Helping children with behaviour problems

OVERVIEW
Understanding childhood conduct difficulties

REVIEW
Treating childhood behaviour problems
Overview
Understanding childhood conduct difficulties
Researchers are uncovering causes for the development of childhood behavioural problems. We highlight how this knowledge can be used to support children and families.

Review
Treating childhood behaviour problems
Behaviour disorders can incur tremendous costs for young people — and for society. We describe effective treatments practitioners can use based on findings from eight randomized controlled trials.

Implications for practice and policy

Methods

References

Links to Past Issues

NEXT ISSUE
Preventing anxiety for children
Anxiety disorders are the most common mental health problems that children face. We identify what can be done to prevent them.

How to Cite the Quarterly
We encourage you to share the Quarterly with others and we welcome its use as a reference (for example, in preparing educational materials for parents or community groups). Please cite this issue as follows:

Understanding childhood conduct difficulties

There are no bad kids. There are kids who are in bad circumstances, who have made bad choices. If you help change their circumstances...you can do good things with these kids.

— Canadian policymaker

Every child engages in challenging behaviours from time to time. In fact, for toddlers, occasional aggression is typical. It is also common for school-age children to lose their temper at times and for adolescents to periodically argue with adults. For most young people, however, challenging behaviour does not interfere with their development or well-being.

For a small proportion of young people, though, behaviour challenges can become more extreme — stopping them from thriving at home, at school or in the community. Studies that have followed children over long periods of time have shown that a small minority engage in consistently high levels of aggression. So when a young person has persistent angry and irritable moods, or repeatedly engages in argumentative and defiant behaviours, or shows serious aggression, the possibility of a clinically significant disorder needs to be considered.

To clarify the presence of a behaviour disorder, a qualified practitioner — ideally working in an interdisciplinary children’s mental health team — must conduct a thorough assessment. This includes ensuring that problematic behaviours are not due to unaddressed social causes, such as basic developmental needs not being met, or child maltreatment occurring but not being addressed. As well, practitioners must ascertain that a child’s behaviour is not due to another undetected, or concurrent, mental disorder — such as anxiety, depression, a learning disorder or substance misuse — which can cause symptoms of irritability, anger and aggression. Diagnoses of either oppositional defiant disorder or conduct disorder, the two main psychiatric diagnoses pertaining to childhood behaviour problems, should be made only after a comprehensive assessment.
is completed. Table 1 outlines the current criteria for diagnosing these two disorders.

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Oppositional Defiant Disorder** | • Child’s mood is persistently angry or irritable, as indicated by frequent loss of temper, easily being annoyed and often being resentful  
• Child’s behaviour is frequently argumentative, defiant or vindictive, including refusing to comply with rules or deliberately annoying others |
| **Conduct Disorder**         | • Child is often aggressive to people or animals, including bullying or threatening others and initiating physical fights  
• Child deliberately destroys property  
• Child engages in theft or significant deceitfulness, including frequently lying or stealing valuable items  
• Child often breaks serious rules, including recurrent truancy or running away from home overnight before age 13 |

* Prior to making either diagnosis, a comprehensive assessment is needed to ensure that there is no other underlying cause for the symptoms, such as unmet developmental needs or another mental disorder. As well, for both diagnoses, symptoms must be repetitive and persistent and interfere with the child’s functioning.

### How common are behaviour disorders?

According to rigorous epidemiological surveys, approximately 2.4% of children meet criteria for oppositional defiant disorder at any given time.\(^5\text{–}6\) Similarly, a review of nine high-quality surveys found that approximately 2.1% of young people meet diagnostic criteria for conduct disorder at any given time.\(^7\) Extrapolating from BC and Canadian population figures,\(^8\) an estimated 30,000 children and youth in BC and 240,000 in Canada are likely experiencing one or both of these conditions at any given time.

### What causes serious childhood behaviour problems?

We can help children by mitigating the causes of serious behaviour problems before they develop. However, to do so, causal mechanisms and pathways must first be identified. A number of studies have made some importance advances in this area.

