Effective Interventions for Children and Adolescents With Conduct Disorder

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Many different types of interventions have been used to treat children and adolescents with conduct disorder (CD). Unfortunately, most have had very limited effectiveness and, in some cases, have even shown iatrogenic effects. A primary reason for this limited effectiveness has been the failure of most treatments to directly address the causal mechanisms implicated in the development of CD. A few exceptions that have based interventions on the available research and that have proven to have some efficacy in reducing the conduct problems in youths with CD are reviewed. More important, a model for intervention is presented. This model emphasizes that interventions for youths with CD need to be comprehensive. That is, they need to take into account the myriad factors both within the child and within his or her social context that can cause and maintain CD symptoms. Further, interventions need to be individualized; they need to take into account the different pathways along which children may develop CD. Two intervention approaches that are consistent with these principles are reviewed, as are important directions for advancing treatment technology for youths with this disorder.

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Conduct disorder (CD) refers to a chronic pattern of antisocial and aggressive behaviour in which either the rights of others or major societal norms, or both, are violated (1). Although the severity of behavioural disturbance can vary greatly among children with CD (2), many such children show significant psychosocial impairments. These include impaired educational achievement, poor social relationships, significant conflict with parents and teachers, involvement with the legal system, and high rates of emotional distress, to name just a few areas documented by clinical research (3). In addition to these personal costs, CD is also a very costly form of psychopathology for society. The costs are both monetary and social. Monetary costs include those associated with incarceration to prevent further offending by those children with CD who commit serious delinquent acts; they also include the costs of repairing schools damaged by vandalism. Social costs include the inadequate and unsafe learning environments created in schools by the behaviours of many children with CD. As well, they include the reduced quality of life experienced by those victims whose rights have been violated by children with CD and by others living in high-crime neighbourhoods (4). There is no better example of this costliness to society than the effects of violence committed by juveniles. Most juveniles who commit violent acts show a history of antisocial behaviour consistent with a diagnosis of CD (5). As a result, understanding and effectively treating children with CD is a critical component of any plan to reduce juvenile violence.

Given its great societal implications, it is not surprising that the treatment of CD has been the focus of a large number of controlled treatment-outcome studies. For example, a recent review of published treatment-outcome studies focusing only on psychosocial treatments for children and adolescents with conduct problems documented 82 studies involving over 5272 children (6). The extent of this literature far surpasses the published research on the treatment of most other childhood disorders. Unfortunately, it is possible to conclude from this extensive effort that the vast majority of treatment approaches have proven to be largely ineffective (7). Of even greater concern is the evidence that some types of intervention, particularly those that involve antisocial peer group interactions, can have iatrogenic effects on the children being treated: they actually increase the level and severity of antisocial behaviour, as well as the risk for negative life outcomes as adults (8). Therefore, uninformed and ill-conceived treatments can actually do more harm than good.
One reason for the ineffectiveness of many interventions is that they have often been based on broad theories of intervention developed for treating adults or on political and philosophical pressures to appear “tough on crime” (9). They have not been based on our most current knowledge of the factors that can lead to the development of CD, and they have not considered important developmental issues relevant for working with disturbed youths (10,11). For example, many interventions have ignored the powerful influences of a child’s psychosocial context (for example, family, peer, and neighbourhood). Unless these contexts are modified, it is very difficult to bring about or to sustain changes in the child’s behaviour over time. This is not to say that individual predispositions in a child do not contribute to the development of CD (3) or that these predispositions may not be actively involved in shaping a child’s psychosocial context (12). The critical issue is the need to recognize the transactional nature of the processes that may lead to CD, and most other forms of psychopathology: it is important always to consider the child’s context when designing and implementing treatments.

Although this overview of treatment effectiveness is somewhat pessimistic, 4 treatments have proven to be effective in controlled outcome studies. Given the importance of a child’s social context, it is not surprising that 3 of the 4 effective treatments come from the cognitive-behavioural tradition that emphasizes the role of social learning. The one nonbehavioural treatment that has proven effective is the use of stimulant medication to reduce the impulsivity that can lead to aggressive and antisocial behaviour in some children with CD. Irrespective of their theoretical underpinnings, one commonality of these 4 treatment approaches is that they target processes implicated by research in the development of CD. Table 1 provides a summary of these treatment approaches and the theoretical basis for their use.

An Overview of Effective Treatment Approaches

Contingency Management Programs

The first intervention listed in Table 1 is the use of contingency management programs. The theoretical rationale for this treatment approach has typically focused on the contention that many children with CD come from families in which they have not been exposed to a consistent and contingent environment—a poor socialization experience that plays a major role in their deficient ability to modulate behaviour (for example, to delay gratification or to conform to parental and societal expectations) (13). A structured behaviour-management system is designed to overcome these deficiencies in their socialization. Another rationale that is also consistent with existing research is that some children with CD have a temperamentally vulnerable which makes them more susceptible to a noncontingent environment: they may, for example, be over-focused on the potential positive consequences of their behaviour (such as obtaining a stereo) to the extent that they do not consider potential negative consequences (for example, being arrested for stealing, or affecting the livelihood of the store owner) (14).

The basic structure of contingency management programs is deceptively simple. These programs all involve 1) establishing clear behavioural goals that gradually shape a child’s behaviour in areas of specific concern, 2) developing a system to monitor whether the child is reaching these goals, 3) having a system to reinforce appropriate steps toward reaching these goals, and 4) providing consequences for inappropriate behaviour. These programs have proven to bring about behavioural changes for children with CD at home (15), at school (16), and in residential treatment centres (17).

