

A profile of young Albertans with Autism Spectrum Disorder

Child and Youth Data Laboratory (CYDL)

Introduction

In Canada, there has been an increase in the prevalence of Autism Spectrum Disorder (ASD) in the last 10 years. This report is an overview of the socio-demographic characteristics and government program involvement of young Albertans (0 to 25 years) with ASD from 2005/06 to 2010/11.



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Young Albertans were defined as having **ASD** if at any point during the study period, they either: (a) had a diagnostic code for ASD from a health service (i.e., physician visits, or ambulatory care, or emergency room visits, or hospitalizations), or, (b) assessed disability services for ASD from the Family Support for Children with Disabilities (FSCD) program. Because the ability to define ASD in the study population is based on the presence of diagnostic codes from services in administrative data, it is important to note that this study is not estimating the prevalence or incidence of ASD in Alberta.

Key findings

- **Study population: 8,132** young Albertans were identified as having ASD through health services and the FSCD program. This accounts about **0.5 %** of Albertans aged between 0 and 25 years during the study period.
- **Education: 35 to 41%** of children with ASD met educational expectations and about **3%** of children with ASD exceeded educational expectations; **67 to 73%** of young Albertans with ASD were students with special needs; about **8 to 10%** of adults with ASD were enrolled in a publicly-funded post-secondary education institution.
- **Health services:** A higher proportion of young Albertans with ASD were high cost health service users compared to young Albertans without ASD (22% vs. 5%); the proportion of young Albertans with ASD who used mental health services increased between 2005/06 and 2010/11.
- **Chronic diseases:** A higher proportion of young Albertans with ASD had asthma compared to young Albertans without ASD (14% vs. 8%).
- **Government program involvement:** A higher proportion of young Albertans with ASD (0 to 22 years old) received Child Intervention and Child Support services compared to young Albertans without ASD; 4 to 6% of young adults with ASD (18 to 25 years old) were Income Support recipients.
- **Disability service use:** The proportion of young Albertans with ASD (0 to 17 years old) who received FSCD services increased between 2005/06 and 2010/11; (2) The proportion of adults with ASD (18 to 25 years old) who received AISH services increased from 2005/06 to 2010/11 while the proportion of adults with ASD (18 to 25 years old) who received PDD services decreased across the study period.

This report is part of the Longitudinal Project by the CYDL in collaboration with Alberta partnering government ministries. Please see the last page for a brief description of the project and go to <http://policywise.com/initiatives/cydl/p2> to access other deliverables.

Background literature

This section highlights select literature focusing on the characteristics of ASD population and the prevalence of ASD in Canada.

Autism Spectrum Disorder (ASD) represents a set of neurobehavioral conditions, which are characterized by limitations in reciprocal social interactions and social functioning, stereotypical repetitive behaviors, and language and speech impairments¹. ASD is defined as a spectrum disorder because it affects each individual differently and at varying degrees⁹. According to Statistics Canada (2011), approximately 30% of individuals with ASD are high functioning (have a normal IQ)¹⁹, while the majority have at least some degree of cognitive delay^{2,19}. At least half of individuals with ASD learn to speak, but some are mute⁸.

The causes of ASD are not fully understood but recent research showed that individuals with ASD may be genetically predisposed to developing the disorder^{3,17,21}. For example, parents who already have a child with ASD are at increased risk for having another child with ASD, a risk of approximately 3% (50+ times higher than the population rate)^{2,3,13}. Non-genetic factors are associated with disruption of normal brain development, and usually occur prenatally. Examples include prenatal exposure to a viral infection, use of maternal anticonvulsants, and hypothyroidism or other medical conditions of the mother^{10,11,14,15}.

ASD is identifiable by the age of 3 years and is considered a chronic condition¹. However, most children are not diagnosed at a very early age because diagnosis in ASD can be difficult. For example, the variability in severity and symptom type could lead to a complex decision-making process¹². According to the National Autism Needs Assessment study (2014), the average age for children who were diagnosed with ASD were 5.5 years²⁰. Rates are 4-5 times higher in males than females⁸.

Individuals with ASD often have one or more comorbid psychiatric conditions. Studies have shown that between 30 to 50% of individuals with ASD also have Attention Deficit Hyperactivity Disorder (ADHD)⁶. Social anxiety or depression are prevalent among individuals with ASD⁷. Moreover, individuals with ASD are more likely to have asthma, gastrointestinal disorders, sleep disorders, seizures, and sensory integration dysfunction^{4,16}. Thus, individuals with ASD often require a high degree of health care and mental health services. As a result, there are associated costs to their families and to health care system⁵.

In Canada, there has been an increase in the prevalence of ASD in the last 10 years. According to the National Epidemiological Database for the Study of Autism in Canada, approximately 1 in 94 children have a diagnosis of ASD¹⁸. Based on this estimate, about 1% of Canadian population is affected by ASD. In Alberta, the National Autism Needs Assessment survey (2014)²⁰ reported that the majority of individuals with ASD were males. A number of physical and mental health diagnoses were identified among persons with ASD, such as epilepsy, hearing problems, gastro-intestinal problems, anxiety and sleep problems, and Attention Deficit Hyperactivity Disorders.

Despite using multiple services, research has shown that individuals with ASD do not receive sufficient services²⁰. The National Autism Needs Assessment survey (2014)²⁰ reported that, in Canada, about 74% of parents indicated that their children did not receive early intensive behavioral intervention services. Caregivers of adults with ASD noted that there were service gaps for life skills training and employment programs. The most common barriers to accessing services were a lack of resources and financial challenges. In Alberta, among adults with ASD (14 respondents), 21% completed at least a college education; 29% attained a trades' apprenticeship or certificate or diploma; 43% were employed (half full-time job); 14% were neither employed nor in school²⁰.

Background literature

This report profiles individuals with and without ASD by using administrative data from six ministries of Government of Alberta (i.e., Health, Education, Advanced Education, Children’s Services, Community and Social Services, and Justice and Solicitor General). The report furthers our understanding of the socio-demographic characteristics (e.g., sex, age, Socio-Economic Status) and government program involvement (e.g., students with special needs, post-secondary education, Child Intervention, Income Support) of individuals with ASD.

Footnotes. 95% confidence intervals were calculated to enable comparison of statistical differences between groups. The Cochran-Armitage trend test was used to test trends over time. Only effects that apply to a meaningful proportion of the population were noted in the text. See <https://visualization.policywise.com/P2dashboard/AutismStats.xlsx>. Refer to tables (p. 16 to 28) for sample sizes, which vary across analyses. Each analyses includes young Albertans aged 0 to 25 unless otherwise specified.

Study population (Table 1; p.16)

The total study population includes Albertans (aged 0 to 25 years in each study year, unless otherwise specified) who were registered in the Alberta Health Care Insurance Plan (AHCIP) full time for at least one study year. Young Albertans were defined as having ASD if at any point during the study period, they either: (a) had a diagnostic code for ASD from a health service (i.e., physician visits, or ambulatory care, or emergency room visits, or hospitalizations), or, (b) assessed disability services for ASD from FSCD. See *Definitions and Notes* (p. 29) for exact codes used.

- There were **1,595,101** young Albertans (aged 0 to 25 years) registered full time in the Alberta health registry from 2005/06 to 2010/11.
- Of those, **8,132** young Albertans were identified as having ASD. This accounts for **0.5%** of the entire study population.
- Most young Albertans with ASD in the study population were identified through a health service(s) (**7,033**).
- ASD diagnostic codes were from the following health services: physician visits (**4,122**), other ambulatory care visits (**3,690**), emergency room visits (**948**), and hospitalizations (**921**). Young Albertans with ASD might be also identified through the FSCD program (**4,120**).

Note: Individuals with ASD may have had a diagnostic code from one or more services.