While no one study is sufficient for establishing causation, a unique “natural experiment” provided early evidence for a link between socio-economic disadvantage and childhood behaviour disorders. In this study, researchers initially followed a representative sample of 1,420 children from North Carolina for eight years.\(^9\) Halfway through the study, Native American families living on a “reservation” began receiving biannual income supplements, which resulted in 14% of study families moving out of poverty.\(^9\) By the end of the study, young people in families who were no longer poor showed a 40% decrease in symptoms of oppositional defiant and conduct disorders.\(^9\) In contrast, children in families who remained poor had *increases* in behavioural symptoms, while children from families who were never poor experienced steady low levels of behavioural problems after their families were lifted from poverty is particularly compelling. The researchers who uncovered this relationship conducted additional statistical analyses to determine why this occurred. One variable stood out: parental supervision. In fact, parental supervision accounted for roughly 77% of the effect that reducing poverty levels had on children’s mental health symptoms.\(^9\) In essence, the researchers found that as parents moved out of poverty, they could spend more time with their children, resulting in better supervision and better child mental health.\(^9\)
symptoms. Strikingly, the level of behavioural problems in children from formerly poor families became almost identical to that of the never poor children.

Another hallmark study followed almost 1,000 New Zealand children from birth until age 26 to better understand the impact that genes and the environment had on behavioural problems. Researchers found that boys who had been maltreated and had "low activity" for the monoamine oxidase A gene (MAOA), which plays a role in metabolizing selected neurotransmitters, were significantly more likely to engage in antisocial behaviour. Specifically, maltreated boys who also had low MAOA activity showed:

- nearly three times greater odds of being diagnosed with conduct disorder during adolescence
- nearly 10 times greater odds of being convicted of a violent crime in adulthood
- a greater likelihood of having symptoms of antisocial personality disorder, and
- a greater likelihood of being disposed to violence.

In other words, having experienced both child maltreatment and this specific gene profile greatly increased the likelihood of developing severe antisocial behaviour. This finding suggests that environmental factors such as child maltreatment may influence gene expression in the causation of behaviour disorders over time.

Environments where behaviour problems emerge

Studies have identified other risk factors for childhood behaviour disorders. For instance, a British study examined the impact of mothers’ parenting beliefs on the behaviour of more than 11,000 children. Researchers found that when mothers endorsed more authoritarian approaches — such as believing that children should follow parents' commands without explanation — children were more likely to have conduct problems at age 10. Notably, even after adjusting for variation in socio-economic status and levels of maternal distress, children whose mothers had the most authoritarian parenting attitudes (the highest 20%) were 1.5 times more likely to develop conduct problems such as lying, stealing, bullying and fighting.

Another study, which followed nearly 1,000 children in New Zealand from birth until mid-adolescence, examined the relationships between a host of variables and behaviour problems. Researchers identified the following risk factors for developing symptoms of conduct and oppositional defiant disorders:

- maternal smoking during pregnancy
- changes in caregivers (e.g., parental separation, divorce or death, or entering foster care)
- family socio-economic disadvantage
- child maltreatment, including physical abuse and exposure to interpersonal violence
- lower child cognitive ability, and
- children's affiliation with deviant peers.

[We] can make a difference for young people by enacting and supporting policies that address...overall child poverty levels.
As well, being male and having parents with a history of substance misuse and criminality were significant risk factors for developing symptoms of conduct disorder but not oppositional defiant disorder.13

**Learning from the experiences of Canadian children**

Studies of Canadian children have corroborated the roles of gender, parenting and socio-economic status in the development of serious behaviour problems in children. In one study, researchers followed more than 7,000 Canadian children for six years.3 Four variables were significant in predicting aggression: being male; being from a low-income family; having a mother who did not complete high school; and having a mother who used hostile, ineffective parenting strategies.3

Similarly, researchers assessed which factors predicted rule breaking in a study following almost 2,000 Quebec children from infancy through to age six.14 The following factors were found to be predictive of rule breaking: being male; having a mother with a history of antisocial behaviour; and having a mother or father with depressive symptoms.14 Researchers also found that the likelihood of children’s rule breaking increased as the number of risk factors increased.14

In aggregate, these findings suggest a causal link between socio-economic disadvantage and the development of childhood oppositional defiant and conduct disorders. These findings also suggest that child maltreatment, likely as a result of family disadvantage, may be an important mechanism by which socio-economic disadvantage negatively affects young people. At the same time, both socio-economic disadvantage and problematic parenting can be altered through psychosocial interventions.

