

# Health, Mental Health and Social Service Use in High-Level Offenders Age 18 to 25 in Alberta

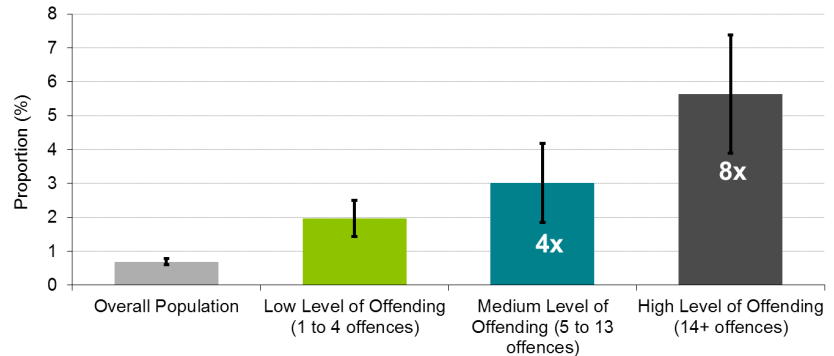
## EXECUTIVE SUMMARY

A minority of the population commits the majority of crimes<sup>1</sup>. Although how this group is defined can vary between jurisdictions (e.g., “prolific”, “chronic”, “high-level”), it is clear that their histories are complex and that they touch multiple systems, including the healthcare system and social support programs. This report splits young adult offenders aged 18-25 years into three categories based on the number of offences they were charged with between 2005/6 and 2009/10 (low, medium, and high), and describes the support services they accessed and the health issues they faced.

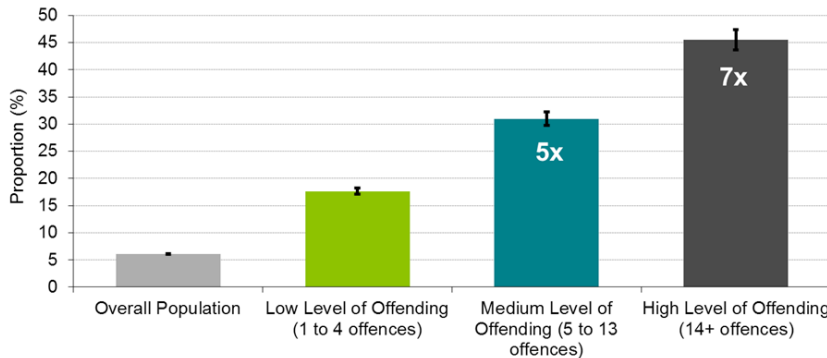
Compared to the general population in Alberta of young adults in the 2005/06 to 2009/10 fiscal years,

### high-level offenders were:

- 8 times more likely to have been in the top 1% of emergency department users (with 30 or more visits in the 5-year period) than the general population.

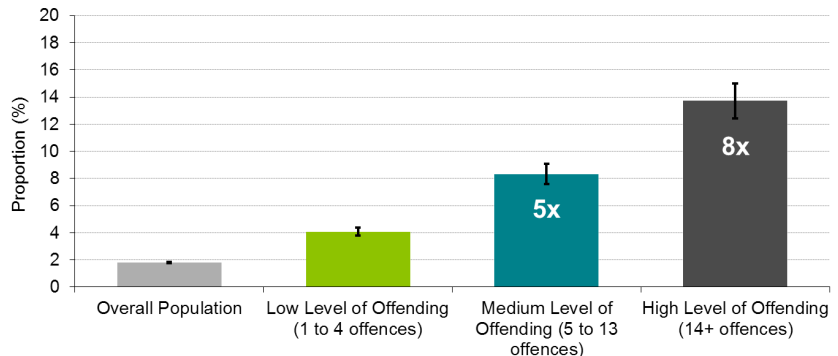


**Proportion of young adults (18 to 25 years) who had more than 30 emergency department visits between 2005/06 and 2009/10 in Alberta, by level of offending**



**Proportion of young adults (18 to 25 years) that received Income Support between 2005/06 and 2009/10 in Alberta, by level of offending**

- 4 times more likely to have received a diagnostic code from a physician for a mental health condition. For example, high-level offenders were 8 times more likely to receive a personality disorder code.



**Proportion of young adults (18 to 25 years) who received a diagnostic code for personality disorder between 2005/06 and 2009/10 in Alberta, by level of offending**

<sup>1</sup> This report is part of the Longitudinal Project conducted 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 <https://policywise.com/data/p2/> to access other deliverables.

## BACKGROUND

It is broadly recognized that a large proportion of crime is committed by a minority of offenders<sup>1</sup>. How this group is defined and the name used to identify them varies between jurisdictions (e.g. “prolific,” “chronic,” “priority,”)<sup>2,3</sup>, however, it is recognized that these individuals’ histories are complex and likely touch multiple systems including justice, health and social systems<sup>4</sup>. Describing the services these offenders access and the issues they face can identify policy and programming directions that could improve outcomes.

This report uses the terms medium-level and high-level offenders to describe young adults, aged 18 to 25, who frequently re-offend. Young adult offenders were split into three categories (low, medium, and high) based on the number of offences they were charged with between 2005/06 and 2009/10 fiscal years. Patterns in health service use, social service use, educational achievement, residential mobility, and health diagnostic codes for mental health conditions, substance use, and homelessness were compared. Linked administrative data from the Child and Youth Data Laboratory’s Longitudinal Project<sup>1</sup> was used as it is well suited for analyses across different ministries.

## FINDINGS

In Alberta, there were 26,572 individuals between the ages of 18 to 25 years in 2005/06 that were charged with at least one offence between 2005/06 and 2009/10<sup>ii</sup>. Offenders were categorized into low-, mid- and high-levels of offending based on the number of offences received during that time period<sup>iii</sup>. 70% (18,526) of individuals had between 1 and 4 offences and were defined as low-level offenders, 20% (5,300) of individuals had 5 to 13 offences and were defined as mid-level offenders, and 10% (2,746) had 14 or more offences and were defined as high-level offenders (Figure 1).

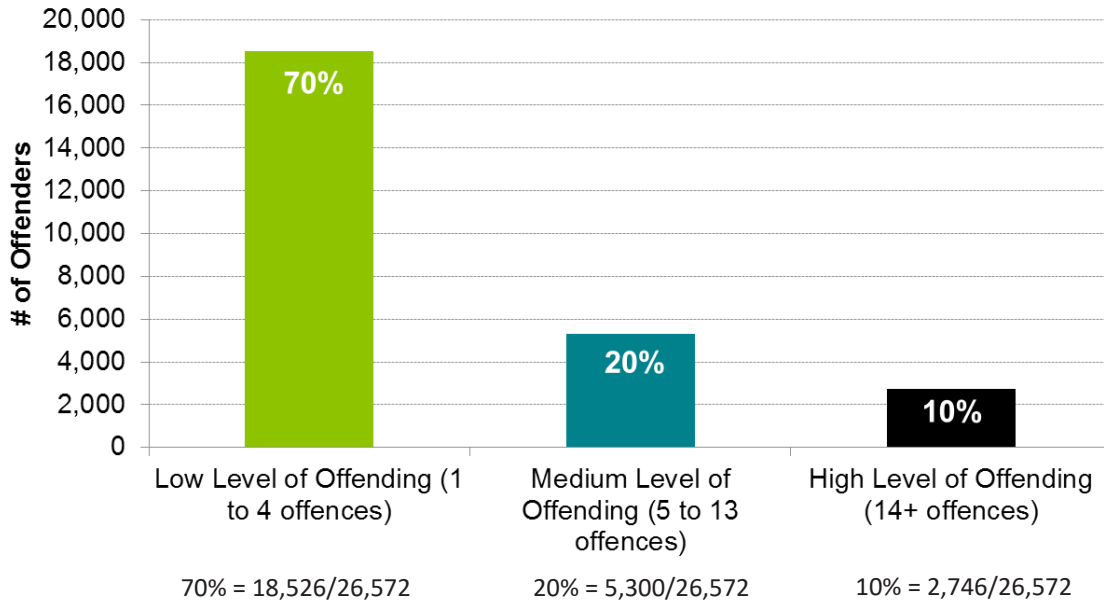
**Low-level offenders: 1 to 4 offences (low-level offending)**  
**Mid-level offenders: 5 to 13 offences (medium-level offending)**  
**High-level offenders: 14 or more offences (high-level offending)**

76% of all offences committed by young adults during that time period were committed by mid-level and high-level offenders (e.g., 30% of the entire offender population) (Figure 2). Administrative and property offences accounted for the majority of offences committed by high-level (66%) and medium-level offenders (53%) (Figure 3). 90% of high-level offenders and 51% of mid-level offenders had been in the provincial correctional system between 2005/06 and 2009/10. This is 8 times higher than low-level offenders, of whom only 11% were in the provincial correctional system. (Figure 4).

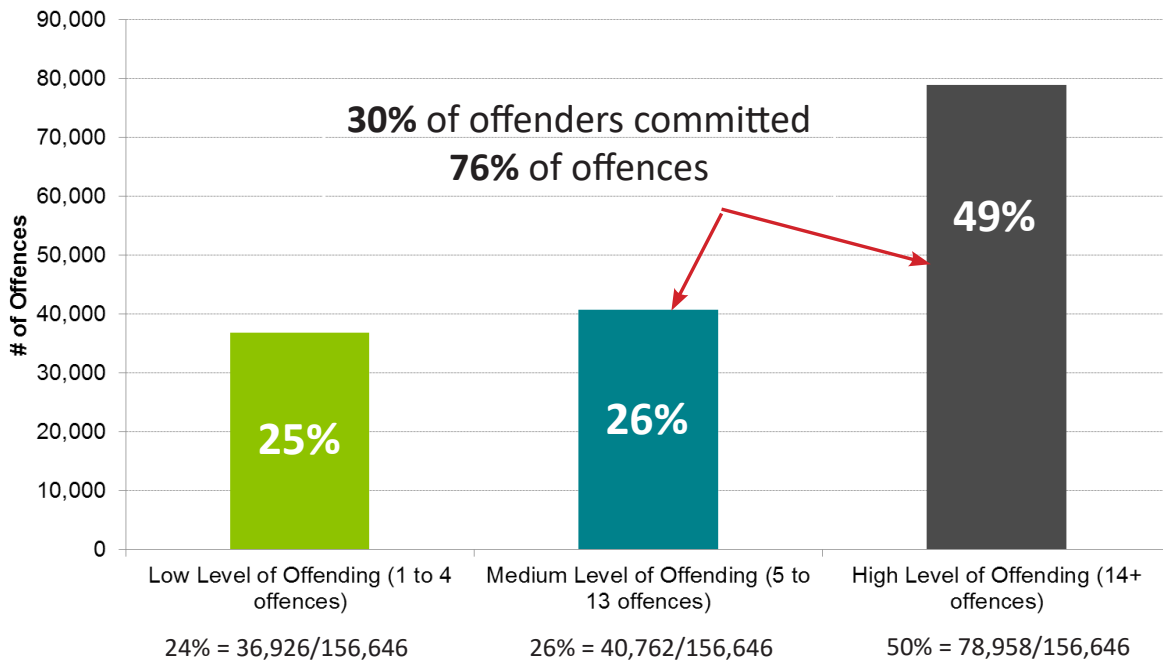
<sup>ii</sup> Please see the Data Notes in Appendix A for details regarding the data and the methods.

