

Applied Behavior Analysis (ABA) as a potential cost saver to health plans

Dear Members of Austin City Council,

At the Health and Human Services meeting held on April 6th, the awareness of lowered healthcare costs in the form of routine doctor visits, emergency room trips, and other health care needs was expressed as an advantage of adding Applied Behavior Analysis (ABA) for children on the autism spectrum to our city health plan.

The two examples were given of an ER trip that resulted in discovery of nothing more than an ear infection because the young man was not able to articulate to the parents what was wrong and a child who was exhibiting the maladaptive behavior of head banging but through ABA therapy, they were able to pinpoint his triggers and prevent the move to residential care for the child. These are two very valid examples, but there are many much more basic than that.

Members of the HHSC expressed interest in other ways in which this therapy could avoid overall healthcare costs and we would like to provide that information both anecdotally and with research studies data.

Self Care

As a parent, I live the consequences everyday and would like to express, anecdotally how this savings of overall healthcare is possible. The simple, real life answer struck me this morning as I was prompting my son through the hand washing routine that was taught us by our ABA therapists. We had finished his toileting routine and I began the hand wash protocol. Where parents of typical children may only need to shout from the other room, "Remember to wash your hands!" parents of children with developmental disorders do not have that luxury. In my house, there were many months that washing hands resembled something closer to an arm wrestling match complete with tears and lots of screaming. Basic self-care and the problems they can manifest in children with autism is just one component that a comprehensive ABA program can address. The therapy is designed with the child's specific needs and deficits taken into consideration. Teeth brushing, toileting, bathing and cleansing, are all routines that can be very difficult due to communication deficits and sensory issues. We have worked through many of these with our therapist, discovering ways to not only help my son move past the anxiety, fear, and genuine discomfort of the routine, but help him to become independent in them. It is with this knowledge that I know the better we can get at washing hands, (and actually using soap!) the more colds, strep throat, pink eye, and flu we can avoid. **Prevention** is the best medicine in this case to avoid future infections.

Even though my children are well past the age in which they explore toys with their mouth, this can still be something that many children with autism continue to do. It can be a sensory seeking behavior that is incredibly satisfying to them. I have seen applied behavior analysis protocols that address this maladaptive behavior in many different ways. I can imagine there are many **avoidable communicable illnesses** that can be transferred when your child finds a shiny object on a bathroom floor and wants to explore

it further, with their mouth. Through therapy however, they can be taught replacement behaviors or coping methods.

Nutrition

There is another issue that many children with autism face and that is in the area of nutrition. Partly due to sensory issues, but also due greatly to issues of rigidity, food can seem like the enemy to a child with autism. I personally know a young man who existed solely on chocolate milk for 2 years. This child, and many like him, were regularly seen by a **pediatrician, dietician**, and needed **regular blood work** to ensure he was absorbing enough nutrients and calories. He was also seen by multiple **speech, occupational, and eating therapists**. He also required additional **prescription vitamin supplements**. This mother is positive the entire ordeal could have been thwarted from the very beginning had it been addressed in a controlled, effective environment such as ABA.

Enhanced Procedures

There is a 25 year old man with autism who needs to be **fully sedated** for any dental work, even check ups, because of his anxiety and sensitivity.

In each of these cases, it could be argued that early intervention with a behavior modification program, such as Applied Behavior Analysis, might have been able to relieve some of the struggles later on in life. This is why the numbers for treating a person without applied behavior analysis can be projected as high as 3.5 million over a lifetime.

Prescription Drug Avoidance

There is also the possibility of avoiding expensive prescription drugs that would need to be managed with **routine doctor visits, blood work, and assessments**. I have personally witnessed a case in which the doctor was ready to prescribe risperidal, an antipsychotic due to the extreme mood swings of a 3 year old. However, when the principals of applied behavior analysis were implemented on a broader scope, extending to the daycare and grandparents house, maladaptive behaviors curved dramatically enough that the medication routine was subsequently abandoned by the parents and doctors as unnecessary.

Emergency Room Visits

On another very personal level, I can attest to the general safety concerns that applied behavior analysis has addressed in my children's lives. A very common characteristic of people on the autism spectrum can be the **complete disregard for danger**. Before we knew my son was on the spectrum, we thought his wandering away from us, without even a glance back to ensure his safety net of a parent was following, was independence. However, as those behaviors grow up, you realize it is not an independent personality at all but instead a complete unawareness of danger. Cars in streets, getting lost, falling into swimming pools, all a mother of a child with autism's worst nightmares. However, through ABA, I am now 75% sure that when my son encounters a street, he will first turn to look for me for permission before bolting across. I can tell you that while that is not

100% yet, it is wonderful reassurance that he stands at least a better chance than he began with.

The final cost saving I would like to explain would be that to the other members of the family. Just as was stated at the health and human services committee meeting, a behavior that can be cute as seven can be a felony at 17. **Violence and aggression** can become real issues for children on the spectrum. If these behaviors continue to go unchecked in a young person, they will most likely not fade away due to age. When your child hits you at seven, it may hurt. But when he chooses to hit you at 17, you may end up in the **emergency room** with a broken nose. One AISD school teacher who was set to testify at the committee meeting has dealt with multiple fractured bones due to the violence of a child with autism.

Caretakers Wellness

There is also the general health and wellness of caretakers. It is a sad fact that stress and fatigue can contribute greatly to your **immune system** and your **ability to fight infection**. This would also result in more trips to the doctor for those tasked with the job of caring for the person with autism without therapy.

