessary information on available services, to provide access to interpreters when language is an obstacle, to train health care and social service providers to reduce negative attitudes towards families and to allow enough time for building a relationship of trust with them[179].

Some of these measures have already been implemented in Québec. We need to make sure they are maintained and consolidated.

How could these measures be more effectively applied? Are there other measures we need to consider? We hope our 2021 Portrait will make a valuable contribution to the public reflection on these issues.

DEVELOPMENT

Early childhood development includes development in various areas of skill and aptitude. Developmental studies generally focus on the following domains: physical and motor, social, emotional, cognitive and language/communication. All these aspects are interrelated and influence each other. For example, children who have trouble managing their emotions (emotional development) may also have less harmonious relationships with their peers (social development)[180].

During early childhood, children's learning acquisitions and experiences mould their overall development, which is largely dependent on the environment in which they live (their family, educational services, community, society, etc.)—in other words, their interactions and experiences[181]. In addition to biological considerations, it is children's early experiences combined with the support and stimulation they receive in the various living environments that influence their development[182]. Although the main stages of development are similar from one individual to the next, every child develops at their own rate.

The socio-economic situation and environments in which young children grow up in Québec are presented in greater detail in the 2019 edition of the *Portrait of young children in Québec*, the *2021 Portrait of Public Policies*, and the thematic report *What can we do to foster children's development before they start school? The importance of quality, stability and continuity in the environments of very young children*. All of these reports are available online at *tout-petits.org*.

This section also looks at the number of young children with disabilities and the number who have been diagnosed with a neurodevelopmental disorder, such as attention deficit disorder with or without hyperactivity or autism spectrum disorder. It is difficult to estimate the number of children living with a neurodevelopmental disorder, as such conditions are difficult to detect in young children and can evolve differently from one child to another. Professionals therefore prefer to be cautious and closely monitor a child's situation and condition before making a diagnosis. Moreover, very little data is available to assess this type of disorder in very young children. What follows is based on the data currently available to us.

Vulnerability in kindergarten

Some children start school in good health, with all the capacities and skills they need to take full advantage of everything school has to offer them in terms of both living environment and opportunities for learning. For others, however, starting down their academic path is not so easy. The *Québec Survey of Child Development in Kindergarten* (QSCDK) describes children's level of development at this important transitional point in their lives.

WHAT DO WE MEAN BY "VULNERABLE CHILD"?

For the purposes of the *Québec Survey on the Preschool Path of Kindergarten Students* conducted in 2012 and 2017 and the *Québec Survey on the Preschool Path of Kindergarten Students*, children were evaluated by their kindergarten teacher. A child was considered to be vulnerable in a given developmental domain if they were among the 10% of children living in Québec with the lowest scores in that domain.

WHAT ASPECTS ARE STUDIED IN EACH DOMAIN?

Physical health and well-being
Teachers evaluated children's overall physical development, motor skills, adequate food and clothing, cleanliness, punctuality and alertness.

Social competence
Teachers evaluated children's social skills, self-confidence, sense of responsibility, respect for peers, adults and rules and routines, work skills and autonomy, and curiosity.

Emotional maturity
Teachers evaluated children's behaviour towards others, ability to help others, fear, anxiety, aggressive behaviour, hyperactivity and inattention, and expression of emotions.

Language and cognitive development
Teachers evaluated children's interest and skills in reading, writing and arithmetic, and appropriate use of language.

Communication skills and general knowledge
Teachers evaluated children's ability to communicate understandably, enunciate clearly and their general knowledge.

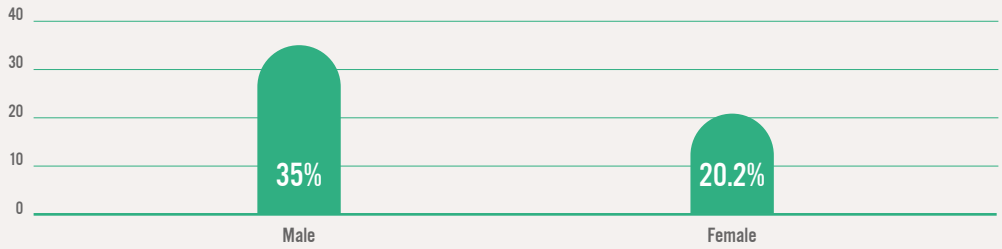
Children who have all the skills and aptitudes needed to get a good start in school can take full advantage of all the educational opportunities offered to them, which sets them on the right path to achieving their full development and potential. Studies have shown that kindergarten-aged children who are developmentally vulnerable are more likely to have difficulty in school later on. Academic success in primary school has an impact on the highest level of diploma obtained in adulthood and prospects for employment[183]. Studies have shown, however, that certain interventions can modify the trajectory of children who have not had the same opportunities[184]. It is now recognized that children who present the highest risk in terms of their development are the most receptive to the beneficial interventions or influences provided by positive, stimulating environments[185].

In Québec, a little more than one kindergartener out of four (27.7%) was vulnerable in at least one domain of development in 2017. That percentage represents 23,790 children.

The proportion of children who were vulnerable in at least one developmental domain was higher in 2017 than in 2012, when it was 25.6%.

Source: Institut de la statistique du Québec, *Québec Survey of Child Development in Kindergarten, 2012-2017.*

Proportion of kindergarteners who were vulnerable in at least one domain of development, based on sex – 2017



Source: Institut de la statistique du Québec, *Québec Survey of Child Development in Kindergarten*, 2017.

