Children in Care: Reducing Needs While Improving Mental Health Outcomes

A Research Report

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We celebrate the Indigenous Peoples on whose traditional territories we are all privileged to live and work.

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Executive Summary

Children in government care face extraordinary challenges. This includes many young people coming into care because they have experienced maltreatment. Then once in the care system, many continue to experience avoidable adversities, such as multiple changes of placement which can result in inconsistent caring relationships, school disruptions and cultural disconnections. These children also face higher rates of mental disorders, lower rates of high-school graduation and more conflicts with the law. Compounding these issues are the unfair burdens faced by Indigenous children who often experience overinvolvement of the child welfare system, an ongoing legacy of colonialism.

Given these challenges, a crucial goal is to reduce the need for care placements by better supporting families to prevent child maltreatment. When this is not possible, many children who come into government care need interventions to encourage their well-being, including preventing and treating mental health challenges. This research report therefore aims to identify: 1) effective programs for better supporting families so there is less need for children to come into care; 2) the prevalence of mental disorders for children in care to estimate the degree of burden facing this population; and 3) effective programs for preventing and treating mental disorders for children in care.

To meet these objectives, we conducted three systematic reviews. Our first review identified several successful programs for preventing child maltreatment. For averting problems before they occur, Nurse-Family Partnership stood out — according to two high-quality studies. For preventing further maltreatment, Parent-Child Interaction Therapy and Multisystemic Therapy stood out — each reducing at least one form of maltreatment. Our second review identified a much higher burden of mental disorders for children in care, with prevalence approximately four times higher than in the general population of children. Our third review identified successful prevention and treatment programs for addressing mental well-being for children who have come into government care. For prevention, both Fostering Healthy Futures and Middle School Success reduced mental disorder symptoms including substance use. For treatment, both Parent Management Training – Oregon and Multidimensional Treatment Foster Care led to benefits including reducing symptoms of conduct disorder, substance use, depression and psychosis.

These findings can inform efforts to improve the well-being of some of British Columbia's most disadvantaged children. Preventing maltreatment is the first priority. Ensuring adequate supports for families and adequate investments in programs that can prevent children from needing to enter government care are therefore crucial. The programs highlighted here provide examples. Yet even after maltreatment has occurred, children and families can still benefit from programs that prevent further occurrences. Programs such as those highlighted here should therefore also be offered. Then, if children do come into care, beyond ensuring that their basic needs are met, they also need to be provided with timely and effective mental health care, such as the prevention and treatment programs outlined in this review. In turn, these investments and commitments will honour and uphold children's rights — providing hope and supporting their flourishing.

1. Background

1.1 Government care in British Columbia

Most children in British Columbia (BC) live with their families who provide supportive, nurturing and loving environments. (We define children as all those aged 18 years and younger.) Some families, however, struggle to meet children's needs, such that government care is required. The most recent data indicate that 5,259 children were in government care in BC in March 2021.[1] Most children (90%) enter care due to court orders for protection purposes[2] with reasons including: neglect (71.5%); physical harm (8.5%); emotional harm (3.2%); sexual abuse/exploitation (0.9%); and other maltreatment (4.1%).[3] Once in the care system, placement options vary — mainly involving foster home placements with caregivers in the community but also including contracted care placements such as staffed group homes, as well as independent living arrangements for older adolescents.[4–5]

But the burden is not shared equally in that care placements for Indigenous children in BC far exceed those for non-Indigenous. In fact, Indigenous children in BC are about 18 times more likely to be in care than their non-Indigenous counterparts.[4] The reasons for this principally lie with ongoing legacies of colonialism in Canada — which included the forced removal of thousands of children from their families and communities into residential schools, essentially deeming Indigenous Peoples unfit to be parents.[6] Moreover, residential schools resulted in intergenerational harms by interrupting many survivors' ability to be caring parents.[6] These policies, as well as ongoing inequities and injustices — including underfunding of services for Indigenous children and families relative to other Canadians — continue to contribute to the child welfare system being overinvolved in the lives of Indigenous children and families.[7–8]

Many children continue to face extraordinary challenges after they enter government care. For some, this includes added avoidable adversities, such as lack of placement stability. For example, 34.0% of BC children in care experience at least one change of placement in any given year[2] — when *any* moves without good reason can greatly disrupt children's lives including their caring relationships, their schooling and their cultural connections.[9] Children in government care are also more likely to experience mental disorders than other children.[10] Compounding these challenges, outcomes for children leaving government care are also often troubling. For example, a recent systematic review of 32 studies conducted in Europe and the United States (US) found that children who had been in foster care had lower rates of high-school graduation, less stable employment, lower employment earnings, and more conflicts with the law, as well as periods of homelessness.[11] High rates of homelessness, less educational attainment, less attachment to the workforce and lower incomes also have been documented for youth leaving the care system in BC.[12–13] Given the hurdles that children face before, during and after entering government care, it is crucial to reduce the need for out-of-home placements by preventing child maltreatment. At the same time, when prevention has not been possible, children who do come into care need to be provided with effective interventions. Such interventions can support their well-being by preventing mental health challenges and by treating these when they occur.

1.2 Goals of this research report

For this research review, we aimed to inform policy-making by identifying:

1. Effective programs for preventing or reducing rates of child maltreatment so there is less need for children to come into government care;
2. The prevalence of mental disorders for children in care to estimate the population burden; and
3. Effective programs for preventing and treating mental disorders for children in government care.

The overarching goal is to ensure that all children in BC can flourish and that all children and families can receive the programs and services they need, when they need them.

2. Methods

We conducted three systematic reviews for this report. The first focused on programs aimed at preventing child maltreatment. The second focused on the prevalence of mental disorders for children in government care. The third focused on prevention and treatment interventions aimed at improving mental health for children in care. We conducted comprehensive searches for all three topics using methods adapted from the *Cochrane Collaboration* and *Evidence-Based Mental Health*. For prevention and treatment interventions, this involved seeking evaluations that used randomized controlled trial (RCT) methods. For the prevalence of mental disorders this involved seeking meta-analyses of epidemiological studies that were conducted in representative samples of children in care and that used rigorous diagnostic measures. Tables 1–3 provide the inclusion criteria for the three reviews.