Although they appear quite simple and straightforward, many behavioural management programs are not used effectively. For example, these programs need to be individualized in terms of selecting both appropriate goals for the child and the reinforcers and punishments that will motivate each child. In addition, many programs do not define goals in a way that allows for systematic monitoring of whether the child is meeting them. Further, many of these systems are typically used solely for behavioural control. Negative consequences for inappropriate behaviour are provided (for example, points are lost for misbehaviour, and fighting results in forced isolation), but there is no mechanism to systematically encourage positive behavioural changes (for example, points are gained for appropriate expression of anger, increased prosocial interactions with peers, or respectful comments to adults). Finally, it has been very difficult to find methods to extend the behavioural changes brought about by the contingency management programs to situations in which the consistent and structured contingencies are not operating.

Parent Management Training

The second treatment that has proven to be effective for many children with CD is Parent Management Training (PMT). A critical focus of PMT programs is to teach parents how to develop and implement very structured contingency management programs in the home. PMT programs, however, also focus on 1) improving the quality of parent–child interactions (for example, having parents more involved in their children’s activities, improving parent–child communication, and increasing parental warmth and responsiveness); 2) changing antecedents to behaviour to enhance the likelihood that positive prosocial behaviours will be displayed by children (for example, learning how to time and present requests or provide clear and explicit rules and expectations); 3) improving parents’ ability to monitor and supervise their children; and 4) teaching parents more effective discipline strategies (for example, more consistent discipline and various approaches to discipline). Deficits in these specific aspects of parenting have been consistently linked to child CD in a large body of research (3,18); of all interventions used to
treat children with CD, the effectiveness of this type of technique has been the most consistently documented (7).

Many very explicit treatment manuals have been developed for implementing PMT for various age groups (for example, preschool [19], school-age [20], and adolescent [21]) and for children with specific needs—for example, children with attention-deficit hyperactivity disorder (ADHD) (22). As a result, readily available sources of guidance exist for the implementation of these programs. Further, these techniques have been provided in many different modalities—with individual parents, with groups of parents, and even through videotaped instruction (23). The level of intensity and method of implementation can be adapted to the needs of the individual family, and these programs can be implemented in a wide variety of settings.

Key limitations of these treatment approaches, however, have been the large number of parents who do not complete the parenting programs and their lack of effectiveness for the most dysfunctional families (7,24). As a result, to increase the effectiveness of these interventions, it is important to focus on ways to engage families in the intervention and to consider the broader family context. This context may include factors that could prevent parents from using the techniques taught in PMT programs, such as parental depression or parental substance use, high rates of marital conflict, or lack of social support for the parents (24). A useful guide for enhancing parental engagement and determining how parenting issues are embedded in the broader family context is an approach called Functional Family Therapy (25). This approach has been shown to be effective in treating older children and adolescents with CD in severely distressed families from diverse ethnic and socioeconomic backgrounds (26,27).

Cognitive-Behavioural Skills Training (CBST)

The third type of intervention that has proven effective is a cognitive-behavioural approach designed to overcome the deficits in social cognition and in social problem-solving experienced by many children and adolescents with CD. Research on children who are aggressive or who have CD has consistently documented deficits in the way they process social information, including the way they encode social cues, interpret these cues, develop social goals, develop appropriate responses, decide on appropriate responses, and enact appropriate responses (28). For example, some severely aggressive children tend to attribute hostile intent to ambiguous provocation situations with peers, making them more likely to act aggressively toward peers (29,30). Other aggressive children tend to associate more positive outcomes for their aggressive behaviour, making them more likely to select aggressive alternatives to solving peer conflict (30).

Most CBST programs include some method of having a child inhibit impulsive or angry responding. This allows the child to go through a series of problem-solving steps (for example, how to recognize problems, how to consider alternative responses, and how to select the most adaptive one to deal more effectively with problems encountered in peer interactions). Despite many commonalities, the various programs do have somewhat different emphases. For example, the Self-Instructional Training Program (31) focuses more on inhibiting impulsive responding, the Anger Coping Program (32,33) focuses more on changing perceptual biases in regard to peer intent by using perspective-taking task exercises, and the Promoting Alternative Thinking Strategies Curriculum (PATHS; 34,35) focuses more on helping the child to develop social skills and gain better emotional awareness.

Each cognitive-behavioural program described above is an explicitly skills-building approach to intervention. The therapist plays a very active role in these programs, modelling the skills being taught, role-playing social situations with the child, prompting the use of the skills being taught, and delivering feedback and praise for appropriate skills use. Most of the programs are designed for a group format. Given the potential dangers in having antisocial individuals interact in groups (8), however, the groups are kept very small, the group interactions are very structured in content, and contingency management programs are typically used to promote the use of the skills and limit inappropriate behaviours. Key limitations to the effectiveness of most cognitive-behavioural programs are the difficulties encountered in getting children to use the skills learned in the program outside the therapeutic setting (36) and to maintain the skills over extended periods of time after the intervention has ended (32). To enhance generalization, several programs have been designed for implementation outside the typical mental health delivery setting (for example in schools [35]), so that the skills are taught in the environment in which they will be used. Also, to promote generalization, most programs include practising skills in various settings. Most important, however, all the programs involve people present in the child’s natural environment, such as parents and teachers, to prompt and encourage use of these skills outside the therapeutic context.

