Outpatient use of Atypical Antipsychotic Agents in the Pediatric Population Years 2004 - 2008

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Outline

- Objective
  - Describe the outpatient use of atypical antipsychotics in the pediatric population for years 2004 – 2008
- Methods and data sources used
  - SDI, Vector One®: National
  - SDI, Physician Drug and Diagnosis Audit
- Results
  - Overall trends in prescriptions and patients
  - Prescribing specialty
  - Diagnoses associated with use
  - Concomitant use
- Limitations
- Summary and Conclusion

Products Included

- Aripiprazole
- Olanzapine
- Paliperidone
- Quetiapine
- Risperidone
- Ziprasidone

National dispensed prescription data SDI, Vector One®: National (VONA)

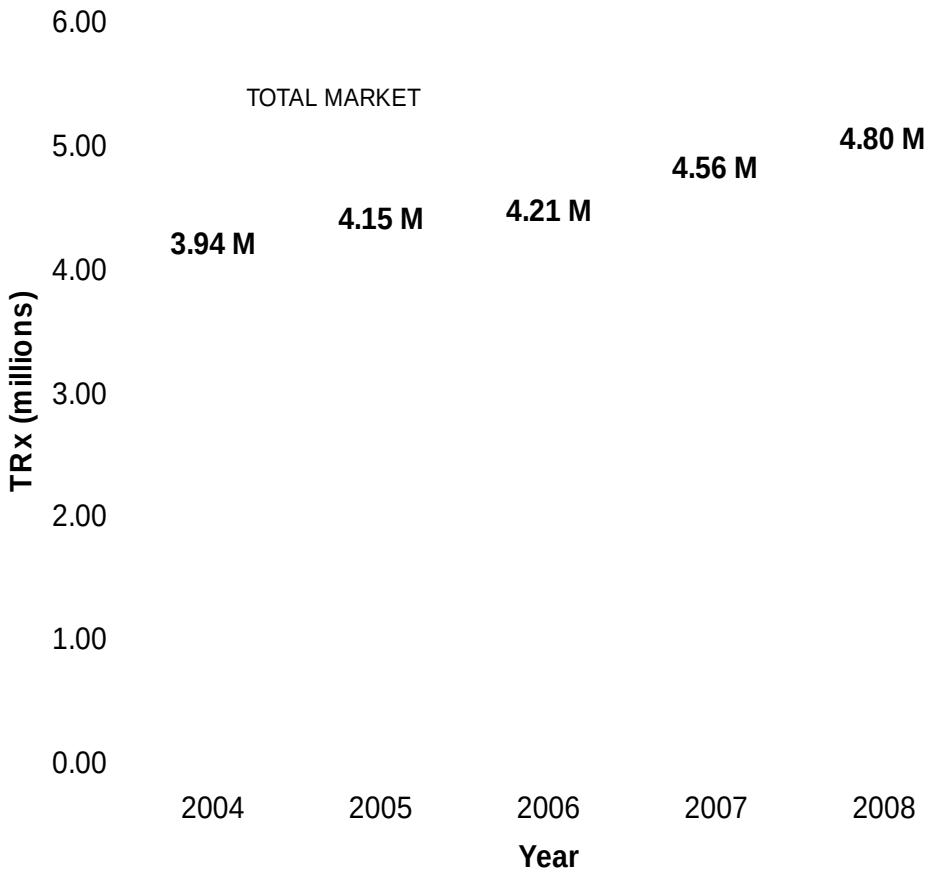
- National-level projected prescription and patient-centric tracking service.
  - Receives over 2.0 billion prescription claims per year, representing over 160 million unique patients

- The number of dispensed prescriptions is obtained from a sample of approximately 59,000 pharmacies throughout the U.S., accounting for nearly all retail pharmacies and representing nearly half of retail prescriptions dispensed nationwide

- Retail pharmacies include: national retail chains, mass merchandisers, pharmacy benefits managers and their data systems, and provider groups

Total Number of Prescriptions Dispensed for Atypical Antipsychotic Agents in the Pediatric Population (Ages 0-17 Years) from U.S. Outpatient Retail Pharmacies, Years 2004-2008