Table 1. Inclusion Criteria for Studies on Preventing Child Maltreatment

▪ Focused on children ≤18 years
▪ Random assignment to intervention or control/comparison groups (i.e., no intervention or usual care)
▪ Clear descriptions of participant characteristics, settings and interventions
▪ Programs aimed to prevent child maltreatment
▪ Programs evaluated in high-income countries for applicability to Canadian policy and practice
▪ For primary prevention, <50% of families had prior child protective services (CPS) involvement at study outset
▪ For secondary prevention, ≥50% of families had prior CPS involvement at study outset
▪ Follow-up was ≥ three months from the end of the intervention
▪ Attrition rates were ≤20% at follow-up and/or intention-to-treat analyses were used
▪ Outcome indicators included maltreatment reports from at least one independent source (e.g., CPS records or hospital records with substantiation of maltreatment) at follow-up
▪ Level of statistical significance reported for maltreatment outcomes*

* Studies were excluded where authors indicated lack of statistical power for assessing maltreatment outcomes

Table 2. Inclusion Criteria for Meta-analyses on Mental Disorder Prevalence

▪ Focused on children in care ≤18 years (e.g., foster or group homes or independent living arrangements)
▪ Clear descriptions of review methods including database sources, keywords and inclusion criteria
▪ Focused on original epidemiological studies conducted in high-income countries
▪ Detailed summaries provided of characteristics of included studies
▪ Prevalence reported for current mental disorders based on *Diagnostic and Statistical Manual of Mental Disorders* or *International Classification of Diseases* standards
▪ Reliable and valid diagnostic measures used to assess prevalence
▪ Original study quality assessed and considered in the analyses
▪ Results included meta-analyses of prevalence including confidence intervals and tests of heterogeneity

Table 3. Inclusion Criteria for Studies on Improving Mental Health for Children in Care

▪ Focused on children ≤18 years
▪ Random assignment to intervention or control/comparison groups (i.e., no intervention or usual care)
▪ Clear descriptions of participant characteristics, settings and interventions
▪ Interventions aimed to improve the mental health of children in government care
▪ Interventions evaluated in high-income countries for applicability to Canadian policy and practice
▪ For prevention, programs aimed to reduce the incidence of new cases of mental health problems
▪ For treatment, interventions aimed to address existing mental health problems
▪ Follow-up was ≥ three months from the end of the intervention
▪ Attrition rates were ≤20% at follow-up and/or intention-to-treat analyses were used
▪ Outcome indicators included ≥ two reliable and valid mental health measures from ≥ two informant sources at follow-up
▪ Level of statistical significance reported for mental health outcomes*

* Studies were excluded where authors indicated lack of statistical power for assessing mental health outcomes

Our database searches identified 1,223 articles on preventing maltreatment, 53 articles on the prevalence of mental disorders for children in government care and 931 articles on mental health interventions for children in care. For all topics, after title screening, two authors independently assessed all relevant abstracts. Applicable studies were then retrieved and independently assessed by two authors who identified those that met all inclusion criteria. We next extracted and summarized data, again with independent verification by a second author. For intervention studies, we only extracted outcomes with specific relevance to the given topic. For example, for maltreatment prevention, we excluded data related to hospitalizations

that were not specifically due to maltreatment. At every stage, any differences were resolved by consensus involving the larger team. The Appendices provide more information about our search processes as well as definitions of research terms.

Throughout the report, we use *parents* to refer to biological, adoptive and/or step-parents; in most cases, parents refers to biological parents. Meanwhile, we use *foster parents* to refer to individuals caring for children through formal arrangements with child protection agencies. We use *controls* to describe both control and comparison groups. (The former includes participants who received no intervention while the latter includes participants who received a less intensive intervention, such as typical care.) For interventions, we report duration as developers originally intended where possible; where these data were not available, we report either average or maximum duration.

This report is based on research evidence drawn from high-quality quantitative studies. For estimating prevalence, we relied on a meta-analysis using pooled prevalence from studies conducted in representative populations of children in care using rigorous diagnostic measures — because these standards help ensure the most accurate data.[14–15] For assessing prevention and treatment interventions, we relied on RCTs because these methods are a strong form of scientific evidence for assessing impact.[16–17] We nevertheless acknowledge that these methodologies have limitations — including often under-representing Indigenous Peoples, methods and perspectives.[18–19] Many more studies are needed involving Indigenous children — that are led by Indigenous Peoples and informed by Traditional Knowledge as well as Western scientific methods.

Overall, the burden of mental disorders is much greater — and is unacceptably high — for children in care.

3. Preventing Child Maltreatment

3.1 Primary prevention of child maltreatment

We accepted five RCTs evaluating four different primary prevention programs. These programs aimed to avert child neglect or abuse prior to it ever occurring. One program — Family Connects — was delivered universally to all families in a given community.[20–22] The other three programs were delivered to at-risk families including two evaluations of Nurse-Family Partnership (NFP)[23–24] and single evaluations of SafeCare+[25] and of Child FIRST.[26] All four programs involved home visits.

Family Connects was delivered to all families with newborn children within a given American county.[20] During the first home visit, nurses assessed family needs and provided parenting education on topics such as feeding and safe sleeping practices.[21] Families with no health or psychosocial risks received no further intervention.[22] Moderate-risk families received one to three additional sessions in which nurses addressed specific concerns such as parent well-being or family violence. Meanwhile, nurses referred high-risk families to community resources tailored to the specific needs and made one to two more follow-up contacts to ensure connections with services. Nurses then provided a final telephone call approximately one month after their last contact to determine if families required any additional assistance.[22]

NFP focused on American girls and young women who: had no previous live births; had yet to reach their 25th week of gestation; and were younger than 19 years, socio-economically disadvantaged or unmarried.[23] During home visits, nurses taught parenting skills and promoted maternal health and life course planning. Visits spanned approximately 2½ years and were scheduled every other week during pregnancy, weekly during the first six weeks postpartum, then on a diminishing schedule until children reached age two years.

The second NFP study focused on Dutch girls and young women who: were pregnant for the first time; were fewer than 28 weeks gestation; were younger than 26 years; had limited formal education; and had at least one other risk factor such as financial or housing challenges.[24] Nurse home visits were based on the American NFP curriculum, with adaptations for the local context. Ten visits were scheduled during pregnancy followed by 20 visits during each of the child's first and second years.

SafeCare+ focused on American parents who: were 16 years or older; experiencing problematic substance use, other mental health issues or intimate partner violence; and caring for children aged five years or younger.[25] During home visits, providers taught knowledge and skills related to child health, home safety and parent-child bonding. While the visiting schedule was flexible, parents received 36 hours of service, on average, over six months.

Child FIRST focused on American families with children aged five to 36 months who were at high risk, for example, due to family socio-economic disadvantage, parental substance use or child social or emotional problems.[26] During home visits, mental health practitioners and case managers taught parenting skills and helped families connect with additional community-based services. Although home visits were designed to occur weekly, families participated in an average of 12 visits over five months. Table 4 describes all four RCTs.

