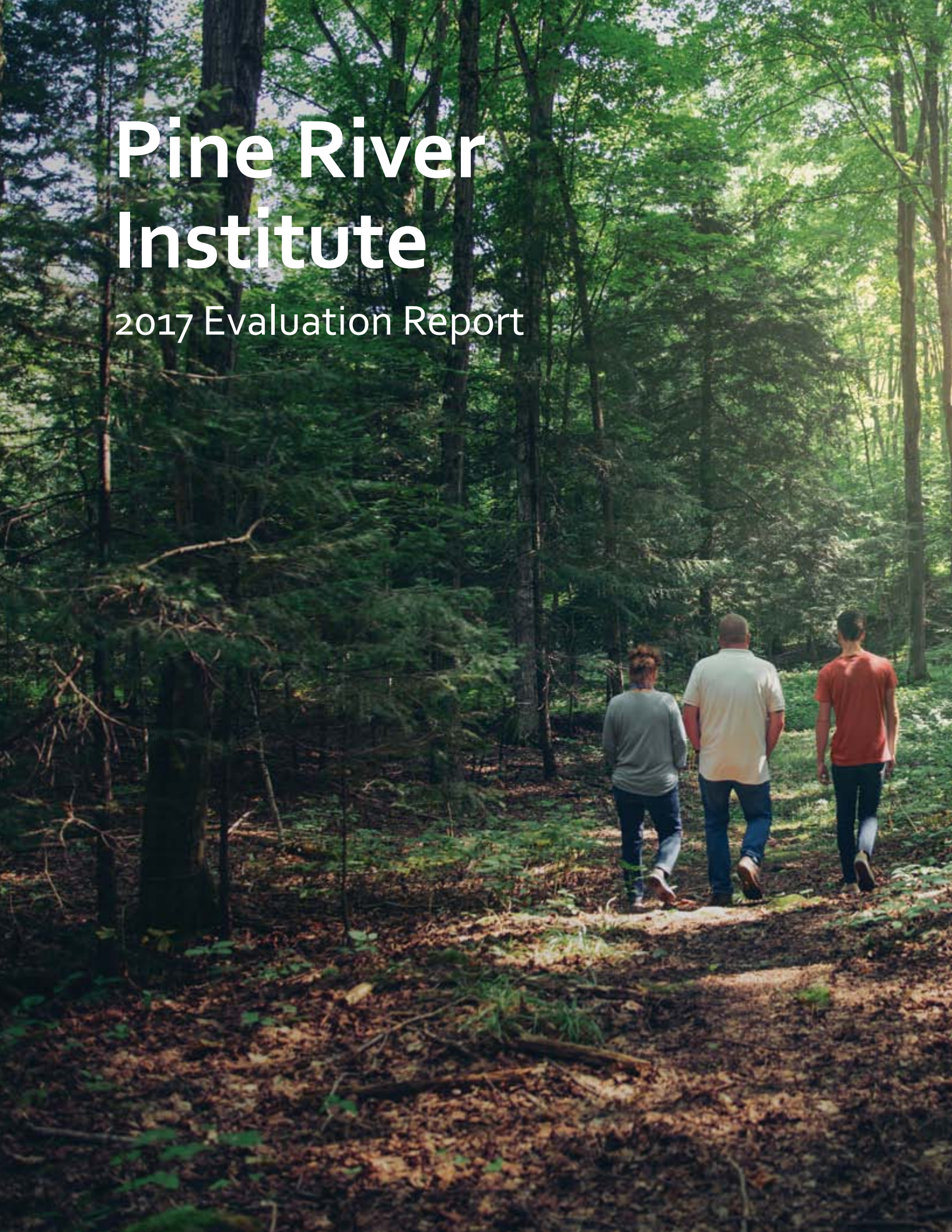


Pine River Institute

2017 Evaluation Report

Pine River Institute

Annual Evaluation Report

January 1, 2017 – December 31, 2017

Prepared by:
Laura Mills, Ph.D. *(Q.M. Psych)*
Director, Research & Evaluation

Elizabeth Kelly,
Research Associate

A NOTE FROM PRI'S CEO

Dear Reader;

We are proud of PRI's efforts and commitment to research and outcome evaluation as an indispensable part of our culture. The annual publication of the Pine River Institute Evaluation Report is a key event that represents several years of measuring the progress of our students and families. We present this report with three audiences in mind.

The first audience is families and youth seeking programs to help with their challenges. We believe it is vital for those seeking treatment to understand whom we serve and our short and long-term effectiveness. We know that a family who entrusts their youth to a residential program is taking a leap of faith, likely on a thin thread of hope. There are two things these families should expect from any potential treatment provider. First, the program should be formally accredited to ensure compliance with best practices, both clinically and organizationally. PRI was re-accredited for the next four years by the Council of Accreditation in January 2018. Second, the program should demonstrate treatment effectiveness by measuring client-oriented outcomes. This report is our response to this second expectation.

The second audience is internal to PRI. Our evaluations serve as a tool for learning and improvement, and fostering discussion at many levels within the organization, from our frontline staff to the Board of Directors. The clinical and research teams at PRI engage in ongoing conversation to ensure we utilize tools that accurately measure our work, and to monitor the individual progress of our students and their families. This dialogue and feedback-informed treatment sets us apart when it comes to innovation and quality improvement.

The third audience is our funders and supporters. We believe in being accountable to this audience by keeping them informed of results. Client-oriented outcomes are absolutely essential to this accountable relationship, and foster decision-making dialogue between funders and funding recipients based upon whether a program meets its mandate.

Without the cooperation and participation of our students and their families there would be no report because there would be no data to interpret or present. I hope you consider this a sincere and profound 'thank you' for taking the time year-after-year to keep us informed of your progress.

This report is the fruit of the work of two people in particular. They are Dr. Laura Mills, PRI's Director of Research and Evaluation and Liz Kelly, our Research Associate. Thank you for the time and effort that you have invested in creating this report.

Best regards,

Vaughan Dowie
CEO, Pine River Institute

PINE RIVER INSTITUTE – AN INTRODUCTION

Pine River Institute (PRI) is a residential treatment program for youths 13-19 who struggle with addictive behaviours and often mental, behavioural, and relationship problems. These teens have a complex array of problems spanning criminality, hospitalizations, stalled or abandoned school careers, and profound family dysfunction. When teens come to PRI they are angry, sad, and lost.

Parents of youth at PRI are desperate. They walk on eggshells to keep peace in their homes, become frantic when their child leaves for days, and many have experienced their teen's suicidal intentions. They wonder how their child found themselves on such a dark path and why, despite all efforts, they have been unable to help.

At PRI, families find a safe and nurturing professional environment where they can begin to heal. Wilderness, residential, therapeutic, and academic programs converge to form our comprehensive treatment model. This model enhances adolescents' maturity, meaning PRI's programming develops emotion regulation, empathy, respectful relationships, a social ethic, and a future orientation. We help families find their way to attuned and supportive open and honest communication, healthy boundaries, and limit-setting.

PRI families move seamlessly through a comprehensive program that entails four distinct ***PHASES***. In Phase 1, the Outdoor Leadership Experience (**OLE**), youths spend several weeks in the wilderness, to develop physical and social skills, and recognize the need for change. They then move to **RESIDENCE** (Phase 2), an academic and therapeutic milieu. As they demonstrate greater levels of maturity and leadership, they move to the third phase, **TRANSITION**, a time to start taking the lessons home. The fourth phase, **AFTERCARE**, when the youths reside at home but receive support to sustain treatment gains, integrate into the community, and engage with school and/or work.