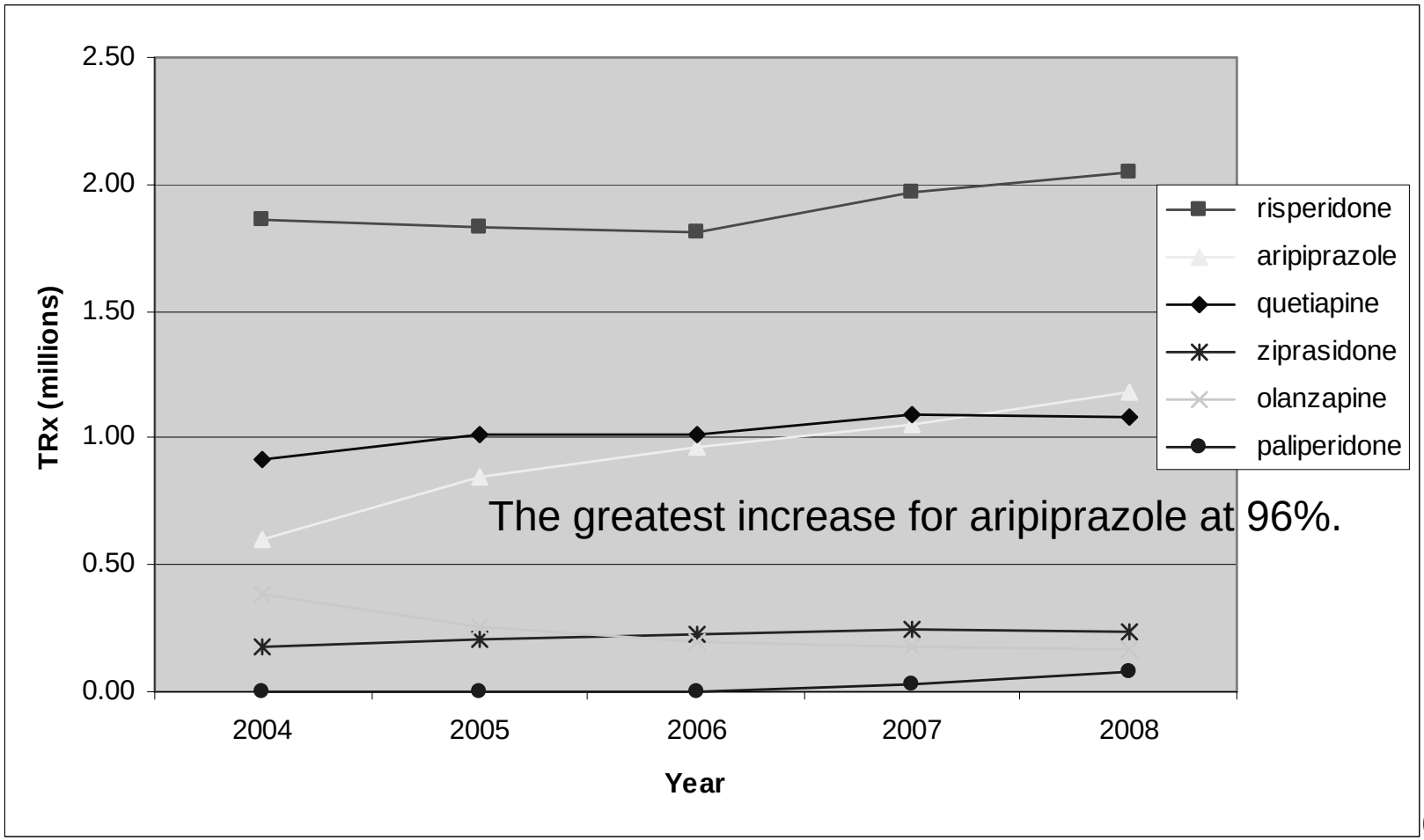
Source: SDI: Vector One: National. Data Extracted 9-1-09.



Antipsychotic use in the pediatric population (0-17 years) has increased 22% in the past 5 years

Total Number of Prescriptions Dispensed for Atypical Antipsychotic Agents in the Pediatric Population (Ages 0-17 Years) from U.S. Outpatient Retail Pharmacies, Years 2004-2008

Source: SDI: Vector One: National. Data Extracted 9-1-09.



