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The art and science of disciplining children

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Behavioral pediatrics is a unique aspect of a pediatric practice that spans the worlds of medicine and behavioral psychology. Although many aspects of these two disciplines seem worlds apart, theoretically, there is a lot of overlap when one considers the basis of behavior at the physiologic level. Understanding the complexity of the environmental interaction with neurochemistry is important, as is an understanding of the principles of behavior theory. Pediatricians commonly deal with parenting questions, concerns, and issues, and, generally, pediatricians are the first professionals to whom parents will address their concerns. It is important to have a strong grasp of the principles behind good discipline practice. A primer on how to work with parents on the management of children follows. This article focuses on effective communication tools for parents and families to use. In addition, communicating with parents within the context of the office visit for effective problem solving is reviewed.

Philosophies of discipline

Rosemond [1] said it best, "...discipline is the process of turning a child into a disciple, a little person who will follow your lead — is mostly about telling children the way it is and the way it's going to be." Rosemond concludes that "discipline is primarily a matter of communication." Everyone has advice on parenting, those with children, those without children, those who have studied children, and those who work with children every day. Grandparents tend to be prolific advisors of child behavior. From an elderly woman who is berating a 3-year-old as if he would be more open to her scolding than his parents' directives to observing fellow shoppers advising parents on how to handle their loving angels in public, whatever the scene, wherever you are, everyone makes judgments related to child behaviors. These judgments are typically based on

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some fundamental philosophy that is related to child discipline. There have been many philosophies through the ages regarding the discipline of children and expectations regarding child behaviors.

Exploring philosophical ideals of childhood reveals many differing perspectives or expectations for child behavior. In the 1600s children were considered young adults, and often interacted with adults in ways that presently would be considered harsh, slave-like, and abusive. Early philosophers, such as John Locke (in the late 1600s) considered that children were born with a blank slate, and therefore, received all of their knowledge and language from their environment and the adults around them [2,3]. Such a philosophy paves the way for the belief that children are unable to engage in mortal sin, such as commit crimes, younger than the age of reason (roughly age 8) [4]. Kohlberg's moral development theory suggested that social reasoning does not occur until middle childhood. Advancing through the ages to around the seventeenth century, children were considered young adults, and often interacted with adults in ways that presently would be considered harsh, slave-like, and abusive. Moving into the nineteenth century, childhood was becoming a distinct developmental stage with specific expectations of reading, dressing, and behavior. A common theme that ''children should be seen and not heard'' arose early in the twentieth century [4]. In modern-day America, the ''Gerber Baby'' is idealized as the model for childhood (ie, neat, clean, happy, and quiet), although this is not a realistic perspective of American children [5]. Today's view of childhood reflects many advances in perspectives on child rearing. In particular, theorists have identified developmental milestones and accomplishments for childhood. Jean Piaget is well known for his work in the area of cognitive development, B.F. Skinner is widely known for his work on learning paradigms, and Lawrence Kohlberg is known for his theories of moral development [4]. More recently, T. Berry Brazelton has focused on neonatal developmental markers [4]. At the basis of today's concept of childhood, there is a consideration of individual, developmental, and consequential approaches that highlight typical or 'normal' behaviors, as well as developmental timelines for these behaviors.

Childhood is also defined by age and developmental level. Many consider childhood to end at age 18, because of attainment of ''age of the majority.'' Developmentalists and cognitive scientists, however, often argue that ''adult reasoning'' and moral development is not fully attained until further into the twenties. Pediatricians may commonly see ''children'' up to the age of 21 years. Thus, depending on the age of the child, expectations and philosophies that are related to an individual's behavior certainly may be impacted. For example, expectations for a 2-year-old are likely to be different than for an 18-year-old with a normal developmental path.

The concept of discipline

As with any ''discipline,'' professionals and laypersons use words in differing ways; ''discipline'' is just one example. As a noun, discipline may mean

punishment, instruction, a field of study, or some form of training [6]. Generally, within the context of parenting, individuals who provide advice about discipline are referring to ''teaching the child.'' In general, although ''discipline'' is described as a noun, it is usually used in the vernacular as a verb, or action that must be done (in hopes) to ensure that a child has learned appropriately what not to do again. The average person is likely to identify that effective discipline occurred when they observe a well-behaved/mannered child who is compliant with their parents' requests. In behavioral terms, effective discipline requires knowledge of the target behavior, awareness of the principles that are related to behavioral change, and effective and consistent implementation of consequences [7–20].

The brain behind behavior

Behavior theory is often misunderstood by many professionals. Behavioral concepts are not generally taught with an emphasis on the connection between neurochemical functioning and behavioral principles. Several behavior theorists discussed the connections between brain and behavioral functioning [19–21]. In medical education, the connection between neurochemical/physiologic function and behavior is given a cursory explanation. To simplify a complex connection, an abbreviated rationale is provided to help understand the ''discipline'' of children.

Consider for one moment the active behavior of reading this article. How is it that you are engaging in the behavior of reading this article? Initially, one might suggest that you ''told yourself'' to read the article; if so, then you are engaging in a voluntary behavior. But this does not really answer the question of ''how''? A further explanation might be that you picked up the journal and opened it to this page. This describes a more complex voluntary behavior. The actual ''how'' of these behaviors occurs in the neurochemical brain transmission that leads to the stimulation of the nervous system responses, and, eventually, to striated and smooth muscle functions. None of these ''responses'' can necessarily be mediated by ''telling yourself.'' These reactions or responses are specifically mediated by external (to the event) consequences that lead to repetition of these same reactions or responses within our physiologic system [19]. Introduction of neurochemical stimuli can also mediate these same reactions/responses, such is the case with selective serotonin reuptake inhibitor use, among other medication management techniques [22]. Thus, we have identified two ways to produce neurochemical activity within the brain: first, through systematic, consistent environmental consequences, and second, by way of introducing specific neurochemical compounds to the physiologic system (medication management). Environmental change repeatedly has produced behavioral (and thus, neurochemical) change [19,20]. Environmental changes are created in any number of ways, but when discussing child behavior, environment can specifically be changed through the use of discipline.

