TUTORIAL

A Flow Chart of Behavior Management Strategies for Families of Children with Co-Occurring Attention-Deficit Hyperactivity Disorder and Conduct Problem Behavior

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Abstract Behavioral parent training is an evidence-based treatment for problem behavior described as attention-deficit hyperactivity disorder (ADHD), oppositional defiant disorder, and conduct disorder. However, adherence to treatment fidelity and parent performance of the management skills remains an obstacle to optimum outcome. One variable that may limit the effectiveness of the parent training is that demanding behavior management procedures can be deceptively complicated and difficult to perform. Based on outcome research for families of children with co-occurring ADHD and conduct problem behavior, an example of a visual behavior management flow chart is presented. The flow chart may be used to help teach specific behavior management skills to parents. The flow chart depicts a chain of behavior management strategies taught with explanation, modeling, and role-play with parents. The chained steps in the flow chart are elements common to well-known evidence-based behavior management strategies, and perhaps, this depiction will serve as a setting event for other behavior analysts to create flow charts for their own parent training. Details of the flow chart steps, as well as examples of specific applications and program modifications conclude.

Keywords Behavioral parent training · Behavior management · Conduct problems · Flow chart · ADHD · Oppositional defiant disorder

Compelling outcome data indicate that behavioral parent training is an evidence-based treatment for problem behavior in the family associated with both attention-deficit hyperactivity disorder behavior (ADHD; Chacko, et al. 2015; Pelham et al. 1998) and disruptive behavior constellations such as oppositional defiant disorder (ODD) and conduct disorder (CD; Handwerk et al. 2012). In spite of documented efficacy, barriers to successful implementation of parent training include premature termination, poor attendance (Minney et al. 2015), the intensity and form of the child's behavior (Stocco and Thompson 2015), and the duration of the training (Graziano et al. 2015). Other broader contextual barriers include socioeconomic status, marital conflict, and maternal depression (Chronis et al. 2004). Furthermore, adherence to treatment fidelity and parent performance of the management skills remains an obstacle to quality outcome (Bellg et al. 2004; Borrelli et al. 2005).

As Shriver and Allen (2008) noted, “Even after skills training, there are many possible barriers to parents’ actual application of these skills in everyday life” (p. 8). It is wise to consider that when we ask parents to perform behavior management skills, they must often perform those skills in an inherently stressful/emotional situation that might be incompatible with optimal skill performance. One parsimonious yet often overlooked variable that may limit the effectiveness of parent training is that behavior management procedures place many demands on parents that are deceptively complicated and difficult to master and perform outside the training setting (Lundahl et al. 2006; Sajwaj & Dillon, 1977), particularly for parents with a limited behavior analysis background. As Chacko et al. (2015) observed, “The ‘doing’ phase is where the most challenges occur” (p. 523), and recommendations include sticky note reminders of how to implement skills. Prevention and management of clinically significant defiant and disruptive behavior across time and settings is difficult.

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The issue is treatment fidelity, adherence to the critical components of the behavior management training (Perepletchikova and Kazdin 2005). The link between treatment fidelity and positive outcome for children and youth with conduct problem behavior is well documented (Burke et al. 2011; Henggeler et al. 1997), and one variable related to the link between fidelity and positive outcome is ease of use in the community (Wilson and Lipsey 2007). In response to this challenge, an example of a flow chart that might facilitate child behavior management parent (or teacher/staff) training is presented. The purpose is to exemplify how a flow chart depiction of behavior management strategies can supplement parent training that includes explanation, modeling, and role-play with feedback.

This example of a flow chart details for parents the specific steps they should take when presenting a child with a direction or when responding to aggressive or violent outbursts. Although prescriptive in nature, the flow chart is consistent with a wide array of well-known evidence-based behavior management programs (c.f., Barkley 2013; Zisser and Eyeberg 2010; McMahon and Forehand 2003; Patterson 1982; Webster-Stratton and Reid 2010) that contain common elements (Garland et al. 2008) consistently reflected in the flow chart. The purpose is to present an example of a flow chart that might encourage other behavior analysts to design their own customized flow charts that meet the unique challenges of their individual clients.

Co-Occurring ADHD and Conduct Problems

This specific flow chart was originally designed for children with ADHD behavior co-occurring with CP behavior such as ODD or CD. Outcome data attesting to the efficacy of similar flow charts are available (Danforth 1998a; 1999; 2001; Danforth et al. 2006; Danforth 2008; Weist & Danforth, 1998). Consistent with established precedent, CP refers to a wide array of disruptive behavior including ODD and CD behavior (Lynam 1996; Waschbusch 2002). Children with ADHD behavior are at great risk for developing CPs, for example, antisocial and disruptive behaviors, hostile and defiant behavior, and overt and covert aggression. Co-occurrence estimates for ADHD and ODD or CD range from 30 to 60 % (Biederman 2005) to 45–84 % (Pliszka 2015). These estimates are even greater in male populations referred for treatment (Connor and Doerfler 2008; Kutcher et al. 2004).