Study limitations

Readers should be aware of the following study limitations when interpreting the results:

- **Not all individuals with ASD were identified.** Individuals with ASD may have been missed if they had a diagnostic code from a health or FSCD service for ASD before or after the study period. Individuals with ASD may also have been missed if they did not have a diagnostic code for ASD, despite accessing FSCD or a health service(s) during the study.
 - **Time trends should be interpreted with caution.** The age distribution of the study population changed over the study period as the younger Albertans with ASD in the study population aged (see Table 2). Therefore, the time trends presented in this report may have been shaped by the changing characteristics of the aging study population.
 - **The proportion of young Albertans with ASD who received FSCD services is expected to be high.** Because individuals were identified as having ASD through a diagnostic code appearing in the FSCD program, it is expected that a high proportion of young Albertans with ASD received FSCD services.
 - **The proportion of young Albertans with ASD who received mental health services is expected to be high.** Mental health service indicator was defined by the presence or absence of mental health diagnosis codes (Two or more ICD-9: 290-309.9, 311-314.9, 316, or a single ICD-10CA: F00-F06.9, F09-F69, F84-F99, G31.2, G44.2, R41.0) in Alberta Health databases (Inpatient-Discharge Abstract Database, Ambulatory Care, and Practitioner Payments) or in the Family Support for Children with Disabilities (FSCD) or the Assured Income for the Severely Handicapped (AISH) information systems. ICD-9: 299.0 and ICD-10CA: F84.0-F84.1 are autism diagnostic codes. Moreover, some young Albertans with ASD were identified through the FSCD program. Thus, it is expected that a high proportion of young Albertans with ASD received mental health services due to their autistic conditions.
 - **Results cannot be generalized to young Albertans not registered in Alberta Health Care Insurance Plan (AHCIP).** Because a criterion for inclusion in the study population is enrolment in AHCIP, results cannot be generalized to young Albertans who were not enrolled in AHCIP for at least one full year during the study period.
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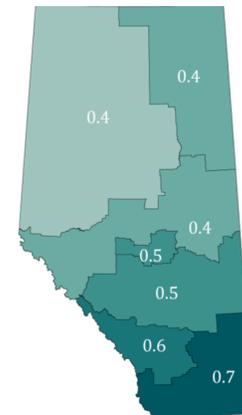
Socio-Demographic Characteristics

CS/CSS service delivery regions (Table 3; p. 18)

Regional proportions are shown for 2010/11. Regions include Children’s Services (CS) and Community and Social Services (CSS) delivery regions See *Definitions and notes* on p. 29.

- The proportion of young Albertans with ASD was higher in the South region compared to young Albertans with ASD in other regions.

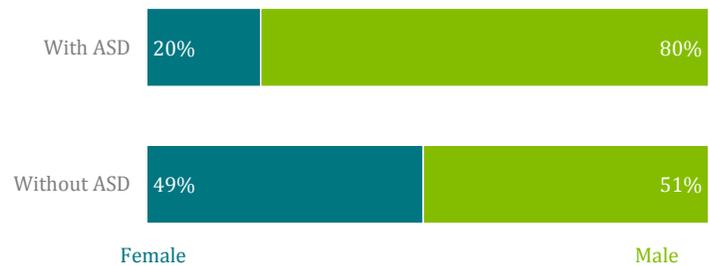
Percentage of individuals with ASD by CS/CSS service delivery regions in 2010/11



Sex (Table 4; p. 19)

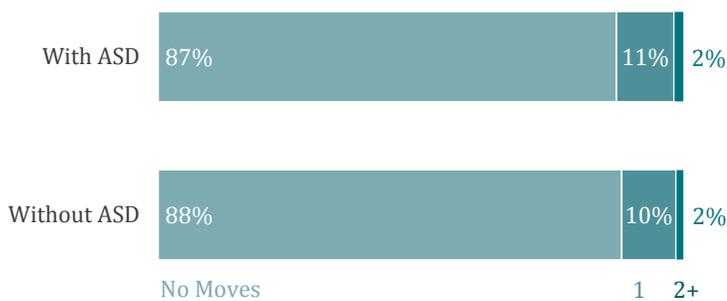
- The proportion of young Albertans with ASD was higher among males than females (80% vs. 20%).

Percentage of individuals with or without ASD by sex, Albertans aged 0 to 25 between 2005/06 and 2010/11



Residential mobility (Table 5; p. 19)

Percentage of individuals with or without ASD by residential mobility in 2010/11, Albertans aged 0 to 25

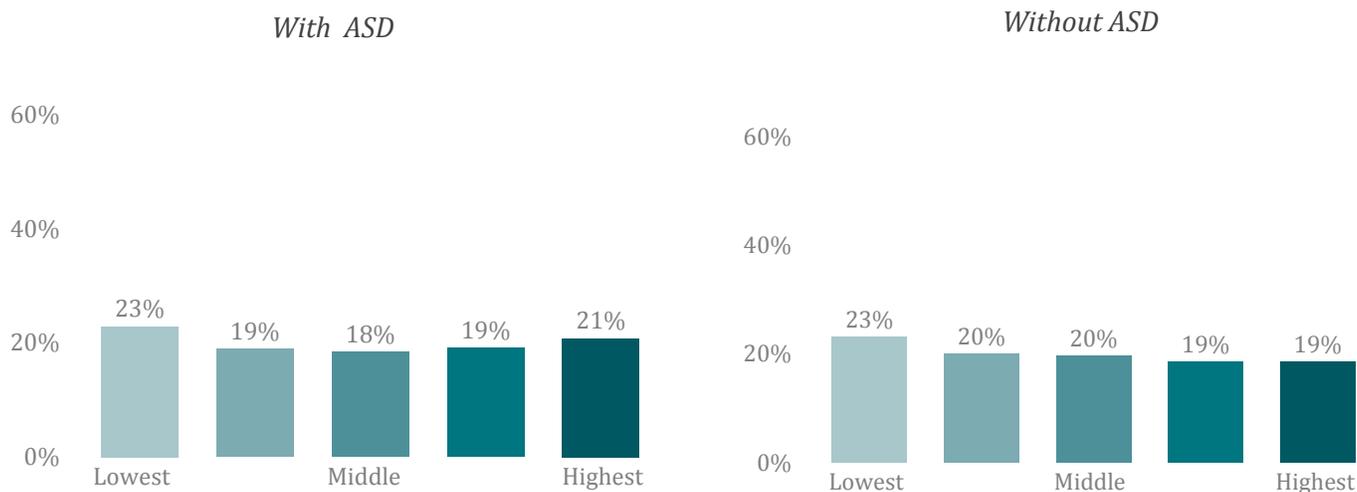


Residential mobility was determined using the number of unique postal codes in the Alberta Health registry. Residential mobility is shown in 2010/11 (see Table 5 for mobility in other study years).

- The majority of young Albertans with ASD had no moves in 2010/11. This pattern is consistent across the study period.

Socio-economic Status (Table 6; p. 20)

Percentage of individuals with and without ASD by socio-economic status in 2010/11, Albertans aged 0 to 25 years



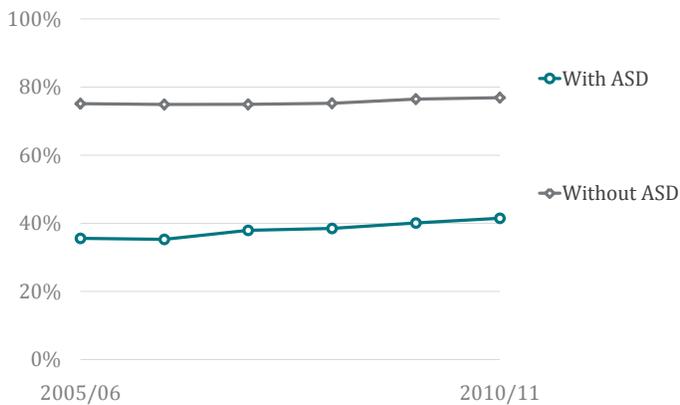
Socio-economic status (SES) is shown for 2010/11 (see Table 6 for other study years). SES captures the social and material environments in which individuals lived. See *Definitions and notes* for more detail (p. 31).

- Young Albertans with ASD were similarly distributed across five quintiles of neighborhood SES. This pattern was consistent across the study period.

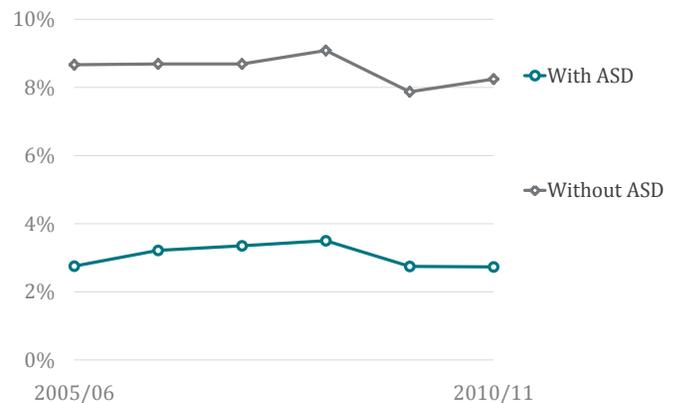
Education (EC-12 and Post-Secondary)

Educational achievement (Table 7; p. 21)

Percentage of individuals with or without ASD who **met** educational expectations between 2005/06 and 2010/11, Albertans in grade 3 to 12



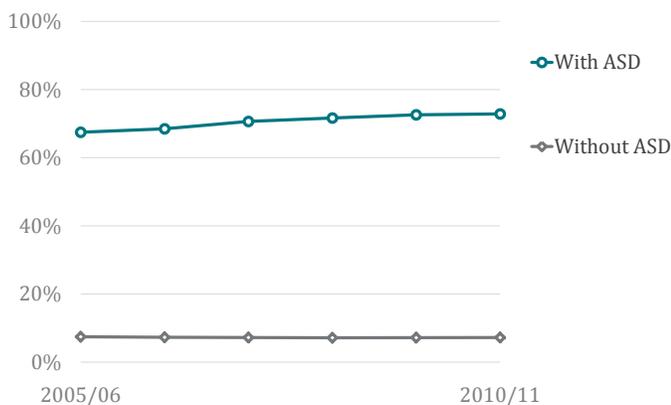
Percentage of individuals with or without ASD who **exceeded** educational expectations between 2005/06 and 2010/11, Albertans in grade 3 to 12



This analysis includes individuals in grades 3 to 12 who were registered in Alberta's education system. See *Definitions and notes* for the definition of educational achievement (p. 30).

