



## The Vermont Legislative Research Service

<http://www.uvm.edu/~vlrs/>

Contact: Professor Jack (Anthony) Gierzynski

[Anthony.Gierzynski@uvm.edu](mailto:Anthony.Gierzynski@uvm.edu)

517 Old Mill, Burlington, VT 05405-4110



### Psychotropic Drug Use in Children

Since Attention Deficit Hyperactive Disorder (ADHD) was officially recognized as a mental disorder in 1980, the rates of diagnosis and treatment have surged in the United States. The growing prevalence of the disorder, especially among children, has led to growing concern among parents and within the medical community that the disease is being over-diagnosed and improperly treated. The current forms of treatment for ADHD are prescription medication and behavior therapy. Behavior therapy is the process of helping children and adults learn the techniques necessary in order to maintain focus. Although both forms of treatment are recommended in order to control ADHD, prescription medication is far more commonly used than behavior therapy. This report examines the rise in the use of prescription drugs as a means to treat and manage ADHD in young children, as well as the prevalence of prescription drug use in children today.

#### A Shift Toward Psychoactive Drug Treatment

Beginning in the late 1980s and continuing through the 1990s, psychopharmacotherapy in the United States has rapidly expanded.<sup>1</sup> Psychopharmacotherapy is the use of psychoactive drugs for symptomatic treatment or management of both mental disorders and psychiatric diseases. It is based on the idea that some behaviors and psychological conditions are evidence of organic diseases that exist as a result of brain dysfunction or genetic abnormalities that can be treated most successfully with psychotropic drugs that alter brain chemicals. In the 1980s, there was a shift in the thinking surrounding what contributes to mental illness. This continued into the 1990s, which are known in the psychotropic drug world as the “Decade of the Brain.” The 1990s were dedicated to nationwide research to further understanding of how the brain is organized, how it functions, why it sometimes fails to function, and what can be done to

---

<sup>1</sup> Mark Olfson, Steven C. Marcus, Myrna M. Weissman, and Peter S. Jensen, “National Trends in the Use of Psychotropic Medications by Children,” *Journal of the American Academy of Child & Adolescent Psychiatry*, 41:5. May 2002, retrieved February 15, 2016 <http://www.sciencedirect.com/science/article/pii/S0890856709607061>.

prevent and treat cases in which the brain does not function correctly.<sup>2</sup> Originally, the factors contributing to mental illness were thought to be social-environmental. Examples of social-environmental factors are safety, violence, and social disorder.<sup>3</sup> However, during the Decade of the Brain, emotional or cognitive illnesses were more often identified as being the main factors contributing to mental illnesses and/or mental disorders. Under this new paradigm, focus shifted to the symptoms of mental disturbances, as opposed to their causes, and a need to treat mental disorders pharmacologically was highlighted, instead of via talk therapy or behavioral changes.<sup>4</sup>

In 1989 President Bush signed a presidential declaration officially designating the 1990s as the “Decade of the Brain” and called on the United States to observe it as such.<sup>5</sup> In this way the government supported the idea that mental disorders are a biomedical issue and should be managed and treated with drug intervention. The governmental agency that provides funding for and conducts research on mental illness, the National Institute of Mental Health (NIMH), supported trials for the Diagnostic and Statistical Manual of Mental Disorders (DSM-III), which solidified the vision of mental illness as a brain disease. In the wake of DSM-III, which was published in 1980, the NIMH began prioritizing research on genetics, brain dysfunction, and chemical imbalances as leading factors of mental illness, and began placing less emphasis on the need for research on social, economic, and familial factors.<sup>6</sup> As a result, drug therapy has become the normalized response to mental disorders. Additionally, during the “Decade of the Brain” the government prioritized the study and research of mental illnesses in children and adolescents. Prior to the “Decade of the Brain,” the prevalence of prescription psychotropic drug use in children was low. With the shift in thinking and areas of prioritized study, in the last two decades there has been a “meteoric” rise in psychotropic drug prescriptions given to children.<sup>7</sup> This rise in psychotropic medication prescribed was used almost exclusively to treat and manage ADHD.<sup>8</sup>

### **The Prevalence of Prescription Drug Use**

There are 6.4 million children and young adults between the ages of four and seventeen who have been diagnosed with ADHD in the United States. In the years between 2003 and 2011, the

---

<sup>2</sup> Murray Goldstein, “Decade of the Brain an Agenda for the Nineties”, *In Neurology- From Basics to Bedside*. West J Med 1994; Vol. 161, No. 3, pp. 239-241, September 1994, retrieved February 14, 2016. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1011403/pdf/westjmed00061-0033.pdf>.