Children with ADHD behavior and co-occurring behavioral disorders exhibit more severe behavioral impairment than children who do not exhibit a co-occurring disorder (Pliszka et al. 1999). For example, compared to children with ADHD behavior alone, children with co-occurring ADHD/CP behavior have more intense ADHD characteristics (Waschbusch 2002), more pronounced neurodevelopmental impairment

(Moffitt 1990), hyperactive and impulsive features that are likely to persist longer across time (Biederman et al. 2011; Tandon et al. 2011), and parents who are more likely to also have ADHD behavior (Deault 2010). Among children with CP behavior, those with co-occurring ADHD behavior have more severe ODD and CD behavior across all age groups. Furthermore, the behavioral features of these CPs develop earlier (Lynam 1996; Waschbusch 2002) and persist longer (Odgers et al. 2007, 2008) in children with the co-occurring presentation, including an earlier onset of the more severe features of juvenile delinquency (Sibley et al. 2011). The development of ADHD behavior typically precedes the onset of CP behavior (Thapar et al. 2006). The flow chart presented here accommodates the disability features of ADHD behavior (e.g., instructions are presented twice to accommodate inattention and distractibility, see below) while the child is held accountable for defiant and aggressive behavior.

To be sure, the operationally defined behavior emitted by the child is more important than the DSM-5 category (American Psychiatric Association 2013) based on that behavior. This manuscript tries to adhere to Malott's (2008) recommendation that we refer to "children with ADHD behavior" or "children with ODD behavior" etc. Idiographic assessment, including functional assessment, is more critical to establishing individualized target behaviors and treatment procedures. Behavioral and functional assessment determines the necessity (or lack thereof) of some of the steps in the flow chart.

Parent Training

Part 1: Interactions Between Adults and Children With Co-Occurring ADHD/CPs

The parent training has two parts. Part 1 is a didactic analysis of interactions between parents and their children with defiant ADHD behavior. Before teaching the behavior management skills with the flowchart, the trainer presents a theoretical framework based on an analysis of interactions between parents and their children. Space prohibits presenting these details here, but briefly, the framework includes a description of the behaviors characteristic of ADHD, a very brief review of ADHD etiology, a discussion of relevant behavior analytic principles (e.g., the three-term contingency, the impact of immediate versus delayed consequences, positive and negative reinforcement, punishment), and an analysis of why so many children with ADHD behavior also learn CP behaviors (Danforth et al. 1991, 2014; Modesto-Lowe et al. 2008).

For parent training skills to generalize across settings and time, it is important that adults understand the functional relationship between (a) ADHD behavior and learned CP behavior, (b) the behavior management steps presented in the flow chart, and (c) how parent variables are related to successful

implementation and outcome (Harvey et al. 2003; McKee et al. 2004). Quite important is the role of coercive parent/child processes, the dearth of vocal reinforcement, high-rate punishment, and intense parent overreaction followed by lax parent acquiescence that is present before the development of CP behavior (Burke et al. 2008; Patterson et al. 2000). Perhaps due to parent stress in response to the incessant and disturbing nature of ADHD behavior, these undesirable parenting attributes are more common in parents of children with ADHD than in parents of children without ADHD behavior (Danforth et al. 2014). When presenting the behavior management strategies to parents, the trainer should often refer back to this material.

Part 2: The Flow Chart

A behavior management flow chart is presented in Fig. 1. This version of a flow chart is a result of an ongoing review of child behavior management research (c.f., Danforth 1998b; 2007). A task analysis of the research was conducted. The task analysis was used to subdivide behavior management responses into a distinct chain of responses in their proper order. The flow chart is based on the task analysis chain. The flow chart is a graphic representation of successive behavior management steps using symbols interconnected with lines. Each behavior management skill/step taught to parents is supported by specific research on that component parenting strategy. The flow chart serves as a visual prompt for a chain of parenting responses that are a significant part of the therapy. Written training materials, in outline form, are presented together with the flow chart and correspond to the steps of the flow chart.¹ The flow chart and parent training materials are always presented in conjunction with verbal explanation, trainer modeling, and role-play with trainer feedback (Parsons et al. 2012). Additional examples of how the parent trainer may adjust the flow chart to specific challenges are presented in the “Application and Discussion” section. This flow chart was made using the Sigmaplot program. One could also make a flow chart using programs such as GraphPad Prism, Microsoft Excel, Visio, PowerPoint or Word, Apple Pages, Numbers, or Keynote, and Adobe Acrobat.

The legend in the lower left hand box of the flow chart describes the role of each geometric figure. Rectangles indicate a parent response. Diamonds indicate a yes/no option. A question mark follows the phrase in each diamond, from which two lines emerge. One line indicates that “yes”, the condition described in the diamond was met and the second line indicates that “no”, the condition was not met. Circles indicate that the interaction is complete. The flow chart represents a chain of parent responses, and those responses are

taught in a forward chaining manner. As such, the first parent response is the decision whether or not the child must follow this direction, and this is the first skill taught etc.

At least two versions of the flow chart are presented. When adults are practicing steps 1–9, a shorter flow chart illustrating just those steps is used. Later in the training, when parents learn and utilize all of the steps, the entire flow chart is used. Individual trainers could introduce the flow chart in chunks or subdivide the flow chart into smaller units as they see fit. Rather than presenting the corresponding training materials to parents all at once, the pages of the training materials are presented in sequence as they are taught. Because of this, the training material pages are not stapled together as one unit.