- A lower proportion of students with ASD met educational achievements compared to students without ASD during the study period.
- About 3% students with ASD exceeded educational expectations during the study period.

Percentage of young Albertans with or without ASD who were students with special needs between 2005/06 and 2010/11, Albertans aged 2.5 to 19



Students with Special Needs (Table 8; p. 21)

This analysis considers young Albertans (aged 2.5 to 19 years) who were students with special needs. See *Definitions and Notes* (p. 31).

- Over the study period, a higher proportion of young Albertans with ASD were student with special needs compared to young Albertans without ASD.

Note: A small number of children (<10) with ASD were identified as gifted/talented students in each study year. They were not included in this analysis.

Post-secondary education (Table 9; p. 22)

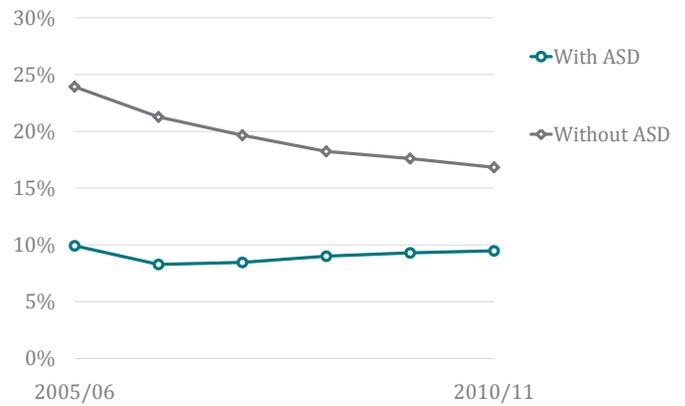
This analysis includes Albertans (aged 17 to 25 years) who were enrolled in a publically-funded post-secondary institution. Both credential (e.g., certificate, diploma) and non-credential programs were included in this analysis. See *Definitions and notes* (p. 31).

- During the study period, 8 to 10% of young Albertans with ASD were enrolled in a publically-funded post-secondary institution.

In contrast,

- 17% to 24% young Albertans without ASD were enrolled in a publically-funded post-secondary institution.

Percentage of individuals with or without ASD enrolled in post-secondary education between 2005/06 and 2010/11, Albertans aged 17 to 25



Health Services Use

High cost health service use (Table 10; p. 22)

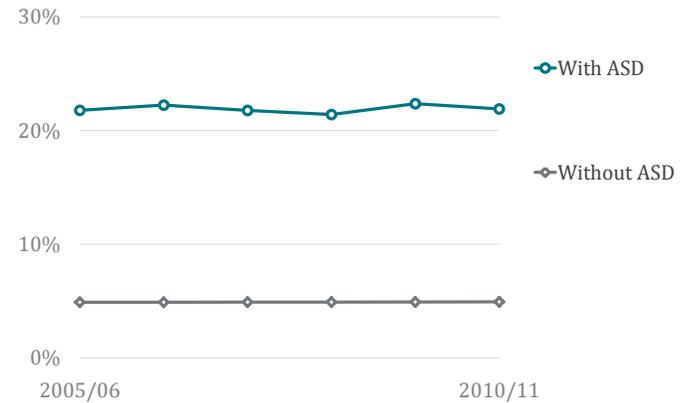
High cost health service users are defined as Albertans who were in the top 5% of estimated costs for their age group and sex. See *Definitions and notes* (p. 30).

- About 22% of young Albertans with ASD were high cost health service users.

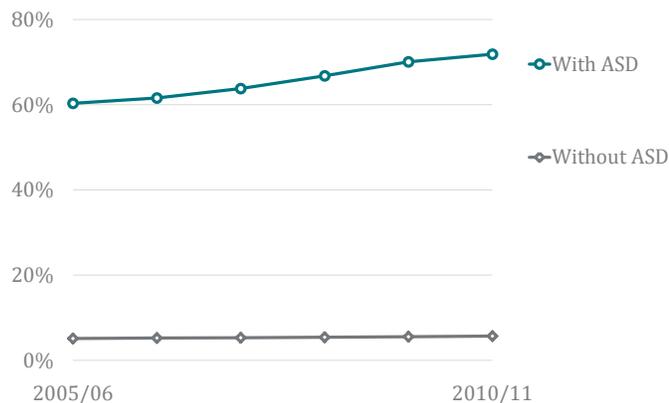
In contrast,

- About 5% young Albertans without ASD were high cost health service users.

Percentage of individuals with or without ASD who were high cost health service users between 2005/06 and 2010/11, Albertans aged 0 to 25



Percentage of individuals with or without ASD who used mental health services between 2005/06 and 2010/2011, Albertans aged 0 to 25



Mental health service use (Table 11; p. 23)

Mental health service was defined by the presence or absence of mental health diagnosis codes from select services. See *Definitions and notes* for details (p. 31).

- 60% to 72% of young Albertans with ASD received mental health services over the study period.

In contrast,

- About 5% of young Albertans without ASD received mental health services over the study period.

Chronic diseases

Asthma (Table 12 ; p. 24)

Asthma was identified when an individual had two or more physician visits at least 30 days apart and within two years, using diagnostic codes from health services. See *Definitions and Notes* for full details (p. 29).

- A higher proportion of young Albertans with ASD had asthma compared to young Albertans without ASD.

Percentage of young Albertans (aged 0 to 25) with or without ASD who received a diagnostic code for asthma between 2005/06 and 2010/11



Percentage of young Albertans (aged 0 to 25) with or without ASD who received a diagnostic code for diabetes between 2005/06 and 2010/11



Diabetes (Table 12; p. 24)

Diabetes was identified when an individual had two or more physician visits at least one day apart and within two years, using diagnostic codes from health services or AISH. See *Definitions and Notes* for full details (p. 29).

- About 1% of young Albertans with ASD had diabetes during the study period.

Cancer (Table 12; p. 24)

Cancer was identified when an individual received a diagnostic code of cancer from health services or AISH. See *Definitions and Notes* for full details (p. 29).

- About 2% of young Albertans with ASD had cancer during the study period.

Percentage of young ALbertans (aged 0 to 25) with or without ASD who received a diagnostic code for cancer between 2005/06 and 2010/11

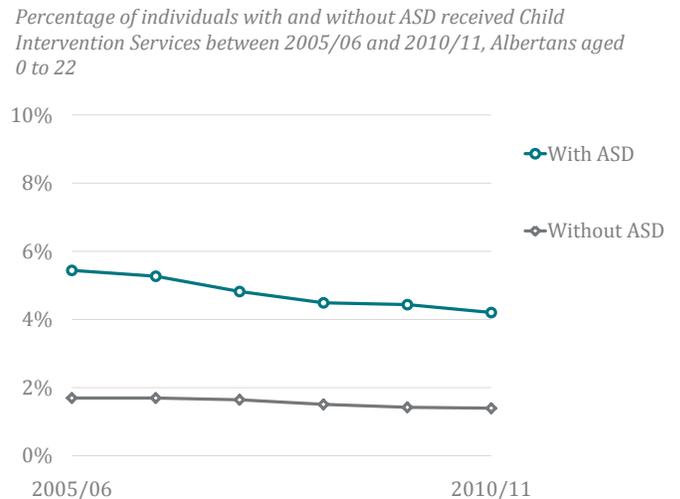


Government Program Involvement

Child Intervention (Table 13; p. 25)

This analysis includes Albertans (aged 0 to 22 years) received Child Intervention services. See *Definitions and notes* (p. 29).

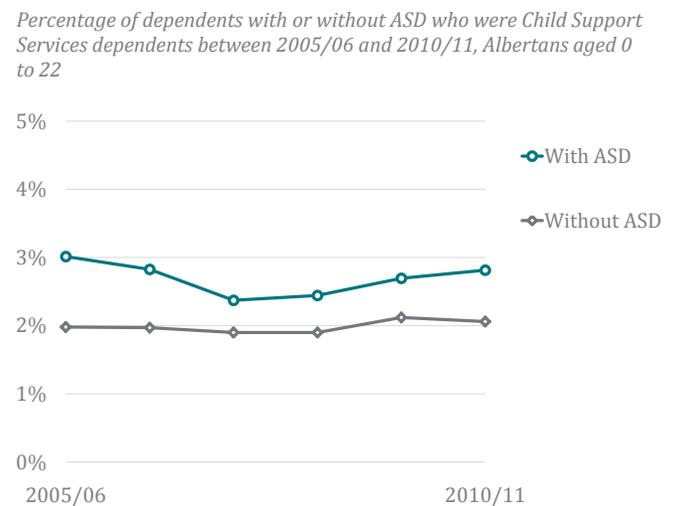
- A higher proportion of young Albertans with ASD received Child Intervention services compared to young Albertans without ASD.