<sup>3</sup> Steven H. Woolf and Laudan Aron, *U.S. Health in International Perspective: Shorter Lives, Poorer Health* (The National Academies Press Washington, D.C., 2013), 192-206, retrieved February 15, 2016, <http://www.nap.edu/read/13497/chapter/12#205>.

<sup>4</sup> Angela O. Burton, “‘They Use it Like Candy’- How the Prescription of Psychotropic Drugs of State-Involved Children Violates International Law,” *Brooklyn Journal of International Law*, Vol. 35, No. 3, pp. 545-513, 2010, retrieved February 12, 2016. [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1583972](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1583972).

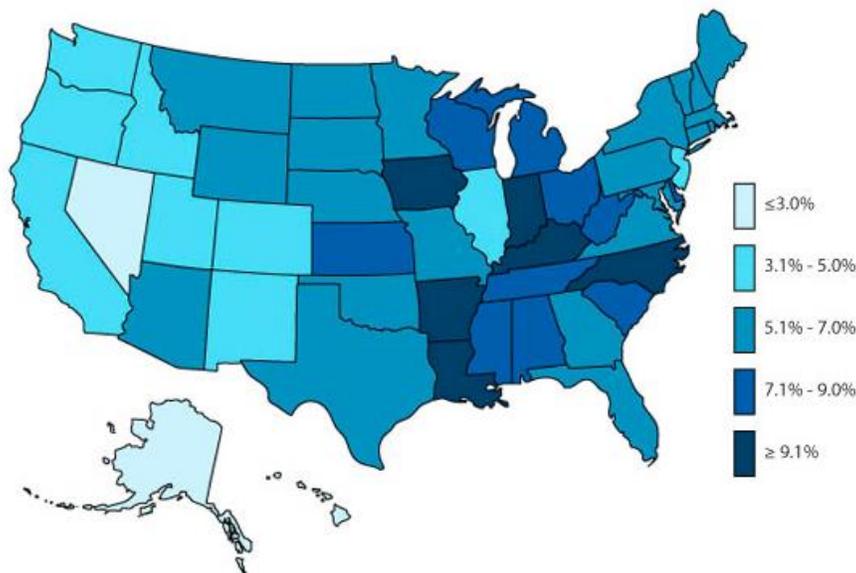
<sup>5</sup> Murray Goldstein, “Decade of the Brain an Agenda for the Nineties.”

<sup>6</sup> Angela O. Burton, “Prescription of Psychotropic Drugs to State-Involved Children.”

<sup>7</sup> Angela O. Burton, “Prescription of Psychotropic Drugs to State-Involved Children.”

<sup>8</sup> Mark Olfson et al., “National Trends in the Use of Psychotropic Medications by Children.”

rates of ADHD diagnoses grew by about 5% annually.<sup>9</sup> The recommended first line of treatment for ADHD among children ages four and five is behavior therapy; however, medication may be prescribed if behavioral treatment does not lead to significant improvement.<sup>10</sup> For children ages six and older, the recommended treatment is a prescription for US Food and Drug Administration-approved medication or behavior therapy; the use of both behavior therapy and medication together is recommended for this age group. As children get older, the use of behavior therapy as treatment for mental disorders tends to decrease. In contrast, the use of prescription drugs for managing mental illness increases as children get older.<sup>11</sup> A national survey conducted from 2009 to 2010 on children between the ages of four and seventeen who had been diagnosed with ADHD reported that the percentage who were prescribed drugs for treatment ranged from a low of 57% in California to a high of 88% in Michigan.<sup>12</sup> The percentage of children who had been diagnosed with ADHD and were treated with behavior therapy ranged from a low of 33% in Tennessee to a high of 61% in Hawaii.<sup>13</sup> Figure 1 shows the percentages of children ages four to seventeen that were using prescription ADHD medication in 2011.



