PRIMER ON AVERSIVES

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CONTENTS

[USE CTRL + CLICK TO FOLLOW EACH LINK.]

I. BEHAVIORAL TREATMENT AS AN EFFECTIVE ALTERNATIVE TO PSYCHOTROPIC DRUGS AND PSYCHOLOGICAL COUNSELING

Some special needs students have problematic behaviors that are dangerous to themselves or others or that are seriously harmful to their own education, social development and quality of life.

One approach to treatment these behaviors is the use of psychological counseling. Unfortunately, although this may prove helpful to many students, it is of no value to students who lack the cognitive capacity to participate in meaningful discussions with a therapist. In addition, it may fail with higher functioning students in cases where the students refuse to attend the therapy sessions and in cases where students show appropriate verbal behavior with their therapist but continue to show inappropriate nonverbal behavior outside of the therapy session. Furthermore, if psychological counseling is provided immediately after major problem behaviors have occurred, such counseling could even reward the occurrence of those behaviors if the opportunity to speak with the counselor is a desired activity for the student.

A second approach to treating problematic behaviors is the use of psychotropic medication. Unfortunately, these drugs usually cannot be used to target individual problem behaviors; instead they produce known and unknown effects on the biology and physiology that have secondary and general effects on the individual's behavioral repertoire. With only one or two exceptions, psychotropic medications have been designed for adults and have not been approved for the use with children. In addition these drugs sometimes: sedate the student into a drugged stupor in which learning is impossible; cause the students to gain enormous amounts of weight, creating risk of diabetes; cause disfiguring body movement tics that are irreversible; and produce a variety of other negative side effects. Sometimes the side effects of a medication are not discovered until decades after its introduction, at which time it may be too late to reverse the effects. This topic is covered in more detail in the document "Primer on Psychotropic Drugs." See also Section III below.

A promising third approach to treating problem behaviors, which allows one to avoid the use of dangerous psychotropic medication and to not have to rely on sometimes-ineffective psychological counseling is the use of behavioral treatment. This is an application of modern behavioral psychology, the broad outlines of which were developed by B. F. Skinner (1953) and which was first applied to the problems of developmentally disabled, mentally ill and behaviorally disordered persons in the 1960's.

Today, the application of behavioral psychology to the treatment of problem behaviors is called *behavior modification.* Behavior modification is largely the

use of rewards and punishments to encourage desired behaviors and to decrease or eliminate undesired behaviors. Behavioral psychology has also been applied to education and has produced technologies such as *programmed instruction*, *computerized self-instruction* and *precision teaching*. When behavioral psychology is applied to the field of counseling, it is sometimes called *behavior therapy* or *behavioral counseling*.

One of the first programs to apply these technologies to the education, treatment and counseling of autistic and behaviorally-disordered children in a residential treatment setting was Behavior Research Institute, which opened in 1971 and which, since 1984, has been known as the Judge Rotenberg Educational Center.

In behavioral treatment, the psychiatric diagnosis plays little role. Instead the student's problems, whatever the psychiatric diagnosis may be, are analyzed as a set of excesses in certain specific behaviors and a set of deficits in other specific behaviors. To eliminate the unwanted behaviors, behavior modification procedures are employed. To teach and maintain desired behaviors the various behavioral educational technologies are employed along with behavior modification. And all of this is supplemented with behavioral counseling as needed.

In behavioral treatment the ethical approach is to employ reward and educational procedures as a first choice, to add mild punishments (also known as *aversives*, which are explained below) as a second choice, and to add stronger aversives only if necessary.

II. IF POSITIVE REWARD PROCEDURES, EDUCATIONAL PROCEDURES AND MILD (OR NON-PHYSICAL) AVERSIVES ARE INSUFFICIENTLY EFFECTIVE TO TREAT HARMFUL PROBLEM BEHAVIORS, THERE ARE IMPORTANT TREATMENT ADVANTAGES TO BEING ABLE TO SUPPLEMENT THOSE PROCEDURES WITH REMOTE-CONTROLLED SKIN-SHOCK.

A. Terminology

The technical definition of an *aversive* is a stimulus (event) which, when arranged as a contingent consequence for a behavior, causes that behavior to decrease in frequency in the future. Two alternative technical terms that mean the same thing are *decelerating consequence* and *punisher*.

An event which, when used as a contingent consequence, causes a behavior to increase in its future frequency, is termed an *accelerating consequence* or a *reinforcer.* The lay term for this is *reward.*

B.F. Skinner distinguished between a reward that accelerates behaviors when presented (as when we reward a child by presenting a candy) and a reward that accelerates behavior when removed, as when we reward a child by removing a restriction. He called the former a *positive reinforcer* and the latter a *negative reinforcer.* This distinction is not very useful in practice; furthermore, it has led to a lot of confusion because many laypersons as well as clinicians mistakenly use the term *negative reinforcer* when they really mean *aversive, punisher, or decelerating consequence.*

B. Types of Aversives

Every parent, program and school uses aversives. Some aversives are relatively mild or non-restrictive. Some are strong and relatively more restrictive.

Milder or less restrictive or non-physical aversives. Examples are: deliberately ignoring the person and/or the behavior; saying “No,” giving a person a frown or disapproving look, stopping or suspending a rewarding activity, docking a person some pay; imposing a money or token fine; giving a student a bad grade; requiring a student to stay after class, spend time in a study hall, visit the principal’s office, or write an apology many times; removing a privilege; and removing a student from a more desirable seat, classroom or residence.

Stronger or more restrictive or physical aversives. Examples are confining a student to a bare time out room for a period of time; placing a facial screen over a student’s

eyes (and enforcing it physically if he tries to remove it) for a period of time; "required relaxation," (requiring the student to lie still for a period of time and enforcing this requirement with physical force if necessary); overcorrection (requiring—with physical force if necessary—a student to repeat an action many times); spanks, pinches, or muscle squeezes; vapor spray to the face; brief cool shower; bad tastes; aromatic ammonia broken under the nose; imposing manual restraint such as the "basket hold" for a period of time; mechanical restraints such as handcuffs and/or ankle cuffs; skin-shock; "takedowns" (several staff forcing the student down to the floor and holding him/her there until he/she stops struggling); "mat rolling" (rolling the individual in a mat or small rug for a period of time); and mechanical restraint. PRN injections by needle of psychotropic medications also have an aversive effect in addition to their pharmacological effects.

C. Protocol for Behavioral Treatment of Children and Adults with Severe Behavior Problems

An ethical approach to the behavioral treatment of a problem behavior may be summarized as the following set of steps:

1. Plan the judicious removal or diminishing of any ineffective psychotropic medication, under the direction of a psychiatrist. Such medication tends to make the student drowsy, overweight, and less responsive to non-drug behavioral treatment. It also can have very unfortunate effects and sometimes permanent negative side effects that are best avoided.
2. Pinpoint the target behaviors. Analyze the student's problems in terms of the specific problem behaviors that need to be decelerated and the specific desired behaviors that need to be accelerated. Set up a data collection and charting system to measure progress.
3. Functional assessment. Do a functional assessment of the problem behaviors to find out what events may be functioning as deliberate or inadvertent rewards that may be rewarding the problem behavior. Design the treatment environment to ensure that the problem behavior no longer generates these rewards for the student.
4. Educational procedures, reward contracts and non-physical aversives. Set up the following three procedures simultaneously. These procedures are normally included in any "positive-only" treatment program.
    a. Provide educational procedures. Use educational procedures to teach the student what behaviors are inappropriate and why, and what appropriate behaviors to display, instead.
    b. Arrange Reward contracts. Set up behavioral reward contracts in which, if the student can go for a period of time without showing the problem behavior, and while showing alternative, desired behaviors in

their place, he/she earns a reward. All of the rewards available should be marshaled to make these contracts effective.

c. Set up non-physical aversives as contingent consequences for the problem behaviors. Non-physical aversives include consequences such as these: ignoring the behavior; saying "no;" removing privileges; imposing token, point or money fines; etc.

5. Provide behavioral counseling as needed for students who function at higher cognitive levels. When using such counseling, care must be taken that it does not function as an inadvertent reward for problem behaviors and that it is totally coordinated with the ongoing behavior modification treatment.

6. Add stronger, physical aversives if necessary. If steps 1-5 above are insufficiently effective by themselves, as measured by the charted behavior frequencies and the progress of the student, add a stronger aversive so that the problem behavior shows the desired deceleration.

D. Advantages of Choosing Remote-Controlled Skin-Shock as a Physical Aversive Consequence when a Stronger Aversive is Required.

If a physical aversive is required, the Judge Rotenberg Educational Center (JRC) recommends to parents the use of the least restrictive and most effective procedure. Of the available physical aversives, often the least restrictive and most effective one is remote-controlled skin shock. JRC has had 37 years of experience in using a variety of rewards and aversives—possibly more experience with behavioral rewards and aversives than any other program has had. During 20 of those years, JRC used many of the non-skin-shock physical aversives listed above. As a result this extensive experience, JRC has found that the most effective, least intrusive of the physical aversives is remote controlled skin shock. The advantages of this procedure are as follows:

1. Avoids delay. It is important that a decelerating consequence be arranged as soon after the behavior as possible. Remotely administered skin shock can be administered immediately after a behavior occurs.

2. Easier to quantify than most alternative aversives.

3. The amount of the aversiveness is standardized and controlled. Regardless of how long the therapist presses the button of the remote control unit of the Graduated Electronic Decelerator (GED), JRC's skin-shock device, the stimulation is automatically limited to a two-second stimulation that has the exact same intensity and duration each time it is applied. Contrast this with other procedures such as physical holds and take-downs where the intensity of the procedure and sometimes even the duration, is at the discretion of the direct care staff member(s) who is applying the procedure.

4. Avoids awkwardness/difficulty/danger of administering many of the alternative procedures, many of which require gaining physical control over the student in order to administer them, and which are particularly dangerous to administer to older, strong and resistive students. This is true for example, of the use of common decelerative procedures such as time-out, contingent basket-hold restraint, facial screens and overcorrection. It is also obviously true of procedures such as takedowns which function as aversives but which are often given a nicer-sounding name such as "emergency procedures" or "reactive procedures."

5. Inability of the individual to avoid or escape the consequence.

6. Avoids potentially rewarding social interaction. For some developmentally/mentally disabled persons the opportunity to struggle with a staff member may actually be rewarding. Using such a procedure can be counterproductive, therefore, because the problem behavior, by producing a rewarding condition (the opportunity to struggle with a staff member) may occur more frequently in the future.

7. Avoids potentially rewarding escape-from-demands. Many of the alternative procedures, such as time-out, overcorrection, basket-holds, restraint, take-downs, etc., require, in order for them to be executed, that the student be removed from whatever work or activity he/she is presently engaging. This removal can be a desired consequence from the student's point of view—a condition that obtains whenever a problem behavior is escape-motivated. If so, the problem behavior, by generating a desired consequence, will be inadvertently rewarded and occur more frequently in the future, rather than less frequently which is the desired objective.

8. Does not interfere with ongoing activities. All of the other alternative decelerative procedures remove the student from the ongoing educational or other activities for periods of time. One 2-second, remotely-administered skin shock does not remove the student from his/her ongoing activities at all.

9. Avoids exposing client to aversive stimuli that linger. Some of the alternative aversives have a lingering effect of uncertain duration. Examples are bad tastes, bad aromas, aromatic ammonia, etc. Skin shock lasts only as long as it is applied (2 seconds, in the case of JRC's GED device). There is essentially no lingering effect.

10. Has no dangerous side effects. JRC has used skin shock for about 17 1/2 years (ever since 1990). We have seen no side effects except for, in a few cases, a superficial reddening or discoloration of the skin that disappears in a few minutes or at most a few days. By contrast, take-downs, manual restraints such as basket holds, and struggles to put a client into a time out room can be extremely dangerous.

    Recently Wietske van Oorsow did a study to assess the side effects of the GED

on the JRC students. She found that the side effects were either neutral or positive and were not negative. See:

Van Oorsouw, W. M. W. J., Israel, M. L., von Heyn, R. E. & Duker, P. C. (2007). Side effects of contingent shock treatment. *Research in Developmental Disabilities* (2007), doi:10.1016/j.ridd.2007.08.005.

11. The clinician can choose a level of stimulation that is strong enough to serve as an effective decelerator while at the same time posing no health risk. The GED, for example, has two levels of strength.

12. Extremely effective. Remote controlled skin shock appears to be the most effective aversive available. For a paper reporting on its effectiveness in treating aggression with 65 students at JRC, see the following papers:

    Israel, M. L., Blenkush, N. A., von Heyn, R. M., & Rivera, P. M. (2007). Treatment of aggression with behavioral programming that includes supplementary skin-shock. Submitted for publication, 2007. Retrieved April 9, 2008 from http://www.judgerc.org/AggressionPaper.pdf (also available as Exhibit 1 accompanying this document)

    The following are some additional papers that document the effectiveness of JRC's remote control skin shock aversive:

    Worsham, R. W., Israel, M. L., von Heyn, R. E., & Connolly, D. A., (1992). Treatment of life-threatening vomiting and rumination with contingent electrical shock. Retrieved April 13, 2008 from http://www.effectivetreatment.org/treat.html (Available as Exhibit 5)

    Von Heyn, R. E., Israel, M. L., Worsham, R. W., (1993). A comparison of the long-term decelerative effectiveness of two intensities of contingent electric shock on aggressive and health dangerous behavior with individuals with severe behavioral disorders. Retrieved April 10, 2008 from http://www.effectivetreatment.org/comp.html (Available as Exhibit 6)

    Blenkush, N. A., von Heyn, R. E., & Israel, M. L. (2007a). The effect of contingent skin shock on treated and untreated behaviors. Submitted for publication, 2007. Retrieved April 21, 2008 from http://www.judgerc.org/effectsofshock.html (Available as Exhibit 7)

    Blenkush, N. A., von Heyn, R. E., & Israel, M. L. (2007b). An example of contingent skin shock with problem behaviors that proved refractory to positive-only techniques. Submitted for publication, 2007. Retrieved April 21, 2008 from http://www.judgerc.org/longtermuse.html (Available as Exhibit 8)

13. Other advantages that stem from the effectiveness of skin-shock. Because of remote-controlled skin-shock's high level of effectiveness, the following other advantages ensue:

a. It does not have to be used often. The average student at JRC who receives this treatment receives less than one application per week.

b. A procedure such as skin shock, which is effective quickly, is the ethical procedure of choice when dangerous behaviors need to be diminished as rapidly as possible. As Dr. Johnny Matson (Matson et al., 1996) has written,

> "Some aberrant behaviors, such as aggression and self-injurious behavior, in their most severe form, can be extremely destructive and harmful. These behaviors often require immediate treatment to prevent serious injury to the individual and others. Researchers have demonstrated that rapid decreases in aberrant behaviors may be achieved by using aversive procedures (Matson & Taras, 1989). When severe, harmful aberrant behaviors are treated, the use of a less intrusive procedure with more gradual effects may be considered unethical (Repp & Deitz, 1978)."

c. Effective treatment opens the door to positive programming. When the problem behavior(s) has diminished sufficiently, JRC begins a fading protocol in which the use of the skin shock is gradually removed. As the use of the skin-shock becomes increasingly infrequent, the student's program becomes entirely based on positive rewards and educational procedures that were not possible previously when the student was showing a high frequency of problem behaviors. Effective aversives, in other words, create a "window of opportunity" to teach and reward new behaviors with positive programming.

d. Some of the students who function at higher cognitive levels will change their behaviors as soon as they realize that skin-shock has been approved for use in their programs. JRC has had two students who showed extreme self-abuse and aggression and who responded in this way. Both improved their behavior immediately and never actually received a single application of the skin-shock.

e. Largely because of the effectiveness of skin-shock, many students are able to advance to a point where the device is not needed at all and where they can leave JRC and function successfully in the world outside JRC.

f. In those cases, where there is a continuing need for occasional use of the treatment, the students who receive such treatment are able to avoid the use of drugs, with their attendant dangerous side effects, as well as mechanical and manual restraint seclusion, and warehousing.

g. Because JRC is able to employ skin-shock (currently skin-shock is used with 41% of JRC's school age students), JRC is able to maintain a zero-rejection, zero-expulsion policy, and to treat successfully students who have been rejected and expelled from programs that use positive-only procedures. For evidence that this is the case see the following documents:

Israel, M. L., Blenkush, N. A., von Heyn, R. E., & Sands, C. C. Seven case studies of individuals expelled from positive-only programs. Submitted for publication, 2007. Retrieved April 9, 2008 from http://www.judgerc.org/SevenCaseStudies.pdf (also provided as Exhibit 2 with this document)

Israel, M. L. (2007). Positive-only programs expel their difficult-to-treat students, many of whom are then referred to JRC for successful treatment. Retrieved April 9, 2008 from http://www.judgerc.org/posonlyprograms.pdf (also provided as Exhibit 3 with this document)
This paper which identifies the schools involved in the "Seven case studies…" paper, contains the documentary evidence for the assertions in that paper and tells the story of three additional students.