Some young children are more vulnerable than others

In general, certain children[186] are at greater risk of being vulnerable in at least one domain of development:

- Boys
- The youngest children in the cohort (born in July, August or September)
- Children born outside of Canada
- Children whose mother tongue is other than French or English
- Children from disadvantaged environments
- Children whose parents have a lower level of education (i.e., who do not have a diploma or whose highest level of education is high school).

Children whose mother tongue is English are also more vulnerable (36.7%) in at least one domain of development as compared to those whose mother tongue is French (25.6%).

According to the *Québec Survey of Child Development in Kindergarten*, the proportion of children who are vulnerable in at least one domain of development is greater among children living in households that are considered low-income (41%), compared to their counterparts in more privileged households (23%).

Proportion of kindergarteners who were vulnerable in at least one domain of development, based on income indicator – 2017

[a] The exponent indicates a significant difference between proportions at the 0.05 level.

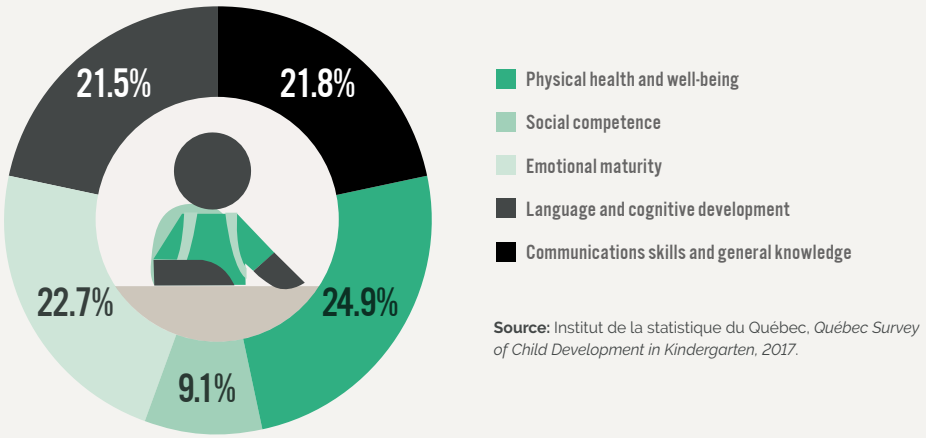
Source: Institut de la statistique du Québec, *Québec Survey of Child Development in Kindergarten, 2017.*

Vulnerability in a single domain of development

In Québec in 2017, among children in kindergarten considered to be vulnerable in at least one domain of development, almost half (49%) presented vulnerability in a single domain.

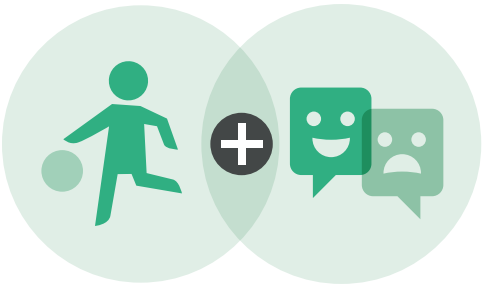
Among kindergarteners who were vulnerable in a single domain, approximately one out of 10 were vulnerable in the area of *Social competence* (9%), while one out of four (25%) presented vulnerability in the area of *Physical health and well-being*. Close to one-fifth of kindergarteners who were vulnerable in a single domain of development were vulnerable in the areas of *Emotional maturity* (23%), *Language and cognitive development* (22%) and *Communication skills and general knowledge* (22%).

Distribution of kindergarteners who were vulnerable in a single domain of vulnerability based on that domain – 2017



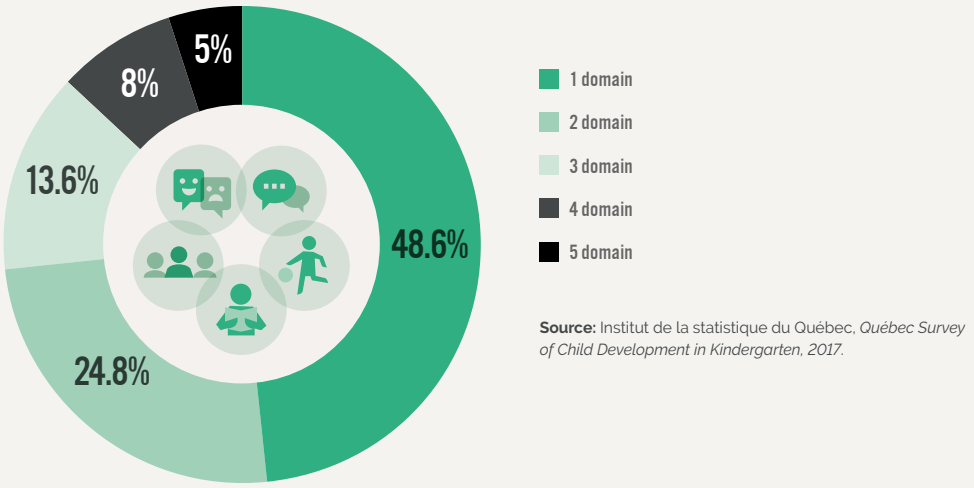
Source: Institut de la statistique du Québec, *Québec Survey of Child Development in Kindergarten, 2017.*

