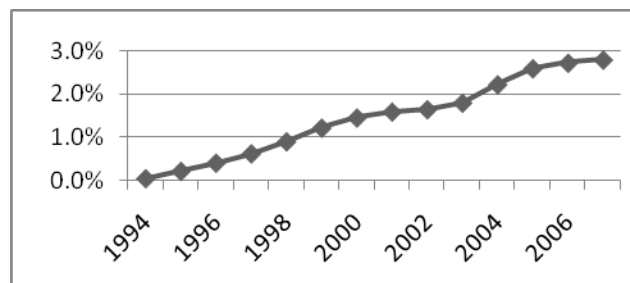


## Use of Atypical Antipsychotics in Children

Atypical antipsychotics are FDA-approved for adults with psychiatric disorders; however, off-label use for various pediatric and adolescent conditions such as behavioral disturbances, autism, tourette's syndrome, and bipolar disorder is becoming more common.<sup>1</sup> According to national trends, antipsychotic prescriptions in the pediatric population increased six-fold from 1995 to 2002; 90% were for atypical antipsychotics.<sup>2</sup>

### Key Points

- ❖ **Use of atypical antipsychotics in the Idaho Medicaid pediatric population increased three-fold from 1994-2007.**



- ❖ **Risperidone is the most extensively studied antipsychotic in children, is FDA-approved in those  $\leq 5$  years of age, and is available generically.**
- ❖ **Long-term metabolic effects, such as weight gain, have been observed in the pediatric population warranting judicious use of these agents; selection of an agent with lower potential for metabolic effects is recommended in overweight children (see tables, next page).**
- ❖ **Use of multiple atypical antipsychotics has not been proven efficacious and is discouraged.**

Atypical antipsychotics are emerging as first-line treatment options for autism, pervasive developmental disorders and bipolar disorder, despite limited long-term data.<sup>3,4</sup> Caution should be exercised prior to initiating these agents in children as many clinical trials demonstrating safety and efficacy are open-label, of short duration, with small sample sizes.<sup>3,4,5</sup> Currently, risperidone is the most extensively studied agent, is FDA approved for children  $\leq 5$  years of age, and is available as a generic. Use of multiple atypical antipsychotics is not recommended due to the risk of considerable adverse effects without demonstrated benefit.

Long-term metabolic effects including weight gain, hyperglycemia, hyperlipidemia, and the potential for the development of diabetes have been shown in adults. Of the few studies conducted in children and adolescents, weight gain occurred substantially with olanzapine, moderately with risperidone, and mildly with aripiprazole and ziprasidone.<sup>6,7</sup> Obesity increases the risk of additional complications and should lead clinicians to exercise caution in those at risk. Adverse effects, predisposing risk factors, and feasible alternatives should all be carefully considered prior to initiating these agents in children. Once selected for use, close monitoring of weight, body mass index, glucose and lipids is advised.

(Available online at <http://idahodur.isu.edu>, information current as of December 2008)

**Table 1. Atypical Antipsychotic Doses and Indications**

| Agent                                | % Medicaid Rx* | Dose             | FDA-approved Indications           | Age** | Cost†     |
|--------------------------------------|----------------|------------------|------------------------------------|-------|-----------|
| <b>Aripiprazole</b><br>(Abilify)     | 26%            | 2-30 mg qd       | Bipolar<br>Schizophrenia           | 6-17  | \$420-599 |
| <b>Olanzapine</b><br>(Zyprexa)       | 6%             | 2.5-20 mg qd     | None                               | 5-17  | \$216-726 |
| <b>Quetiapine</b><br>(Seroquel)      | 27%            | 25-800 mg qd     | None                               | 5-17  | \$140-741 |
| <b>Risperidone</b> ††<br>(Risperdal) | 34%            | 0.25-3 mg qd-bid | Bipolar<br>Schizophrenia<br>Autism | 3-17  | \$146-300 |
| <b>Ziprasidone</b><br>(Geodon)       | 6%             | 20-80 mg qd-bid  | None                               | 5-17  | \$362-435 |

\*Percentage of Medicaid atypical antipsychotic claims in children from 10/07-9/08, excluding paliperidone <1%

\*\*Pediatric age requirement for Medicaid approval

†Approximate cost for one month supply for usual dosage range from [www.drugstore.com](http://www.drugstore.com) (accessed 12/08)

††Generic available

**Table 2. Adverse Effects of Atypical Antipsychotics**

| Agent                               | Weight Gain | Hyperlipidemia | Diabetes | Sedation | QTc Prolongation |
|-------------------------------------|-------------|----------------|----------|----------|------------------|
| <b>Aripiprazole</b><br>(Abilify)    | +           | +              | +        | ++       | ++               |
| <b>Olanzapine</b><br>(Zyprexa)      | +++++       | +++++          | +++++    | ++++     | ++               |
| <b>Quetiapine</b><br>(Seroquel)     | ++++        | ++++           | +++      | ++++     | ++               |
| <b>Risperidone</b> †<br>(Risperdal) | +++         | ++             | +++      | ++       | ++               |
| <b>Ziprasidone</b><br>(Geodon)      | +           | +              | +        | ++       | ++++             |

**References**

1. Gracious BL, Findling RL. Antipsychotic medications for children and Adolescents. *Pediatr Ann* 2001;30:138-45.
2. Olfson M, Blanco C, Linxu L, et al. National trends in the outpatient treatment of children and adolescents with antipsychotic drugs. *Arch Gen Psychiatry* 2006;63:679-85.
3. Stigler K, Erickson C, et al. Atypical antipsychotics in children and adolescents with autistic and other pervasive developmental disorders. *J Clin Psychiatry* 2008;69:S4:15-20.
4. Biederman J, Mick E, Hammerness P, et al. Open-label, 8 week trial of olanzapine and risperidone for the treatment of bipolar disorder in preschool age children. *Biol Psychiatry* 2005;58:589-94.
5. Chang KD, Ketter TA. Mood stabilizer augmentation with olanzapine in acutely manic children. *J Child Adolesc Psychopharmacol* 2000;10:45-9.
6. Fedorowicz V, Fombonne E. Metabolic side effects of atypical antipsychotics in children: a literature review. *J Psychopharmacol* 2005;19:533-50.
7. Stigler K, Potenza M, Posey D. et al. Weight gain associated with atypical antipsychotic use in children and adolescents. Prevalence, clinical relevance, and management. *Pediatr Drugs* 2004;6:33-44.