<sup>iii</sup> Note: a sensitivity analysis was conducted to test how robust the findings were in this report. See Data Notes in Appendix A for more details.

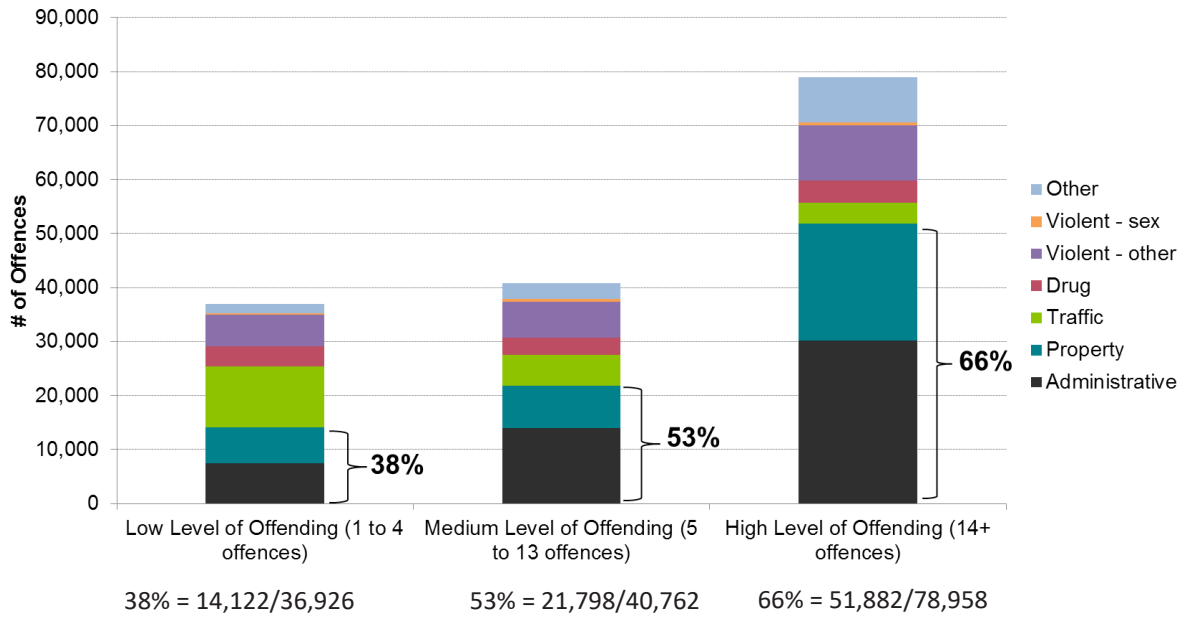




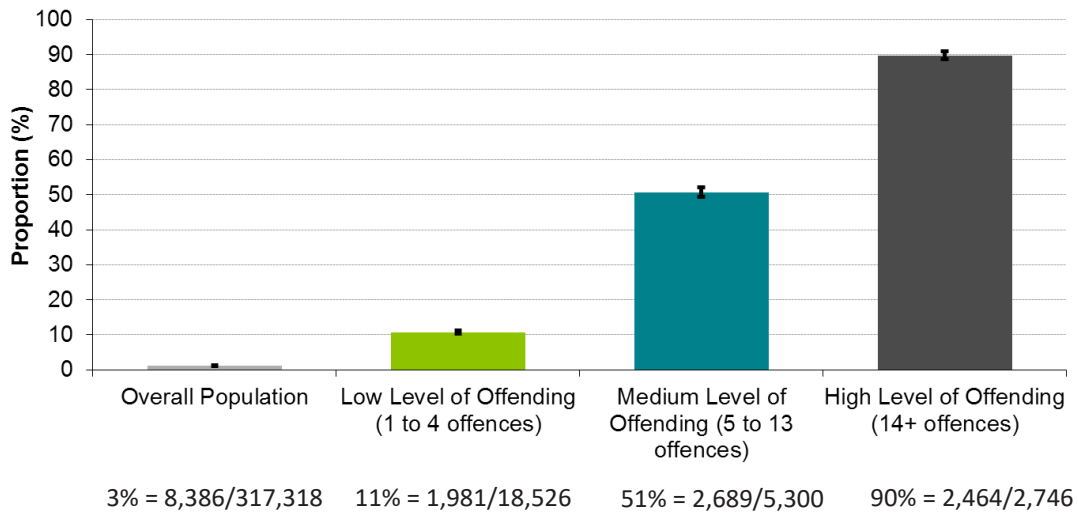
**Figure 1. Number of young adults (18 to 25 years) between 2005/06 and 2009/10 in Alberta, by level of offending**



**Figure 2. Number of offences among young adults (18 to 25 years) between 2005/06 and 2009/10 in Alberta, by level of offending**



**Figure 3. Types of offences among young adults (18 to 25 years) between 2005/06 and 2009/10 in Alberta, by level of offending**



**Figure 4. Proportion of young adults (18 to 25 years) who were in provincial corrections between 2005/06 and 2009/10 in Alberta, by level of offending**

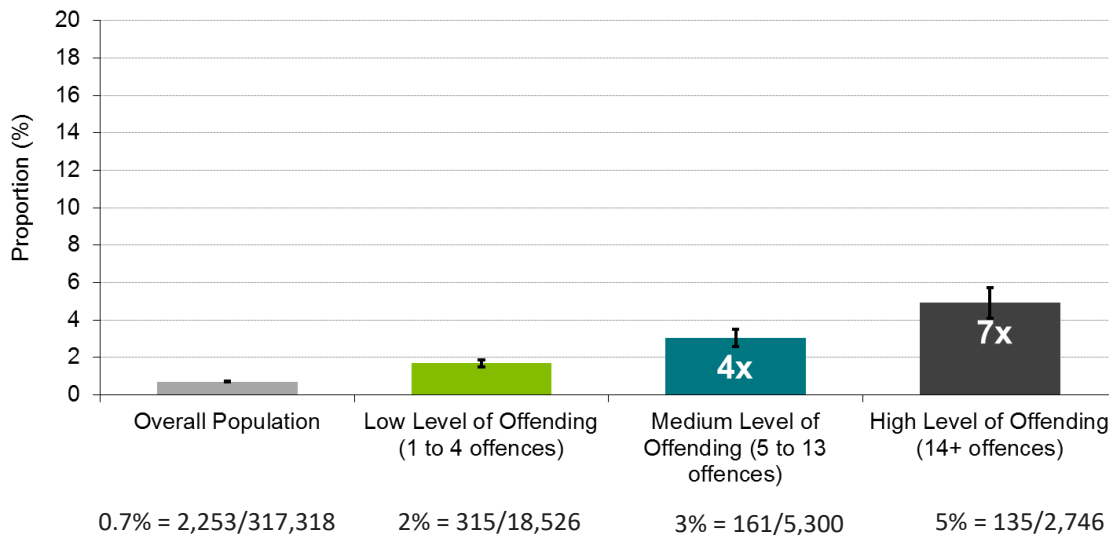
<sup>iv</sup> Please see the Data Notes in Appendix A for details.



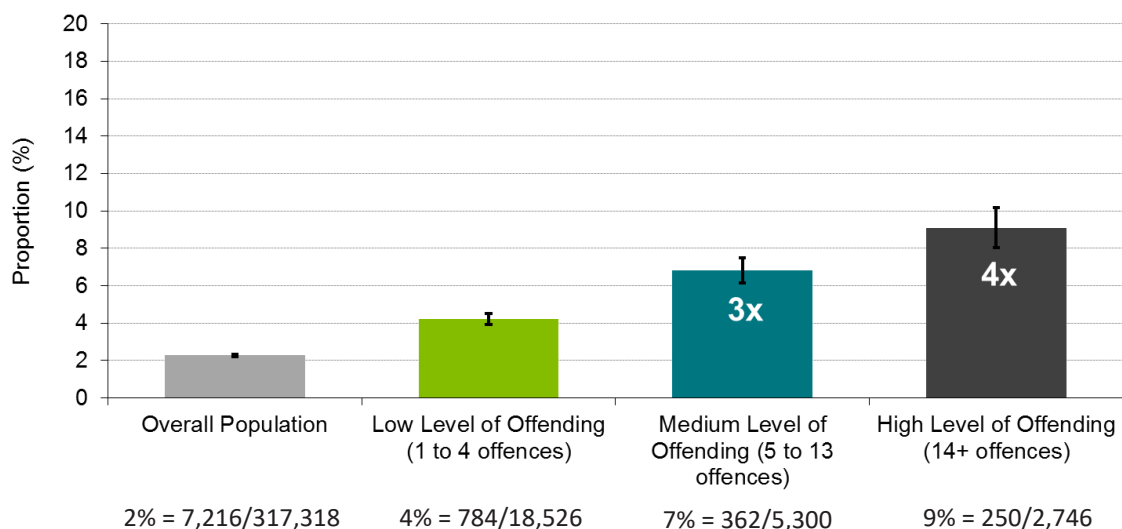
## Mental Health Diagnosis Codes

Canadian research demonstrates that offenders with mental health disorders are at a significantly higher risk of repeat offending than other offenders<sup>5</sup>. To better understand the patterns of certain mental health conditions among young adult offenders in Alberta, we used administrative data to examine the proportion of offenders who received a mental health diagnostic code by a health service between 2005/06 and 2009/10<sup>iv</sup>.

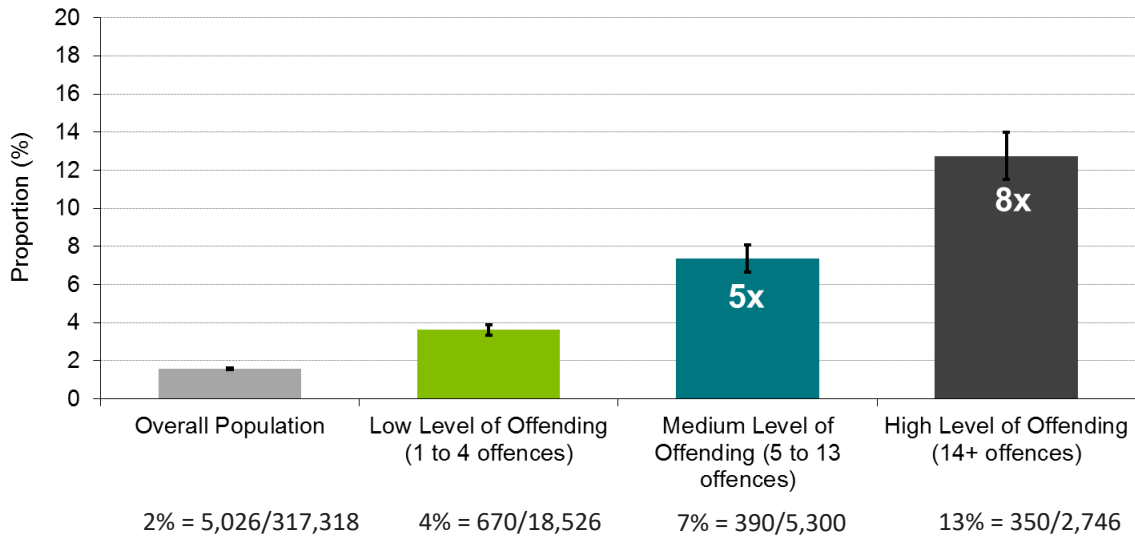
High-level offenders were 7 times more likely to receive a diagnostic code for schizophrenia than the general population of young adults in Alberta (Figure 5), 4 times more likely to receive a bipolar disorder code (Figure 6), 8 times more likely to receive a personality disorder code (Figure 7) and 3 times more likely to receive an adjustment disorder code (Figure 8). A similar pattern was seen with conduct disorder, Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder (ADD/ADHD) and Fetal Alcohol Spectrum Disorder (FASD) (Figures 9 to 11). These numbers likely underestimate the true number of people with these conditions, because only those individuals who sought medical attention for their mental health condition and received a diagnostic code during the study period were counted.