Table 4. Studies on the Primary Prevention of Child Maltreatment

Program	Approach	Sample size	Child ages at start (country)
Universal			
Family Connects [20–22]	1–4 home visits + 1 phone call by nurses; including teaching parenting skills to all families + addressing specific concerns for moderate-to-high-risk families	531	3–12 weeks (United States)
Targeted			
Nurse-Family Partnership (NFP) [23]	32 home visits (average) by nurses; including teaching parenting skills + promoting maternal health-related behaviours + life course planning from early-mid pregnancy to child's 2nd birthday	300	Prenatal (United States)
NFP [24]	As above except 50 home visits (maximum)	460	Prenatal (Netherlands)
SafeCare+ [25]	36 hours (average) of home visits by home-based providers; including promoting parenting skills + parent-child bonding over 6 months	105	Birth–5 years (United States)
Child FIRST [26]	12 home visits (average) by mental health practitioners + case managers; including promoting parenting skills + connecting families to other needed services over 5 months	157	5–36 months (United States)

Family Connects, the sole universal program, did not make a significant impact on CPS investigations for suspected maltreatment.[20] Specifically, 17.7% of Family Connects children were the subjects of one or more CPS investigations compared to 21.8% of controls. Due to the low number of substantiated investigations for maltreatment (1.9%) it was not possible to test for differences between Family Connects and controls for this parameter.[20]

Among the targeted programs, the first NFP study found significantly fewer substantiated child protective services (CPS) maltreatment reports involving either the mother as abuser or the child as victim for NFP families compared with controls.[23] The program led to as much as 50% reductions in maltreatment — with maternal incidence being 0.3 for NFP versus 0.7 for controls, and child incidence being 0.4 for NFP versus 0.7 for controls. Findings were based on CPS records from pregnancy until children were 15 years old.[27, 23]

The second NFP study also resulted in significantly fewer child maltreatment reports for NFP families compared with controls, based on CPS records from pregnancy until children were three years old.[24] (In the Netherlands, CPS deems approximately 93% of reports to be valid.) These records showed that 10.7% of NFP children had CPS reports compared to 18.9% of controls — in other words, relative risk for NFP children was lowered by 42%.

The SafeCare+ study found that fewer intervention parents had CPS reports for maltreatment — 20.8% for SafeCare+ versus 31.5% for controls. (Reports judged to be malicious or clearly inappropriate were excluded.) However, due to sample size concerns, analyses were conducted only on the number of days until the first CPS report.[25] There was no significant difference between SafeCare+ and controls for this parameter — even though the median length of time to first CPS report was nearly doubled for SafeCare+ (201 days) versus controls (103 days).

Child FIRST resulted in significantly fewer child maltreatment investigations compared with controls, based on CPS records from when families first joined the study through follow-up of approximately 2½ years.[26] In fact, control families had more than double the odds of a CPS investigation. Table 5 details outcomes for all four RCTs.

Table 5. Findings on the Primary Prevention of Child Maltreatment

Program	Follow-up	Outcomes*	
Universal			
Family Connects [20]	4½ years	NS	Investigations for child maltreatment from CPS records
Targeted			
Nurse-Family Partnership (NFP) [27, 23]	13 years	↓	Substantiated child maltreatment reports from CPS records
NFP [24]	1 year	↓	Child maltreatment reports from CPS records (relative risk = 0.6)
SafeCare+ [25]	1½ years	NS	Median length of time until first CPS report
Child FIRST [26]	2½ years	↓	Investigations for child maltreatment from CPS records (odds ratio = 2.1)

CPS Child protective services
NS No significant difference between program families and controls
↓ Statistically significant reductions for program families versus controls
* All studies assessed maltreatment outcomes from family's initial study involvement to final assessment (rather than at intervention end)

3.2 Secondary prevention of child maltreatment

We accepted five RCTs evaluating five different secondary prevention programs. (These programs aim to avert further abuse or neglect for children who have already been maltreated.) These programs included Intensive Nurse Home Visitation,[28] Healthy Families,[29] Promoting First Relationships,[30] Parent-Child Interaction Therapy (PCIT; standard and enhanced versions),[31] and Multisystemic Therapy for Child Abuse and Neglect (MST).[32] While all programs aimed to enhance parenting skills, there was significant variation in delivery formats and settings. Three involved home visiting exclusively focused on parents[28–30] while two involved sessions delivered in homes and clinics with components for both parents and children.[31–32]

Intensive Nurse Home Visitation focused on Canadian parents who had recent CPS involvement due to physical abuse or neglect of a child aged 12 years or younger.[28] The child had to be living with their family or there had to be an immediate plan for the child to return home. During the home visits, nurses provided intensive family supports, education about child development and links to other needed services. Over the program's two-year delivery, visits were scheduled weekly for six months, then every two weeks for six months, then monthly for one year.

Healthy Families focused on American parents who were at risk for parenting difficulties—with a subsample meeting the inclusion criteria for this report, namely mothers who had had CPS involvement in the five years prior to joining the study.[29] During home visits, family support workers promoted parent-child attachment, fostered safe and nurturing home environments and encouraged positive parenting. Visits were scheduled every other week during the prenatal period, weekly until children were six months old, then as needed until children reached age five years.[29, 33]

Promoting First Relationships focused on American parents who had recently been reported to CPS for maltreatment involving their children who were aged 10 to 24 months.[30] During home visits, service providers focused on increasing parents' awareness of their children's social and emotional needs, increasing children's safety and security and helping parents understand their own needs. Visits were scheduled weekly for 10 weeks.

PCIT focused on American families involved with CPS due to physical abuse of children aged four to 12 years.[31] In standard PCIT, parents attended a six-session group focused on increasing their motivation to make changes to their parenting, while children concurrently attended a safety and skill building group. This was followed by 12 to 14 individual parent-child sessions on improving parenting skills. Then parents and children participated separately in four-session follow-up groups—where parents worked on challenges with implementing their new parenting skills while children practiced social skills. Enhanced PCIT involved the full program plus individually augmented services for concerns such as parental depression or substance use, as well as home visits to help parents strengthen their skills. Both standard and enhanced PCIT took six months to complete.

MST focused on American families involved with CPS due to the physical abuse of children who were aged 10 to 17 years.[32] During individual family sessions, which occurred in homes or other locations of participants' choosing, therapists helped families develop safety plans, fostered positive relationships with CPS and helped parents accept responsibility for their past behaviour with their children. Added challenges such as problem-solving or communication were also addressed as needed. Frequency varied from daily to once a week based on family needs. MST was delivered over eight months, on average. Table 6 describes all five RCTs.