When parents practice the program in training, they use the flow chart as a visual prompt. A visual flow chart increases the saliency of the procedural steps because the figures are easily discriminable, thereby decreasing errors during learning trials. To enhance procedural fidelity, the wording within the flow chart is succinct (Reid et al. 2012). Trainers could also color steps. For example, if a parent has a low rate of praise (Steps 5 and 14), those steps could be highlighted in red, or the warnings (Steps 11 and 23) could be colored yellow. When parents use their new skills at home, they are presented with multiple copies of the flow chart and encouraged to post them for reference. Later in the training, when parents use their new skills in the community, they are given wallet-sized laminated copies of the flow chart to keep on their person, or files of the flow chart are sent to parents who may save them in their mobile devices. Generalization across settings and over time may be facilitated because parents have copies of the flow chart at which to look. In effect, parents have an accessible, portable waterproof literature review in their pocket or on their phone. There is enough flexibility in the design to use the same flow chart across settings in the home and community (and school); there are no tokens to carry or points to calculate.

The flow chart parent training steps are detailed here. This information is read while observing the flow chart; the steps in the text correspond with the operationally defined steps in the flow chart.

Step 1. Must the child follow this direction? The first step for parents is to decide if the child must (is required to) follow the direction. Parents often restate this step as “pick your battles.” The result can be fewer directions presented, which is correlated with a higher compliance ratio (a higher percentage of directions followed).

Step 2. Option. Ask child to do the task If the parent decides that “no”, the child is not required to follow this specific direction, then the parent has the option to give the child choices, often in the form of questions (the interrogative form) or favors, but only if the child truly has a choice. For example, if it is 55° outside, the parent may ask the child, “Diego, do you

¹ The parent training materials are available in PDF from the author. E-mail: danforthj@easternct.edu.

sequence. The target skill at this stage of training is a reduction in the rate of required parent directions.

Step 3. Decide if the child has started to follow directions
Based upon the child's response, the parent determines if the child has begun to follow the direction.

Step 7. Instructions or directions with a reason From Step 1, if the parent decides “yes”, the child must do the task, they go to Step 7, having made the decision that they will hold the child accountable for compliance. The instruction is a reasonable place to begin because parent directives serve as one of the most common antecedents to child disruptive behavior, but children need a lot of direction to function throughout the day, especially children with ADHD behavior, so instructions are common in the environment of such a child. Seven characteristics of an instruction help establish its strength as a discriminative stimulus for compliant behavior.

First, parents address behavior that the child has to do currently, not later; parents stay in the present moment. For example, rather than instructing a child to, “put your plate away after you eat”, parents might preview the command (e.g., “after you eat, you’re going to have to put that plate away”).

and then when the meal is done parents say, “put the plate away now please”. Second, as part of the command, parents embed the reason why the child has to do something within the body of the direction. For example, “Connie, if we leave the milk out, it will go bad. So, please put the milk in the refrigerator.” A non-example includes obscure explanations such as, “It is important to me that you do this.”

Third, before presenting the command, parents make sure that the child is oriented to them. Parents (a) get reasonably close, within 10 ft, (b) use the child’s first name, and (c) establish eye contact. It is a paradox that a child may not comply to the direction, “Look at me” because they are not looking at the parent, and therefore this directive is not recommended. Fourth, parents present the direction in the imperative form, signifying that compliance is expected and thereby strengthening the discriminative control of the direction. Parents do not present commands that must be followed as questions or favors. For example, “Make your bed, please.” Non-examples include, “Do you want to make your bed?” which is a question, or “Will you make your bed for me?” which is asking a favor.

Fifth, parents operationally (“clearly” is the word used with parents) define the behavior they want the child to do. Vague, unclear instructions have weak discriminative control over compliance. An example of a clear instruction is, “Robert, in the store, stay in the same aisle as me”. Examples of vague instructions include, “Act your age”, “Get it together”, and “Be good in the store”. It is worthwhile to note that declarations describe the state of events, but they do not tell a child what behavior to do. For example, “It is supper-time” informs the child that it is the time of day when supper is eaten, but it does not tell the child to move to the room where supper is served. Declarations do not define a response. Sixth, if it is probable that a child will defy, parents present short instructions that have few steps. When the child is having the most difficulty following instructions, parents present one-step instructions. For example, “Susan, it is time for school, so go into your room to get ready.” Then, when Susan is in her room, parents say, “Susan let’s get dressed for school, get out some pants,” etc. Parents take it one step at a time. A non-example is, “David, get ready for school.”

Finally, if the child must follow the instruction but parents present it in a way that does not meet this standard, then they do not move on to Step 8. The probability of compliance is too low. First, parents restate the instruction properly. For example, if Caroline must wear a hat because it is cold outside, and parents say, “Do you want to put your hat on?” while they are 20 ft away looking at a computer screen, then Caroline is unlikely to comply and it is unreasonable to discipline a child for noncompliance if we can predict that the child will be noncompliant. Therefore, parents start over. They go to Caroline and establish eye contact while they restate the direction, “Caroline, it is cold out, so put your hat on.”

Throughout, encourage parents to take their time. Slowly framing the topography of an instruction takes much less time than episodes of defiance.

Step 8. Wait Silently The child is allowed a minimum of 5 s to start following directions. This period may be individually increased for children based on learning or intellectual disability. One theme is “slow down.” In the presence of hyperactive behavior, adults tend to respond at a higher rate with short interresponse times. This is not conducive to high-quality parenting.