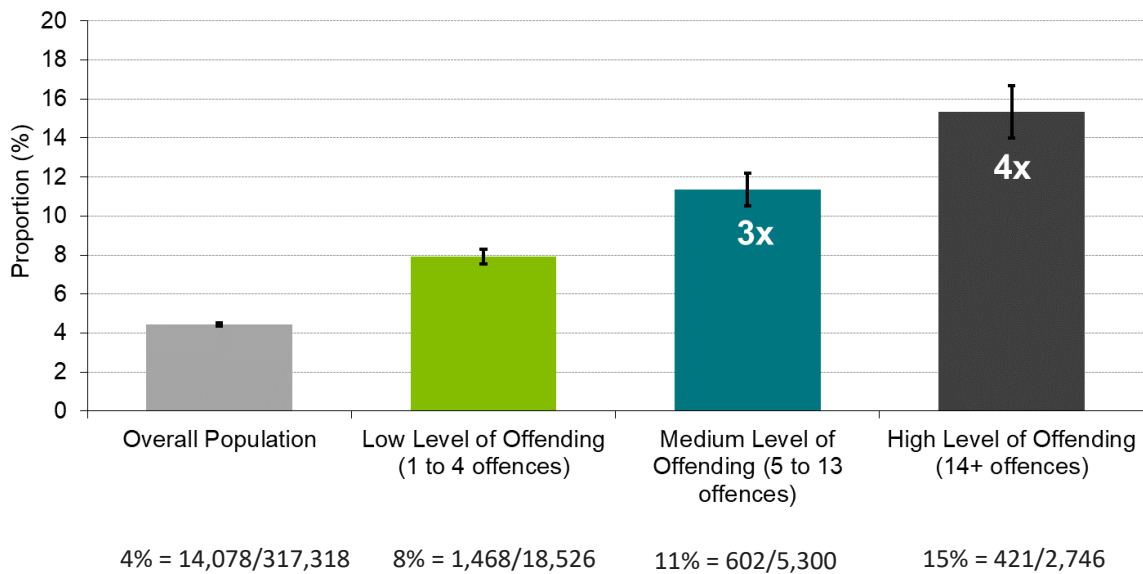
**Figure 5.** Proportion of young adults (18 to 25 years) who received a diagnostic code for schizophrenia between 2005/06 and 2009/10 in Alberta, by level of offending



**Figure 6.** Proportion of young adults (18 to 25 years) who received a diagnostic code for bipolar disorder between 2005/06 and 2009/10 in Alberta, by level of offending

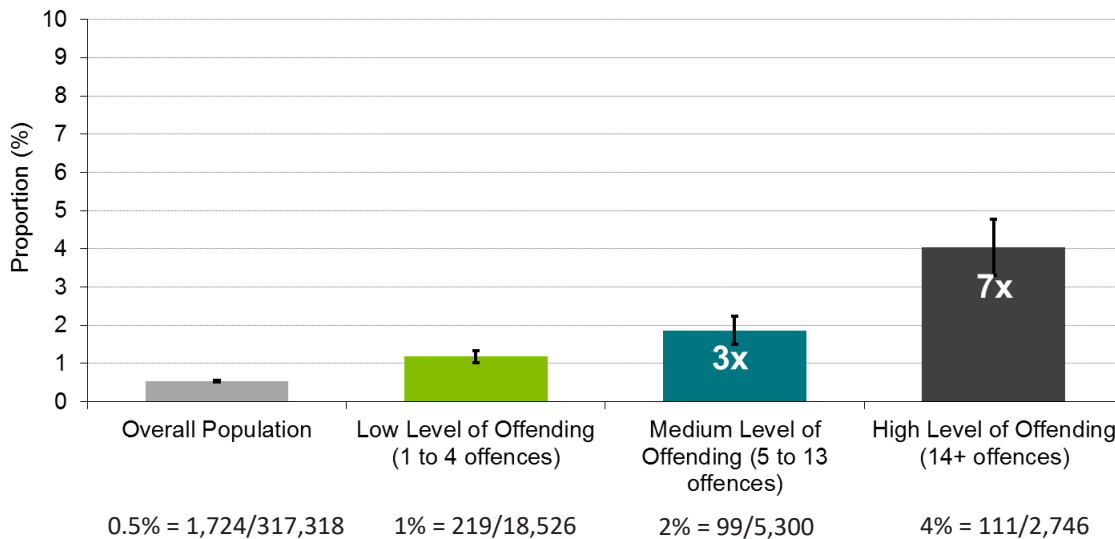


**Figure 7.** Proportion of young adults (18 to 25 years) who received a diagnostic code for personality disorder between 2005/06 and 2009/10 in Alberta, by level of offending

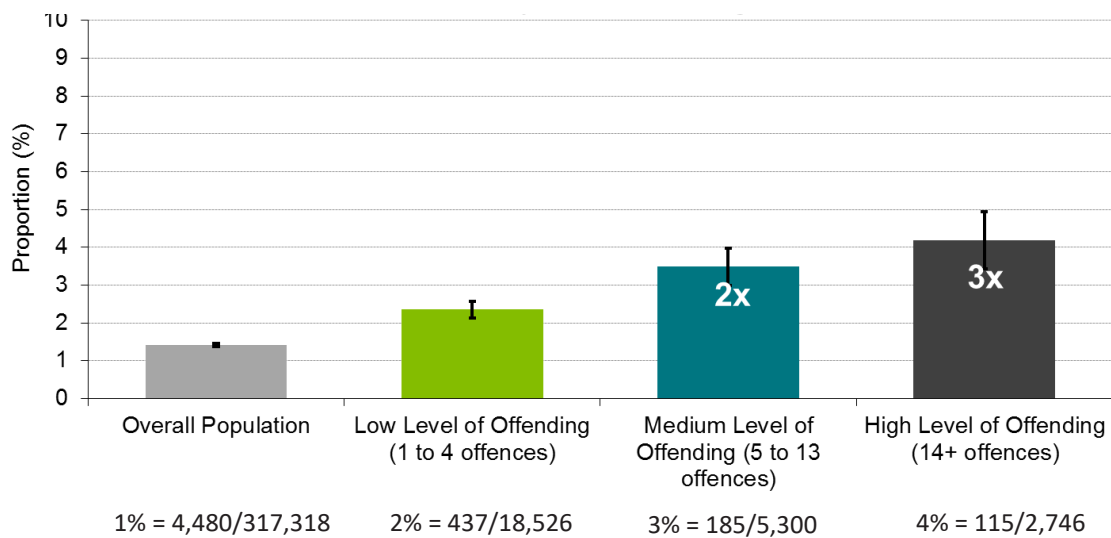


**Figure 8.** Proportion of young adults (18 to 25 years) who received a diagnostic code for adjustment disorder between 2005/06 and 2009/10 in Alberta, by level of offending

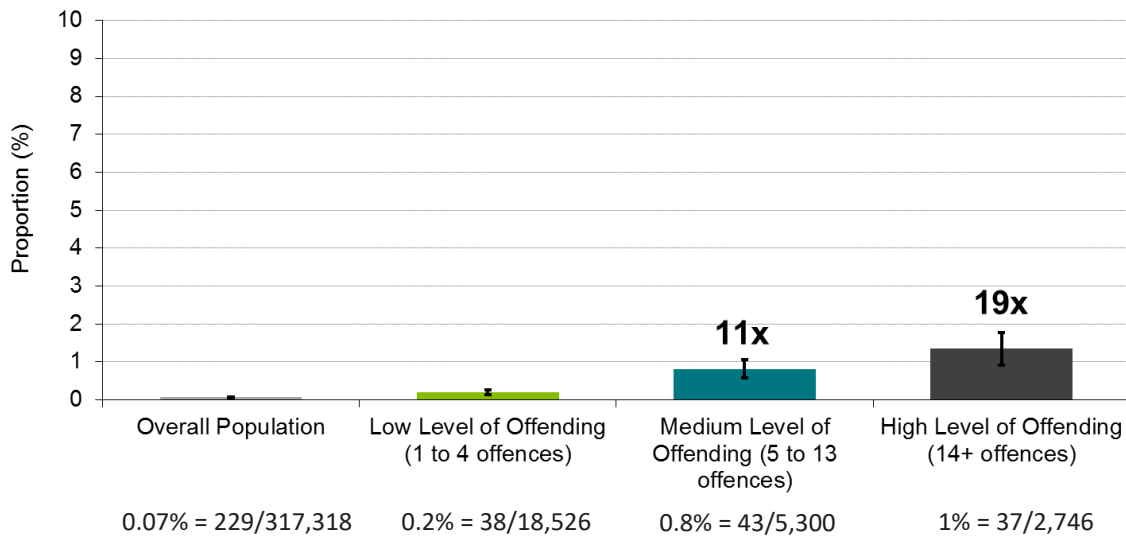




**Figure 9. Proportion of young adults (18 to 25 years) who received a diagnostic code for conduct disorder between 2005/06 and 2009/10 in Alberta, by level of offending**



**Figure 10. Proportion of young adults (18 to 25 years) who received a diagnostic code for ADD/ADHD between 2005/06 and 2009/10 in Alberta, by level of offending**

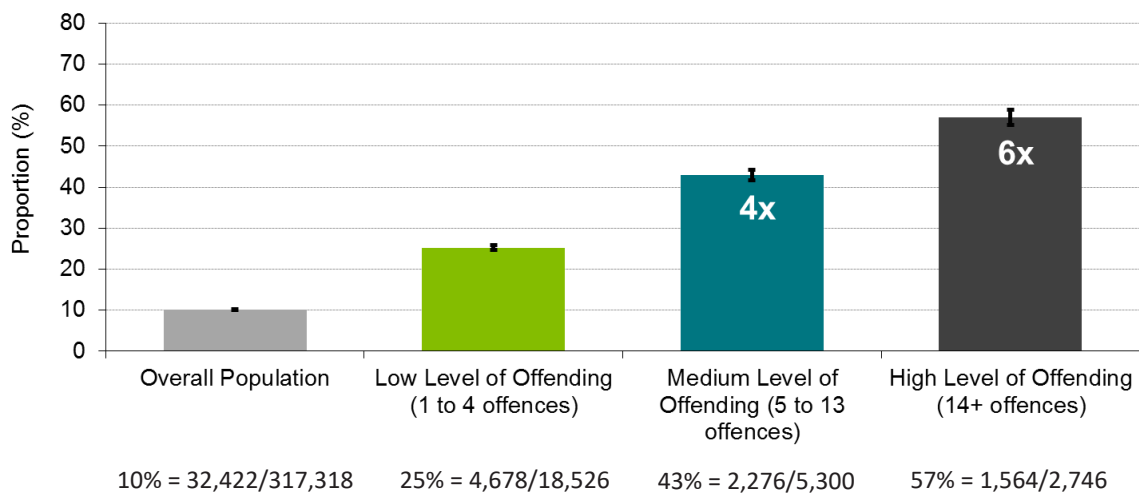


**Figure 11.** Proportion of young adults (18 to 25 years) who received a diagnostic code for FASD or received provincial supports for FASD<sup>v</sup> between 2005/06 and 2009/10 in Alberta, by level of offending

### Substance Use, Alcohol Dependence and Self-Harm

Substance use and alcohol dependence are frequently more prevalent among repeat offenders and are associated with high risk for suicide attempts, raising concerns about the risk of self-harm among offenders<sup>6</sup>. To understand the patterns of these characteristics among young adults in Alberta, we examined the proportion of offenders receiving a diagnostic code by a health service any time between 2005/06 and 2009/10<sup>vi</sup>.

