



Cost-Effectiveness of Applied Behavior Analysis in the Treatment of Autism Spectrum Disorder

Research has established that early intensive behavior therapy based on the principles of applied behavior analysis (ABA) is medically necessary for individuals who are diagnosed with autism spectrum disorder (ASD). Numerous studies have demonstrated the effectiveness of ABA in treating individuals with ASD, documenting considerable gains in functioning and the potential loss of the ASD diagnosis altogether (Birnbrauer & Leach, 1993; Lovaas, 1987; McEachin, Smith, & Lovaas, 1993; Sallows & Graupner, 2005; Smith, Groen, & Wynn, 2000; Granpeesheh, Tarbox, & Dixon, 2009).

Given that the optimal treatment intensity – the number of hours of treatment – is likely 35-40 hours per week in younger children, the cost of treating ASD is high, estimated on average to cost between \$40,000 and \$60,000 per year (Chasson, Harris, & Neely, 2007) and even as much as \$100,000 per year (Zane, Davis, & Rosswurm, 2009). Furthermore, the duration of an ABA program initiated when a child is three years old is typically 3-5 years (Jacobson, Mulick & Green, 1997), with many children requiring targeted ABA programs well beyond those initial treatment years. Consequently, the minimum cost of ABA-based treatment for one child with ASD, when calculated at 35-40 hours per week over three years, is potentially \$120,000. Of course, the actual cost of an ABA-based treatment program is driven by many variables, including the treatment provider, the location of the services, and the number of hours of 1:1 therapy.

Even so, the cost is relatively small when compared to the cost of treating chronic diseases, such as heart disease and stroke, diabetes, and lung disease, which account for three-quarters of all health care spending in the United States (Center for Healthcare Research & Transformation – Health Care Cost Drivers, 2010). Moreover, the cost of treating ASD is much lower than the cost of not treating it. The cost of not treating ASD has been quantified in multiple studies and is more than ten times the cost of treatment. In his seminal study, *The Lifetime Distribution of the Incremental Societal Costs of Autism* (2007), Michael Ganz estimates the lifetime cost of autism to be \$3.2 million per capita. Dr. Ganz calculated both direct and indirect costs, including adult care and lost productivity of the individual with ASD and his or her family.

The Center for Special Education Finance estimates the annual cost of special education services at approximately \$12,639 per student (Center for Special Education Finance, 2004). While the annual cost of ABA is higher than general special education services, a comparison of the cost of three years of ABA-based treatment versus 18 years of special education services demonstrates that ABA could produce a savings per capita of \$208,500 (Chasson, et al., 2007). That is, although the cost of three years of ABA is greater than the first three years of special education services, the early investment in ABA produces a substantial savings over the next 15 years.

Children who receive ABA at a sufficient intensity are more likely to function independently in their communities, enter school with little or no special accommodations, and fulfill their potential, all variables that contribute to the conclusion that ABA is both medically necessary and cost-effective.

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