After presenting the command, parents are silent. They do not interfere with or distract the child until she begins to follow directions or 5 s passes. Parents stay within 10 ft, not glaring at but looking toward the child. This is the point in the flow chart when children with CP behavior begin to argue. It is critical that parents avoid engaging in a bidirectional argument that escalates into an aversive coercive exchange and then ultimately lax acquiescence (c. f., Danforth et al. 2014; pp. 5–8). In outcome research debriefing, parents consistently reported that this was the hardest step.

If the child asks an appropriate question or makes a reasonable request to postpone the task, adults may defer the instruction. For example, after being told to put her crayons back in the box, a girl may say, “Can I finish coloring this picture?” If the parent decides to let her finish coloring, then they exit the flow chart and begin with Step 1 again when they are ready to have the child put her crayons away. Few guidelines are available to distinguish appropriate delay from coercion so this issue is best addressed in Step 1, is compliance necessary right now?

Step 9. Decide if the child has started to follow directions

Based upon the child’s response, not what they say they will do, the parent determines if the child has begun to follow the direction.

Step 5. Praise Praise designed to function as reinforcement has four parts. First, the critical target behavior is “beginning to follow directions.” The target behavior is not “finishes the direction” because one defining characteristic of ADHD behavior is “often does not follow through on instructions...is easily sidetracked” (American Psychiatric Association 2013, p. 59). We do not discipline children for neurodevelopmental ADHD behavior; we will discipline for learned defiance, a defining characteristic of CP behavior. The moment the child starts to follow directions, parents praise them in an effort to reinforce initiating following directions. Second, parents make a positive comment about the child or his behavior. Third, parents label the desired behavior (or response product or outcome). Fourth, parents try to present praise paired with positive emotion and a smile. If the child does not have a co-occurring tactile sensory deficit, then parents may use a nice

physical touch if they want. For example, a smiling adult who says, “You came inside when I asked you, Mark. Good job.”

Parents do not reprimand the child for past behavior while simultaneously praising them for current behavior. This reprimand might weaken the reinforcing effect of the praise, and the latency between the past undesirable response and the current time is too long for this scolding to punish the undesired behavior. For trainer and parent, an essential principle is treatment at “the point of performance”; the most effective treatment will be in the place at the time of the behavior (Ingersoll and Goldstein 1993). A non-example is “You were really polite when we ate supper; why were you so rude at breakfast?”

Starting to follow directions is the key. Even when a child with ADHD behavior starts to follow directions, they may not finish the task. If they start to follow directions, but then get off task and do not finish, the parent begins at Step 1 and presents a direction to start again.

Step 6. Out (again) The interaction is over.

Step 10. Reprimand From Step 9, if “no”, the child does not follow directions, parents present a verbal reprimand. Parents discipline the child at the fifth second after defiance. They name the target behavior or describe it. For example, “Jack, you are not following directions.” In terms of discriminative control, it is best if each parent has at least three discriminable voice tones: (a) a conversational tone for direction, (b) upbeat praise, and (c) firm concise reprimands. This is an excellent skill to role-play and rehearse. Parents make eye contact (glare) and stay within 10 ft of the child. The reprimand is concise.

For example, a parent may walk toward a child, look them in the eye, and with no smile firmly state, “Linda, you did not turn off your iPod when I told you to.” Non-examples include ignoring, laughing, or distracting because the natural outcome for the child is often escape/avoidance of the assigned direction or reinforcing attention following defiance.

Step 11. Warning about timeout After the reprimand is taught, parents go home and practice steps 1–10. When parents return the next session, idiographic assessment might determine that these primarily preventative strategies resulted in behavioral gains, thereby precluding the necessity of timeout and thus the program stops at Step 10. If assessment reveals ongoing behavioral challenges, parents are taught to present a warning about timeout as part of the reprimand. This explains the bracket in the flow chart above Steps 10 and 11 that connects the two steps.

Parents present one concise warning that if the child does not follow directions he will go to a timeout. The warning includes (a) naming the desired response and (b) what will happen if the child does not do that behavior. It is not

necessary for parents to use the word “timeout.” An example is, “Rex, this is a warning, if you do not follow directions and put your jacket away, you will have to sit on the stairs.” Some parents present the timeout warning in the form of a choice. For example, “Hank, either get off the floor and do your work or you have to go sit on the couch by yourself.” Parents continue to make eye contact, use a firm steady voice, present assertively without yelling, and stay within 10 ft.

Step 12. Wait silently Again, the child is allotted 5 s to begin to comply with the direction that was part of the warning. If the child remains defiant, the next step is timeout. When the parent–child dyad has a history of aversive coercive interactions, some parents lengthen the interresponse time here, which seems to function to avoid/postpone the disciplinary episode that has been paired with aversive interactions in the past. It is best to define a time together with the parent. Again, this is the step when argumentative defiance is more probable. Parents avoid engaging in bidirectional arguments that escalate.