Many of the advantages of skin shock are presented in the following papers:

Linscheid, T., Iwata, B., Ricketts, R., Williams, D. & Griffen, J. (1990). Clinical evaluation of the Self-Injurious Behavior Inhibiting System (SIBIS). *Journal of Applied Behavior Analysis, 23*, 53-78

Iwata, B.A. (1988). The development and adoption of controversial default technologies. *The Behavior Analyst, 11*, 149-157.

Salvy, S., Mulick, J.A., Butter, E., Bartlett, & Linscheid, T.R. (2004) Contingent electric shock (SIBIS) and a conditioned punisher eliminate severe head banging in a preschool child. *Behavioral Interventions, 19*, 59-72. (see p. 60)

III. WHAT IS THE RELATIONSHIP BETWEEN POSITIVE PROGRAMMING, PSYCHOTROPIC DRUGS, RESTRAINT AND AVERSIVES?

When positive behavioral programming alone proves to be insufficiently effective to treat serious problematic behaviors, one has these six choices:

1. Lower the objectives. One may be able to simply accept the occurrence of the individual's problem behaviors and accommodate them in some way. This can lead to what might be called "warehousing." Some problems with this approach, in addition to the obvious ethical issues are these:

    a. This is not an option, however, for certain behaviors such as serious self-abuse, aggression, property damage or behaviors that have a major disruptive effect on others.

    b. Some proponents of the philosophy of Positive Behavior Support might suggest that if a problem behavior is triggered by the presence of a certain stimulus, one should just arrange the environment so that the stimulus is removed, rather than to try to change the student's behavior with respect to that stimulus. This is not a solution that is always in everyone's best interest, however. For example, if a student has a problem with pulling fire alarms when there is no real fire emergency, it would be short-sighted to just try to make sure that the student never passes by a fire alarm while he is in the school. Sooner or later the student will have occasion to pass by a fire alarm. Unless training steps have been taken to change the stimulus control properties of a fire alarm box for that student, he/she is likely to pull a false alarm once again.

2. Consequate problematic behaviors with procedures that are, essentially, aversives, but which tend to be culturally acceptable aversives. Examples are time-out rooms, take-downs, and manual and mechanical restraint. Sometimes these procedures, although functioning as aversives, are given positive-sounding names such as "required relaxation," "time out from positive reinforcement," "reactive procedures," or "emergency procedures." Major problems with these procedures, however, are these:

    a. Some of these procedures are quite dangerous. It has been estimated that approximately 150 students die each year as a result of manual restraints that are administered in residential programs.

    b. Some of these procedures use up enormous amounts of time that could better be invested in teaching the student new skills;

    c. These procedures may be ineffective, also. For some students going into a time-out room is a welcome reward, and for some, struggling with staff members might be a welcome activity.

3. Prevent the behavior from occurring by restraining the person or part of the body in question. This too is not always effective because:

    a. Certain restraint procedures are counter-therapeutic because restraint is the very reward that some students may want to obtain by engaging in, for example, self-abusive behaviors.

    b. Restraint cannot prevent certain behaviors from occurring. For example, it cannot prevent a student from biting a hole in his/her cheek, and cannot prevent a student from engaging in life-threatening scratching of the skin of his/her arm or wrist against the inside of a plaster cast.

    c. Restraint of one's limbs of body for substantial periods of time is quite dangerous to one's health.

4. Supplement positive behavioral programming with psychotropic medication. For an excellent overview that appeared on the TV program *Frontline* of the problems in administering psychotropic medication to children, see http://www.pbs.org/wgbh/pages/frontline/medicatedchild/. More information about the problems of psychotropic medications may be obtained at http://www.judgerc.org/Key_Features/medpolicy.html. As this material makes clear, the use of psychotropic medication as a means for controlling problematic behaviors of students such as those at JRC has a number problems.

    a. Often these drugs are ineffective. For example, all of the students who enroll in JRC have been tried on many different psychotropic medications and these have not been effective. In addition, such medications often have very dangerous side effects, references to which are given below.

    b. If one give enough psychotropic drugs to a student, the student may get into a sleepy, drugged, zombie-like state in which he/she drools and sleeps most of the day. Although this may decrease the frequency of behavior problems such as aggression, the individual is no longer an alert, sober, active and interesting human being, and is in no condition to learn new skills.

    c. Unlike behavior modification procedures, psychotropic drugs cannot be targeted to decreasing one specific behavior. These drugs affect the biology and neurology of the body. Effects on behaviors are secondary and are not behavior-specific.

    All psychotropic drugs have significant side effects. Some of these are known at the time the drug is put on the market. Others may not be discovered for 5, 10 or 20 years. Some of these side effects may be irreversible and some of the metabolic effects are life-shortening or life-threatening.

    Just to take one example, consider the psychotropic medications that are

termed “antipsychotic” drugs. For two articles which give an excellent and easy-to-read summary of the history of anti-psychotic medications, including the issues of side effects, see Levitas & Hurley (2006a) and Levitas and Hurley (2006b).

Citation: Levitas, A. S. & Hurley, A. D. (2006a). The history behind the use of anti-psychotic medications in persons with intellectual disability: Part I. *Mental Health Aspects of Developmental disabilities, 9,* (26-32).

Citation: Levitas, A. S. & Hurley, A. D. (2006b). The history behind the use of anti-psychotic medications in persons with intellectual disability: Part II. *Mental Health Aspects of Developmental disabilities, 9,* (93-98).

As these articles make clear, the side effects of modern antipsychotic medications that one needs to be concerned with are these:

i. Parkinsonian drug-induced movement disorders (e.g., tardive dyskinesias). Although the newer, second generation antipsychotic (SGA) drugs are said to induce fewer of these than the first generation antipsychotic (FGA) drugs did, this has not been shown experimentally when comparable doses of FGAs and SGAs have been used. (Levitas & Hurley, 2006b, p. 95)

ii. Metabolic syndrome. These are metabolic effects that lead to huge weight gains, increased susceptibility to diabetes, and abnormal levels of cholesterol and other blood lipids, all of which are risk factors for cardiovascular disease (Levitas & Hurley, 2006b, p. 97-8). One leading psychiatrist has noted that these metabolic effects can take years off of one’s life span and, unlike the drug-induced movement disorders, may be irreversible. (Carpenter, 2007).

iii. Cardiac conduction changes. All FGAs and SGAs are capable of prolonging the heart’s “QT interval.” This can cause disorganization of heart contraction, or arrhythmia, and consequences including sudden death can occur. (Levitas & Hurley, 2006b, p. 98)

iv. Serum prolactin increase.

“Prolactin is the hormone that causes breast growth and lactation; its normal function in pregnant women is to prepare and sustain milk production. Increased prolactin levels suppress estrogen, and thus the menstrual cycle, as long as breastfeeding is active. Dopamine blockade in the hypothalamus [caused by anti-psychotic drugs] causes hyperprolactinemia (elevated serum prolactin);

> FGAs have long been known to cause this effect, signaled by amenorrhea (lack of menses) in female patients, sometimes with galactorrhea (milk production), mimicking a type of tumor called a prolactinoma, but amenorrhea/galactorrhea is an indication for imaging of the hypothalamus and pituitary. Long-term suppression of estrogen causes osteopenia or osteoporosis and lowered libido. What is know of prolactin function, or rather dysfunction, in males comes almost exclusively from the known effects of prolactinomas in adolescent and adult males:gynecomastia (female breast growth in a male), lowered libido and oher sexual dysfunction. The effects of long-term hyperprolactinemia insufficient to cause these symptoms are unknown. The effects in children, both male and female, can include growth arrest, delayed puberty and osteopenia…
>
> Risperidone appears to be the most common cause of hyperprolactinemia among the SGSs; I have personally, over the past 10 years, seen four adolescent and young adult males with gynecomastia and one 30-year-old female with amenorrhea/galactorrhea, all on risperidone, and one adolescent male with gynecomastia on olanzapine [Zyprexa]. This is a cancer risk in males; recently FDA researchers began an investigation of reports of galactorrhea in men and children receiving risperidone. Results have yet to be published in a medical journal, but were reported in the Wall Street Journal and reprinted in Pscychiatry Drug Alerts, which reported "a high incidence of benign pituitary tumors among patients receiving risperidone (of 64 reported cases, 48 were on risperidone, 6 on olanzapine, 4 on ziprasidone, 3 on clozapine, 1 on quetiapine). The matter is still under study." (Levitas & Hurley), 2006b (p. 99)

d. The information we receive about psychotropic drugs comes largely from the drug companies themselves. Most of the research on these drugs is sponsored by those companies, They have no interest in revealing the Snegative aspects of their products, and they exert an enormous influence on the FDA. The FDA relies on the drug companies to test their own drugs because the FDA does not have a budget to do this testing on its own. They also exert a considerable influence on influential psychiatrists whom they pay for giving talks about their drugs and who often then prescribe the drugs made by companies who pay them. See Harris et al., 2007, also available at http://judgerc.org/SideEffectsArticles/PsychiatristsChildren.pdf.

e. Almost without exception the psychotropic drugs that are being used today with have not been approved for safety or effectiveness by the FDA

for use with children. They have been approved only for use with adults. When prescribed for children, the use is considered “off label.”

5. Expel the individual from the program and leave the parent with the problem of finding some other program that will accept the individual. Most people do not realize that positive-only programs (all programs other than JRC) actually do expel and reject students. For concrete evidence that this is happening, that the these students often are eventually referred to JRC, and that JRC is able to help them, please see Israel et al., Seven Case Studies of Individuals Expelled from Positive-Only Programs [http://www.judgerc.org/SevenCaseStudies.pdf and see Israel et al: "Positive-Only Programs Expel Their Difficult-to-Treat Students, Many of Whom Are Then Referred to JRC for Successful Treatment," (2007) http://www.judgerc.org/posonlyprograms.pdf .
6. Supplement positive behavioral programming with an effective aversive such as the use of the GED skin shock procedure.

IV. SHOULD THE USE OF AVERSIVES BE LIMITED TO THE TREATMENT OF AGGRESSIVE AND SELF-ABUSIVE BEHAVIORS?

Some argue that aversives should only be used for behaviors such as aggression and self-abuse. This limitation would be very harmful to the students who need treatment for destructive, disruptive and non-compliant behaviors in order to be safe, to be educated and to have a reasonable quality of life. Behaviors other than aggression and self abuse-- such as extreme noncompliance, property destruction, disruptive behaviors, anti-social behaviors, etc.—can be very detrimental to a student's educational and social development and can ruin a student's quality of life. If such behaviors are not treated, the student may have to be institutionalized and/or medicated with heavy psychotropic medication that can have dangerous side effects.

Limiting aversives to the treatment of aggression and self-abuse is not supported by professional standards or by the most recent major review article on punishment. Numerous peer-reviewed studies also argue against such a restriction..

A. Professional Standards.

Citation: Van Houten, R., Axelrod, S., Bailey, J. S., Favell, J. E., Foxx, R. M., Iwata, B. A., & Lovaas, O. I. (1988). The right to effective treatment. *Journal of Applied Behavior Analysis, 21*, 381-384.

The Association for Behavior Analysis' Statement on the Right to Effective Behavioral Treatment (Van Houten et al., 1988) contains no restriction on the use of aversives to treat behaviors other than aggression and self-abuse. It states that an individual has a right to "services whose overriding goal is personal welfare," and that "the primary purpose of behavioral treatment is to assist individuals in acquiring functional skills that promote independence." Another key quotation is this:

> "Consistent with the philosophy of least restrictive yet effective treatment, exposure of an individual to restrictive procedures is unacceptable unless it can be shown that such procedures are necessary to produce safe and clinically significant behavior change. It is equally unacceptable to expose an individual to a nonrestrictive intervention (or a series of such interventions) if assessment results or available research indicate that other procedures would be more effective. Indeed a slow-acting but nonrestrictive procedure could be considered highly restrictive if prolonged treatment increases risk, significantly inhibits or prevents participation in needed training programs, delays entry into a more optimal social or living environment, or leads to adaptation and the eventual use of a more restrictive procedure. Thus, in some cases, a client's right to effective treatment may dictate the immediate use of

quicker acting, but temporarily more restrictive procedures." (p. 383)

Citation: American Psychological Association Division 33 Resolution: Guidelines on effective behavioral treatment for persons with mental retardation and developmental disabilities (n.d.). Retrieved April 9, 2008 from http://www.apa.org/divisions/div33/effectivetreatment.html

The APA Division 33 Guidelines on Effective Behavioral Treatment for Persons with Mental Retardation and Developmental Disabilities (American Psychological Association, n.d.) also contains no restriction on using aversives to treat behaviors other than aggression and self-abuse. The key quotations are :

> "The needs of the persons served shall take precedence over the organizational needs or ideological position of the settings in which services are delivered." (p.1)
>
> "Highly restrictive procedures shall not be employed until there has been sufficient determination that the use of less restrictive procedures was or would be ineffective or harm would come to the client because of gradual change in the client's particular problematic behavior." (p. 2)
>
> "Highly restrictive or aversive procedures are applied only in instances in which there is an immediate physical danger to self or others, or there may be permanent sensory or other physical impairment, or the client may be prevented from receiving necessary medical, surgical, or emergency services, *or the frequency or intensity of the problematic behavior prevents adequate participation in normal activities appropriate for the individual's circumstances and personal goals*." (p. 2) [emphasis supplied]

B. Recent Review Paper

Citation: Lerman, D. C. & Vorndran, C. M. (2002). On the status of knowledge for using punishment: implications for treating behavior disorders. *Journal of Applied Behavior Analysis, 35,* 431-464.

Lerman and Vorndran (2002), is the most recent major review of punishment that has appeared in the professional literature.. In this recent and respected review, at no point do the authors recommend limiting the use of skin shock to aggression and self-abuse. There is, however, a statement in this article that recommends limiting the number of behavioral targets *when there is a problem of habituation.* The statement is as follows:

> "Several authors have suggested that adaptation, or habituation, to the punishing stimulus accounts for instances of recovery (i.e., repeated exposure decreases the aversiveness of the punisher; Goodall, 1984). Moreover,

> adaptation is more likely to occur with mild punishers, which are typically employed in clinical settings. One strategy that may decrease the likelihood of habituation is the use of hiatus from punishment…Potential problems with habituation may be curtailed by limiting exposure to the punisher in various ways. For example, caregivers could schedule brief vacations from punishment on a regular basis (Rachlin 1966) or restrict the use of specific procedures to one or two problem behaviors (e.g., those of greatest concern) instead of applying the same treatment for a variety of responses." (p. 449-450)

Notice that even in this recommendation (which applies only to the problem of habituation), there is no suggestion that only the behaviors of aggression or self-abuse should be the problem behaviors that should continue to be consequated with a punishing stimulus when one is trying to cope with adaptation; instead it recommends "limiting exposure to the punisher in various ways" such as arranging brief vacations from *all* punisher or restricting use temporarily to behaviors of greatest concern. Nowhere do Lerman and Vorndran suggest that the "behaviors of greatest concern" will always be only aggression and self-abuse.

C. Articles Commenting on this Issue

Citation: Matson, J. L., Cooper, C., Malone, C. J., & Moskow, S. L. (2008). The relationship of self-injurious behavior and other maladaptive behaviors among individuals with severe and profound intellectual disability. *Research in Developmental Disabilities, 29,* 141-148.