Vulnerability in several domains of development



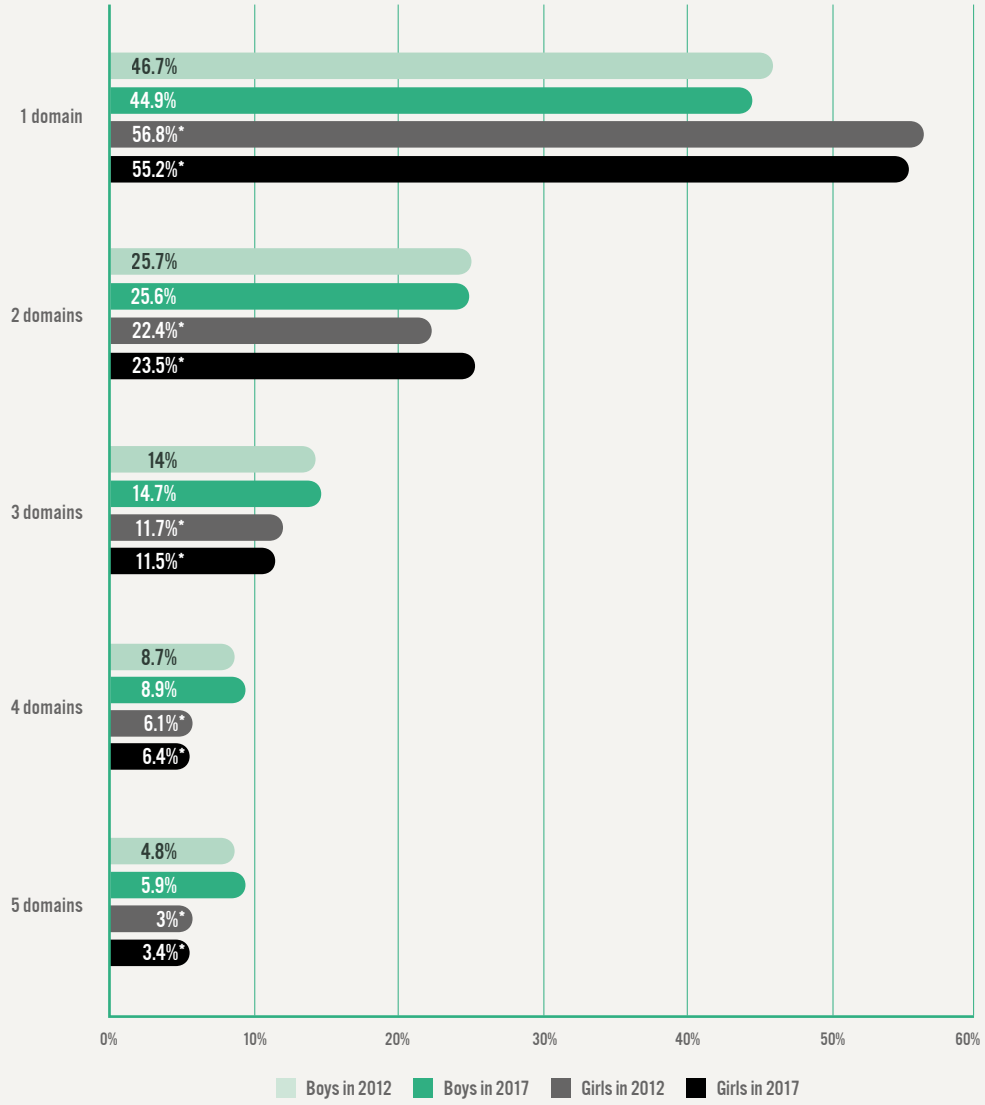
In Québec in 2017, approximately 25% of children in kindergarten were considered to be vulnerable in two domains of development, 14% in three domains, 8% in four domains and 5% in five domains.

Distribution of vulnerable children in 5-year-old kindergarten, based on the number of domains of vulnerability, 2017



Source: Institut de la statistique du Québec, *Québec Survey of Child Development in Kindergarten, 2017.*