Step 13. Decide if the child has started to follow directions

Step 14. Praise If “yes”, the child starts to follow directions after being warned about the timeout, parents present verbal praise. Consistent praise is presented whether the child followed the first direction or a direction after a warning because children with ADHD behavior respond significantly better to a dense schedule of reinforcement at the point of the response (see Luman et al. 2005, for a review), and among children with ADHD co-occurring with CP, praise is negatively associated with CP behavior (Falk and Lee 2012). The aversive consequence for not following directions is timeout, not lack of praise for following subsequent directions, and sometimes timeout does not work well because of a lack of praise and other reinforcers in the child’s time-in environment. Finally, it is more parsimonious for parents to try to praise the child every time they follow directions rather than having to make discriminations about when they should or should not praise compliance.

Step 15. Out The interaction is over.

Step 16. Timeout (timeout from positive reinforcement) Reviews of empirically supported behavior management programs show that each includes a timeout component (Shriver and Allen 2008); timeout is one of the most commonly used strategies (Chacko et al. 2015). In this example, it takes at least two sessions to teach the skills to implement timeout, not including follow-up sessions.

In the first session, parents learn that the purpose of timeout is to make the behavior it follows occur less often or with less

intensity, it is punishment. Timeout might weaken aggressive behavior because the child moves from a more reinforcing to a less reinforcing place. The key has always been a reinforcing time-in setting (Wolf et al. 1964). Timeout can also interrupt parent–child conflict that is part of the coercive exchange. Before using timeout for the first time, parents go home and make three decisions.

Three Decisions. First, parents select up to three behaviors that result in timeout. Not following directions is one timeout behavior because of its role in coercion and its relationship with numerous deleterious outcomes. Sometimes, it is easier to begin with just this one target behavior, defiantly not following directions. As their skills improve, parents select other intense misbehavior such as physical aggression, property destruction, rude or abusive talk, and tantrum. These other intense and disruptive target responses do not get a warning. Instead, when these behaviors happen, parents automatically move to the diamond above Step 16 on the flow chart and send the child directly to timeout without a warning.

Second, parents search their home and select a place(s) for timeout that lacks reinforcing properties. Parents select a location(s) with clear physical boundaries because operationalization helps parent and child determine if the child is in the proper location. Third, parents make a list (a “menu”) of backup disciplines to select from if the child refuses timeout. Details about the backup are in Step 26.

Steps in Timeout. The steps to complete a timeout are as follows. First, when the target behavior occurs, parents describe it and tell the child that they must go to timeout. For example, “Santiago, you did not follow directions when I told you to put your coat on so you have to sit on the stairs.” Parents present this in reprimand form and say it only once, disengaging from discussion and argument (see Steps 8 and 12). Parents often ask what to do if the child starts to follow the original command after parents tell them to go to timeout. The child still has to go to timeout because we want the discriminative stimulus for compliance to be the direction, not the phrase directing the child to timeout.

Second, when the child arrives at the timeout site, parents tell the child, “Stay there for n minutes; I will decide when you can leave.” The required timeout duration is approximately 1 min per year of developmental age. With children ages 3 and 4 or those with intellectual disabilities, this can be lowered to anywhere from 15 to 120 s. Third, parents do not converse with the child again until the timeout is complete. Fourth, parents do not watch over the child; they do not stare at the child. Instead, parents move away and engage in another activity. Overall, parents ignore the child’s behavior unless it is disruptive to the household or damaging to property. The more parents can ignore the better.

Timeout Preview with the Child. After parents make the three decisions and the timeout steps are modeled and rehearsed in training, parents sit with the child at home and

calmly explain the (a) target behaviors, (b) timeout location, (c) behaviors required of the child in timeout, and (d) the backup discipline if they refuse timeout (see Step 26). Each adult implementing the behavior management program participates in the preview; parents, live-in grandparents, etc. Parents do not use timeout for other misbehavior until it has been previewed with the child.

A paraphrased example of a script trained to parents of an 8-year-old boy is presented here. When the boy is behaving well, parents approach the child, “[Name], you are doing good right now, you’re doing a good job, but sometimes you have a hard time following directions or swearing, and we want to help you with that. So, every time you don’t follow directions or you swear, you will have to sit on the stairs for 8 min (point to the stairs). I will not talk to you when you are on the stairs. Don’t get off the stairs by yourself; I will tell you when you can get off. If you don’t follow directions or you swear, and then you won’t go to the stairs when we say to, you will be in big trouble (parents describe some of the backup consequences, see Step 26). But you are following directions right now so you are doing a good job now.” In this example, the mother cited the first half of the script and the father cited the second half. Parents preview with younger children every day and sometimes twice a day. The preview is not presented in the tone of a reprimand because it is not punishment; it is information. Sometimes, timeout is portrayed in a negative light in other media (Hupp and Jewell 2015) so it can help to explain to parents the purpose of timeout and the preview is to “help” the child, not “get back at them.” Defiance and aggression are bad for the child, and we are trying to help him stop something that is not good for him. Timeout is treatment for a child, not something we do “to” a child, and the tone of the previews and the structure of consistent follow-through should reflect that. After the preview, the timeout component and the entire flow chart is in effect at home.

Is Timeout Working? Parents often report that they do not use timeout because their child said something such as “I don’t care if I have to sit on the couch” (i.e., the timeout location). It is important for parents to learn that timeout efficacy is determined by a decrement in the target behavior, not what the child says; hence the importance of understanding “punishment”.

