Youth Offenders Risk Identification (YORI): A screening tool for youth offenders in Western Australia

Catherine McGregor, Natalie Gately, Sharan Kraemer and Jenny Kessell

School of Law and Justice
Faculty of Business and Law
Edith Cowan University
Joondalup Campus

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### Abbreviations

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<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ASOC</td>
<td>Australian Standard Offence Classification</td>
</tr>
<tr>
<td>ATSI</td>
<td>Aboriginal or Torres Strait Islander</td>
</tr>
<tr>
<td>CJS</td>
<td>Criminal Justice System</td>
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<tr>
<td>DCS</td>
<td>Department of Corrective Services</td>
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<tr>
<td>DET</td>
<td>Department of Education and Training</td>
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<tr>
<td>DoCS</td>
<td>Department of Child Protection</td>
</tr>
<tr>
<td>DotAG</td>
<td>Department of the Attorney General</td>
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<tr>
<td>ECU</td>
<td>Edith Cowan University</td>
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<tr>
<td>YJO</td>
<td>Youth Justice Officer</td>
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<tr>
<td>YJT</td>
<td>Youth Justice Team</td>
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<tr>
<td>YORI</td>
<td>Youth Offenders Risk Identification</td>
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1. Background

The present study arose from early discussions between representatives of the Department of Corrective Services (DCS), Youth Justice and the School of Law and Justice at Edith Cowan University (ECU) in August 2009. Investigators from the School of Law and Justice were already involved in a study with DotAG within the children court aimed at identifying the correlates and risk factors involved in youth offending in Western Australia using a content analysis of existing court reports at five year intervals from 1994 to 2009. This project was known as Uncouth Youth? Building a profile of juvenile offenders in Western Australia (“Uncouth Youth”). Discussions with DCS identified an urgent need to develop a brief, valid and user-friendly tool to assist in targeting services towards youth offenders at the greatest risk of re-offending. A valid and reliable screening tool would allow for the triaging of young offenders coming into contact with DCS. This triage system would operate in the same way as those in hospital emergency departments by identifying those young people who should undergo more intensive intervention.

There are a number of available instruments designed to identify young offenders at risk of re-offending and to help guide the selection of appropriate interventions aimed at reducing that risk. However, these instruments are generally too lengthy and detailed for standard operational use by busy frontline staff coming into contact with substantial numbers of young offenders and there is a clear need for a more user-friendly tool.

1.1. Features of an ideal screening tool

The ideal screening tool for use with young offenders should:

1. be based on research evidence and informed by operational expertise;
2. be easily integrated into standard assessment protocols and routine data collection methods by frontline staff;
3. comprise the minimal number of brief, clear, and unambiguous items;
4. suitable for use in both metropolitan and regional settings
5. provide cut-off scores to aid triaging of offenders with clear instructions on intervention and referral pathways;
6. have good face validity;
7. be suitable for use by frontline workers who were not necessarily trained in research methods;
8. contain the optimal number of reliable items consistent with efficient and effective triaging of youth offenders and
9. have sound psychometric properties (i.e., demonstrated reliability and validity).

The availability of a tool that would identify high-risk behaviours and attributes that were predictive of future offending would allow for the efficient and effective targeting of existing resources. That is, young people at low risk of re-offending could be referred to appropriate support services for relatively lower levels of intervention. Trained and experienced Youth Justice Officers (YJO) and support workers could then focus on those young people who were most at risk of further offending.
Given this background it was proposed that a project aimed at developing a suitable screening tool be funded by DCS and produced by the School of Law & Justice, ECU. The outcomes of this first phase could be achieved in conjunction with the Uncouth Youth study with only minor adjustments to data collection procedures. However, additional data analysis will be required to conduct initial psychometric testing of the new instrument.

1.2. Aims

The major aim of this project is to develop a screening tool for young offenders based on a review of the risk factors involved in youth offending. Additionally, a plan for testing the psychometric properties of the screening tool will be developed and suggestions made for the design of a long term study to test the predictive validity of the screening tool.

1.3. Youth Offenders Risk Identification (YORI) study

The design of Uncouth Youth was based on a retrospective court report audit at five yearly intervals from 1994 to 2009 to collect information that would facilitate the creation of an evidence-based profile of youth offenders and identify criminogenic factors. Given the Uncouth Youth research design, the opportunity then arose to perform additional analysis of the court report data to develop a screening tool for young offenders in WA. The development of this tool would require a change to the data collection protocol and additional data entry. That is, data collection instruments would be designed to ensure that in addition to the data required to meet the aims of the larger YORI study, quantifiable data relating to identified risk factors would be collected and entered into the study database for statistical analysis. The present study is aligned to the Uncouth Youth study but is a separate arm of the study.

1.4. Proposed outcomes

This report describes the process of developing and testing a new screening tool for use by Youth Justice Teams (YJT) in Western Australia. This screening tool is designed to identify those young people who are most at risk of re-offending allowing for the most efficient use of YJO and other justice resources.

This report provides four outcomes:

1. a literature review of the evidence relating to the risk factors involved in youth offending;
2. a draft screening tool based on existing evidence (literature and discussions with Youth Justice Officers/ Practitioners);
3. a draft plan for establishing the reliability and validity of the screening tool and
4. a suggested design for a long term study to establish predictive validity.

Youth justice agencies have a strong interest in providing the most effective and efficient management of offenders. Breaking the cycle of re-offending at an early stage has substantial benefits for the individual, their families and communities as well as being associated with substantial economic savings.