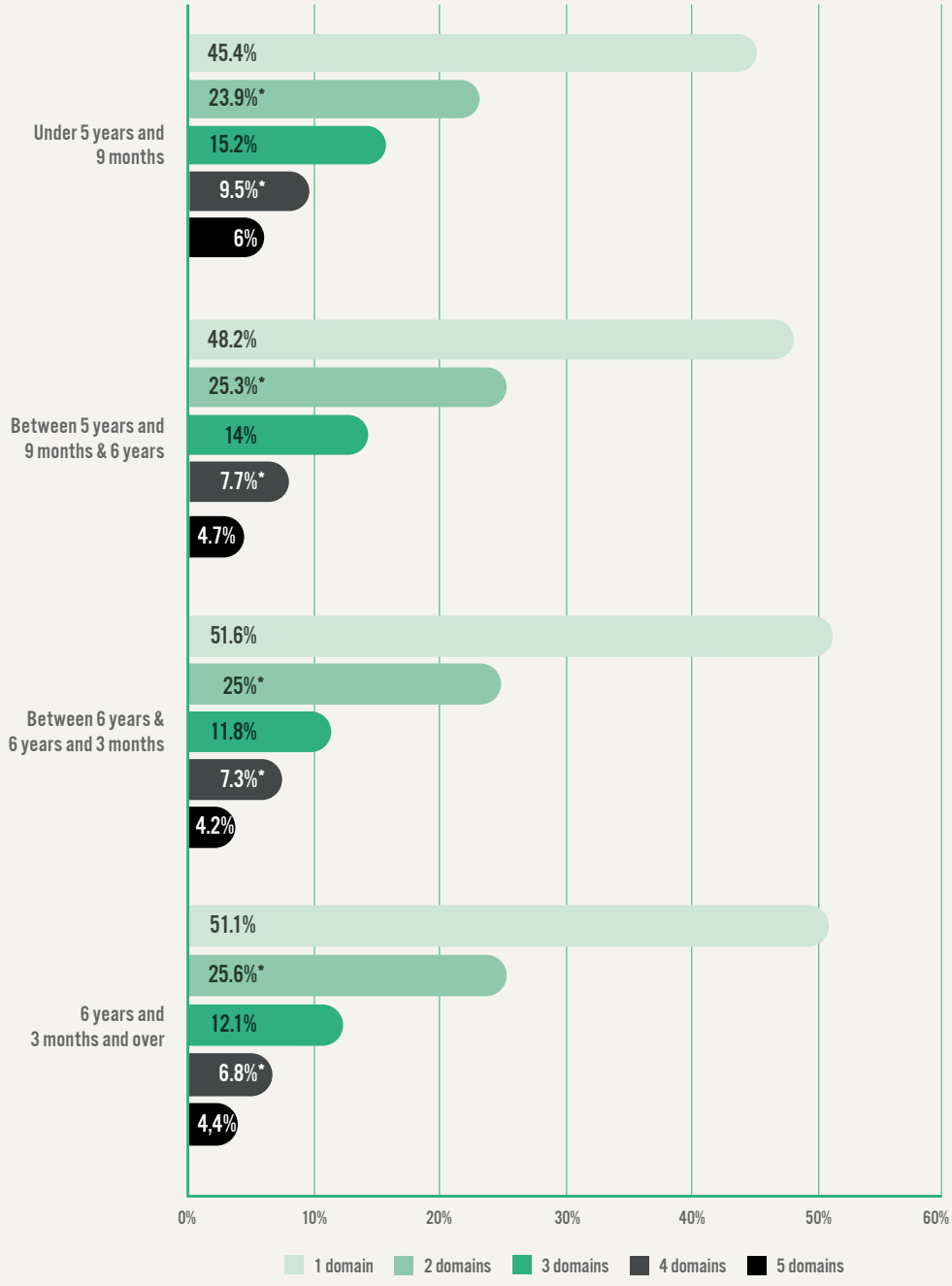
Distribution of vulnerable children in 5-year-old kindergarten, based on the number of domains of vulnerability and sex in 2012 and 2017



Source: Institut de la statistique du Québec, *Québec Survey of Child Development in Kindergarten, 2012-2017.*

The youngest children in the cohort (younger than 5 years and 9 months) were more likely than their older classmates to be vulnerable in three, four or five domains, with one exception. The same trend was observed in 2012.

Distribution of vulnerable children in 5-year-old kindergarten, based on the number of domains of vulnerability and age group in 2017

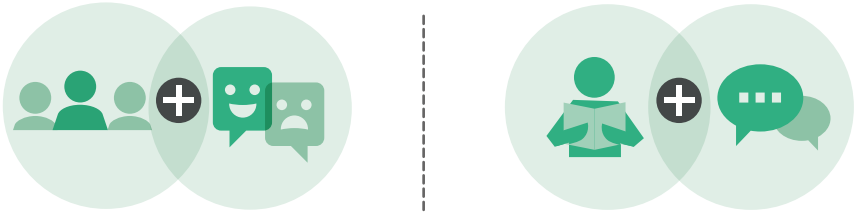


Source: Institut de la statistique du Québec, *Québec Survey of Child Development in Kindergarten, 2017.*

Combinations of domains of vulnerability

In 2017, children who were vulnerable in the domain of ***Emotional maturity*** were more likely to also be vulnerable in the domain of ***Social competence*** if they presented a second vulnerability, and vice versa.

Similarly, the domains of ***Communication skills and general knowledge*** and ***Language and cognitive development*** were also interrelated. This trend was also observed in 2012.



The context of the COVID-19 pandemic has raised concerns about childhood development. The wearing of masks by children and the adults around them could hinder language development as well as social-emotional development (since it is impossible to see lips moving, smiles and other facial expressions). Children have also been less exposed to social contacts and stimulating environments, such as those provided by quality education childcare facilities and kindergartens, because of prolonged periods of closure and confinement. Reduced access to public spaces that are favourable to the development of healthy living habits (such as schools, parks and municipal infrastructures) and the increase in screen time are also causes for concern[187].

Although the full extent of the effects of the COVID-19 pandemic on young children's development is not yet known, various hypotheses have come out of studies that evaluated the repercussions of prior pandemics on children's health and well-being. During the SARS crisis in 2003, for example, the risk of delays in certain stages of development was established at three to five times greater for the 15,000 children who experienced the SARS pandemic. A study currently under review proposes some worrying conclusions—that the verbal, motor and cognitive development of children born during the pandemic has been negatively affected as compared to that of children born prior to this period. These effects are more pronounced in children living in low income households[188].

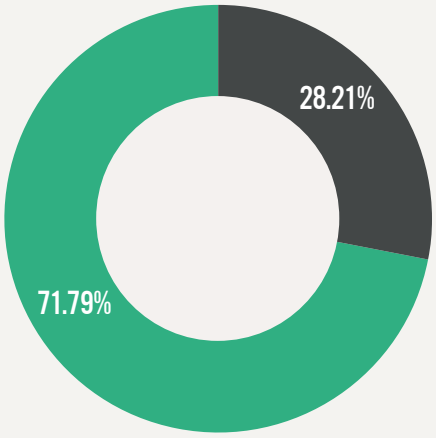
Disabilities

Children living with a disability experience activity and participation limitation imposed by a condition, or physical or mental health problem. Depending on the obstacles in the child's environment, a disability can become a handicap. Different disabilities can affect different aspects of children's development. Very young children who live with a disability may also unfortunately experience discrimination and exclusion[189].