In closing, adding applied behavior analysis should be considered a cost saver, as opposed to a cost driver for our city health plan. These are merely a few examples of how applied behavior analysis could potentially reduce overall healthcare costs. Please see the enclosed data for the numbers of this potential cost saver.

Lisa Whitted
lisa1810@gmail.com

Jacquie Benestante
jacquie.be@gmail.com

Applied behavior analysis (ABA)

- **Application of scientific principles (natural laws) of behavior and procedures discovered through research (e.g., positive reinforcement) to improve socially significant behavior to a meaningful degree**
- **Hundreds of controlled studies show that focused and comprehensive ABA treatments are effective for building skills and reducing problem behaviors in people with ASD of all ages**
- **Other proven applications:**
 - **Business and industry, regular and special education (all levels), child rearing, family life, gerontology, health and fitness, sports, head injuries, spinal cord injuries, eating disorders, substance abuse disorders, psychiatric disorders, driver and pedestrian safety, and more**

Costs of Autism Spectrum Disorder (ASD) without effective treatment

- Estimated costs of all services, ages 3 – 55/65 years:
 - \$3.5 million per person (1996 Pennsylvania figures; Jacobson, Mulick, & Green, 1998)
 - \$3.2 million per person (2003 national average; Ganz, 2007)

Annual average health care costs per person

ASD	Without ASD	Sample and Study
\$10,709	\$1,812	Medicaid enrollees (Peacock et al., 2012)
\$ 6,132	\$ 860	U.S. families and physicians (Liptak et al., 2006)
\$2,757	\$ 892	No. California Kaiser Permanente members (Croen et al., 2006)
\$9,980	\$1,102	PA Medicaid enrollees (Mandell et al., 2006)

Behavioral difficulties account for large proportions of health care costs for people with Autism Spectrum Disorder (ASD)

- Self-injurious, aggressive, and obsessive behaviors increase likelihood of hospitalization. That risk increases with age and over time (Mandell, 2007).
- In adults, problem behaviors (e.g., aggression, overactivity) predict psychotropic medication use and hospitalization (Tsakanikos et al., 2007).
- Communication and social interaction difficulties, resistance to change and new situations, and lack of cooperation with health care procedures contribute to longer physician visit times (Myers et al., 2007).

Comprehensive ABA treatment for ASD: Key features

- **More controlled studies and larger effects than standard treatments for young children with ASD**
- **Designed and overseen by qualified professional behavior analysts; delivered by those professionals + behavior technicians and caregivers they train and supervise**
- **Multiple treatment targets in multiple domains (social, communication, self-care, motor, problem behaviors)**
- **Multiple ABA procedures implemented across environments**
- **Decisions based on frequent analysis of data from direct observation and measurement of treatment targets**
- **Dosage (intensity) and all other aspects of treatment highly individualized**

Comprehensive ABA treatment for ASD: Cost benefits

- Savings to all Pennsylvania service systems combined, per person, lifetime:

- Normal-range functioning achieved: \$1.5 million Partial effects: \$1 million (Jacobson, Mulick, & Green, 1998)
- Savings to Texas education system, per person, 18 years: \$208,500 (Chasson, Harris, & Neely, 2007)
- Savings from expanding Ontario's government-funded coverage of comprehensive ABA treatment from 1/3 of children to all children with ASD under age 6, per person, lifetime: \$34,479 Canadian (Motiwala, Gupta, & Lilly, 2006)

Resources

- Jacobson, J.W., Mulick, J.A., & Green, G. (1998). Cost-benefit estimates for early intensive behavioral intervention for young children with autism: General model and single state case. *Behavioral Interventions*, 13, 201-226.
- Brosnan, J. & Healy, O. (2011). A review of behavioral interventions for the treatment of aggression in individuals with developmental disabilities. *Research in Developmental Disabilities*, 32, 437-406.
- Campbell, J.M. (2003). Efficacy of behavioral interventions for reducing problem behavior in persons with autism: A quantitative synthesis of single-subject research. *Research in Developmental Disabilities*, 24, 120-138.
- Chasson, G.S., Harris, G. E., & Neely, W. J. (2007). Cost comparison of early intensive behavioral intervention and special education for children with autism. *Journal of Child and Family Studies*, 16, 401-413.
- Croen, L.A., Najjar, D.V., Ray, T., Lotspeich, L., & Bernal, P. (2006). A comparison of health care utilization and costs of children with and without autism spectrum disorders in a large group-model health plan. *Pediatrics*, 118, 1203-1211.
- Dixon, D.R., Bergstrom, R., Smith, M.N., & Tarbox, J. (2010). A review of research on procedures for teaching safety skills to persons with developmental disabilities. *Research in Developmental Disabilities*, 31, 985-994.
- Eldevik, S., Hastings, R.P., Hughes, J.C., Jahr, E., Eikeseth, S., & Cross, S. (2010). Using participant data to extend the evidence for intensive behavioral intervention for children with autism. *American Journal on Intellectual and Developmental Disabilities*, 115, 381-405.
- Ganz, M.L. (2007). The lifetime distribution of the incremental societal costs of autism. *Archives of Pediatric and Adolescent Medicine*, 161, 343-349.
- Green, G., Brennan, L.C., & Fein, D. (2002). Intensive behavioral treatment for a toddler at high risk for autism. *Behavior Modification*, 26, 69-102.