This paper supports the notion that it is often the case that there are many different problem behaviors that a student exhibits that interfere with his/her life. In this paper, Matson et al. demonstrated that self-injury is typically accompanied by a wide range of other problem behaviors including aggression, tantrums, property destruction, noncompliance, sexually inappropriate, and stereotypical behaviors. The author concludes:

> "…..the results of this study suggest that clinicians should consider broader based assessments and treatments targeting not only SIB but also other co-occurring maladaptive behaviors." (p. 146)

Citation: Matson, J. L. & Nebel-Schwalm, M. (2007). Assessing challenging behaviors in children with autism spectrum disorders: A review. *Research in Developmental Disabilities, 28,* 567-579.

In this paper Matson presents another important issue: behaviors that are non-aggressive and non self-abusive are often antecedents to aggressive or self-abusive behaviors. If one does not treat them effectively, this will lead to more aggression and

self-abuse than would occur if these behaviors were, themselves not treated. He writes:

> "The insidious nature of these behaviors is difficult to overestimate in the overall development of the ASD child. For example, stereotypies are often viewed as the least problematic of these challenging behaviors, often receiving less intensive intervention than aggression or self-injury, or receiving no treatment at all (Matson, Benavidez, Compton, Paclawskyj, & Baglio, 1996). Yet, engagement in stereotypy not only interferes with skill acquisition, but may be a precursor to self-injury (Epstein, Doke, Sajwaj, Sorrell, & Rimmer, 1974; Guess & Carr, 1991; Morrison & Rosales-Ruiz, 1997; Schroeder, Rojahn, Mulick, & Schroeder, 1990)." (p. 568)

D. Sample Research Studies Treating Behaviors Other than Aggression and Self-Abuse

Citation: Hagopian, L. P., Fisher, W. W., Sullivan, M. T., Acquisto, J., & LaBlanc, L.A. (1998). Effectiveness of functional communication training with and without extinction and punishment: a summary of 21 inpatient cases. *Journal of Applied Behavior Analysis, 31,* 211-235.

In this paper Dr. Hagopian reports treating the following behaviors with aversives: *property destructio*n (91% of his 21 clients engaged in this) which included banging objects, knocking objects off surfaces, ripping objects, and turning over furniture; *elopement,* which included running toward an open door, putting any body part beyond an open door jamb, and attempting to open doors or leave rooms without staff; and *pica* which included placing inedible objects into the mouth past the lips. Note that this is not necessarily the full list of the behaviors that Dr. Hagopian et al. treated. They report that certain categories "included" certain topographies. Also note that in Table 1 (p. 213) the authors use the term "disruption" rather than the more limited "property destruction."

Citation: Foxx, R.M. (2003). The treatment of dangerous behavior. *Behavior Interventions, 18,* 1-21.

In this paper the "aggression" that was treated included aggression toward property as well as toward others and toward self. (See p. 2, 3 and 6.) Foxx also treated noncompliance as part of the consequence arranged for Paul. "Whenever Paul became aggressive, two or more staff physically restrained him and then instituted relaxation training… [Paul was directed to lie on his bed.] If he actively resisted, his extremities were held and the staff's manual restraint pressure was decreased as he decreased resisting. Manual restraint was applied as needed whenever he attempted to rise and terminated when he relaxed thereby negatively reinforcing compliance." (p. 8) [bracketed material supplied]

Citation: Fisher, W., Piazza, C., Cataldo, M., Harrell, R., Jefferson, G., & Conner. R. (1993). Functional communication training with and without extinction and punishment. *Journal of Applied Behavior Analysis, 26*, 23-35.

In this study, Fisher et al. (1993) utilized punishments such as a verbal reprimand combined with physical guidance to complete five requests (overcorrection) or a 30-second basket hold to address self-injury, aggression, disruption, and pica. The following response definitions were provided: *Self-injury* was defined as forceful striking, scratching, rubbing, poking, or biting one's own body parts such that repetition of the behavior over time resulted in tissue damage. *Aggression* was defined as forceful hitting, kicking, pushing, pinching, scratching, biting, and throwing objects at others. *Disruption* (or property destruction) was defined as forceful banging throwing, overturning, tearing, or climbing on objects not made for that purpose and yelling or screaming. *Pica* was defined as bringing inedible objects in contact with the mouth (actual consumption of objects was prevented). (p.24)

Citation: Rolider, A., Cummings, & Van Houten. (1991). Side effects of therapeutic punishment on academic performance and eye contact. *Journal of Applied Behavior Analysis, 24*, 763-773.

In this study, for one participant, punishment consisted of a reprimand plus a 20 second, momentary movement restriction procedure that consisted of pushing the participant forward in a chair so that his/her chest and knees touched. This procedure was used contingent upon aggression and severe tantrums.

E. Widely Used Textbook on Behavior Modification

Citation: Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied Behavior Analysis.* Saddle River, N.J.: Pearson Education, Inc.

In this textbook the author reports the following papers in which punishment is used to treat non-aggressive and non-self-abusive behaviors. Some quotes:

> "Contingent exercise has been found effective as punishment for various self-stimulatory, stereotypic, disruptive, aggressive and self-injurious behaviors (e.g. DeCantanzaro & Baldwin, 1978; Kern, Keogel, & Dunlap, 1984; Luce & Hall, 1981; Luiselli, 1984)." (p. 341)

> "Positive practice overcorrection has been used for academic behaviors (Lenz, Singh, & Hewett, 1991), most often to decrease oral reading and spelling errors (e.g. Ollendick, Matson, Esveldt-Dawson, & Shapiro, 1980; Sing& Singh, 1986; Singh, Singh, & Winton, 1984; Stewart & Singh, 1986)" (p. 342).

“For example, Charlop, Burgio, Iwata, and Ivancic (1988) compared various punishers to a single presentation of one of the punishers (i.e., a stern “No,” overcorrection, time out with physical restraint, a loud noise). Three-, 5-, and 6-year-old children with developmental disabilities served as participants. Their problem behaviors included aggression (Child 1), self-stimulation and destructive behavior (Child 2), and aggression and out-of-seat (Child 3).” (p.. 346).

V. IS IT TRUE THAT POSITIVE-ONLY TREATMENT PROCEDURES HAVE BEEN DEVELOPED DURING THE PAST FEW DECADES—SUCH AS FUNCTIONAL ASSESSMENT METHODOLOGY—THAT ENABLE CLINICIANS TO DISPENSE WITH THE NEED FOR PHYSICAL AVERSIVES?

Although there have been a number of new positive-only procedures developed during the last few decades, these procedures have proven to be effective in only approximately 50% of the cases in which they have been used. The treatment reviews which report this data were conducted by some of the leaders in the "positive-only" or "Positive Behavior Support" movement.

A. Treatment reviews by positive-only researchers show that positive-only procedures are effective in, at best, 60% of the cases.

1. 1990 treatment review covering positive-only treatment research, 1969-1988 by Carr, E.G., Robinson, F., Taylor, J. & Carlson, J.

Citation: Carr, E.G., Robinson, F., Taylor, J. & Carlson, J. (1990). Positive approaches to the treatment of severe behavior problems in persons with developmental disabilities. In: *National Institutes of Mental Health Consensus Development Conference,* (pp. 231-341). NIH Publication No. 91-2410.

In 1990, Edward Carr (a leader in the Positive Behavior Support movement who teaches at SUNY Stony Brook) and his associates reviewed all the available published professional studies which had used positive-only procedures during the period 1969-1988 to assess whether they had been effective. Ninety-five research papers from 21 journals met the stringent selection standards which the authors used. A study was judged to be effective if the authors had been able to reduce the frequency of the problem behaviors by 90 percent from its level prior to the treatment. Carr presented the results of this research at the 1989 National Institute of Health Consensus Conference on Destructive Behaviors. Carr and associates found that such procedures were effective in only 37% of the cases where self-abuse was involved and in only 35% of the cases of aggression.

2. 1999 treatment review covering positive-only treatment research, 1985-1996 by Carr, E.G., Horner, R.H., Turnbull, A.P. and colleagues.

Citation: Carr, E.G., Horner, R.H., Turnbull, A.P., Marquis, J.G., Magito McLaughlin, D., McAtee, M.L., Smith, C.E., Anderson Ryan, K., Ruef, M.B., & Doolabh, A. (1999). Positive behavior support for people with

developmental disabilities: A research synthesis. Washington, D.C.: American Association of Mental Retardation.

In 1999 Carr and associates once again did a review of the literature on positive-only programming, this time covering 1985-1996. The authors reviewed 216 published studies from 36 journals and selected 109 articles that met their review standards. This paper, "Positive Behavior Support for People With Developmental Disabilities," published by the American Association on Mental Retardation in 1999, is the most comprehensive review of the literature on Positive Behavior Supports that has ever been done. The authors of the paper are among the most distinguished names in the field of positive programming.

The bottom line was that positive programming was effective in only 51.5% of the cases (see page 45). When the authors looked only at those studies which included a functional assessment, the figure rose to 59% (see p. 53). Effectiveness was defined as decreasing the frequency of the behavior by 90% from its "baseline" level (the level it was at prior to the start of treatment).

3. 2002 review, covering 1996-2000, by Horner, R.H., Carr, E.G., Strain, P.S., Todd, A.W., and Reed, H.K.

Citation: Horner, R. H., Carr, E. G., Strain, P. S., Todd, A .W. and Reed, H. K. (2002). Problem behavior interventions for young children with autism: A research synthesis. *Journal of Autism and Developmental Disorders*, 32, 423-445.

This study looked at peer-reviewed studies involving young autistic children during the period 1996-2000. Nine studies met the criteria for review. These involved 24 participants and 37 before-and-after treatment comparisons. Although punishment was employed in 12 (32%) of the comparisons, the rest (68%) of the comparisons involved positive-only procedures. Sixty-eight percent of the 37 comparisons included a functional assessment. Using the same standard of achieving a 90% reduction from baseline that were used in the two earlier Carr et al. studies, only 60% of the comparisons showed effective treatment. (see p. 434)

The above three studies, all of which were done by highly respected leaders of the Positive Behavior Support movement, show that positive-only treatment procedures, even at their best, were effective with only 60% of the cases. The question remains, "What about the other 40-50% of the cases?"

Even the assertion that the positive programming in these studies was effective in 50-60% of the cases gives an exaggerated impression of just how effective the treatment really was, for two reasons. First, As Dr. Foxx has shown in his paper "Severe

Aggressive and Self-Destructive Behavior: The Myth of the Nonaversive Treatment of Severe Behavior," (Foxx, 2004a) the types of behaviors that the Positive Behavior Support persons do their studies on are generally nowhere near as severe as the case-hardened self-abuse, aggression and disruptive behaviors that programs such as JRC are required to treat. One reason for this may be that individuals with the most difficult-to-treat behavior problems often end up in institutions, and many of those who favor positive-only treatment procedures do not conduct studies in institutions because of their philosophical opposition to their existence.

It should also be noted that the standard of effectiveness used –- reducing the problem behavior by 90% from its baseline level -- is not an adequate standard for clinical work with dangerous behaviors. For example, suppose a student was engaging in life-threatening head-banging at the rate of 100 head bangs per day prior to the treatment and this is reduced to only 10 head bangs per day as a result of the treatment. This would meet the study's criterion of a 90% reduction from baseline; however, from a clinical point of view it would not be rated a success. For severe or even moderate head-banging, a rate of 10 behaviors a day might require that the student be restrained or medicated to avoid permanent injury.

B. What Have Behavioral Psychologists Had to Say About this Issue in Review and Research Papers?

Citation: Matson, J .L. & LoVullo, S. V. (2008). A Review of Behavioral Treatments for Self-Injurious Behaviors of Persons with Autism Spectrum Disorders. *Behavior Modification, 32,* 61-76.

In this paper Matson reviewed all research on the treatment of self-injury in students with ASD (Autism Spectrum Disorder) from at least 1974 to date. Here are some quotes:

> "…Differential reinforcement is not particularly useful in high rate SIB, and most of these people will simply not be able to self-monitor. These factors may in part explain the continued use of punishment as an intervention for SIB…For the most part the studies we reviewed…are life threatening; and are likely to involve more invasive treatments. In fact, we would argue that the greater the potential for serious harm, the greater the likelihood that aversives will be used. Reinforcement or functional assessment alone may not be sufficient to produce the desired effect in all SIB cases and may further explain treatment add-ons such as pharmacotherapy or punishment procedures.(Davies, Howlin, Bernal, & Warren, 1998; Falcomata, Roane, & Pabico, 2007). Thus there are studies where positives alone were not effective, but the SIB was effectively treated once punishment or drugs were added.

Studies demonstrating the reverse, in which positives were effective when aversives were not, have not been published…" (p. 68)

"The successful behavioral treatment of SIB goes back at least four decades…it is highly unlikely that contingent shock would be used if a so-called enrichment environment of communication training was sufficient… "(p. 68)

"Intrusive behavioral interventions continue to be used. This factor appears to be the case because functional assessment, DRO, additional activities, and related methods have been documented to be treatment failures where contingent punishment procedures were effective in some instances (Falcomata et al., 2007, Matson & Taras, 1989; Vollmer, 2002)…".(p. 69)

"As more positively oriented interventions have come online, aversives are being reported in the literature less frequently (Cannella, O'Reilly, & Lancioni, 2006; Mancil, 2006). One would hope that in clinical practice, this trend is also occurring, but only if positively oriented behavioral interventions are proving to be effective. The answer to this question is unknown and requires empirical study. However, simply legislating out effective interventions without adequate replacement treatments is quite unacceptable…" (p. 69)

"Critics have questioned the long-term maintenance and generalization of treatment gains using restrictive applied behavior methods, the potential for adverse side effects, and the emotional harm likely to occur for the patient and the care provider. However, none of these issues have been explored with respect to the ASD population…Furthermore, claims such as these are quite serious and should not be made unless there is a substantive database to back up such charges. Therefore, people who wish to be critical of restrictive treatment methods need much better data to support claims of harm, and they need to conduct direct comparison group studies to show that these so-called positive supports are near to or equally effective and produce fewer adverse side effects. What little data are available for the most severe cases, actually contradict these assertions. The current state of affairs has involved attempts to ban or prohibit aversives with no readily available, proven, equally effective behavioral alternative. A vacuum has therefore been created, which ironically has been filled by even more restrictive pharmacological interventions or 'emergency restraint.' We are at a loss to conclude how a form of SIB that has been displayed in a similar way for many years can be considered an emergency. We view an emergency as a new problem or a new variation of an old problem behavior that has emerged. These emergencies are accompanied by less planning and staff training are less tailored to a given

afflicted individual's problem. These factors can lead to less effective interventions and more caregiver and client injuries." (p. 70)

Note that in the last two sentences of this quotation, Matson et al. are referring here to the too-frequent use of "emergency manual restraint" by programs that, unlike JRC, do not have effective restrictive procedures available to treat the client's problematic behaviors adequately.

Citation: Lerman, D. C. & Vorndran, C. M. (2002). On the status of knowledge for using punishment: implications for treating behavior disorders**.** *Journal of Applied Behavior Analysis, 35,* 431-464.

This important paper is the most recent and most comprehensive review of the field of punishment. This paper emphatically rejects the notion that the new refinements of functional analysis methodology allows us to do away with the need for punishment procedures. Here is a key quotation:

"Some authors have suggested that additional applied research on punishment is unnecessary in the light of refinements to the functional analysis methodology and treatment with reinforcement (Donnellan & LaVigna, 1990); Guess, Helmstetter, Turnbull, & Knowlton, 1987). Results of numerous studies conducted over the past 15 years have shown that the function of problem behavior often can be determined and that this information can be used to develop treatments based on extinction, reinforcement, and other processes such as establishing operations (e.g., Iwata, Pace, Dorsey, et al., 1994). Nevertheless, punishment may be critical to treatment success when the variables maintaining problem behavior cannot be identified or controlled (for further discussion, see Axelrod, 1990; Iwata, Vollmer & Zarcone, 1990; Vollmer & Iwata, 1993). Punishment also may be preferable to reinforcement-based treatments when problem behavior must be suppressed rapidly to prevent serous physical harm (Dura, 1991; see also Iwata et al; Vollmer & Iwata). More important, results of several studies indicate that treatments derived from functional analyses (e.g., differential reinforcement of alternative behavior [DRA]) may not always reduce behavior to clinically acceptable levels without a punishment component (e.g., Grace, Kahng, & Fisher, 1994; Hagopian, Fisher, Sullivan, Acquisto, & LeBlanc, 1998; Wacker et al., 1990)."