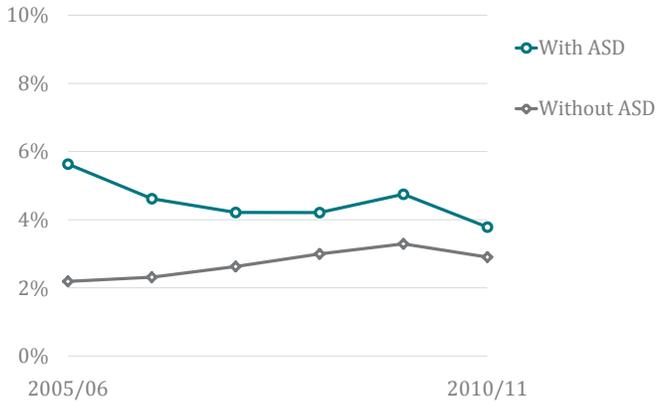
Child Support Services Dependents (Table 14; p. 25)

This analysis includes Albertans (aged 0 to 22 years) who were Child Support Services dependents. See *Definitions and notes* (p. 29).

- Over the study period, a higher proportion of young Albertans with ASD were Child Support Services dependents compared to young Albertans without ASD.



Percentage of individuals with or without ASD received Income Support between 2005/06 and 2010/11, Albertans aged 18 to 25



Income Support (Table 15; p. 26)

This analysis includes Albertans (aged 18 to 25 years) who were Income Support recipients. Income Support provides financial assistance to individuals (aged 18 and older) who are unable to meet their basic needs. See *Definitions and notes* (p. 30).

- 4 to 6% of young adults with ASD were Income Support recipients during the study period.

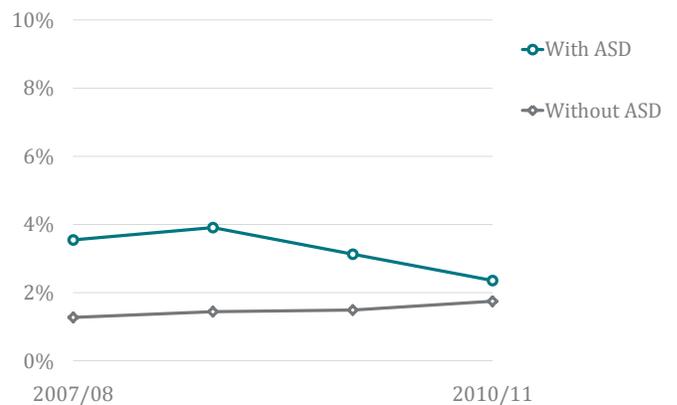
Income Support Learners (Table 16; p. 26)

This analysis includes Albertans (aged 18 to 25 years) who were Income Support Learners. Income Support Learners provides assistance to individuals who are in training, including basic costs to maintain their household as well as supplemental, health, and training benefits. See *Definitions and notes* (p. 30).

- 2 to 4% of young adults with ASD were Income Support Learners between 2007/08 and 2010/11.

Note: There were not enough numbers to report from 2005/06 to 2006/07.

Percentage of individuals with or without ASD who were Income Support Learners between 2007/08 and 2010/11, Albertans aged 18 to 25

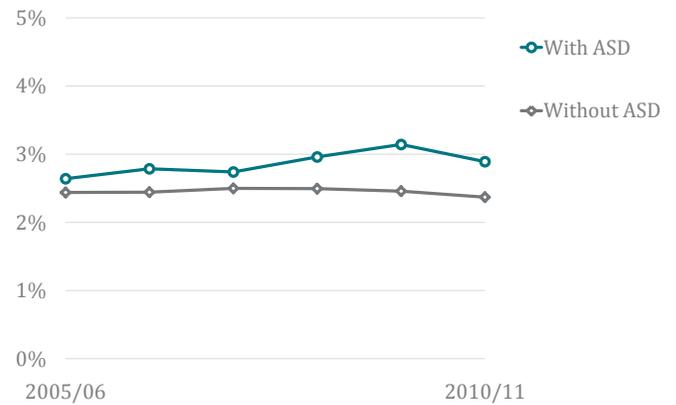


Criminal offences (Table 17; p. 27)

This analysis includes Albertans (aged 12 to 25 years) who had criminal offences. See *Definitions and notes* (p. 30).

- About 3% of young adults with ASD had criminal offences during the study period.

Percentage of individuals with or without ASD had criminal offences between 2005/06 and 2010/11, Albertans aged 12 to 25



Disability Service Use

Family Support for Children with Disabilities (FSCD) (Table 18; p. 27)

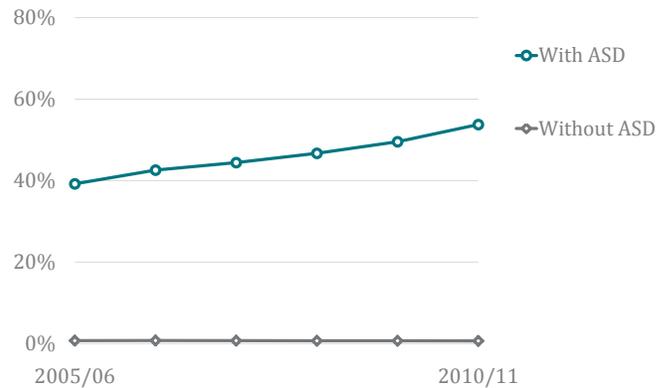
This analysis includes children and youth (aged 0 to 17 years) who received FSCD services in Alberta between 2005/06 and 2010/11. See *Definitions and notes* (p. 30).

- The proportion of young Albertans with ASD who received FSCD services increased from 2005/06 to 2010/11 (39% to 54%).

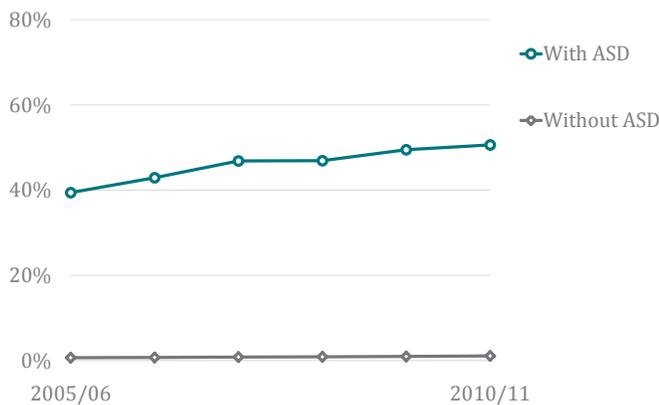
In contrast,

- 0.7% to 0.8% of young Albertans without ASD received FSCD services between 2005/06 and 2010/11.

Percentage of individuals with or without ASD received Family Support for Children with Disabilities (FSCD) services between 2005/06 and 2010/11, Albertans aged 0 to 17



Percentage of individuals with or without ASD received Assured Income for the Severely Handicapped (AISH) services between 2005/06 and 2010/11, Albertans aged 18 to 25



Assured Income for the Severely Handicapped (AISH) (Table 19; p. 28)

This analysis includes Albertans (aged 18 to 25 years) who received AISH services. See *Definitions and notes* (p. 29).

- The proportion of young Albertans with ASD who received AISH services increased from 2005/06 to 2010/11 (39% to 51%).

In contrast,

- 0.7% to 1.1 % of young Albertans without ASD received AISH services between 2005/06 and 2010/11.

Persons with Developmental Disabilities (PDD) (Table 20; p. 28)

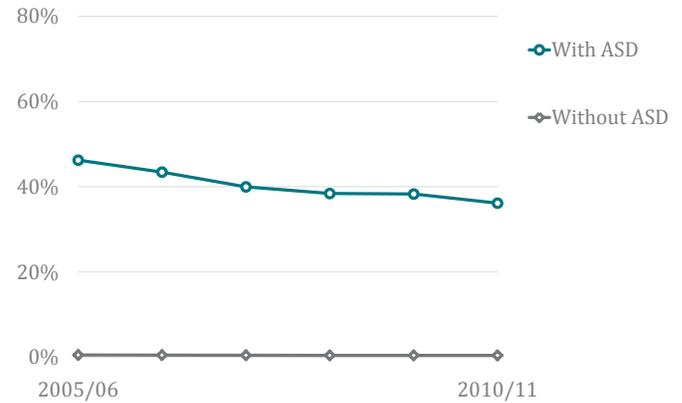
This analysis includes Albertans (aged 18 to 25 years) received PDD services. See *Definitions and notes* (p. 31).

- The proportion of young Albertans with ASD who received PDD services decreased from 2005/06 to 2010/11 (46% to 36%).

In contrast,

- 0.4% to 0.5% of young Albertans without ASD received PDD services between 2005/06 and 2010/11.