Parents have a very important role in the therapeutic process and engage in a **Parallel Process**, in which they experience growth and development alongside their child. We walk with parents as they courageously learn about themselves, look at relationships within their own families, and begin a new relationship with their child.

THIS REPORT

PRI'S Annual Evaluation Report is a tool for quality improvement, risk management, administration, organizational planning, and communications. Besides the internal audience of PRI Board and staff, we hope it is an informative tool for funders, government decision-makers, practitioners, researchers, potential PRI families and students.

This report provides *demographics, process information*, and *outcome evaluation*. Demographics include student characteristics, process information spans admissions, and program engagement. Outcome findings include the mental, physical, behavioural, and relationship health of PRI clients before and after the program.

We show outcome results for **Completers** (Cs) and **Non-Completers** (NCs). Full program completion at PRI is recognized by graduation from Aftercare; however, aftercare engagement varies across families, so for evaluation purposes, **Cs are students who successfully completed the TRANSITION** from the residential phase of the program. A red star * indicates that the **differences between Cs and NCs is statistically significant**. Notation for all analyses are in footnotes.

Due to the voluntary nature of research contribution, some data are missing. Thus, the findings in this report should be considered to represent a sample of the Pine River population only (i.e., other youths may not experience the same outcomes). Our sample comprised 212 families who entered PRI between 2010 and 2017. Of these, **70%** of our parents contributed post-treatment data. If the youth completed transition, **88%** of parents contributed. **42%** of the youths who attended PRI contributed data (**60%** of those who completed transition), and reports from our clinicians who have been in touch with **35%** of PRI alumni (typically when a youth calls just to touch base). Very often, the information is consistent across these respondents, so we provide detailed charts with quantitative **parent** information, narrative reports based on **youth** responses, and open-ended comments provided by **clinicians**.

In **2010**, PRI underwent profound changes. We secured permanent government funding. Our beds were consistently full. We started a waiting list. We implemented our current therapeutic model, our commitment to our family program, our team-based community milieu, and regular professional development. In other words, we increased our *treatment fidelity* which has forged PRI as we know it today. Therefore, this report is based **only** on youths who were in the program after 2010. Prior reports included students in earlier years and can be accessed on our website at http://pineriverinstitute.com/research evaluation/.

SNAPSHOT OF THE FULL REPORT

This snapshot provides an overview of the characteristics of PRI youths, our program processes, and our client outcomes. The full report offers deeper and broader information about our program.

TYPICAL CHARACTERISTICS OF YOUTH ENTERING PRI (2010 – 2017):

- The average age at admission was 17, with about two males for every female admitted.
- Half were from the GTA, most others from non-GTA Ontario, a few were out-of-province.
- Most common substances of choice were marijuana and alcohol.
- Three-quarters had a history of suicidal thoughts; a quarter had attempted suicide.
- 2/3 of youth experienced police contact, 2/3 have run away.
- 2/3 were attending school half the time or less; 14% were not in school.
- Most experience clinically problematic mental health issues, often across multiple domains, most commonly ADD/ADHD, anxiety, and/or depression.

INQUIRY AND ADMISSION INFORMATION

25 - 35 youths enter PRI each year, and they stay for over a year. There are always about 200 families on the waitlist; for many inquirers the need is too immediate to wait. In 2017, clients funded by the Ministry of Health and Long-Term Care waited an average of 561 days. Those paying privately waited 130 days (but about three weeks once the decision for private-pay is confirmed).

PROGRAM ENGAGEMENT

Youths who departed during 2017 occupied a bed (including during home visits) an average of **485 days**. 67% of youths completed the **transition** phase of the program (staying an average of 553 days).

TREATMENT OUTCOMES: PRE AND POST-PRI - REFERENCING 'MOST RECENT THREE MONTHS'

Substance Use: Pre-PRI, most youths presented with problematic substance use. **Post-PRI**, most youths were abstinent or using socially. Cs were more likely to be abstinent than NCs.

Academics: Pre-PRI, parents reported that their youths' academics were sporadic, stalled, or abandoned. **Post-PRI**, youths re-engaged with school with good grades and attendance.

Police Contact: Pre-PRI, 57% of youth had been involved with police, but **Post-PRI** this was less than 10% (for Cs).

Hospital Visits: Pre-PRI, 14% for substance use and 39% for mental health in the three months before applying to attend. Post-PRI, less than 6% of Cs had a hospital visit for either reason.

Suicidality: Pre-PRI 75% had suicidal thoughts; 24% had attempted to end his or her life. After PRI, 6% of Cs had suicidal thoughts and 1 % had either planned or attempted suicide.

Running Away: Pre-PRI, almost half of youth had run away; **Post-PRI**, this was less than 10%.

Family Functioning increases from below 'healthy' levels **before PRI** to the healthy range **after PRI**.

SATISFACTION WITH TREATMENT

Most parents and youths are 'satisfied' or 'very satisfied' with PRI treatment. Parents gave the highest satisfaction ratings to the Outdoor Leadership Experience (OLE), Parent Retreat, and individual therapy. The lowest ratings were given to transition and aftercare, which were still in the *satisfied* range.

REPORT CONTENTS

Research & Evaluation	**9**
Admissions	**10**
Characteristics of Admitted Youths	**11**
Student Engagement	**13**
Parent Engagement	**15**
Reportable Incidents at PRI	**16**
PRI Treatment Outcomes	**17**
Substance Use	**19**
Academics	**21**
Mental Health & Learning Issues	**26**
Crisis & Behavioural Indicators	**29**
Hospital Visits	**29**
Police Contact	**30**
Running Away	**30**
Family	**34**
Quality Of Life	**38**
Physical Health	**39**
Satisfaction with Treatment	**40**

RESEARCH & EVALUATION

PRI Research is emerging as a leader among our peers. We are members of the research consortium for the National Association of Therapeutic Schools and Programs [NATSAP] and serve on their Ethics and Research Boards. We are recognized as one of NATSAP's Research Designated Programs.

PRI also leads a province-wide project to develop and implement evaluation in youth addiction agencies. On behalf of 12 agencies, we secured over $570,000 from the Ontario Centre of Excellence in Child and Youth Mental Health, Addictions Ontario, the Ontario Trillium Foundation, and Health Canada's Drug Treatment Funding Program to support this collaborative initiative.

In 2017, we presented our research and evaluation at: Children's Mental Health Ontario (Toronto), Outdoor Behavioural Healthcare Industry Council (Park City, Utah), Addictions and Mental Health Ontario (Toronto, ON), Summit on Policy Implications for Legalization of Marijuana (hosted by PRI, Toronto), and at PRI Staff Meetings, Parent Workshops, and PRI Board of Directors meetings.

We have ongoing relationships with: Dr. Debra Pepler, Distinguished Research Professor of Psychology at York University and Scientific Co-Director of PREVNet (Promoting Relationships and Eliminating Violence Network); Dr. Anita Tucker at the University of New Hampshire; Dr. Ellen Behrens at Westminster College (Utah); and Dr. Amanda Uliaszek, Assistant Professor, University of Toronto (Scarborough). We will continue to work with our partners in an effort to publish our findings. Research articles that are planned for 2018 include:

- What happens to families who wait for adolescent substance abuse treatment?
- For whom is PRI best suited?
- Is emotional intelligence related to maturity, treatment completion, and outcomes?
- Does in-treatment family growth foster PRI completion and better youth outcomes?
- Are changes on maturity related to PRI completion and better youth outcomes

Publications

Uliaszek, A. A., Al-Dajani, N., & Mills, L. (in press). Predictors of Attrition from Residential Treatment for Youth with Addictive Behaviors. J*ournal of Child & Adolescent Substance Abuse*.

