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Promoting positive behaviour in children

OVERVIEW

Encouraging healthy social development

REVIEW

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Fall

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Children's Health Policy Centre

About the Children's Health Policy Centre

We are an interdisciplinary research group in the Faculty of Health Sciences at Simon Fraser University. Our research focuses on reducing health inequities and improving social and emotional well-being for *all* children, and on the public policies needed to reach these goals. To learn more about our work, please see childhealthpolicy.ca.

About the *Quarterly*

The *Quarterly* provides summaries of the best available research evidence on a variety of children's mental health topics, prepared using systematic review and synthesis methods adapted from the *Cochrane Collaboration* and *Evidence-Based Mental Health*. Our goal is to improve outcomes for children by informing policy and practice. The BC Ministry of Children and Family Development funds the *Quarterly*.

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This Issue

NEXT ISSUE

Intervening when children have behaviour problems

For some children, challenging behaviours interfere with their ability to succeed at home, at school and in the community. In our next issue, we identify effective interventions to help these children and their families.

Disclosure

None of the authors have a personal financial interest in any of the programs described in this issue of the *Quarterly*. Charlotte Waddell is, however, co-leading a randomized controlled trial of *Nurse-Family Partnership*, one of the programs discussed.

Errata

In a 2013 issue of the *Quarterly* (vol. 7 no. 2, page 6), the report originally identified atomoxetine as a stimulant. Correction as of October 2015 clarifies that atomoxetine is not a stimulant.

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:

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Encouraging healthy social development

Friends aren't supposed to fight each other. They're supposed to talk it out and try to solve it a better way instead of fighting, because if they're fighting they're not doing anything to solve the problem.

— Adolescent boy (slightly edited)[1]

I would like him to think for himself, and to feel free to think and have his own opinions. But I also think it's important that he considers the consequences of what he's about to do… My responsibility is to encourage him to stop and think about the consequences of his behaviour.

— Father of a preschooler[2]

During middle childhood, social skills expand even further — typically including an increased sensitivity to others and an increased ability to form positive relationships with peers.

Starting in infancy and continuing throughout adolescence and into early adulthood, young people need to learn important social skills. These include regulating behaviour and emotions, following rules and expectations, and forming and sustaining respectful and reciprocal relationships.

Healthy social development starts very early. For example, even at just one year, infants can show the ability to help, comfort, share and cooperate with others.[3] Then, by the time most children reach two to three years, they begin to show behaviours that demonstrate emerging self-regulation, such as calming themselves, recognizing that responses have consequences, and following their parents' rules and expectations.[4] In the later preschool years, most children become increasingly capable of even more sophisticated social skills, including resolving conflicts without aggression and resisting inappropriate or dangerous behaviours.[4]

During middle childhood, social skills expand even further — typically including an increased sensitivity to others and an increased ability to form positive relationships with peers.[4] Adolescence marks further expansion and consolidation of social skills. During this phase of development, most young people become even more aware of their impact on others and strive for reciprocity in their relationships.[4] Adolescence is also a time when young people usually develop a more nuanced understanding of right and wrong.[4]

Even at just one year, infants can show the ability to help, comfort, share and cooperate with others.

Pathways to positive behaviour

Beyond describing when children typically achieve specific social milestones, researchers have mapped common trajectories for the development of prosocial behaviours over time. For example, researchers followed a representative sample of more than 1,800 kindergarten children in Quebec over seven years.[5] Each year, teachers rated children's prosocial behaviours — such as helping and comforting others.[5] The researchers identified three distinct trajectories: stable low levels of prosociality (29% of children), stable high levels of prosociality (14% of children), and moderate prosociality that rose and fell slightly over time (56% of children).[5]

This finding of relative stability in most children's prosociality was replicated in another study that followed more than 1,100 American children from Grades 3 to 6.[6] In addition to finding that prosocial behaviours in earlier grades predicted prosocial behaviours later on, the researchers also found that aggression in earlier grades predicted aggression in later grades.[6]

The impact of gender

Researchers have also identified distinct gender patterns in prosociality. The previously noted Quebec study found significantly more girls than boys were categorized as falling within the "high prosocial" (27% versus 2%), while significantly more boys than girls were categorized in the "low prosocial" group (44% versus 15%).[5] This same gender pattern has been identified in other studies as well.[7]