Stimulant Medication

The only treatment approach included in Table 1 that is not cognitive or behavioural in nature is the use of stimulant medication. A large proportion (between 60% and 90%) of clinic-referred children with CD also have ADHD (37). The impulsivity associated with ADHD may lead directly to some of the aggressive and other poorly regulated behaviours of children with CD (2,38). In addition, the presence of ADHD may contribute indirectly to the development of conduct problems through its effect on children’s interactions with peers and significant others (for example, parents and teachers), or through its effect on the parents’ ability to use effective socialization strategies, or through its effect on a child’s ability to perform academically (3). Therefore, reducing
ADHD symptoms is an important treatment goal for many children and adolescents with CD.

The use of stimulant medication is one of the more successful treatments for ADHD (39). Their effectiveness for reducing conduct problems in children with both ADHD and CD has been shown in several controlled medication trials (40–42). For example, in a very structured classroom setting, methylphenidate (Ritalin) significantly decreased the rate of disruptive classroom behaviours, including verbal and physical aggression, teasing, destruction of property, and cheating (41). In fact, medication was somewhat more effective in reducing the level of these conduct problems than was a very intensive contingency management system. In addition to reducing the conduct problems themselves, stimulant medication has proven to reduce many of the secondary problems often associated with CD effectively, improving peer relations (43) and reducing conflict with parents (44) and teachers (45).

There are several important considerations in the use of stimulant medication to treat CD. Specifically, there is little evidence to date that stimulants reduce conduct problems in children without a comorbid diagnosis of ADHD. Also, the effects of stimulant medication can be variable across children, requiring a very carefully monitored medication trial to determine optimal dosage for an individual child (39). Further, optimal behavioural effects are often obtained once the medication is titrated up to a higher dose, but this is also associated with a greater number of side effects (40). And finally, in most studies of children with conduct problems, stimulant medication was rarely given in isolation from other interventions, and the medication’s primary effect may be to enhance the child’s responsiveness to other interventions (for example, it may make the child more responsive to a contingency management program) (39).

Limitations in Existing Treatment Approaches

Although each of the 4 interventions summarized in Table 1 has proven to effectively reduce the conduct problems associated with a diagnosis of CD, even these efficacious treatments have several substantial limitations (7). First, a significant proportion of children with CD do not show a significant response to these interventions, and, for those that do respond, behaviour problems are often not reduced to a normative level. Second, the greatest degree of improvement seems to occur in younger children (prior to age 8 years) with less severe behavioural disturbances. Although this finding highlights the need to focus on preventing CD in young children who are beginning to show problematic behaviours, it also suggests that there is a need for better interventions for older children and adolescents with more severe conduct problems. Third, with some notable exceptions (46), the generalizability of treatment effects across settings tends to be poor. That is, treatments that effectively change a child’s behaviour in one setting (for example, in mental health clinics) often do not bring about changes in the child’s behaviour in other settings (for example, in schools). Fourth, and also with some notable exceptions (47), improvements brought about in the behaviour of children with CD are often difficult to maintain over time. This seems to be particularly true of older children with severe conduct problems (32) and for children from very dysfunctional family environments (7,48).

Given these rather substantial limitations in the technology for treating CD, there has been an increasing focus on comparing how well these existing treatments match what we know about how CD develops and using this research base to guide the development of innovative treatment approaches (3,10). Each of the 4 treatments described in Table 1 targets basic processes that research has shown to be important in the development of conduct problems. These treatments have, however, ignored 2 important additional characteristics of children with CD that have been the focus of much recent research.

First, research clearly suggests that CD is multidetermined: for most children and adolescents who develop CD, it is the end result of a complex interaction among many different types of causal mechanisms, including individual vulnerabilities (for example, poor impulse control or low intelligence), problems in their rearing environment (for example, poor parental discipline or psychopathology in parents), and stressors in their larger social ecology (for example, living in poor, high-crime neighborhoods or having poor educational opportunities) (3). Further, as mentioned previously, these causal mechanisms do not operate independently of each other but typically operate in a transactional and mutually dependent manner (49). For example, an impulsive child may be much more difficult to parent effectively than a child who has better emotional and behavioural regulation, yet the need for more effective parenting to prevent the development of severe conduct problems is likely greater for the impulsive child (50). Interventions that target only a single type of process will only target one of a myriad potential causal factors; the process being targeted for change is likely to be influenced by other factors that are not part of the intervention. This contention is supported by research showing that treatment trials which employ more than one intervention approach, such as combined PMT and CBST interventions, typically are more effective than trials using either intervention alone (51,52).

Second, research suggests that children and adolescents with CD represent a very heterogeneous group with respect to the causes of their behaviour problems (2). There seem to be multiple causal pathways along which children develop CD, each with multiple causal factors involved and each with unique mechanisms playing critical roles in the development of the child’s antisocial and aggressive behaviour. As a result, any
Table 1. Four individual treatments for conduct disorders that have proven success

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Theoretical</th>
<th>Overview</th>
<th>Key references</th>
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<tbody>
<tr>
<td>Contingency Management Programs</td>
<td>These programs overcome inadequate socializing environments in which optimal contingencies for behaviour were not provided to the child (13). They are needed due to a temperamental vulnerability that makes a child more susceptible to fear-based contingencies (14).</td>
<td>These programs establish clear behavioural goals and gradually shape behaviour by using a very structured system of monitoring and applying appropriate contingencies to motivate behavioural changes.</td>
<td>(15,16,17)</td>
</tr>
<tr>
<td>Parent Management Training (PMT)</td>
<td>Inadequate socialization practices are one of the most consistent correlates to CD (3,18). Deficient practices may be a primary causal factor in the development of CD (13). CD development may also be due to the added importance of appropriate socialization in children with certain temperaments (50).</td>
<td>This training has parents develop contingency management programs at home, improves parent-child interactions, and enhances other parenting skills (for example, parent-child communication, monitoring and supervision, and consistent discipline).</td>
<td>(19,20,21,22)</td>
</tr>
<tr>
<td>Cognitive-Behavioural Skills Training (CBST)</td>
<td>Many children with CD show deficits in the way they process social information and in how they use this information to respond to problematic social interactions, which makes them susceptible to acting aggressively in social contexts (28).</td>
<td>This training teaches children in a group format to inhibit angry and impulsive responding, to overcome deficits in social cognition, to use more appropriate social problem-solving skills, and to develop more appropriate social skills.</td>
<td>(33,35,36)</td>
</tr>
<tr>
<td>Stimulant medication</td>
<td>The antisocial and aggressive behaviour of many children with CD results from a tendency to act impulsively, without thinking about the potential consequences of their behaviour to themselves or others.</td>
<td>Provide a carefully controlled trial of stimulant medication for children with CD who have a comorbid diagnosis of ADHD.</td>
<td>(39,40)</td>
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</table>