Early work on offending and non-offending juveniles provided valuable information regarding risk factors associated with antisocial behaviour and pointed to the
importance of a broad range of situational and individual variables in investigations of offending behaviour in juveniles (Glueck & Glueck 1968).

1.5. Youth Offending

In Australia, one in every twenty young people is arrested for property or violent crime each year and each successive record puts them at higher risk until they are considered persistent or chronic offenders (Mukherjee 1997). Moreover, a young person’s risk of arrest for a subsequent offence increases to over ninety percent by the time they have five previous arrest records. Six to seven percent of youth are expected to become persistent or chronic offenders although it is this group that are responsible for a substantial proportion of crime (Mukherjee 1997).

In 2001, the Australian Institute of Criminology instigated a major study of drug use careers of youth offenders (DUCO) in Australia. The DUCO report analysed the criminal behaviours and the alcohol and drug use of 371 youths aged ten to seventeen years in 2003 and 2004, who were in detention centres in all Australian jurisdictions. Results showed that juveniles committed a diverse range of offences at a high rate. Additionally, the majority of the youths studied reported persistent, multiple and chronic drug use. Importantly, most persistent and serious adult offenders had been detained as a juvenile (Prichard & Payne 2005).

High rates of youth re-offending together with the availability of effective intervention programs points toward a need for valid screening tools to stream offenders into appropriate levels of intervention and support. However, intervention programs tend to be expensive, particularly given the large numbers of juvenile offenders involved and it would seem reasonable to ensure that they are made available those offenders most at risk of re-offending (Weatherburn, Cush & Saunders 2007). Optimal use of scarce resources would be made by using an effective screening tool to identify those offenders who require more intensive intervention or further assessment. That is, young people identified as being at a relatively higher risk of reoffending could be further assessed with more detailed instruments such as the Youth Level of Service/Case Management Inventory (YLS/CMI) a 42-item instrument designed to tap a range of static (eg previous criminal record) and dynamic (eg peers, substance use) risk factors for re-offending. Importantly, this widely-used instrument has been adapted for use in Australia (Thompson & Pope 2005).

2. Risk factors for youth offending

2.1.1. Family

Having a parent arrested or imprisoned is a significant predictor of adolescent antisocial behaviour, future offending behaviour and imprisonment (Bor, McGee & Fagan 2004). Having a parent who has been arrested or imprisoned may additionally be associated with poor social supports and associated social stress (Weatherburn & Lind 1998). Research suggests that children under the age of sixteen who live in environments characterised by neglect, social and economic stress are likely to engage in crime as juveniles (Weatherburn & Lind 1997). Additionally, children who perceived that they have been neglected or rejected by their parents or caregivers are more likely to engage in criminal activities (Weatherburn & Lind 1997).
2.1.2. Education

The DUCO project revealed that before entering detention, three quarters (76%) of youths had stopped attending school and had left school at an average age of fourteen years old. It was found that seventy-five percent ended their education in grade seven, eight or nine, and one in ten youths did not continue their education past grade six. The minimal schooling the youth did complete was disrupted with high rates of truancy, with nearly half of juveniles regularly suspended, with six in ten youths having been expelled from school (Prichard & Payne 2005).

2.1.3. Substance Use

The juveniles interviewed for the DUCO study reported considerable involvement with a variety of illicit drugs and alcohol. Seventy-one percent of youths regularly used one type of substance, and twenty-nine percent regularly used more than one type in the six months before entering detention. In regards to the types of substances used regularly, seven percent used inhalants, eight percent used ecstasy, twenty percent used amphetamines, forty-six percent used alcohol and sixty-three percent used cannabis. Indigenous juveniles were less likely than non-Indigenous juveniles to have tried ecstasy and amphetamines. Generally, however, substance using patterns were quite similar regardless of Indigenous status (Prichard & Payne 2005).

Evidence available on criminal offending and substance use suggests that substance use exacerbates deviant behaviour. The DUCO study showed that non-regular offenders tend to start experimenting with substances at a later stage than regular offenders. Over a third of juveniles reported being intoxicated at the time of their offending or had a daily substance use pattern. Thirty-three percent of the juveniles attributed their offending to alcohol and drug abuse. Non-Indigenous youths were less likely to attribute their criminal offending to substance use (29%) than Indigenous youths (35%) (Prichard & Payne 2005).

However, while illicit drug use is substantially higher in offender populations in comparison to the general community (Adams et al. 2008; AIHW 2008) direct causal links between specific drugs and specific offences have not been identified (McKetin et al. 2006). Research on male offenders indicates that criminal activity tends to precede drug use, but that offending escalates as drug use increases. The DUCO study found that criminal behaviour began prior to substance use for half of the juvenile participants. Within a year of commencing criminal behaviour, a quarter of the youths commenced substance use (Prichard & Payne 2005).