Parents as a crucial influence

Researchers have also tried to identify the factors that shape children's behavioural trajectories. Many studies have found that parents play a crucial role. For example, a study that tracked American children over seven years, starting when they were age four, identified a significant relationship between mothers' parenting and children's prosocial behaviour.[7] Specifically, children who experienced more sensitive parenting interactions during their early years were more prosocial than children who did not have these experiences.[7]

The influence of parenting on children's prosocial behaviours has been observed in older children as well. For example, a study following Spanish children for three years, starting at age 10, found that mothers' warmth was positively correlated with children's prosocial behaviours as well as children's sympathy and prosocial moral reasoning.[8] Similarly, a study of American teens found that those who viewed their mothers as providing positive parenting — indicated by high levels of connectedness and responsive rule-setting — were significantly more likely to engage in prosocial behaviour.[9]

Children who experienced more sensitive parenting interactions during their early years were more prosocial than children who did not have these experiences.

Adults as role models

One of the most important ways to promote prosocial behavior in children is to have adults — starting with parents — teach this behaviour.[3] Parents can reinforce positive behaviours when children engage in them. They can also talk with children about emotions, about recognizing others' perspectives, and about the importance of caring behaviours. But in particular, parents can encourage children to be prosocial by providing empathic, positive and responsive caregiving — including using appropriate supervision and discipline.[3] Other adults such as teachers can also apply these approaches to good effect. Notably, these positive adult approaches also promote prosocial behaviour beyond childhood and into adolescence.[3]

The power of peers

But parents are not the only ones who influence children's behaviour. Peers also play an important role, even at an early age. For example, a study of three-to-five-year-old Norwegian children, followed over one year, found that both their prosocial and problematic behaviours were significantly related to their best friends' behaviours.[10]

A bias to look on the sunny side

Researchers have also examined the links between how children interpret social information and their behaviours. In the previously cited study that followed American children over three years, researchers measured responses to stories where others' intentions were ambiguous, but could be perceived as aggressive.[6] Children who did *not* perceive hostile intentions in the ambiguous stories were significantly more likely to act prosocially.[6] Children who endorsed using prosocial responses for dealing with peer conflicts also engaged in more prosocial behaviours.[6] Based on these findings, the researchers concluded that children who solve social problems constructively are more likely to engage in empathic and prosocial behaviours. They also posited that engaging in positive behaviours likely encouraged positive responses from others, further reinforcing these children's prosocial beliefs.[6]

Learning to engage in positive behaviours and inhibit aggressive responses is a fundamental task of childhood. Most children achieve these important behavioural milestones — particularly those with skilled caregivers and supportive environments. Still, some children will struggle — particularly those who lack these social advantages. When interventions happen early, before social disadvantages and child behaviour problems become entrenched, children (and families) can be greatly helped. In the Review article that follows, we highlight recent research on prevention programs aiming to prevent childhood behaviour problems.

Paying it forward

Nineteen Vancouver classrooms recently went beyond the regular curriculum to provide some valuable learning, and not just for the students. Researchers set up an intriguing experiment to determine what effect performing good deeds had on nine- to 11-year-olds. They randomly assigned students in some classrooms to perform three acts of kindness weekly for four weeks.[11] Acts of kindness included sharing their lunch, hugging their mothers and performing chores. Meanwhile, for comparison, students in other classrooms were simply asked to visit three places of their choice. Although there were no differences in happiness or positive affect between the two groups (all experienced increases), children who performed acts of kindness had significantly greater peer acceptance.[11] And given that well-liked children exhibit more inclusive behaviours and less bullying as teenagers, the benefits of these kind acts may keep on building.[11]

Learning to engage in positive behaviours and inhibit aggressive responses is a fundamental task of childhood.

Preventing childhood behaviour problems

Challenging behaviours, including defiance and aggression, are a normal part of growing up.[12] For most children, these behaviours occur periodically but do not impede development and well-being. For some, however, behaviour becomes a struggle. To help these children, researchers and practitioners have designed and evaluated numerous programs aimed at *preventing* behaviour problems. Here, we report the latest research on these programs, which we identified using systematic review methods. (For more information, please see our Methods.)