**Applying the research to better help children**

Policy-makers, practitioners and members of the public can make a difference for young people by enacting and supporting policies that address socio-economic disadvantage, including overall child poverty levels.15 For example, evaluations of income-supplement programs have suggested that increasing the incomes of poor families by just $5,000 a year for two or three years could produce large improvements in children’s behaviour.15 And, given that living in poverty poses multiple risks for child well-being,16 poverty reduction may also avert other risks. For example, family socio-economic disadvantage has also been linked to children having chronically activated stress pathways, with consequent effects on their immune systems.15

The available causal evidence also suggests that practitioners may have an added role to play by directly helping parents — given that parenting appears to be another important modifiable factor in the development of children’s behavioural problems. In the Review article that follows, we highlight interventions found to be effective in treating these challenges. 🖐️
Treating childhood behaviour problems

Given that from 30% to 50% of referrals to children’s mental health services are for behaviour problems, practitioners need effective approaches to address them. To determine which treatments work best, we conducted a systematic review of the research literature.

Our review examined randomized controlled trials (RCTs) published within the past 10 years. To meet our inclusion criteria, the children had to be experiencing significant behavioural concerns, including a treatment referral for behaviour problems, a diagnosis of oppositional defiant disorder or conduct disorder, or a history of arrest. As well, the intervention had to specifically focus on treating these concerns. To determine the benefits for children, we included only those studies that assessed relevant child behaviour outcomes, using more than one informant (children, parents, teachers, clinicians or court records). (For more information, please see our Methods.)

We accepted eight RCTs evaluating six interventions: Strongest Families (one RCT); Incredible Years (Basic — one RCT; Standard — one RCT); Protocol for On-site Nurse administered Intervention (PONI — one RCT); Project Support (two RCTs); Multidimensional Treatment Foster Care (one RCT); and quetiapine (one RCT).17–34 We then categorized these interventions according to type: parenting programs, child and family programs, and medications.

Parenting programs

The two parenting programs — Strongest Families and Incredible Years (Basic and Standard versions) aimed to promote positive behaviour in young children with significant conduct problems by increasing positive parenting. Parents were taught strategies such as paying attention to children’s good behaviour and using praise and rewards, as well as effective discipline techniques.18–19 While both programs used videos to teach parenting techniques, Incredible Years also used parenting groups that promoted discussion between group members and encouraged participants to practise the skills at home.19, 23 In contrast, Strongest Families was predominantly a self-directed program, supported by weekly telephone coaching sessions.18

Incredible Years Basic led to numerous positive benefits at approximately five and 10 years after the program ended.
Incredible Years Standard supplemented the parenting intervention by teaching parents to promote children’s reading skills over eight group sessions and two home visits. The researchers included this component citing a connection between children’s reading difficulties and behaviour problems. Table 2 gives more information on these studies of parenting programs.

<table>
<thead>
<tr>
<th>Program</th>
<th>Components</th>
<th>Country (Sample size)</th>
<th>Children’s ages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongest Families 18</td>
<td>12-session self-directed parenting program supported by 14 telephone coaching sessions</td>
<td>Canada (80)</td>
<td>3–7 years</td>
</tr>
<tr>
<td>Incredible Years Basic 18</td>
<td>13–16 group parenting sessions + weekly telephone support</td>
<td>UK (120)</td>
<td>3–7 years</td>
</tr>
<tr>
<td>Incredible Years Standard</td>
<td>12 group parenting sessions, 10 literacy-promotion sessions + 6 combined parenting + literacy promotion sessions</td>
<td>UK (112)</td>
<td>4–6 years</td>
</tr>
</tbody>
</table>

* Sample size indicates number of children at point of randomization.