Riddell, J., Barnes, M., & Mills, L. (in press). Better Relationships, Mental Wellness, and Self Development: What Parents Expect from Residential Treatment for Their Struggling Youth. *Journal of Therapeutic Schools and Programs*, January 2018.

Mills, L. (2016) Wilderness Survival Guide to the T-Test. *Journal of Therapeutic Schools & Programs, 9,* 54-57.

Mills, L. & Lewis, S. (2016). For All You Do, This Article is for You: Thoughts on Optimizing and Evolving Treatment Evaluation. *Journal of Therapeutic Schools & Programs, 8,* 10-15.

Creighton, V. & Mills, L. (2016). Family Matters: Engaging Parents in Youth Treatment. *Journal of Therapeutic Schools & Programs, 8,* 51-58.

Mills, L., Pepler, D., & Cribbie, R. (2013). Effectiveness of Residential Treatment for Substance-Abusing Youth: Benefits of the Pine River Institute Program. *Residential Treatment for Children and Youth, 30,* 202-226

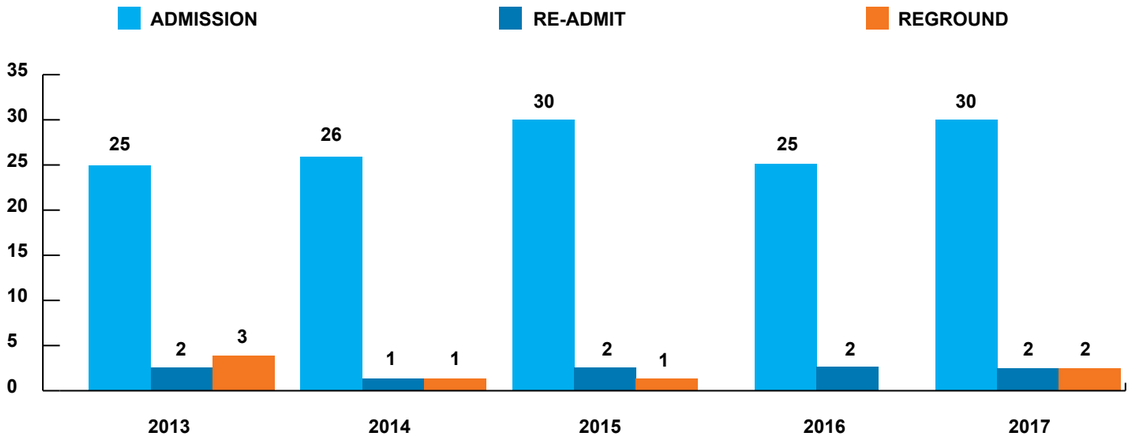
PRI's **Board of Directors** has established a **Standing Committee on Research** under the leadership of Dr. Mark Greenberg and later Dr. Debra Pepler. The Committee has a mandate to advise and monitor on PRI research activities.Greenberg. The Committee has a mandate to advise and monitor on PRI research activities.

CLIENT PROFILE
ADMISSIONS

Each year family members, friends, and medical professionals contact PRI regarding a struggling youth. Applicable inquirers then complete our online application, submit medical, psychological, and academic documents, and are placed on an admission wait list.

Families are scheduled for an on-site assessment a few weeks before admission. After the assessment, the youth is admitted when a bed becomes available. In 2017 there were 32 admissions, 2 of whom were former clients. In some cases, a youth may return to OLE for re-grounding (Figure 1); there were 2 're-ground' admissions in 2017.

Figure 1. Admission, Readmission, & Re-grounding Frequencies 2013-2017.



Wait time from inquiry to admission in 2017 was 561 days for Ministry of Health and Long-Term Care (MOH) clients[1]. Clients funded by MOH wait longer than those who pay privately[2]. Please note that the number of days for private pay clients is their total wait time from contact to admission, regardless of when they formally indicated private pay engagement. **Typically, admission is about three weeks after a family agrees to pay privately**. Average wait times are shown below, by year of admission and type of pay (Table 1).

Table 1. Average days from Contact to Admission by Year and Type of Pay 2013-2017

2013		2014		2015		2016		2017	
MOH N=27	PP N=7	MOH N=20	PP N=6	MOH N=21	PP N=9	MOH N=17	PP N=7	MOH N=22	PP N=9
420	138	507	178	395	82	493	223	561	130

MOH= Ministry of Health funded; PP = private pay

Over 90% of inquiries are made by a parent, while the rest are from other family members, professionals, or the youths themselves. Inquirers hear about PRI from various sources: about a quarter find us online, about a quarter from a professional or medical doctor; others from PRI alumni, media and communication activities, education consultants, and through friends and family.

CHARACTERISTICS OF ADMITTED YOUTHS

Demographics. The average **age** of youths at admission is 17.2. About half of PRI youth are from the GTA, most of the others are from non-GTA Ontario; a few are from outside Ontario. The **ratio of male to female** is approximately 2:1, with non-significant year-by-year variation in gender ratio[3].

About half of PRI parents live together. Two percent of PRI youths have experienced the death of a parent and 7% were adopted[4].

Addictive Behaviours. PRI youths experience addictive behaviour that is part of a complex profile of history and behaviour. A relatively new addiction concerns the use of devices and engagement in virtual relationships. PRI parents reported that their children over-utilize phones and computers and when these are not available, their reactions are extreme and erratic. PRI youths are typically not gamblers.

Concurrent with addictive behaviour, PRI youths typically experience one or more **mental health** or **learning** challenges. About two-thirds of PRI youths have attended previous **treatment** of various types (e.g., counselling, day program, wilderness, other residential programs) and many have been **hospitalized** for reasons of safety, assessment, or stabilization. **Running away** from home and contact with **police** is also common, and typically experienced by about two-thirds of our youths before PRI.

About one in four parents reported that their child was **abused**, either verbally, physically, or sexually. In many cases, the abuse happened when the youth was a young child, but in some cases it occurred later, for example, among abusive peers. Youth reports align with those of parents, with a slightly higher proportion of youths reporting verbal abuse.

Most (about three quarters) of PRI youths have experience with **suicidality**: 76% have suicidal thoughts, and one in four had attempted to end his or her life before attending PRI. About half (53%) of PRI parents indicate their child has a history of self-harm (e.g., cutting, burning, removing skin, and banging against walls). About one in three PRI youths, at entry to the program, reported a history of self-harm[5], which is one way youths cope with intense emotional distress or pain[6].

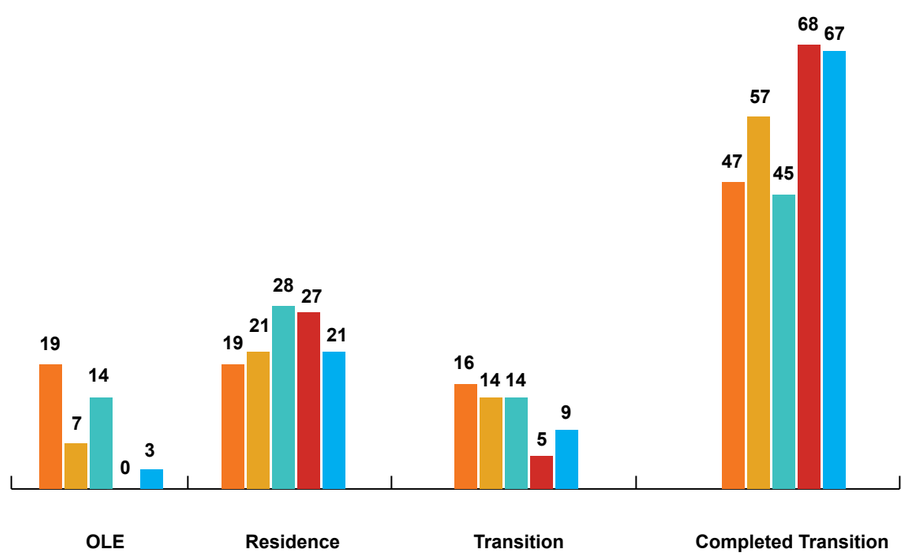
Relationships. Family lives before PRI were chaotic and oftentimes frightening. Parents often struggled from one crisis to the next, walked on eggshells to keep peace in their homes, experienced damaged or stolen property, and worried that one child's troubles would have a profound impact on other children in the home. Many PRI youths associated with deviant peers, usually beginning when they transitioned to high school. Some parents indicate their child was always drawn to the more deviant crowd.