**Figure 1 Percent of youth aged 4-17 years taking medication for ADHD by state in 2011**

Source: Data from Centers for Disease Control and Prevention, “Trends in the Parent-Report of Health Care Provider-Diagnosed and Medicated ADHD: United States, 2003-2011,” accessed February 15, 2016, <http://www.cdc.gov/ncbddd/adhd/medicated.html>.

<sup>9</sup>Centers for Disease Control and Prevention. “Attention-Deficit/ Hyperactivity Disorder (ADHD),” January 4, 2016, retrieved February 12, 2016, <http://www.cdc.gov/ncbddd/adhd/data.html>.

<sup>10</sup> Louisiana Department of Health and Hospitals, “Prepared in Response to Senate Concurrent Resolution No. 39 of the 2014 Regular Session,” February 2015, retrieved February 15, 2016, [http://dhh.louisiana.gov/assets/ADHD/ADHD\\_DHH\\_RspnseRsltn39.pdf](http://dhh.louisiana.gov/assets/ADHD/ADHD_DHH_RspnseRsltn39.pdf).

<sup>11</sup> Tahra Johnson, “ADHD: Calming the Chaos of Hyperactivity,” *National Conference of State Legislatures*, February 1, 2016, retrieved February 15, 2016, <http://www.ncsl.org/bookstore/state-legislatures-magazine/calming-the-chaos.aspx>.

<sup>12</sup> Tahra Johnson, “ADHD: Calming the Chaos of Hyperactivity.”

<sup>13</sup> Ibid.

One of the main reasons that behavioral therapy is less common than medication prescription is due to the fact that in many states, behavior therapy is not covered by health insurance.<sup>14</sup> This is in violation of the Mental Health Parity and Addiction Equity Act (MHPAEA) of 2008, which dictates that group health plans and issuers of health insurance ensure that financial requirements, such as co-pays, and treatment limitations, like limits on the amount of times one may visit, in regard to mental health or substance abuse disorder benefits are no more restrictive than the requirements or limitations applied to all medical and surgical benefits.<sup>15</sup> Though the law requires parity, no discrimination of coverage based on mental health or substance abuse disorders, health insurance providers have found ways to do it legally. Some plans have limited coverage via restrictive benefit designs that discourage enrollment by individuals that are seen to be a “high-cost” due to behavioral health conditions.<sup>16</sup> These plans impose special limitations on mental health and substance abuse disorder benefits due to concern that utilization and costs would not be sustainable.<sup>17</sup> Thus, behavioral therapy is not always covered in the way that the law mandates, making it cheaper and more sustainable for families or individuals to treat mental health disorders such as ADHD with prescription drugs.

Notably, of the approximately 500,000 children in foster care in the United States, up to 80% suffer from significant mental health issues, compared to about 20% of the general population.<sup>18</sup> This leads to children in foster care being prescribed medications at much higher rates than children not in foster care. Additionally, children covered by Medicaid receive antipsychotic medicines at rates significantly higher than children whose parents have private insurance. This suggests a correlation between higher rates of prescription drug medication usage and low-income households, but does not imply causation; children in low-income households take prescription drugs more often, but the research does not suggest that this is directly related to their socio-economic status.

### **Child ADHD Diagnosis in the U.S.**

The median age of a child when diagnosed with ADHD is seven years old. As of 2011, almost a third of children (30.7%) diagnosed with ADHD received a diagnosis before the age of six, and more than three quarters (76.1%) received a diagnosis by the age of nine, as seen in Figure 2. Behavioral ratings checklists, a checklist used to rate appearances of ADHD behavioral symptoms, are one method used to diagnose ADHD, and are employed as a part of the diagnosis process for nine out of ten children. Additionally, 30% of children have undergone

---

<sup>14</sup> Ibid.