2.2. Predictors of youth offending and re-offending

There is a substantial body of international literature on the predictors of youth re-offending. In 2001, Cottle, Lee & Heilbrun conducted a comprehensive meta-analysis on the topic (Cottle, Lee & Heilbrun 2001). These authors analysed the results of 22 offender samples from 23 studies to identify the strongest associations between static and dynamic factors and re-offending among young people. Below in rank order, from strongest to weakest are the identified predictors (adapted from Cottle, Lee & Heilbrun p 385 (2001) of re-offending:
1. Age at first commitment
2. Age at first contact with the law
3. Non-severe pathology
4. Family problems
5. Conduct problems
6. Effective use of leisure time
7. Delinquent peers
8. Length of first incarceration
9. Number of out-of-home placements
10. Number of prior commitments
11. Type of crime
12. Standardised achievement score
13. Substance abuse
14. Full-scale IQ score
15. History of special education
16. Risk assessment instruments
17. History of abuse
18. Gender (male)
19. Verbal IQ score
20. Single parent
21. Severe pathology
22. Race (minority)
23. Socioeconomic status
24. Number of prior arrests
25. School attendance
26. Parent pathology
27. Performance IQ score
28. School report of achievement
29. History of treatment
30. Substance abuse

Younger age at first commitment and/or first contact with the law, non-severe pathology and family problems were the strongest predictors of re-offending from the international literature (Cottle, Lee & Heilbrun 2001). While this meta-analysis provided a useful synthesis of the international literature, there are few Australian studies available. A review of the literature found no publicly available studies of re-offending rates among young people in Western Australia. A large study of 33,900 juveniles in NSW followed them from the first to their final Children’s Court
appearance (Coumarelos 1994). Results showed that while the majority (69.7%) made only a single appearance in court, both younger age at first appearance and the type of offence at first appearance predicted the number of subsequent court appearances. Younger offenders and offenders convicted of vehicle theft or burglary were more likely to re-offend than older offenders and offenders convicted of other offence types. Juveniles convicted of motor vehicle theft re-appeared more frequently in court than juveniles whose first offence was stealing/theft or an offence against good order (Coumarelos 1994). A later study of youth offenders in NSW found that younger age at first offence was related to a greater risk re-offending as was Indigeneity and male gender but there was no relationship between offence at first court appearance and re-offending (Chen et al. 2005).

The most comprehensive analysis of the risk of re-offending in young people to date was also conducted in NSW (Weatherburn, Cush & Saunders 2007). This study sought to evaluate the possibility of identifying young people who were likely to re-offend from data that were routinely collected by government agencies. Re-offending amongst a sample of juvenile offenders who had previously been given a supervised community-based court order was examined for 392 offenders over a four year period. Using a data linkage design, this study identified 15 potential predictors of juvenile re-offending. These were:

1. Male gender
2. Aged less than 14 years
3. Aboriginal or Torres Strait Islander
4. Non-English Speaking Background
5. Parent deceased
6. Parents divorced
7. Living with both natural parents
8. At school
9. Suspended or expelled from school
10. Experienced trauma
11. Associates with delinquent peers
12. Neglected or abused
13. Drug use
14. 3+ address changes in 5 yrs
15. Placed in out-of-home care

Bivariate analysis showed significant relationships between re-offending and: age; living arrangements; trauma; out-of-home care; at school; neglect or abuse; suspension from school; one or both parents deceased; association with delinquent peers; offence type and previous contact with the criminal justice system.

A regression model for the risk of re-offending identified four independent predictors:

1 Adapted from Weatherburn, Cush & Saunders 2007 p. 5.
1. age
2. being at school at the time of the offence;
3. having been suspended or expelled from school and
4. the number of prior contacts with the juvenile justice system.

Importantly, once these four factors were taken into account, the other significant identified variables did not add anything to the strength of the relationship between the identified predictors and youth reoffending (Weatherburn, Cush & Saunders 2007). As the authors suggest, this analysis indicates that re-offending in young people can be predicted using a small number of easily available items that are routinely collected by justice agencies.

2.3. Summary

Therefore, while risk factors associated with juvenile offending have been identified in both Australia and internationally, to date there has been no research conducted in Western Australia examining the demographic and criminological profile of a juvenile offender.

The first phase of YORI identified risk factors for youth offending to inform the development of a brief screening tool for use by YJO and support workers. Phase two involved data collection to test the YORI tool; phase three proposes to test and modify the tool; and phase four proposes a long term study to establish predictive validity. The availability of a tool that could be incorporated into routine assessments and that would reliably identify high-risk behaviours and attributes that were predictive of future offending would allow the efficient and effective targeting of existing resources. Using this tool, those young people who were at low risk of offending could be referred to appropriate support services. This would allow the trained and experienced YJO and support workers to focus on those young people who were most at risk of further offending.

3. Methodology

The Perth Children’s Court deals with thousands of criminal offences (2005/06, 4741 cases; 2006/07, 5253 cases) committed by young people under the age of eighteen years. Already in 2009, from 1st January to 31st March, the Children’s Court has dealt with a total of 2256 cases. This includes hearings for care and protection orders.

Research Assistants from ECU are in the process of extracting criminal offence cases, with reference to gender, Indigeneity, ethnicity and personal circumstances as listed on the YORI tool. The research design for the study uses a grounded theory approach to building a profile of juvenile offenders in Western Australia.

The YORI study will employ a mixed methods approach in a fully integrated fashion (Kraska & Neuman 2008). This qualitative and quantitative approach offers a method of obtaining information about children and their circumstances without actually interviewing young participants. Data for the study will be drawn from information contained in Court Reports and materials compiled by Juvenile Justice Officers whilst case managing the young offenders. Outcomes from the Uncouth Youth and YORI studies will facilitate a greater knowledge and understanding of the risk factors associated with youth offending and will assist in the development of prevention and early intervention policy and strategy.
3.1. Participants

In examining the Court Reports, young offender’s names, addresses or other identifying information have not been recorded. Court Reports from 1994, across four samples at five year intervals are being examined to establish a profile of young offenders. A de-identified, aggregated dataset will be compiled from information in the court reports. It is difficult to anticipate specific numbers in the categories of juvenile offenders at this stage as DCS and DotAG separate young offenders into Indigenous or non-Indigenous groups but do not quantify ‘other’ ethnicities. Gender is also not specified in annual reports provided by the Government departments. Therefore, the Court Reports are needed to establish Indigeneity, ethnicity and gender.