Discipline versus punishment

Discipline and punishment often are used by parents to indicate the same thing; however; they are different. Discipline includes all methods that are used to change behavior. Punishment is a very specific procedure that is used to decrease behavior that will be described under basic principles. When working with families, it is imperative to clarify terminology that is used, because it is clear that professionals and parents use terms in different ways. Although this seems simple on paper, further discussion of these techniques will reveal their complexity in application.

The science of disciplining children: what to do

The behavioral perspective describes behaviors in terms of its antecedents and consequences. The Antecedents, Behaviors and Consequences are considered the ABCs of behavior (see references [17,19,20,23]). Behavior theory demonstrates that behavior occurs as a result of a particular stimulus, or its antecedent [19]. More simply put, antecedents are the situations that occur before a behavior. Antecedents can be specific situations, places, physiologic states, or even people. Additionally, the same antecedent does not necessarily lead to the same behavior in every child or in every situation for one child. For example, for some children, a teacher's statement of "Please take out your math books" can lead to complaints about math; for other children, this statement may lead to compliance with the request [24]. Antecedents are important to discipline because they begin the contingencies (stimulus/antecedent - response - stimulus/consequence) that produce learning. Changing the antecedent may result in improved behavioral repertoires for a child.

Martin and Pear defined behavior as "anything that a person says or does" [25]. Behaviors theoretically serve four functions: (1) to obtain attention, (2) to escape unpleasant experiences, (3) to receive something tangible (object), and (4) internal satisfaction (covert stimulation) [26]. It is important to identify a target behavior so that it is clear what response or behavior is to change. To specify the target response, use the dead man's test, which is when you ask yourself, "Can a dead man do what I am asking my child to do (target behavior)?" [27]. The target behavior (or any defined behavior) must be an action; if a dead man can do it (ie, no action), a behavior has not been identified. Therefore, a dead man cannot do things such as "stop hitting" or "quit whining." These requests target the absence of behavior, which can make it difficult to provide a consequence. Instead, encourage parents to strive to request an active behavior for which an appropriate consequence can be enforced [27].

Behavioral theories (eg, Operant Conditioning Theory) consider consequences to be the maintaining factor of behaviors [19–21]. More simply, the consequences are the situations/events that occur immediately after a behavior. The consequence, either a reinforcer or punisher, is what determines whether the behavior

will occur again; the consequence might strengthen (reinforcer) or diminish (punisher) the behavior. A reinforcer is a stimulus that immediately follows a behavior that results in the increased likelihood that the behavior will occur in the future [20]. For example, if the child receives attention every time he complains about math class, such as peers laughing at the complaints, he is likely to continue complaining. When a child is praised for quietly taking out his math books (without giggling), he is more likely to take out his math book again. A punisher is a stimulus that immediately follows a behavior that results in the decreased likelihood that the behavior will occur in the future [20]. For example, if an 8-year-old child is playing a favorite video game and swearing, his parent may remove the game for the rest of the day, which will likely result in a decrease in swearing behaviors for the child.

Parents must decide (preferably before an episode or situation) what kinds of consequences to use when the child is engaging in behaviors that the parent wants increased/learned/repeated, as well as the behaviors that are inappropriate/undesirable/to be decreased [9]. In the context of ABC chains, the child's consequence is generally (and should be all of the time) the parent's behavior. The child has his/her own ABC paradigm, and the parent should have two of his/her own. The parent's "A," or antecedent, is often the child's "B," or behavior, and the child's "C," or consequence, is often the parent's "B," or behavior. This paradigm can also function in the preventative mode whereby the parent's B is the child's A. The paradigm will cycle so that the next B for the parent is the child's C. The important feature to remember is that consequences are generally the parent's behavior [23].

Reinforcers and punishers are established through experience and history for each child. Although some generally effective guesses can be made (eg, stickers, money, video games), assessing what is motivating for each child should be encouraged. Consequences are believed to be the primary means by which discipline occurs; consequences need to be considered within the antecedent-behavior-consequence contingencies that were outlined above. These two types of consequences provide two primary behavioral procedures by which several techniques are derived.

The two basic principles

Reinforcement

Reinforcement is the procedure by which an event occurs immediately following a behavior that results in the increased future probability of the behavior occurring again [20]. More simply, reinforcement is the procedure where reinforcers are used. For example, when a child is given a toy after throwing a temper tantrum in a store, then that child is more likely to throw a temper tantrum in the store the next time. Rewards or reinforcers are defined by their effect on future behavior, not by their effect on current behavior.

Punishment

Punishment is the procedure by which consequences occur immediately following a behavior that results in the decreased probability that the behavior will occur in the future [20]. For example, if a child hits her sister, and the parents spank her, the child is more likely not to hit her sister the next time. It is important to keep in mind that the goal is a decrease or reduction (a suppression) of the behavior, not its elimination; no behavior can be reduced to zero 100% of the time.

The techniques, a brief how-to guide, and a review of the most misused techniques

Preteaching

Preteaching is a technique that communicates to the child the expectations for behavior and the consequences that can be anticipated. For example, when entering a store a parent could say "Jill, we are going into the store and I expect you to hold my hand and follow my directions. If you do, we will get to have an ice cream when we leave; if you don't, we will go home and you will go directly to bed." For preschool children, preteaching at each transition (coming/going somewhere) is helpful for developing appropriate behavioral repertoires, and serves to diminish the impact of memory on skill performance. This technique highlights the importance of communication regarding expectations and conveys in advance the antecedent, behavior, and consequences by stating this contingency clearly.

Bribes and threats

From the example above (earning ice cream for appropriate behavior), parents may reflect that they either already "bribe" their child or prefer not to bribe their child. It is important to clarify that motivating children through tangible rewards is not bribery. Bribery is the act of paying off someone for something they should not do (ie, provide company secrets to outsiders, steal toys from friends). Encouraging children to engage in appropriate responses (behaviors that are expected of them and that are developmentally appropriate) is not bribery, but rather a foundation on which to build a work ethic. Providing praise, social rewards, and tangible rewards to let a child know that s/he is acting in a prosocial manner is serving to strengthen positive behaviors for the child. Encouraging parents to focus on motivating their child to learn, rather than feeling guilty about "bribing" their child, is most effective.