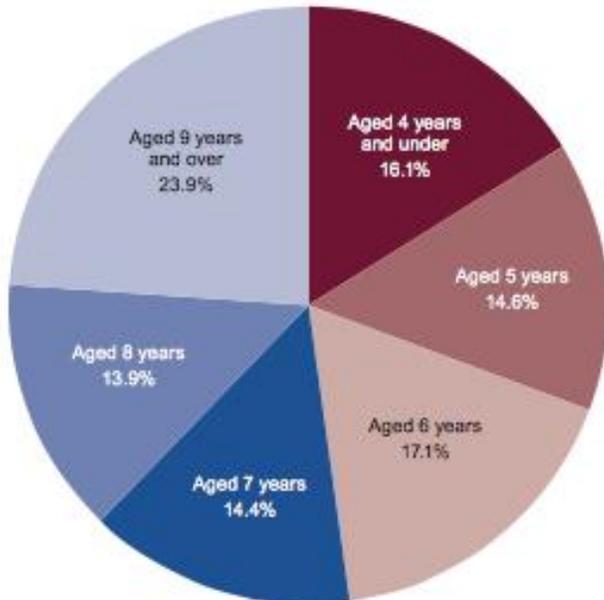
<sup>15</sup> United States Department of Labor, “Mental Health Parity,” retrieved April 21, 2016, <http://www.dol.gov/ebsa/mentalhealthparity/>.

<sup>16</sup> Department of the Treasury, Internal Revenue Service, “Final Rules Under the Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act of 2008; Technical Amendment to External Review for Multi-State Plan Program,” *Federal Register* 78, no. 219 (November 13, 2013): 68254, <http://www.dol.gov/ebsa/pdf/parityeducationreport.pdf>.

<sup>17</sup> Ibid.

<sup>18</sup> Tina Polihronakis, “Information Packet: Mental Health Care Issues of Children and Youth in Foster Care,” National Resource Center for Family-Centered Practice and Permanency Planning, April 2008, retrieved February 14, 2016, [http://www.hunter.cuny.edu/socwork/nrcfcpp/downloads/information\\_packets/Mental\\_Health.pdf](http://www.hunter.cuny.edu/socwork/nrcfcpp/downloads/information_packets/Mental_Health.pdf).

neurological imaging and/or lab tests as a part of their diagnosis. Of those diagnosed before age six, 41.8% underwent neurological testing or lab testing, as opposed to 25% of children diagnosed at age six or older.<sup>19</sup>



**Figure 2.** Child’s age when parent was first told that child had ADHD, among children who were aged 2-15 years in 2011-2012 and had a diagnosis of ADHD: United States, 2014

Source: Data from Susanna N. Visser et al., “Diagnostic Experiences of Children with Attention-Deficit/Hyperactivity Disorder,” *U.S. Department of Health and Human Services, National Health Statistics Reports*, September 3, 2015, accessed February 17, 2016, <http://www.cdc.gov/nchs/data/nhsr/nhsr081.pdf>.

Between 2007-08 and 2011-12 there was a 56% surge in ADHD diagnoses among children aged two to five years nationwide. During this same period, there was a 100% growth in the number of children aged two to five with an ADHD diagnosis who took prescribed medication.<sup>20</sup> In Louisiana, children born in September are 26% more likely to have a prescription for ADHD medication than children born in October.<sup>21</sup> In Louisiana the cutoff date for kindergarten is September 30<sup>th</sup>, hence making children born in September among the youngest in their grades, while children born in October are among the oldest. This is notable because the data shows that children who are the youngest in a grade are being diagnosed at a higher rate than children who are the oldest in a grade.<sup>22</sup>

<sup>19</sup> Susanna N. Visser et al., “Diagnostic Experiences of Children with Attention-Deficit/Hyperactivity Disorder,” *National Health Statistics Reports*, September 3, 2015, retrieved February 17, 2016, <http://www.cdc.gov/nchs/data/nhsr/nhsr081.pdf>.

<sup>20</sup> Louisiana Department of Health and Hospitals, “Prepared in Response to Senate Concurrent Resolution No. 39 of the 2014 Regular Session.”