The study has collected Youth Court Reports from Perth Children’s Court of young offenders over four, five year intervals for analysis. Approximately 100 reports have been collected from each sample period. These reports have been randomly selected so that every report within each sample will have an equal probability of being selected. The data will include both males and females, and Indigenous and non-Indigenous (Anglo and other ethnicities) youth between the age of ten and seventeen years. It is anticipated that the numbers will reflect the existing figures for incarceration, with Indigenous males making up the largest grouping.

3.2. Materials

This research team has developed a draft of the YORI tool to facilitate data collection from court records (see Appendix 1). Specific topics that have been identified by stakeholders as essential information have been included. This information includes the demographic details of the young offenders, their criminal histories, and relevant social and educational details. This aggregated information seeks to identify the problems facing the young offenders and the impact on their involvement in the justice system.

3.3. Procedure

The researchers and trained research assistants are the only personnel who have had access to the complete Court Reports. No reports left the room at the Children’s Court. Both research assistants are mature and experienced people who signed confidentiality agreements and understood the importance of confidentiality and anonymity. As noted above, the draft YORI tool does not record names or addresses of offenders. The paper copies and data set are locked with a password so that only the researchers on this project can access the de-identified data.

3.4. Development of the screening tool

The foregoing literature review identified a number of potential predictors of youth offending. Information measuring these potential predictors is available and will be extracted from Children’s Court Records and analysed to identify the strength and direction of relationships between items and their relationship with the number of contacts with the Youth Justice System in Western Australian.

The principal aim of the YORI study is to produce a brief and practical screening tool that can be integrated into the routine data collection process used by Youth Justice
Officers (YJO) during a standard assessment interview. Items included in the instrument should be evidence-based and address static factors that are readily available at the time of interview. The response set should be clear and facilitate rapid and accurate completion, scoring and interpretation by Youth Justice Officers.

The availability of a brief and valid tool that will identify those young people who are most at risk of re-offending will allow for the efficient use of scarce DCS resources. By triaging offenders using a valid tool, young persons at a low risk of offending or re-offending can be referred to appropriate support services enabling more resources to be invested in working with high risk youth to reduce reoffending.

A proforma data collection instrument has been developed to facilitate data collection for the proposed screening tool (see Appendix 1). This comprehensive 19 item instrument was developed for use in this study and is based on all potential variables identified as predictors of re-offending through both Australian and international studies and modified to be consistent with the known data contained in WA court records. Items 1-5 below are of particular interest to this study as they have been identified as key independent predictors of future re-offending.

3.5. Predictors of youth re-offending

1. Age at first contact with justice system
2. The young person was suspended or had been expelled from school/training at time of the offence
3. The young person was regularly attending school or training at the time of the offence
4. Number of previous convictions
5. Total number of previous contacts with the justice system (ie police caution, referral to a youth justice conference or conviction)
6. Gender
7. Aboriginal or Torres Strait Islander
8. Current age
9. Principal offence for which convicted at first court appearance
10. One or both parents deceased
11. Currently living with both natural parents
12. Young person, parent/s or guardian/s have been negatively affected by event in the previous five years (eg death of a family member, divorce/separation of parents, witness domestic violence, sexual or emotional abuse)
13. Non English speaking background parent/s
14. Number of address changes in past 5 years
15. The offence was committed in the company of other youths or known to associate with other offenders or antisocial peers
16. The youth was the subject of a confirmed report of neglect and/or abuse prior to the court appearance
17. The young person was in out-of-home care prior to the court appearance
18. Current illicit drug use
19. Current risky alcohol use (eg more than two standard drinks per day and/or more than four standard drinks on any one occasion)

It is acknowledged that complete information relating to some items may not have been recorded in the court records but all available and relevant data will be recorded where possible. Where key data is found to be unavailable, recommendations for future data collection will be made.

The screening tool has been developed on the basis of existing research evidence and experienced frontline DCS staff have been consulted for the inclusion of additional items where necessary and to test the face validity of items.

3.6. Sample size

To provide the sample for the study, 100 Court Reports have been randomly selected from Youth Court Reports held by the Perth Children’s Court in the years 1994; 1999; 2004 and 2009. This yielded a sample of 400 cases which is adequate to conduct correlation and regression analysis. Court reports have been selected using random selection.

Data will be published in aggregated form and identifying material is not collected. Data will be published on the understanding that it is in aggregate form and that individuals are not identifiable. The findings of this analysis will then be written in a format suitable for publication.

3.7. Data analysis

The data analysis plan is designed to describe the characteristics of the sample and to identify the correlates of youth offending with a particular focus on the predictors identified in the existing literature.

Data collected via the study data collection sheet (see Appendix 1) will be entered into a statistical program for analysis. Data will be cleaned and checked for systematic errors. Range checks will be conducted and missing data coded.