The concept of threat reduces the effectiveness of any parenting strategy. Unless the consequences are specifically identified before behaviors, the consequences will not be effective in motivating behavior (especially for older children and teens) [8,12], Reactive parenting, or disciplining in response to a behavior, undermines the parent's control and authority. A good rule of thumb is

to consider each situation: if education is required (the stove is hot, it will burn you), a consequence is not given; if education has already been given, then a consequence is all that should happen. To remove the threat from parenting, new situations and planned situations and their consequences (positive and negative) should be pre-established through the use of a star/sticker chart, token system, or behavioral contract, or just discussed at a family meeting.

Sometimes young children forget. When this occurs, encourage parents to make use of the teaching opportunity to rehearse the desired skill. After the skill and ability to implement the skill/behavior are established for the child, compliance (or defiance) issues should be considered for failure to perform the behavior [18]. Consequences for forgetting can then be implemented (potentially the use of repetition and rehearsal).

Positive feedback

Positive feedback is often used to increase behavior. Positive feedback provides information to the child upon completion of their behavior. For example, ''Jorge, you used 200 words in your story assignment today, the class record was 250 words'' [15]. Feedback is the information one receives regarding a specific behavior after the behavior is completed; for many individuals, positive feedback is very desirable. Praise is also information that is provided to the child; however, in this manner the praise itself is the primary social reinforcer for the behavior. For example, when a child is told, ''Great job cleaning your room!'' along with a high-five, she is likely to engage in this behavior again, in an effort to earn further praise.

Labeled praise is a specific form of praise that results in increasing desired behaviors [28]. Encourage parents to praise any behavior that the child should repeat. This includes even mundane tasks that the parent thinks the child should know to do, such as saying ''please'' and ''thank you'' for pushing in their chair at the dinner table, as well as less frequent behaviors, such as making his bed or getting a good score on an assignment. Essentially, any behavior that is desirable can be praised, and this increases the likelihood that the child will continue to engage in that behavior. Labeled praising, though, is an art. It is important that the child knows what he is receiving the praise for; thus, the parent must be specific when praising the child, even when it seems obvious to the parent what behavior is being praised. ''Good job!'' is a common praise that is used by parents; however, this statement does not convey to the child what they did that was a great job. The child may assume one behavior while the parent is referring to another. For example, did Joey do a ''good job'' with his drawing, or was it a ''good job'' when he knocked over his glass of Kool-Aid when he jumped up to show his parent the picture? This is unclear, because the praise is unspecific. Instead, praise should be labeled and specific. A better way of praising the child would be to state, ''Wow, that drawing is beautiful!'' In this instance, the child will not be confused about the target of the labeled praise, and the parent will be communicating specifically.

Star/sticker charts

The use of star/sticker charts is based on reinforcement principles, and generally is used as a reward system to increase behavior [18]. Each target behavior is identified, and each occurrence earns the immediate reward of a star or sticker to place on a chart. At the end of the day, some charts may also allow these stars/stickers to be traded for another reward. For many young children, the immediate star/sticker reinforcer is enough to motivate the child to engage in the target behaviors.

To correctly implement a star/sticker chart, parents must identify exactly what behavior the child must engage in to earn the stars/stickers. After the behaviors have been identified, they need to be modeled for the child, and then a demonstration of the behavior should occur. The chart itself consists of rows that identify the target behaviors, and columns that list the days of the week. This creates blocks that can neatly hold a drawn star or a sticker of the child's choosing (encourage parents to have a variety of dime-sized stickers that can be purchased at local office supply or art stores). The chart should be reviewed with the child when the demonstration of the target behavior occurs. The sticker chart should be placed where the child has visual access to it, such as on the refrigerator. It is also important to establish at the bottom of the chart how many stars/stickers are needed to earn further privileges. For example, two stars are needed for the child to choose what book to read before bed.

A child may earn more than one sticker per block if the target behavior appropriately occurs more than once per day. Consistency is important; if the child is not rewarded with a sticker each time s/he behaves as expected, s/he will not be motivated to consistently engage in the behavior. Often, the child will remind the parent that they completed the behavior, and ask if they earned a sticker [18]. For young children (5 years and younger) one or two simple behaviors is the most that should appear on the chart. For older children (6 through 10 or 12 years) the chart might expand gradually with age to include 10 to 12 items. Developmentally, the chart must reflect appropriate behavioral targets. More specifically, the target behaviors need to be developmentally reasonable, and responses that the child already has in their repertoire. For example, a star chart for a 3-year-old would best target one or two behaviors that are simple, single-step behaviors, such as putting dirty clothes in the hamper and sleeping in their own bed at night. The same chart should not include complex behaviors such as cleaning their room or taking out the garbage. These later examples have too many steps and require too many obstacles for a 3-year-old to complete on his/her own. The number of stickers to earn other privileges should be matched based on the effort that is required to obtain the other privileges. For example, social privileges (eg, reading with dad, playing a game with mom, or choosing from two dinner options) should be the easiest to earn, trading one or two stars/stickers for these items. Tangible rewards (eg, playing on computer, playing video games, earning a toy) should be harder to earn, trading three or more stickers per item. In general, the child should have the opportunity to earn

one privilege/item per day with a star/sticker chart. As children approach adolescence, this form of motivation becomes less effective because the reinforcers (stickers and stars) lose their appeal. The star/sticker chart system can be changed into a token economy system [18].

Token economy systems and the grab bag

The token economy is a motivational technique that is based on reinforcement and punishment principles [29]. The system involves rewarding the child's behavior with tokens that can be exchanged later for a secondary reinforcer (either a tangible or social reward). The tokens that are used can be tally marks, pennies, poker chips, stickers, tickets, or marbles. These items are collected when the child engages in the appropriate target behavior and are swapped for other pre-established rewards. For example, a child may receive a poker chip every time he complies with a parental request. Then, at the end of the day, he can exchange the poker chips he earned for a privilege, such as choosing a game to play with his parent before bedtime. Earning the poker chips and the choice of game motivate the child to comply with requests, and, thus, serves as a motivational tool. As with the use of sticker charts, consistency is key; if the child is putting forth the effort in compliance, the parents must also put forth the effort on the rewards [18,29].