Table 6. Studies on the Secondary Prevention of Child Maltreatment

Program	Approach	Sample size	Child ages at start (country)
Intensive Nurse Home Visitation [28]	51 home visits by nurses; including intensive family support, education + links to needed supports over 2 years	163	Birth–12 years (Canada)
Healthy Families [29, 33]	Home visits* by family support workers; including promoting parent-child attachment, safe + nurturing home environments + positive parenting from pregnancy to child's 5th birthday	104	Prenatal–3 months (United States)
Promoting First Relationships [30]	10 home visits by service providers; including promoting awareness of child's needs + safety as well as parents' own needs over 10 weeks	247	10–24 months (United States)
Parent-Child Interaction Therapy (PCIT)	6 group parent sessions to enhance motivation to change, 6 group child sessions to bolster safety + skills + 12–14 parent-child sessions to increase parenting skills + 4-week follow-up groups for parents + children separately over 6 months	112	4–12 years (United States)
PCIT Enhanced [31]	As above + home visits supporting parenting skills + augmented services addressing parent well-being over 6 months		
Multisystemic Therapy for Child Abuse and Neglect [32]	88 therapy hours (on average) provided by therapists including developing safety plan, fostering positive relationships with CPS + helping parent accept responsibility for child abuse over 8 months (on average)	90	10–17 years (United States)

* Total number of home visits was not reported

The Intensive Nurse Home Visitation study found no significant differences for program participants compared with controls in overall rates of child physical abuse (33.0% versus 43.1%) or neglect (46.6% versus 51.4%) based on CPS records at one-year follow-up.[28] However, nurse-visited families showed a significantly *higher* recurrence of substantiated child physical abuse or neglect compared with controls

(23.6% versus 10.8%) based on hospital records at one-year follow-up. The authors speculated that this result may have been due to children's medical care needs being identified more often for nurse-visited families.

For Healthy Families, there were no significant differences for program participants compared with controls in overall child maltreatment rates (41.5% versus 60.4%), which included any type of abuse or neglect based on CPS records at two-year follow-up.[29] However, Healthy Families participants were significantly less likely to receive family preventive, protective or placement services (38.0% versus 60.0%) initiated in response to CPS reports at two-year follow-up.

The Promoting First Relationships study found no significant differences for program participants compared with controls regarding maltreatment allegations (29.0% versus 31.6%) based on CPS records at one-year follow-up.[30] However, children whose parents participated in the program were significantly less likely to be removed from the home for substantiated maltreatment (5.6% versus 13.0%). In fact, control children had 2.5 times higher chances of being removed from the home by one-year follow-up.

Standard PCIT resulted in significantly fewer child physical abuse reports for program participants compared with controls (19.0% versus 48.6%) based on CPS records at 22-month follow-up.[31] However, Enhanced PCIT did not perform as well, with no significant differences for these families compared to controls (36.3% versus 48.6%).

MST resulted in no significant differences for program participants compared with controls regarding youth being maltreated (4.5% versus 11.9%) or parents being abusive (2.3% versus 4.8%) based on CPS records at four-month follow-up.[32] However, MST youth were significantly less likely to experience out-of-home placements (13.3% versus 28.9%) — albeit with a small effect size ($\varphi = 0.2$). The MST study also assessed maltreatment outcomes based on youth and parent self-reports at eight-month follow-up.[32] Compared with the control condition, MST was significantly more effective at reducing severe assaults such as parents punching or kicking their children, according to both youth and parents, with moderate effect sizes. As well, MST parents committed significantly fewer "minor" assaults including spanking and slapping, according to youth but not parents, with a small effect size. Similarly, MST parents perpetrated less psychological aggression, such as screaming or swearing, according to youth but not parents, again with a small effect size. Finally, MST parents were significantly less neglectful according to both youth and parent reports, with a large effect size by youth report but small by parent report. Table 7 on the next page details outcomes for all five RCTs.

Maltreatment causes many serious social and emotional problems for children — and constitutes a serious violation of children's rights.

Table 7. Findings on the Secondary Prevention of Child Maltreatment

Program	Follow-up*	Outcomes
Intensive Nurse Home Visitation [28]	1 year	NS Physical abuse or neglect from CPS records ↑ Physical abuse or neglect from hospital records
Healthy Families [29]	2 years	NS Confirmed exposure to any type of maltreatment from CPS records ↓ Family support for preventive, protective or placement services initiated in response to CPS reports (adjusted odds ratio = 0.4)
Promoting First Relationships [30]	1 year	NS Maltreatment allegations from CPS records ↓ Child removal from home for substantiated maltreatment from CPS records (hazard ratio = 2.5)
Parent-Child Interaction Therapy (PCIT) + PCIT Enhanced [31]	1¾ years	Standard PCIT ↓ Physical abuse from CPS records Enhanced PCIT NS Physical abuse from CPS records
Multisystemic Therapy Child Abuse and Neglect [32]	4 months	NS Physical abuse of youth from CPS records NS Physical abuse by parents from CPS records ↓ Child removal from home from CPS records (ϕ = 0.2) ↓ Severe assaults from youth/parent reports (2 of 2; Cohen's *d* = 0.5 and 0.6) ↓ Minor assaults from youth/parent reports (1 of 2; Cohen's *d* = 0.1) ↓ Psychological aggression from youth/parent reports (1 of 2; Cohen's *d* = 0.2) ↓ Neglect from youth/parent reports (2 of 2; Cohen's *d* = 0.9 and 0.3)

NS No significant difference between program families and controls
CPS Child Protective Services
↑ Statistically significant increases for program families versus controls
↓ Statistically significant reductions for program families versus controls
* All studies assessed maltreatment outcomes from family's initial study involvement to final assessment (rather than at intervention end)

4. Prevalence of Mental Disorders for Children in Care

We accepted one meta-analysis that included eight epidemiological studies reporting on mental disorder prevalence in representative samples of children in government care, including foster and group homes.[10] (Robust BC data were not available on this issue.)[34] In total, 3,104 children were included in these studies which were conducted in France, Germany, Norway, the United Kingdom and the United States. All studies assessed the prevalence of mental disorders using diagnostic interviews. In addition to reporting the prevalence of children experiencing any disorder, the authors also reported rates for any anxiety disorder, attention-deficit/hyperactivity disorder (ADHD), conduct disorder, depression, oppositional defiant disorder and posttraumatic distress disorder (PTSD). Authors assessed methodological quality using a validated checklist for epidemiological studies.[10]

For children in care, the overall pooled prevalence of any mental disorder was 49%[10] — or approximately four times higher than the 12.7% overall prevalence found in the general population of children.[35] While prevalence was higher for all disorders assessed for children in care, as shown in Table 8, rates of conduct disorder, depression and PTSD were particularly elevated among children in care relative to the general population of children.[10, 35] In fact, for children in care rates of PTSD were 40 times higher, rates of conduct disorder 15 times higher and rates of depression nine times higher. Overall, the burden of mental disorders is much greater — and is unacceptably high — for children in care.