Our review looked at randomized controlled trials (RCTs) published within the past 10 years. To be included, programs had to focus on preventing childhood behaviour problems — whether intervening universally or with children at risk. For the latter, to ensure that prevention was indeed the main focus, we only included studies where most children in the sample did not meet diagnostic thresholds for a behaviour disorder. To assess potential benefits for children, we only included studies that provided clear information on relevant *child behaviour outcomes,* using more than one informant (children, parents or teachers).

We accepted 13 studies evaluating seven interventions: *Triple P* (one RCT); *Chicago Parent Program* (one RCT); *Incredible Years* (*IY*; four RCTs); *Parent Management Training — Oregon* (*PMTO*; two RCTs); *Nurse-Family Partnership* (*NFP*; three RCTs); *Fast Track* (one RCT); and *Expressive Writing* (one RCT).[13–27] We then organized these interventions into four categories: parenting programs, child-and-maternal programs, multicomponent programs and child programs.

Parenting programs

The four parenting programs — *Triple P, Chicago Parent Program*, *IY* and *PMTO* — all promoted positive child outcomes through the consistent use of effective parenting strategies.[15–18, 28–30] These strategies included providing positive attention and praise, setting clear limits with children, and discussing ways to manage children's behaviour. (Some *IY* variants also provided brief supplemental components addressing child literacy or parent communication and conflict resolution skills.)

The four parenting programs promoted positive child outcomes through the consistent use of effective parenting strategies.

What about *Perry Preschool?*

Some readers may be surprised that *Perry Preschool* was not included in our review. Because this classic intervention was delivered and evaluated starting in the 1960s, relevant reports on the long-term follow-up fell outside our search dates. Still, *Perry Preschool* is worth highlighting given its impressive outcomes.

Socio-economically disadvantaged American children with learning challenges participated in *Perry Preschool* for 30 weeks, starting at age three and four.[31] Preschool teachers provided 375 hours of classroom time designed to promote children's intellectual, social and physical development.[31] They also provided weekly home visits to model parent-child activities and to discuss children's developmental progress.[31]

Notably, gains for children started early — and persisted. In particular, *Perry Preschool* participants reported engaging in fewer serious problematic behaviours at age 15, such as fighting where injuries resulted, using weapons, stealing, and damaging property.[32] Participants also had significant higher rates of graduating from high school.[32] They were also more likely to be employed both at age 27 and age 40 and had significantly higher median annual earnings at both points.[32] As well, by age 40, significantly more participants reported "getting along very well with their families."[32] At age 40, they also had fewer arrests.[32]

Perry Preschool was also cost-effective. According to an economic evaluation conducted by the investigators, the program yielded societal savings of between US$6.87 and $16.14 (2000) for every dollar invested.[33] This program therefore exemplifies how early prevention investments can have far-reaching and enduring benefits — not only for children, but also for society.

All four programs were relatively brief — delivered in six months or less. As well, all were delivered in groups, with the exception of one version of *PMTO*. Table 1 describes these parenting program evaluations.

Table 1: Parenting Program Evaluations

Program (Duration)	**Components** (Including prescribed number of sessions)	**Country** (Sample size)*	**Children's ages at start**
Triple P [28] (1 month)	4 group sessions + 4 optional brief phone calls	Germany (280)	2–6 years
Chicago Parent Program [15] (3 months)	12 group sessions	US (613)	2–4 years
Incredible Years [16–18] (3–4 months)	I: 12 group sessions	UK (153)	3–4 years
	II: 12 group sessions + 12 individual parent, foster parent + child sessions	US (64)	3–10 years
	III: 18 group sessions**	UK (174)	5–6 years
Parent Management Training – Oregon [20–21, 29–30] (3–6 months)	I: 14 group sessions	US (238)	6–10 years
	II: 26 individual parent sessions†	Norway (112)	4–12 years

* Sample size indicates number of *children* at point of randomization.
** Six sessions focused on helping parents enhance their children's literacy skills.[18]
† This number reflects the average number of hours rather than the prescribed number of sessions, which was not reported.