To implement a token economy correctly, the system must be set up in advance and communicated clearly to the child. Generally, children ages 6 through 10 or 12 are able to cognitively grasp the concepts of the token system (ie, that the token is symbolizing an earned part of a greater reward in the future). Similar to the star/sticker chart, the parent must pre-establish the target behaviors (anywhere from 6 to 12 based on age and developmental maturity). In addition, the parent must pre-establish the reward menu which is a list of the potential rewards (reinforcers) that are available to the child. The parent should also pre-establish the punisher menu that may be used if noncompliance is an issue. Thus, the child is fully aware of the positive rewards and negative consequences that might occur for a specific list of behaviors. As with the star/sticker chart, all of these behaviors (prosocial as well as inappropriate) should be modeled with the implementation of the earned points/tokens/chips being rehearsed for the child. It is best to use a chart or tracking page to identify occurrences of target behaviors and to list out the reward menu. In general, loss of privileges or time out are the short list for the punishers. The chart and menu should be placed in a visually observable location. Tokens should be accompanied with verbal praise.

Token systems work based on the potential for earning a more preferred reward, at the end of the day. Developmentally, for children between 6 and 12 years, a day is the maximum length that the tokens should be traded. This is important for two reasons. First, younger children are not able to grasp the concept of next week, or end of the week such that a big reward on Friday is not motivating for good behavior on Monday. Secondly, a child who has a bad day can start over tomorrow and not feel further punished by the effects of yesterday's

mistakes. A child who has no opportunities to earn rewards is not likely to engage in prosocial behavior. The number of tokens that are required for a trade should reflect the number of target behaviors divided by two. For example, if eight target behaviors are listed, initially, the number of tokens that are required for a trade will be four. Once the child obtains a trade, this number can increase by one token per day (provided a reward is earned each day) until the number of target behaviors is matched [18,29].

Punishers are used in this system based on noncompliant behaviors. For example, each time the child did not do what the parent asked, within 15 seconds, a time out would be implemented. If the time out was not effective in motivating compliance, then a backup punisher, already listed on the menu, such as a loss of privilege, would be used. If the child continued to refuse to do what the parent asked, following time out, the child might be sent to bed early [18,29].

The reward/punisher menu is usually the most difficult for parents to identify before implementing the token economy. Examples of rewards should include social and tangible rewards. It is likely that the child will identify several tangible rewards for the parent (eg, new bicycle, new video game, book). Often, the rewards that are identified are too big (cost more than $1 per item). Although these items are likely to be motivating to the child, they are pocket draining for the parent. One solution for the parent who would like the child to have the item (and who can afford the item or put it on layaway) is to get a picture of the item and cut it into puzzle pieces (the number of pieces should approximate $1 to $2 of the item). For large items, it might not make sense to cut the picture into 50 pieces, but it might make sense to increase the number of points that are needed to ''purchase'' the puzzle piece. Another variation of affordable tangible rewards is the Grab Bag. The Grab Bag consists of several small valued items (eg, sticker sheets, game cards, marbles, cars, doll clothes) that are mixed together in a bag. The child can earn one pull from the bag as a reward on the menu (conducted in a manner that the child does not see what they are picking).

The parent will need to identify twice as many social rewards as tangible rewards. Social rewards include interacting with others, preferably the parent, such as reading with mom or dad, playing a game with mom or dad, choosing from two locations where to eat with mom or dad, getting a piggy-back ride from dad, choosing who bathes the child that night, and so forth. The goal should be to increase the social rewards that motivate the child.

Continuous reinforcement to build a skill, variable reinforcement to maintain a skill

When teaching a child to develop a skill or behavior, continuous reinforcement should be used [20]. Each and every time that the child performs the target behavior, a reinforcer should be immediately provided; this builds the desired skill. For example, if a child is praised every time she tries to tie her own shoes, she will be likely to continue trying; if the constant praise is absent, she will likely stop trying. Once the skill is mastered, intermittent reinforcement will

maintain the behavior. Intermittent reinforcement means that some ratio of responses (of the target behavior) is rewarded or reinforced. Thus, the behavior is not reinforced every time it is done, but often enough (every other occurrence, for example) that the child learns that the behavior is still desired. For example, after the child masters tying her own shoes, the parents should praise her intermittently when she engages in this behavior. This gradual tapering-off of reinforcement will help ensure that the behavior continues [20,27]. This variability in reinforcement will serve to strengthen the behavior over time, such that a decrease in the behavior will be unlikely without further intervention. This is pertinent when considering how inappropriate behaviors may be continuously and then intermittently reinforced, which results in a strong maintenance factors for an inappropriate behavior.

Repetition and reminders

Increasing desired behaviors can be done through ''positive practice.'' Positive practice is a procedure that is based on positive reinforcement of a desired skill or behavior using repeated rehearsal of the skill or behavior. For example, a child who struggles with hanging up his coat could be repeatedly reinforced for practicing the behavior chain of opening the door, entering the house, removing his coat, and hanging it on a hook. The reinforcer would be immediately provided when the coat is hung on the hook, and would be given each time that the child completed the behavior correctly [7]. Mastery of this skill would be considered attained if the child was able to correctly complete the skill/behavior 9 out of 10 times or repetitions.

Removal of repetitive reminders can also serve to increase behavior. This procedure is a form of reinforcement whereby an aversive stimulus is removed contingent on the occurrence of the target behavior. For example, a mother nags her child to pick up the coat until the child picks up the coat (note, the child does not necessarily have to hang the coat on a hook, just engage in the behavior the mother nagged about, ''pick up your coat''). The reinforcer in this example is the cessation of the mother nagging (the aversive stimulus) (see references [18,20,27]). Often, the removal of an aversive stimulus to increase behavior is more difficult to implement, because the aversive stimulus must often be created for this procedure to be effective.