CLIENT PROFILE
ENGAGEMENT

STUDENT ENGAGEMENT

Treatment completion is known to foster healthy outcomes; therefore, we strive to help our youths reach transition completion. Figure 2 details our early departure and transition completion rates for the last five years. In some cases, youths exit the program before completion, based on a mutual client-clinician decision. We started tracking this in 2015, when 6 of the youths who were discharged before completing transition, exited based on a clinician-endorsed, or 'planned early discharge'. There was one planned early discharge in 2016 and 2 in 2017.

Figure 2. Phase at Departure by Year of Departure, in Percentages, 2013 – 2017



The average length of stay for youth who departed in 2017 was **485 days**. Table 2 details length of stay by year of departure and PRI Completion for the last five years.

Table 2. Average Length of Stay in Days by Year of Departure and PRI Completion

	2013	2014	2015	2016	2017
Completers* [7]	506	527	527	569	533
Non-Completers	194	282	352	342	336

This red star means there is a statistically significant difference between completers and non-completers

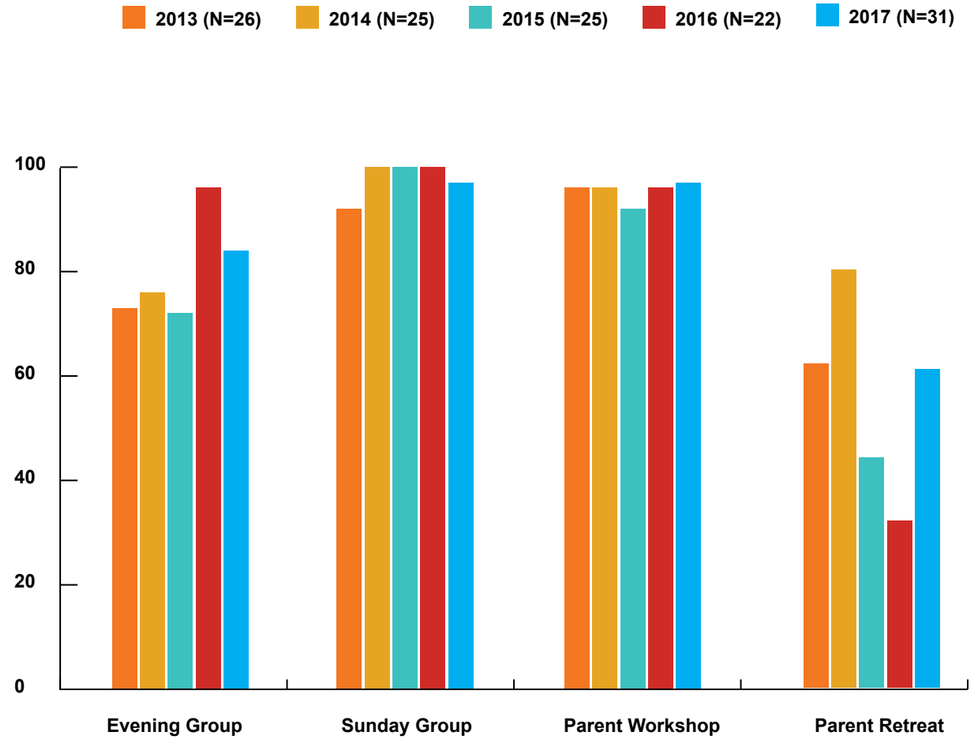
AFTERCARE

When youths complete transition they are encouraged to participate in Aftercare, a fee-for-service option (Aftercare is not in our funding agreement with MOHLTC). In 2017, 20 of the 22 youths who completed transition participated in Aftercare. Similarly, across the last five years, there was one or no completers who did not engage with aftercare.

PARENT ENGAGEMENT

Parent engagement is core to the program. When youths progress past OLE, their parents/guardians participate in family group every other Sunday, bi-weekly evening parent groups, one parent retreat during the youth's stay at PRI, and two two-day parent workshops per year. Special arrangements are made for out-of-province families. Figure 3 shows the parental attendance at each program element, for the last five years, for youths who progressed further than Stage 1 (OLE). The family member is most often a parent, but in some cases can be a grandparent or other adult guardian. An average of 1.8 family members is involved at each opportunity.

Figure 3. Parent Attendance at Parent Opportunities by Year of Departure (2013 – 2017)



REPORTABLE INCIDENTS AT PRI

Staff at PRI keep a record of concerning incidents, including events such as absent without leave, property damage, self-harm, and other behaviours requiring discipline and/or medical attention. In 2017, there were **89** reported incidents, there were **114** in 2016, and **134** in 2015. We track all incidents and utilize the information for risk management and quality improvement. For example, we discuss how to mitigate risks for particular youths who tend to be involved in a high proportion of incidents, as well as for the types of incidents.

PRI TREATMENT OUTCOMES

A strength of Pine River Institute is its evaluation and research. We are working toward use of standardized tests, which will result in increasingly robust results and evaluation-informed program decisions. At this point, we do not always use standardized measures. Thus, each measurement in the report has a 'robustness rating' based on the strength of measurement, as follows:

UNDERSTANDING RATINGS

Gold Medal: Indicates a ***standardized*** measure, ***matched*** (same person at different times) pre-PRI to post-PRI, to measure change. Standardized measures have been tested to make sure they measure what they say they do and give reliable results. Scores have usually been 'normed' across population characteristics such as age and sex.

Silver Medal: IIndicates a ***non-standardized***, but ***matched*** measure. Sometimes standardized measures do not ask what we want to know, they can be cumbersome and costly. We use non-standardized questions that resonate with our treatment.

Bronze Medal: Indicates a ***standardized***, valid, reliable, normed ***non-matched*** measure. This means that we can take averages or frequencies before and after treatment, but they are not necessarily the same group. Thus, it does not measure individualized change.

Good Effort: We used a ***non-standardized*** measure, and scores were ***not matched*** pre-PRI to post-PRI.

Time Anchor: Respondents are typically asked to reflect on the most recent three months before completing the survey.

You will see results for **'completers' (Cs) – youths who completed Transition,** and **'non-completers' (NCs) – youths who departed before completing Transition. When the differences between Cs and NCs are statistically significant, they are noted with a star *.** All statistical notation is indicated in a footnote.

Limitations

Generalizability is when one can expect the results for participants in a study to be experienced similarly by others. With only 35 clients per year, and without a comparison group, we cannot generalize our outcomes to other youths. We can only look at client and family health before and after the program and understand the results apply to our clients

Missing Data is often a problem in clinical data, and PRI is no exception. We are proud of our response rate but caution the reader that the families we cannot contact might have different experiences than those represented here.

Treatment Changes occur often in a therapeutic milieu, and many are not tracked in a way that can be captured for program evaluation. For example, a new sport, guest speaker, or new staff may have an impact on youth experience, but our protocol would not be able to identify whether these everyday therapeutic decisions impact the outcomes of PRI clients. We can only say that, in general, the experience at PRI is associated with the outcomes presented here.