**Child and family programs**

Three programs provided interventions to both parents and children. In PONI, nurses delivered three core program components to families during six sessions. First, nurses taught parenting skills, including encouraging positive behaviours, using praise and rewards, and discouraging negative behaviours by withdrawing privileges. Next, children learned cognitive-behavioural techniques to address concerns including anger control and social skill deficits. Finally, children and parents received education and skills training together, including discussing family rules and practising problem-solving. Nurses provided up to four additional sessions, on an as-needed basis, reviewing program components and/or covering new topics, such as managing crises and children’s behaviours at school.

Both versions of Project Support aimed to assist children with behaviour problems who were residing with their mothers in shelters for families who had experienced intimate-partner violence. As these mothers and children transitioned from a shelter, the program provided practical social supports, such as addressing safety concerns and helping families acquire needed household items. Then, during home visits, mothers learned parenting skills, including effectively using praise and positive attention, giving appropriate instructions, and addressing non-compliance and aggressive behaviour. Children also spent time with a pro-social adult mentor who provided support.

Multidimensional Treatment Foster Care focused on adolescent girls whom courts had mandated to out-of-home care because of chronic delinquency. Girls were placed with highly trained and well-supported foster parents. Foster parents completed daily reports on the girls’ behaviours, which they then used.
to reward positive behaviours and discourage negative ones.34 Girls engaged in weekly individual therapy to further address their behavioural challenges.34 They also worked with a life skills trainer to increase their social skills and their involvement in community activities.34 Finally, a family therapist worked with parents who planned to resume caring for their daughters, to improve their skills as well.34 Table 3 gives more information on these studies of child and family programs.

### Table 3: Child and Family Program Evaluations

<table>
<thead>
<tr>
<th>Program (Duration)</th>
<th>Components</th>
<th>Country (Sample size)</th>
<th>Children’s ages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PONI</strong> 25,27 (3–6 months)</td>
<td>6 sessions divided between teaching parenting skills, teaching children cognitive-behavioural strategies + teaching families problem-solving; up to 4 supplemental sessions to review program components or new concerns, such as managing crises</td>
<td>US (163)</td>
<td>6–11 years</td>
</tr>
<tr>
<td><strong>Project Support</strong> 28–31 (8 months)</td>
<td>I: 23 (average) home visits teaching parenting + problem-solving skills plus providing supports after transitioning from a shelter for women + children exposed to intimate-partner violence; children mentored by pro-social adult</td>
<td>US (36)</td>
<td>4–9 years</td>
</tr>
<tr>
<td></td>
<td>II: as above except 20 (average) home visits</td>
<td>US (66)</td>
<td>4–9 years</td>
</tr>
<tr>
<td><strong>Multidimensional Treatment Foster Care</strong> 33 (6 months)</td>
<td>Youth placed with trained + supported foster parents, provided with weekly individual therapy to address challenging behaviours + life skills trainer to increase social skills + community participation; parents provided with parenting sessions</td>
<td>US (81)</td>
<td>13–17 years</td>
</tr>
</tbody>
</table>

### Medication

The one medication trial evaluated quetiapine, a newer antipsychotic, for adolescents with a primary diagnosis of conduct disorder and at least moderate levels of aggressive behaviour.17 Youth started with a 50 mg daily dose.17 Doses were then titrated until parents reported meaningful clinical benefits or until problematic side effects occurred, up to a maximum daily dose of 800 mg.17 By the end of the study, the average daily dose was 294 mg (with a range of 200 to 600 mg).17 Of note, this study had a very small sample (only 19 youth) and the primary author received funding from the drug’s manufacturer.17 Table 4 gives more information on this medication study.