Time out from positive reinforcement

Time out is one of the most common consequences that is used by parents; it is also the most misused technique. Time out is a procedure whereby positive reinforcement is removed immediately following an unacceptable behavior; this removal results in the decreased future probability of the undesired behavior occurring (see references [20,27,30]). Generally, this involves the child being removed from a stimulating environment to a less stimulating environment, contingent upon the occurrence of an undesirable behavior. For example, a

4-year-old is having a birthday party and slaps his friend in the face. His parent immediately removes him from the party and places him in a large chair in another room. The parent informs the child he has earned a time out for slapping his friend. The parent walks away (does not visually attend to the child, or verbally interact with the child further) and sets a timer for 4 minutes. When the timer rings, the parent returns to the child and if the child is calm and ready to return to the party (and apologize), he gets out of the chair and returns to the fun.

To be effective, time out must: (1) involve the child being removed to a situation that is void of stimulation; (2) involve a sense of loss of control on the child's part; (3) not end until the child is calm and agreeable to comply with parental requests (either the initial request or restitution, such as in the above example) [5]. The child must be removed from any type of stimulation: no parental attention, no parent lectures, no parent responses to questions, no parental touching of the child, no toys, no books, no games, and so forth. In the modern American family, this means that the child should not be sent to his/her room, because of the televisions, phones, computers, video games, and so forth that are typically found in the bedrooms of American children. Rather, the time out location should be one in which the child does not have access to anything that could potentially be reinforcing and the child has no control over the situation/location; in essence, it must be a boring situation for the child [5,20]. Practical recommendations for the length of time out vary; however, generally the rule is 1 minute per year of age, up to 10 minutes. Thus, in the example that was described above, a 4-year-old earned a 4-minute time out. If the child was having a tantrum, or was not ready to comply with parental requests at the end of 4 minutes, the time out would continue until the child was engaged in appropriate behavior. The child's behavior at the cessation of time out is important, because the parent may inadvertently reinforce tantrum behavior by rewarding the child by returning him/her to the positive reinforcement environment immediately following another inappropriate behavior [5,20]. If the time out lasts longer than 30 minutes, the parent should consider an alternative punisher, such as going to bed early. The 10-minute rule identifies the developmental level at which time out is likely to be less effective (around age 10 years). Children who are older than 10 years are more likely to respond to removal of privileges and back-up punishers rather than to time out. Grounding is a more advanced time out for adolescents; rather than placing the child in time out, a privilege or item (eg, car, video game) is placed in time out.

Time out often creates more problems because it is used inappropriately. Most parents who indicate that time out does not work do not conduct time out according to its principles or requirements. For example, a child who is unwilling to work in the classroom may engage in an inappropriate behavior, such as screaming, and immediately be removed from the classroom. This is not always a correct application of time out when the function (attention, escape, tangible, internal) of the child's behavior is considered. If the screaming behavior is serving as an escape from schoolwork, leaving the class is serving as a reinforcer. Thus, it is not a surprise that the screaming might increase as a

result of being rewarded by the time out procedure. The child may find that the classroom is not a reinforcer, but a punisher. Therefore, removal from an aversive setting is likely to increase the behavior that it immediately followed, in this case screaming. A more effective "punishment" would be to keep the child in the classroom setting, and have him/her earn a break from the setting through engaging in desirable behaviors.

Finally, to improve the effectiveness of time out procedures it is recommended that the procedure is discussed specifically in the office setting, and a rehearsal of the procedure is conducted. For young children, appropriate time out behaviors may need to be taught in the same rehearsal manner at home during a time when time out is not being implemented. For example, a 3-year-old may not sit appropriately for 3 minutes in the chair. A shaping of this chair sitting behavior will need to be rehearsed (reinforcing the child for sitting as long as they can initially, and then reinforcement for sitting longer with each rehearsal, until the 3-minute time is reached). Rehearsal in the office setting will also identify any procedural problems that can be modeled appropriately for the parent as well. Preteaching time out with the child will allow them to be more successful when it is implemented because the child will have a behavioral repertoire to succeed with.

Time out in the real world may not look like time out in the office. Parents need to be encouraged to be creative when locating a place for time out to be implemented. For example, time out may be in the basket of a shopping cart that is pushed to an uninteresting corner of the store. Time out may be done by placing a chair facing the wall in a corner of a room (which may be filled with lots of stimulating items). Time out may be standing in the corner of a room, facing the wall. Time out may be a bathroom from which all dangerous products are removed. The procedure can still work when it is pre-established and pretaught.

Loss of privileges

A loss of privilege is a procedure that is used to decrease unacceptable behaviors. For example, when a 5-year-old child rides his bicycle into the street, the child loses his bicycle privileges for the rest of the day. This consequence will likely result in the child staying out of the street while riding his bike in the future. The key to this consequence is for parents to take away the privilege immediately, with a set duration, and consistently apply the same rule if the behavior occurs again. The duration of the loss of privileges must be reasonable, and something that the parent can enforce. When a child is told that he cannot ride his bicycle for the rest of the summer, and then his bicycle privileges return the next week after he asks for them several times every day, the child has learned that if he asks often enough his parents will cave in and he will not have to suffer the consequences for his behavior (see references [18,20,27,31]). The consequence of "all summer" is inappropriate given the offense and the developmental level of the child. Even if the parent followed through all summer, by the end of the summer, the child will not have had any opportunities to engage in appropriate behavior. As well, cognitively, the 5-year-old will not likely under-

stand the connection between the behavior and the consequence, because of the long temporal delay between the offense and the end of the consequence. It is important, as well, to encourage parents to pick consequences that they can tolerate. If not, the consequence is unlikely to be effective because of the lack of follow through on the part of the parents.