Sample characteristics will be derived and described to provide a profile of the cases. Where data are normally distributed and continuous, t-tests will be used to identify differences between two groups (eg age groups, gender, Indigeneity). One-Way ANOVA with post hoc tests will be used to analyse between-group differences where data are normally distributed and continuous and when there are more than two groups (eg male, female, Indigenous, non-Indigenous). Grouped categorical data will be analysed using Chi-Square analysis. Where distributions are highly skewed, medians will be reported and data analysed using the Mann-Whitney U test. Where continuous variables are highly skewed, medians will be reported.

Pearson’s product-moment correlation coefficient will be reported for normally distributed continuous variables and Spearman’s Rho for non-normally distributed continuous data. The level for the acceptance of significance (Alpha) will be set at 0.05. Significance levels > 0.05 and ≤ 0.10 will be considered as trends toward significance. Confidence intervals of 95% will be used. All analyses will be conducted using SPSS V17 for Windows.
There will be three outcomes of this study:

1. a detailed description of the study sample;
2. an identification of the strongest correlates of youth offending and
3. incorporation of a minimum set of the strongest predictors of offending into a brief screening tool.

It is anticipated that following data analysis, the revised screening tool will comprise less than ten items. This revised instrument will be in a form that can be used by frontline staff to triage young offenders in their care. Cut off scores and instructions for further assessment and/or referral pathways will be developed on the basis of the study results and consultation with DCS Officers.

The determination of cut off scores is based on tests of sensitivity and specificity (hits and misses) and operational needs. There are costs associated with both false positives and false negatives and it is important to find a balance between them.

Once the screening tool has been revised and is ready for use with offenders, the predictive validity of the instrument can be tested in a longitudinal study.

4. Phase II Results: Screening Tool development

To identify relationships between the number of convictions among young people between the ages of 10 and 17 in WA, data were drawn from a total of 400 court reports. Five cases were excluded as the age of the individual was greater than 17. The final sample comprised 395 cases: 98 from 1994; 100 from 1999; 98 from 2004 and 99 from 2009.

4.1. Sample characteristics

The majority of the sample was male \( (n = 288/73.1\%) \) with females comprising around one-quarter of the sample \( (n = 106/26.8\%) \). There was one missing case for gender. Information on Indigenous status was available for 220 cases. Of these, 117/53.2\% were identified as Indigenous. Information on previous contacts with the CJS (Criminal Justice System) was available in 326 cases. Of these, 216(66.3\%) had previous contact with the CJS. Information on previous convictions was available for 370 cases. Of these, 245(66.2\%) had a previous conviction recorded. Previous contacts with the CJS were highly correlated with the number of convictions \( (r = .93, p < .001) \).
Young people who had three or more address changes in the previous five years also had significantly more convictions (Mean = 9.5 convictions SD = 13.2) in comparison to those who had less than three address changes (Mean = 5.4 convictions SD = 8.4) in the previous five years ($t = 2.9$ df 181 $p = .005$). Around half the sample was 17 years of age at the time of the court report (see Table 1).

### Table 1  
Age of the sample in years

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>$n$</th>
<th>Percent</th>
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<tbody>
<tr>
<td>11</td>
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<td>0.5</td>
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<tr>
<td>13</td>
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<td>101</td>
<td>25.6</td>
</tr>
<tr>
<td>17</td>
<td>200</td>
<td>50.6</td>
</tr>
</tbody>
</table>

Young people who were 14 years or younger at the time of their first contact with the CJS had significantly more convictions (Mean = 9.96 SD = 13.4) than those who were greater than 14 years at first contact (Mean = 3.52 SD = 6.7) with the CJS ($t = 5.76$ df 257.2 $p < .001$).

#### 4.2. Group differences on major variables

Both ATSI (Aboriginal or Torres Strait Islander) males and ATSI females were younger than non-ATSI males and females on the age of first contact with the Criminal Justice System. There were significant differences between these four groups on the number of previous convictions with both ATSI males and ATSI females having a higher number of previous convictions in comparison to Non-ATSI groups. ATSI females had the highest number of previous contacts with the CJS. Although ATSI females had the highest number of address changes in the previous five years, the differences between groups were not significant (see Table 2).
### Table 2  Group differences on major variables

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
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<tr>
<td><strong>Age of first contact with CJS</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>ATSI Male</td>
<td>81</td>
<td>13.64</td>
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<td>ATSI Female</td>
<td>35</td>
<td>13.51</td>
<td>1.83</td>
</tr>
<tr>
<td>Non ATSI Male</td>
<td>79</td>
<td>14.99</td>
<td>1.65</td>
</tr>
<tr>
<td>Non ATSI Female</td>
<td>23</td>
<td>15.17</td>
<td>1.40</td>
</tr>
<tr>
<td>(F = 9.717 df = 3, p &lt; .001)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Previous convictions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATSI Male</td>
<td>81</td>
<td>11.49</td>
<td>15.22</td>
</tr>
<tr>
<td>ATSI Female</td>
<td>33</td>
<td>9.91</td>
<td>10.19</td>
</tr>
<tr>
<td>Non ATSI Male</td>
<td>77</td>
<td>5.68</td>
<td>9.01</td>
</tr>
<tr>
<td>Non ATSI Female</td>
<td>23</td>
<td>4.35</td>
<td>6.78</td>
</tr>
<tr>
<td>(F = 4.334 df = 3, p = .005)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Previous contacts with CJS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATSI Male</td>
<td>63</td>
<td>5.98</td>
<td>6.44</td>
</tr>
<tr>
<td>ATSI Female</td>
<td>29</td>
<td>10.10</td>
<td>9.21</td>
</tr>
<tr>
<td>Non ATSI Male</td>
<td>77</td>
<td>5.44</td>
<td>6.54</td>
</tr>
<tr>
<td>Non ATSI Female</td>
<td>22</td>
<td>5.09</td>
<td>5.89</td>
</tr>
<tr>
<td>(F = 3.588 df = 3, p = .015)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Address changes in the previous 5 years</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATSI Male</td>
<td>59</td>
<td>2.05</td>
<td>1.79</td>
</tr>
<tr>
<td>ATSI Female</td>
<td>30</td>
<td>2.67</td>
<td>2.65</td>
</tr>
<tr>
<td>Non ATSI Male</td>
<td>68</td>
<td>1.69</td>
<td>1.73</td>
</tr>
<tr>
<td>Non ATSI Female</td>
<td>21</td>
<td>1.71</td>
<td>1.70</td>
</tr>
<tr>
<td>(F = 1.920 df = 3, p = .128)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4.3. Principal offence for which first convicted