Table 8. Estimated Prevalence of Mental Disorders for Children in Care

Disorder	Estimated prevalence for general population[35]	Estimated prevalence for children in care*[10]	Estimated number of BC children in care affected†
Conduct disorder	1.3%	20%	1,050
Any anxiety disorder	5.2%	18%	950
Oppositional defiant disorder	3.3%	12%	630
Depression	1.3%	12%	630
Attention-deficit/hyperactivity disorder	3.7%	11%	580
Posttraumatic stress disorder	0.1%	4%	210
Any disorder	**12.7%**	**49%**	**2,580**

* Meta-analysis reported prevalence data for children in care in whole numbers and for a limited number of disorders only

† Number of BC children in care affected represents *expected* rather than *actual* estimates at any given time; estimates calculated based on rates derived from population-based child epidemiological prevalence studies[10] which were then applied to BC estimates for the number of children in care,[1] rounded to the nearest 10

5. Fostering Better Mental Health Outcomes

5.1 Prevention programs

We accepted four RCTs evaluating four different programs that aimed to prevent mental health problems for children in government care. The four programs included Incredible Years + Co-Parenting,[36] Incredible Years – Dina,[37] Fostering Healthy Futures[38] and Middle School Success.[39] All but one program aimed to avert behaviour problems.

Incredible Years + Co-Parenting focused on American parents and foster parents of children aged three to 10 years who were at high risk for behaviour problems.[36] This intervention started with a 12-session training program for both parents and foster parents on the effective use of praise and rewards as well as setting limits and addressing misbehaviour. This was followed by a 12-session co-parenting program involving both parents and foster parents learning together about open communication and negotiation skills. Parent leaders delivered the intervention over three months.

Incredible Years – Dina focused on American children aged five to eight years who were at high risk for behaviour problems.[37] Children participated in a 12-session skills group learning about emotion recognition, problem solving and anger management. Foster parents, and parents if available, also attended three group sessions on strategies to assist children in applying their new skills. Clinicians delivered the program over three months.

Fostering Healthy Futures focused on American children aged nine to 11 years who were in out-of-home care due to maltreatment.[38] Taking a strengths-based approach, the overall aim was to foster healthy development. To this end, children participated in a 30-session skills group focused on cognitive-behavioural techniques to address concerns including emotion recognition, problem solving and anger management. Children also had 30 individual mentoring sessions to help them apply their new skills in everyday life and to encourage their involvement in positive recreational activities. Clinicians and graduate-student mentors delivered both components over nine months.

Middle School Success focused on American girls aged 10 to 12 years, aiming to prevent behaviour problems, substance use and related concerns.[39] Girls first participated in a skills group to learn strategies for maintaining healthy relationships with positive peers and for increasing self-confidence — twice weekly for three weeks. This was followed by 40 individual coaching sessions to provide ongoing support during the first year of middle school. Meanwhile, foster parents participated in a skills group to learn behavioural reinforcement approaches to encourage positive engagement in home, school and community settings — twice weekly for three weeks. This was followed by 40 group sessions for foster parents to support their ongoing use of behavioural approaches during the girls' first year of middle school. Facilitators and practitioners delivered the program over 11 months. Table 9 on the next page describes all four RCTs.

Table 9. Studies on Preventing Mental Health Problems for Children in Care

Program	Approach	Sample size	Child ages at start (country)
Incredible Years + Co-Parenting [36]	*Foster Parents + Parents:* 12 group sessions by parent leaders including parenting skills such as giving praise + limit setting plus 12 co-parenting sessions including open communication + negotiation skills over 3 months	64	3–10 years (United States)
Incredible Years – Dina [37]	*Children:* 12 group sessions by clinicians including emotion recognition, problem solving + anger management *Foster Parents + Parents:* 3 group sessions by clinicians including helping children apply learned skills over 3 months	94	5–8 years (United States)
Fostering Healthy Futures [38]	*Children:* 30 group CBT sessions by clinicians including emotion recognition, problem solving + anger management plus 30 individual mentoring sessions by graduate students including applying skills + doing recreational activities over 9 months	426	9–11 years (United States)
Middle School Success [39]	*Children:* 6 group sessions by facilitator including healthy relationship skills followed by 40 individual sessions for ongoing support *Foster Parents:* 6 group sessions by facilitator including developing behavioural reinforcement system followed by 40 group sessions to support its ongoing use over 11 months	100	10–12 years (United States)

Incredible Years + Co-Parenting failed to produce mental health benefits for children at three-month follow-up.[36] Specifically, there were no significant differences compared with controls regarding behaviour problems according to parent, foster parent or teacher reports.

Incredible Years – Dina also failed to produce benefits at three-month follow-up.[37] Here, too, there were no significant differences compared with controls regarding behaviour problems according to either foster parent or teacher reports. As well, control children displayed significantly *better* emotional and behavioural regulation according to foster parent ratings — but not teacher ratings — at three-month follow-up.

Fostering Healthy Futures resulted in children having significantly fewer mental disorder symptoms at six-month follow-up, with a small effect size, compared with controls.[38] (Symptoms of posttraumatic stress, anxiety, depression and behaviour problems were assessed using a composite measure based on child, parent and caregiver ratings.) However, there were no significant differences compared with controls for child reports of satisfaction at home, at school and with their friendships and health.

Middle School Success resulted in girls engaging in significantly less substance use compared to controls at two-year follow-up, with a moderate effect size.[39] (Alcohol, cannabis and tobacco were combined on this self-report measure.) In contrast, the intervention had no impact on girls' conduct disorder symptoms at two-

year follow-up. The program also had no impact on a composite measure of mental disorder symptoms — which included anxiety, depression and behaviour problems — at one-year follow-up according to foster parent ratings. Table 10 details findings for all four RCTs.