Child-and-maternal programs

One child-and-maternal program met our criteria: *Nurse-Family Partnership (NFP)*. All three *NFP* evaluations focused on supporting disadvantaged young women who were preparing to parent for the first time — the goals being to improve pregnancy, parenting, and child and maternal outcomes.[34] To achieve these goals, nurses provided intensive supports through home visits over two-and-one-half years, beginning early in pregnancy and continuing until children reached age two. (The *NFP* evaluations included two program variants: a briefer version and a version delivered by trained "lay" providers. However, we report only on findings involving nurse delivery of the full program, because this variant proved more successful and is now a requirement for the program.) Table 2 describes the three *NFP* evaluations.

Table 2: Child-and-Maternal Program Evaluations

Program (Duration)	**Components** (Including average number of visits)	**Country** (Sample size)	**Children's ages at start**
Nurse-Family Partnership [22, 34–35] (2½ years)	I: 31 home visits	US (300)	Prenatal
	II: 33 home visits	US (743)	Prenatal
	III: 28 home visits	US (490)	Prenatal

Multicomponent programs

Both multicomponent programs — *Incredible Years (IY) Enhanced* and *Fast Track* — provided an array of services to both parents and children over lengthy time periods. Services included parenting groups, home visits, parent-child sessions and child social skills training.[19, 36] *Fast Track* also provided classroom lessons to promote children's social and emotional competence, and support plans to address identified risk and protective factors for each child.[36] *IY Enhanced* provided services for one year and *Fast Track* did so for 10. Table 3 describes these two multicomponent program evaluations.

Table 3: Multicomponent Program Evaluations

Program (Duration)	**Components** (Including prescribed number of sessions)	**Country** (Sample size)	**Children's ages at start**
Incredible Years Enhanced [19, 37] (9–11 months)	27 group parenting sessions; 27 group parent-child sessions; 12 home visits; 22 group child social skills sessions; 1 school visit	US (99)	2–5 years
Fast Track [36, 38] (10 years)	67 group parenting sessions; 67 group parent-child sessions; home visits (unspecified number); 67 group child social skills sessions; 8 group youth life skills sessions; 5 years of classroom lessons; 4 years of individual intervention planning	US (891)	6–7 years

Child programs

The remaining program — *Expressive Writing* — was delivered to children without involving parents. In this program Grade 7 students, predominantly from disadvantaged families, wrote about their experiences with violence during five weeks of classroom sessions.[27] Most children who received the program reported either being a victim of violence or witnessing difficult experiences, such as seeing others being chased or arrested. Intervention children who had not experienced violence were simply asked to write about something that bothered them.[27] (The research team monitored the writing and referred children to appropriate providers if they expressed high levels of distress, e.g., thoughts of harming themselves or others.) Table 4 describes the evaluation of this child program.

Table 4: Child Program Evaluation

Program (Duration)	**Components** (Including prescribed number of sessions)	**Country** (Sample size)	**Children's ages at start**
Expressive Writing [27] (5 weeks)	8 brief classroom sessions involving writing about experiences with violence	US (258)	12–13 years

Concentrating on families at risk

Of the seven programs we assessed, only *Triple P* was delivered universally. In fact, parents who participated were relatively advantaged, with 90% reporting low levels of family adversity and 86% reporting that children did not have prominent behaviour issues.[28] All the other programs we assessed focused on families who were experiencing challenges, including socio-economic disadvantage;[15, 18, 22, 27, 34–35] recent parental separation;[29] children with mild behaviour problems;[16, 21, 36] children with a sibling in the justice system;[37] and children in foster care due to maltreatment.[17]

What was measured?

Many of the RCTs we reviewed measured a wide variety of important child and parent outcomes across several time periods. Given our purpose, however, we report only on findings pertaining to *child behaviour outcomes* at the final one or two assessment points. For all the studies, we identify which outcome differences between intervention and comparison children were statistically significant. We also report on the degree to which statistically significant gains were clinically meaningful. In other words, we identify whether the gains made by children were classified as small, medium or large for those studies that calculated effect sizes.

The three evaluations of programs that tracked children the longest also showed some of the most compelling gains.