OUTCOMES EVALUATION

SUBSTANCE USE

SUBSTANCE USE

Before PRI, **parents** indicated that PRI youths started using substances at an average age of 13.5[8] and that regular use of substances began on average at 14.6 years[9]. Most parents (70% in 2017) reported that their child used substances 'daily'. Before coming to PRI, most youths had tried several types of drugs and were poly-substance users. The most common youth drug of choice as reported by parents over the last three years was marijuana (74%), then alcohol (10%).

We ask about youth substance use in terms of whether use was 'consistent and problematic', 'periodic slips', 'social or occasional' or 'abstinent'. **Pre-PRI**, parents commonly reported youth substance use as consistent and problematic. **After PRI**, parents reported that their child's substance use was less problematic, particularly among Cs (Table 3).

Table 3. Parent-Reported Substance Use Pre- & Post-PRI by Time and PRI Completion

	PRE-PRI	3M Post-PRI*[10]		6M Post-PRI*		1Y Post-PRI*		2Y Post-PRI	
	N=192	C (N=39)	NC (N=23)	C (N=34)	NC (N=15)	C (N=33)	NC (N=15)	C (N=18)	NC (N=9)
Abstinent	4%	64%	23%	47%	13%	36%	20%	33%	33%
Social/Occasional	15%	18%	23%	32%	27%	39%	20%	39%	11%
Periodic Slips	7%	15%	23%	9%	13%	12%	0%	11%	11%
Consistent & Problematic	75%	0%	32%	12%	47%	12%	60%	17%	44%

Note: this non-standardized tool is being phased out and replaced by a standardized, normed substance use measure called the Drug History Questionnaire (DHQ)[11]. Responses across all time-points on the DHQ indicate similar trends to past Post-PRI Substance use; among completers (N=54), 36% are abstinent, 46% are using weekends / weekly, and 17% are using daily. Among non-completers (N=14), 43% are abstinent, 36% are using weekly, and 21% are using daily.

Before PRI, **youths** reported having started to use substances at an average age of 12.8; most (84%) reported using daily, and most indicated that marijuana was their primary drug of choice followed by alcohol. When asked about substance use after PRI, most youths reported either being abstinent or using substances socially/occasionally.

Clinician Comments, Post-PRI Client

"… is enjoying school, he has been drinking some alcohol but said he had not used other drugs in the past 30 days."

"More attuned, supportive peer group."

.

OUTCOMES EVALUATION
ACADEMICS

SCHOOL ENGAGEMENT

Most inquiries to PRI are for secondary school-aged youth. Often, however, their academic careers are sporadic, stalled, or have been abandoned. For example, **before PRI**, parents reported that their child had low or no school engagement, and most had low attendance, with an average of 28 missed school days in the most recent 90. About two-thirds of parents indicated that their child attended school half the time or less. Reasons for poor school attendance included: behavioural issues resulting in suspension or expulsion, mental health issues, or refusal to attend because of fatigue, aches and pains, or lack of interest. In the two years **after PRI**, the number of school days missed in the most recent 90 days was an average of 2.1 days for Cs and between 7.2 for NCs[12] .

After PRI, parents reported that most youth were engaged with school (Table 4).

Some youths were also working or volunteering in varied fields and full or part time. For example, some youths were reported to be working at landscaping, restaurants, and in social services while others were reported to be volunteering by coaching sports, at soup kitchens, or overseas charities.

Table 4. Parent-Reported Academic Status Post-PRI by Time and PRI Completion

	Pre-PRI	3M Post-PRI[14]		6M Post-PRI		1Y Post-PRI		2Y Post-PRI	
	(N=166)	Cs (N=59)	NCs (N=33)	Cs (N=58)	NCs (N=22)	Cs (N=55)	NCs (N=24)	Cs (N=47)	NCs (N=12)
Not in School	14%	10%	21%	7%	23%	18%	25%	19%	17%
In High School	82%	48%	54%	43%	45%	22%	38%	15%	50%
Graduated H.S.	1%	25%	21%	36%	32%	31%	29%	40%	17%
In / Grad Post-Sec	1%	17%	3%	14%	0%	29%	8%	26%	17%

Note: Pre-PRI, 2% of parents indicated youth school attendance was 'other'.
Note: Columns sum to within 1% +/- 100% due to rounding.

Youth reports align with those of parents, indicating low engagement with school before PRI. After the program, youth reported that they were generally attending school.

Youth 3 MONTHS after PRI:

‘I got exams coming up and I’m gonnna rock them’

Youth 3 YEARS after PRI:

‘…I’ll be attending law school a year from now’

ACADEMIC ACHIEVEMENT

Achievement. Table 5 shows the historical achievement for PRI applicants. Most PRI applicants earned A's and B's in early grades, which is consistent with Ontario trends of 60%-75% A's and B's. PRI applicants' marks deteriorated during later grades.

Table 5. Parent-Reported Historical Average Achievement for PRI Youths

	A	B	C	D	Fail
Grade 3 (N=113)	33%	51%	14%	2%	0%
Grade 6 (N=113)	27%	53%	18%	1%	1%
Grade 7 (N=113)	22%	47%	26%	4%	1%
Grade 8 (N=115)	19%	41%	28%	10%	1%
Grade 9 (N=118)	10%	25%	30%	21%	13%
Grade 10 (N=93)	6%	17%	32%	22%	23%
Grade 11 (N=50)	7%	5%	22%	37%	29%
Grade 12 (N=23)	8%	15%	23%	19%	35%

After PRI, Parents reported that their youths earn As and Bs more often than other marks (Table 6).

Table 6. Parent-Reported Achievement Post-PRI

	A		B		C		D		Fail	
	Cs	NCs	Cs	NCs	Cs	NCs	Cs	NCs	Cs	NCs
3M Post-PRI (N=45)	37%	33%	50%	33%	10%	27%	0%	7%	0%	0%
6M Post-PRI (N=39)	34%	0%	38%	80%	21%	0%	3%	10%	0%	10%
1Y Post-PRI (N=38)	29%	21%	33%	50%	42%	14%	4%	0%	0%	14%
2Y Post-PRI (N=26)	39%	25%	33%	12%	22%	38%	6%	25%	0%	0%

Clinician Comments Post-PRI Clients

"She has completed her first year, with good marks, at McMaster University. She reported being in a healthy dating relationship with a new girlfriend…"

"She was accepted into George Brown College and will start a CYC degree with them this upcoming Fall. She is on good terms with her family and is not having mental health or substance abuse issues. She drinks occasionally."

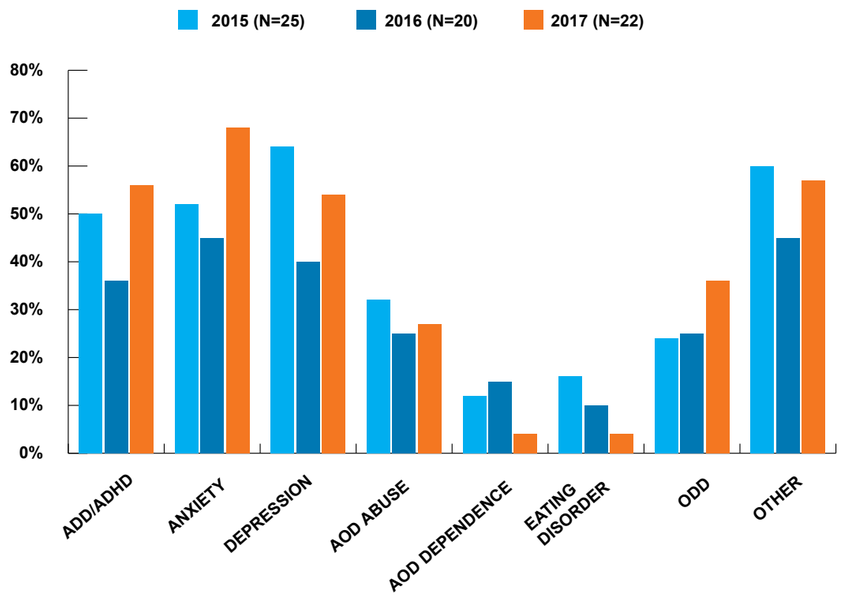
"He is working full time and has connected well with both of his parents."