Source (3,73)

Table 2. Developmental pathways to conduct disorder and potential implications for intervention

<table>
<thead>
<tr>
<th>Developmental pathways to conduct disorder</th>
<th>Characteristics of children in the various pathways</th>
<th>Potential causal mechanisms</th>
<th>Hypothesized implications for treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adolescent-onset</td>
<td>Rebellious, reject traditional status hierarchies, and associate with deviant peers (54,55).</td>
<td>Exaggeration of the normative developmental process of identity development that leads to increase in authority conflicts in adolescence.</td>
<td>Use interventions to promote more adaptive means of developing identity as an autonomous self and interventions that promote contact with prosocial peers and mentors.</td>
</tr>
<tr>
<td>Childhood-onset, primarily impulsive type</td>
<td>High rates of ADHD (49), high levels of emotional reactivity (57), low verbal intelligence (62), and high levels of family dysfunction (61).</td>
<td>Multiple causal pathways leading to deficits in response inhibition and susceptibility to angry arousal that make a child more likely to act without thinking of the consequences, often in the context of high emotional arousal.</td>
<td>Use interventions that reduce impulsive behaviour and promote anger control, that teach coping skills to compensate for these propensities (for example, problem-solving techniques), and that focus on improving parental socialization practices to encourage skill development and help to maintain it.</td>
</tr>
<tr>
<td>Childhood-onset, callous-unemotional type</td>
<td>Preference for thrill- and adventure-seeking activities (for example, low fearfulness) (57), less sensitive to punishment cues relative to cues for reward (14,58), and less reactive to negative emotional stimuli (59).</td>
<td>Temperament characterized by low behavioural inhibition that can interfere with the development of affective components of conscience and the internalization of parental and societal norms.</td>
<td>Intervene early to promote empathy development and internalization of values, and use motivational strategies that capitalize on reward-oriented response style and appeal to self-interest.</td>
</tr>
</tbody>
</table>

Source (3,38)

single intervention, even if it targets multiple causal processes, is not likely to be effective for all children with CD.

Developmental Pathways to CD

Research has begun to define these various developmental pathways more clearly, and this research could be critical for improving our treatment technology. For example, research has fairly consistently documented 2 distinct developmental trajectories along which children develop CD—trajectories that differ in the timing at which the symptoms begin to emerge, the correlates associated with the disorder, and the long-term outcome of the disorder (13,49,53). Children with a “childhood-onset pattern” begin showing severe antisocial behaviour prior to adolescence, show several enduring psychosocial vulnerabilities (for example, neuropsychological impairments, and family dysfunction), and are at high risk for continuing to show a severe pattern of violent and antisocial behaviour into adulthood. Children in the “adolescent-onset” pattern tend to show a more abrupt onset of severe conduct problems coinciding with the onset of adolescence. They also tend to have less dysfunctional family backgrounds, are less likely to have cognitive impairments, are less likely to have problems of impulsivity and overactivity, show a greater desire and ability to maintain social relationships, and show better adult adjustment than their childhood-onset counterparts (54,55).
### Table 3. Focus of needs assessment used to individual fast track intervention

<table>
<thead>
<tr>
<th>Assessment domain</th>
<th>Examples of specific risk factors</th>
<th>Examples of specific protective factors</th>
</tr>
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<tbody>
<tr>
<td>Identity development and personal adjustment</td>
<td>Display of antisocial attitudes that glorify violence</td>
<td>Shows positive sense of self, ethnic identity, and future orientation</td>
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<td></td>
<td>Presence of deviant role models</td>
<td>Exhibits capacity for interpersonal sensitivity, especially empathy and concern for others</td>
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<tr>
<td></td>
<td>Highly reactive and impulsive behaviour in social situations</td>
<td>Demonstrate interests and motivations to support vocational development</td>
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<tr>
<td></td>
<td>Affinity for high-stimulation or high-risk activities</td>
<td></td>
</tr>
<tr>
<td>Family functioning and adult involvement</td>
<td>Family shows high rate of conflict</td>
<td>Presence of family members or other adults who are prosocial sources of support</td>
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<tr>
<td></td>
<td>Problems are evident in parental monitoring of youth activities and setting of appropriate limits</td>
<td>Existence of opportunities for supervised leisure time activity at school or in the community</td>
</tr>
<tr>
<td>Academic achievement and orientation</td>
<td>Evidence of failing grades at school</td>
<td>Evidence of academic competence</td>
</tr>
<tr>
<td></td>
<td>Reports of frequent school suspensions or expulsions</td>
<td>Evidence of parental involvement and support for child's academic success</td>
</tr>
<tr>
<td></td>
<td>Poor school attendance and negative attitudes toward school</td>
<td>Receipt of special services or support at school</td>
</tr>
<tr>
<td>Peer relations</td>
<td>High level of exposure to deviant peers</td>
<td>Shows interest or involvement in positive peer activities</td>
</tr>
<tr>
<td></td>
<td>Alienation from normative peer groups</td>
<td>Shows quality friendships with nondeviant peers</td>
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</table>