According to the report *L'incapacité chez les enfants au Québec*, 6.2% of children between the ages of 0 and 4 were living with a disability in 2016. That figure represents approximately 27,690 children[190].

Children recognized as living with a disability

In Québec in 2017, 6,635 children between the ages of 0 and 5 were considered to be living with a disability under the Supplement for Handicapped Children program (SHC) offered by Retraite Québec. This means that 12.5 out of every 1,000 children between the ages of 0 and 5 in Québec were recognized as living with a disability.



In 2017, 72% of those children were living with a disability, and 28% had been diagnosed with a developmental disorder.

Disabilities

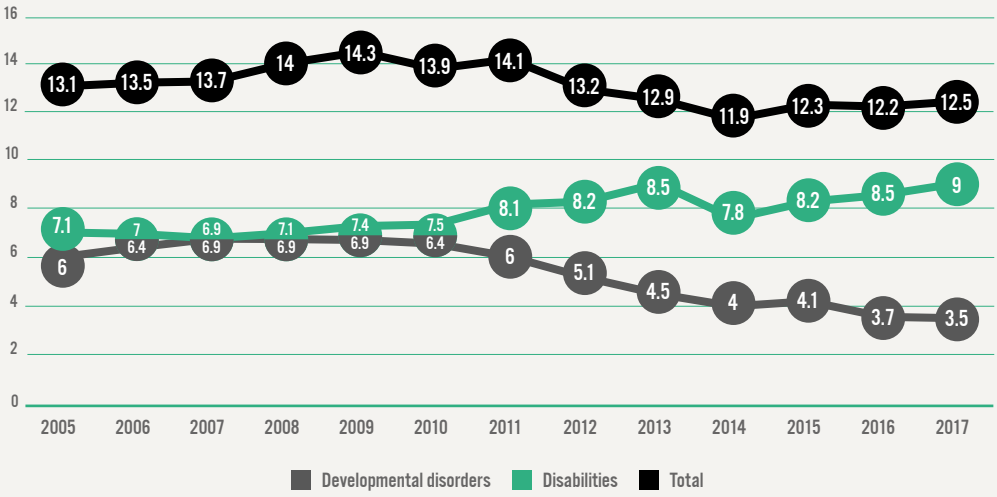
Developmental disorders

Source: Retraite Québec, Fichier administratif des enfants handicapés (containing information transmitted by the Directeur de l'état civil, Revenu Québec and parents of children with disabilities).

After the rate of children recognized as living with a disability increased slightly between 2005 and 2009, it remained stable, then gradually declined. In 2017, it dropped to a level below that observed in 2005.

In 2017, however, the rate of children living with a disability was almost triple that of children with developmental disorders (9 out of every 1,000 children, as compared to 3.5).

Percentage of children between the ages of 0 and 5 recognized as living with a disability



Source: Retraite Québec, Fichier administratif des enfants handicapés (containing information transmitted by the Directeur de l'état civil, Revenu Québec and parents of children with disabilities).

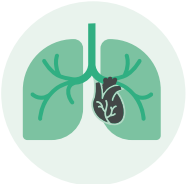
To be recognized as disabled, a child must present a disability or developmental disorder that significantly restricts their daily activities.

Disabilities include:

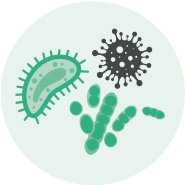
Digestion and eating disorders

Hearing or visual disability

Metabolic disorders



Cardiovascular, renal or respiratory dysfunction



Immune system or nervous system disorders

Developmental disorders include:

Intellectual disabilities

Autism spectrum disorder

Global developmental delay

Speech disorders

Severe behaviour disorders

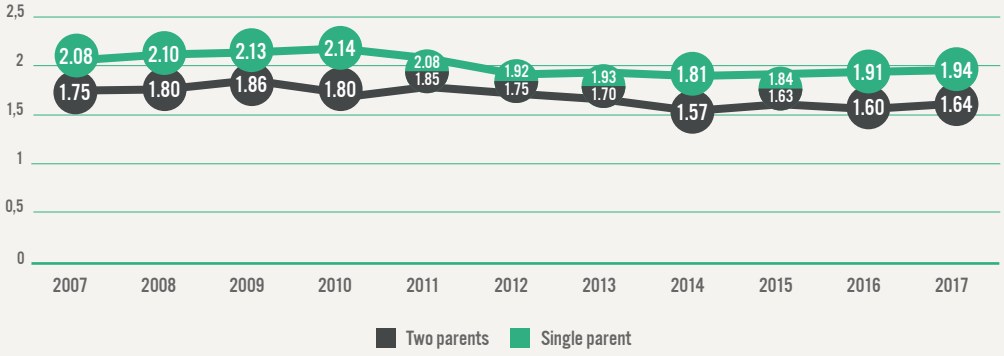
Families with a young child receiving the Québec Supplement for Handicapped Children (SHC)

In 2017, 6,513 families with at least one child between the ages of 0 and 5 were receiving the Supplement for Handicapped Children (SHC). That figure represents 1.69% of families living in Québec*.

That rate is lower than it was in 2007 (1.81%). In 2017, the rate of single-parent families with at least one child between the ages of 0 and 5 who were receiving the SHC was higher (1.94%) than the rate for two-parent families (1.64%). This trend was also observed in previous years (2007 to 2016).

* This is actually the percentage of Québec families with at least one child between 0 and 5 that received the Provincial Child Assistance payment (*Paiement de soutien aux enfants* or PSE). This rate nonetheless gives us a fairly accurate idea for all Québec families with at least one child between the ages of 0 and 5, since between 96% and 97% of all Québec families receive the PSE.