Information on offence type was available for 389 cases (see Table 3). The principal offence for which the young person was convicted at their first court appearance was grouped according to Australian Standard Offence Classification (ASOC, 2008).
Table 3  Principal offence for which first convicted

<table>
<thead>
<tr>
<th>Offence type</th>
<th>n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crime against persons</td>
<td>100</td>
<td>25.7</td>
</tr>
<tr>
<td>Property crime</td>
<td>188</td>
<td>48.3</td>
</tr>
<tr>
<td>Illicit drug offences</td>
<td>16</td>
<td>4.1</td>
</tr>
<tr>
<td>Traffic and vehicle regulatory offences</td>
<td>57</td>
<td>14.7</td>
</tr>
<tr>
<td>Other</td>
<td>28</td>
<td>7.2</td>
</tr>
</tbody>
</table>

Property crime was the principal offence in almost half of the cases while around one-quarter involved crimes against persons. Traffic offences were the principal offence for around 15% of the sample and a minority had an illicit drug offence as the principal offence for which they were convicted at the first court appearance.

4.4. Relationship between screening tool items and number of convictions

The principal outcome measure for Phase II of the study was the relationship between individual draft screening tool items and the number of convictions recorded against the young person. Table 4 below shows the results for each item. The strong negative correlation between the number of convictions and age at first contact with the justice system is unsurprising and may be largely a function of exposure. That is, an earlier age of first contact provides greater opportunities to accrue convictions. However, earlier age at first contact remains an important potential predictor of reoffending and should be retained in the next version of the screening tool.

As dichotomous variables, current illicit drug use and current risky alcohol use were tested using a Kruskal-Wallis non-parametric test. Young people who were currently involved in illicit drug use or risky alcohol use had significantly more convictions than those not involved in substance use.

Indigenous status was available for only 215 cases. Young people who were identified as Aboriginal or Torres Strait Islander (ATSI) had significantly more convictions in comparison to non-ATSI young people. Similarly, those young people who were not living with both natural parents had significantly more convictions.

Multiple address changes in the previous five years were significantly and positively correlated with the number of convictions.

Only 112 cases had information on regular attendance at school/training. However, where this information was available, non-parametric tests showed that those young people who were not in regular attendance at school/training at the time of the offence had significantly more convictions.

In summary, seven items: age at first contact with the CJS; illicit drug use; risky alcohol use; Indigenous status; not living with both natural parents; multiple address changes in the previous five years and no regular attendance at school/training at time of offence showed a significant relationship with the number of convictions.
### Table 4  Relationship between screening tool items and number of convictions

<table>
<thead>
<tr>
<th>Item</th>
<th>n</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Younger age at first contact with justice system</td>
<td>366</td>
<td>.001</td>
</tr>
<tr>
<td>Current illicit drug use</td>
<td>309</td>
<td>.001</td>
</tr>
<tr>
<td>Current risky alcohol use</td>
<td>296</td>
<td>.001</td>
</tr>
<tr>
<td>Aboriginal or Torres Strait Islander</td>
<td>215</td>
<td>.001</td>
</tr>
<tr>
<td>Not living with both natural parents</td>
<td>344</td>
<td>.003</td>
</tr>
<tr>
<td>Multiple address changes in past 5 years</td>
<td>269</td>
<td>.005</td>
</tr>
<tr>
<td>No regular attendance at school/training at time of offence</td>
<td>112</td>
<td>.047</td>
</tr>
<tr>
<td>Antisocial peers</td>
<td>239</td>
<td>ns</td>
</tr>
<tr>
<td>Out-of-home care</td>
<td>296</td>
<td>ns</td>
</tr>
<tr>
<td>Current age</td>
<td>370</td>
<td>ns</td>
</tr>
<tr>
<td>Gender</td>
<td>369</td>
<td>ns</td>
</tr>
<tr>
<td>One or both parents deceased</td>
<td>342</td>
<td>ns</td>
</tr>
<tr>
<td>Trauma in previous 5 years</td>
<td>301</td>
<td>ns</td>
</tr>
<tr>
<td>Non English speaking background parent/s</td>
<td>34</td>
<td>ns</td>
</tr>
<tr>
<td>Neglect and/or abuse</td>
<td>82</td>
<td>ns</td>
</tr>
<tr>
<td>Suspended or expelled from school</td>
<td>59</td>
<td>ns</td>
</tr>
</tbody>
</table>

*ns = non-significant*

Five items: having antisocial peers; out-of-home care; current age; gender and having one or both parents deceased were unrelated to the number of convictions.