Mid-level and high-level offenders were more likely to receive a diagnostic code from a physician than the general population for indicators of substance use, alcohol dependence, and self-harm (Figure 12 to 14). In particular, high-level offenders were 6 times more likely to have a diagnostic code indicating substance use, 9 times more likely to have a diagnostic code for alcohol dependence, and 8 times more likely to have a diagnostic code for self-harm. This is certainly an underestimate of the true prevalence of these conditions, because many individuals who use substances, have alcohol dependence or engage in self-harm may not have sought medical attention during the study period and received a diagnostic code.



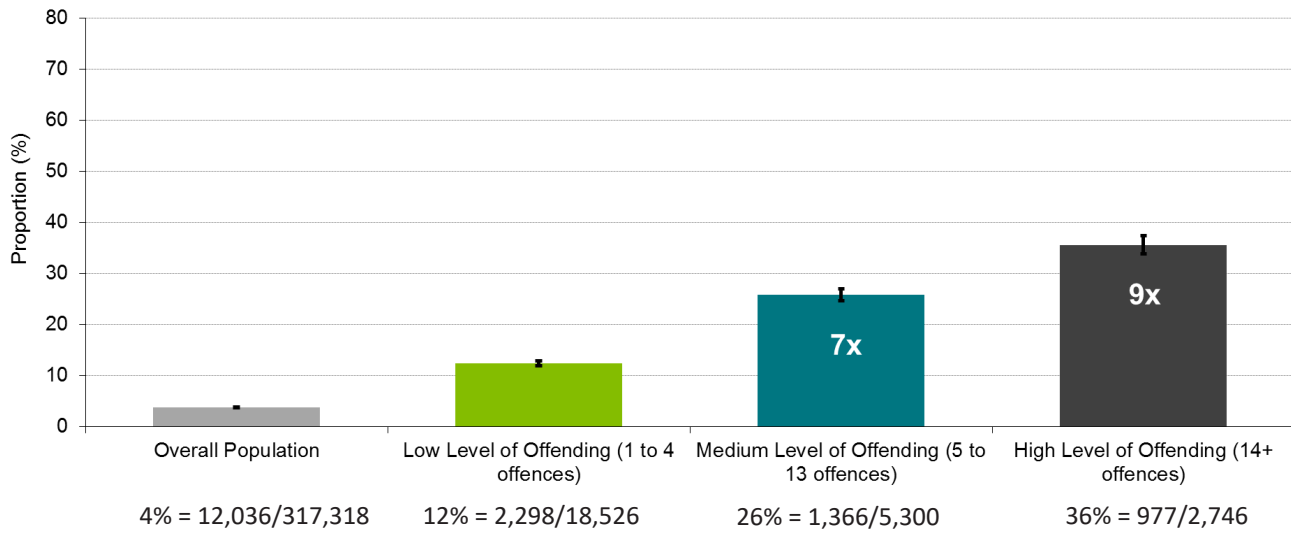
**Figure 12.** Proportion of young adults (18 to 25 years) with a diagnostic code indicating substance use between 2005/06 and 2009/10 in Alberta, by level of offending

<sup>v</sup> Please see the Data Notes for detailed information on the strengths and limitations of the FASD diagnostic codes used.

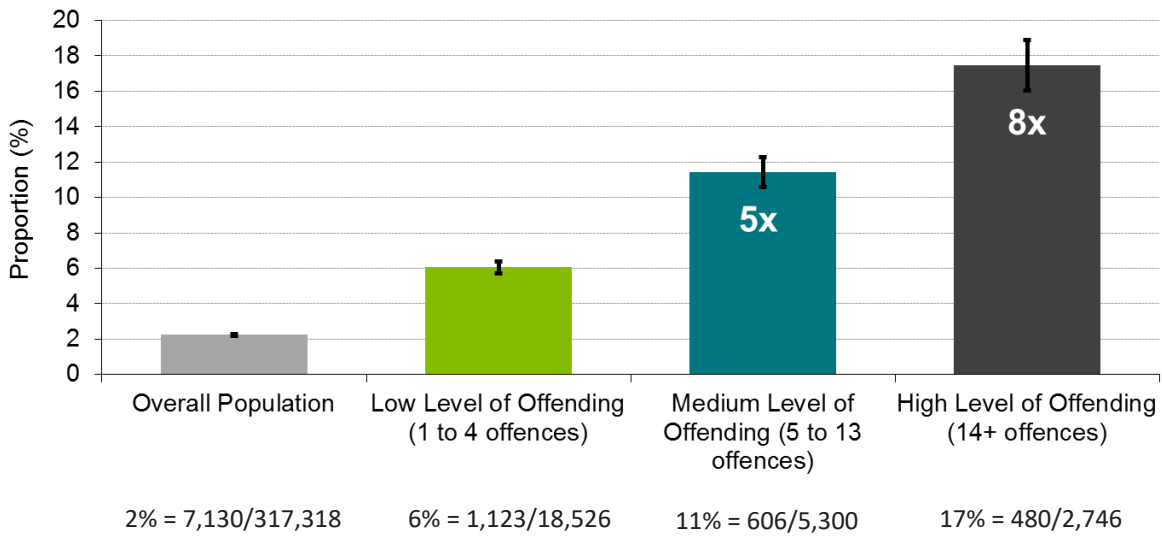
<sup>vi</sup> Please see the Data Notes in Appendix A for details.







**Figure 13.** Proportion of young adults (18 to 25 years) with a diagnostic code for alcohol dependence between 2005/06 and 2009/10 in Alberta, by level of offending



**Figure 14.** Proportion of young adults (18 to 25 years) with a diagnostic code for self-harm between 2005/06 and 2009/10 in Alberta, by level of offending

### ***Provincial Support Programs and Healthcare Usage***

In Canada, researchers have found high-level offending is associated with high-frequency service use from health and social services resulting in higher public service costs<sup>5</sup>. To better understand these patterns in young adults in Alberta, we examined the proportion of offenders accessing provincial social support/assistance programs and health services.

## Provincial Support Programs

Mid-level and high-level offenders were more likely to have accessed social programs than the general population (Figures 15 to 18). For instance, 45% of high-level offenders and 31% of mid-level offenders received Income Support between 2005/06 and 2009/10; this is, respectively, 7 times and 5 times higher than young adults in the general population (Figure 15). Similar patterns were observed with Assured Income for the Severely Handicapped (AISH), the Persons with Developmental Disabilities (PDD) program and Learner Income Support. Mid-level and high-level offenders were 2 times more likely to have received supports from the Persons with Developmental Disabilities program, and 3 times more likely to have received AISH between 2005/06 and 2009/10 than young adults in the general population (Figures 16 and 17). Figure 18 shows the proportion of the young adult population who received Learner Income Support at some point between 2005/06 and 2009/10.

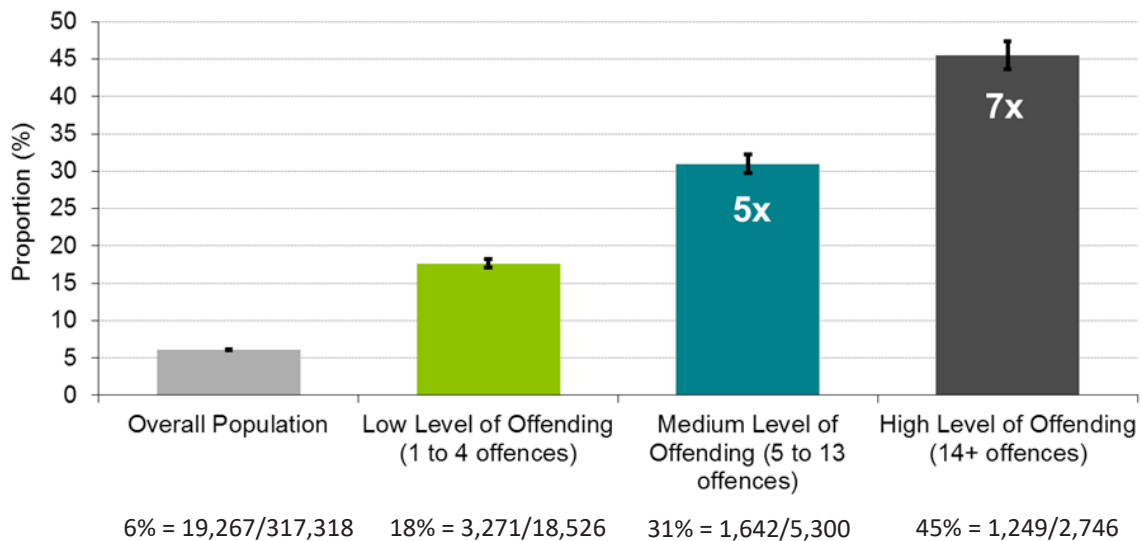


Figure 15. Proportion of young adults (18 to 25 years) who received Income Support between 2005/06 and 2009/10 in Alberta, by level of offending

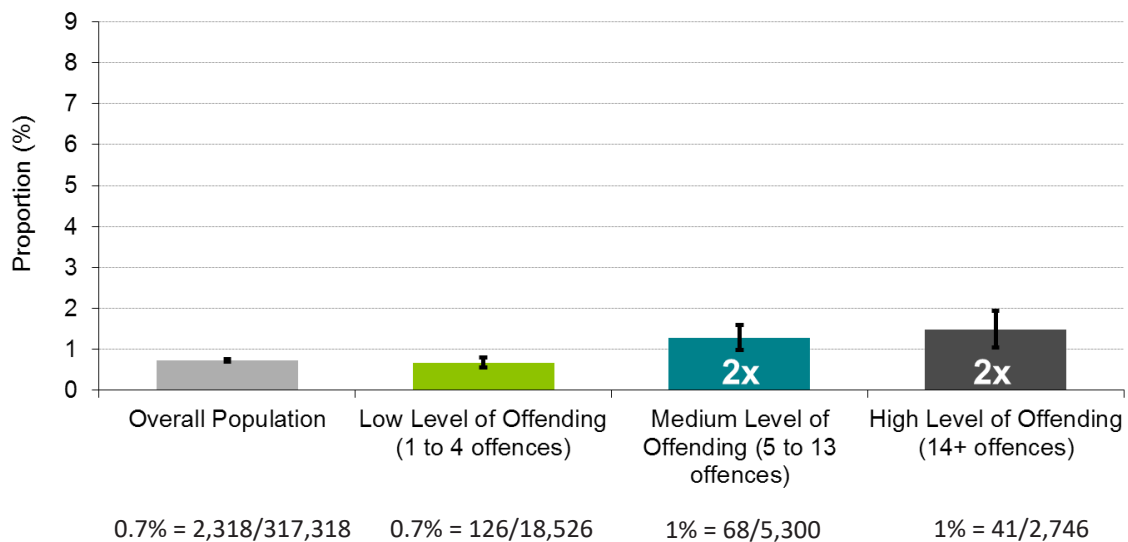


Figure 16. Proportion of young adults (18 to 25 years) who received supports from the Persons with Developmental Disabilities program between 2005/06 and 2009/10 in Alberta, by level of offending