Families with at least one child between the ages of 0 and 5 that received the Supplement for Handicapped Children (SHC), based on family structure



Source: Retraite Québec, Fichier administratif des enfants handicapés (containing information transmitted by the Directeur de l'état civil, Revenu Québec and parents of children with disabilities).

Children with special needs

CHILDREN IN KINDERGARTEN LIVING WITH A DISABILITY OR ADJUSTMENT PROBLEM

Data from the *Québec Survey of Child Development in Kindergarten* do not include children with disabilities or adjustment problems (special needs).

During the 2016-2017 school year, 4,888 children in 5-year-old kindergarten were living with a disability or special needs, based on the criteria of the ministère de l'Éducation et de l'Enseignement supérieur. That figure represents 5.8% of all children enrolled in 5-year-old kindergarten in the public system.

This proportion remained stable from 2011-2012 to 2016-2017.

About half of those students (2,610 in 2016-2017) were living with a disability, while the other half had a personalized intervention plan (without having a diagnosis recognized by the school for a disability or severe behaviour disorder).

The data of the ministère de l'Éducation et de l'Enseignement supérieur refer to children with a disability, adjustment problems or a learning difficulty ("SHSMLD": students with handicaps, social maladjusments or learning difficulties or "EHDAA": *enfants handicapés ou en difficulté d'adaptation ou d'apprentissage*). Since learning difficulties do not apply to children in 5-year-old kindergarten, the acronym "EDHA" is used in those cases. Furthermore, data apply to children in 5-year-old kindergarten in the public education system only; they do not include information from the government or private network.

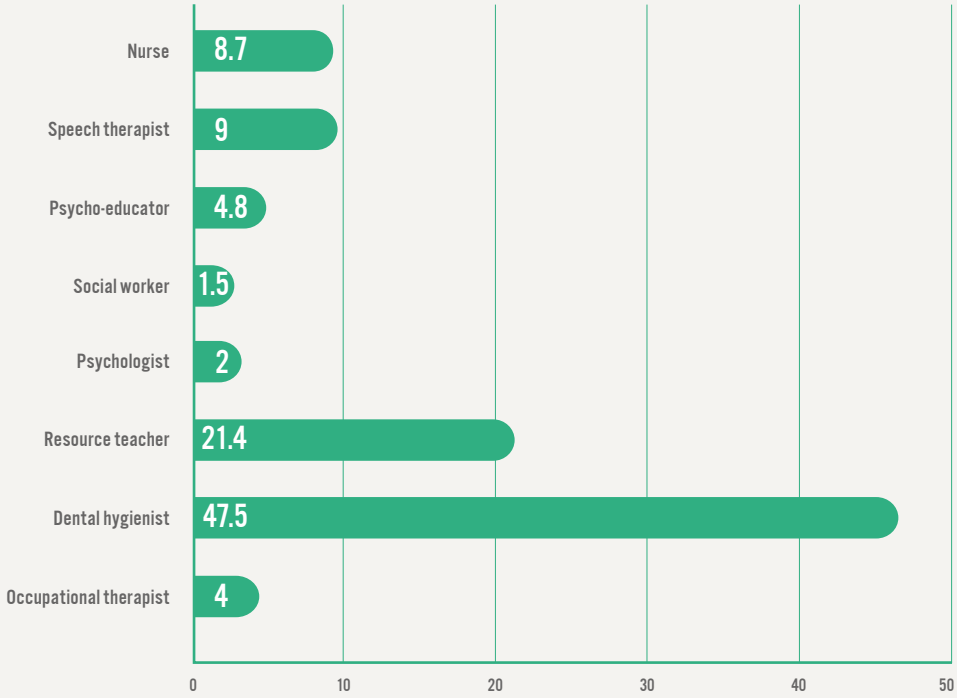
Services provided by non-teaching professionals in kindergarten

Access to services from a non-teaching professional (including psycho-educators, social workers, nurses, dental hygienists, speech therapists, resource teachers, occupational therapists, etc.) is beneficial for children who are developmentally vulnerable. These professionals can provide support for teachers or early childhood educators in identifying a child's specific needs and participating in the preparation of an intervention plan. They also play an important role in prevention, early intervention and screening[191].

In 2017, approximately **47.5%** of children attending kindergarten were seen by a dental hygienist at their school.

However, the proportion of children who were seen by a resource teacher was **21.4%**.

Proportion of kindergarteners who received the services of a non-teaching professional in 2017, based on the type of professional



* In the case of this table, data for 2017 were not comparable to those for 2012. For more information, see the *Québec Survey of Child Development in Kindergarten report for 2017*.

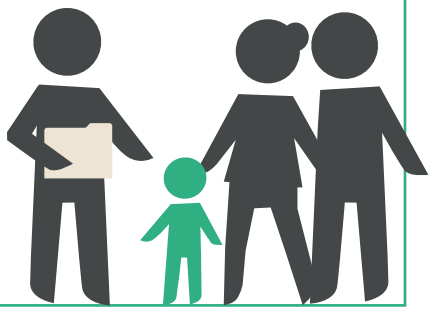
Source: Institut de la statistique du Québec, *Québec Survey of Child Development in Kindergarten, 2017*.

Neurodevelopmental disorders

Attention deficit disorder with or without hyperactivity (ADD/ADHD)

To be diagnosed with an attention deficit disorder (ADD), a child must present six symptoms of inattention. If they also present six symptoms of hyperactivity or impulsivity, the diagnosis becomes attention deficit hyperactivity disorder, or ADHD[192].