Percentage of individuals with or without ASD received Persons with Developmental Disabilities (PDD) services between 2005/06 and 2010/11, Albertans aged 18 to 25



Tables

TABLE 1: Number and percentage of individuals with ASD by source of diagnostic code and study year, Albertans aged 0 to 25 years*

ASD diagnostic code source	Study year						
Number of individuals with ASD	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	All years
Physician visit	902	1,001	1,111	1,283	1,547	1,667	4,122
Other ambulatory care visit	1,134	1,031	1,095	1,057	1,206	1,177	3,690
Hospitalization	168	166	194	179	215	250	921
Emergency room visit	135	132	189	200	267	281	948
Any health service*	1,956	1,999	2,188	2,323	2,692	2,843	7,033

Percentage of individuals with ASD	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	All years
Physician visit	46.11	50.08	50.78	55.23	57.47	58.64	58.61
Other ambulatory care visit	57.98	51.58	50.05	45.50	44.80	41.40	52.47
Hospitalization	8.59	8.30	8.87	7.71	7.99	8.79	13.10
Emergency room visit	6.90	6.60	8.64	8.61	9.92	9.88	13.48
Any health service	100.00	100.00	100.00	100.00	100.00	100.00	100.00

ASD diagnostic code source (from Health and FSCD)							
Number of individuals	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	All years
Any health service	1,956	1,999	2,188	2,323	2,692	2,843	7,033
FSCD service	1,884	2,125	2,347	2,497	2,729	2,952	4,120
With ASD*	3,003	3,222	3,547	3,802	4,216	4,556	8,132

Percentage of individuals	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	All years
Any health service	65.13	62.04	61.69	61.10	63.85	62.40	86.49
FSCD service	62.74	65.95	66.17	65.68	64.73	64.79	50.66
With ASD*	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Number of individuals in study population	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	All years
With ASD	3,003	3,222	3,547	3,802	4,216	4,556	8,132
Without ASD	1,118,934	1,137,766	1,166,944	1,194,687	1,226,208	1,244,501	1,586,969
Total	1,121,937	1,140,988	1,170,491	1,198,489	1,230,424	1,249,057	1,595,101

Percentage of individuals in study population	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	All years
With ASD*	0.27	0.28	0.30	0.32	0.34	0.36	0.51
Without ASD	99.73	99.72	99.70	99.68	99.66	99.64	99.49
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Individuals could have received a diagnosis or services from more than one source.

Family Support for Children with Disabilities (FSCD)

Tables

TABLE 2: Number and percentage of individuals with or without ASD by age group and study year, Albertans aged 0 to 25 years

		Age Group		Study year			
		2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Number of Individuals							
With ASD	0 to 5	595	609	661	748	787	864
	6 to 10	1,155	1,211	1,248	1,320	1,484	1,547
	11 to 15	821	945	1,081	1,151	1,233	1,321
	16 to 20	345	384	462	475	569	651
	21 to 25	87	73	95	108	143	173
	Total	3,003	3,222	3,547	3,802	4,216	4,556
Without ASD	0 to 5	236,487	247,087	260,736	273,189	286,067	295,435
	6 to 10	202,085	201,616	204,200	207,679	213,480	217,830
	11 to 15	223,016	222,445	222,751	222,484	224,786	224,672
	16 to 20	231,573	234,534	238,472	241,954	244,163	243,739
	21 to 25	225,773	232,084	240,785	249,381	257,712	262,825
	Total	1,118,934	1,137,766	1,166,944	1,194,687	1,226,208	1,244,501
Percentage of individuals							
With ASD	0 to 5	19.81	18.90	18.64	19.67	18.67	18.96
	6 to 10	38.46	37.59	35.18	34.72	35.20	33.96
	11 to 15	27.34	29.33	30.48	30.27	29.25	28.99
	16 to 20	11.49	11.92	13.03	12.49	13.50	14.29
	21 to 25	2.90	2.27	2.68	2.84	3.39	3.80
	Total	100.00	100.00	100.00	100.00	100.00	100.00
Without ASD	0 to 5	21.14	21.72	22.34	22.87	23.33	23.74
	6 to 10	18.06	17.72	17.50	17.38	17.41	17.50
	11 to 15	19.93	19.55	19.09	18.62	18.33	18.05
	16 to 20	20.70	20.61	20.44	20.25	19.91	19.59
	21 to 25	20.18	20.40	20.63	20.87	21.02	21.12
	Total	100.00	100.00	100.00	100.00	100.00	100.00

Tables

TABLE 3: Number and percentage of individuals with or without ASD by CS/CSS service delivery regions and study year, Albertans aged 0 to 25 years

Number of individuals	CS/CSS service delivery regions*	Study year					
		2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
With ASD	Calgary	2,616	2,820	2,955	3,027	3,065	3,049
	Central	772	827	853	865	877	868
	Edmonton	1,974	2,162	2,289	2,354	2,393	2,400
	North Central	301	320	329	327	322	319
	Northeast	128	130	129	139	132	124
	Northwest	315	333	347	361	354	339
	South	704	780	817	843	835	842
	Total	6,810	7,372	7,719	7,916	7,978	7,941
Without ASD	Calgary	403,585	438,518	465,373	492,588	517,912	532,694
	Central	146,354	156,676	164,240	170,945	177,039	180,645
	Edmonton	355,024	384,731	405,908	428,924	451,061	463,874
	North Central	68,651	72,259	75,256	77,956	80,161	81,726
	Northeast	20,806	22,919	25,049	27,103	29,437	30,100
	Northwest	74,330	79,738	83,488	86,861	90,011	91,949
	South	95,729	102,340	107,814	112,473	117,734	120,233
	Total	1,164,479	1,257,181	1,327,128	1,396,850	1,463,355	1,501,221
Total population	Calgary	406,201	441,338	468,328	495,615	520,977	535,743
	Central	147,126	157,503	165,093	171,810	177,916	181,513
	Edmonton	356,998	386,893	408,197	431,278	453,454	466,274
	North Central	68,952	72,579	75,585	78,283	80,483	82,045
	Northeast	20,934	23,049	25,178	27,242	29,569	30,224
	Northwest	74,645	80,071	83,835	87,222	90,365	92,288
	South	96,433	103,120	108,631	113,316	118,569	121,075
	Total	1,171,289	1,264,553	1,334,847	1,404,766	1,471,333	1,509,162
Percentage of individuals		2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
With ASD	Calgary	0.64	0.64	0.63	0.61	0.59	0.57
	Central	0.52	0.53	0.52	0.50	0.49	0.48
	Edmonton	0.55	0.56	0.56	0.55	0.53	0.51
	North Central	0.44	0.44	0.44	0.42	0.40	0.39
	Northeast	0.61	0.56	0.51	0.51	0.45	0.41
	Northwest	0.42	0.42	0.41	0.41	0.39	0.37
	South	0.73	0.76	0.75	0.74	0.70	0.70

*Children's Services (CS) and Community and Social Services (CSS) service delivery regions.

Tables

TABLE 4: Number and percentage of individuals with or without ASD by sex, Albertans aged 0 to 25 years

		Sex	All years
Number of individuals		2005/06-2010/11	
With ASD	Female		1,651
	Male		6,481
	Total		8,132
Without ASD	Female		781,285
	Male		805,684
	Total		1,586,969
Percentage of Individuals		2005/06-2010/11	
With ASD	Female		20.30
	Male		79.70
	Total		100.00
Without ASD	Female		49.23
	Male		50.77
	Total		100.00

TABLE 5: Number and percentage of individuals with or without ASD by residential mobility and study year, Albertans aged 0 to 25 years

		Residential mobility	Study year					
Number of individuals			2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
With ASD	No moves		5,313	5,748	6,007	6,384	6,755	6,868
	One move		1,060	1,097	1,214	1,090	931	864
	Two or more moves		204	187	195	178	156	148
	Total		6,577	7,032	7,416	7,652	7,842	7,880
Without ASD	No moves		906,540	959,328	1,010,631	1,097,313	1,237,818	1,300,624
	One move		174,282	183,603	201,187	192,371	143,694	151,953
	Two or more moves		34,539	33,085	35,993	31,504	21,840	22,176
	Total		1,115,361	1,176,016	1,247,811	1,321,188	1,403,352	1,474,753
Percent of individuals			2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
With ASD	No moves		80.78	81.74	81.00	83.43	86.14	87.16
	One move		16.12	15.60	16.37	14.24	11.87	10.96
	Two or more moves		3.10	2.66	2.63	2.33	1.99	1.88
	Total		100.00	100.00	100.00	100.00	100.00	100.00
Without ASD	No moves		81.28	81.57	80.99	83.06	88.20	88.19
	One move		15.63	15.61	16.12	14.56	10.24	10.30
	Two or more moves		3.10	2.81	2.88	2.38	1.56	1.50
	Total		100.00	100.00	100.00	100.00	100.00	100.00