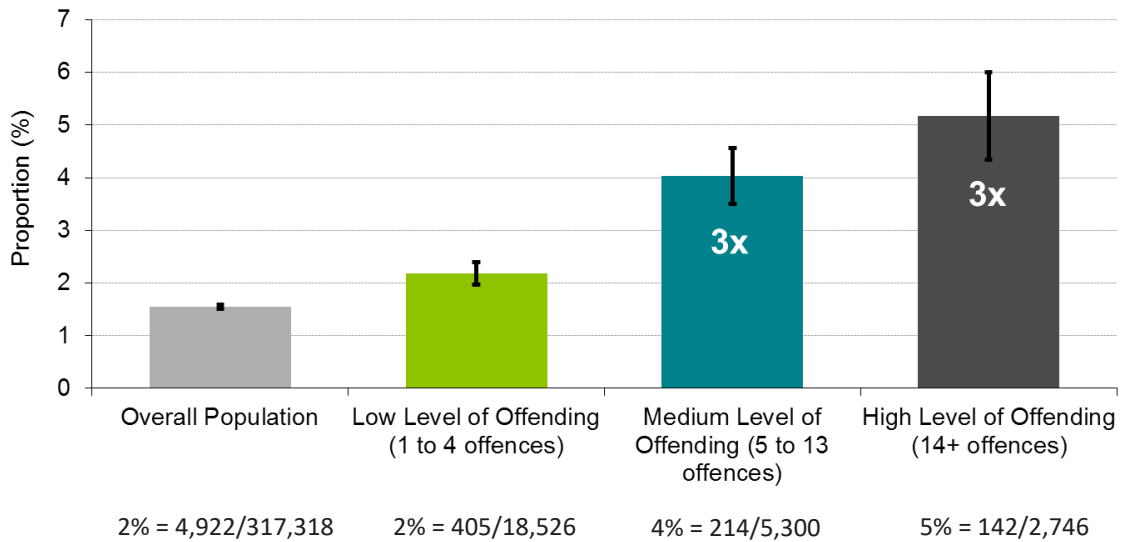


Figure 17. Proportion of young adults (18 to 25 years) who received AISH between 2005/06 and 2009/10 in Alberta, by level of offending

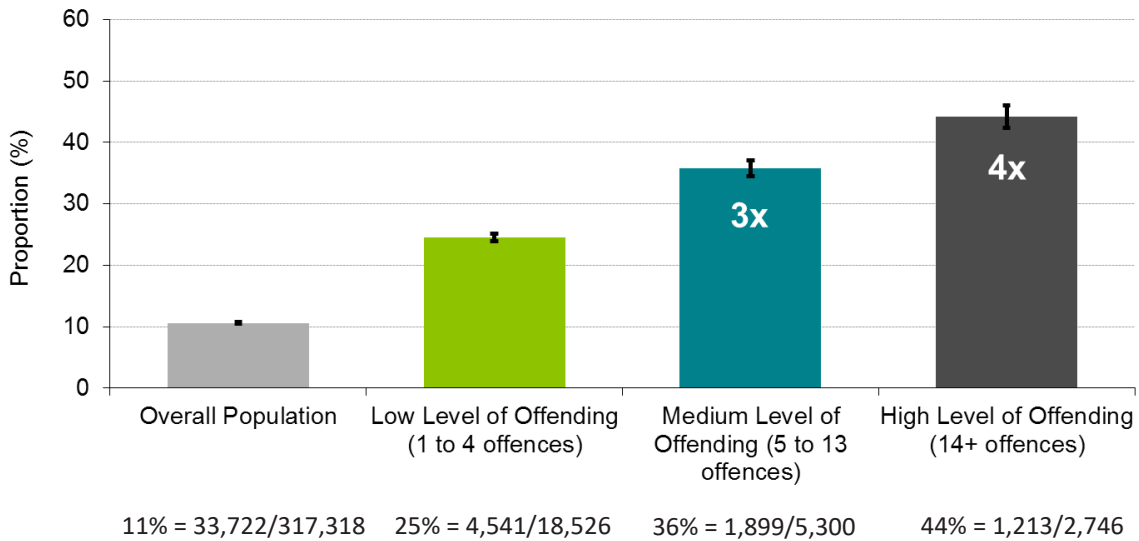


Figure 18. Proportion of young adults (18 to 25 years) who received Learner Income Support between 2005/06 and 2009/10 in Alberta, by level of offending

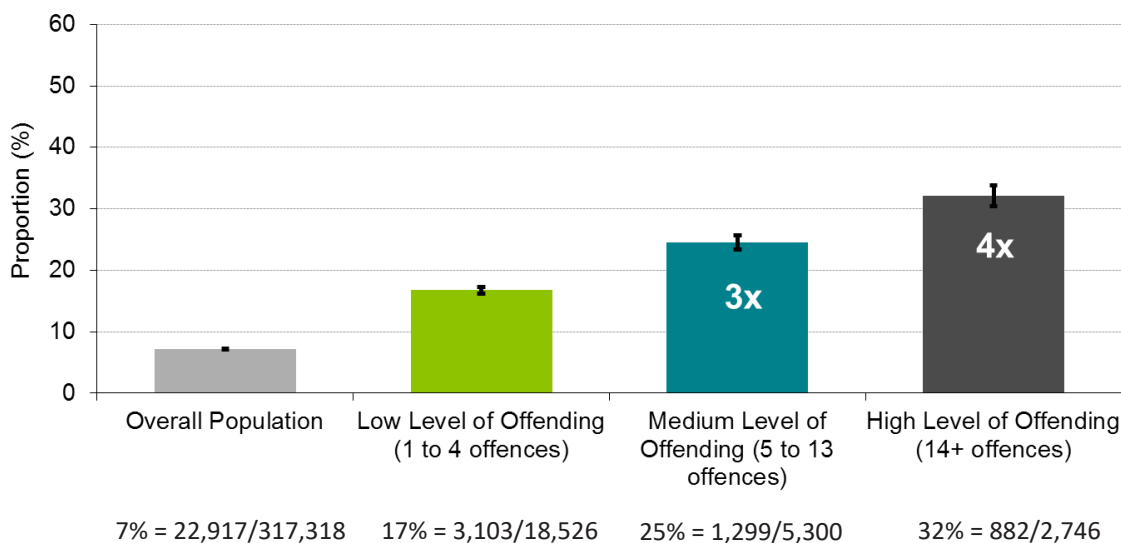
## HEALTHCARE USE

To characterize the use of the healthcare system and identify possible unmet needs, high-service use and emergency department visits were examined among young adult offenders in Alberta between 2005/06 and 2009/10.

High-level and mid-level offenders were more likely to have been high users of the healthcare system when compared to the general young adult population. For instance, 32% of high level offenders and 25% of mid-level offenders were in the top 10% of ER users with 10 or more visits between 2005/06 and 2009/10<sup>vi</sup>. This is, respectively, 4 times and 3 times higher than the general young adult population (Figure 19).

This pattern is even more striking when looking at the top 1% of ER visits; high-level offenders were 8 times more likely to have had 30 or more ER visits than the general young adult population during the study period (Figure 20).

Given these results, it is not surprising that high-level and mid-level offenders were more likely to be considered high cost health system users<sup>viii</sup>. 51% of high-level offenders and 41% of mid-level offenders were health users whose service use across physician visits, ambulatory care visits and hospitalizations were in the top 5% of estimated costs; this is, respectively, 3 times and 2 times higher than young adults in the general population (Figure 21). Similar results have been described for youth and young adults in the provincial correctional system<sup>ix,x</sup>.



**Figure 19. Proportion of young adults (18 to 25 years) who had more than 10 emergency department visits between 2005/06 and 2009/10 in Alberta, by level of offending**

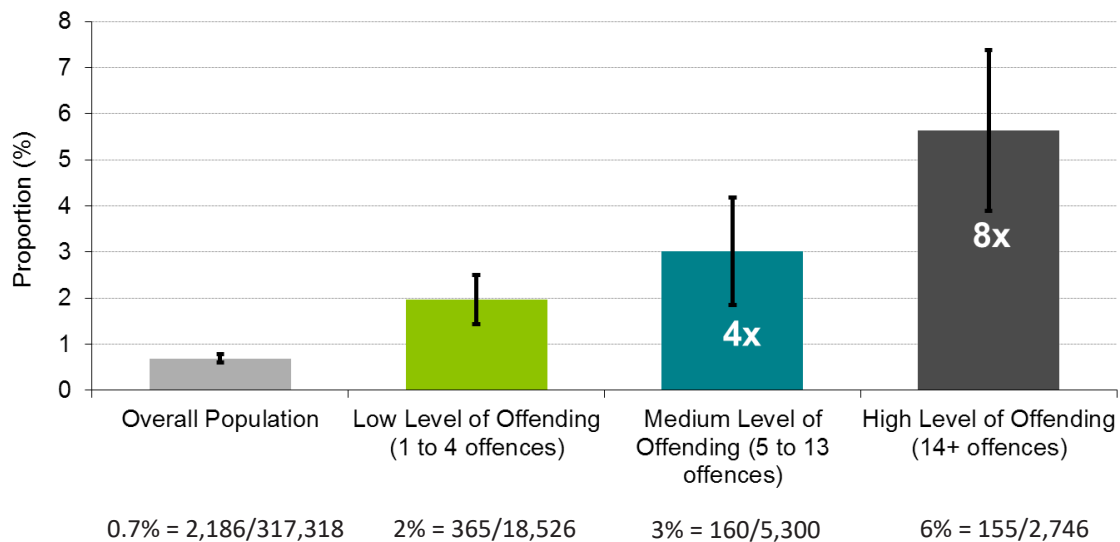
<sup>vi</sup> Please see Data Notes for more details.

<sup>viii</sup> High cost health system users are in the top 5% in estimated costs given their usage of physician visits, inpatient hospital stays, emergency department usage and usage of outpatient clinic resources, given their age and gender. Please see Data Notes for more information.