Citation. Williams, D. E., Kirkpatrick-Sanchez, S., and Crocker, W. T. (1994). A long-term follow-up for severe self-injury**.** *Research in Developmental Disabilities, 15,* 487-501.

"Some have suggested that the use of functional analysis methodologies will eliminate the need for aversive interventions (e.g., LaVigna & Donnellan,

1986); however, exclusively nonaversive interventions for the treatment of SIB have met with only minimal success. Several reviews of the scientific literature have concluded that the most effective treatment for severe SIB and other severely destructive behavior involves a combination of punishment and differential reinforcement (Axelrod & Apsche, 1983; Favell et al., 1982; Lundervold & Bourland, 1988; Matson & DiLorenzo, 1984; Romanczyk, 1986). In recent years, there have been refinements in the experimental analysis of behavioral function (e.g., Carr, Newsom, & Binkoff, 1980; Iwata, Dorsey, Slifer, Bauman, & Richman, 1982; Sturmey, Carlsen, Crisp, & Newton, 1988), and a number of researchers have conducted successful treatment by matching interventions with the functions of behavior disorders (e.g., Iwata et al., 1990; Repp, Felce, & Barton, 1988; Steege, Wacker, Berg, Cigrand, & Cooper, 1989). Notwithstanding, research in this area has not demonstrated that the functional analysis of behavior model consistently produces effective treatment with solely nonaversive interventions (Iwata, 1988; Linscheid et al., 1990)." (p. 488)

Citation: Yates, C. M., 1991. A response to nonaversive behavior management and "default" technologies. *The Behavior Analyst, 14*, 217-218.

"Recent work with positive programming, the preferred educational methodology, shows increasing effectiveness. Studies indicate its success in reducing challenging behaviors through development of communication skills (Durand & Carr, 1987) and teaching adaptive behaviors (LaVigna & Donnellan, 1986)…

"Despite these encouraging results, empirical data do not yet support total elimination of less desirable strategies. 'There is too little information currently available to assert that positive approaches are capable of solving all behavior problems" (Horner et al., 1990, p. 128). The reason, as LaVigna and Donnellan (1986) explained, is that 'a strict positive programming approach to a behavior problem may not result in a sufficiently rapid reduction of that problem' p. 36). Particularly in potentially dangerous situations, parents and courts may simply not allow behavior to persist long enough for positive techniques to be effective." (p. 217)

Citation: Linscheid, T. R., Iwata, B. A., Ricketts, R. W., Williams, D. E., and Griffin, J. C. (1990). Clinical evaluation of the self-injurious behavior inhibiting system (SIBIS). *Journal of Applied Behavior Analysis, 23*, 53-78.

"Recent advances in the experimental analysis of behavioral function for disorders such as aggression (Carr, Newsom, & Binkoff, 1980) (Carr, Newsom, & Binkoff, 1980), pica (Mace & Knight, 1986), SIB (Iwata, Dorsey, Slifer, Bauman, & Richman, 1982), and multiple behavior problems (Sturmey,

Carlsen, Crisp, & Newton, 1988) suggest the possibility of matching the operational features of intervention with the motivational aspects of behavior, thereby increasing the likelihood of obtaining positive clinical outcome (e.g., Iwata, Pace, Kalsher, Cowdery, & Cataldo, 1990; Repp, Felce, & Barton, 1988; Steege, Wacker, Berg, Cigrand, & Coopoer, 1989). Based on promising data reported by these and other researchers, some observers (e.g., LaVigna & Dollellan, 1986) have argued that this functional analysis model renders unnecessary the use of interventions involving punishment or aversive events. Curtailment and eventual elimination of aversive therapeutic procedures are highly desirable for a number of reasons. Nevertheless, there is no experimental evidence indicating that behavioral assessment based on functional analyses reliably results in the selection of interventions that are either exclusively nonaversive or consistently effective." (p. 54)

Citation: Iwata, B. A. (1988). The development and adoption of controversial default technologies. *The Behavior Analyst, 11,* 149-157.

Dr. Iwata is the founder of a major method of functional assessment, now called *functional analysis*, which involves setting up analog situations to determine if attention, escape, access to desired tangible items, etc., will function as accelerating consequences when made contingent on the problem behavior.

"At this point I am compelled to digress a bit by commenting on what others have said about the preventability of such failures: "If we would only conduct a functional analysis of the behavior problem, we always will find a nonaversive solution." Actually nonaversive solutions do not require a prior functional analysis; they *always* are available; the question is whether or not they *always* work. Based on Ted Carr's (1977) elegant theoretical treatise on the origins of self-injurious behavior, my colleagues and I were among the first to describe an experimental approach to the analysis of behavioral function with that serious disorder (Iwata, Dorsey, Slifer, Bauman, & Richman, 1982). We suggested that such an approach, or one similar to it, *might* make the process of treatment selection less arbitrary and *might* reduce the necessity of relying on aversive contingencies. We had, however, absolutely no basis for suggesting that knowledge about a behavior's maintaining contingency would eliminate the need for punishment, and that suggestion has garnered little by way of additional support through subsequent research conducted by us and others." (p. 152)

C. What has one of the founders of the Positive Behavior Support movement said about this issue?

Citation: Johnston, J.M., Foxx, R. M., Jacobson, J. W., Green, G., Mulick, J. A. (2006). Positive behavior support and applied behavior analysis. *The Behavior Analyst, 29,* 51-74.

In the early 1990's, those who opposed the use of aversives began to call their movement "Positive Behavior Support." Jim Johnston (Johnston et al., 2006) recounts the origins of the Positive Behavior Support movement in the following quotation:

> Positive behavior support (also referred to as positive behavioral support or positive behavioral interventions and supports) emerged from the controversy surrounding the use of aversive consequences with people with developmental disabilities. A seminal article by Horner et al. (1990) began with the statement that "In recent years, a broad-based movement has emerged in support of nonaversive behavior management" (p. 125). The authors cited various articles to indicate that this support emerged during the 1980's…Horner et al. asserted that "Nonaversive behavior management…has developed…as an alternative to the use of more extreme aversive events" (p. 126) and coined the phrase "positive behavior support" to refer to nonaversive behavior management procedures…Horner et al. remarked, "The development of a well defined technology of behavior support will take time. ***There is too little information available to assert that positive approaches are capable of solving all behavior problems or documenting that one approach is superior to any other***. Both well controlled empirical analyses and less controlled clinical analyses are needed (p. 128). [emphasis supplied]

D. Proof of the Inadequacy of Positive-Only Programming: Positive-Only Programs Expel their Most Difficult-to-Treat Students.

It is a little known but important fact that when programs that use positive-only treatment procedures encounter really difficult-to-treat behavior problems, they sometimes just expel the student. Often those students end up at JRC. See Israel, Blenkush, Von Heyn, & Sands (2007), provided as Exhibit 2 and Israel (2007), provided as Exhibit 3.

E. Recent Book Chapter

Foxx, Richard: The Myth of the Nonaversive Treatment of Severe Behavior Disorders (2004) .

Citation: Foxx, R.M. (2004a). Severe Aggressive and Self-Destructive Behavior: The Myth of the Nonaversive Treatment of Severe Behavior. In J. W. Jacobson,

R.M. Foxx, & J. A. Mulick (Eds.), *Controversial therapies for developmental disabilities* (pp. 295-313). Lawrence Erlbaum Associates.

Richard Foxx has published numerous studies on the treatment of severe aggressive and self-abusive behaviors of developmentally disabled clients, including several in which skin shock was used. In this chapter he points out that the notion that positive-only treatment procedures can treat all behaviors is a myth because the studies relied upon by those who make this assertion are not studies in which really severe behavior disorders are treated. Instead much of their work is with "children and milder forms of self-injurious behavior as opposed to adults and dangerous aggression and self-injury" (p. 296).

Foxx writes,

> "The most virulent of the anti-punishment, nonaversive, positive approaches professional proponents (e.g., LaVigna & Donnellan, 1986; Meyer & Evans, 1989) have coercively and actively promoted a myth, namely that all severe behavior problems can be treated without aversive consequences (Axlerod, 1990). Consider, for example, this sweeping generalization: '[T]here is a great deal of evidence that nonaversive approaches have equal or greater empirical validity than the alternatives. They are more likely to result in significant and lasting behavior changes that are reflective of worthwhile outcomes. (Meyer & Evans, 1989, p. 4).' " (p. 296)

In addition, many of the studies relied on by the proponents of positive-only procedures lack adequate experimental design or peer review by persons other than other nonaversive advocates. In one study that claimed success by "going all out non-aversively," it was later discovered that the decrease in the problem behavior corresponded with an increase in medication that the authors had failed to report.

Foxx also points out that the nonaversive recommendations that are made by the proponents of positive-only procedures are often impractical because of their expense and logistics. He asserts that they sometimes "…recommend a very expensive elaborate intervention that in all likelihood will not be implemented because of its prohibitive expense and logistical barriers…Yet, even when such a program is implemented for a single individual at a cost nearing a million dollars per year, the severe behavior problems may not be treated successfully (Paisey, Whitney, Hislop, & Wainszak, 1991)." (pp. 296-297)

Foxx concludes, **"The real myth is that these individuals have ever convincingly demonstrated in any reliable, peer-reviewed work that they have ever successfully treated *severe* behavior problems as defined by anyone not belonging to a nonaversive advocacy group**." (p. 299) [emphasis supplied]

F. Would Practitioners of Positive Behavior Support ever Use Aversives?

Michaels, Brown and Mirabella paper 2005

Citation: Michaels, C., Brown, F. & Mirabella (2005). Personal paradigm shifts in PBS experts: perceptions of treatment acceptability of decelerative consequence-based behavioral procedures. *Journal of Positive Behavioral Interventions, 7,* 93-108.

In 2005 Michaels, Brown and Mirabella conducted a survey of 73 experts in the field of Positive Behavior Supports. They asked the experts to say what decelerative treatment procedures, if any, they would consider using in certain circumstances. The authors began by classifying different types of decelerative procedures into the following categories;

1. "differential reinforcement procedures (with extinction or redirection of disruptive behavior);
2. differential reinforcement procedures (with mild reprimand or response cost for disruptive behavior);
3. extinction (i.e. withholding reinforcement for a previously reinforced behavior);
4. response cost (i.e. withdrawal of a reinforcer or reinforcing event contingent on the behavior's occurrence);
5. overcorrection (i.e. forced engagement in behavior that more than corrects the effects of the inappropriate behavior);
6. seclusion timeout (i.e. removing the individual from the setting to an area of total social isolation);
7. application of sensory punishment (e.g. ammonia vapor, foul tasting substances, loud or harsh sounds);
8. application of physical punishment (e.g. spanking, pinches, restraint as punishment); and
9. contingent electric shock (i.e. application of electrical stimulation for engagement in targeted behavior)."

Michaels, Brown and Mirabella explained how they chose their experts as follows:

> "Experts within the field of positive behavior supports was operationally defined based on two primary attributes: (a) leadership within the field of PBS (i.e., public policy and advocacy work) and (b) scholarship within the field of PBS (i.e., publication record and editorial board work). The total sample (N = 134) was drawn from four sources: (a) selected state contacts to the Rehabilitation Research and Training Center on Positive Behavior Supports (RRTC-PBS, n=27), members of the editorial board of the Journal of Positive Behavior Interventions (JPBI, n=59), members of TASH's subcommittee on

> Positive Behavior Supports (n=21), and (d) members of the editorial board of Research and Practice for Persons with Severe Disabilities (RPSD)."

Seventy-three experts completed and returned the survey. 88% of the experts had doctorate-level degrees. On the average, the experts had 27 years experience in the field of developmental disabilities. Potential responders to the survey were assured that "all responses would be confidential and that data would be analyzed and reported in aggregate form only."

The findings of this survey that are relevant to JRC's use of the GED skin shock procedure are as follows:

- 10% of the PBS experts said they would use contingent electric shock "under certain circumstances or conditions." That as many as 10% of the top experts in Positive Behavior Supports would use contingent electric shock in certain circumstances is an astounding finding. Of those who said that skin shock was appropriate in certain circumstances. 100% of these said that skin shock was effective, and 83% said it was supported in the literature.

- The experts were also asked to say under what circumstances they would consider using skin-shock as an aversive procedure. Of those who said they would use skin shock under certain circumstances, the breakdown was as follows:
    1. 100% of them would use skin shock if the person or others are "at risk for harm."
    2. 57% would use skin shock if other procedures were ineffective
    3. 28% would use skin shock for behavior that "interferes with learning."
    4. 28% would use skin shock for behavior that is "socially stigmatizing, preventing inclusion

The authors express their surprise at their results in the following statement:

> "Interestingly, a small number of PBS experts indicated that they would still use the full range of decelerative procedures (sensory punishment, physical punishment, and contingent shock) under certain conditions. This range of treatment acceptability among PBS experts was somewhat surprising to us and likely is a result of a variety of factors, including training, background, and current and past clinical experiences. Both Keyes et al. (1988) and Spreat and Walsh (1994) found differences in treatment acceptability according to discipline (i.e., psychologists were more likely to support certain behavioral procedures and less likely to support position statements against the use of decelerative strategies), and much of the research in treatment acceptability acknowledges the influence of the severity of the problem on perception of acceptability. This may be pertinent to the experts, who, as a function of their

expertise, have worked and continue to work with individuals who have the most severe and complex problem behaviors." (page 106)

In other words psychologists, including experts in Positive Behavior Supports, who work with severe and complex problem behaviors, tend to believe, when asked their opinion in a confidential questionnaire, that a full range of decelerative procedures should be made available, including skin shock. This of course is particularly relevant to JRC because JRC receives only the most severe cases.

G. What is the History of the Notion that All Behaviors can be Treated without the Need for Aversives?

Citations:

Mulick, J.A. & Butter, E.M. (2004).Positive behavior support: a paternalistic utopian delusion. In J. W. Jacobson, R.M. Foxx, & J. A. Mulick (Eds.), *Controversial therapies for developmental disabilities* (pp. 385-404). Lawrence Erlbaum Associates.

Newsom, C. & Kroeger, K.A. (200 4). Nonaversive treatment. In J. W. Jacobson, R.M. Foxx, & J. A. Mulick (Eds.), *Controversial therapies for developmental disabilities* (pp. 405-432). Lawrence Erlbaum Associates.

Foxx, R.M. (2004b). The National Institutes of Health Consensus Development Conference on the Treatment of Destructive Behaviors: A study in professional politics. In J. W. Jacobson, R.M. Foxx, & J. A. Mulick (Eds.), *Controversial therapies for developmental disabilities* (pp. 461-476). Lawrence Erlbaum Associates.

Opposition to a strictly scientific approach to the treatment of behavior disorders, including the use of aversives when positive-only procedures proved insufficiently effective, began in the 1980's. This movement was pioneered by agencies such as TASH (which originally stood for "The Association for the Severely Handicapped"), which tended to place ideological commitment to the avoidance of aversives above anything else and which viewed itself as a kind of civil rights advocacy organization.

Those who believed in what was then called "nonaversive treatment" were unwilling (and are still unwilling) to weigh the risks and benefits of using aversives. Even if a person's life could be saved by the use of aversives, and even if a person could be prevented from mutilating him/herself, those opposed to aversives were reluctant to allow them to be employed under any conditions. For them, aversives were Wrong with a capital "W" for moral reasons. The history of this nonaversive movement is told in a balanced manner in a paper by Creighton Newsom and Kimberly Kroeger, called "*Nonaversive Treatment*" (Newsom & Kroeger, 2004).

In the 1990's those who supported nonaversive treatment began to call their approach "Positive Behavior Support." This field is essentially a mixture of certain ideologies such as nonaversive treatment, social role valorization, person-centered planning, full inclusion, etc., with certain scientific procedures from the field of applied behavior analysis. Unfortunately, the scientific procedures are subordinated to, and placed in the service of, these ideologies. This is well explained by Jim Mulick and Eric Butter in their paper, *"Positive Behavior Support: A Paternalistic Utopian Delusion* (Mulick and Butter, 2004)

The proponents of Positive Behavior Supports have been successful in getting some state agencies to adopt their approach. They have also been successful in obtaining federal grants to support their research and in lobbying against any developments that have affected them adversely. An example of the latter is the National Institute of Health 1989 Consensus Conference On Destructive behaviors, a conference that found that decelerative procedures, including the use of skin shock, were supported in the published professional literature. The Positive Behavior Support people, through their lobbying efforts, managed to keep this report from being published for two years after the conclusion of the conference. The full story is told well by Richard Foxx in the paper, *"The National Institutes of Health Consensus Development Conference on the Treatment of Destructive Behaviors: A Study in Professional Politics"* (Foxx, 2004b)

H. What are the Alternative Punishers that tend to be Used in Programs that do not use Skin Shock and What Kind of Results Are Obtained?