Step 17. Is the child completing the timeout correctly? In Step 17, parents decide if the child completed the timeout properly. The child should (a) go to and stay in the timeout setting, (b) not damage property, and (c) behave in a manner that does not interfere with other activities in the house (or classroom). These criteria define minimally acceptable timeout behavior.

Step 18. End timeout From Step 17, if “yes”, the child completes the timeout well, then timeout is over. Parents tell the

child (a) what he did that resulted in timeout and (b) it is over and he may come out now. For example, “Don, you had to go to your room because you did not put the cereal away when I told you. Your time is over, and you can come back to the kitchen now.” Then, parents drop the subject and begin anew, looking for opportunities to praise desirable behavior. Reminders about what the child did that resulted in timeout may reignite a coercive exchange. The consequence was timeout, and it is over.

If the child is disruptive at the end of the time, parents do not end the timeout. Instead, parents end timeout after the child has been quiet, “calm and under control” for a short time, 10 s to 3 min depending on age and presentation. Still, parents do not talk to the child; they do not wait until the child is calm to start the timeout and they do not start the timeout all over (reset) if the child is uncooperative. Parents are teaching the child that the consequence for calm behavior is timeout cessation, and this relationship is made contiguous by pairing acceptable timeout behavior with timeout cessation.

Functional Assessment Determines the Next Step If idiographic behavioral assessment determines that the function of a child’s defiant behavior is primarily escape/avoidance of the task described in the original direction (Step 7), then that child’s flow chart includes Steps 19–22. If assessment determines that the function of a child’s defiant behavior is primarily attention, then that child’s flow chart would not include steps 19–22.

Step 19. Does the child still have to do the task? The purpose of Steps 19–22 is to prevent timeout from functioning as escape/avoidance (negative reinforcement) from the assigned task. If the function of the defiant behavior is escape, then after timeout, the parent decides if the child must still do the task that they were told to do from the original command in Step 7.

Step 20. Out If parents decide the child no longer has to do the task, then they drop the subject, even if the function of the child’s defiance is generally escape. This is not pristine applied behavior analysis but it is pragmatic. Parents are on a concurrent schedule; they have jobs, other children, bills to pay, driveways to shovel. If a program is uncompromising and impractical, parent non-adherence may generalize from one step to another. In this scenario, when parents step back, it is not because of an emotional coercive exchange, it is the result of a deliberate parent decision. Flexibility is related to parent adherence, and most empirically based programs propose flexibility in the procedure, but “none of the programs specify exactly how their programs might be modified” (Shriver and Allen 2008, p. 136). The diamonds in the flow chart present explicit decision points where parents have options as to how to proceed.

Steps 21 and 22. Direction and Warning If parents decide that task completion is required, they tell the child to do the task (Step 21), paired with a warning that if he does not follow directions, he must return to timeout (Step 22). The brackets indicate that steps 21 and 22 are concurrent. The contingency is either go to timeout or follow directions. For example, “Ok Bob, you still have to take your dish to the counter. So, either take your dish to the counter, or go back to your room.”

Step 13 (again). Decide if the child has started to follow directions

Step 14. Praise If “yes”, the child follows directions now, parents praise them.

Step 15. Out The interaction is over.

Step 16. Timeout If “no” from Step 13, the child remains defiant and does not begin to follow directions, then they are redirected to timeout.

Step 23. Warn about a backup consequence The remainder of the flow chart focuses on timeout refusal and disruptive behavior during timeout, which should be anticipated and programmed for before timeout is implemented. Many parents would like to address the issue of severe behavior first (e.g., asking, “What do I do when Keith hits his brother and won’t go to timeout”). It is best to train in the order of the steps because (a) many of the strategies presented thus far are designed to prevent defiance or timeout resistance and (b) the steps reflect the forward order of the chained responses.

From Step 17, if the parent determines “no” the child is not doing timeout properly, they go to Step 23. If a child (a) refuses to go to or stay in timeout, (b) damages property during timeout, or (c) interferes with the activities of others during timeout (e.g., screams so loud conversation is disrupted), then parents present a warning that the child will earn a backup consequence if he does not complete the timeout properly. Parents select one consequence from the menu list of backup disciplines that was created before the timeout procedure was implemented with the child (see the three decisions in Step 16 above). For example, the parent might say, “Sidney, if you do not go to your room, you are grounded and you will stay inside the house for the rest of the day.” The backup is the primary consequence for timeout refusal. This is discussed in further detail in Step 26, when the parent presents the back up. Parents should not send a child to timeout if they do not have a plan in place for timeout refusal.

Step 24. Wait Silently Parents wait silently and allow their child 5–10 s to make her choice as shown by her response. Parents are presenting a clear choice for the child. Occasionally, parents may want to help by tacting some

discriminable facts. For example, “If you sit on the steps, it will be for 10 min. If you do not sit on the steps, you will have to stay in the house for the rest of the day, three more hours. Ten minutes is shorter than 3 h.” With younger children, some parents have drawn timelines for the child to illustrate, for example, how 10 min is shorter than 3 h.

Step 25. Is the child completing the timeout correctly?

Similar to Step 17, parents decide again whether the child has completed the timeout properly. After the warning, if “yes”, the child is completing the timeout successfully, the parent moves to Step 18 and ends the timeout.