Outcomes for parenting programs

For the one universal intervention, *Triple P*, at both one- and four-year follow-up, there were no differences in behaviour problems for children whose parents participated in the program relative to controls.[13–14] Furthermore, at one-year follow-up, children in both the intervention and comparison groups had comparable levels of negative *and* positive behaviours — ranging from non-compliance to having pleasant interactions with parents.[14] (This outcome was not measured at four-year follow-up.)

In contrast, the *Chicago Parent Program* produced two important gains at one-year follow-up (the longest time point assessed in this study). For children of parents who participated, teacher ratings showed fewer behaviour problems, while parent ratings showed fewer intensely challenging behaviours.[15]

Outcomes for the three *Incredible Years* RCTs varied. For *IY-I*, at three-month follow-up, children whose parents participated in the program had better self-control, fewer overall behaviour problems, and fewer intensely challenging behaviours.[16] The degree to which *IY-I* made a clinically meaningful difference in these outcomes (or its effect size) ranged from small (for self-control) to moderate (for behaviour problems in general) to large (for intensity of behaviour problems).[16] But the other two *IY* evaluations found no significant benefits — at three-month follow-up for *IY-II*, and at eight-month follow-up for *IY-III*.[16–17]

The two evaluations of *Parent Management Training — Oregon* also had differing outcomes. In *PMTO-I*, boys whose mothers participated made significant gains at eight-and-a-half-year follow-up. In particular, when these boys were between 14 and 18 years old, they had fewer arrests (with a small effect size).[20] As well, program participation reduced the risk of an earlier first arrest by 37%.[20] *PMTO-I* adolescents also engaged in fewer delinquent acts (also with a small effect size).[20]

But parents' participation in *PMTO-II* had no impact on children's behaviour problems, compliance or social skills at one-year follow-up.[21] However, this may have been due, in part, to poor parent participation. For children whose parents attended at least two sessions (rather than for all *PMTO* children regardless of parents' participation), significant gains were found for behaviour problems and social skills by teacher ratings.[21] Table 5 outlines the child behaviour outcomes for the parenting programs we assessed.

When program costs were weighed against long-term saving, results were compelling, particularly for Fast Track *and* Nurse-Family Partnership.

Table 5: Child Behaviour Outcomes for Parenting Programs

Program	Ages at follow-up	Favouring intervention	No significant difference
Triple P[13–14]	6–10 years old at 4-year follow-up	None	Behaviour problems
	3–7 years old at 1-year follow-up	None	Behaviour problems Negative behaviours Positive behaviours
Chicago Parent Program[15]	3–5 years old at 1-year follow-up	↓ Behaviour problems* ↓ Behaviour problem intensity	Negative behaviours
Incredible Years I[16]	3–4 years old at 3-month follow-up	↓ Behaviour problems* ↓ Behaviour problem intensity ↑ Self-control	Negative behaviours
Incredible Years II[17]	3–10 years old at 3-month follow-up	None	Behaviour problems
Incredible Years III[18]	5–6 years old at 8-month follow-up	None	Behaviour problems
Parent Management Training — Oregon I[20]	14–18 years old at 8½-year follow-up	↓ Arrests ↑ Age at first arrest ↓ Delinquency	None
Parent Management Training — Oregon II[21]	5–13 years old at 1-year follow-up	None	Behaviour problems Compliance with parent Social skills

* Outcomes were significant for some but not all behaviour problem measures.

Outcomes for the child-and-maternal program

The first evaluation of *Nurse-Family Partnership* traced children's outcomes for 17 years. In doing so, researchers uncovered many highly noteworthy program benefits. For example, children whose mothers received *NFP* reported having had

fewer arrests and fewer convictions at ages 15 and 19.[22–23] In fact, at age 19, *NFP* children were half as likely to ever have been arrested or convicted.[23]

As well, at age 15, they had been stopped by police fewer times and had fewer adjudications as a "Person in Need of Supervision" by the courts.[22] (This legal designation was assigned when a young person's behaviour was deemed "dangerous" or "out of control.")[39] In contrast, the two *NFP* replication trials did not find any significant child behaviour improvements during the final follow-up evaluations.[24–25] Table 6 outlines child behaviour findings for *NFP*.