The Kennedy-Krieger Institute (KKI) in Baltimore, MD, is sometimes cited to as a program that does not use aversives and that uses, instead, Positive Behavior Support procedures to treat students with severe behavior disorders. KKI has a 16 bed inpatient unit that serves children with behavior disorders. This unit is highly regarded by those who are opposed to the use of aversive procedures. For example, Dr. Rebecca Cort, head of special education at the New York State Education Department (NYSED), and whose department has recently (2006) developed regulations effectively banning the use of aversives for New York students, has spoken highly of KKI. Dr. Cort has even recommended to the New York Board of Regents that New York should develop programs modeled after KKI within New York State.

KKI's inpatient unit is directed by a psychologist named Louis Hagopian. A paper written by Dr. Hagopian and several of his associates, entitled, "Effectiveness of functional communication training with and without extinction and punishment: a summary of 21 inpatient cases," (Hagopian 1998) reveals much about this unit and its

treatment approach. This paper was particularly interesting to JRC because two students who were treated at KKI subsequently came to JRC. One of them, whom I will call John is currently a student at JRC. JRC is in possession of the key behavioral treatment report, prepared by KKI, reporting on their treatment of John. John entered (and left) KKI with a high level of self-abusive behaviors including head-hitting. This behavioral reports was co-signed by Dr. Hagopian.

KKI is not a 24/7 treatment program. It is a short term (usually 90 day) program that sees its mission to be one of assessing students, analyzing the functions of their problem behaviors and recommending a course of treatment to be carried out by others. If the case of John, who enrolled at JRC in 2000, is a representative sample, KKI does not carry out its recommended treatment around the clock to make sure that it will be a practical treatment that direct care staff can carry out consistently.

The Hagopian et al. 1998 paper discloses that the average age of the individuals whose treatment was reported in that paper was approximately 9 years. That contrasts with the average age of students at JRC who have a mean age of about 17. The punishment procedures that were reported in the Hagopian 1998 paper were these: a brief period (30s to 120s) of basket holds (a restraint procedure), chair time outs, facial screens, required hands down, and contingent demands (see p. 217). In the case of John, 30 seconds of brushing the face with a feather duster was also one of the punishers used.

Notice two things about the punishers that Dr. Hagopian was using. First, although his program has obtained the admiration of at least some of those who oppose aversives and who profess to be in favor of "positive behavior support" procedures, the aversives that he uses, without exception, are all procedures that involve the likelihood of "physical aversives." The reason for stating that is that if the student does not voluntarily submit to each of these procedures willingly, there will be a physical struggle to impose them on the student, during which considerable physical restraint and forcing the student to do things he or she does not wish to do will have to occur. In that sense, procedures that have names such as "hands down" and "facial screens" are in effect "hidden" physical aversives.

Second, it is notable that the procedures that Dr. Hagopian used are all punishers that might be useful and effective with 9 year-olds; however, the could be quite difficult to administer to highly noncompliant teenagers, with an average age of 17, who are at the height of their physical strength (the type of population JRC deals with).

The behavioral report by KKI on John shows that the treatment that it provided to him and that it recommended for his future use, was neither effective nor practical. That report stated that KKI had achieved an 86.2% reduction in his self-abusive behavior. This was a highly misleading statement because while John was in KKI, KKI required him to wear rigid arm splints that prevented him from bending his

elbows and thus reduced the amount of self-abusive face hitting that was possible. KKI also restrained John in a “Hooper Vest Restraint” to his bed at night for nine hours, further preventing any self-abuse by mechanical restraint.

Even the claim of the 86.2% reduction was misleading. Even after that amount of reduction, given the absolute rate of the behavior that was reported, the behavior would have been occurring at a rate of 139 times per day—which is clinically unacceptable for the treatment of severe self abuse. Furthermore, it is doubtful that any program would be able to administer the recommend basket hold punisher 139 times per day, particularly in light of the fact that there are clear suggestions in the behavior report that John, who was 16 at the time he attended KKI, was resisting the application of the aversive.

John’s mother has told JRC that John came out of KKI in a worse condition than when he entered. When John entered JRC, JRC used skin shock to treat successfully his self-abusive behaviors. John is now completely free of all restraints, functioning extremely well, going out on many field trips, and visiting frequently with his mother. He does paid piece work at JRC, doing assembly work that JRC contracts with a local business to do. All of these improvements have been due to John’s ability to receive JRC’s treatment, including the use of skin-shock. He has averaged 0 applications of skin shock per week over the last year and has had only 2 applications in the last four months.

VI. WHAT IS A FUNCTIONAL ASSESSMENT AND HOW DOES JRC MAKE USE OF IT?

A. What is a Functional Assessment?

The purpose of *a functional assessment* is to try to find out what events are (possibly inadvertently) rewarding the problem behavior, what events are triggering the problem behavior, what events are important setting factors (general conditions, such as illness, which can affect the frequency of the problem behavior) , etc. Of these, the most important objective is usually determining what events have been rewarding the problem behavior. A functional assessment is usually done by collecting information through using one or more of the following procedures:

1. Checklists, questionnaires and rating scales that are filled out by staff member or others who interact frequently with the individual. Examples are the Motivation Assessment Scale (MAS) (Durand & Crimmins, 1988) and the Questions About Behavior Function (QABF) (Matson & Vollmer, 1995).;
2. Direct observation of the individual
3. Examination of the individual's historical records
4. Examination of charted behavior data and related interventions
5. Interview with staff. In such interviews, the clinician asks a "series of semi-structured questions with open ended answers as a means of determining environmental events, medical conditions and other mediating factors that could lead to the person's challenging behaviors." (Matson & Minshawi, 2007)
6. Interviews with parents
7. Interview with the individual
8. Examination of a record (called a scatterplot) that shows the frequency with which the behavior occurs at different times of the day.
9. *Analog functional analysis* or *experimental functional analysis.* In this procedure the clinician creates various types of analog experimental conditions, each of which lasts for 10-15 min, and allows the problem behavior to occur in these conditions. When the problem behavior does occur, it is "consequated" (i.e., followed by) one of several types of potentially rewarding consequences, depending on the condition. If the behavior shows an increase in frequency in one or more of those conditions over the frequency that it shows during some control condition, this suggests that the consequence that was arranged for the behavior in that condition may be functioning as a reward for the student in the natural (non-analog) conditions.

   Here is an example of what a typical analog functional analysis might consist of. In one test condition, the clinician might arrange that when the problem

behavior occurs, it is consequated with attention that is given by a caregiver who is present with the individual. Sometimes this attention might even be negative attention, such as saying "No, please don't do that!" In a second test condition the caregiver might consequate the problem behavior by arranging for the student to be relieved of some educational or other demands that have previously been placed on the student. In a third condition, when the problem behavior occurs, a caregiver might give the student some desired tangible item or grant the student access to some desired activity that. In a fourth condition, the student might be placed in a room alone, perhaps with some toys to play with. In this condition, when and if the problem behavior occurs, it does not produce any consequences from the social environment at all. Based on how the individual responds to each of these four conditions (and in some cases as compared with the individual's behavior during a control condition), the clinician may be able to characterize the behavior as primarily motivated by attention, by escape, or by obtaining a tangible item or activity. If the behavior continues to occur when the student is alone, the clinician may suspect that there may be some internal rewarding stimulation that the behavior is producing or some other organic factor responsible for the behavior.

Based on the information collected through one or more of these procedures, the clinician forms a hypothesis as to why the behavior is occurring, what stimuli tend to trigger its occurrence, what events are functioning as setting factors, etc. Based on these hypotheses the clinician may then make treatment changes to eliminate any inadvertent rewards that the assessment has suggested, to eliminate or alter the triggering stimuli, and to teach the individual easier and more acceptable methods for obtaining the same rewards that the problem behavior has inadvertently been generating for him/her.

Since 1986, when JRC first began to seek court authorization for the use of aversives, a functional assessment has been a component of the treatment plan of each student at JRC who is authorized for use of the GED skin-shock device. JRC has found that methods 1-8 above are adequate sources of information to develop a functional assessment. Because of this and because of the weaknesses and problems inherent in the analog functional analysis (discussed below), JRC clinicians and have not chosen to make use of the analog functional analysis procedure. Please see http://www.judgerc.org/samplefba.doc for a typical functional assessment of a JRC student. This assessment is for a current student (with names and identifying information redacted) who is currently receiving supplementary intensive treatment procedures in the form of GED applications.

B. The Relation between Functional Assessment and the Aversives Controversy

Those who oppose the use of aversives under any circumstances sometimes assert that if one does an adequate functional assessment, one would not need to use aversives. I have addressed this issue in section IV above. Basically that material shows the following:

(1) Most behavioral psychologists do not believe that the use of functional assessments enables one to avoid the use of aversives in all cases.

(2) The most recent major review of the literature in which nonaversive procedures (now often termed "Positive Behavior Support) have been used to treat problem behaviors, which was conducted by leaders of the nonaversive approach, found that nonaversive approaches have been successful in only approximately 50% of the cases in which they have been used. By "successful" the authors of that review meant that the frequency of the problem behavior was decreased by 90% from the "baseline" frequency, i.e., the frequency that the behavior showed prior to the introduction of the treatment. When the authors of that review looked only at those studies in which a functional assessment had been done, the success rate rose to 60%. See http://www.judgerc.org/PositiveBehaviorSupport.pdf

This raises the question, "What about the remaining 40%?" in which the treatment was not effective. That is where, if necessary, supplementary aversives come in. For example, in JRC's data on its treatment of aggression over a three year period, we found that, using the same 90% reduction-from-baseline standard, we have been able to achieve 100% effectiveness. See http://www.judgerc.org/AggressionPaper.pdf.

The most important single fact to understand about the "aversives controversy" is that when programs that use positive-only procedures encounter a student with really severe behavior problems, they reject or expel that student. Many positive-only treatment programs do high quality, state-of-the-art functional assessments; however, when those programs encounter students for whom those assessments, and the positive behavior support procedures that are employed after doing those assessments, are insufficiently effective, they sometimes solve the problem by simply expelling the student. For proof of this, please see http://www.judgerc.org/SevenCaseStudies.pdf. And see http://www.judgerc.org/posonlyprograms.pdf.
for additional cases and for the supporting documentation that supports these assertions.

C. Problems with the Analog Functional Analysis Procedure

Citation: Matson, J. L. & Minshawi, N. F. (2007). Functional assessment of challenging behavior: Toward a strategy for applied settings. *Research in developmental disabilities, 28,* 353-361.

In some quarters the analog functional analysis is considered to be an ideal type of procedure on which to base the functional assessment. Unfortunately, this procedure has a number of serious problems which are listed below.

1. As noted above, doing an analog functional analysis does not guarantee that one will find a treatment that is effective or that is nonaversive. See the quotations from Linscheid (1990) and from Iwata (1988) that are given below. Iwata is often considered to be the father of the analog functional analysis procedure.
2. There is sometimes no clear-cut result of the analog functional analysis. The student's behavior may not be sufficiently different in the analog conditions to identify any one dominant function. The function of the behavior may be unknown, may be a mixture of several functions or may be a function of something that has not been tested by one of the analog conditions..
3. "…by the nature of the assessment, the maladaptive behavior is introduced and then reinforced. This procedure may result in increased rates of the maladaptive behavior for some period of time following termination of the [analog functional analysis]. As a result, clients and staff in the immediate proximity of the person being assessed are at some additional risk for person harm when aggression, self-injury and noncompliance are evaluated." (Matson & Minshawi, 2007, p. 359). [bracketed material supplied]
4. If the behavior problem in question occurs at too low a frequency, it simply may not occur even once during the period that is chosen for the analog session. Typically, the length of an analog session lasts for 12 -15 minutes. If the behavior being studied occurs only once or twice per week or per month, it may never show up in the analog session. As Matson & Minshawi (2007) put it, "very high intensity, low frequency behaviors (e.g., severe aggression) are unlikely to be evinced during the assessment. If the behavior is elicited, it is likely to result in durations far longer than the brief 2-10 min sessions typically used as assessment conditions. The harm for client and staff would be considerable." (p. 359)
5. It is possible that the function that a behavior appears to have at one point in time (e.g., when it occurs, say, during an analog functional analysis condition) may be different on some future occasion when it occurs outside of the analog conditions.
6. Behaviors are enormously affected by the stimulus situation. In the analog functional analysis, if the persons present in the room are different from the usual caregivers, the student may show a highly unrepresentative responses. The analog conditions constitute a highly contrived situation. "Tasks, the room and the staff who are interacting with the individual are not typical. Thus, generalizability of the results to real world situations cannot be assumed." (Matson & Minshawi, 2007)

7. Analog functional analyses were primarily designed for lower functioning individuals with developmental disabilities. They are not really designed for older students who function at a normal cognitive level. If such a student were subjected to the analog conditions, he/she might realize that something "funny" was being done, might "figure out" the parameters of the analog conditions, might refuse to participate or might show unrepresentative behaviors. Approximately half of JRC's students function at more or less normal cognitive levels and the average age of JRC's students is 17.

   In addition, with a higher functioning student, there may be no need to conduct an analog functional analysis. In the case of some higher functioning individuals, one can simply ask the students why they engaged in the problem behaviors.

8. One of the prime purposes of an analog functional analysis or of any functional assessment is this. If we can find out what function the behavior serves (i.e., what reward it produces for the individual), we can then teach the student a more acceptable behavior with which to request that reward. This is the theory behind *functional communication training*. By teaching the individual how to ask for the reward politely, the clinician hopes that the student will ask for it instead of displaying some problematic behavior – such as throwing a tantrum—that he has previous been using to get it..

   Unfortunately, Hagopian et al. (1988) have shown that simply teaching a student an alternative way to request the same reward that a problem behavior has previously generated is not sufficient to cause that newly taught behavior to replace the problem behavior. First, he found that once the student learned to use the new communication skill, the student began to use that skill excessively. To cope with this complication, Hagopian et al. had to impose rules limiting how often the student could use the requesting behavior. Second, Hagopian et al. found that merely teaching the student how to ask for the reward was not sufficient, even when one prevented the student from using the request excessively. Only when the experimenters arranged to have the problematic behavior be consequated either with extinction (arranging that a previous rewarding consequence will no longer be generated by the problem behavior) or with punishment did the treatment show effectiveness. See Hagopian et al., 1998[1].

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[1] Hagopian, L. P., Fisher, W. W., Sullivan, M. T., Acquisto, J., & LaBlanc, L. A. (1998). Effectiveness of functional communication training with and without extinction and punishment: a summary of 21 inpatient cases. *Journal of Applied Behavior Analysis, 31,* 211-235.

9. Some behaviors are so dangerous to the student or to others that it is unethical to allow the behaviors to occur at all, even in an analog condition, let alone to also reward them when they occur.

10. Matson & Minshawi (2007) note that the technology of analog functional analysis has not been fully validated. "…while the validity of [analog functional analysis] technology has to some degree been established in small N studies where identified maintaining functions have been established, much more needs to be done before [analog functional analysis] can be described as a valid technology. To our knowledge, no group comparisons of [analog functional analysis] to no functional assessment studies have been conducted…" (p. 359) [bracketed material supplied]

The following are some excerpts from professional articles that involved the use of skin shock, in which clinicians have recognized these problems that are found with analog functional analyses, and have done one of the following: (1) truncated the analog functional analysis or failed to do it at all; (2) performed, instead, an *in vivo* ongoing functional assessment in the real treatment situation (similar to what is done at JRC in addition to the functional assessment referred to earlier); (3) performed some other alternative analysis; or (4) arranged in advance (as JRC does) to avoid or minimize consequating problem behaviors with any attention, escape or tangible items

1. **Salvy et al (2004)**[2] used SIBIS without doing an analog functional analysis. They did what they termed an experimental assessment, because the frequency of SIB was too high and the consequences were dangerous for the child. Only one condition was assessed (removal of a preferred object).