Since it is normal for very young children to display a certain degree of inattention or hyperactivity, the symptoms must be severe, unusual for the child's age, persistent, and affect the child's functioning. Since it is difficult to diagnose ADD/ADHD before the age of 6, clinicians are usually very cautious about making such diagnoses in very young children.



In children between the ages of 0 and 5, a diagnosis of attention deficit disorder with or without hyperactivity (ADD/ADHD) is often accompanied by an anxiety disorder or oppositional defiant disorder (ODD)[193]. These special needs young children are therefore more likely to experience social and emotional problems during childhood as well as adolescence (high impulsivity or difficulty recovering their emotional well-being in periods of great emotion)[194].

Although it is not inevitable, ADHD in older children and adolescents is associated with academic difficulties, social difficulties, high-risk sexual behaviour or substance abuse[195,196]. Most children with ADHD may continue to experience certain symptoms until adulthood[197].

In Québec in 2019-2020,
2,708 children between the ages of 1 and 5 had been diagnosed with an attention deficit disorder with or without hyperactivity (ADD/ADHD), accounting for 0.61% of all children in that age group.

Although the proportion of children diagnosed with ADHD is low among 1 to 5-year-olds, it rose significantly between 2000-2001 and 2015-2016, going from 0.4%* to 0.78%.** The modernization of the billing system for fee-for-service medical services by the *Régie de l'assurance maladie du Québec* (RAMQ) in 2016 resulted in an underestimation of the prevalence of ADHD starting in 2016-2017. After that time, the estimated prevalence of ADHD is based more on the use of health services related to the disorder.

* CI 99%: 0.38-0.43
** CI 99%: 0.75-0.82

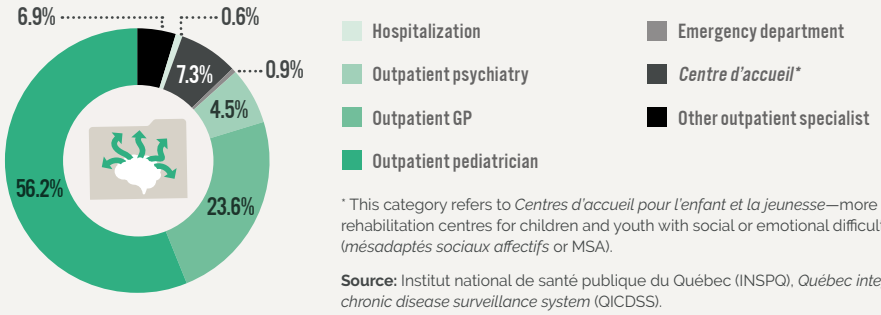
Source: Institut national de santé publique du Québec (INSPQ). Québec Integrated Chronic Disease Surveillance System (QICDSS). Québec hospitalization database (MED-ÉCHO - Maintenance et exploitation des données pour l'étude de la clientèle hospitalière). Physician claims database and health insurance registry (FIPA - fichier d'inscription des personnes assurées).

Use of mental health services in children between the ages of 1 and 5 diagnosed with ADHD

En 2019-2020, the type of mental health services used by children between the ages of 1 and 5 with an attention deficit order with or without hyperactivity were, in order of importance:

- Outpatient pediatric services (56.2%)
- Services provided by an outpatient general practitioner (23.6%)
- Outpatient psychiatric services (4.5%)

Distribution of use of mental health services among children between the ages of 1 and 5 with attention deficit disorder with or without hyperactivity (ADHD) in 2019-2020



* This category refers to *Centres d'accueil pour l'enfant et la jeunesse*—more specifically, rehabilitation centres for children and youth with social or emotional difficulties (*mésadaptés sociaux affectifs* or MSA).

Source: Institut national de santé publique du Québec (INSPQ), *Québec integrated chronic disease surveillance system* (QICDSS).

Autism spectrum disorder (ASD)

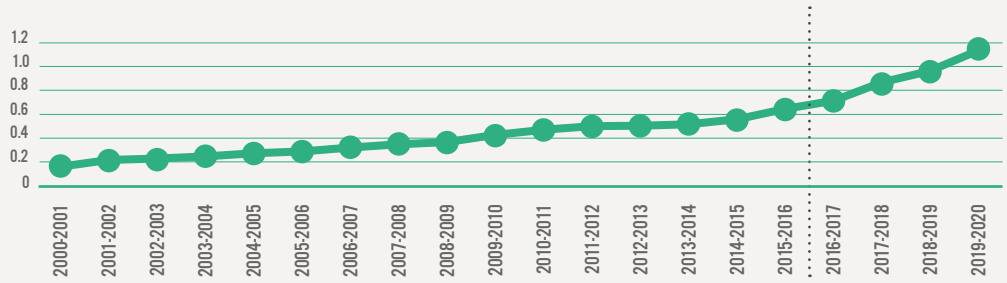
Autism spectrum disorder is a condition that affects several aspects of childhood development in different ways. It mainly affects social communication and motor skills, the process by which the brain processes information received from the senses (i.e., integration, modulation and sensory regulation), attention and emotion regulation, and sleep. It may also be associated with other neurodevelopmental disorders, such as speech disorders, developmental coordination disorder (DCD) and ADHD[198].

In 2019-2020,
4,877 children between the ages of 1 and 5 had been diagnosed with autism spectrum disorder, accounting for 1.09% of all children in that age group.

The proportion of children who have received a diagnosis of autism spectrum disorder has increased significantly since the early 2000s, rising from 0.16%* in 2000-2001 to 1.09%** in 2019-2020.