### Table 4: Medication Evaluation

<table>
<thead>
<tr>
<th>Medication (Duration)</th>
<th>Components</th>
<th>Country (Sample size)</th>
<th>Children’s ages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quetiapine</strong> 37 (6 weeks)</td>
<td>Youth received quetiapine morning + evening, starting with total daily dose of 50 mg, titrated to maximum daily dose of up to 800 mg, with average daily dose of 294 mg</td>
<td>US (19)</td>
<td>12–17 years</td>
</tr>
</tbody>
</table>
What was measured?

Many of the RCTs measured a variety of child and parent outcomes across several time periods. Given our purpose, however, we focused on child behaviour outcomes at the final assessment point for each study. For all studies, we identified outcomes where there were statistically significant differences between intervention and comparison children. We also reported the degree to which statistically significant gains were clinically meaningful. In other words, we identified what are called “effect sizes” — whether benefits for children were classified as small, medium or large — for those studies that calculated them.

Outcomes for parenting programs

The Strongest Families RCT assessed one child behaviour outcome — oppositional defiant disorder diagnostic rates — at five-month follow-up. Children whose parents participated in the program were twice as likely to be diagnosis-free compared with controls at this follow-up, but differences were not statistically significant.18

Both Incredible Years RCTs assessed outcomes many years after the program ended — and produced quite different results. Incredible Years Basic led to numerous positive benefits at approximately five and 10 years after the program ended. These included intervention children having significantly reduced odds of being diagnosed with oppositional defiant disorder (22% versus 53%), as well as significantly fewer symptoms of this disorder, with a large effect size.21 As well, they engaged in less antisocial behaviour (such as frequent fighting) and had fewer “antisocial personality traits” (such as being unconcerned with others’ feelings and lacking feelings of guilt), with the latter showing a moderate effect size.21

Outcomes for Incredible Years Basic were particularly compelling because not only were they sustained long after the program ended, but also the program was compared against an active treatment rather than a no-treatment control group. Specifically, parents and children in the comparison group received individualized care from local mental health clinics.21

In contrast, the more intensive Incredible Years Standard failed to produce any gains for children four to 7½ years after the program ended.21 The same four outcomes that were significant for the Basic program — oppositional defiant disorder diagnoses and symptoms and antisocial behaviours and personality traits — were not significant for the Standard version. The

Choose your words carefully

Some readers may be surprised and concerned to learn that researchers used measures purportedly assessing “antisocial personality traits” and “psychopathic features” among preschool children. We share this concern. While we support measuring problem behaviours, such as a lack of guilt after misbehaving, we strongly believe in always using caution in labelling children.

When young children are described as having “antisocial personality traits,” some people may view these children as having fixed characteristics — overlooking the enormous changes that occur as children grow and develop. Such labelling also implies that change is not possible. Perhaps even more importantly, such labelling fails to acknowledge factors influencing child development, including family socio-economic status, parenting, and supports for children and families within the wider community. Consequently, we believe the potential harms in using such labels outweigh any possible benefits.
differing findings for the two RCTs cannot be explained by the participants as both included similar populations of disadvantaged British families. Table 5 outlines the child behaviour outcomes for the parenting programs we reviewed.

### Table 5: Child Behaviour Outcomes for Parenting Programs

<table>
<thead>
<tr>
<th>Program</th>
<th>Assessed at</th>
<th>Positive outcomes</th>
<th>No significant difference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strongest Families</strong></td>
<td>5-month follow-up</td>
<td>None</td>
<td>Oppositional defiant disorder diagnoses</td>
</tr>
<tr>
<td><strong>Incredible Years Basic</strong></td>
<td>8-year follow-up (average)</td>
<td>↓ Oppositional defiant disorder diagnoses ↓ Oppositional defiant disorder symptoms ↓ Antisocial behaviours* ↓ “Antisocial personality traits”</td>
<td>Delinquency</td>
</tr>
<tr>
<td><strong>Incredible Years Standard</strong></td>
<td>6-year follow-up (average)</td>
<td>None</td>
<td>Oppositional defiant disorder diagnoses Oppositional defiant disorder symptoms Antisocial behaviours “Antisocial personality traits” Delinquency</td>
</tr>
</tbody>
</table>

* Significant for parent but not teacher ratings of antisocial behaviour.