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TABLE 6: Number and percentage of individuals with or without ASD by socio-economic status and study year, Albertans aged 0 to 25 years

		Socioeconomic status		Study year			
		2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Number of Individuals							
Number of individuals with ASD	Lowest SES	1,574	1,692	1,768	1,801	1,808	1,757
	Low middle SES	1,356	1,442	1,479	1,495	1,473	1,456
	Middle SES	1,232	1,307	1,378	1,411	1,409	1,414
	High middle SES	1,206	1,337	1,383	1,437	1,489	1,470
	Highest SES	1,216	1,353	1,451	1,496	1,555	1,598
	Total	6,584	7,131	7,459	7,640	7,734	7,695
Number of individuals without ASD	Lowest SES	276,971	295,733	307,747	318,140	330,676	335,406
	Low middle SES	238,790	254,372	264,610	275,433	285,389	290,394
	Middle SES	210,996	230,157	246,204	261,268	275,427	283,131
	High middle SES	197,254	214,975	230,393	245,797	259,380	268,187
	Highest SES	194,890	212,997	227,470	242,912	257,070	267,563
	Total	1,118,901	1,208,234	1,276,424	1,343,550	1,407,942	1,444,681
Percentage of Individuals							
Percent of individuals with ASD	Lowest SES	23.91	23.73	23.70	23.57	23.38	22.83
	Low middle SES	20.60	20.22	19.83	19.57	19.05	18.92
	Middle SES	18.71	18.33	18.47	18.47	18.22	18.38
	High middle SES	18.32	18.75	18.54	18.81	19.25	19.10
	Highest SES	18.47	18.97	19.45	19.58	20.11	20.77
	Total	100.00	100.00	100.00	100.00	100.00	100.00
Percent of individuals without ASD	Lowest SES	24.75	24.48	24.11	23.68	23.49	23.22
	Low middle SES	21.34	21.05	20.73	20.50	20.27	20.10
	Middle SES	18.86	19.05	19.29	19.45	19.56	19.60
	High middle SES	17.63	17.79	18.05	18.29	18.42	18.56
	Highest SES	17.42	17.63	17.82	18.08	18.26	18.52
	Total	100.00	100.00	100.00	100.00	100.00	100.00

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TABLE 7: Number and percentage of individuals with or without ASD by educational achievement and study year, Albertans in grade 3 to 12

Educational Achievement		Study year					
		2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Number of Individuals							
With ASD	Below expectations	1,567	1,778	1,875	2,038	2,164	2,226
	Meeting expectations	905	1,021	1,212	1,354	1,519	1,656
	Above expectations	70	93	107	123	104	109
	Total	2,542	2,892	3,194	3,515	3,787	3,991
Without ASD	Below expectations	59,401	60,771	60,701	58,586	59,441	56,289
	Meeting expectations	275,276	277,361	278,167	281,249	290,354	291,200
	Above expectations	31,759	32,175	32,245	33,953	29,891	31,219
	Total	366,436	370,307	371,113	373,788	379,686	378,708
Percentage of Individuals							
With ASD	Below expectations	61.64	61.48	58.70	57.98	57.14	55.78
	Meeting expectations	35.60	35.30	37.95	38.52	40.11	41.49
	Above expectations	2.75	3.22	3.35	3.50	2.75	2.73
	Total	100.00	100.00	100.00	100.00	100.00	100.00
Without ASD	Below expectations	16.21	16.41	16.36	15.67	15.66	14.86
	Meeting expectations	75.12	74.90	74.95	75.24	76.47	76.89
	Above expectations	8.67	8.69	8.69	9.08	7.87	8.24
	Total	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 8: Number and percentage of individuals with or without ASD who were students with special needs by study year, Albertans aged 2.5 to 19 years

Students with special needs		Study year					
		2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Number of Individuals							
With ASD	Special needs	3,520	3,930	4,344	4,663	4,946	5,030
	No special needs	1,699	1,809	1,806	1,844	1,868	1,875
	Total	5,219	5,739	6,150	6,507	6,814	6,905
Without ASD	Special needs	55,767	55,091	55,471	55,448	56,809	57,971
	No special needs	693,957	699,972	710,134	720,108	732,163	744,015
	Total	749,724	755,063	765,605	775,556	788,972	801,986
Percentage of Individuals							
With ASD	Special needs	67.45	68.48	70.63	71.66	72.59	72.85
	No special needs	32.55	31.52	29.37	28.34	27.41	27.15
	Total	100.00	100.00	100.00	100.00	100.00	100.00
Without ASD	Special needs	7.44	7.30	7.25	7.15	7.20	7.23
	No special needs	92.56	92.70	92.75	92.85	92.80	92.77
	Total	100.00	100.00	100.00	100.00	100.00	100.00

Note: There were about 10 children with ASD who were gifted/talented students in each year. They were removed from this analysis

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TABLE 9: Number and percentage of individuals with or without ASD by post-secondary enrolment status and study year, Albertans aged 17 to 25 years

		Post-secondary enrolment		Study year			
		2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Number of Individuals							
With ASD	Post-secondary	47	55	73	98	128	159
	No post-secondary	426	609	789	989	1,248	1,518
	Total	473	664	862	1,087	1,376	1,677
Without ASD	Post-secondary	98,264	101,827	105,370	107,831	113,449	115,459
	No post-secondary	312,372	377,009	430,812	483,476	530,808	570,621
	Total	410,636	478,836	536,182	591,307	644,257	686,080
Percentage of Individuals							
With ASD	Post-secondary	9.94	8.28	8.47	9.02	9.30	9.48
	No post-secondary	90.06	91.72	91.53	90.98	90.70	90.52
	Total	100.00	100.00	100.00	100.00	100.00	100.00
Without ASD	Post-secondary	23.93	21.27	19.65	18.24	17.61	16.83
	No post-secondary	76.07	78.73	80.35	81.76	82.39	83.17
	Total	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 10: Number and percentage of individuals with or without ASD by high cost health service use and study year, Albertans aged 0 to 25 years

		High cost health service use		Study year			
		2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Number of Individuals							
With ASD	High cost	1,433	1,565	1,615	1,639	1,755	1,727
	Not high cost	5,144	5,467	5,801	6,013	6,087	6,153
	Total	6,577	7,032	7,416	7,652	7,842	7,880
Without ASD	High cost	54,673	57,582	61,233	64,921	69,116	72,726
	Not high cost	1,060,691	1,118,439	1,186,583	1,256,272	1,334,241	1,402,035
	Total	1,115,364	1,176,021	1,247,816	1,321,193	1,403,357	1,474,761
Percentage of Individuals							
with ASD	High cost	21.79	22.26	21.78	21.42	22.38	21.92
	Not high cost	78.21	77.74	78.22	78.58	77.62	78.08
	Total	100.00	100.00	100.00	100.00	100.00	100.00
without ASD	High cost	4.90	4.90	4.91	4.91	4.93	4.93
	Not high cost	95.10	95.10	95.09	95.09	95.07	95.07
	Total	100.00	100.00	100.00	100.00	100.00	100.00

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TABLE 11: Number and percentage of individuals with or without ASD by mental health service use and study year, Albertans aged 0 to 25 years

		Mental health service use		Study year			
		2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Number of Individuals							
With ASD	Mental health service	4,011	4,408	4,806	5,176	5,533	5,678
	No mental health service	2,637	2,749	2,729	2,576	2,364	2,225
	Total	6,648	7,157	7,535	7,752	7,897	7,903
Without ASD	Mental health service	57,040	61,480	66,324	71,781	77,886	83,876
	No mental health service	1,058,483	1,114,777	1,181,715	1,249,641	1,325,699	1,391,073
	Total	1,115,523	1,176,257	1,248,039	1,321,422	1,403,585	1,474,949
Percentage of Individuals							
With ASD	Mental health service	60.33	61.59	63.78	66.77	70.06	71.85
	No mental health service	39.67	38.41	36.22	33.23	29.94	28.15
	Total	100.00	100.00	100.00	100.00	100.00	100.00
Without ASD	Mental health service	5.11	5.23	5.31	5.43	5.55	5.69
	No mental health service	94.89	94.77	94.69	94.57	94.45	94.31
	Total	100.00	100.00	100.00	100.00	100.00	100.00

Tables

TABLE 12: Number and percentage of individuals with or without ASD by chronic health condition type, Albertans aged 0 to 25 years

Chronic health condition		All years
Number of individuals		2005/06-2010/11
With ASD	Asthma	1,133
	No Asthma	6,999
	Total	8,132
	Diabetes	84
	No diabetes	8,048
	Total	8,132
	Cancer	143
	No Cancer	7,989
	Total	8,132
Without ASD	Asthma	130,789
	No Asthma	1,456,180
	Total	1,586,969
	Diabetes	7,899
	No diabetes	1,579,070
	Total	1,586,969
	Cancer	24,109
	No Cancer	1,562,860
	Total	1,586,969
Percentage of Individuals		2005/06-2010/11
With ASD	Asthma	13.93
	Diabetes	1.03
	Cancer	1.76
Without ASD	Asthma	8.24
	Diabetes	0.50
	Cancer	1.52