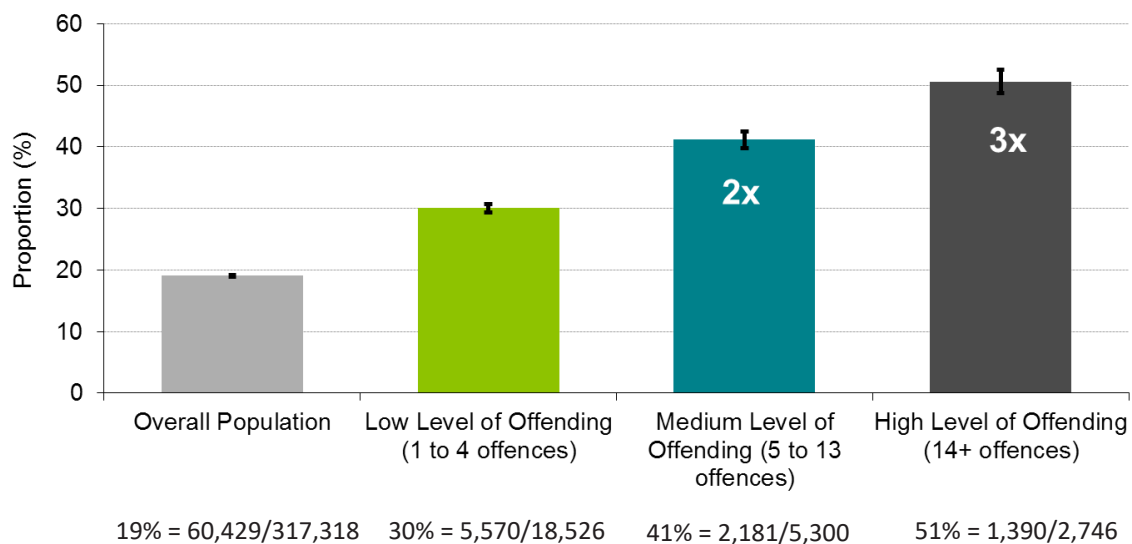
<sup>ix</sup> To access PolicyWise' full population profile report for Youth Corrections, visit: <https://visualization.policywise.com/P2dashboard/?data=CorrectionsAdult&year=2010-11>

<sup>x</sup> To access PolicyWise' full population profile report for Young Adult Corrections, visit: <https://visualization.policywise.com/P2dashboard/?data=CorrectionsYouth&year=2010-11>





**Figure 20.** Proportion of young adults (18 to 25 years) who had more than 30 emergency department visits between 2005/06 and 2009/10 in Alberta, by level of offending

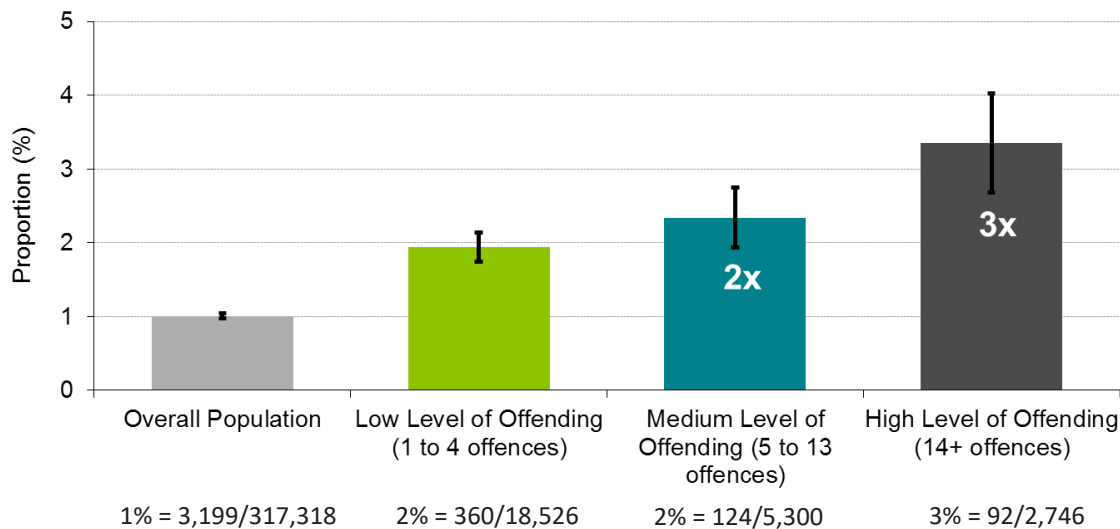


**Figure 21.** Proportion of young adults (18 to 25 years) with high-cost health service use between 2005/06 and 2009/10 in Alberta, by level of offending

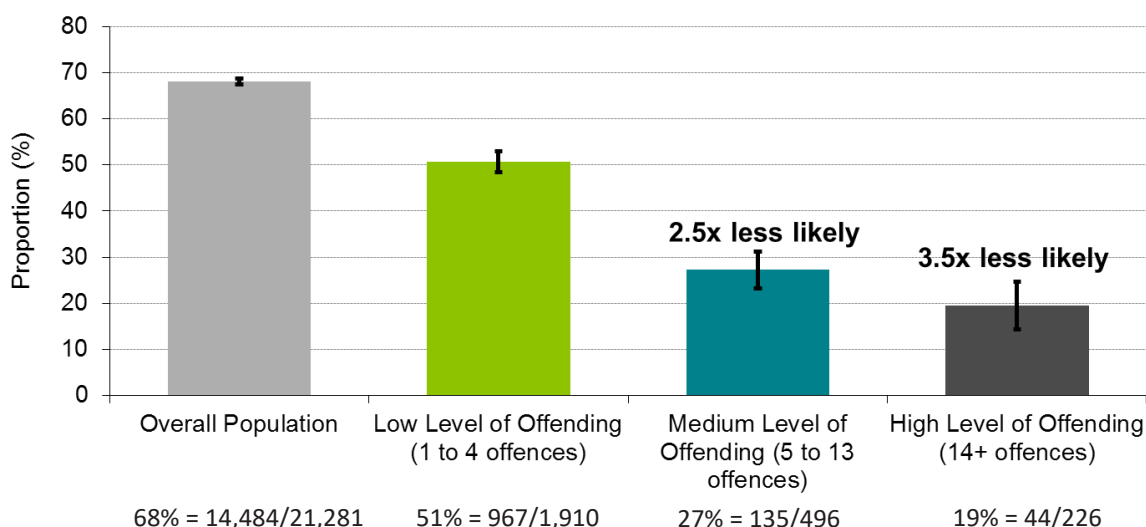
### Education

Low academic achievement is associated with increased risk of an individual becoming involved in crime and can contribute to increased re-offending rates<sup>7,8</sup>. To understand the educational needs and experiences of young adult offenders in Alberta, we examined the proportion of offenders who had a special education code and a record for high school completion (Figures 22 to 23). This analysis was completed for only those young adults who were in the educational system at some point during the study period.

High-level and mid-level offenders were, respectively, 3 times and 2 times more likely to have a special education code compared to the general population (Figure 22). 19% of high-level and 27% of mid-level offenders had a record for high school completion (Figure 23); this is, respectively, 3.5 times and 2.5 times lower than young adults of the same age in Alberta as a whole.



**Figure 22. Proportion of young adults (18 to 25 years) who had a record for receiving special education between 2005/06 and 2009/10 in Alberta, by level of offending**



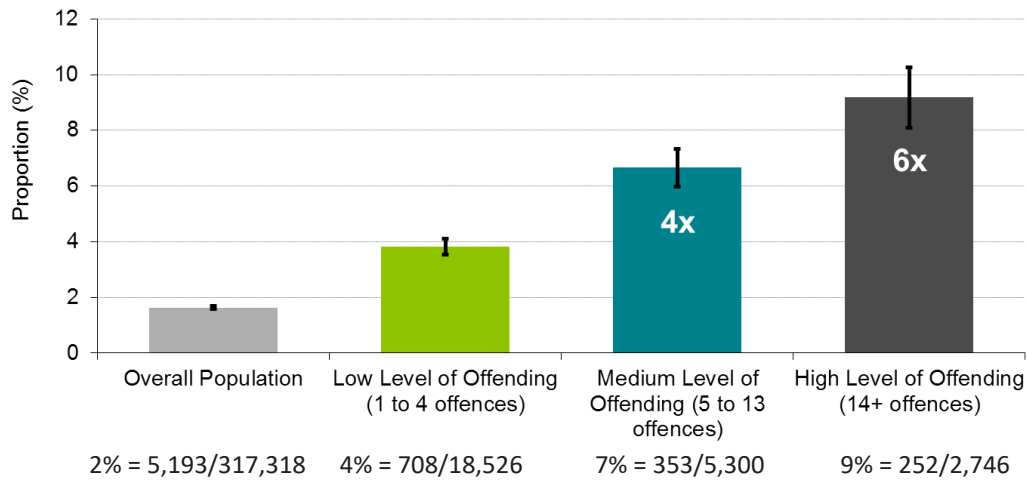
**Figure 23. Proportion of young adults (18 to 25 years) who had a record for high school completion between 2005/06 and 2009/10 in Alberta, by level of offending**

## RESIDENTIAL INSTABILITY AND VISIBLE HOMELESSNESS

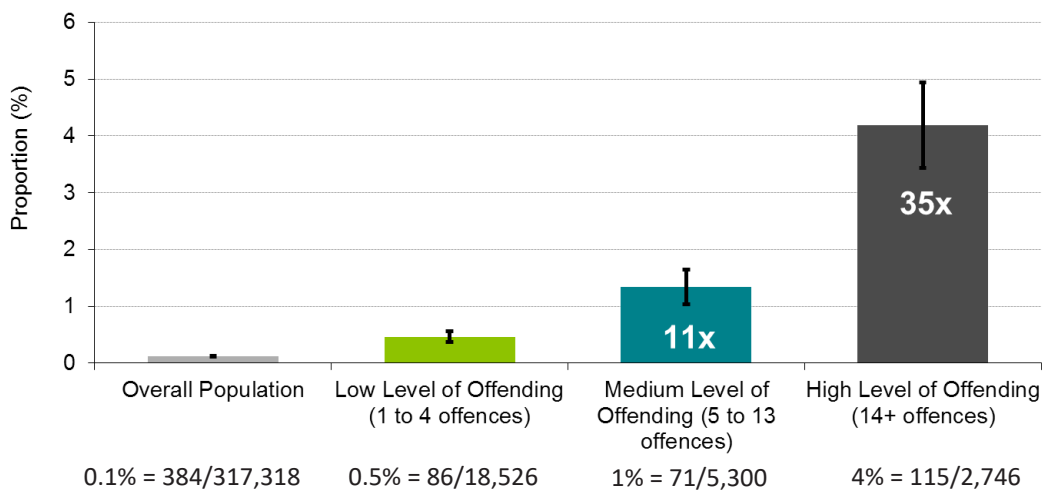
Residential mobility and residential situations are associated with stability and the level of social control an individual can exert in their lives<sup>9</sup>. Low social control and high residential mobility are associated with increased likelihood of repeat offending<sup>9</sup>. To further understand the experiences of young adult offenders in Alberta, patterns of residential mobility (i.e., number of moves) and an indicator of visible homelessness were examined.

High-level offenders were 6 times more likely to be in the top 1% for residential mobility during the study period (6 or more moves between 2005/06 and 2009/10) (Figure 24), and 35 times more likely to have received a diagnostic code for homelessness<sup>xi</sup> from a health service than the general population (Figure 25). Similarly, mid-level offenders were 4 times more likely to have moved 6 or more times and 11 times more likely to have a diagnostic code for homelessness than the general population.





**Figure 24. Proportion of young adults (18 to 25 years) who had 6 or more moves between 2005/06 and 2009/10 in Alberta, by level of offending**



**Figure 25. Proportion of young adults (18 to 25 years) who had received at least 1 diagnostic code for homelessness from a health professional between 2005/06 and 2009/10 in Alberta, by level of offending**

<sup>xi</sup>This likely underestimates the number of homeless persons, and may be less likely to capture couch surfers and those not visibly homeless.