2. **Foxx (2003)**[3]. One of the goals of this paper was to show that "less formal functional assessment will suffice for severe cases when a treatment program is comprehensive, multifaceted and targeted towards insuring maintenance of punishment effects" (p. 2)..Functional analysis was conducted on a minute-by-minute basis during compliance training." (p. 10)

   Also, "If his aggression had occurred during an instructional session, he was returned to the situation and given the instruction. Hence he never escaped a situation by aggression." (p. 11m) This is similar our procedures at JRC. Although a thorough functional assessment is always done, the more useful and effective analysis is the day-by-day *in vivo* analysis that the clinicians do, based on the charted behavior data and interventions. Similar to what Foxx did, JRC tries to cover all the bases by ensuring: (1) that the students will obtain no or

[2] Salvy, S., Mulick, J. A., Butter, E., Bartlett, R. K., & Linscheid, T. R. (2004). Contingent electric shock (SIBIS) and a conditioned punisher eliminate severe head banging in a preschool child. *Behavioral Interventions, 19*, 59-72.

[3] Foxx, R. M. (2003). The treatment of dangerous behavior. *Behavior Interventions, 18,* 1-21.

minimal escape-from-demands by displaying their problematic behaviors; (2) that the students will obtain no or minimal attention by displaying their problem behaviors, and (3) that the students will obtain no desired tangible items or activities by displaying their problem behaviors..

3. **Duker and Seys (2000)[4].** "Functional analysis for each of the individuals involved either was impossible to conduct due to the high frequency and intensity of their SIB or analysis had revealed an undifferentiated pattern of variables controlling their SIB." (p. 237) [SIB is an acronym, standing for Self Injurious Behavior. (mli)]

4. **Mudford et al. (1995)[5]. "**Formal [analog functional] analysis of the functions of Richard's SIB (e.g., Iwata, Dorsey, Slifer, Bauman, & Richman, 1982) had been attempted. However, the intensity of SIB was such that Richard had injured himself during these analog sessions before any differentiation of data between conditions had been noted." (p. 257) [bracketed material inserted]

5. **Linscheid et al (1990)[6].** "…there is no experimental evidence indicating that behavioral assessment based on functional analyses reliably results in the selection of interventions that are either exclusively nonaversive or consistently effective." (p. 54, column 1)

6. **Foxx et al. (1989)[7].** "We did no formal analysis of the specific demands that might be controlling aggression because no one was willing to remain close enough to Jack to attempt such an analysis without some direct means of controlling his aggression.

   "Because Jack's aggression was negatively reinforced, we began treatment with an all day high demand situation and compliance training…

   "Because a high demand situation increased the likelihood that aggression would escalate and intensify, contingent electric shock was used to punish

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[4] Duker, P. C. & Seys, D. M. (2000). A quasi-experimental study on the effect of electrical aversion on imposed mechanical restraint for severe self-injurious behavior. *Research in Developmental Disabilities, 21*, 235-242.

[5] Mudford, O. C., Boundy, K., & Murray, A. D. (1995). Therapeutic Shock Device (TSD): Clinical Evaluation with Self-Injurious Behaviors. Research in Developmental Disabilities, 16(4), 253-267.

[6] Linscheid, T. R., Iwata, B. A., Ricketts, R. W., Williams, D. E., & Griffin, J. C. (1990). Clinical evaluation of the self-injurious behavior inhibiting system (SIBIS). *Journal of Applied Behavior Analysis, 23,* 53-78.

[7] Foxx, R. M., Bittle, R. G., and Faw, G. D. (1989). A maintenance strategy for discontinuing aversive procedures: A 52-month follow-up of the treatment of aggression. *American Journal on Mental Retardation, 94,* 27-36.

aggression and property destruction, and the sessions were conducted by experienced behavior analysts…In addition we attempted to make Jack's correct responding as errorless as possible…Second, the training was arranged to be conducted consistently and safely, even when aggression escalated, by employing at least three trainers and preventing noncompliance or escape by using graduated guidance procedures (R. M. Foxx & Bechtel, 1982) whenever Jack refused to follow an instruction….Third, on-task behavior was reinforced with breaks, and praise and physical contact (e.g., back pats) were given frequently for compliance. Fourth, an escape-avoidance paradigm (Harris & Ersner-Hershfield, 1978) was used to increase the probability of instruction-following behavior because compliance was positively reinforced and avoided unpleasant events. *In essence, we conducted a functional analysis on a minute – by-minute basis during the compliance training. This trial-by-trial, day-by-day information was then used to plan the further course of treatment and the maintenance program*." [emphasis supplied] (p. 28.)

7. **Iwata (1988)[8].** "Here is a claim that I have heard and read several times. 'If we would only conduct a functional analysis of the behavior problem, we always will find a nonaversive solution.' Actually, nonaversive solutions do not require a prior functional analysis: they always are available, period; the question is whether or not they always work. Some of you may recall that, based on Ted Carr's (1977) elegant theoretical treatise on the origins of self-injurious behavior, my colleagues and I were among the first to describe an experimental approach to the analysis of behavioral function with that serious disorder (Iwata, Dorsey, Slifer, Bauman & Richman, 1982). In that article we suggested that such an approach, or one similar to it, might make the process of treatment selection less arbitrary and might reduce the necessity of relying on aversive contingencies. We had, however, absolutely no basis for suggesting that knowledge about a behavior's maintaining contingency would eliminate the need for punishment, and that suggestion has garnished little by way of additional support through subsequent research conducted by us and others." (p.8)

D. What has been JRC's Experience with Students who have had Analog Functional Analyses Performed at their Previous Placements?

JRC has treated several students who have had the best functional assessments available in their placement(s) prior to enrolling at JRC. In these cases, the treatment provided by those placement(s) had failed and the student had been referred to JRC. For a description

[8] Iwata, B. A. (1988). The development and adoption of controversial default technologies. *The Behavior Analyst, 11,* 149-157.

of what happened in one of these cases see the description of the case of "John" in Section IV above. For another such case, please see http://www.judgerc.org/fatalexperiment.html . In the latter case, which was covered with three or four front page stories in the New York Times, non-aversive advocates persuaded the parents to remove the student from JRC prematurely and place him in "nonaversive" program. After his removal from JRC, the student died within a year at the age of 25, due to his self-abusive scratching.

E. How Does JRC Make Use of the Functional Assessment Information?

At JRC, we take the information that is obtained from a functional assessment and use it in the following ways.

1. We make sure that we will not be inadvertently rewarding the student by arranging, either deliberately or inadvertently, any of the rewards that may be functioning to support the student's problem behavior. We accomplish this by designing the treatment environment in such a way that it will not matter what function the behavior may have on any given occasion. We do that by training our staff and setting up treatment systems to insure that all potential rewards that otherwise might be generated by problem behaviors are avoided or minimized. In other words, we design the treatment environment to cover all the bases. We insure that in *all* situations problem behaviors will generate no or minimum attention, no or minimal escape-from-demands, and no or minimal desired tangible items or activities. In this respect the approach is similar to that of a physician who is uncertain exactly what antibiotic is needed and who, therefore, prescribes a broad-spectrum antibiotic to cover all the bases.

2. The functional assessment may reveal what stimuli trigger the problem behaviors. This may lead the clinician to design *programmed opportunities* for that student in which the triggers in question are presented and in which the student is taught to cope with these triggering stimuli without showing the problem behavior. The assessment may also reveal whether there is some reason to consider the use of preventive behavioral treatment, which can be given in the form of *behavioral rehearsal lessons.*

3. The functional assessment may reveal what behaviors should be chosen for use in the student's behavioral contracts, how long the contract periods should be set for, and what rewards should be made available to the student if he/she passes the contracts.

4. Information from the functional assessment is also used in order to include in the Functional Behavior Assessment (FBA) the following required information [8 NYCRR §200.1 (r)]:

a) Identification of the problem behavior (specify the categories, such as aggression, self-abuse, etc.)
b) Identification of the topographies that belong in each category.

c) Identification of the consequence control of the behavior
d) Identification of the stimulus control of the behavior
e) Identification of any emotional or cognitive issues in the control of the behavior
f) Formulating a hypothesis re items d)-f) above (stimulus and consequence control)

5. . Information from the functional assessment is also used to formulate the following elements of Behavior Intervention Plan (BIP).

a) Baseline data [8 NYCRR §200.22 (a) (3)]
b) Identification of relevant antecedent behaviors [8 NYCRR §200.22 (a) (3)]
c) Identification of how reinforcing consequences of the behavior will be withheld. [8 NYCRR §200.22 (a) (3)]
d) Recommendations re the teaching of alternative acceptable behaviors [8 NYCRR §200.22 (a) (3)]
e) Assessment of student preferences for reinforcement [8 NYCRR §200.22 (a) (3)]
f) "Intervention strategies to be used to alter antecedent events to prevent the occurrence of the behavior, teach individual alternative and adaptive behaviors to the student, and provide consequences for the target inappropriate behavior(s) and alternative acceptable behavior(s):" [8 NYCRR §200.22 (b) (4)]

F. JRC's Day-to-Day, In Vivo Functional Assessment

In addition to performing a traditional functional assessment, JRC also does what may be thought of as an ongoing *in vivo functional assessment.* We record the frequency of the behaviors we seek to treat on a daily basis and view them on daily, weekly or monthly graphs. Then, as we make interventions, we observe how those interventions affect the charted frequency of the behavior in the natural situation. If an intervention causes a behavior to increase in frequency, then it has functioned as a reward. If it causes a behavior to decrease in frequency, then it has functioned as a punishment. In this way we are able to see the same types of relationships that one might see in an analog functional analysis, but we are able to do it without the artificialities and problems of the typical analog function analysis that have been described above.

VII. WHY IS IT SOMETIMES NECESSARY IN BEHAVIORAL TREATMENT, TO APPLY AVERSIVES TO ANTECEDENT BEHAVIORS, TO VESTIGIAL BEHAVIORS, TO INITIAL MEMBERS OF BEHAVIOR CHAINS, AND TO SEEMINGLY INNOCUOUS BEHAVIORS?

A. Antecedent Behaviors

Definition An antecedent behavior is a behavior that frequently occurs prior to, and in functional association with, the target behavior being treated. An antecedent does not need to have any formal or topographical similarity to the target behavior, nor does it have to serve the same function as the target behavior. By "functional association" is meant that the occurrence of the antecedent behavior makes the target behavior more likely to occur. For reasons of safety to students and staff, the frequency with which the association between the antecedent behavior and the target behavior is seen, in order for the clinician to identify a behavior as an antecedent, should vary inversely with the seriousness and dangerousness of the target behavior. Because of the functional association, treatment of the antecedent behavior (to diminish its frequency of occurrence) results in diminished frequency of the target behavior.

> Example: the student threatens to attack another student, and it is noted that these threats frequently are followed by actual attacks.
>
> Example: The student frequently engages in a certain ritualistic behavior just before attacking another student.

The clinician at JRC determines if a behavior is an antecedent in the following ways:

1) By speaking with direct care staff, teachers, house supervisors, and others who frequently work with the student emitting the antecedent behaviors.
2) By their own direct observations if they see the behavior and its antecedent.
3) By confirming the observations made by these staff members through in vivo direct observation or through retrospective review of video footage by the attending clinician.
4) By reviewing restraint forms that indicate what behaviors were exhibited prior to the emission of behaviors that required physical restraint.
5) By operationally defining the behavior, tracking it, and observing the correlation (through a charting system) between it and some other problem behavior.

Consequence of failure to treat. Failure to address antecedent behaviors increases the likelihood that harm will come to the student (in the case of self-injury and aggression) or harm will come to others (in the case of aggression). The effect of arranging a decelerating consequence following an antecedent behavior is to prevent the occurrence of the harmful action. To cease the practice of addressing antecedent

behaviors, staff members would have to wait for students to complete some dangerous response in order to administer the decelerating consequence.

Citation: Lerman and Vorndran (2002)

The authors state in their excellent review of the literature:

> "Identifying and punishing precursors to dangerous behavior (e.g., mild forms of self-injury that consistently precede more severe forms) may lead to collateral reductions in the severe behavior, augmenting the safety and efficacy of treatment (e.g., Dunham 1977, 1978)."(p. 455)

Citations: Hagopian (1998) and Foxx (2003)

Sometimes the same behaviors can be analyzed as either an antecedent behavior or as a preliminary member of a chain (see explanation of chains below). For example, the behaviors of running toward an open door [see Hagopian (1998)] could be analyzed as either an antecedent behavior or an early component of the elopement chain. Similarly, Foxx (2003) imposed a punishment procedure (required relaxation) as soon as the client became agitated. Becoming agitated could be analyzed as either an antecedent or an early component of the aggression chain.

Citation: Lang, P. J. & Melamed, B. G., (1969). Case report: Avoidance conditioning therapy of an infant with chronic ruminative vomiting. *Journal of Abnormal Psychology, 74,* 1-8.

Lang and Melamed treated a 9-mo.old male whose life was seriously endangered by persistent vomiting and chronic rumination. :
The authors used electromyography (EMG) activity at three sties to determine what responses consistently "…led up to and into the vomiting sequence…" Using this information the authors applied a repeating shock to punish the onset of vomiting and to negatively reinforce the termination of the behavior. "An effort was made to initiate shock at the first sign of reverse peristalsis…"

Citation: White, J. C. & Taylor, D. J. (1967). Noxious conditioning as a treatment for rumination. *Mental Retardation, 5,* 30-33.

White and Taylor (1967) administered skin shock to two mentally retarded patients whenever throat, eye or coughing gestures signaled ruminative vomiting. The treatment was successful.

B. <u>Vestigial Behavior</u>

<u>Definition.</u> A vestigial (shaped-down) behavior is a behavior that has a similar, but not identical, form as that of the target behavior, and whose frequency increases

during the deceleration of the target behavior. The forms that a vestigial behavior takes are often the earlier members of the chain of behaviors that leads to the target member of the chain. Because of the functional association, treatment of the vestigial behaviors (to diminish their frequency of occurrence) results in diminished frequency of the target behavior.

> Example: In the treatment of tricotillomania (pulling out one's hair), as the frequency of pulling out one's hair diminishes in frequency, one begins to see the following behaviors emerge, often in the order listed: tugging at the hair, touching the hair, reaching toward the hair, and lifting the hand away from work and toward the head.
>
> Example: As the behavior of punching at others decreases in frequency, it is noted that the student starts to just "pull his punches" – i.e., move his fist quickly toward a part of the body of another person, but then just tap or touch the fist to the person's body instead of punching it with full force.

Theoretical explanation. One possible theoretical explanation of the emergence of vestigial behaviors during the treatment of the target behavior is this. We assume there is some accelerating (reinforcing) consequence that maintains various forms of self-injury. In accordance this assumption, events that occur prior to the self-injury become conditioned reinforcers. For example, consider tricotillomania (pulling out one's hair). In order to engage in tricotillomania, one must (a) raise hand to head; (b) touch hair with fingers; (c) close finger tips on hair strand and ; (d) pull out hair. Over time, each of these components of the complete behavior chain acquires some conditioned reinforcing properties. When the full behavior is effectively punished, the student may resort to one or more of these partial forms of the behavior to generate some of these conditioned reinforcing properties. To treat the behavior problem with maximum effectiveness, the clinician needs to eliminate all sources of reinforcement associated with the complete response, which means that the vestigial, as well as the fully-formed problematic responses, must be treated.

Consequence of failure to treat. If clinician fails to treat these vestigial forms of the complete problematic behavior chain, the behavior may "re-grow" rapidly back to its full problematic form.

Citation: Salvy, S., Mulick, J.A., Butter, E., Bartlett, & Linscheid, T.R. (2004) Contingent electric shock (SIBIS) and a conditioned punisher eliminate severe head banging in a preschool child. *Behavioral Interventions, 19*, 59-72.

This paper involves the use of a device called Self-Injurious Behavior Inhibiting System ("SIBIS"). This is a skin-shock therapy device that was originally the idea of a parent who had a child with an untreatable severe behavior disorder. Its design was

developed and refined by engineers at Johns Hopkins University, cleared for sale to the public by the FDA and sold to the public by a company called Human Technologies. The story of its origination and design is told fully by Dr. Brian Iwata (see Iwata, 1988), who participated in its development. JRC's skin shock device, called the Graduated Electronic Decelerator (GED) is essentially a stronger version of the SIBIS device and is manufactured by JRC.