### Outcomes for child and family programs

The three child and family programs results in mixed findings. PONI failed to produce any behavioural gains for children at one-year follow-up relative to the comparison group. Notably, though, comparison children received quite intensive services, including a comprehensive assessment by a mental health practitioner followed by eight hours of treatment, on average. This is likely why fewer children in both the intervention and comparison groups met diagnostic criteria for either oppositional defiant disorder or conduct disorder at one-year follow-up compared to pretest (rates reduced from 64% to 37% for PONI, compared to 63% to 30% for the comparison group).25

In contrast, children made multiple gains in both Project Support RCTs. At two-year follow-up, children in Project Support I had six times lower odds of being diagnosed with either conduct or oppositional defiant disorder compared to control children (15% versus 53%). They also had six times lower odds of being within the clinical range on behaviour problems (15% versus 53%). The replication trial of Project Support also resulted in many gains for children. One year after the program ended, Project Support II children had fewer behaviour problems, with a moderate effect size. They also showed fewer symptoms, such as being callous or narcissistic, also with a moderate effect size.

For the third program, approximately 16 months after Multidimensional Treatment Foster Care ended, adolescent girls who participated were significantly less likely to engage in delinquency relative to comparison girls. As well, the
effect size for this measure — which included number of criminal referrals, number of days in a locked setting as well as girls’ self-reported legal violations — was moderate.33 Table 6 outlines the child behaviour outcomes for the child and family programs we reviewed.

### Table 6: Child Behaviour Outcomes for Child and Family Programs

<table>
<thead>
<tr>
<th>Program</th>
<th>Assessed at</th>
<th>Positive outcomes</th>
<th>No significant difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>PONI25</td>
<td>1-year follow-up</td>
<td>None</td>
<td>Conduct disorder or oppositional defiant disorder diagnoses</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Behaviour problems</td>
</tr>
<tr>
<td>Project Support I29</td>
<td>2-year follow-up</td>
<td>↓ Conduct disorder or oppositional defiant disorder diagnoses</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>↓ Behaviour problems*</td>
<td>None</td>
</tr>
<tr>
<td>Project Support II30-31</td>
<td>8-month – 1½-year follow-up</td>
<td>↓ Conduct disorder or oppositional defiant disorder diagnoses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(on average)</td>
<td>↓ Behaviour problems</td>
<td>Oppositional behaviours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>↓ “Psychopathic features”</td>
<td></td>
</tr>
<tr>
<td>Multidimensional Treatment Foster Care32-33</td>
<td>1½-year follow-up (on average)</td>
<td>↓ Delinquency</td>
<td>None</td>
</tr>
</tbody>
</table>

* Significant for behaviour rating scores above clinical cut-off but not average scores.

### Outcomes for medication

Quetiapine, the one medication included in our review, showed some benefit. Adolescents who took this medication had fewer behaviour problems overall, as well as less intense behavioural concerns.17 However, this medication also produced significant side effects after only six weeks of use. Specifically, youth on quetiapine had higher average heart rates than youth on placebo, although none stopped the medication because of this side effect. As well, among the nine youth randomized to receive quetiapine, one developed akathisia, a movement disorder characterized by restlessness and excessive fidgeting. The akathisia stopped within 48 hours of the youth discontinuing the medication. No other significant different side effects were reported.17 Table 7 outlines the child behaviour outcomes for the medication study we reviewed.

### Table 7: Child Behaviour Outcomes for Medication

<table>
<thead>
<tr>
<th>Medication</th>
<th>Assessed at</th>
<th>Positive outcomes</th>
<th>No significant difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quetiapine17</td>
<td>Post-test only</td>
<td>↓ Behaviour problems*</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>↓ Behaviour problem intensity</td>
<td>Aggression</td>
</tr>
</tbody>
</table>

* Significant for clinician but not parent ratings of behaviour problems.
Implications for practice and policy

Our review uncovered three highly effective psychosocial programs to help children with behaviour problems across a range of developmental periods.