<sup>21</sup> Ibid.

<sup>22</sup> Ibid.

## State Responses

Some state-government departments have decided it is important to learn more about the disease and modes of treatment, and have introduced legislation to expand knowledge about ADHD. In 2015 a bill was introduced in Minnesota that would require the Minnesota Department of Health to gather data and report information surrounding the treatment of ADHD in children, the usage rates of behavior therapy and medication, hospitalization rates, demographics of children diagnosed with ADHD and their forms of treatment, and the costs of medication to public and private insurers.<sup>23</sup> Similar bills have been introduced in New York and Louisiana. Texas has taken steps to limit the prescription and use of antipsychotic drugs by requiring physician authorization for all Medicaid clientele three years of age or younger. California and Florida have also moved toward implementing more stringent restrictions on the policies and procedures surrounding psychotropic drug medications.<sup>24</sup>

The Louisiana Department of Health and Hospitals (Louisiana DHH) suggested that Louisiana take steps to raise the accuracy of ADHD diagnoses. One suggestion put forth by the department is to have Primary Care Physicians (PCPs) align their ADHD assessments with national guidelines such as those presented by the American Academy of Pediatrics (AAP). This will help rule out alternate causes of behavioral dysregulation, which is behavior that is poorly controlled and is considered atypical and an unaccepted behavioral response. Additionally, the Louisiana DHH suggested that PCPs consult with mental health specialists about complex cases of ADHD in order to assure accuracy in diagnoses. Likewise, the department urged all physicians, teachers, and parents to be educate themselves on ADHD.<sup>25</sup> The Louisiana DHH also suggested increasing access to behavioral therapy as a treatment for ADHD. This can be accomplished by expanding the workforce of behavioral therapy specialists for children and their parents and by aiding the ability of doctors and teachers to refer children and their families to providers of behavioral therapy<sup>26</sup> instead of providers of prescription drugs as a treatment for children with ADHD.

## Conclusion

Since the late 1980s, there has been a significant increase in psychopharmacotherapy in the United States. With this escalation in the prescription of psychoactive drugs came a shift in thinking in which psychotropic drug medication became the normalized treatment for managing mental illness and disorders. Previously, behavior therapy had been the preferred

---

<sup>23</sup> Tahra Johnson, "ADHD: Calming the Chaos of Hyperactivity." As of April 25, 2016 the bill was in the Health and Human Services Reform Committee.

<sup>24</sup> Mental Health Weekly. "Medicaid Prescription drug use by children under federal scrutiny," *A Wiley Periodicals, Inc.* Volume 23 Number 32, August 19, 2013, retrieved February 16, 2016, <http://www.mentalhealthweeklynews.com/article-detail-print/medicaid-prescription-drug-use-by-children-under-federal-scrutiny.aspx>.

<sup>25</sup> Ibid.

<sup>26</sup> Ibid.

mode of treatment. Since 2000, there has been a significant rise in the diagnosis of ADHD in America's youth. The majority of the children in the United States who have been diagnosed with ADHD are prescribed, and are using, psychotropic medications to manage their illnesses. The data collected since 2000 shows that there is more prevalent use of these medications in the children of low-income families than in children of moderate to high incomes, although the research suggests that this is merely a correlating factor, not a causation factor. In conclusion, it is clear that in the last sixteen years there has been a significant inflation in the use of psychotropic drug medication in young children diagnosed with ADHD in the United States.

---

This report was completed on 4/21/16 by Cassidy Lang, Adrian Willing, and Zhenhui Chen under the supervision of Professors Jack Gierzynski, Robert Bartlett and Eileen Burgin in response to a request from Representative Miller.

Contact: Professor Anthony Gierzynski, 517 Old Mill, The University of Vermont, Burlington, VT 05405, phone 802-656-7973, email: [agierzyn@uvm.edu](mailto:agierzyn@uvm.edu).

Disclaimer: This report has been compiled by undergraduate students at the University of Vermont under the supervision of Professor Anthony Jack Gierzynski, Professor Robert Bartlett and Professor Eileen Burgin. The material contained in the report does not reflect the official policy of the University of Vermont.