## Multiple System Use

There is increasing recognition that high-level offenders are heavy users of multiple systems, such as healthcare and social support programs, and have multiple concurrent conditions, such as mental health concerns and substance use<sup>1,4,5</sup>. To characterize multiple system usage among young adult offenders in Alberta between 2005/06 and 2009/10, a measure was created using the following factors:

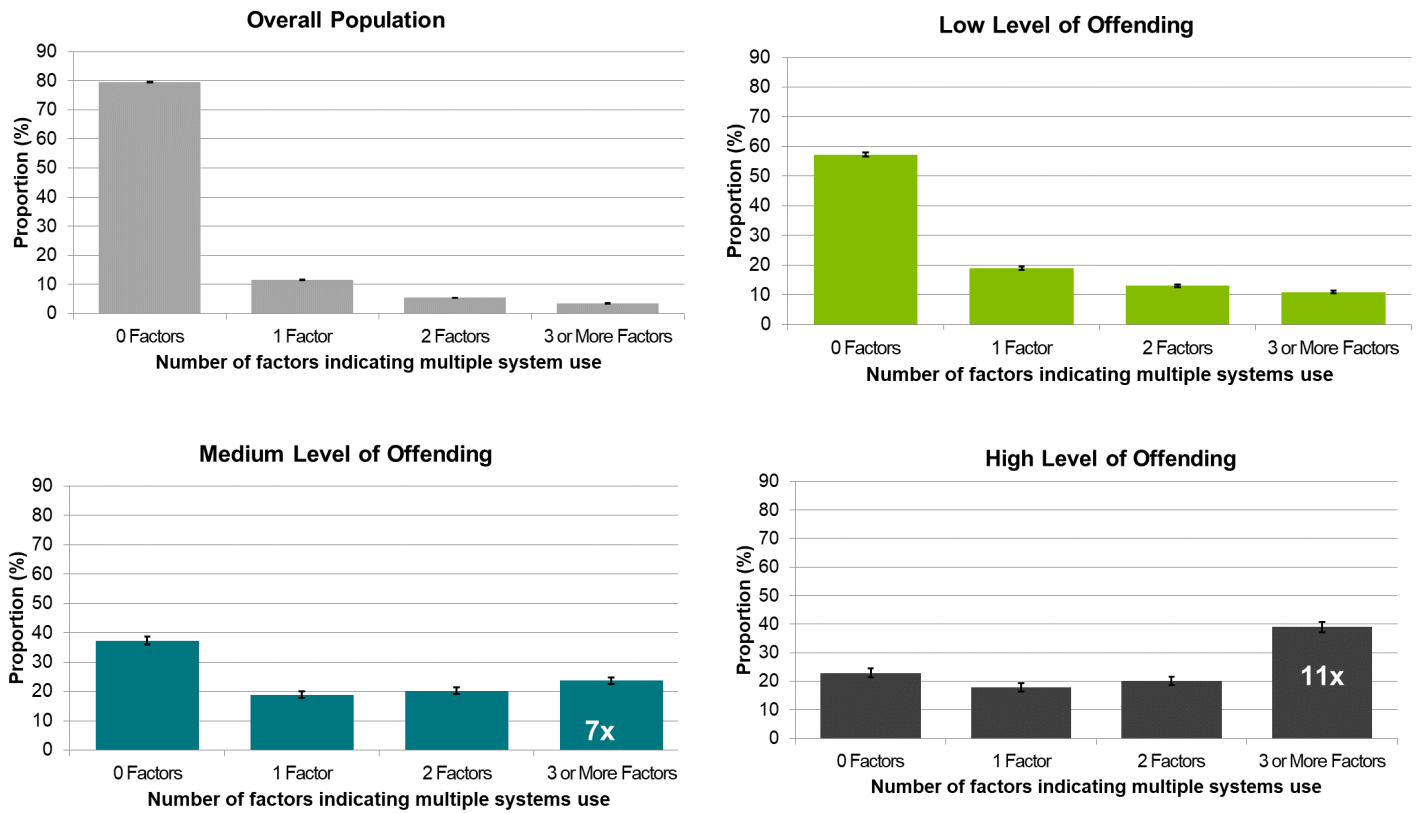
1. The presence of any number of diagnostic codes for the following mental health conditions:
  - Schizophrenia
  - Bipolar Disorder
  - Adjustment Disorder
  - Personality Disorder
  - Conduct Disorder
  - ADD/ADHD
  - FASD
2. Receipt of supports from the PDD program any time between 2005/06 and 2009/10
3. Receipt of supports from AISH any time between 2005/06 and 2009/10
4. Receipt of Income Support any time between 2005/06 and 2009/10
5. 30 or more emergency room visits between 2005/06 and 2009/10
6. Diagnostic code for substance use from administrative health records
7. Diagnostic code for alcohol use from administrative health records
8. Diagnostic code for self-harm from administrative health records
9. Diagnostic code for visible homelessness from administrative health records

The level of multiple system use is categorized based on the number of factors above an individual has (from 0 to 9 factors). For example, an individual who received AISH, had a diagnostic code for substance use and a diagnostic code for schizophrenia would have 3 factors. As individuals can receive multiple diagnostic codes in their journey to the correct diagnosis, an individual with multiple mental health diagnostic codes such as conduct disorder, personality disorder and schizophrenia would be considered as having 1 factor.

38% of high-level offenders had 3 or more factors; this is 11 times higher than the general population (Figure 26). 23% of medium-level offenders had 3 or more factors; this is 7 times more likely than the general population. These results show that compared to the general population, mid-level and high-level offenders in Alberta are much more likely to have multiple needs and require services from multiple social and healthcare services concurrently.







**Figure 26. Proportion of young adults (age 18 to 25), by number of factors indicating multiple system use and level of offending**

## CONCLUSIONS AND IMPLICATIONS

This study found that high-level and mid-level offenders are not only frequently in contact with the justice system, but are also more likely to be high users of healthcare and provincial social systems. High-level and mid-level offenders were more likely to receive a diagnosis for a mental health condition, visit the emergency department often, and receive Income Support. Moreover, high-level and mid-level offenders were also more likely to experience a number of other challenges including, substance use, alcohol dependence, residential instability, homelessness, and to have not completed high school. Finally, high-level and mid-level offenders appeared to have complex needs as they used multiple systems and faced multiple challenges during the study period. The results of this report are consistent with the findings of other Canadian reports<sup>1,4,5,10</sup>. Furthermore, a sensitivity analysis demonstrated the robustness of these results when a more stringent definition of mid-level and high-level offending was applied<sup>xii</sup>.

These findings suggest that a coordinated and collaborative approach to policy and programming between ministries and service providers may be beneficial to improve outcomes for this population. High-level offenders may especially benefit from integrative programs across justice, health, and social supports to address the inter-dependent medical, psychiatric, housing, social and legal issues.

<sup>xii</sup> Please see Data Notes for additional details.

## APPENDIX A: DATA NOTES

This study used linked administrative data from the Child and Youth Data Lab (CYDL) Longitudinal Project, which combines data from six different ministries (Health, Community and Social Services, Children Services, Education, Advanced Education, and Justice and Solicitor General) between the 2005/06 to 2010/11 fiscal years. Data from Alberta Health included the Alberta Health Care Insurance Plan (AHCIP) registry and datasets that are submitted to Alberta Health with details on every hospital inpatient discharge, emergency room visits, outpatient clinic visit and physician office visit (physician claims). The hospital, emergency room and outpatient clinic data utilized here is what is ultimately included in CIHI's Discharge Abstract Database and National Ambulatory Care Reporting System. All variables utilized in the analysis were derived from the CYDL administrative data.

For this analysis, individuals were included if they were between the ages of 18 and 25 years in the 2005/06 fiscal year and registered in the AHCIP during the entire study period (2005/06 to 2009/10). A cross-sectional design was utilized to describe the association between level of offending, health and social factors.

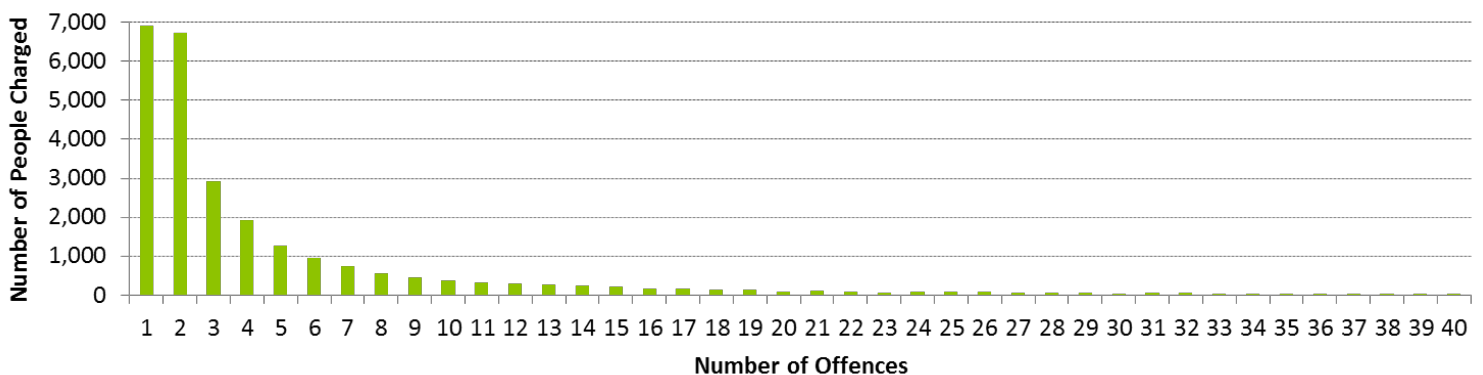
Note: A sensitivity analysis was conducted to test how robust the findings were in this report. As individuals can receive multiple charges in one day, the analysis was conducted a second time using the number of days an individual had at least one charge laid against them. In the sensitivity analysis low level offending was defined as 1 to 4 days where the individual received at least one charge, medium level offending was defined as 5 to 10 days with at least one charge and high level offending was defined as 11 or more days with at least one charge. While the number of individuals in each category and the number of offences committed in each category changed, the pattern between level of offending and health, social program use, education and complexity were very similar.

### Level of Offending

For these analyses offenders were divided into three groups based on the number of offences they had between 2005/06 and 2009/10: 1) low-level offending with 1-4 offences, 2) mid-level offending with 5-13, and 3) high-level offending with 14 or more offences. The cut-off for high-level offending was set at 14 as the top 10% of offenders have 14 or more offences (Table 1). The lower cut-off for medium-level offending was set at 5 as that is Justice and Solicitor General's criteria for entry in the Priority Prolific Offender Program. The average number of offences for youth during this study period was 5.9 and the median was 2; as can be seen on Figure 27, the distribution of offences is highly skewed.

**Table 1. Number of Offences between 2005/06 and 2009/10 among young adults in Alberta**

Mean	Median	Minimum	25th percentile	75th percentile	90th percentile	Maximum
5.9	2	1	1	6	14	797



**Figure 27. Number of Offences between 2005/06 and 2009/10 among young adults in Alberta**



## Provincial Support Programs - Income Support, Persons with Developmental Disabilities program (PDD), Assured Income for the Severely Handicapped (AISH)

Variables were created that indicated whether individuals received supports from Income Support, PDD and AISH. Income Support provides financial assistance to individuals (aged 16 and older) who are unable to meet their basic needs. The 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. The AISH program provides financial and health-related assistance to adult Albertans (aged 18 and older) who have a severe handicap that is permanent and substantially limits ability to earn a living.