In this paper, the authors note that during the experimental evaluation (see p. 66) "While Johanna initiated head hitting motions during the latter conditions, she stopped each response before actually contacating a surface." And when SIBIS was implemented in the home, "A zero-level response rate was sustained for the subsequent days, with the exception of days 12, 14, 16 and 26, in which one, one, two and three responses were observed, respectively. On these days, Johanna reportedly exhibited slight touching of forehead to play objects and the mother's verbal warning 'No hit, Johanna' paired with her movement towards the purse where SIBIS was kept were sufficient to prevent further head hitting." (p. 68)

Citation: Linscheid, T. R., Iwata, B. A., Ricketts, R. W., Williams, D. E., & Griffin, J. C. (1990). Clinical evaluation of the self-injurious behavior inhibiting system (SIBIS). *Journal of Applied Behavior Analysis, 23,* 53-78.

"Many of the hits were below the threshold for SIBIS, and it was felt that the continued occurrence of these hits in the absence of a contingency was sufficient to maintain more high-intensity hits as well. Therefore, beginning with Session 61, the SIBIS-remote system was used as an adjunct to the automated SIBIS. Subsequent to this change, Michael's hitting decreased further…" (p. 69)

Citation: Risley, T. R., (1968). The effects and side effects of punishing the autistic behaviors of a deviant child. *Journal of Applied Behavior Analysis 1,* 21-34.

In this study, Risley treated an autistic child's dangerous behavior of climbing on bookcases, etc., with skin-shock. "As climbing on the bookcase decreased, another, topographically similar, behavior increased. *S* began to stand and climb on the seat and back of her chair.. After 10 sessions, during which the frequency of climbing on the chair was relatively stable, shock was then applied contingent upon this behavior. After three applications of shock contingent upon each instance of climbing on the chair during tgwo sessions, no chair climbing occurred during the subsequent 28 sessions (9.6 hr)." (p. 27)

C. Initial or Early Member of a Behavior Chain

Definition. The initial or early member of a behavior chain is the first or an early component of a linear sequence of movements that comprise a chain of behaviors. Each member of the chain must logically occur before its subsequent member can occur—i.e., each member is a prerequisite for the occurrence of the succeeding member. For example, a seated student cannot attack a student who is seated across the room without getting out of his/her seat first. Because each member of the chain is a prerequisite for the occurrence of the succeeding member, successful treatment of an earlier member of the chain avoids entirely the occurrence of the final member of the chain (which is the target behavior).

> Example: the behavior of a student in attacking another student across the room might be analyzed as being a chain of behaviors with the following members: (1) getting out of seat without permission; (2) runing towards another student; (3) attacking the student.

In the treatment of antecedents, vestigial forms, and initial members of chains, the clinician should be aware that these forms can sometimes be similar to forms that are related to appropriate behaviors. For example, getting out of one's seat might be preliminary to a legitimate activity (to sharpen a pencil or to go to the bathroom). Therefore, it is important: (1) to qualify the definition to identify the topography that is proscribed (e.g., by defining the behavior as "getting out of seat without permission" rather than "getting out of seat"); and (2) to train the student in how to communicate an intent to engage an an appropriate form of the behavior (for example, by raising one's hand to request a bathroom break, or by otherwise communicating the intent to engage in some appropriate behavior).

Consequence of failure to treat. If one fails to treat the earliest possible member of a problem behavior chain, one must allow the full problem behavior to occur. This has at least two disadvantages. First it means that the problem behavior will occur and produce the damage or danger that it involves. Second, the full behavior is allowed to occur and produce its normal rewards (e.g., injuring the other student) once again, before it is consequated. Although these natural rewards may be over-ridden in their effect by an aversive, it would be more effective to not have the behavior occur at all, than to allow it to occur and receive its natural rewards plus arranged aversive.

Citation: Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied Behavior Analysis.* Saddle River, N.J.: Pearson Education, Inc.

This widely used textbook contains the following material:

> "Deliver the Punisher at the Beginning of a Behavioral Sequence

> "Punishing an inappropriate behavior as soon as it begins is more effective than waiting until the chain of behavior has been completed (Solomon, 1964). Once the sequence of responses that make up the problem behavior is initiated, powerful secondary reinforcers associated with completing each step of the chain may prompt its continuation, thereby counteracting the inhibiting or suppressing effects of the punishment that occurs at the end of the sequence. Therefore, whenever practical, the punishing stimulus should be presented early in the behavioral sequence rather than later. For example, if violent arm swinging is a reliable precursor to self-injurious eye poking, then punishment (e.g., response blocking, restraint) should be delivered as soon as arm swinging starts." (p. 347)

Citation: Foxx, R.M. (2003). The treatment of dangerous behavior. *Behavior Interventions, 18,* 1-21.

In his treatment program for Jack, Foxx analyzed the aggression as constituting a response chain and deliberately introduced the aversive procedure known as "required relaxation" to interrupt the aggressive response chain." (p. 9) "The relaxation procedure was implemented at or near the beginning of a potentially aggressive episode in order to interrupt aggressive responses at their weakest point in the response chain…" (p. 10). In required relaxation, the individual is told to lie still on a bed or on the floor. If he does not, physical force is used to block any movements and force his limbs or body back to the still position.

Citation: Hagopian, L. P., Fisher, W. W., Sullivan, M. T., Acquisto, J., & LaBlanc, L.A. (1998). Effectiveness of functional communication training with and without extinction and punishment: a summary of 21 inpatient cases. *Journal of Applied Behavior Analysis, 31,* 211-235.

In this paper Hagopian reports treating the following behaviors, each of which is an early member of a chain that leads to the target behavior of *elopement*: "running toward an open door"; "putting any body part beyond an open door jamb"; and "attempting to open doors or leave rooms without staff." He also reports treating "placing inedible objects into the mouth past the lips" which is an early member of the chain that is *pica.*(p. 213)

Citation: Risley, T. R., (1968).

In this paper, Risley reported on use of skin-shock to treat the behavior of dangerous and disruptive climbing on bookcases, etc. of an autistic child. At first the skin shock was applied only when the subject had already climbed up high on the bookcase. "In Session 27…the experimenter began the punishment sequence (shouting "no?" *etc.*) immediately contingent upon the initial stages of climbing, when *S* was still on the

lower shelf of the bookcase." At that point, Risley was allowing the child to avoid the shock itself if she immediately got back into her chair after he shouted "no" *etc.* Then Risley tried giving the shock in any case even if she jumped back down. Once this was done, the behavior stopped and "…no further chair climbing occurred in the subsequent 18 sessions (7.7 hr)."

D. Seemingly Innocuous Behaviors

There are many behaviors which seem to be minor but which, if carried, excess, can be extremely dangerous to the individual. Therefore, one cannot judge whether a behavior should be treated with an aversive (if positive procedures have first been tried and found ineffective) without understanding the full treatment context.

Citation: Israel, M. L. (1999). A fatal experiment in positive behavior support. Retrieved April 9, 2008 from http://www.judgerc.org/fatalexperiment.html This exhibit is available as Exhibit 4 in the present document.

An example is the behavior of scratching one's heel. This seems innocuous; however, if carried to extreme it can lead to open sores, infection, blood poisoning and ultimately death. In fact this was the case with James Velez, a student who attended JRC in the 1990's. While attending JRC, his open sores healed and he was able to attend public school without wearing his GED device.

Unfortunately, certain anti-aversive advocates persuaded his parents to remove him from JRC and place him in a program that used "positive-only" treatment procedures. His liberation from JRC was covered in three front page stories in the *New York Times*. Unfortunately, the positive-only program to which he was transferred had no procedures to stop him from scratching. Within 17 months he was dead at the age of 25 due to infections and paralysis ultimately caused by his self-abusive scratching. Interestingly, the positive-only advocates who helped get James out of JRC showed no remorse for their actions. In James' obituary, the woman who operated the positive-only program in which he died was quoted to the effect that James was a pioneer who had paved the way for others. One of the advocates who was responsible for helping to remove James from JRC later testified in Court that, even though he died, it was better that he was able to live the life he lived for his last 17 months and that getting him out of JRC was the best that anyone could do for him.

Another example is closing one's eyes. This seems innocuous enough; however, if the student keeps his eyes closed all day, putting him in danger of falling down stairways and never learning a thing in school, it is seen to be a major, rather than an innocuous problem.

Citation: Hagopian, L. P., Fisher, W. W., Sullivan, M. T., Acquisto, J., & LaBlanc, L.A. (1998). Effectiveness of functional communication training with and without extinction and punishment: a summary of 21 inpatient cases. *Journal of Applied Behavior Analysis, 31,* 211-235.

Hagopian (1998) used an aversive consequence to treat the following behaviors which might seem minor unless one knows the frequency of the behavior or the context: self-scratching, ear flicking, pushing, banging objects, throwing objects, knocking objects off surfaces, running toward an open door, putting any body part beyond an open door jamb, attempting to open doors or leave rooms without staff.

Citation: Duker, P. C. & Seys, D. M. (2000). A quasi-experimental study on the effect of electrical aversion on imposed mechanical restraint for severe self-injurious behavior. *Research in Developmental Disabilities, 21,* 235-242.

Duker & Seys (2000) treated face scratching. In the absence of knowing the context, this behavior might seem to be innocuous, and not deserving of the use of an aversive. (p.1,par.1)

VIII. IS IT NECESSARY TO EXHAUST ALL POSITIVE-ONLY PROCEDURES BEFORE IMPLEMENTING AVERSIVES?

Both the International Association for Behavior Analysis (IABA) and Division 33 of the American Psychological Association (APA) have stated that if less restrictive procedures are insufficiently effective or rapid, aversive interventions may be employed. The statement by IABA is as follows (Van Houten et al., 1988)::

> "Consistent with the philosophy of least restrictive yet effective treatment, exposure of an individual to restrictive procedures is unacceptable unless it can be shown that such procedures are necessary to produce safe and clinically significant behavior change. It is equally unacceptable to expose an individual to a nonrestrictive intervention (or a series of such interventions) if assessment results or available research indicate that other procedures would be more effective. Indeed a slow-acting but nonrestrictive procedure could be considered highly restrictive if prolonged treatment increases risk, significantly inhibits or prevents participation in needed training programs, delays entry into a more optimal social or living environment, or leads to adaptation and the eventual use of a more restrictive procedure. This in some cases, a client's right to effective treatment may dictate the immediate use of quicker acting, but temporarily more restrictive, procedures." (p. 383)

The statement of Division 33 (the division dealing with retardation) of the APA is as follows (American Psychological Association Division 33, n.d.).:

> "Highly restrictive procedures (which may entail interventions often referred to as aversive) shall not be employed until there has been sufficient determination that the use of less restrictive procedures was or would be ineffective or harm would come to the client because of gradual change in the client's particular problematic behavior." (p. 2 top)

Prominent psychologists have followed this approach. For example, Linscheid & Reichenbach (2002) reported the following:

> "While the decision to use an aversive treatment must be made in consideration of numerous factors, it is suggested that the speed and degree of suppression of SIB must be among these considerations. In Wade's case, his human rights committee concurred that it was in his best interest to begin treatment with SIBIS immediately rather than to engage in a potentially long evaluation of non-aversive interventions that they felt, by history, had little chance of success." (p. 176,final paragraph)

When the problem behaviors are severe enough, psychologists have not only omitted trying a lot of non-aversive approaches first , but also have omitted even doing an analog functional assessment, and is seen in this excerpt from Williams et al. (1993):

> "A functional analysis (Iwata, Dorsey, Slifer, Bauman, & Richman, 1982) was not conducted because of concern that the protective equipment used might not prevent severe tissue damage since she had a history of inflicting serious injuries even when place in various restraints and protective devices. Informal observations by the first two authors, who had worked with Suzanne for a number of years, indicated that almost all of her SIB was escape behavior."

IX. ANSWERS TO OTHER QUESTIONS ABOUT AVERSIVES

1. **Are there any studies on the issue of whether there are negative side effects from the use of aversives?**
   During the 30 year period during which JRC has used aversives, no student has suffered any physical injury. Regarding emotional harm and the issue of side effects, a recent paper by van Oorsow, Israel, von Heyn and Duker (2007) reports that the side effects of the use of the GED skin shock aversive are either neutral or positive.

2. **What effective alternatives would be available to take the place of aversives, for students who need their availability, if aversives were banned?**
   The options for such students would be these: (1) some agencies might refuse to accept such students; (2) some agencies would expel such students; (3) agencies would be likely to resort to the use heavy doses of psychotropic medication in order to try to control the problem behaviors of such students; (4) agencies would resort to much more frequent use of restraint, confinement and isolation; (5) agencies would transfer students more frequently to institutions such as psychiatric hospitals; (6) students with extremely difficult-to-treat behaviors would be likely to end up in institutions, in jail, or on the streets, instead of being in facilities that would be able to provide treatment for them..

3. **How can aversives eliminate the impediments to students' ability to receive an education? What would happen to the health and education progress of a student who needs aversives and cannot receive them?** If positive-only treatment procedures are insufficient to control students' self-abusive, aggressive, destructive and non-compliant behaviors these behaviors can pose direct health risks to the students themselves or others. If positive-only treatment procedures are insufficient to control and change excessive levels of noncompliance, students with those behaviors may refuse to attend school or to follow any instructions of a teacher. If this happens, such students will receive no effective education. Aversives, when used properly as a supplement to a rewards-based program that is not sufficiently effective, can help to reduce severe problem behaviors to a zero or manageable level. When problem behaviors are occurring at too high a rate, they tend to crowd out other behaviors. As a result often there is no opportunity for the student to learn new skills until the frequency of the problem behaviors has been adequately reduced.

4. **Are the JRC clinicians qualified to design and supervise the implementation of behavior modification treatment plans with aversive interventions?**. All of the JRC clinicians who oversee treatment programs that include the use of aversives have doctoral degrees in psychology. Some have psychologist licenses and some are Board Certified Behavior Analysts. All have received further

training and supervision at JRC. The JRC clinicians are well qualified to design and supervise treatment plans that include aversives.

5. **Are the JRC direct care staff, their training and their supervision adequate to allow the staff to apply aversives and to otherwise implement the behavior modification treatment plans designed by the JRC clinicians?** JRC's direct care staff members receive training in how to carry out the various systems (contracts, arranging consequences, etc.) that are designed by the clinicians. They receive 80 hours of pre-service training. After that they must work for 6 months at JRC with students who do not receive aversives. Then they must shadow the work of a staff member who is qualified to use aversives and demonstrate, through passing a test, that they have the needed skills to administer aversives safely and effectively. In addition, direct care staff members receive the following: feedback on every shift, if needed; evaluations every two weeks; further individualized in-service training as is needed; and further in-service training each year.

6. **Are JRC's systems for supervising the direct-care staff—including DVR monitoring, numerical limits, notifications to clinicians and supervision by the clinicians—adequate to maintain the health, safety and effective treatment of the JRC students?**. The systems for supervising direct care staff members include: (1) the video monitoring of staff in the school buildings through closed circuit TV; (2) the video monitoring of those residences where the GED skin shock procedure is used, through closed circuit TV; (3) the monitoring and recording of activities at both the school buildings and the residences from a central location using digital video recording equipment and the internet; (4) the numerical limits that are set for certain aversives which define the points at which the direct care staff must communicate with the clinician to determine if the consequences should continue to be given; and (5) the supervision of each student's program by a clinician. These systems are more than adequate to maintain health, safety and effective treatment for the JRC students.

7. **What is the prognosis for students at JRC with severe behavior disorders who cannot receive aversive treatment for their destructive, major disruptive and noncompliant behaviors?** They will essentially be unable to receive any further meaningful education. They will likely regress behaviorally and have to be removed from their present classrooms and many will have to be placed in special rooms with a one-to-one aide watching them at all times. For all intents and purposes they will no longer be receiving valuable education and training because they will be unable, until their behavior is changed, to cooperate with that. They will be at increased risk of being subjected to one or more of the following: heavy doses of psychotropic medication; increased amounts of restraint, confinement and isolation; increased risk of being expelled from their present program and of being rejected by other programs; increased risk of simply being "warehoused" instead of being in a program that is trying to teach them new and better

behaviors; increased likelihood for some of the higher functioning students of ending up in jail, in a psychiatric hospital, in a state mental facility, or on the streets with no program; and increased probability that they will not be able to go home to their family, resume any normal relations with their family or receive enjoyment from their family members.