Source (74)

These dramatic differences between children in the 2 developmental trajectories have led to theoretical models that propose very different causal mechanisms operating in the development of CD across these groups. For example, Moffitt (49) proposed that children in the childhood-onset group develop CD through a transactional process wherein a difficult and vulnerable child who often also experiences an inadequate rearing environment (see also 13 and 53). This dysfunctional transactional process leads to enduring vulnerabilities in these children that negatively influence their psychosocial adjustment throughout their lives. In contrast, children in the adolescent-onset pathway are not viewed as having enduring vulnerabilities underlying their CD. Rather, their antisocial behaviour is seen as an exaggeration of the normative developmental process of identity formation that takes place in adolescence. Their engagement in antisocial behaviours is conceptualized as a misguided attempt to obtain a subjective sense of maturity and adult status in a way that is encouraged by an antisocial peer group.

While this distinction has gained fairly widespread acceptance, as evidenced by its inclusion in the diagnostic criteria for CD in the most recent version of the DSM (1), research also suggests that a further distinct pathway can be designated within the childhood-onset group (see 2,3,38 for reviews of this research). Specifically, callous and unemotional traits may designate a subgroup within the childhood-onset group whose behaviour is more strongly related to a temperament defined by low behavioural inhibition. Low behavioural inhibition is characterized physiologically by underreactivity in the autonomic nervous system and behaviourally by low fearfulness in novel or threatening situations as well as poor response to punishment cues (56). This is consistent with research showing that youths with CD who score high on callous and unemotional traits show a preference for thrill- and adventure-seeking activities (that is, low fearfulness) (57), are less sensitive to punishment cues than to cues for reward (14,58), and are generally less reactive to certain negative emotional stimuli (59) than are other children with CD. This temperament can be related to the development of callous and unemotional traits in several ways (60). For example, it could place a child at risk for missing some of the early precursors to empathetic concern, which involves emotional arousal evoked by the misfortune and distress of others; it could lead a child to be relatively insensitive to the prohibitions and sanctions of parents and other socializing agents; and it could create an interpersonal style in which the child becomes so focused on the potential rewards of using aggression to solve conflictual encounters that he or she ignores the potentially harmful effects of this behaviour on others.

In contrast, children with childhood-onset CD who do not show high rates of callous and unemotional traits may instead display poor behavioural and emotional regulation that is characterized by very impulsive behaviour and high levels of emotional reactivity. Such poor emotional regulation can result from several interacting causal factors, such as inadequate socialization in their rearing environments (61), deficits in their verbal intelligence that make it difficult for them to delay gratification and anticipate consequences (62), or temperamental problems in response inhibition and emotional regulation (63). Problems in emotional regulation can lead to very impulsive and unplanned aggressive and antisocial acts for which the child may be remorseful afterwards but which the child has difficulty controlling. Such problems can also make a child particularly susceptible to anger due to perceived provocations from peers, leading to violent and aggressive acts within the context of high emotional arousal.
Implications for Treatment

Basic Principles

The developmental pathway model for conceptualizing CD has several important implications for designing and implementing new and innovative interventions. The overarching implication is that there is not likely to be any single “best” treatment for CD. Instead, interventions must be tailored to the individual needs of children with CD—needs that will likely differ, depending on the specific mechanisms underlying the child’s behavioural disturbance. To illustrate this in relation to the developmental pathway model outlined above, Table 2 summarizes the 3 pathways, their differential characteristics, the different mechanisms theorized to underlie the behavioral disturbance of children in each pathway, and some potential treatment implications for each subgroup. As can be seen from Table 2, most of the previously summarized interventions with proven effectiveness mainly target the mechanisms that seem most important for those children within the childhood-onset group who show the primarily impulsive subtype. As a result, the effectiveness of these interventions for this particular subgroup may be even greater than is suggested by the treatment-outcome studies. In contrast, interventions targeting the mechanisms involved in the other 2 developmental pathways, especially those involved in the callous-unemotional subtype, have not been systematically developed and tested.

Apart from these specific implications, several general principles for designing and implementing interventions follow from this way of conceptualizing CD (3). First, to select the most efficacious set of interventions for a child or adolescent with CD, one must understand the multiple causal processes that can be involved in its development. For example, if the developmental progressions that often characterize children and adolescents with CD are recognized, interventions can be implemented as early as possible in the developmental sequence. In addition, this knowledge base can help to determine which processes need to be assessed to develop an understanding of the mechanisms which may be involved in the development of CD for a particular child and, subsequently, can guide decisions as to the most important intervention targets.

Second, this flexible approach to treatment requires that there be a clear, comprehensive, and individualized case conceptualization to guide the design of a focused and integrated treatment approach. A case conceptualization is a “theory” as to what are the most likely factors that are involved in the development, exacerbation, and maintenance of conduct problems for an individual child or adolescent. It uses the research on the developmental pathways to CD and attempts to apply it to an individual child with CD. The case conceptualization also specifies any other problems that may be important targets for intervention, such as secondary problems that are caused by a child’s behaviour (for example, peer rejection) or comorbid psychological disorders. Given the myriad of factors that can contribute to the development of CD and the pervasive effect that CD can have on children’s psychosocial adjustment, an adequate conceptualization often requires a comprehensive psychological evaluation (3).