OUTCOMES EVALUATION

MENTAL HEALTH & LEARNING ISSUES

Between 2010 and 2017, **parent** reports indicated that 70% of admitted youths (N=254) had at least one formally diagnosed mental health disorder[13]. Of those with a diagnosis, 27% were diagnosed with one disorder, 13% were diagnosed with two, and 29% with three or more, to a maximum of seven diagnoses. Figure 4 shows admitted youths from 2015-2017 with parent-reported mental health diagnoses.

Figure 4. Parent-Reported Youth Mental Health Diagnoses at Application Most Recent Three Years



ADD/ADHD: Attention Deficit (with/out) Hyperactivity Disorder; AOD: Alcohol and Other Drugs; ODD: Oppositional Defiance Disorder

***Note:** AOD Abuse and Dependence percentages qualify for, but may not have formally received, this diagnosis. Most PRI youths would 'qualify' for this diagnosis before PRI but may not have a diagnosis.*

Note: Other Diagnosis *Over the past three years, 10% or less of parents report their youth as having had a diagnosis of: Obsessive Compulsive Disorder, Panic Disorder, Bipolar Disorder, Social Anxiety, PTSD, and Borderline Personality Disorder. They are summed and displayed as 'other'.*

Between 2010 and 2017, parents (N=179) reported that 59% of admitted youths have a formally identified learning issue, with ADD/ADHD as the most common. Of those with a learning disability (N=104), 27% have been identified with ADD/ADHD, 8% with another learning disability, and 58% with ADD/ADHD and another learning disability. The most common non-ADD/ADHD learning challenges include executive and other processing disabilities, non-verbal and communication

We utilize a widely-used tool called the Child Behavior Checklist (CBCL) that indicates whether youths have Clinically Problematic, Borderline Problematic, or Non-Problematic[14] scores on mental health and behaviour. The tables below show the percentages of PRI students whose **parent-reported** scores fall into the **clinically problematic** range for internalizing problems (anxious, depressed, and somatic complaints), externalizing problems (aggression and rule-breaking), and other (social, thought, and attention problems) pre- and post-PRI. Many youths were experiencing problems in the clinical range across multiple domains before coming to PRI, which sheds light on the complexity of their problems at intake. Most youths' problems were in the non-problematic range after PRI, across most domains, particularly if they completed treatment.

Table 7. Parent-Reported % of Youth with Problematic CBCL Scores by Time and PRI Completion

	Pre-PRI	3M Post-PRI[15]		6M Post-PRI[16]		1Y Post-PRI[17]		2Y Post-PRI[18]	
	N=133	C (N=58)	NC (N=27)	C (N=59)	NC (N=20)	C (N=55)	NC (N=21)	C (N=44)	NC (N=9)
Anxious / Depressed	47%	7%	15%	7%	35%	9%	24%	16%	22%
Withdrawn/Depressed	56%	5%	22%	7%	25%	14%	24%	20%	22%
Somatic Complaints	30%	9%	7%	3%	20%	9%	14%	18%	44%
Social Problems	27%	0%	9%	4%	12%	0%	11%	7%	11%
Thought Problems	44%	7%	11%	8%	20%	9%	29%*	11%	44%
Attention Problems	44%	7%	11%	7%	20%	3%	14%	7%	11%
Rule-Breaking	78%	2%	18%	5%	30%	6%	24%	9%	22%
Aggression	46%	0%	4%	1%	10%	0%	14%*	4%	0%

Clinician Comments

"Dealing with his anxiety much better."

"He has slips but continues to be very committed to his process. He is working at improving upon his anxiety."

"struggling with low mood, sadness and loneliness, however he is working at his awareness and using very solid coping strategies to manage"

OUTCOMES EVALUATION

CRISIS & BEHAVIOURAL INDICATORS

HOSPITAL VISITS

Before PRI, visits to a hospital[19] were common for PRI youths. Table 8 displays **parent-reported** hospitalization, and reasons for the hospital visit or stay in the most recent three months. The average stay for these hospital visits was 6.5 days (ranging from a few hours to several months). **After PRI**, the proportions of hospital visits were comparatively low (Table 8).

Table 8. Parent-Reported Most Recent 3 Months' Hospitalizations by Time and PRI Completion

	PRE-PRI	3M Post-PRI[20]		6M Post-PRI		1Y Post-PRI*		2Y Post-PRI	
	N=166	C (N=56)	NC (N=32)	C (N=60)	NC (N=21)	C (N=54)	NC (N=23)	C (N=44)	NC (N=9)
Substance Use	14%	0%	12%	5%	14%	2%	9%	0%	0%
Mental Health	39%	2%	22%	2%	9%	4%	13%	2%	0%

Before coming to PRI, about half of PRI youths reported that they had visited a hospital for mental health or substance use concerns. Hospital visits, as reported by youths after PRI, are much less frequent, particularly for substance use reasons.

POLICE CONTACT

Pre-PRI, parents reported that 57% of youths had recent police contact. Reasons for police contact included mischief, property damage, theft, intoxication, and drug possession. **Post-PRI**, contact with police decreased (Table 9).

Table 9. Parent-Reported Recent Contact with Police Post-PRI by Time and PRI Completion

	PRE-PRI	3M Post-PRI*[21]		6M Post-PRI*		1Y Post-PRI*		2Y Post-PRI	
	N=209	C (N=57)	NC (N=32)	C (N=60)	NC (N=22)	C (N=54)	NC (N=23)	C (N=45)	NC (N=9)
Police Contact	57%	4%	19%	7%	27%	4%	26%	4%	33%

Before coming to PRI over two thirds of **youths** reported having had contact with police; **after PRI**, fewer youths experienced police contact, particularly if they had completed the program.

RUNNING AWAY

Youth on the run are at high risk for being involved with crime, drugs, unprotected or forced sex, prostitution, and contracting sexually transmitted diseases. In North America, about 1 in 7 teens (14%) runs away. By **parent report pre-PRI**, 61% of youths had run away in their lives, and 43% of those had run away in the three months before application. **Post-PRI**, the percentage of parents who reported that their child had recently (last three months) run away was lower than the North American average (Table 10).

Table 10. Recent Running Away Pre- to Post-PRI, Parent-Reported, by Time and PRI Completion

	PRE-PRI	3M Post-PRI[22]		6M Post-PRI		1Y Post-PRI		2Y Post-PRI	
	N=191	C (N=56)	NC (N=32)	C (N=60)	NC (N=22)	C (N=54)	NC (N=23)	C (N=44)	NC (N=9)
Running Away	47%	9%	3%	0%	4%	2%	4%	0%	0%

Before PRI, about one half of **youths** reported that they had run away from home, about one in five reported having done so in the three months prior to admission. After PRI, very few youths reported that they had run away from home.

Notes: *Running away becomes a less meaningful health indicator as youth age and move away from home.*

Clinician Comments Post-PRI Client

"well connected to friends, is in University living in residence"

"is graduating high school this spring and has been accepted with scholarship to University of Guelph in the fall. … works fulltime at Starbucks and is on good terms with family."

Youth STAGE 5 During PRI:

'I have mended my relationship with my dad.'