* CI 99%: 0.14-0.18
** CI 99%: 1.06-1.14

Prevalence of ASD diagnoses (%)



Note: The modernization of the billing system for fee-for-service medical services by the *Régie de l'assurance maladie du Québec* (RAMQ) in 2016 resulted in a decrease in the entry of diagnostic codes in the fee-for-service medical services file. Data for 2016–2017 and subsequent years should therefore be interpreted with caution, as a slight underestimation is suspected. After 2016-2017, the estimated prevalence of ASD is based more on the use of health services related to the disorder.

Source: Institut national de santé publique du Québec (INSPQ). Québec Integrated Chronic Disease Surveillance System (QICDSS). Québec hospitalization database (MED-ÉCHO - *Maintenance et exploitation des données pour l'étude de la clientèle hospitalière*). Physician claims database and health insurance registry (FIPA - *fichier d'inscription des personnes assurées*).

DEVELOPMENT
KEY POINTS

Some aspects of childhood development are cause for concern:

A little under one out of four kindergarteners (27.7%) was vulnerable in at least one domain of development in 2017. This figure is higher than it was in 2012 (25.6%).

Some children are at greater risk of vulnerability in at least one domain of development: boys, children who are the youngest in their cohort, children whose mother tongue is English, children who were born outside of Canada, children living in disadvantaged neighbourhoods, and those whose parents have lower levels of education.

In 2017, the proportion of kindergarteners who were vulnerable in at least one domain of development was **larger among children living in households considered low-income (41%)**, as compared to their counterparts in more privileged households (23%).

In Québec in 2016-2017, 4,888 students in 5-year-old kindergarten in the public system were living with a disability or adaptation difficulties (special needs) (EHDA – *élèves handicapés ou en difficulté d'adaptation*). That figure represents 5.8% of the children in that cohort.

The proportion of children diagnosed with an autism spectrum disorder has increased significantly since the early 2000s, rising from 0.16% in 2000-2001 to 1.09% in 2019-2020.

It is difficult to estimate the number of children living with a neurodevelopmental disorder, as such conditions are difficult to detect in young children and can evolve differently from one child to another. Professionals therefore prefer to be cautious and closely monitor a child's situation and condition before making a diagnosis. Moreover, very little data is available to assess this type of disorder in early childhood.

DEVELOPMENT

Something can be done

There are many ways we can take collective action to improve conditions that affect early childhood development—options that have been shown to be effective or promising on the ground or in scientific research in Québec and around the world. Here are a few examples:

- The socio-economic environment in which a child grows up influences their development[199]. Improving the living conditions of children in disadvantaged neighbourhoods and providing their parents with support are ways to improve these children's early development[200].
- Interventions that target very young children are more effective than those aimed at older children or adolescents. The objective of the *Agir tôt*[201] program developed by the ministère de la Santé et des Services sociaux (MSSS) is to detect vulnerabilities and developmental delays in children as early as possible in order to provide a rapid, coordinated response.
- Early detection of difficulties being experienced by a child is a responsibility that should be shared among various early childhood specialists and the child's family[202]. Screening instruments based on observation need to be developed for parents or other adults who interact with the child. Although such instruments cannot determine the actual extent of the delay in development, they can identify children who require more extensive and specialized intervention[203].
- The Bright Beginnings approach is a development model for minority communities that want to improve the well-being and academic success of English-speaking children and youth in Québec. The success achieved by the organizations supported by the Bright Beginnings program has enabled them to create 57 new programs and services especially designed for English-speaking children and their parents[204].
- In Québec, personnel in educational childcare facilities play a role in detecting developmental delays[205]. Quality preschool services also offer young children the stimulation and guidance they need for a smooth transition into the school system.

- Access to services provided by a non-teaching professional is beneficial for children who are developmentally vulnerable. These professionals can provide support for teachers or early childhood educators in identifying a child's specific needs and by participating in the preparation of an intervention plan[206].

- Psychosocial interventions aimed at reducing symptoms of ADHD and improving children's social, academic and family functioning need to be a priority[207].
  It is also possible to help children with an autism spectrum disorder to better deal with the challenges they face. For example, certain educational methods initiated at an early age can improve their language and social skills[208].

Some of these measures have already been implemented in Québec. We need to make sure they are maintained and consolidated.

How could these measures be more effectively applied? Are there other measures we need to consider? We hope our 2021 Portrait will make a valuable contribution to the public reflection on these issues.

ABOUT THE DATA PRESENTED

Four key criteria were used to select the indicators used to produce this portrait: data had to be recurring, statistically robust, available at the regional level and based on a recent point of reference. Possible links to child development were also taken into consideration.

Any necessary reservations with respect to data interpretation are included in the text. Notes on the methodology used for each indicator are available on the Observatory's website at **tout-petits.org/donnees**.

The Early Childhood Observatory has prepared a series of documents to accompany the *2021 Portrait*:

Regional portraits with specific information on each of Québec's 17 regions (available soon in 2022)

Visuals for your presentations or use on social networks

These tools are available on our website at
tout-petits.org/portrait2021

Also available for consultation:

2019 Portrait: What kind of environments are Québec's youngest children growing up in?

and

2021 Portrait of Public Policies: *What is Québec doing to support young children and their families?*

This report and all related documents are available on our website at
tout-petits.org/portrait2019

This report and all related documents are available on our website at
tout-petits.org/Politiques2021

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The mission of the Early Childhood Observatory, a project of the Lucie and André Chagnon Foundation, is to communicate the current state of knowledge in order to promote informed decision-making on the subject of early childhood in Québec. Our goal is to ensure that every young child living in the province has access to conditions that will enable them to develop their full potential, regardless of where they were born or where they are growing up.

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