Table 6: Child Behaviour Outcomes for the Child-and-Maternal Program

Program	Ages at follow-up	Favouring intervention	No significant difference
Nurse-Family Partnership I[22–23]	19 years old at 17-year follow-up	↓ Convictions ↓ Arrests ↑ Age at first arrest	None
	15 years old at 13-year follow-up	↓ Convictions + probation violations ↓ Adjudicated as "Person in Need of Supervision"* ↓ Arrests* ↓ Stops by police	Correctional facility stays Delinquent acts Behaviour problems Suspensions Acting out in school Running away frequency
Nurse-Family Partnership II[24]	10 years old at 12-year follow-up	None	Ever arrested Behaviour problems Behaviour in school
Nurse-Family Partnership III[25]	9 years old at 7-year follow-up	None	Behaviour problems
	6 years old at 4-year follow-up	None	Behaviour problems Aggressive responses in story-telling task**

* This finding was significant based on data provided by one, but not all, sources (e.g., youth, mother or court records).
** Analyses were limited to children of mothers with "limited psychological resources" rather than the full sample.

Outcomes for multicomponent programs

Both multicomponent programs resulted in children making important behaviour gains. For *Incredible Years Enhanced*, children engaged in significantly less aggression during researcher assessments eight months after completing the program.[19]

For *Fast Track*, the eight-year follow-up results were even more compelling — including participants having fewer symptoms of antisocial personality disorder than controls at age 25 years.[26] And this difference in symptoms was highly clinically meaningful, given the large effect size produced.[26] As well, convictions for violent crimes and drug offences among *Fast Track* participants were 31% and 35% lower than for those in the control group. *Fast Track* also improved participants' own parenting. Specifically, these 25-year-olds were less likely to

spank their children (although the effect size for this outcome was small).[26]
Table 7 outlines the child behaviour findings for the multicomponent programs.

Table 7: Child Behaviour Outcomes for Multicomponent Programs

Program	Ages at follow-up	Favouring intervention	No significant difference
Incredible Years Enhanced[19]	2–5 years old at 8-month follow-up	↓ Aggression*	None
Fast Track[26]	25 years old at 8-year follow-up	↓ Antisocial personality disorder symptoms ↓ Violent crime convictions ↓ Drug convictions ↓ Spanking of their own children	Property + public order convictions Intimate partner violence perpetration in past year Coercive parenting

* This finding was significant based on researcher but not parent report.

Outcomes for the child program

As Table 8 shows, the only intervention that did not include parents — *Expressive Writing* — failed to make an impact on either children's aggression or their self-regulation (including outcomes such as anger outbursts).[27]

Table 8: Child Behaviour Outcomes for the Child Program

Program	Ages at follow-up	Favouring intervention	No significant difference
Expressive Writing[27]	12–13 years old at 6-month follow-up	None	Aggression Self-regulation

The price of effective prevention

For *Chicago Parent Program*, *Fast Track* and *NFP*, researchers also assessed costs, and in some cases cost-effectiveness. For ease of comparison, we have converted all amounts into current (2015) Canadian dollars. (Because of fluctuating exchange rates, Canadian conversion rates are subject to change; please see the cited study publications for original US$ values.)

For *Chicago Parent Program*, total cost of delivering the program was approximately $1,300 per parent.[40] This figure included costs for providing the groups, such as recruitment, handouts, food and leader stipends ($1,100); it also included costs for parents, such as lost wages ($200).[40]

For *Fast Track,* the cost of delivering the program over 10 years was approximately $91,700 per child, or just over $9,000 per child per year.[26, 38] But *Fast Track* was shown to effectively prevent serious criminal justice system involvement for participating youth. So program costs should be weighed against the lifetime costs associated with conduct disorder, which can range from $3.3 to $5.9 million per child.[41]

For *NFP*, two independent research groups have conducted comprehensive cost-benefit analyses. One found an estimated net return of $5 for every $1

invested overall, with net returns nearly doubled, at $9.90, for every $1 invested in the highest-risk families.[42] The other economic evaluation found that *NFP* saved an estimated $22,000 for every family served — when long-term savings were tabulated across multiple public sectors, including health care, income assistance, and related health and social services.[43]

Implications for practice and policy

Our review shows that several different kinds of programs can successfully prevent behaviour problems in children. Five themes emerged regarding the ingredients for success.