Youth STAGE 5 During PRI:

'Everything has been going really great with my family! We have been super connected and have had no problems since I've been home.'

Youth 1 YEAR After PRI:

'My parents are not controlling…they let me do whatever I want now, but that is only because I have learned to live within the reasonable parameters of what they're comfortable with. We're happy with things this way. We're also more honest with each other than we used to be.'

OUTCOMES EVALUATION

FAMILY

FAMILY FUNCTIONING

Family functioning is measured with the McMaster Family Assessment Deice(FAD)[23], scored from 1 to 4 (4 is the highest score; 3+ indicates 'healthy' functioning). **Pre-PRI, parents'** average scores were about one standard deviation below 'healthy'. **Post-PRI**, family functioning was in the 'healthy' range.

Table 11. Parent-Reported Family Functioning by Time and PRI Completion

	PRE-PRI	3M Post-PRI*[24]		6M Post-PRI*		1Y Post-PRI*		2Y Post-PRI	
	N=128	C (N=56)	NC (N=28)	C (N=61)	NC (N=21)	C (N=57)	NC (N=23)	C (N=30)	NC (N=10)
FAD Average	2.5	3.1	2.8	3.1	2.8	3.2	2.8	3.1	2.8

Youths' FAD scores indicated that their perceptions of family functioning were similar to that of their parents, below the 'healthy' range before PRI, and in the healthy range after the program.

Parents Missing Work. In the three months before applying to PRI, parents are missing 5-10% of their work due to their child's issues. Fewer days of work were missed for both parents at all time points **Post-PRI** (Table 12).

Table 12. Number of Days Work Missed for Parents Post-PRI by Time and PRI Completion

N(moms)/(dads)	PRE-PRI	3M Post-PRI[25]		6M Post-PRI		1Y Post-PRI	
	198/39	C 35/28	NC 28/11	C 38/27	NC 13/13	C 37/30	NC 17/13
Moms avg missed work	6.8	0.1	0.8	0.5	0.6	0.3	1.6
Dads avg missed work	9.4	0.1	0.5	0.0	0.6	0.5	1.5

***Note:** missed work is likely reported by parents only if they should typically be away from home to earn a living. Those who work from home or are homemakers may report fewer or no missed days despite dedicating their time to crisis management.

Clinician Comments Post-PRI Clients

"Relations with mother remains strong and improving with dad and sister. That's a big shift.."

"They are doing very well. With the odd slip comes some family tension but they work through it very well."

"much improved, increase communication, honesty, feeling, closeness and connection"

Parent Before PRI:

We spend a great deal of time looking for … ways to mitigate his usage. We have difficulty planning family events as we never know what he will do.

Parent 1 YEAR after PRI:

We are happier and healthier than we have ever been, as individuals and a family unit.

OUTCOMES EVALUATION

QUALITY OF LIFE

We measure Quality of Life (QOL) with the Personal Well-Being Index (PWI) , which is scored from 0 (very dissatisfied) to 10 (very satisfied); **7–8** is regarded as the North American 'normal' range.

The average PWI score for **parental** quality of life **pre-PRI** is close to the normal range, and well into the normal range **post-PRI** (Table 13).

Table 13. Parental Quality of Life by Time and PRI Completion

	PRE-PRI	3M Post-PRI[27]		6M Post-PRI		1Y Post-PRI		2Y Post-PRI	
	N=154	C (N=43)	NC (N=24)	C (N=41)	NC (N=16)	C (N=44)	NC (N=21)	C (N=30)	NC (N=10)
PWI Average	6.9	7.8	7.8	7.9	7.4	7.3	7.6	7.8	7.6

Before PRI, **youth** reported a quality of life that is lower than the healthy North American range (average of 5.9). **After the program,** youth ratings increase, particularly for those who completed PRI.

Clinician Comments Post-PRI Client

"increased self-awareness; willingness to explore vulnerabilities."

"Still dealing with effects of Tourettes, OCD, on med and its working well and he's functioning well"

PHYSICAL HEALTH

Body Mass Index. Over two-thirds of PRI youths were in the healthy BMI range before and after coming to PRI, with some variation by time and program completion (Table 14).

Table 14. Parent-Reported Youth BMI by Time and PRI Completion

	PRE-PRI*	3M Post-PRI[30]		6M Post-PRI*		1Y Post-PRI*	
	N=231	C (N=46)	NC (N=21)	C (N=46)	NC (N=18)	C (N=48)	NC (N=21)
Underweight	21%	4%	10%	4%	17%	4%	14%
Healthy	67%	78%	62%	70%	56%	77%	71%
Overweight	8%	17%	24%	20%	22%	17%	10%
Obese	4%	0%	5%	6%	6%	2%	5%

Youth 3 YEARS after PRI:

'I love the feeling of being independent; it's very satisfying for me. I also love working out – physical activity is key.!'

Youth 5 YEARS after PRI:

'I am very happy with my life but have worries about after school. I am starting my own business but it's very slow getting started. '

SATISFACTION WITH TREATMENT AT PINE RIVER INSTITUTE

Measuring satisfaction allows us to celebrate successes, and review processes that require attention. Scores range from 1(Very Dissatisfied) to 5 (Very Satisfied). Parents rated most PRI elements with high satisfaction. Lowest scored were Transition and Aftercare, which were still in the satisfied range.

Table 15. Parent Satisfaction for Individual Treatment Elements by Time and PRI Completion

	3-M Post-PRI[29]		6M Post-PRI[30]		1Y Post-PRI[31]	
	C	NC	C	NC	C	NC
Admissions	4.6	4.2	4.4	4.2	4.6	4.6
OLE	4.7	4.6	4.7	4.5	4.8	4.6
Individual Therapy	4.7	4.3*	4.7	3.9*	4.7	4.2*
Front Line Staff	4.6	4.5	4.7	4.5	4.8	4.6
Group Therapy	4.5	4.1*	4.5	4.2	4.6	4.0*
Family Therapy	4.2	4.0	4.2	4.1	4.3	4.0
Mentor	4.2	3.8	4.4	3.9*	4.4	4.0
Academics	4.6	4.1*	4.6	3.9*	4.5	4.0*
Parent Retreat	4.7	4.4	4.7	4.5	4.9	4.2*
Transition	4.0		4.1		4.9	
Aftercare	3.6		3.5		3.4	

Note. For Family Therapy, Academics, Mentor, & Parent Retreat, we only report if clients had completed OLE. For Transition & Aftercare, we only report if clients completed Residential Phase and Transition, respectively.*

Among youths, front line staff was rated as the most satisfying element of PRI; lowest rated among Cs was aftercare and transition. Cs consistently rated PRI higher than NCs.

If you have any questions or comments regarding this report, please contact Dr. Laura Mills, Director of Research & Evaluation at laura.m@pineriverinstitute.com.

Pine River Institute acknowledges funding support provided by the Toronto Central LHIN.