Behavior contracts

Aside from verbal agreement of behaviors and consequences, written contracts can also be helpful. A behavioral contract is a written agreement between the child and parent that explicitly identifies what the target behaviors are and the consequences (positive and negative) that are associated with each behavior [8]. Behavioral expectations and their consequences should be written for all parties to review and refer to at any time (eg, tape them inside a kitchen cabinet or post on the refrigerator). Contracting usually works well with older adolescents [31]. As with the previous strategies, parents should include the child/adolescent in the development of the contract, and review the contract thoroughly with the child/adolescent before its signing and implementation. The parents may allow the adolescent to negotiate, if appropriate (although parents have veto power), on consequences for meeting the behaviors that are outlined in the contract. For example, a parent might draft a contract that identifies the expected behaviors of a 17-year-old. This contract might include topics such as drinking alcohol, smoking cigarettes, using illicit drugs, keeping good grades, using the car, and so forth. Under each topic, the parent's expectation for behavior is identified, and consequences are outlined. Positive consequences usually include privileges that the adolescent has, negative consequences generally include removal of specific privileges. Each behavior should have a positive (for meeting expectations) and a negative (for not meeting expectations) consequence listed beside it. An excellent time to establish behavioral contracts is during family meeting times. Instead of reacting or threatening, contracts can identify predetermined consequences before a behavior. The contract helps provide structure for the expectations of a behavior and its consequences [8]. By pre-establishing expectations the child will know what they can expect for consequences. If they choose to engage in the behavior, they essentially have chosen their consequence, good or bad. This method generally results in much less "overreaction" to the consequence and more motivational compliance with appropriate behaviors [8,31].

Ignoring

Ignoring refers to the behavioral principle of extinction. Extinction involves stopping the delivery of a reinforcer that previously reliably followed a behavior resulting in the decrease of any future probability of that behavior [10,20]. More simply, extinction involves eliminating the reinforcer for a previously reliably reinforced behavior. For example, if a child is making loud noises and is ignored, the child will likely stop making the noises. Conversely, if the child is given

attention for the noises (eg, ''Carrie, please stop making those noises''), the behavior will likely continue as she has received reinforcement (potentially on a variable schedule) for the loud noises. A child who argues with his parents when told ''no'' will stop arguing when the parents are taught to ignore the behavior by turning their backs to him and not acknowledging the complaints (verbal and visual ignoring). The parents must continue this until the arguing behavior ceases.

When applied to discipline, extinction or ignoring must be used appropriately so it does not inadvertently strengthen an undesired behavior. For example, swearing behavior is often inadvertently reinforced with attention (eg, ''I told you to stop swearing!''). In addition, a child may be told to quit swearing each time the swearing behavior occurs. Eventually, it is likely that only some of the swearing behavior will be attended to, but with more stern or increased intensity in the attention (or reinforcer). This inadvertently serves to further strengthen the swearing behavior. Because swearing behavior (in this example) is maintained through positive reinforcement (attention), ignoring swearing behaviors will extinguish this behavior if all occurrences are ignored. Ignoring must continue until the child has stopped the target behavior, or the behavior will be strengthened. Thus, for ignoring to be effective after it has started, it must continue until the child has stopped all swearing behaviors.

It is helpful to inform parents about the immediate and extreme target behavior increase that may occur when ignoring is first implemented correctly (this is known as an extinction burst). For example, when the ink runs out in a pen, often a person will scribble even harder, trying to make the ink flow. The important requirement for ignoring is tolerating the procedure; the parent must ignore the target behavior until the child stops the behavior (see references [10,20,27]).

The mechanism by which ignoring works is through the function of attention. One primary consequence for children is attention, positive or negative. Children thrive on attention, and it may not truly matter to the child if the attention is perceived as positive or negative. Thus, children may engage in behaviors to receive attention, even when the attention is negative, such as being scolded. For some children, this negative attention may be better than no attention at all [5,32].

Spanking

Spanking is an example of a punisher that is often used with the idea that the inappropriate behavior will decrease. Although spanking is never a recommended procedure by professionals, most American families use it. Research has evidence for and against the use of spanking. It is most helpful for the practitioner to evaluate the beliefs about spanking with each family. Professionals do not usually ask many questions about spanking techniques, often because of not knowing what to do with the information and concerns that are related to mandated reporting. If families are going to use spanking, however, they should be aware of the appropriate techniques for its implementation, including: never spanking out of anger, always having spanking as a pre-established consequence, using spanking in a controlled circumstance and method (eg, one spank with only an

open hand to the bottom that does not leave a mark), and primarily using spanking for issues of safety. Obviously, developmental factors are important here; spanking is not likely to be implemented or effective with an adolescent.

The art of discipline: technical applications in the real world

The process of disciplining children is an art, as well as a science. Discipline does not work perfectly the first time, nor does it work the same for each child. The antecedents and consequences of a behavior are not the same for every child, or for every aspect of one child's life. Every child is different, as is every situation. It is important for parents to tailor the discipline strategies to the specific child. Each and every child has different needs, and this includes needs regarding discipline. For some children, taking away privileges is the most powerful form of discipline, for others, it may be adding a chore. For some children, verbal praise may be enough of a reward, for others, earning some sort of privilege may be most reinforcing. It may take some trial and error, but it is important that the parents determine what works best for each child.

It may be important to involve the child in determining consequences for behaviors because the child is the one who responds to the consequence. This may be done through an assessment of what motivates the child, or by directly asking the child for his/her input [23]. The child may have ideas about what s/he thinks is a motivating consequence, whether the consequence is positive or negative; generally the child will have a lot to say about whether s/he thinks it is a ''fair'' consequence (a hint here is to choose the least fair punishment as this is likely to be motivating to the child). A parent's idea of what is reinforcing may not actually be reinforcing to the child, and, thus, is not likely to be an effective consequence. A ''really cool'' rainbow sticker is not likely to motivate the average teen to be home for curfew. Essentially, the consequence must be meaningful to the child for it to be effective. When the child/adolescent is able to participate in setting up the motivational system of consequences, s/he is more likely to understand that his/her behavioral choice or reason for the occurrence of a consequence [31,33]. In addition, the child will be more likely to strive to avoid negative consequences or to earn positive consequences when the consequences are meaningful and important to the child.

Several other aspects should be kept in mind when helping parents with discipline issues in the real world. First of all, the consequence must be tolerable by the parent (similar to the dead man's test for the target behavior) [27]. The consequence should be simple enough that the parent is able to do it at a moment's notice, and the parents should be able to deliver the consequence every time the behavior occurs. In the heat of the moment, many parents may blurt, ''You are grounded for the rest of your life!'' Obviously, this is not a doable consequence, even though, at that time, it may seem like the ideal option or at the least the best wish! Threats are not positive motivational tools, and, therefore, are not the preferred method for increasing behavior [15]. Practically, it is impossible

to catch every occurrence of a behavior, and, thus, encouraging parents to do what they can is important.