- **Focusing on families at risk makes sense.** The one evaluation of a universally delivered program, *Triple P*, failed to produce any gains. But children in this study typically had few behaviour challenges and came from relatively advantaged families. (Notably, other RCTs of *Triple P* delivered both with at-risk groups and universally have resulted in improvements in children's behaviour.[44–46] But these RCTs did not meet the inclusion criteria for this systematic review.) In contrast, all but one of the targeted programs showed evidence of benefits in at least one RCT (the exception being *Expressive Writing*). And within the targeted programs, there were differential benefits based on risk. For example, while there was no difference in frequency of youth running away at age 15 for the full *NFP-I* sample, highest-risk *NFP-I* youth did show significant gains for this outcome.[22]
- **Parenting is central to children's behaviour.** Given the well-established link between parenting practices and child behaviour, it is not surprising that six of the seven programs we reviewed either focused primarily on parents or included parents to a substantial degree. All of these programs had positive results with children in at least one evaluation. And the one program that failed to include parents was ineffective (*Expressive Writing*).
- **Many benefits emerge only on long-term follow-up.** Notably, the three evaluations of programs that tracked children the longest — *NFP-I, PMTO-I* and *Fast Track* — also showed some of the most compelling gains. Specifically, these particular evaluations showed significant reductions in criminal justice system involvement when children were older — benefits that can avert tremendous suffering and costs for young people, for victims and for society.
- **Effective prevention programs can save money.** When program costs were weighed against long-term savings, results were compelling, particularly for *Fast Track* and *NFP*. *Fast Track* showed the potential to avert millions in future criminal justice system costs — with an investment of approximately $9,000 per youth per year over 10 years.[26, 38] *NFP* also produced public savings — approximating $22,000 for every family served — through reduced long-term health care, income assistance, and related health and social

Many of the successful programs produced important gains beyond preventing children's behaviour problems.

assistance costs.[42–43] These findings suggest that prevention pays, in terms of both fiscal and social dividends.

- **Effective prevention programs can have added benefits.** Many of the successful programs produced important gains beyond preventing children's behaviour problems. For example, *NFP* also improved parenting, reduced child maltreatment, improved child learning and mental health, and improved mothers' life circumstances.[47–48] Recently, *NFP* was also shown to reduce preventable-cause mortality in children (e.g., from unintentional injuries and homicides).[49] Meanwhile, *Incredible Years* also reduced child hyperactivity problems, improved parenting skills and reduced parents' stress levels.[16] And *PMTO* improved parenting skills and family interactions.[20–21]

On balance, practitioners and policy-makers have several options when it comes to preventing childhood behaviour problems, according to our review. Starting very early in the lifespan (prenatally), *NFP* is a particularly promising program due to the wide array of other long-term benefits it leads to — for children and for mothers — in addition to improving child behaviour. While *NFP* is intensive, and therefore more expensive initially, impressive "downstream" health and social savings make this program potentially cost-effective, according to American RCTs.[47] (Note that the Children's Health Policy Centre is currently co-leading an evaluation to determine whether *NFP* is as effective in BC as it has been in the US. For more information on this study, please visit our website.)

Continuing into the early years, there are several particularly promising parenting programs, all of which can be delivered in brief group formats in the community. *IY* and *PMTO* stood out, according to this review. While there have been no Canadian evaluations, the sidebar describes a pragmatic community-based evaluation that is underway for *PMTO*. Similar evaluations could be undertaken for *IY*. As well, given that other RCTs have found benefits for *Triple P*, it warrants further evaluation in Canada.

Evaluating programs in "real life"

The BC division of the Canadian Mental Health Association (CMHA) provides a compelling example of integrating research and practice — by conducting a pragmatic program evaluation. The CMHA started by focusing on preventing childhood behaviour problems, then scanned the research to identify programs with positive outcomes according to rigorous evaluations. They landed on *Parent Management Training — Oregon (PMTO)* as a program that could potentially work well in BC.