Three items; having non English speaking background parent/s; neglect and/or abuse and being suspended or expelled from school were non-significant in terms of being associated with the number of convictions. However, there was little information in the court reports on these three items so the results may be considered less reliable in comparison to those items for which there were adequate sample sizes.

The experience of trauma was not associated with the number of convictions but given that almost all court reports included references to the experience of trauma in the previous five years there were insufficient cases without trauma to conduct reliable statistical tests.
4.5. **Conclusion and recommendations**

Of the 19 items on the draft screening tool, 16 were tested against the principal outcome measure - number of convictions - to identify the minimum number of reliable items for inclusion in the revised version. The other two items – number of contacts with the CJS and offence type were included to provide additional information on the cases analysed.

It is proposed that the seven items:

1. age at first contact with the CJS;  
2. illicit drug use;  
3. risky alcohol use;  
4. Indigenous status;  
5. not living with both natural parents;  
6. multiple address changes in the previous five years and  
7. no regular attendance at school/training

that were significantly associated with a greater number of convictions be retained in the revised instrument. However, information on Indigenous status was not recorded in a substantial number of cases and YJO (Youth Justice Officers) should be encouraged to collect and record this information.

While there was little information in the records regarding the young person having been suspended or expelled from school, this variable has shown strong predictive validity in previous Australian studies (see Weatherburn, Cush & Saunders 2007). It is proposed therefore that this item be retained in the revised scale and that the YJO be encouraged to collect and record this information.

It is recommended that the five items:

1. having antisocial peers;  
2. out-of-home care;  
3. current age;  
4. gender and  
5. having one or both parents deceased

that were unrelated to the number of conviction despite adequate sample numbers be excluded from the revised scale.

As there is only moderate support for the predictive utility of information on language background, the experience of neglect or abuse and the number of convictions coupled with the fact that there was little information in the records regarding having non English speaking background parent/s and being the subject of neglect and/or abuse it is proposed that these items be excluded from the revised scale.

Given the ubiquity of the experience of trauma among the cases, this information is not helpful in predicting the number of convictions and should be excluded from the revised scale.
4.6. Revised YORI Scale

Following testing, a total of seven items in addition to Indigenous status were retained in the second version of the YORI screening tool. These items were:

8. Age at first contact with the CJS
9. Current illicit drug use
10. Risky alcohol use
11. Not living with both natural parents
12. Multiple address changes in the previous five years
13. Regular attendance at school/training
14. Suspended or expelled from school

Below is a suggested format for the revised YORI Screening Tool for use by frontline YJOs. It is not possible at this stage to determine a weighting for each item so all items are accorded equal weights.

Revised YORI Screening Tool (see back page for layout)

Date: ………… Name:……………………………..ID #…………………………

ATSI Yes No (Circle one)

<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fourteen years of age or less at first contact with the CJS</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Not currently living with both natural parents?</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Current illicit drug use?</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>*Current risky alcohol use?</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Suspended or expelled from school/training at time of offence?</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Regular attendance at school/training at time of offence?</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Three or more address changes in past five years?</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Current risky alcohol use is defined as more than two standard drinks per day and/or more than four standard drinks on any one occasion.
4.7. YORI Scoring

- Low risk (Score = 0)
  It is recommended that young people who score 0 on the YORI be referred to the appropriate support services.

- Medium risk (Score = 1-2)
  Those who score 1-2 may be referred for further, more detailed assessment at the discretion of the assessing officer.

- High risk (Score = 3 or more)
  It is recommended that young people who score 3 or more be referred for further assessment and considered for intensive intervention.

This screening tool is intended to support the management decisions of YJO and other frontline staff. It is not intended to be prescriptive.

5. Prospective Study Plan

Following the production of a revised screening tool, the next phase is to test the predictive validity of the instrument in a long-term prospective study on a sample of young people who are referred to, or come into contact with, the Criminal Justice System in Western Australia. Below is a brief outline of the proposed study.

To establish the predictive validity of the screening tool, a sample of youth offenders will be screened using the revised screening tool at their first contact with the Youth Justice System in WA. Using the instrument, it is anticipated that most of the young people identified as being at a low risk of re-offending will be referred to other agencies such as Killara. Alternatively, the majority of those young people being managed by Youth Justice will fall into the high risk category as identified by the screening tool. All offenders will then be followed up for at least two years to ascertain if they have reoffended within that period. Predictive validity for the screening tool will be established if more of the high risk group have reoffended in comparison with the low risk group.

5.1. Methodology

Below is an outline in summary form of the main points of the study methodology.

1. The study period would be at least four years including study planning, data collection (baseline and follow up), analysis and report writing.

2. A sample size of around 200 participants would provide adequate power to test validity as well and group differences across age groups, gender and Indigenous status. The target population is youths aged ten to seventeen years who have contact with DCS.

3. Determine meaningful data collection period based on consultation with DCS and pilot study. That is, determine the time period that will yield an adequate sample and have meaningful and consistent data over time.
1. Data collection not to involve the period prior to the change in the relevant legislation in 1994.

2. Consecutive contacts at DCS offices will be invited to participate in this long-term study. The study sample will not be random but will be stratified to ensure a proportional representation from gender and Indigenous groupings.