Tables

TABLE 13: Number and percentage of individuals with or without ASD by Child Intervention involvement and study year, Albertans aged 0 to 22 years

		Child Intervention involvement		Study year			
				2005/06	2006/07	2007/08	2008/09
Number of Individuals							
With ASD	Child Intervention	370	386	368	349	344	321
	No Child Intervention	6,432	6,943	7,264	7,429	7,412	7,318
	Total	6,802	7,329	7,632	7,778	7,756	7,639
Without ASD	Child Intervention	18,319	18,998	18,697	17,433	16,604	16,060
	No Child Intervention	1,062,237	1,101,954	1,121,070	1,139,604	1,149,871	1,135,957
	Total	1,080,556	1,120,952	1,139,767	1,157,037	1,166,475	1,152,017
Percentage of Individuals							
With ASD	Child Intervention	5.44	5.27	4.82	4.49	4.44	4.20
	No Child Intervention	94.56	94.73	95.18	95.51	95.56	95.80
	Total	100.00	100.00	100.00	100.00	100.00	100.00
Without ASD	Child Intervention	1.70	1.69	1.64	1.51	1.42	1.39
	No Child Intervention	98.30	98.31	98.36	98.49	98.58	98.61
	Total	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 14: Number and percentage of individuals with or without ASD who were Child Support Services (dependents), Albertans aged 0 to 22 years

		Child support services dependents		Study year			
				2005/06	2006/07	2007/08	2008/09
Number of Individuals							
With ASD	Yes	205	207	181	190	209	215
	No	6,597	7,122	7,451	7,588	7,547	7,424
	Total	6,802	7,329	7,632	7,778	7,756	7,639
Without ASD	Yes	21,243	21,951	21,483	21,776	24,464	23,429
	No	1,059,313	1,099,001	1,118,284	1,135,261	1,142,011	1,128,588
	Total	1,080,556	1,120,952	1,139,767	1,157,037	1,166,475	1,152,017
Percentage of Individuals							
With ASD	Yes	3.01	2.82	2.37	2.44	2.69	2.81
	No	96.99	97.18	97.63	97.56	97.31	97.19
	Total	100.00	100.00	100.00	100.00	100.00	100.00
Without ASD	Yes	1.97	1.96	1.88	1.88	2.10	2.03
	No	98.03	98.04	98.12	98.12	97.90	97.97
	Total	100.00	100.00	100.00	100.00	100.00	100.00

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TABLE 15: Number and percentage of individuals with or without ASD who were Income Support recipients and study year, Albertans aged 18 to 25 years

		Income Support		Study year			
		2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Number of Individuals		2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
With ASD	Income Support	24	27	33	41	59	58
	No Income Support	402	558	750	933	1,184	1,475
	Total	426	585	783	974	1,243	1,533
Without ASD	Income Support	8,554	10,572	13,523	17,080	20,499	19,309
	No Income Support	381,960	446,669	501,049	552,736	602,314	645,876
	Total	390,514	457,241	514,572	569,816	622,813	665,185
Percentage of Individuals		2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
With ASD	Income Support	5.63	4.62	4.21	4.21	4.75	3.78
	No Income Support	94.37	95.38	95.79	95.79	95.25	96.22
	Total	100.00	100.00	100.00	100.00	100.00	100.00
Without ASD	Income Support	2.19	2.31	2.63	3.00	3.29	2.90
	No Income Support	97.81	97.69	97.37	97.00	96.71	97.10
	Total	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 16: Number and percentage of individuals with or without ASD who were Income Support Learners, by study year, Albertans aged 18 to 25 years

		Income Support Learners		Study year			
		2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Number of Individuals		2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
With ASD	Income Support Learners	.	.	25	34	34	31
	No Income Support Learners	.	.	680	836	1,053	1,286
	Total	.	.	705	870	1,087	1,317
Without ASD	Income Support Learners	.	.	4,911	5,739	6,046	7,160
	No Income Support Learners	.	.	380,649	392,704	399,484	402,925
	Total	.	.	385,560	398,443	405,530	410,085
Percentage of Individuals							
With ASD	Income Support Learners	-	-	3.55	3.91	3.13	2.35
	No Income Support Learners	-	-	96.45	96.09	96.87	97.65
	Total	-	-	100.00	100.00	100.00	100.00
Without ASD	Income Support Learners	-	-	1.27	1.44	1.49	1.75
	No Income Support Learners	-	-	98.73	98.56	98.51	98.25
	Total	-	-	100.00	100.00	100.00	100.00

Percentages and numbers were replaced with "." and "-" if numerators were under 10.

Note. This analysis looks at the individuals with or without ASD who were Income Support Learners upgrading academic skills or seek job training.

Tables

TABLE 17: Number and percentage of individuals with or without ASD who had criminal offences and study year, Albertans aged 12 to 25 years

		Criminal offences		Study year			
		2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Number of Individuals							
With ASD	Criminal offences	49	63	74	93	112	116
	No criminal offences	1,806	2,197	2,627	3,049	3,451	3,895
	Total	1,855	2,260	2,701	3,142	3,563	4,011
Without ASD	Criminal offences	16,422	18,195	20,035	21,356	22,269	22,355
	No criminal offences	656,564	726,671	781,356	834,420	883,886	920,916
	Total	672,986	744,866	801,391	855,776	906,155	943,271
Percentage of Individuals							
With ASD	Criminal offences	2.64	2.79	2.74	2.96	3.14	2.89
	No criminal offences	97.36	97.21	97.26	97.04	96.86	97.11
	Total	100.00	100.00	100.00	100.00	100.00	100.00
Without ASD	Criminal offences	2.44	2.44	2.50	2.50	2.46	2.37
	No criminal offences	97.56	97.56	97.50	97.50	97.54	97.63
	Total	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 18: Number and percentage of individuals with or without ASD who received Family Support for Children with Disabilities (FSCD) services by study year, Albertans aged 0 to 17

		FSCD Service		Study year			
		2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Number of Individuals							
With ASD	FSCD	2,559	2,961	3,181	3,341	3,471	3,608
	No FSCD	3,967	3,993	3,981	3,813	3,533	3,105
	Total	6,526	6,954	7,162	7,154	7,004	6,713
Without ASD	FSCD	6,126	6,608	6,456	6,286	6,160	5,945
	No FSCD	824,134	852,306	867,384	880,845	890,840	885,381
	Total	830,260	858,914	873,840	887,131	897,000	891,326
Percentage of Individuals							
With ASD	FSCD	39.21	42.58	44.41	46.70	49.56	53.75
	No FSCD	60.79	57.42	55.59	53.30	50.44	46.25
	Total	100.00	100.00	100.00	100.00	100.00	100.00
Without ASD	FSCD	0.74	0.77	0.74	0.71	0.69	0.67
	No FSCD	99.26	99.23	99.26	99.29	99.31	99.33
	Total	100.00	100.00	100.00	100.00	100.00	100.00

Tables

TABLE 19: Number and percentage of individuals with or without ASD who received Assured Income for the Severly Handicapped (AISH) services by study year, Albertans aged 18 to 25

		AISH Service		Study year			
		2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Number of Individuals							
With ASD	AISH	168	251	367	457	615	776
	No AISH	258	334	416	517	628	757
	Total	426	585	783	974	1,243	1,533
Without ASD	AISH	2,662	3,323	4,249	5,102	6,071	7,248
	No AISH	387,852	453,918	510,323	564,714	616,742	657,937
	Total	390,514	457,241	514,572	569,816	622,813	665,185
Percentage of Individuals							
With ASD	AISH	39.44	42.91	46.87	46.92	49.48	50.62
	No AISH	60.56	57.09	53.13	53.08	50.52	49.38
	Total	100.00	100.00	100.00	100.00	100.00	100.00
Without ASD	AISH	0.68	0.73	0.83	0.90	0.97	1.09
	No AISH	99.32	99.27	99.17	99.10	99.03	98.91
	Total	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 20: Number and percentage of individuals with or without ASD who received Persons with Developmental Disabilities (PDD) services by study year, Albertans aged 18 to 25

		PDD Service		Study year			
		2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Number of Individuals							
With ASD	PDD	197	254	313	374	476	554
	No PDD	229	331	470	600	767	979
	Total	426	585	783	974	1,243	1,533
Without ASD	PDD	1,896	2,082	2,207	2,337	2,515	2,721
	No PDD	388,618	455,159	512,365	567,479	620,298	662,464
	Total	390,514	457,241	514,572	569,816	622,813	665,185
Percentage of Individuals							
With ASD	PDD	46.24	43.42	39.97	38.40	38.29	36.14
	No PDD	53.76	56.58	60.03	61.60	61.71	63.86
	Total	100.00	100.00	100.00	100.00	100.00	100.00
Without ASD	PDD	0.49	0.46	0.43	0.41	0.40	0.41
	No PDD	99.51	99.54	99.57	99.59	99.60	99.59
	Total	100.00	100.00	100.00	100.00	100.00	100.00