Next, they adapted the program for the BC context. In the CMHA's version of *PMTO* — called *Confident Parents: Thriving Kids* — parents learn effective ways to promote child social skills, including cooperation. The program is offered in six-, 10- and 14-week versions depending on the level of support the family needs.[52] Trained coaches provide the intervention to parents by telephone. Notably, coaches are available evenings and weekends, as well as weekdays, to accommodate parents' diverse schedules. Coaches receive ongoing supervision to ensure fidelity to the *PMTO* model. The CMHA is also planning to develop an in-person version of the program, to be scaled up and potentially delivered throughout the province (B. Gutray, personal communication, September 16, 2015).

The CMHA measures program impact using an instrument known as the Brief Child and Family Phone Interview (or BCFPI). The BCFPI is a quick, reliable and valid way to assess children's mental health outcomes in clinical and community settings.[53] By using the BCFPI, the CMHA is demonstrating how programs can be pragmatically evaluated in community settings to ensure applicability and success for BC children and families — a far better approach than simply offering programs that are unproven or that have not been evaluated in Canada.

Multicomponent programs also merit consideration. Of the two we reviewed, *Fast Track* had the most impressive findings, according to one American RCT. Canadian replication evaluations therefore warrant consideration for this program too.

As well as providing information on which programs are effective, our review provides guidance on how to select among them based on parents' level of need. Specifically, parenting programs such as *IY* and *PMTO* are likely to meet the needs of parents who require less support in guiding their children's behaviour. These types of programs work well for those who have the resources to be able to attend brief community-based programs and then independently apply the learning with their children.

But parents facing hurdles like socio-economic disadvantage and limited personal resources typically need significantly more support. Programs such as *NFP* and *Fast Track* deliver more intensive parenting assistance by providing considerably more intervention hours and also by providing services in the home. These programs also deliver a wider range of services, addressing challenges beyond parenting. For example, *NFP* also addresses mothers' life circumstances — including family planning, workforce participation and economic independence.[50] Meanwhile, *Fast Track* offered many years of academic tutoring for children as well as assistance in preparing them for future employment.[36]

Childhood behaviour problems are prevalent, with an estimated 2.1% of children having clinically important difficulties at any given time.[51] Unchecked, these problems lead to distress for children (and families) as well as lost human potential and high societal costs — as much as $2 million to $5 million per child when serious behaviour problems are not prevented.[41] Effective programs to support parents and prevent child behaviour problems are therefore an essential component of any comprehensive planning for children's mental health.

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

Table 9: Search Strategy

Sources	• CINAHL, ERIC, Medline and PsycINFO
Search Terms	• Conduct disorder, oppositional defiant disorder, child behaviour disorder, aggressive behaviour or juvenile delinquency *and* prevention or intervention or treatment*
Limits	• Peer-reviewed articles published in English between 2005 and 2015 that were either original RCTs or follow-up RCTs • Children aged 18 years or younger • Randomized controlled trial (RCT) methods used

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

We then hand-searched reference lists of previous *Quarterly* issues and the most relevant systematic reviews that we found in our searches to identify additional RCTs. Using these approaches, we found 166 RCTs. Two team members then independently assessed each RCT, finding 13 that met all the inclusion criteria detailed in Table 10. We applied these rigorous inclusion criteria to ensure that we only reported on studies that were of high quality.

Table 10: Inclusion Criteria for RCTs

- Interventions were evaluated in high-income countries (according to World Bank standards), for comparability with Canadian populations and practice and policy settings
- Interventions aimed to prevent behaviour problems or conduct or oppositional defiant disorders
- Most study participants did not have conduct or oppositional defiant disorder diagnoses, had not been referred for treatment for these disorders, and had not been arrested at study outset
- Clear descriptions were provided of participant characteristics, settings and interventions
- Participants were randomly assigned to intervention and comparison groups at study outset
- Follow-up was three months or more (from the end of the intervention)
- Attrition rates were below 20% at follow-up and/or intention-to-treat analysis was used
- Child outcome indicators included symptoms of conduct and/or oppositional defiant disorders
- Child behaviour symptoms were assessed using two or more informant sources (e.g., child, parent, teacher or researcher)
- Reliability and validity of all primary outcome measures or instruments was documented
- Levels of statistical significance were reported for all primary outcome measures
- At least one outcome rater was blinded to participants' group assignment

For more information on our research methods, please contact

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BC government staff can access original articles from BC's Health and Human Services Library.

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