Secondly, the consequence should be appropriately related to the behavior; encourage the parents to avoid reinforcing behaviors that are undesirable by focusing their attention to those behaviors that they would like to see more of, or that they view as appropriate. For example, a child may be ignored (by way of attention focusing) when he uses poor manners at the dinner table, but praised when he says "please" and "thank you" (see references [7,10,11]). The old adage of "the punishment should fit the crime" is applicable here. Punishments that last so long that the child has no opportunity for positive rehearsal, are not likely to be effective.

Consequences should be related to the intentional nature of the behavior. Cognitively, children who are younger than seven are incapable of rational thought, and are unable to distinguish lies and untruths from reality. The concept of lying has not been learned, nor can it be at this age. Lay-parenting would have you believe that children as young as 2 years of age lie and conceal the truth about inappropriate behaviors. Discussing the moral developmental milestones of children with parents in the office setting, as well as the importance of clear communication of expectations, can be beneficial [13,14].

Common pitfalls

Consistency

The old adage suggests that "practice makes perfect"; however, in the case of discipline, practice makes learning [7]. The more repetition that a child has with a specific consequence, the more ingrained will be the concept. Likewise, the more repetition a parent has to provide a consequence, the more learning opportunities are given to child. As with flossing, consistency often is difficult to attain and sustain. Encouraging the parent to pre-establish target behaviors and consequences, and to do what they can in following through, provides support for their efforts and rewards what they are doing appropriately.

Immediacy

Another influence on the effectiveness of discipline involves how soon after the inappropriate behavior (or the target behavior for that matter) the child receives feedback or consequences. Laboratory studies emphasize the importance for the consequence to be immediate to increase the effectiveness of the procedure in place (see references [19,20,27]). More specifically, a reinforcer or punisher must be applied within 5 seconds of a target behavior for learning to occur. In most American families, consequences do not occur within this time frame. Thus, effectiveness of the consequence on the target behavior is reduced.

Pediatricians can encourage parents that the consequences need to be as close to the behavior as possible for maximum effectiveness.

Development

The target behaviors and expectations must match the child's developmental level. If the expectations are too high (ie, the child has not yet developed the skill level), the child will likely fail and the parents will likely be disappointed. An example of this occurs when the parent asks "Who needs to go to the bathroom"? Although most adults have mastered the physiologic interpretation of the signals of bladder or bowel urgency, children are learning to match the language of toileting with the physiologic function [34]. This is in reference to the way adults ask children if they "*have* to pee", or "*need* to go," or "*want* to tinkle." This language becomes a barrier for children younger than ages 5 or 6, because they are not able to rationalize or generalize the usage of these terms. Concepts of have, need, and want are not well understood at a preoperational developmental stage [5]. In fact, having to pee or needing to go to the bathroom are, when taken literally, rather silly statements. For children who are younger than age 6, we should be thinking literally. If the parent feels, thinks, or otherwise interprets that the child "needs" to use the facilities, then s/he should just physically take them to the bathroom and prompt them through the use of the facilities. No language is needed to teach toileting. This was noted anecdotally by the first author when working on a behavioral program to teach a nonverbal 3-year-old who had autism how to pee in a toilet [28]. The only verbal language used was in praising the first "tinkle" and labeling the behavior. Telling the child what to do or how to do it was not a part of the programming (which was successful after about 10 trials).

Additionally, at times, many parents may set the expectations for their child's behavior higher than the expectations the parents have for their own behaviors. This may result when the parent expects the child to complete all chores/target behaviors on a sticker chart, but then fails to provide the stickers appropriately. It is crucial to discuss the implications of this mismatch in expectations with the parent, because problematic behaviors are likely to arise. Encouraging parents to set tolerable consequences (positive as well as negative) will set the family up for success with behavioral programming.

Practical things to do in the office

Parents will present to you with behavioral concerns for their children. It is the pediatrician's job to address these concerns [35]. The fact the parents have discussed this with you identifies how important they consider your advice. After meeting with a family and discussing some basic solutions, a follow-up visit is needed to identify if the methods are or are not working for the family, if the issue is or is not resolving, and if the family actually understood what you were saying during the problem-solving appointment. Several common problem areas and pitfalls are reviewed below.

Communication

When working with families in the office, ensuring clear communication is helpful. For parenting techniques, this may involve modeling and rehearsing recommended strategies during the office visit. Just as practicing the discipline procedure with the child at home is important, modeling and rehearsing the technique so that you are assured that the parents understand it is equally beneficial. Discipline techniques that are worth doing are worth doing correctly, and will provide more quality time for the parent if the parent feels confident and competent in their use of the tool [18].

It can be stressful when children will not comply with parental commands or requests. It is essential, therefore, to encourage parents to phrase commands in such a way that the child does not have a choice. For example, the "request" "Why don't you hang up your coat?" allows the child to respond, "I don't want to." This is not really what the parent wants to happen, because the parent is generally implying that the child is to hang up the coat. A better request would be "Please hang your coat in the closet." The child does not have an option; the behavior that is expected is explicit. "Can you. . ." is a common request phrase. The appropriate response is yes/no, not an actual engagement in the target behavior. For example, asking a noncompliant 5-year-old "Can you sit up on the table and open wide?" is not likely to elicit the target behavior of the child climbing onto the examination table and opening his mouth. Instead, direct him/her through phrases such as "Johnny, sit up on the table" while looking directly at his/his eyes and pointing to the table; after compliance with this command is elicited, direct him/her to "open your mouth." Model for parents and encourage them to use stepwise directives to increase the probability of compliance from the child.

When giving a command, it is important that it be simple. Complex commands should be broken into smaller steps, and each command should be given after the previous one is completed. For example, "Get ready for bed" could be broken down into various steps. First, the child should change into his/her pajamas. Then, the child should urinate (in the toilet). Next, the child should put toothpaste on his/her toothbrush, and brush his/her teeth. Finally, the child should lie under his/her blankets and wait for the parent to say goodnight. When a child is told, "Get ready for bed," s/he may not do all of the steps that are expected by the parent; thus, it is important to break the command into smaller steps [18,31]. Encouraging parents to make simple requests will help their child or adolescent succeed with their requests.