Table 10. Findings on Preventing Mental Health Problems for Children in Care

Program	Follow-up	Outcomes	
Incredible Years + Co-Parenting intervention [36]	3 months	NS	Behaviour problems (3 of 3 measures)
Incredible Years – Dina [37]	3 months	NS	Behaviour problems (2 of 2 measures)
		↓	Emotional + behavioural regulation (1 of 2 measures)
Fostering Healthy Futures [38]	6 months	↓	Mental disorder symptoms (Cohen's *d* = 0.3)
		NS	Life satisfaction
Middle School Success [39]	1 year	NS	Mental disorder symptoms
	2 years	↓	Substance use (tobacco, alcohol + cannabis; Cohen's *d* = 0.5)
		NS	Conduct disorder symptoms

NS No significant difference between program children and controls
↓ Statistically significant reductions for program children versus controls

5.2 Treatment approaches

We accepted six RCTs evaluating two treatments for children in government care: Parent-Management Training – Oregon (PMTO; two RCTs) and Multidimensional Treatment Foster Care (MTFC; four RCTs). All focused on children experiencing behaviour problems — with the exception of one PMTO study which included children with either emotional or behaviour problems.[40] The timing of entry into care also differed. For the PMTO studies, children were already living in foster care.[40–41] In contrast, for two MTFC studies, on enrollment teens were randomized either to an MTFC placement or to a different form of out-of-home care such as a group home.[42–44] The remaining two MTFC studies randomized youth to an MTFC placement or treatment-as-usual — which could involve residential care, foster care, independent living and/or living with parents.[45–46] PMTO and MTFC both focused on parents and foster parents, although one PMTO study and all MTFC studies included components for children.

The first PMTO study focused on American families with children aged three to 16 years who were living in foster care and experiencing significant emotional or behavioural problems, where there was an established goal of the child returning to their family.[40] Each session began with practitioners meeting alone with parents to focus on parenting skills including providing appropriate supervision, solving problems and using appropriate discipline. Practitioners also delivered family sessions so parents could practice their new skills. Practitioners typically met with families twice a week, for up to six months, until the program was completed.

The second PMTO study focused on Dutch foster parents caring for children aged four to 12 years whose behaviour difficulties were severe enough to put their placements at risk.[41] Therapists taught foster parents strategies such as providing adequate supervision, solving problems, setting limits and engaging positively. The intervention was delivered weekly, with an average of 21 sessions over six to nine months.

The first MTFC study focused on American foster parents, parents and boys aged 12 to 17 years who had committed serious offences — resulting in the youth justice system ordering foster care placements.[42] Prior to the youth being placed, case managers provided foster parents with 20 hours of training focused on providing close supervision and setting clear rules and limits. This was followed by weekly groups and daily phone calls for foster parents to ensure ongoing support and problem solving. The boys participated in weekly therapy sessions covering solving problems, learning to take others' perspectives and express themselves non-aggressively. Boys and their parents also participated in weekly family therapy sessions covering parent management training including supervision, encouragement, discipline and problem solving. Case managers and therapists delivered the intervention over one year.

The second MTFC study focused on Swedish foster parents and children aged 12 to 17 years who were diagnosed with conduct disorder.[46] The intervention is as described above with some minor variations, for example, in the duration of various program components.

The third MTFC study had the same delivery and inclusion criteria as the second, described above, with some minor exceptions. For example, youth were aged 12 to 18 years.[45]

The fourth MTFC study focused on American foster parents, parents and girls aged 13 to 17 years who had been court-mandated to community-based, out-of-home care due to chronic "delinquency."[43] The intervention is as described above for the first MTFC evaluation. Table 11 on the next page details all five RCTs.

When children come into care,

there is a collective ethical responsibility to ensure their well-being

— including their mental health.

Table 11. Studies on Treating Mental Health Problems for Children in Care

Program	Approach	Sample size	Child ages at start (country)
Parent Management Training – Oregon (PMTO) [40]	*Parents:* training sessions* by practitioners focused on supervision, problem solving + discipline *Children + parents:* family therapy sessions* by practitioners focused on parents practicing new skills over 6 months	918	3–16 years (United States)
PMTO [41]	*Foster parents:* 21 (average) sessions by therapists including supervision, problem solving + limit setting over 6–9 months	88	4–12 years (Netherlands)
Multidimensional Treatment Foster Care (MTFC) [42]	*Foster parents:* 20 hours of training by case managers + therapists focused on supervision + rule setting followed by weekly supervision focused on problem solving *Children:* weekly individual therapy sessions focused on problem solving, perspective taking + non-aggressive self-expression *Children + Parents:* weekly family therapy focused on parent management skills over 12 months	85	12–17 years (United States)
MTFC [46]	As above except program delivered over 9–12 months	46	12–17 years (Sweden)
MTFC [45]	As above including program delivered over 12 months	35	12–18 years (Sweden)
MTFC [43–44]	As above except program delivered over 6 months	166	13–17 years (United States)

* Total number of sessions was not reported

The first PMTO study showed benefits. Specifically, intervention children had significantly fewer mental disorder symptoms by caseworker and parent reports compared to controls at six-month follow-up.[47]

The second PMTO study, however, failed to show benefits.[41] There were no significant differences between PMTO children and controls regarding mental disorder symptoms according to either foster parent or teacher reports at four-month follow-up.

The first MTFC study resulted in intervention boys having significantly fewer criminal charges for violent behaviour (21.6% versus 38.1%) based on official criminal records, and less violent behaviour by self-report, at one-year follow-up.[48] As well, at six-month follow-up, compared with controls who lived in group homes, MTFC boys reported significantly less cannabis, tobacco and other drug use including cocaine, "speed," LSD, heroin, "mushrooms," PCP, morphine and inhalants.[49] However, there was no difference in alcohol use.[49]

The second MTFC study failed to produce benefits at one-year follow-up.[46] Specifically, there were no significant differences compared with controls for mental disorder symptoms according to youth self-report or parent ratings.[46]

The third MTFC study also failed to produce benefits at one-year follow-up.[45] As with the second study, there were no significant differences compared with controls for mental disorder symptoms according to youth self-report or parent ratings.[45]

The fourth MTFC study found that girls receiving the intervention had significantly fewer criminal charges based on official criminal records, and spent significantly fewer days in correctional facilities based on self-report, at 1½ year follow-up.[44] MTFC girls also had fewer psychotic and depressive symptoms at 1½ year follow-up.[50, 43] In fact, MTFC girls had about half the odds of having depressive symptoms than controls. There were, however, no differences compared with controls regarding self-reported engagement in violent behaviours. Longer-term follow-up found that MTFC girls continued to have fewer depressive symptoms, as well as less substance use (with a moderate effect size), at 8½ year follow-up compared to controls.[51–52] However, there were no significant differences compared with controls in suicidal ideation or attempts at this longer-term follow-up.[51] Table 12 on the next page details the findings from all six treatment studies.

When children in care have mental health problems,

it is imperative to provide effective treatments — quickly, for all in need.