Definitions and notes

- **Age, sex**, and postal code (translated into Statistics Canada **dissemination areas**) were provided for each individual by each participating program. In the case of discrepancies between programs, the most common value for an indicator was chosen. In the event of two or more most common values, the value for the indicator was chosen randomly from the most common values.
- **All years** refers to the indicator occurring at any point across the six study years unless otherwise specified.
- The **Assured Income for the Severely Handicapped (AISH)** program provides financial and health-related assistance to Albertan adults (aged 18 and older) who have a severe handicap that is permanent and substantially limits ability to earn a living.
- An individual was considered to have **Autism Spectrum Disorder (ASD)** if they had a diagnostic code (ICD-9: 299-299.91 or ICD-10: F84-F84.9) in any of the six study years from Health (from physician visits, other ambulatory care visits, or emergency room visits, or hospitalizations) or from Family Support for Children with Disabilities (FSCD). Those "without ASD" may have included some individuals with ASD who had a diagnostic code prior to the study period or had not yet been diagnosed during the study period.
- **Child Intervention** services are focused on meeting the safety and well-being of children and helping families and communities to meet these needs. The Child Intervention program provides services to children and youth between the ages of 0 and 17 years who are or may be at risk of being abused, neglected or otherwise in need of intervention. As well, young adults (18-22 years of age) may also be eligible for post-intervention supports through the use of Support and Financial Assistance Agreements to help them transition to adulthood.
- **Children's Services (CS) and Community and Social Services (CSS) service delivery regions** were used for regional analyses. Dissemination areas from the 2006 Statistics Canada Census were used to determine region. Those with missing dissemination areas are excluded from analyses. There are seven regions (Northwest, Northeast, North Central, Edmonton, Central, Calgary, South); the boundaries for these regions are shown on the map.
- **Child Support Services (CSS)** helps single parents and parents in blended families reach child support payment agreements or obtain court orders for payment. Dependents are the children for whom child support is being sought from Respondents (Respondents are the parents from whom child support payments are being sought).
- Three **chronic health** conditions were defined: asthma, diabetes, and cancer. **Asthma** was defined as having two or more physician visits at least 30 days apart and within two years, with an ICD-9 diagnostic code 293 in any field, or any ambulatory care visit or hospitalization with an ICD-10 diagnostic code J45 to J46 in any field. **Diabetes** was defined as having two or more physician visits at least one day apart and within two years, with an ICD-9 diagnostic code 250 in any field, or any ambulatory care visit or hospitalization with an ICD-10 diagnostic code E10 to E24 in any field, or from a medical code 12 from Assured Income for the Severely Handicapped (AISH) services. Gestational diabetes diagnoses were excluded and were defined as a diabetes code 120 days prior to or 180 day after a pregnancy code (ICD-9: 641 to 676.7, V27-V27.9 and ICD-10 CA: O10 to O16.9, O21 to O95.9, O98 to O99.9, Z37 to Z37.99). An individual was considered to have **cancer** if they received any cancer code (ICD-9: 140 to 208.92) from physician visits, or any ambulatory care visit or hospitalization with a diagnostic



Definitions and notes (continued)

code (ICD-10: C00 to C97.9) in any field, or an AISH medical code 10. Only Albertans who were registered with the Alberta Health Care Insurance plan for the full fiscal year were included.

- Individuals with **criminal offences** include those (aged 12 or older) charged with offences under various federal statutes.
- **Cross-ministry analyses included only study participants who were linked across the relevant programs.** This means that not all participants in the project were represented in every analysis. As well, only participants with a value for a given indicator were included in analyses involving that indicator (i.e., missing values were excluded).
- **Disability services** include Family Support for Children with Disabilities (FSCD), Assured income for the Severely handicapped (AISH), and Persons with Developmental Disabilities (PDD).
- **Educational achievement** was computed by Alberta Education using age, grade, school type, special education codes, provincial achievement test scores, home education status, number of high school credits earned, number of higher level courses taken, average grade in higher level courses, possession of an Alberta Education certificate or diploma, and Alexander Rutherford scholarship eligibility. Educational achievement was categorized as above, meeting, or below expectations for a student's age and grade. An educational achievement rating was not available for youth in 'other' schools (accredited post-secondary institutions offering high school courses for credit to adults; most youth in these schools were between 18 and 20 years), for home-schooled high school youth with no credits, and for students in grades lower than 3.
- The **Family Support for Children with Disabilities (FSCD)** program provides a wide range of child- and family-centered supports and services to children and youth (aged 0 to 17 years) with a disability.
- **High-cost health service use:** Cost estimates per type of service across physician visits (general practitioner or specialist), ambulatory care visits (emergency or other ambulatory care), and hospitalizations (by type of service) were obtained from the Canadian Institute for Health Information. Estimated costs per visit were summed across all visits for each individual. High cost health service users were those in the top 5% of estimated costs for their age groups and sexes.
- **Income Support** provides financial assistance to individuals (aged 18 and older) who are unable to meet their basic needs.
- **Income Support Learners** provides assistance to individuals who are in training, including basic costs to maintain their household as well as supplemental, health, and training benefits.

Definitions and notes (continued)

- **Mental health service** was defined by the presence or absence of mental health diagnosis codes (Two or more ICD-9: 290-309.9, 311-314.9, 316, or a single ICD-10CA: F00-F06.9, F09-F69, F84-F99, G31.2, G44.2, R41.0) in Alberta Health and Wellness' databases (Inpatient—Discharge Abstract Database, Ambulatory Care, and Practitioner Payments), or in the Family Support for Children with Disabilities (FSCD) or the Assured Income for the Severely Handicapped (AISH) information systems. Only Albertans who were registered with the Alberta Health Care Insurance Plan for the full fiscal year or who had a mental health service with FSCD or AISH were included. Mental health service use is a proxy for presence of a mental health condition; some youth with mental health conditions may not have accessed mental health services in Alberta during the year, and some mental health service use may have occurred for youth who did not in fact have mental health conditions.
- The **Persons with Developmental Disability (PDD)** program funds a range of programs and services to help adult Albertans (aged 18 and older) with developmental disabilities be part of their communities and live independently.
- **Post-secondary** students are individuals (aged 17 or older) enrolled in publicly funded universities, public colleges, technical institutes, and non-profit private university colleges in Alberta.
- **Residential mobility** was defined as the number of unique postal codes within the Alberta Health Care Insurance Plan registry during the study period. Health care premiums ceased to be collected on January 1st, 2009; addresses in the registry have been updated less often since that time, reducing their accuracy.
- **Socio-economic status (SES)** captures the social and material environments in which individuals lived. For each year of the study period, an individual was assigned a dissemination area level socio-economic status via an index based on Statistics Canada 2006 Census data²². Six indicators were included in the index: percent without a high school diploma, the employment rate, average income, percent of single families, percent of persons living alone, and percent of persons separated, divorced, or widowed. Socio-economic status values fell into five quintiles of 2006 census.
- **Students with special needs** (aged 2.5 to 19) who receive special education programming services.
- **Study population:** The study included individuals with a date of birth between April 1, 1980 and March 31, 2011 and who were registered in the Alberta Health Care Insurance Plan (AHCIP) full-time for at least one year between April 1, 2005 and March 31, 2011. The youngest study participants were those born in the last study year. The oldest study participants were 25 years old at the end of the first study year and consequently 30 years old at the end of the last study year.
- **Tables** are shown by fiscal year.

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The Child and Youth Data Laboratory

The Child and Youth Data Laboratory's (CYDL's) Longitudinal Project (*Experiences of Albertan Children and Youth over Time, 2005/06 to 2010/11*) is a joint initiative between PolicyWise for Children & Families and participating ministries in the Government of Alberta. The mandate of the CYDL is to link and analyse administrative data from Government ministries, to provide evidence for policy and program development.

The CYDL is managed by **PolicyWise for Children & Families**. PolicyWise is a not-for-profit organization whose mission is to develop and integrate evidence to inform, identify and promote effective public policy and service delivery to improve the well-being of children, families and communities in Alberta, Canada and internationally.

This project

The CYDL Longitudinal Project, focuses on understanding the experiences of Albertan children and youth as they develop. The focus is service use within and across ministries, as it is related to key indicators and to the passage of time. Studying experiences over several years of development adds a valuable level of richness to an already ground-breaking initiative, providing detailed insight into the factors that help to shape our children and youth as they develop.

Our partners

This project was carried out on behalf of six ministries of the Government of Alberta. Each ministry collaborated extensively with the CYDL on this project, and their dedication to the project is gratefully acknowledged:

Advanced Education Education Health Children's Services
Community and Social Services Justice and Solicitor General

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This study is based in part on data provided by the Government of Alberta. The interpretation and conclusions contained herein are those of the researchers and do not necessarily represent the views of the Government of Alberta. The Government of Alberta does not express any opinion in relation to this study.