Third, successful intervention for children and adolescents with CD typically involves multiple professionals and multiple community agencies all working together to provide a comprehensive and integrated intervention. Professionals must be able to recognize when the needs of children and their families go beyond their area of expertise and be willing and able to make appropriate referrals for intervention. Further, comprehensive and multidisciplinary treatment approaches require strong case coordination over extended periods of time to ensure that the various treatment components are provided in an intensive, integrated, and complementary fashion, rather than in a weak, fragmented, and competing manner.

This comprehensive and individualized approach to intervention outlined here and elsewhere (3) has not been subjected to controlled outcome evaluations. Two approaches to intervention that have been used in the treatment of children with CD are, however, consistent with many of the principles outlined above and have data on their effectiveness. Although not directly based on the developmental model of CD, their flexible and individualized treatment approaches can easily integrate and incorporate these principles.

Families and Schools Together (FAST Track)

The FAST Track Program was developed by the Conduct Problems Prevention Research Group (64) to be a long-term, multicomponent, and multisite intervention early in children’s development of conduct problems. The program was designed to target children who were showing severe conduct problems at the time of school entry and to intervene intensively and continuously to prevent these problems from worsening over development. The basic structure of the FAST Track intervention involved a very intensive intervention during the kindergarten year that integrated several intervention components designed to promote competence in the family, child, and school in a coordinated and integrated fashion. All these interventions were community-based, primarily being provided at participating schools. After this initial intensive intervention, children and their families were followed continuously, with periodic assessments; additional interventions tailored to the specific needs of the individual child and family were provided as needed.

The initial intensive intervention involved several treatment components. First, a 22-session PMT program was conducted in a group format. In addition to the previously described typical components of most PMT programs, the FAST Track parenting intervention also included components to help parents foster their children’s learning, to promote positive
family–school relations, and to help parents develop better anger-control and problem-solving strategies for themselves (65). Second, the FAST Track Program included a CBST intervention that focused on helping the child develop anger coping and social problem-solving skills and promoted social-skill development (35). These skills were taught in a small group setting and included weekly 30-minute guided play sessions with a classroom peer, during which the child could practise the skills taught in the group, to promote generalization of skill use. Third, the FAST Track Program included an academic tutoring component designed to improve academic skills, especially beginning reading skills, and to encourage parental involvement in their child’s academic progress. Fourth, the FAST Track Program included a case-management component in which a case manager visited a family’s home biweekly to help the parents implement improvements in family functioning targeted by the PMT intervention. This component also helped families deal with practical problems, encouraged the development of community and neighborhood supports, and generally promoted family organization and stability.

This initial intensive intervention program has several of the components that fit with the previously described intervention model for children with CD. It intervenes early in its development and targets processes that research indicates are important in the development of severe conduct problems. The intervention is community-based (that is, based in the schools), which promotes child and parent engagement in the intervention and allows the intervention to foster community supports that will maintain any changes brought about in the child’s behaviour during the intervention. Most important, it recognizes the multidetermined nature of CD by providing a comprehensive intervention that targets many different potential causal processes which may be leading to or maintaining a child’s antisocial and aggressive behaviour.

In one area, the initial FAST Track intervention did not reflect the principles outlined above; for the most part, the initial intervention was not individualized for each child and family. The notable exceptions were the case-management and school-tutoring components, which did include some flexibility so that they could be tailored to the needs of the individual case. This individualization, however, was reflected to a much larger extent in the later stages of the FAST Track intervention. After the initial intensive phase, a case manager maintained regular periodic contacts with the child and family and 3 times each year assessed the child and the family’s needs in 4 areas: identity development and personal adjustment, family functioning and adult involvement, academic achievement and orientation, and peer relations. Table 3 provides a summary of these areas of need and a description of items used in this assessment. The most appropriate intensity level and intervention type for each child and family was determined based on this needs assessment, and the family was provided with the needed services or referred to professionals who could provide them.

The data on the long-term effectiveness of the full FAST Track Program are not yet available. The program was, however, designed with a strong treatment-evaluation component, which included randomly assigning schools to treatment and control conditions and systematically collecting both outcome and treatment process measures throughout the intervention. Also, information on the effectiveness of the initial intensive intervention is available (66). Specifically, after the first year of the FAST Track intervention, children in the treatment group, compared with control children, showed evidence of better social-coping skills and more advanced word-attack skills. In addition, these improved skills were reflected in more positive peer relations and better grades at school. Parents in the intervention group showed more warmth and positive involvement with their children; used less harsh, and more appropriate and consistent, discipline; and showed more positive school involvement; than did parents in the control condition. On the critical outcomes of child aggressive and disruptive behaviours, assessed by 10 different outcome measures (which included parent and teacher report, peer nominations, and behavioural observations), the intervention groups showed significantly better scores on 4 of the 10 measures, with an average effect size of 0.21 (range 0.02 to 0.53). These changes on conduct problem outcome measures may not be as strong and consistent as would be expected from the intensity of the intervention; however, it is quite possible that the changes in family, child, and peer processes brought about by the intervention had not yet been translated into behavioural changes at this initial 1-year evaluation.

**Multi-Systemic Therapy (MST)**

MST was originally developed as a general approach to intervention for psychopathological conditions (67), but it has been applied extensively to treat severe antisocial behaviour in children and adolescents (68). MST is an expansion of a systems orientation to family therapy. In systemic family therapy, problems in children’s adjustment, such as CD, are viewed as being embedded within the larger family context. MST expands this notion to include other contexts, such as the child’s peer, school, and neighborhood contexts. Although MST is not explicitly developmental in orientation, as reflected by its lack of emphasis on the individual child’s characteristics that may contribute to the development of CD and that may play a role in shaping these contexts. It does, however, emphasize a comprehensive and individualized approach to intervention that is consistent with the principles outlined above for intervening with children who have CD.