8. **Has JRC been successful in removing students from ineffective drug treatments and providing them with effective aversive interventions that have improved the health and educational progress of the students?** JRC has been very successful in removing students from ineffective drug treatments. Almost every student who has been able to benefit from aversives, and whose parents have wanted the removal or minimization of psychotropic drugs, has been removed from such drugs. JRC students have also been removed from restraint and have been able—many for the first time in their lives or for the first time in years—made progress in their education. They have also improved their health as a result of JRC's wellness program that features optimally nutritious menus.

9. **Describe and evaluate the quality of JRC's education program.** JRC has a educational program that is based on behavioral educational technology and this is of unusually high quality. JRC uses three major features of behavioral educational technology.
   1. *Programmed self-instruction using computers as teaching machines*. The program features self-instructional systems that that are presented on computers. Each student has his/her own computer. The software enables each student to progress through the subject matter at his/her own pace and provides immediate feedback to students as to whether their answers are right or wrong. JRC has a software development group that develops educational software.
   2. *Precision teaching*. JRC also makes use of Precision Teaching. Educational progress is evaluated by the rates correct and incorrect that students achieve. Data from each student is entered automatically in a database and software updates charts on each academic skill automatically. The data is plotted on that Standard Celeration Charts that are used in Precision Teaching. This enables the teacher and clinician (who also has access to these charts from his/her desktop computer) to see immediately how the student is progressing and to take any remedial steps that may need to be taken to insure progress.
   3.*Behavior modification.* JRC uses the same behavior modification system that is used to motivate improvements in non-academic behaviors to motivate academic improvements as well. This puts to work JRC's powerful reward systems to motivate improved learning. Normally when a student first comes to JRC, the reward systems are primarily used to improve the student's (non-academic) behaviors. As his or her behaviors improve, however, the reward systems play a stronger and stronger role in motivating educational development and training.

10. **Are JRC's teaching methods and protocols effective and consistent with generally accepted practices in the field of special education?.** Because JRC's educational program is so heavily behavioral and relies so much on self-instructional software and computer technology, it is really far ahead of the educational technology that is found in the typical special education program. Most schools cannot afford to give each student a computer or to develop special self-teaching software for their use. Most special education schools do not devote a special room for toilet training or have a special study carrel where 1-1 applied behavior analysis training can take place. JRC's educational program is extremely effective, creative and innovative, and is totally consistent with accepted practices in the behavioral approach to special education.

11. **Would the teaching of replacement behaviors be adversely affected by a prohibition against the treatment of major disruptive, destructive and non-compliant behaviors with physical aversives?** In the process of imparting replacement behaviors to a student, the problem is not only to teach the student how and when to execute those replacement behaviors, but also to get those behaviors to become more probable in the student's repertoire than the problem behaviors. Hagopian, Fisher, Sullivan, Acquisto and LeBlanc, (1998) studied the process of teaching the replacement behavior of functional communication skills. Their research showed that merely teaching a replacement behavior, such as functional communication skills, often does not by itself cause that behavior to take precedence over the problem behaviors. The problem behaviors have generated some type of reward for the student and that is why they will continue to be exhibited, even after a replacement behavior has been taught. Therefore, the treatment, in order to insure that the replacement behaviors will "dominate" the existing problem behaviors, must first eliminate the rewards that the problem behaviors produce, a procedure called *extinction*. Hagopian et al. (1998) found that extinction alone was successful in only 20 percent of the cases they studied. The remaining cases required that a punisher be added, in order achieve effective replacement of the problem behaviors by the functional communication skills.

REFERENCES

American Psychological Association Division 33 Resolution: Guidelines on effective behavioral treatment for persons with mental retardation and developmental disabilities (n.d.). Retrieved April 9, 2008 from http://www.apa.org/divisions/div33/effectivetreatment.html

Blenkush, N. A., von Heyn, R. E., & Israel, M. L. (2007a). The effect of contingent skin shock on treated and untreated behaviors. Submitted for publication, 2007. Retrieved April 21, 2008 from http://www.judgerc.org/effectsofshock.html

Blenkush, N. A., von Heyn, R. E., & Israel, M. L. (2007b). An example of contingent skin shock with problem behaviors that proved refractory to positive-only techniques. Submitted for publication, 2007. Retrieved April 21, 2008 from http://www.judgerc.org/longtermuse.html

Carpenter, W., (2007). Choosing the right antipsychotic. *The Carlat Psychiatry Report, Vol. 5, No. 3,* 4-5. Also retrieved May 20, 2008 from http://www.thecarlatreport.com/index.asp?page=wp3182007193249&menu=wp315200719627&tm=wp315200719627

Carr, E.G., Robinson, F., Taylor, J. & Carlson, J. (1990). Positive approaches to the treatment of severe behavior problems in persons with developmental disabilities. In: *National Institutes of Mental Health Consensus Development Conference,*(pp. 231-341). NIH Publication No. 91-2410.

Carr, E.G., Horner, R.H., Turnbull, A.P., Marquis, J.G., Magito McLaughlin, D., McAtee, M.L., Smith, C.E., Anderson Ryan, K., Ruef, M.B., & Doolabh, A. (1999). Positive behavior support for people with developmental disabilities: A research synthesis. Washington, D.C.: American Association of Mental Retardation.

Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied Behavior Analysis.* Saddle River, N.J.: Pearson Education, Inc.

Duker, P. C. & Seys, D. M. (2000). A quasi-experimental study on the effect of electrical aversion on imposed mechanical restraint for severe self-injurious behavior. *Research in Developmental Disabilities, 21,* 235-242.

Durand, V. M. & Crimmins, D. G. (1988). Identifying the variables maintaining self-injurious behavior. *Journal of Autism and Developmental Disabilities, 18,* 99-117.

Fisher, W., Piazza, C., Cataldo, M., Harrell, R., Jefferson, G., & Conner. R. (1993). Functional communication training with and without extinction and punishment. *Journal of Applied Behavior Analysis, 26,* 23-35.

Foxx, R.M. (2003). The treatment of dangerous behavior. *Behavior Interventions, 18,* 1-21.

Foxx, R.M. (2004a). Severe Aggressive and Self-Destructive Behavior: The Myth of the Nonaversive Treatment of Severe Behavior. In J. W. Jacobson, R.M. Foxx, & J. A. Mulick (Eds.), *Controversial therapies for developmental disabilities* (pp. 295-313). Lawrence Erlbaum Associates.

Foxx, R.M. (2004b). The National Institutes of Health Consensus Development Conference on the Treatment of Destructive Behaviors: A study in professional politics. In J. W. Jacobson, R.M. Foxx, & J. A. Mulick (Eds.), *Controversial therapies for developmental disabilities* (pp. 461-476). Lawrence Erlbaum Associates.

Frontline (2008). The medicated child. Retrieved May 20, 2008 from http://www.pbs.org/wgbh/pages/frontline/medicatedchild/

Hagopian, L. P., Fisher, W. W., Sullivan, M. T., Acquisto, J., & LaBlanc, L.A. (1998). Effectiveness of functional communication training with and without extinction and punishment: a summary of 21 inpatient cases. *Journal of Applied Behavior Analysis, 31,* 211-235.

Harris, G., Carey, B. & Roberts, J. (2007) Psychiatrists, Children and Drug Industry's Role. *New York Times, 5/10/2007.*

Horner, R. H., Carr, E. G., Strain, P. S., Todd, A .W. & Reed, H. K. (2002). Problem behavior interventions for young children with autism: A research synthesis. *Journal of Autism and Developmental Disorders, 32,* 423-445.

Israel, M. L. (1999). A fatal experiment in positive behavior support. Retrieved April 9, 2008 from http://www.judgerc.org/fatalexperiment.html

Israel, M. L. (2007). Positive-only programs expel their difficult-to-treat students, many of whom are then referred to JRC for successful treatment. Retrieved April 9, 2008 from http://www.judgerc.org/posonlyprograms.pdf

Israel, M. L., Blenkush, N. A., von Heyn, R. M., & Rivera, P. M. (2007). Treatment of aggression with behavioral programming that includes supplementary skin-shock. Submitted for publication, 2007. Retrieved April 9, 2008 from http://www.judgerc.org/AggressionPaper.pdf

Israel, M. L., Blenkush, N. A., von Heyn, R. E., & Sands, C. C. (2007). Seven Case Studies of Individuals Expelled from Positive-Only Programs. Submitted for publication, 2007. Retrieved April 9, 2008 from http://www.judgerc.org/SevenCaseStudies.pdf

Johnston, J.M., Foxx, R. M., Jacobson, J. W., Green, G., Mulick, J. A. (2006). Positive behavior support and applied behavior analysis. *The Behavior Analyst, 29,* 51-74.

Iwata, B. A. (1988). The development and adoption of controversial default technologies. *The Behavior Analyst, 11,* 149-157.

Lang, P. J. & Melamed, B. G., (1969). Case report: Avoidance conditioning therapy of an infant with chronic ruminative vomiting. *Journal of Abnormal Psychology, 74,* 1-8.

Lerman, D. C. & Vorndran, C. M. (2002). On the status of knowledge for using punishment: implications for treating behavior disorders. *Journal of Applied Behavior Analysis, 35,* 431-464.

Levitas, A. S. & Hurley, A. D. (2006a). The history behind the use of anti-psychotic medications in persons with intellectual disability: Part I. *Mental Health Aspects of Developmental disabilities, 9,* (26-32).

Levitas, A. S. & Hurley, A. D. (2006b). The history behind the use of anti-psychotic medications in persons with intellectual disability: Part II. *Mental Health Aspects of Developmental disabilities, 9,* (93-98).

Linscheid, T. R., Iwata, B. A., Ricketts, R. W., Williams, D. E., & Griffin, J. C. (1990). Clinical evaluation of the self-injurious behavior inhibiting system (SIBIS). *Journal of Applied Behavior Analysis, 23,* 53-78.

Matson, J. L., Cooper, C., Malone, C. J., & Moskow, S. L. (2008). The relationship of self-injurious behavior and other maladaptive behaviors among individuals with severe and profound inteleectual disability. *Research in Developmental Disabilities, 29,* 141-148.

Matson, J .L. & LoVullo, S. V. (2008). A Review of Behavioral Treatments for Self-Injurious Behaviors of Persons with Autism Spectrum Disorders. *Behavior Modification, 32,* 61-76.

Matson, J. L. & Minshawi, N. F. (2007). Functional assessment of challenging behavior: Toward a strategy for applied settings. *Research in developmental disabilities, 28,* 353-361.

Matson, J. L. & Nebel-Schwalm, M. (2007). Assessing challenging behaviors in children with autism spectrum disorders: A review. *Research in Developmental Disabilities, 28,* 567-579.

Matson, J. L. & Vollmer, T. (1995). *Questions about behavioral function. (QABF).* Baton Rouge, LA: Disability Consultants, L.L.C.

Michaels, C., Brown, F. & Mirabella (2005). Personal paradigm shifts in PBS experts: perceptions of treatment acceptability of decelerative consequence-based behavioral procedures. *Journal of Positive Behavioral Interventions, 7,* 93-108.

Mulick, J.A. & Butter, E.M. (2004).Positive behavior support: a paternalistic utopian delusion. In J. W. Jacobson, R.M. Foxx, & J. A. Mulick (Eds.), *Controversial therapies for developmental disabilities* (pp. 385-404). Lawrence Erlbaum Associates.

Newsom, C. & Kroeger, K.A. (200 4). Nonaversive treatment. In J. W. Jacobson, R.M. Foxx, & J. A. Mulick (Eds.), *Controversial therapies for developmental disabilities* (pp. 405-432). Lawrence Erlbaum Associates.

Risley, T. R., (1968). The effects and side effects of punishing the autistic behaviors of a deviant child. *Journal of Applied Behavior Analysis 1,* 21-34.

Rolider, A., Cummings, & Van Houten. (1991). Side effects of therapeutic punishment on academic performance and eye contact. *Journal of Applied Behavior Analysis, 24,* 763-773.

Salvy, S., Mulick, J.A., Butter, E., Bartlett, & Linscheid, T.R. (2004) Contingent electric shock (SIBIS) and a conditioned punisher eliminate severe head banging in a preschool child. *Behavioral Interventions, 19,* 59-72.

Skinner, B. F. (1953). *Science and Human Behavior*. New York: Macmillan

Van Houten, R., Axelrod, S., Bailey, J. S., Favell, J. E., Foxx, R. M., Iwata, B.A., & Lovaas, O.I. (1988). The right to effective treatment. *Journal of Applied Behavior Analysis, 21,* 381-384.

Van Oorsouw, W. M. W. J., Israel, M. L., von Heyn, R. E. & Duker, P. C. (2007). Side effects of contingent shock treatment. *Research in Developmental Disabilities* (2007), doi:10.1016/j.ridd.2007.08.005.

Von Heyn, R. E., Israel, M. L., Worsham, R. W., (1993). A comparison of the long-term decelerative effectiveness of two intensities of contingent electric shock on aggressive and health dangerous behavior with individuals with severe behavioral disorders. Retrieved April 10, 2008 from http://www.effectivetreatment.org/comp.html

Williams, D. E., Kirkpatrick-Sanchez, S., & Iwata, B. A. (1993). A comparison of shock intensity in the treatment of longstanding and severe self-injurious behavior. *Research in Developmental Disabilities, 14,* 207-219.

Williams, D. E., Kirkpatrick-Sanchez, S., and Crocker, W. T. (1994). A long-term follow-up for severe self-injury. *Research in Developmental Disabilities, 15,* 487-501.

White, J. C. & Taylor, D. J. (1967). Noxious conditioning as a treatment for rumination. *Mental Retardation, 5,* 30-33.

Worsham, R. W., Israel, M. L., von Heyn, R. E., & Connolly, D. A., (1992). Treatment of life-threatening vomiting and rumination with contingent electrical shock. Retrieved April 13, 2008 from http://www.effectivetreatment.org/treat.html

Yates, C. M., 1991. A response to nonaversive behavior management and "default" technologies. *The Behavior Analyst, 14,* 217-218.

EXHIBITS

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1. Israel, M. L., Blenkush, N. A., von Heyn, R. M., & Rivera, P. M. (2007). Treatment of aggression with behavioral programming that includes supplementary skin-shock. Submitted for publication, 2007. Retrieved April 9, 2008 from http://www.judgerc.org/AggressionPaper.pdf
2. Israel, M. L., Blenkush, N. A., von Heyn, R. E., & Sands, C. C. (2007). Seven case studies of individuals expelled from positive-only programs. Submitted for publication, 2007. Retrieved April 9, 2008 from http://www.judgerc.org/SevenCaseStudies.pdf
3. Israel, M. L. (2007). Positive-only programs expel their difficult-to-treat students, many of whom are then referred to JRC for successful treatment. Retrieved April 9, 2008 from http://www.judgerc.org/posonlyprograms.pdf
4. Israel, M. L. (1999). A fatal experiment in positive behavior support. Retrieved April 9, 2008 from http://www.judgerc.org/fatalexperiment.html.
5. Worsham, R. W., Israel, M. L., von Heyn, R. E., & Connolly, D. A., (1992). Treatment of life-threatening vomiting and rumination with contingent electrical shock. Retrieved April 13, 2008 from http://www.effectivetreatment.org/treat.html
6. Von Heyn, R. E., Israel, M. L., Worsham, R. W., (1993). A comparison of the long-term decelerative effectiveness of two intensities of contingent electric shock on aggressive and health dangerous behavior with individuals with severe behavioral disorders. Retrieved April 10, 2008 from http://www.effectivetreatment.org/comp.html
7. Blenkush, N. A., von Heyn, R. E., & Israel, M. L. (2007a). The effect of contingent skin shock on treated and untreated behaviors. Submitted for publication, 2007. Retrieved April 21, 2008 from http://www.judgerc.org/effectsofshock.html
8. Blenkush, N. A., von Heyn, R. E., & Israel, M. L. (2007b). An example of contingent skin shock with problem behaviors that proved refractory to positive-only techniques. Submitted for publication, 2007. Retrieved April 21, 2008 from http://www.judgerc.org/longtermuse.html