Step 26. Present the backup consequence In Step 16, when timeout was first introduced, parents were asked to make three decisions before they used timeout. One of those tasks was to make a list of backup disciplines to select from if the child did not do the timeout well. This list is created outside the context of an emotional, volatile setting, and is vetted by the trainer for operational, ethical, and practical standards.

From Step 25, if the parent decides “no”, the child is not doing the timeout well, then the parent presents the backup they just described in the warning (Step 23). The consequence is individualized for each child and each situation. In this version of a flow chart, the backup consequence for timeout resistance avoids physical restraint, full physical prompts, and corporal punishment for two reasons. First, to the degree that corporal punishment is correlated with more intense CPs, it seems that relationship may even be stronger for children with ADHD (Lynam 1996; Morgan et al. 2015). Second, children with ADHD are at considerable risk of physical abuse by parents (Alizadeh et al. 2007).

The purpose of the backup is to prevent timeout refusal. This is important because timeout is an ethical non-corporal consequence that is an effective punishment. Yet, it only takes a few minutes and it allows the adult and child time to separate during a stressful situation. The backup consequence needs to be strong, practical, and fair. Its efficacy is determined by its diminished use over time. If the backup is too weak, it may have to be used frequently, disconcerting because a high rate of aversive consequences (i.e., many backup consequences) might have been avoided with a stronger consequence. Remind parents that the warning about the backup consequence in Step 23 teaches the child to choose; the warning gives him the opportunity to make a choice and contact the consequences of his choice.

Examples of effective backup consequences selected by parents (and schools) have included the following: (a) the child may no longer play whatever they are currently playing with. This is a wise solution for two reasons. First, if a child is playing with an object, then that object is reinforcing at that moment. Second, this approach affords flexibility across settings. (b) Grounding or no playing outside. Grounding needs

to be operationally defined for each family. (c) Loss of part of recess, or detention, or in-school suspension. (d) Remove preferred activities such as bicycle riding, fishing pole, television, electronics, video games, favorite toy, or special food treat (e.g., dessert). (e) Bedtime early; this also needs to be operationally defined. (f) Loss of opportunity to engage in a special event such as a field trip, lessons in the arts, recreation league sports, sleep over, or after school activity. The sooner the backup consequence follows timeout refusal, the stronger its weakening effect on subsequent timeout refusal. Backup consequences occur that day. For example, after a child was supposed to be in timeout, a parent might say, “Jean, you knocked over a chair, I told you to stop and then you knocked over another one, so I am taking away your iPod until tomorrow.” Note also that if a parent elects to impose an “exclusion timeout,” some of the timeout resistance may be avoided if the child is allowed to sit or wander where they please while being excluded from ongoing activity and praise.

Step 27. Will parents decide to give another backup consequence?

After presenting the backup consequence for not doing timeout correctly, parents decide if they will give another backup consequence if the child continues to resist timeout. The decision for parents is, “Am I willing to give another backup consequence if my child still won’t go to timeout?” Like Step 19, this may not be pristine applied behavior analysis. Among families of children with ADHD/CP behavior, fatigue and stress are common. Rather than giving in (acquiescing) due to stress or anger, the parent makes a deliberate decision as flexibility is programmed.

Step 28. Present timeout again If the parent decides “yes” to Step 27, they go back to Step 16 and present timeout again. Parents do this if they are willing to present another backup consequence (Step 26) for ongoing timeout resistance.

Step 29. Separate If the decision in Step 27 was “no”, parents choose not to give their child another backup consequence for timeout resistance, they defuse the situation without giving in entirely. First, parents separate the child from others. If the child shows strong defiant disruptive behavior, the probability that she will comply is low. Therefore, it is best to direct other children or adults to move away than to expect the defiant child to suddenly become compliant. Examples of an instruction directed to a sibling or peers might be, “Sofia is having a hard time right now so let’s go outside for a walk” (in school settings, this is often the occasion where an administrator or mental health specialist is called in). Second, parents move gently to the child, perhaps calmly touch them, and say in a matter-of-fact tone, “We will keep working together to help you learn to (name the behavior that resulted in timeout, e.g., follow directions, not to hit, etc.)”. Finally, parents gently physically distance themselves from the child. They do not

speak with the child until she has calmed down. If the child is in the timeout location, leave her there.

Again, this may not be textbook-applied behavior analysis, but it is wise to account for the angry emotional intensity of these episodes, especially the emotional dysregulation common among parents with ADHD behavior and their children with co-occurring ADHD/CP behavior (Barkley 2015a). That emotion can be incompatible with the form of behavior to which our parent as therapist aspires. Not every moment is a learning moment and wise disengagement in this context is consistent with behavior analytic principles.

Step 30. Out The interaction is complete. If the child is presenting highly emotional behavior or the parent is stressed, the best learning moment for this episode may have passed.