3. For each individual, a data collection form including the new screening instrument will be completed.

4. The baseline data collection (predictors) will provide a benchmark against which follow-up information (offending/reoffending) is measured.

5. The follow-up period will be four years from first contact.

6. DCS data will be linked with DCS, DET and DotAG data to identify predictor variables and offending behaviour.

5.2. Data analysis

Data analysis will incorporate bi-variate testing of predictors of re-offending and the development of regression model to establish predictive validity of the screening instrument. Other potential testing methods are the use of Receiver Operating Characteristic (ROC) analyses to test predictive validity where there is a continuous predictor and a dichotomous outcome. As the follow-up periods across participants are likely to be uneven, survival analysis will be the main multivariate procedure used. Survival analysis (particularly the Cox proportional hazards model) controls for unequal follow-up times between participants and can be used to measure the size of the effect of individual covariates on the primary outcome measure.

5.3. Preliminary costing

Below are rough costs for the proposed study. Please note that although the study will run over four years, study personnel will not be engaged on the work full time. For example, there will be waiting periods while funding and ethics approval are being sought as well as allowing for a realistic time period between baseline data collection and follow up. A period of at least two years is generally considered reasonable to assess the occurrence of offending or re-offending.

<table>
<thead>
<tr>
<th>Position</th>
<th>Subtotal</th>
<th>Period (months)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecturer B, step 6</td>
<td>8482.59</td>
<td>8</td>
<td>67860.76</td>
</tr>
<tr>
<td>HEW 4, step 3</td>
<td>4899.24</td>
<td>8</td>
<td>39193.93</td>
</tr>
<tr>
<td><strong>Total salaries</strong></td>
<td><strong>107054.69</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel</td>
<td>6000.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admin</td>
<td>1000.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>114054.69</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GST</td>
<td>11405.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University oncosts</td>
<td>18,819.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>144,279.18</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

2 Total cost for project over 4 years
The study design will also provide an opportunity to identify protective factors that reduce the likelihood of re-offending among youth. This information will be useful for the development of evidence-based policy development and intervention strategies to reduce youth offending.

A large prospective study of this kind would require substantial planning, financial support and cooperation among a number of bodies. It is proposed that a study steering group be established to plan the study and identify suitable funding sources.

6. Conclusion

While the need for early intervention and prevention initiative aimed at reducing youth re-offending is widely accepted, it is crucial that those offenders who are most likely to benefit from further assessment and intervention receive them. The availability of a valid and reliable screening tool suitable for use by frontline staff is an important first step in this process.
## Appendix 1

### YORI: Retrospective records audit sheet

<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>Circle one number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N/A = 9**</td>
</tr>
<tr>
<td>1</td>
<td>Gender?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Aboriginal or Torres Strait Islander?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>One or both parents deceased?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Currently living with both natural parents?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Non English speaking background parent/s?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Young person, parent/s or guardian/s negatively affected by event in the previous five years (eg death of a family member, divorce/separation of parents, witness domestic violence, sexual or emotional abuse)?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Current illicit drug use?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Current risky alcohol use? (eg more than two standard drinks per day and/or more than four standard drinks on any one occasion)?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Offence committed in the company of other youths or known to associate with other offenders or antisocial peers?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Subject of a confirmed report of neglect and/or abuse prior to court appearance?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Out-of-home care prior to court appearance?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Suspended or expelled from school/training at time of offence?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13*</td>
<td>Regular attendance at school/training at time of offence?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Enter number for each item below or circle N/A if information unavailable</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Current age?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>N/A = 9</td>
</tr>
<tr>
<td>15*</td>
<td>Age at first contact with justice system?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>N/A = 9</td>
</tr>
<tr>
<td>16</td>
<td>Principal offence for which convicted at first court appearance?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>N/A = 9</td>
</tr>
<tr>
<td>17*</td>
<td>Number of previous convictions?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>N/A = 9</td>
</tr>
<tr>
<td>18*</td>
<td>Total number of previous contacts with the justice system (ie police caution, referral to a youth justice conference or conviction)?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>N/A = 9</td>
</tr>
<tr>
<td>19</td>
<td>Number of address changes in past 5 years?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>N/A = 9</td>
</tr>
</tbody>
</table>

*Key predictors  **Information not available
8. References


YORI

Office: __________________________________________ Date: __/__/___
Client’s Name: _____________________________ DOB: __/__/___

IFS ID # ____________________ Referral source: __________________
Aboriginal or Torres Strait Islander ☐ No ☐ Yes ☐ Male ☐ Female

<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fourteen years of age or less at first contact with the justice system?</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Not currently living with both natural parents?</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Three or more address changes in past five years?</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>No regular attendance at school/training?</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Suspended or expelled from school/training?</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Current risky alcohol use?</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Current illicit drug use?</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

TOTAL

Low (0) ☐ Medium (1-2) ☐ High (3+) ☐

*The YORI is designed to help identify the level of intervention needed by YJS clients. Results of the YORI should be used to support the judgement of YJO/PDO/JJT.

Outcome (Circle all that apply)

- No Action
  - No further intervention deemed necessary
  - Client declined referral

- Referral (1)
  - Substance use
  - Parental education
  - Education/training/employment
  - Counselling
  - Recreation
  - Prevention/Diversion Services
  - DCP
  - Other

- Referral (2)
  - Killara
  - YPOP
  - JJT Youth Diversion
  - Other

- Case Management
  - ☐

- Further Assessment
  - Please specify:

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