Ontario
Toronto Central Local Health Integration Network

PINE RIVER
Institute

NOTES

1. In general, wait time is not different across years 2013-2017 ($F_{(4,134)}$=1.3, p=.26, *n.s.*)
2. Private Pay clients wait fewer days than MOH clients ($F_{(134)}$=45.5, *p*<.001, η2=.25).
3. Proportions of male to female students not significantly different 2010 - 2017 (χ2(7)=13.8, *p*=.06, *n.s.*)
4. Adopted does not include youths adopted by a step-parent.
5. Please note that the data regarding such personal experience as abuse, suicidality, self-harm, etc. may be underrepresented as they are gathered during the admissions process, before youth and parents have developed a relationship with the clinical team at PRI. Therefore, respondents may not feel comfortable disclosing such information.
6. Richardson, C. et al. (2012).*The truth about self-harm: For young people and their friends and families* [Brochure]. London, U.K.: Mental Health Foundation.
7. 2013 departures had shorter length of stay than 2016 & 2017 departures (*p*'s<.05), all other length of stay was not different by year. Length of stay longer for completers than n on-completers ($F_{(1)}$=63.4, *p*<.001, η2=.32).
8. No difference on age at first use between males (13.5) and females (13.6); ($F_{(222)}$=0.3, *p*=.74, *n.s.*)
9. No difference on age at regular use between males (14.6) and females (14.7); (F*(198)*=.2, *p*=.82, *n.s.*)
10. Proportions are different for Cs and NCs at 3M ($\chi 2_{(3)}$ =18.3, *p*<.001; φ=.55), and 6M ($\chi 2_{(3)}$ =9.2, *p*=.03; φ=.43),1 Y Post-PRI ($\chi 2_{(3)}$ =12.6, *p*=.006; φ=.51), but not 2Y post-PRI ($\chi 2_{(3)}$ =3.3 *p*=.34, *n.s.*). To note, **significance** means that overall, the cells are not the same. For cell-by-cell comparison, please contact research department.
11. Sobell, L. C. & Sobell, M. B. (2007). The reliability of a drug history questionnaire (DHQ). *Addictive Behaviour*, 20, 233-241.
12. No difference in number of missed days for Cs and NCs at 3M Post-PRI, 6M Post-PRI, or 2Y Post-PRI (all *p*>.05, n.s.) but significant difference at 1Y ($F_{(24)}$ = 4.4, *p* = .05, η2 = .15)
13. Note that even though we specify 'physician diagnoses', some parents might report a disorder without formal diagnosis.
14. Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the ASEBA School-Age Forms & Profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youths, & Families.
15. No difference in 3M-Post PRI proportions (C vs. NC by Non-Clinical, Borderline, and Clinically Problematic on subscales); (all *p*-> .05) except Rule Breaking ($\chi 2(2)$ =10.9, *p*=.004; φ=.36).
16. Differences in 6M-Post PRI proportions between NCs and Cs on Anx/Dep ($\chi 2_{(2)}$ =10.3, *p*=.006; φ=.36), With/Dep ($\chi 2(2)$ =6.0, *p*=.05; φ=.28), Somatic ($\chi 2_{(2)}$=5.9, *p*=.05; φ=.28), Rule Break ($\chi 2_{(2)}$ =12.8, *p*=.002; φ=.40), and Aggression ($\chi 2_{(2)}$ =12.1, *p*=.002; φ=.39). 'Other' subscale proportions were not significantly different (all *p*< .05).
17. No significant differences in 1Y-Post PRI proportions between NCs and Cs (all *p*< .05)
18. Differences in 2Y-Post PRI proportions between NCs and Cs on Thought Problems ($\chi 2_{(2)}$ =6.1, *p*=.05; φ=.33) and Rule Breaking ($\chi 2_{(2)}$ =9.4, *p*=.009; φ=.42). All other sub-scale proportions were not different (all *p*< .05).
19. Understanding the reason for hospitalization is complicated; 'overdose, physical injury, or accidents' might be indicative of substance use and/or other mental health issues.
20. Hospitalization by Yes/No and C/NC four-cell proportions were different for Substance Use at 3M ($\chi 2_{(1)}$ =7.3, *p*=.01; φ = .30) but no other timepoints (all p's>.05) and for Mental Health at 3M ($\chi 2_{(1)}$ =9.5, *p*=.002; φ = .33)
21. 4-cell (C v NC / Yes v No) proportions were different at 3M ($\chi 2_{(1)}$=5.8, *p*=.02; φ = .26), 6M ($\chi 2_{(1)}$ =6.4, *p*=.01; φ = .28), 1Y ($\chi 2_{(1)}$ =8.7, *p*=.003; φ = .34 p>.05; n.s); numbers for 2Y post-PRI are too few to be meaningful.
22. Running away proportions are not different for Cs vs NCs at any time point (all *p*>.05; *n.s.*).
23. Epstein, N. B., Baldwin, L. M., & Bishop, D. S. (1983). The McMaster Family Assessment Device: General Function Sub-Scale.
24. Mean FAD for Cs were higher than NCs at 3M ($F_{(82)}$ = 9.2, *p* = .003, η2 = .10), 6M ($F_{(80)}$ = 4.0, *p* = .05, η2 = .04), 1Y ($F_{(78)}$ = 5.2, *p* = .02, η2 = .06), but not at 2Y ($F_{(38)}$ = 1.7, *p* = .2, *n.s.*).
25. Group size were varied, and group variances were different for Cs and NCs so a Welch test on ranked data was performed. There were no differences in missed days between Cs and NCs for moms ($W_{(13)}$ = 4.0, *p* = .07) or dads ($W_{(12)}$ = 3.4, *p* = .09) at 3M; for moms ($W_{(16)}$ = .9, *p* = .35) or dads ($W_{(14)}$ = 2.4, *p* = .15) at 6M, or moms ($W_{(22)}$ = 3.2, *p* = .09) or dads ($W_{(19)}$ = 0.3, *p* = .58) at 1Y.
26. Cummins & Lau, 2005.
27. Means not different for Cs and NCs at 3M, 6M, 1Y, or 2Y (all *p*> .05, *n.s.*).
28. Proportions are not different for Cs and NCs by BMI category at 3M, 6M, or 1Y (all *p*>.05; n.s.).
29. 3M Post-PRI Satisfaction was higher among Cs than NCs for: Individual Therapy ($F_{(87)}$ = 4.9, *p* = .03, η2 = .05); Academics ($F_{(87)}$ = 7.4, *p* = .01, η2 = .08); Group Therapy ($F_{(84)}$ = 4.5, *p* = .04, η2 = .05). Satisfaction was not different between Cs and NCs for any other element of PRI (all *ps* > .05). Group sizes (C/NC) were: Admissions (48/24), OLE (60/32), Ind.Ther (59/30), Front Line (60/32), Groups (57/29), Family (59/22), Mentor (46/16), Academics (58/31), Retreat (40/16), Transition (59), Aftercare (60).
30. 6M Post-PRI Satisfaction was higher among Cs than NCs for: Individual Therapy ($F_{(60)}$ = 7.4, *p* = .01, η2 = .11); and Academics ($F_{(60)}$ = 4.9, *p* = .03, η2 = .08). Satisfaction was not different between Cs and NCs for any other element of PRI (all *ps* > .05). Group sizes (C/NC) were: Admissions (47/17), OLE (48/17), Ind.Ther (47/15), Front Line (48/16), Groups (45/13), Family (47/15), Mentor (35/8), Academics (42/14), Retreat (43/10), Transition (46), Aftercare (43).
31. 1Y Post-PRI Satisfaction was higher among Cs than NCs for: Individual Therapy ($F_{(87)}$ = 6.1, *p* < .02, η2 = .07); Academics ($F_{(87)}$ = 9.1, *p* =.003, η2 = .10); Groups ($F_{(85)}$ = 11.9, *p* =.001, η2 = .12); Retreat ($F_{(51)}$ = 11.3, *p* =.001, η2 = .18). Satisfaction was not different between Cs and NCs for any other element of PRI (all *ps* > .05). Group sizes (C/NC) were: Admissions (42/21), OLE (62/28), Overall Quality (43/19), Ind.Ther (61/28), Front Line (62/28), Groups (60/27), Family (60/23), Mentor (53/17), Academics (61/28), Retreat (38/15), Transition (36), Aftercare (61).

Pine River Institute
180 Dundas Street West, Suite 1410
Toronto, ON M5G 1Z8

tel: 416-955-1453
www.pineriverinstitute.com