Application and Discussion

One advantage of a flow chart is that during follow-up booster sessions, parents can point to a step on the flow chart to help describe complex challenging episodes. Simply by drawing on the flow chart, it can be amended with solutions on a case-by-case basis. For example, on one occasion, a high school-educated single mother of a 6-year-old boy reported that her son generally completed his timeout quietly in his bedroom. However, when she came to step 18 (End Timeout), after her son had seemingly completed the timeout well, she would enter the boy's room and find that he had surreptitiously emptied all of his clothes from his dresser onto the floor. In response, additional steps were hand-drawn on the flow chart from Step 18 (see Fig. 2). In Step A, the mother asked herself if her son had emptied his clothes out of his dresser onto the floor. If "no", then she remained at Step 18 and ended the timeout. If "yes", he had emptied his clothes on the floor, then she went to Step B and stated the direction, "When you put your clothes back in your dresser, you can

Fig. 2 An example of an individualized flow chart for the mother of a boy who threw his clothes from his dresser to the floor during timeout

come out of your room." In Step C, she asked herself if he had put his clothes away, into his dresser. If "yes", the clothes were put away, then she went directly to Step 18 and ended the timeout. If "no", the clothes were not put away; she waited 5 min and returned to Step B. This procedure took four repetitions before the issue was solved. The advantage was that we avoided increasing the intensity of parent/child conflict, and the child was able to learn that non-occurrence of a behavior resulted in more expedient escape from timeout and return to time-in. For a trained behavior analyst, the sequence seems rather simple. For a high school-educated mother with no history of behavior management education, the visual presentation of the steps was a necessary yet parsimonious addition to the flow chart.

On another occasion, a college-educated married professional mother reported that her 8-year-old son was constantly interrupting her, especially when she spoke on the telephone. "Often interrupts" is a defining feature in the ADHD constellation of behaviors (American Psychiatric Association 2013). Interrupting is high rate, and if the child were placed in timeout contingent upon every occasion of interrupting, then the rate of timeout would be too high, too many times a day. In addition, the mother reported that she could tolerate some interruption, and if her son interrupted only once every 15 min, that would be a great start, at least she could finish her telephone calls. Therefore, we amended the flow chart and created a variation of a differential reinforcement of low rate schedule (see Fig. 3). In Step A, the boy interrupts the first time. In Step B, the mother warns her son, "If you interrupt me again in the next 15 min, you will have the sit on the stairs" (a predetermined timeout location). In Step C, the boy interrupts. In Step D, the mother asks herself if 15 min has passed since the last interruption. If "yes", 15 min have passed, then the mother goes to Step B and warns the boy, "If you interrupt me again in the next 15 min, you will have the sit on the stairs". If "no", 15 min have not passed since the last interruption, then the mother moves to Step 16 and presents timeout. This issue resolved within 1 week, and the mother did not present the concern a second time. Again, a parsimonious solution is presented via a visual flow chart, and what may seem like a

Fig. 3 An example of an individualized flow chart for the mother of a boy who frequently interrupted. With ongoing preview, the boy is allowed to interrupt once per 15 min

simple solution to a behavior analyst is visually conveyed to the parent. It is important to continue to emphasize the preventative strategies in these situations, previewing the timeout before ever using it, ongoing previews, and praise for not interrupting, “catch ‘em being good”.

Preventative, proactive strategies are clearly preferred. Attending and positive play strategies described in the typical behavior management program have strong preventative features. In addition to Part 1 of parent training that includes teaching the features of ADHD behavior and the function of coercion, many components of this flow chart are preventive in nature: a low rate of required commands, topographical features of the instruction, quiet waiting after the instruction, not escalating the conflict, a slow pace, high rates of praise with a reinforcing time-in environment, and ongoing timeout preview all serve as preventative steps to increase the probability of desired behavior.

Nonetheless, behavior analysts are ethically bound by evidence and data clearly reveal that timeout is a “necessary” component for behavior management (c.f., Danforth 1998b, p. 241). This is particularly true for CP populations that have strong behavior; defiance and other disruptive behavior will occur. To date, among children with co-occurring ADHD/CP behavior, there are no data to support the contention that preventative strategies alone reliably decrease the probability of defiance and aggressive behavior to developmentally normal levels (Cipani 2015; Reitman 2015).

The implementation of this flow chart does not contravene other interventions, but rather may serve as one element of treatment that might include child-focused therapies (e.g., social relationship building, Mikami et al. 2013), medication management (with the potential for reduced dosage, Swanson et al. 2008), parent problem solving training, school advocacy, etc. An example of a child-focused intervention emerges from Step 23 where the child is presented with a warning that if he does not go to timeout, he will receive a backup consequence. After parents are successfully implementing the flow chart, sometimes in individual therapy with children, therapists can train problem solving the advantages/disadvantages of going to timeout when told. Children have reported that the advantages of going to timeout when told include parents “stop yelling”, or “they leave me alone”, or “I don’t get into worse trouble” (i.e., no backup consequence).

Finally, the parent training program described here is consistent with recent theory about the parameters of ADHD behavior (Danforth 2012; Barkley 2015b). The essence of that theory is that current antecedent stimuli and instantaneous consequences have an inordinate influence on the behavior of children with ADHD. This is juxtaposed with the correspondingly diminished influence that delayed consequences have on their behavior. Therefore, to influence the actions of the child with ADHD, treatment is presented when the behavior of interest occurs and where it occurs. The best option is to

train the parent to present the intervention that constitutes treatment. For parent trainer and parent, the essential principle is treatment at “the point of performance”; the most effective treatment will be in the place at the time of the behavior (Ingersoll and Goldstein 1993).

To conclude, this is an example of a flow chart that therapists could use to simplify training a complex set of parenting skills that are supposed to be emitted in an emotionally charged context for a child with challenging behavior.

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