MST involves an initial comprehensive assessment that seeks to understand the level and severity of the child’s or adolescent’s presenting problems as well as the systemic context of these problems. The information gained from the assessment
is used to outline an individualized treatment plan based on
the specific needs of the child and his or her family. To illus-
strate this individualized approach, and the comprehensive
nature of MST, Henggeler and Borduin (67) reported on
the treatment of 156 juvenile offenders (mean age 15.1 years),
all with multiple arrests (mean, 4.2). Eighty-eight offenders
and their families underwent MST ranging in length from 5 to 54
hours (mean, 23 hours). In addition to this variation in in-
tensity, the way in which these hours were used varied,
dependent on the needs of the clients. Eighty-three percent of
the MST group participated in family therapy, and 60% partici-
pated in some form of school intervention, which included fa-
cilitation of parental–teacher communication, academic
remediation, or help in classroom behavior management. In
57% of the cases, there was some form of peer intervention,
which included coaching and emotional support for integra-
tion into prosocial peer groups (for example, scouts and ath-
etic teams) and direct intervention with peers. In 28% of the
cases, the adolescent had individual therapy that typically in-
volved some form of CBST intervention. Finally, in 26% of
the cases, the adolescent's parents became involved in marital
therapy.

Unlike the individual interventions described in Table 1, and
even to some degree the FAST Track Program, MST does not
emphasize the use of specific techniques. Instead, it empha-
sizes several principles that follow from its orientation to in-
tervention. These principles include the following: 1) the
identified problems in the child are understood within their
broader systemic context; 2) therapeutic contacts emphasize
positive (strength-oriented) levers for change; 3) interven-
tions promote responsible behavior among family mem-
bers; 4) interventions are present-focused and action-oriented,
targeting specific and well-defined problems; 5) interventions
target sequences of behavior within and among multiple systems; 6) interventions must be develop-
mentally appropriate; 7) interventions are designed to re-
quire daily or weekly effort by family members; 8) inter-
vention effectiveness must be evaluated continuously
from multiple perspectives; and 9) interventions are designed
to promote maintenance of therapeutic change by empower-
ing caregivers (68). MST involves a strong system of inten-
sive supervision by the therapists implementing the
treatment. They must determine how these principles should
be implemented to meet the needs of each individual case,
and they must ensure that the principles are followed through-
out the intervention. Also, unlike the FAST Track Program,
MST is designed to be a time-limited intervention, usually be-
tween 3 and 5 months, depending on the family (68). Its goal
is to establish sources of support in the child's and family's
natural context that will help to maintain any changes brought
about by the intervention over longer periods of time. Consis-
tent with the FAST Track Program, however, MST is de-
gined to be community based, with services being provided,
as much as possible, in the family's natural environment (for
example, at home, in school, or in the neighborhood).

One important contribution of MST to the treatment-outcome
literature is its ability to demonstrate that these individualized
and community-based interventions can be rigorously evalu-
ated through controlled treatment-outcome studies. The ini-
tial findings from the studies on MST's effectiveness for
reducing antisocial and aggressive behavior in even very se-
verely disturbed children have been quite promising. For ex-
ample, in a controlled treatment-outcome study undertaken
by doctoral students at a university-based outpatient clinic,
88 adolescent repeat offenders underwent MST. Their out-
comes were compared with a control group of 68 offenders
who received traditional outpatient services, typically focusing
on individual psychotherapy (69). At a 4-year follow-up,
only 26% of the youths who underwent MST were rearrested,
compared with 71% of the control-group adolescents. In a
second outcome study of MST, intervention was provided by
master's level therapists at a community mental health centre
(70). The sample included adolescents who had been adjudi-
cated as delinquent and had multiple arrests. These adoles-
cents were randomly assigned to receive either MST or the
standard services provided by the juvenile justice system.
The group receiving MST showed one-half as many arrests
and spent an average of 73 fewer days incarcerated than did
adolescents who received standard services. These 2 studies
illustrate the very promising nature of MST for treating here-
tofore very difficult-to-treat persons with CD, namely, ado-
lescent juvenile offenders with multiple arrests. Henggeler
and others provide examples of several additional ongoing
outcome studies of MST (68).

The Future of Interventions for Children and
Adolescents with CD

This review illustrates that the traditional view of mental
health treatment, in which the optimal treatment for persons
with a disorder is uncovered through treatment-outcome re-
search and then applied to all persons with the disorder, is not
consistent with our most current understanding of the devel-
opment of CD. Not surprisingly, treatments based on this
view have proven to be woefully inadequate. Instead, there is
emerging evidence that, to be effective, treatment must be
comprehensive, taking into account the myriad factors within
the child and within his or her social context that can cause
and maintain CD symptoms. Moreover, treatment must be in-
dividualized, taking into account the different pathways
along which children may develop CD. The FAST Track Pro-
gram and MST are examples of 2 different models for imple-
menting this type of intervention. The development and use
of this approach to intervention is still, however, in a very
early stage; there are several important elements that could
increase their effectiveness and lead to their more widespread
use.
First, a key aspect of the interventions that have proven even minimally effective in treating CD is that they were based on our understanding of the causal and maintaining factors for its symptoms; there is a clear dependence between advances in research on the causes of CD and the development of more effective interventions. As the various pathways along which children and adolescents develop CD become more fully understood, our ability to design interventions specifically tailored to alter these processes, or to modify their consequences, is also likely to be enhanced. For example, in the previously outlined developmental model of CD, distinctions have only recently been made between those children with callous-unemotional traits and those without such traits. Therefore, studies of the unique processes involved in the development of CD for children in the 2 groups are equally recent. As a consequence, most of the developed and tested interventions do not address the processes that may be most important for children with callous and unemotional traits. Therefore, support for basic research into the causal pathways that lead to CD needs to be considered a priority, and future interventions need to be responsive to advances in this research.