- **Incredible Years Basic** taught socio-economically disadvantaged mothers and fathers with young children effective parenting techniques in 13 to 16 group sessions. Up to 10 years after parents completed this program, children had significantly lower rates of oppositional defiant disorder diagnoses and symptoms, as well as fewer antisocial behaviours and characteristics than comparison children. Notably, *Incredible Years* is also effective in preventing child behaviour problems — making it a program that can be used for both prevention and treatment.

- **Project Support** focused on treating young children with oppositional defiant or conduct disorder who were living in shelters with their mothers following exposure to intimate-partner violence. *Project Support* provided practical and emotional support to these disadvantaged families and taught mothers effective parenting and problem-solving skills over eight months. The program also provided children with a pro-social adult mentor. Between eight months and two years after the programs ended, children had fewer oppositional defiant or conduct disorder diagnoses and fewer behaviour problems relative to comparison children.

- **Multidimensional Treatment Foster Care** provided a range of services to teenage girls deemed chronic delinquents by the courts. Socio-economically disadvantaged girls were placed with trained and supported foster parents for an average of six months. Foster parents used a points-based rewards system to encourage positive behaviours. Biological parents were also taught this system, as well as ways to provide better supervision and limits when girls returned home. Girls also participated in individual therapy to address their behavioural challenges and worked with a life skills trainer to increase their social skills and their involvement in community activities. More than a year after this program ended, girls had significantly lower rates of delinquency than comparison girls.

In addition, our review found that medication can help some adolescents with conduct disorder. A very small and very brief drug company–funded trial found that quetiapine reduced overall behaviour problems as well as the intensity of the problems. However, quetiapine was also associated with significant side effects.

Our review also suggests six recommendations for the most effective ways to help children with serious behaviour problems:

1. **Prior to beginning treatment, a comprehensive assessment should occur.** A thorough assessment by an interdisciplinary mental health team can help to ensure that any unaddressed social causes of behavioural problems are part of
the treatment plan. For example, practitioners with *Project Support* began their work with each family by first ensuring that children’s safety and other basic needs were met.

2. **Parents need to be included.** Considering the well-established link between parenting practices and behaviour problems in children, it makes sense that all three successful psychosocial interventions taught effective parenting techniques, such as paying attention to good behaviour as well as using praise and rewards. Notably, *Incredible Years Basic* focused exclusively on parents, with no child components. These findings suggest that parents need to be included in childhood behaviour interventions.

3. **Intervening early prevents problems from continuing.** By teaching effective parenting skills when children are younger, behaviour problems can be reduced before they become entrenched. And when childhood behaviour problems are addressed earlier, significant — and costly — hardships such as involvement in the youth criminal justice system may even be avoided entirely.

4. **Intervention intensity should match the level of need.** The successful interventions we identified varied considerably in their intensity. For example, *Incredible Years Basic*, a brief group parenting program, was sufficient to reduce clinically significant behaviour problems in young children. Yet for children who had exposure to intimate-partner violence and for older teens with criminal involvement, much more intensive interventions — namely, *Project Support* and *Multidimensional Treatment Foster Care* — proved successful. This also suggests intervening early is best, before children experience hardships such as maltreatment or before they become older and problems are more entrenched.

5. **Treatment helps with more than behaviour.** All three successful psychosocial programs showed benefits beyond improving child behaviour. *Incredible Years Basic* improved children’s reading abilities. *Project Support* reduced clinically significant emotional problems for children and also helped mothers use less physical aggression toward children. And *Multidimensional Treatment Foster Care* improved girls’ school attendance and homework completion.