Table 12. Findings on Treating Mental Health Problems for Children in Foster Care

Program	Follow-up	Outcomes	
Parent Management Training – Oregon (PMTO) [47]	6 months	↓	Mental disorder symptoms (2 of 2 measures)
PMTO [41]	4 months	NS	Mental disorder symptoms (2 of 2 measures)
Multidimensional Treatment Foster Care (MTFC) [48–49]	6 months	↓	Cannabis use
		NS	Alcohol use
		↓	Tobacco use
		↓	Other drug use
	1 year	↓	Criminal charges for violent behaviour
		↓	Engagement in violent behaviour
MTFC [46]	1 year	NS	Mental disorder symptoms (2 of 2 measures)
MTFC [45]	1 year	NS	Mental disorder symptoms (2 of 2 measures)
MTFC [43–44, 50–52]	1½ years	↓	Criminal charges
		↓	Days in correctional facilities
		NS	Engagement in violent behaviour
		↓	Depressive symptoms (odds ratio = 0.6)
		↓	Psychotic symptoms
	8½ years	↓	Depressive symptoms (Cohen's *d* = 0.4)
		↓	Substance use (Cohen's *d* = 0.5)
		NS	Suicidal ideation
		NS	Suicide attempts

↓ Statistically significant reductions for program children versus controls
NS No significant difference between program children and controls

6. Discussion

6.1 Summary

We found evidence that child maltreatment can be prevented by providing supports to parents. This included two home-visiting programs — NFP that successfully reduced the incidence of maltreatment[23–24] and Child FIRST that successfully reduced the likelihood of investigations for child maltreatment.[26] Both programs started early — prenatally for NFP and in very early childhood for Child FIRST. Both also assisted disadvantaged families to improve their parenting and helped parents to address their own life challenges. Evidence for NFP was particularly compelling given positive findings from two RCTs, including one with very long-term follow-up.[23–24]

Yet findings were more equivocal for secondary prevention. Of five programs assessed, only two showed success in preventing re-abuse. PCIT reduced the recurrence of physical abuse while MST reduced the recurrence of physical abuse, psychological abuse and neglect.[31–32] PCIT provided parenting and child skill building groups, while MST provided family therapy focused on developing safety plans and helping parents accept responsibility for their behaviours. Some secondary prevention programs have also been associated with poorer outcomes. For example, families who received Intensive Nurse Home Visitation had higher rates of physical abuse and neglect.[28]

We also found very high rates of mental disorders for children in government care. Specifically, a rigorous meta-analysis found that overall prevalence was 49%,[10] nearly four times higher than the 12.7% rate seen in the general population of children.[35] This means that an estimated one in every two children in government care is likely to meet criteria for at least one mental disorder. Consequently, the treatment needs for children in care are considerable. Interventions for preventing and treating conduct and anxiety disorders are particularly needed given the high prevalence of these conditions for children in care. However, it must be acknowledged that high rates of behaviour disorders can be a result of avoidable adverse childhood experiences — for example, often reflecting maltreatment by caregivers and multiple placements within the care system.[10, 53] Therefore these underlying causal issues also need to be addressed.

Yet we also found that prevention programs can improve mental health for children in government care. Both Fostering Healthy Futures and Middle School Success led to positive outcomes.[38–39] Fostering Healthy Futures, delivered to children, significantly reduced child mental health symptoms. Middle School Success, delivered to girls and their foster parents, significantly reduced girls' substance use, including at two-year follow-up. In contrast, the two Incredible Years studies did not show success, with one evaluation even showing better outcomes for control children[36–37] — underscoring the importance of carefully evaluating interventions.

For children in government care with mental health concerns, both treatment interventions showed evidence of success in at least one study. PMTO involved helping parents develop their parenting skills, including providing appropriate supervision and discipline, while MTFC involved developing the same

skills with foster parents. The MTFC studies also included weekly therapy for participating teens, both individually and with their parents. In the one successful PMTO study, the program led to fewer child mental disorder symptoms generally and fewer behaviour problems specifically.[47] In the two successful MTFC studies, the program led to multiple benefits for children including reduced substance use, fewer criminal charges and fewer depressive and psychotic symptoms.[43–44, 48–52]

6.2 Policy and practice implications

Meet children's and families' basic needs. Every family in BC should have the resources and supports they require to meet their children's basic needs. However, despite many families' best efforts, 7.2% of children in BC still live in households where incomes are very low and where it is difficult to meet even their basic needs.[54] These circumstances are occurring in a province where some household incomes are very high — resulting in levels of income inequality in BC that are higher than many other high-income jurisdictions.[55] The need to address poverty has been identified as a significant factor to addressing violence against children in BC.[56] Consequently, greater efforts are needed to lessen income inequality in BC. Reducing family socio-economic disparities in turn supports the health and social well-being of children and their families. When families can meet basic needs, this also mitigates the likelihood of child maltreatment and childhood mental disorders.[57–58]

Invest in preventing child maltreatment. Maltreatment causes many serious social and emotional problems for children — and constitutes a serious violation of children's rights.[59] While not every case can be prevented, effective programs can nevertheless reduce the incidence. NFP, in particular, is supported by robust research evidence based on trials in both the US and the Netherlands. NFP should therefore be a priority as a prevention offering. To this end, BC has invested in a rigorous evaluation of NFP — including with Indigenous children and families. Results will inform future investments in this province and in Canada. (In BC, the program has already been shown to reduce maternal cigarette and cannabis use during pregnancy; other child and maternal findings will follow later in 2022.)[60] Secondary prevention programs should also be considered. Two programs — PCIT and MST — both reduced at least one form of maltreatment. So while primary prevention is always the highest policy priority, these programs offer guidance on how to effectively avert further maltreatment.

Prevent mental health problems for children in government care. When children come into care, there is a collective ethical responsibility to ensure their well-being. Given very high rates of mental disorders for these children, mental health interventions are crucial. To this end, successful prevention programs for this population should be used to lower the burden where possible. Fostering Healthy Futures and Middle School Success were both designed to support mental well-being for children in care — and both showed some success. As well, many other programs have rigorous evidence of success in preventing childhood mental disorders in the general population and could also be offered.[61] When BC children come into care, their mental well-being should be supported by providing effective prevention programming tailored to their specific needs.