## Education Variables - Special Education and High School Completion

Analyses utilizing education variables were only done in individuals who were part of the educational system during the study period. As this study included people age 18-25, there were many individuals who were excluded from these particular analyses.

Receiving special education services was determined by whether the young adult was previously assigned a special education code as a student or child in Alberta Education's administrative data. A record for high school completion was based on being a credentialed completer or non-credentialed completer during the study period. A credentialed completer has a high school diploma, high school equivalency diploma, or a certificate of achievement. A non-credentialed completer has post-secondary attendance, apprenticeship, or achieved academic standing with course completion, but does not have a diploma or certificate as found with credentialed completers. Both credentialed and non-credentialed completers were considered as having completed high school.

## High-Cost Health Service Use

The high-cost health service use measure was defined as the 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) which was obtained from the Canadian Institute for Health Information. Estimated costs per visit were summed across all visits for each individual. High-cost health users were those in the top 5% of estimated costs for their age group and gender.

## Number of Moves (Residential Mobility)

The number of moves was determined by the number of unique postal codes within the AHCIP registry during the study period. Similar to offending, the distribution of residential moves between the 2005/06 and 2009/10 among young adults was highly skewed (Figure 28), with an average of 1 move over the time period (Table 2). The top 1% had 6 or more residential moves over the time period. For this reason, 6 was set as the cut-off for high residential mobility for this age group.

**Note:** Health care premiums ceased to be collected on January 1st, 2009; addresses in registry have been updated less often since that time, reducing their accuracy.

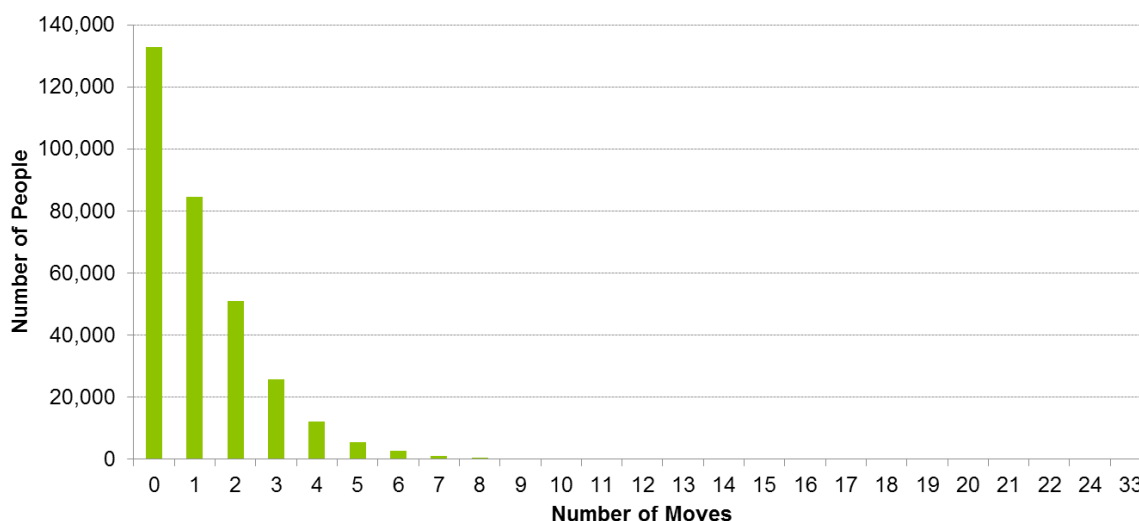


Figure 28. Number of Residential Moves Between 2005/06 and 2009/10 among young adults in Alberta

**Table 2. Number of Residential Moves between 2005/06 and 2009/10 among young adults in Alberta**

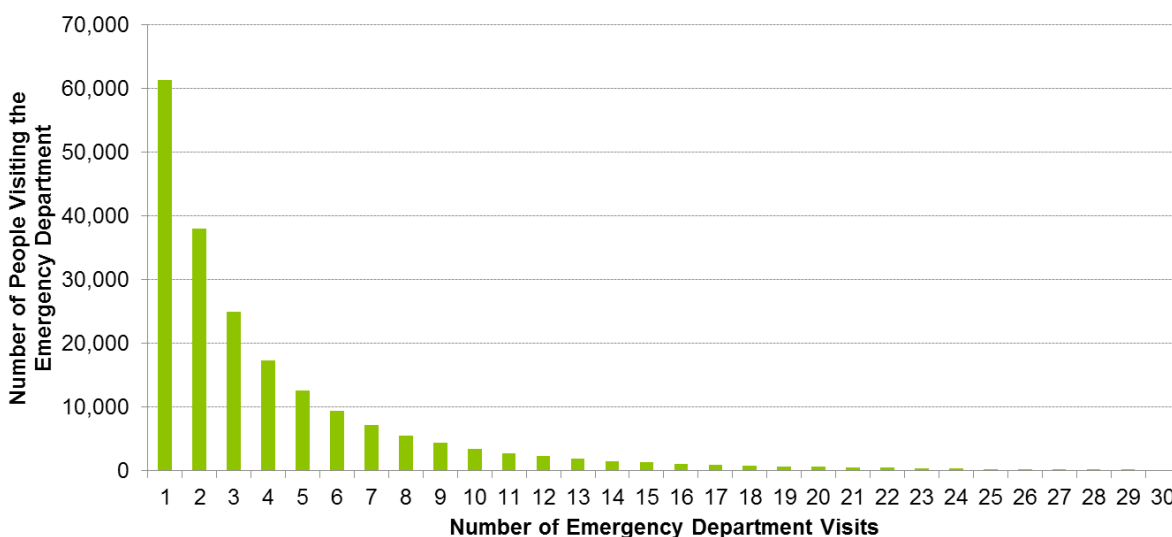
Mean	Median	Minimum	25th percentile	75th percentile	90th percentile	99th percentile	Maximum
1	1	0	0	2	3	6	33

### Emergency Department Visits

Similar to offending, the distribution of emergency room visits between the 2005/06 and 2009/10 among young adults was highly skewed (Figure 29), with an average of 4.6 visits over the time period (Table 3). The top 10% of users had 10 or more emergency room visits over the time period. For this reason, 10 was set as the cut-off for high emergency room visits for this age group.

### Fetal Alcohol Spectrum Disorders

Fetal Alcohol Spectrum Disorders (FASD) were defined based on whether an individual received Family Support for Children with Disabilities (FSCD) for FASD, or was assigned a diagnostic code of: a) fetal alcohol spectrum (FAS) (ICD 10-CA Q86.0) or b) being a newborn affected by maternal use of alcohol (ICD 10-CA P04.3), for administrative purposes by a health service (emergency department, outpatient clinic visit, or a hospitalization) in any of the five study years. As FASD is a condition that would often be diagnosed in childhood, it is likely that this measure is underestimating the number of young adults with FASD.



**Figure 29. Number of Emergency Department Visits between 2005/06 and 2009/10 among young adults in Alberta**

**Table 3. Number of Emergency Department Visits between 2005/06 and 2009/10**

Mean	Median	Minimum	25th percentile	75th percentile	90th percentile	99th percentile	Maximum
4.6	3	1	1	5	10	30	767



## Variables Utilizing Health Diagnostic Codes (Mental Health, Substance Use, Alcohol Dependence, Self-Harm, Homelessness)

When an individual receives medical care in a hospital, clinic, emergency room or physician office visit, a code is attached to the record that indicates what diagnoses the physician gave or suspects in a particular encounter. These codes (called International Classification of Disease, 9th Revision (ICD-9) and International Classification of Disease, 10th Revision (ICD-10)), are based on the World Health Organization, are standard across Canada, and are comprehensive. While there are strengths and limitations, it is common for researchers to utilize these codes to determine what conditions individuals in a research study might have. This study utilized diagnostic codes to create indicators of homelessness, self-harm, substance use, alcohol dependence and different mental health variables. Table 4 lists the ICD-9 and ICD-10 codes utilized to define each condition.

While receiving a diagnostic code for a particular condition suggests that the individual may have that condition, it is not guaranteed as individuals can receive various potential diagnoses until the true condition is determined. A diagnostic code also does not indicate a visible or distinct diagnostic event. Diagnosis codes are only reported when an individual seeks medical attention – it is likely that there are many individuals who have a particular condition who have not sought medical attention during the time period, or were diagnosed prior to the start of the study period. This is especially true for mental health conditions, substance use, alcohol dependence, self-harm, and homelessness.

Indicators of visible homelessness are especially challenging using administrative data, as (1) approximately 10-20% of homeless youth are likely identified using this method; (2) only homeless youth who sought medical attention are captured, and (3) it is likely the case that youth who are visibly homeless or have conditions stereotypically associated with visible homelessness are more likely to be represented. For instance, a medical team maybe more likely to use the homelessness diagnostic code if there was some reason for them to inquire or about, or suspect, visible homelessness. Therefore the youth identified here as homeless may be more marginalized than the general population of homeless youth, and it is less likely that couch surfers or other less visibly homeless youth would be captured. For this reason, the indicator developed here is referred to as diagnostic codes for visible homelessness.

It is also important to note that because administrative data are being used to assess visible homelessness, it is impossible to know when youth actually became homeless. For example, a young person could have been homeless for several years prior to receiving medical attention that resulted in a diagnostic code for visible homelessness. Homeless youth not identified with a diagnostic code would be considered housed for this analysis. However, given that there were 760 youth identified as homeless in the 7 Cities street count, and there were over 174,000 youth included as part of this study, this would not appreciably affect the resulting estimates for the housed population. Please see the data notes of the report entitled “Youth Homelessness: Risk Factors and Outcomes” for a discussion of the validity of the measure and a comparison to published reports on the prevalence of homelessness: <https://policywise.com/data/p2/>.

**Table 4. ICD-9 and ICD-10 Codes Utilized**

	ICD-9 Codes Utilized (Physician Claims Dataset)	ICD-10 Codes Utilized (Hospital Inpatient Stays, Outpatient Clinics, and Emergency Room Visits)
<b>Schizophrenia</b>	295	F20, F21, F23.2, F25
<b>Conduct</b>	312	F91 (except F91.3)
<b>Adjustment</b>	309	F43
<b>Bipolar</b>	296	F30, F31
<b>Personality Disorder</b>	301	F34.0, F60, F61, F62, F68.1, F68.8, F69
<b>ADHD</b>	314	F90
<b>FASD</b>		Q86.0, P04.3
<b>Substance Use</b>	291, 292, 303, 304, 305	F10-F19, F55, Z50.2, Z50.3, X40-49, T36-T50
<b>Self-Harm</b>		X60-X84 ; T39, T40, T42.3, T42.1, T42.7, T43, T50.9, T58, X40-X42, X44, X46, X47, Y10-Y12, Y16, Y17
<b>Homelessness</b>		Z59.0

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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 2009/10/11) 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 analyze 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.

### SUGGESTED CITATION

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### OUR PARTNERS

This project was carried out in partnership with seven 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:

**Children's Services**

**Advanced Education**

**Justice and Solicitor General**

**Indigenous Relations**

**Community and Social Services**

**Health**

**Education**

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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.*