6. **Psychosocial interventions are the first choice for child behaviour disorders.** Given the effectiveness of psychosocial interventions in addressing clinically significant behaviour problems, they should always be offered to children and families first — before medication is ever considered. As a last resort, after psychosocial interventions have been tried and have failed, quetiapine may be helpful. However, this antipsychotic medication is associated with significant cardiovascular and other side effects, necessitating close monitoring.
Addressing child behaviour problems early is a wise public investment

By intervening when children are younger and the parenting challenges — and ensuing child behaviour problems — are less entrenched, significant public costs can be averted. For example, the costs averted by preventing one high-risk 14-year-old from engaging in crime throughout the lifespan — including criminal justice system costs, costs for victims, and lost productivity for the young person — are estimated to range from $3.9 to $7.1 million (2015 Canadian dollars, converted from $3.2 to $5.8 million in 2007 US dollars). As well, given that from 30% to 50% of referrals to children’s mental health treatment services are attributable to behaviour problems, intervening earlier can create efficiencies where treatment resources are scarce.

The bottom line is that an integrated spectrum of psychosocial interventions is needed to help parents and address child behaviour problems beginning as early as possible. This includes offering effective prevention programs for all at-risk children and their parents, then providing effective treatments for all children and families who have not been reached by prevention. All the evidence suggests that this approach will not only help children flourish, but will also make wise use of public funds.

For more information on our research methods, please contact

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We conducted a comprehensive search to identify high-quality research evidence on the effectiveness of programs aimed at treating behaviour problems in children. We used methods adapted from the Cochrane Collaboration and Evidence-Based Mental Health and applied the search strategy outlined in Table 8.

<table>
<thead>
<tr>
<th>Table 8: Search Strategy</th>
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</thead>
<tbody>
<tr>
<td><strong>Sources</strong></td>
</tr>
<tr>
<td>• CINAHL, ERIC, Medline and PsycINFO</td>
</tr>
<tr>
<td><strong>Search Terms</strong></td>
</tr>
<tr>
<td>• Conduct disorder, oppositional defiant disorder, child behaviour disorder, aggressive behaviour or juvenile delinquency and prevention, intervention or treatment*</td>
</tr>
<tr>
<td><strong>Limits</strong></td>
</tr>
<tr>
<td>• Peer-reviewed articles published in English between 2005 and 2015 that were either original randomized controlled trials (RCTs) or follow-up RCTs</td>
</tr>
<tr>
<td>• Children aged 18 years or younger</td>
</tr>
<tr>
<td>• RCT methods used</td>
</tr>
</tbody>
</table>

* Even though our review was focused on treatment, we still included prevention as a search term, to ensure that we captured all relevant treatment trials.

We then hand-searched reference lists of previous Quarterly issues and two Children’s Health Policy Centre research reports to identify additional RCTs. Using these approaches, we identified 82 potentially relevant RCTs. Two team members then independently assessed each RCT, applying the inclusion criteria outlined in Table 9, to limit our review to include only the highest-quality studies.

<table>
<thead>
<tr>
<th>Table 9: Inclusion Criteria for RCTs</th>
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<tbody>
<tr>
<td><strong>Psychosocial Treatment Studies</strong></td>
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<tr>
<td>• Participants were randomly assigned to intervention and comparison groups at study outset</td>
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<tr>
<td>• Follow-up was three months or more (from the end of the intervention)</td>
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<tr>
<td>• Attrition rates were below 20% at follow-up and/or intention-to-treat approach was used</td>
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<tr>
<td>• Child behaviour symptoms were assessed using two or more informant sources (e.g., child, parent, teacher, researcher) at follow-up</td>
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<tr>
<td>• At least one outcome rater was blinded to participants’ group assignment</td>
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<tr>
<td><strong>Medication Studies</strong></td>
</tr>
<tr>
<td>• Participants were randomly assigned to intervention and placebo at study outset</td>
</tr>
<tr>
<td>• Attrition rates were below 20% at post-test and/or intention-to-treat approach was used</td>
</tr>
<tr>
<td>• Child behaviour symptoms were assessed using two or more informant sources (e.g., child, parent, teacher, researcher) at post-test</td>
</tr>
<tr>
<td>• Double-blinding procedures were used</td>
</tr>
</tbody>
</table>

Eight RCTs met all the inclusion criteria. Data from these RCTs were then extracted, summarized and verified by two or more team members. Throughout our process, any differences between team members were resolved by consensus.
BC government staff can access original articles from BC's Health and Human Services Library.