Offer effective mental health treatment services for children in government care. When children in care have mental health problems, it is imperative to provide effective treatments — quickly, for all in need. PMTO and MTFC are successful treatments specifically designed for children in care that can reduce conduct, substance use, depression and psychotic symptoms. These programs will likely be particularly helpful given very high prevalence of conduct disorder and depression for children in care. Consequently, these programs, or programs modelled after them, should be offered to BC children in care who have these mental health problems. For children in care with other mental health concerns typical for this population, such as anxiety, ADHD and PTSD, treatments with proven success in the general population should be offered.[61]

Evaluate ongoing mental health needs for children in care in BC. Preventing the need to come into care remains the highest priority. But given the high prevalence of mental disorders for children in care,[53] ongoing evaluation data are needed to inform improvements in services. Aiming to ensure timely access to effective prevention and treatment programs for all children in need, such data could include: measuring child mental health status in the population as a whole using well-established measures like the Brief Child and Family Phone Interview;[34] identifying mental health problems early; and tracking the provision of mental health services and service gaps for all children.

Honour Indigenous children and families and communities. There is also a collective ethical obligation to uniquely support the well-being of Indigenous children. Studies on SafeCare+, Promoting First Relationships, PCIT, Middle School Success and MTFC included Indigenous participants, a starting point for inclusion. But more Indigenous-led studies are needed on culturally appropriate programming. Beyond research, however, the overinvolvement of the child protection system in the lives of Indigenous children reflects the continuation of longstanding public policies that have harmed Indigenous children and families and communities.[62, 6] BC and Canada have adopted the UN Declaration on the Rights of Indigenous Peoples, an historic development.[63–64] Yet many calls to action from the Truth and Reconciliation Commission of Canada's report still await enactment.[6, 65–66] Honouring these calls — and honouring Indigenous children — a crucial next step is ensuring that funding for Indigenous children's services reaches parity with that for non-Indigenous children.[7] Addressing this basic equity issue in turn will help reduce the number of Indigenous children in care, while improving their chances for mental health and flourishing.

On balance, our findings suggest that much can be done to improve children's mental health and overall well-being — by preventing the conditions that lead to children needing to come into care, and by preventing and treating mental health problems when children do come into care. Implementing effective programs such as we have outlined here is also a way of honouring children's rights. These rights are particularly important where the needs are greater — as with children who may be at risk of child maltreatment and with children who have come into government care. They have already coped with so many challenges and should not be asked to cope with inadequate services as well.

Appendices

Search strategy

For this research report, we used systematic review methods adapted from the *Cochrane Collaboration* and *Evidence-Based Mental Health* to search for randomized controlled trials (RCTs) of interventions aimed at preventing childhood maltreatment and improving the mental health of children in government care. We built on work from our previous publications on the same topics by updating those systematic review searches.[67-68] Tables 13 through 15 outline our search strategies for each topic which followed database conventions for ensuring comprehensive identification of potentially relevant articles.

Table A1. Search Strategy for Studies on Maltreatment Prevention Programs

Databases	▪ CINAHL, ERIC, Medline and PsycINFO
Search Terms	▪ Child abuse, maltreatment, emotional abuse, neglect, physical abuse, psychological abuse, sexual abuse, abandonment, domestic violence, intimate partner violence, spouse abuse or battered women and prevention, intervention or treatment
Limits	▪ Peer-reviewed articles published in English between January1998 and November 2021 ▪ Child participants aged 18 years or younger ▪ RCT methods used

Table A2. Search Strategy for Mental Disorder Prevalence Studies for Children in Care

Databases	▪ Medline and PsycINFO
Search Terms	▪ Mental disorders or psychiatric disorders and epidemiology, prevalence or surveys and child welfare, foster, residential, out-of-home, local authority care, child maltreatment or youth welfare institution
Limits	▪ Peer-reviewed articles published in English (with no date limiters) ▪ Child participants aged 18 years or younger ▪ Meta-analysis methods used

Table A3. Search Strategy for Studies on Improving Mental Health for Children in Care

Databases	▪ CINAHL, ERIC, Medline and PsycINFO
Search Terms	▪ Foster care, treatment foster care, multidimensional treatment foster care, specialized foster care, wraparound foster care, kinship care, group care, group home, residential care or residential setting
Limits	▪ Peer-reviewed articles published in English between January 2007 and November 2021 ▪ Child participants aged 18 years or younger ▪ RCT methods used

Research terms explained

Policy-makers need high-quality prevalence data to estimate population needs and to inform service planning. Optimally, prevalence data are derived from **meta-analyses** of multiple high-quality epidemiological studies because the resulting pooled data provide the most comprehensive estimates. To derive accurate prevalence estimates, original studies included in meta-analyses should also measure disorders in **representative samples** — that is, subsets of participants chosen probabilistically to reflect the total population of interest. As well, prevalence studies should use **rigorous diagnostic measures** — that is, instruments that are reliable and valid in identifying "cases" of mental disorders in children.

Policy-makers also need high-quality evidence about whether a given intervention works to help children. **Randomized controlled trials** (RCTs) are a particularly rigorous method for assessing intervention effectiveness. In RCTs, participants are randomly assigned to intervention or control groups. Randomizing participants — that is, giving everyone an equal likelihood of being assigned to a given group — helps to ensure that the intervention is the only difference between the groups. In turn, this process provides confidence that any benefits are due to the intervention rather than due to chance or other factors.

To determine whether an intervention provides benefits, researchers analyze relevant outcomes. If an outcome is **statistically significant**, it helps provide certainty that the intervention was effective rather than appearing that way due to chance. The studies included in this report used the typical convention of having at least 95% confidence that results reflected the intervention's real impact. As well, some included studies determined whether the intervention was clinically meaningful by assessing the degree of difference the intervention made in the young person's life. This was achieved by calculating outcome **effect sizes**, which provide a quantitative measure of the strength of the relationship between the intervention and the outcome. The studies we included reported a variety of effect sizes as described below.

- **Cohen's *d*** has the following standard interpretations: 0.2 = small effect; 0.5 = moderate effect; and 0.8 = large effect.
- **Hazard ratio** reflects the rate at which intervention and control participants experienced an event at a given time; for example, children of parents who did not receive a prevention intervention had 2.5 times higher chances of being removed from the home for maltreatment by one year follow-up.
- **Phi (ϕ)** has the following standard interpretations: 0.1 = small effect; 0.3 = moderate effect; and 0.5 = large effect.
- **Odds ratio** indicates the increased or reduced odds of an outcome occurring; for example, having only 50% odds of maltreatment investigations after participating in a prevention intervention.
- **Relative risk** indicates the degree to which children were less at risk of being maltreated when their parent participated in the intervention, with 0.6 reflecting 40% less risk.

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Competing interests: Charlotte Waddell is co-leading BC's randomized controlled trial on Nurse-Family Partnership, one of the interventions discussed in this review.

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