Second, service delivery models to implement comprehensive and individualized treatment approaches are only beginning to be tested, and much more needs to be done to determine how they can be designed in the most effective and cost-efficient manner. Critical components of program development are knowing what processes to consider in designing an intervention plan, knowing how to design a system to assess these processes, and knowing how to use the assessment results to meaningfully inform treatment decisions. Unfortunately, the assessment and diagnosis technology has not always been responsive either to advances in basic research or to the need to make assessment results relevant to practice (71). Similarly, the training and the variations in organizational structure required to establish a system for implementing effective, cost-efficient, comprehensive, and individualized interventions need to be systematically studied (68). Finally, there is emerging evidence that these interventions are most effective when they are community-based and provided outside traditional mental health service-delivery settings. This implies that mental health practitioners need to become better trained and more knowledgeable about establishing community linkages for service provision.

Third, dissemination of knowledge about effective treatments is critical, as is provision of supportive services in the design of care systems that reflect this knowledge. This treatment approach does not fit with many political philosophies regarding the treatment of antisocial youths, and it differs in many respects from the way many mental health professionals were trained to deliver services. As a result, a concerted effort is needed to inform both the professional and lay community about the current status of intervention for CD.

### Clinical Implications

- Interventions for children and adolescents with conduct disorder (CD) must be implemented cautiously because many treatment approaches have proven ineffective, and some have even proven to have harmful effects.
- Designing interventions for youths with CD must be guided by basic research; most successful treatments have focused on processes that research has shown to be important in the development or maintenance of the disorder’s symptoms.
- Successful interventions need to be comprehensive, addressing the many different factors that can lead a child to develop CD, they also need to be individualized, addressing the different causal trajectories that can lead to this disorder.
- Multi-Systemic Therapy and the FAST Track Program are 2 models of an individualized and comprehensive approach to intervention that can be used to guide current practice.

### Limitations

- More research is needed to understand the various causal pathways involved in the development of CD to guide individualized interventions.
- More research is needed to design service delivery models that are both effective and cost-efficient.
- Greater effort to disseminate model treatment programs is needed, given that effective interventions use a treatment approach in which many mental health professionals were not trained and given that political values may influence the selection of alternative treatment methods in some settings.

Supporting efforts to use this information in designing interventions are also needed. An example of such an effort is the Blueprints for Violence Prevention program, which identified 10 violence-prevention programs that met very rigorous scientific standards of program effectiveness and 20 promising programs with evidence of effectiveness, but which require further support (72). The Blueprints provide practical descriptions that allow states, communities, and agencies to evaluate a program’s effectiveness, estimate the implementation cost, assess their organizational capacity to implement it, and assess potential barriers to implementation. The Blueprints also list references for the necessary contacts for each program (72).

In recent years, there have been many advances in our understanding of what causes of severe antisocial and aggressive behaviour and in our development of effective treatments for youths with such behaviours, many of whom are diagnosed with CD. These interventions, however, require models than the ones in which many mental health professionals were trained. In addition, the goals of these interventions may be different from the goals of interventions based on political ideologies of how aggressive and antisocial behaviour should be treated. Given the severe and impairing nature of CD, and the social costs that result from the behaviours of youths with this disorder, it is imperative that mental health professions promote interventions that reflect these advances and contribute to the development of further advances in both research
and service delivery. The conclusion that many children with CD are un treatable is not supported by the available evidence; instead, it seems that those in the field are only now beginning to understand how best to treat them. Granted, the documented evidence for treatment success is still minimal, and this optimism may prove to be unfounded. Nevertheless, there clearly is a definite framework within which mental health professionals can design intervention programs, and this fact alone provides great cause for optimism.

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Résumé— Interventions efficaces auprès d’enfants et d’adolescents souffrant des troubles de conduite

De nombreux types différents d’interventions ont été utilisés pour traiter les enfants et les adolescents souffrant des troubles de conduite (TC). Malheureusement, la plupart se sont révélés d’une efficacité limitée et, dans certains cas, ont même provoqué des effets iatrogènes. Cette efficacité limitée est principalement attributable à l’incapacité de la plupart des traitements d’aborder directement les mécanismes causaux du développement des TC. Nous avons examiné quelques exceptions qui ont fondé les interventions sur la recherche disponible et qui se sont révélées d’une certaine efficacité pour réduire les problèmes de conduite chez les jeunes souffrant de TC. Et surtout, un modèle d’intervention est présenté. Ce modèle souligne que les interventions auprès des jeunes souffrant de TC doivent être complètes, c’est-à-dire qu’elles doivent prendre en compte la foule de facteurs, à la fois chez l’enfant et dans son milieu social, qui peuvent causer et maintenir les symptômes de TC. En outre, les interventions doivent être individualisées: elles doivent tenir compte des différents mécanismes par lesquels les enfants peuvent développer les TC. Deux approches d’intervention conformes à ces principes sont étudiées, comme le sont les grandes orientations de l’évolution de la technologie des traitements pour les jeunes souffrant de ces troubles.