Oftentimes, children ask "Why"? when given a command, stating a simple rationale before the command addresses this question. For example, the command "Hand me the red crayon, please" may lead the child to wonder why his/her father cannot just reach across the table to get it himself. Instead of replying "because I told you to," encourage parents to include their reasoning in the request. For example, saying "I cannot reach the red crayon. Please hand it to me" addresses this issue, and also adds a dimension of modeling manners. Rationalizing with the

child will not result in increased compliance or learning [5]. Often, parents feel frustrated when their children "do not understand," or do not generalize from one situation to another. This is normal developmental behavior. The fact that the parent requested something is enough for compliance, whether a rationale was provided. Encouraging parents to give a rationale before the request can reduce the likelihood of rationalization as a form of reinforcement [18].

Adult attention

Sometimes, parents have given up hope that there can be resolution or change, even for the most common behavioral problems (eg, thumbsucking, toileting issues, swearing). The parents complain about the problem, but in a manner that suggests that they feel powerless over it. Utilizing in-office demonstrations can refocus the parents on the most powerful reinforcer that exists, parental/adult attention. The demonstration is easy to do in most cases. Suggest to the parents that they have something very precious that their child wants more than anything. Then suggest to the parents (while the child is present) that during the adult conversation the adults should not let the child interrupt. Finally, model for the parent what to do when the child attempts to intervene in the conversation, in any way—the behavior modeled is looking directly at the parent's eyes and not breaking eye-contact or looking directly up at the ceiling while continuing to talk. The child is likely to engage in many verbal and physical behaviors to obtain the parent's attention. Typically, with the average child, attention-seeking behaviors occur within a matter of seconds, and is a quick office tool to demonstrate the ultimate resource that the parent possesses (attention). Pediatricians can model positive attention and praise during the visit, and pediatricians should remind parents that the more positive the attention, the better.

Practice what you preach

When working with parents in the office, you can model discipline strategies in how you approach parent behaviors. Positive feedback is a motivational technique that can provide modeled reward as well as encouragement [15]. Writing out a contract with the parent specifying your recommendations and then setting follow-up appointments to check on progress may also be helpful. In addition, it may be useful to take on a solution-oriented approach rather than a problem-oriented approach. Typical office visits are in the framework of a stated problem. The problem-focused visit focuses on a target problem behavior, discussing how frequent or severe the target behavior has been ("How has the stubbornness been this week?"). A solution-oriented approach focuses on the behavior to increase ("How often has compliance occurred this week?"). Again, the focus is on the positive rather than the hindrances [36].

By modeling and demonstrating what you are asking parents to do, you will encourage the parents to follow your behaviors. In addition, parents will be more likely to emulate your interaction with their child when they have a positive

example to follow. A practitioner who neglects feedback and consequences during an office visit will have patients who are less effective with their implementation of recommendations and consequences outside of the office setting.

Professional role, building rapport, and respect from the parent

As with any other skill that you might work with parents to establish, matching your professional teaching style to the parents' learning style is imperative for effective progress. Parents are more likely to follow advice, recommendations, and skills training when the education is provided at their level of understanding and interest. Joining with the family to resolve an issue will go far in developing an excellent working relationship with the parents and the child [35]. In addition, providing resources, with which you are familiar, to parents [37, for example] is also helpful in developing a good working relationship.

Managing behaviors in your office

Office behavior is the perfect opportunity for teaching and modeling. It takes a seasoned professional to be able to conduct assessment, as well as model behavioral management. This is paired also with a balance of rapport building and discreteness, so as not to step on the parents' toes, so to speak. Often, when parents are overwhelmed, they are open to having professionals to collaborate with to reduce the parenting load. This is true during office visits as well. When it is impossible to work with the identified patient without addressing the family behavioral issues (disruptive siblings also in the office), the primary goal becomes communicating the rules and expectations for appropriate behavior to the children and to the parents.

Referrals and consultation

Behavior management for common behavioral concerns can be done without medication. To be effective, however, training and understanding of the behavioral principles is imperative. Therefore, when you are faced with a behavioral problem in the office, it is a wonderful teaching opportunity. It is important to consider if you are willing and able to model management of behaviors within the office setting, however. Some professionals might feel less than confident in managing some severe behaviors in the office, whereas others may feel comfortable with this. It is important to consider your own limits, what you feel qualified to do, as well as the opportunity that you have for teaching within the office setting [35]. If you find that you are at a loss for what to do, it is important to let the parent know this, for a few reasons. This will help you develop rapport with the parent because you will not be working magic. This will also help you develop a working relationship with the parent when you seek consultation and referral for management of severe behaviors; the parent will respect your interest in resolving the behavior and also share your regard for the referral person. Often, behavior

therapists will do consultation to your office or to you over the phone, and will often work with pediatricians who are interested in learning how to manage the case themselves. Depending on your time, training, and interest, you may continue to be involved in the case. Other resources to consider include a behavior specialist, a psychologist, a family counselor, an addiction counselor, or any other number of professionals [38]. Depending on your level of involvement, you may refer for services, refer for consultation, refer for education, or seek consultation yourself about how to manage the situation. Referrals to a pediatric behavior therapist may result in more efficient, cost-effective treatment of behavioral issues. Current research suggests that including a pediatric psychologist within the pediatric setting is most beneficial [39].

Final advice

Communication is the key to good discipline and behavior. This is as true for the office visit as it is for the family rules in the kitchen at home. Recommendations, goals, and major discussion points, from even a brief session, should be in writing so the parents can refer to this later when they are actually attempting the plan. Often, professionals neglect to provide the appropriate supportive reminders for what/how/when to do what is agreed upon at the visit. Many parents confuse the name of medication prescribed, or the dosing instructions, prescription pads help prevent major confusing and problematic issues that related to medication. All other recommendations (eg, prescriptions) and resources should similarly be reviewed and documented to avoid the same pitfalls. This will aid the professional as well as the parent in follow-through and follow-up. It is no secret that family rules are more effective when put in writing and the same is true for professional rules/recommendations.

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