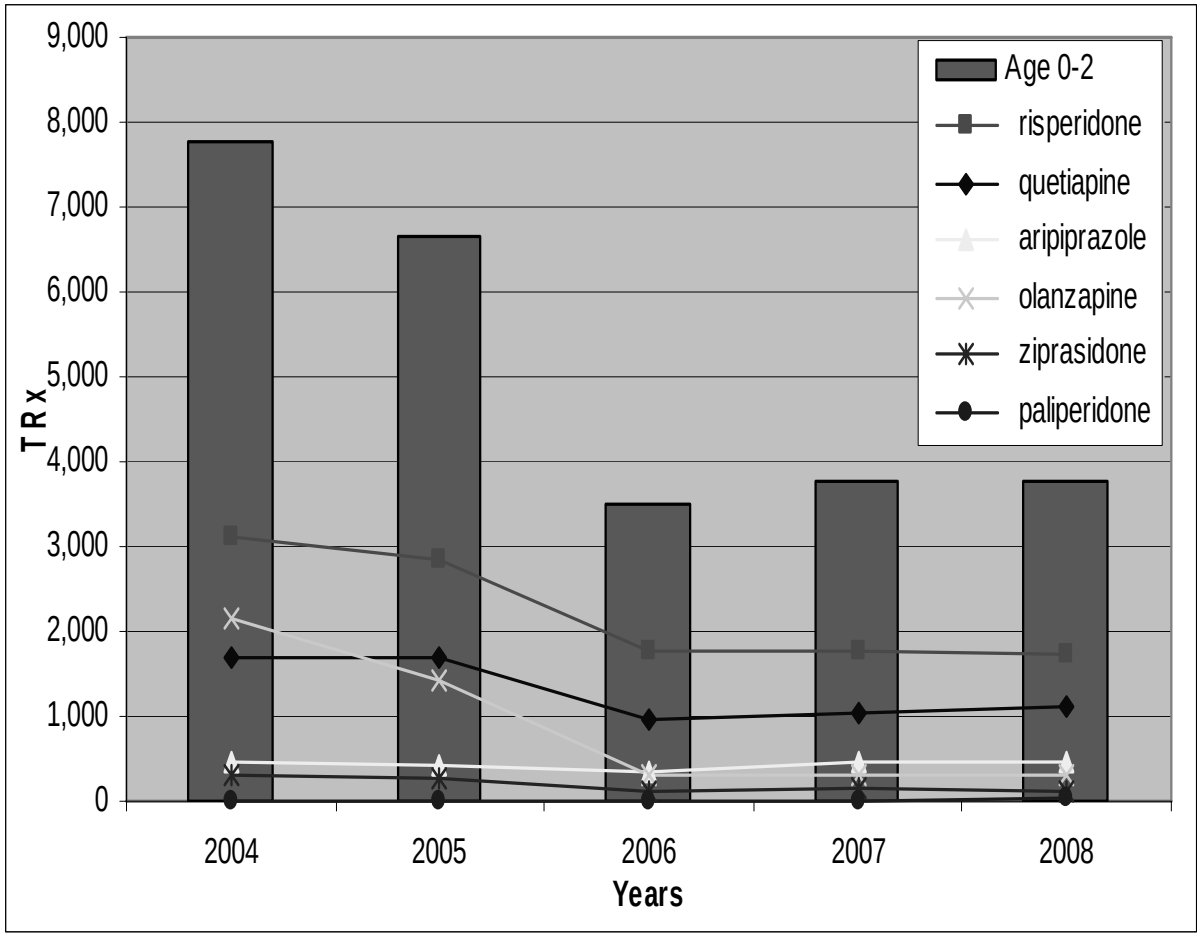
Proportion of adult and pediatric use of atypical antipsychotic agents in the from U.S. outpatient retail pharmacies, Year 2008

Source: SDI: Vector One: National. Data Extracted 9-28-09.

- Risperidone - 2.1 million pediatric TRx (26% of total)
- Aripiprazole - 1.2 million pediatric TRx (23% of total)
- Quetiapine - 1.1 million pediatric TRx (9% of total)
- Ziprasidone - 238,425 pediatric TRx (10% of total)
- Olanzapine - 169,121 pediatric TRx (4% of total)
- Paliperidone - 74,559 pediatric TRx (11% of total)

Atypical antipsychotic prescription use among pediatric patients aged 0-2 years old, Years 2004 – 2008

Source: SDI: Vector One®: National. Data Extracted 8-4-09

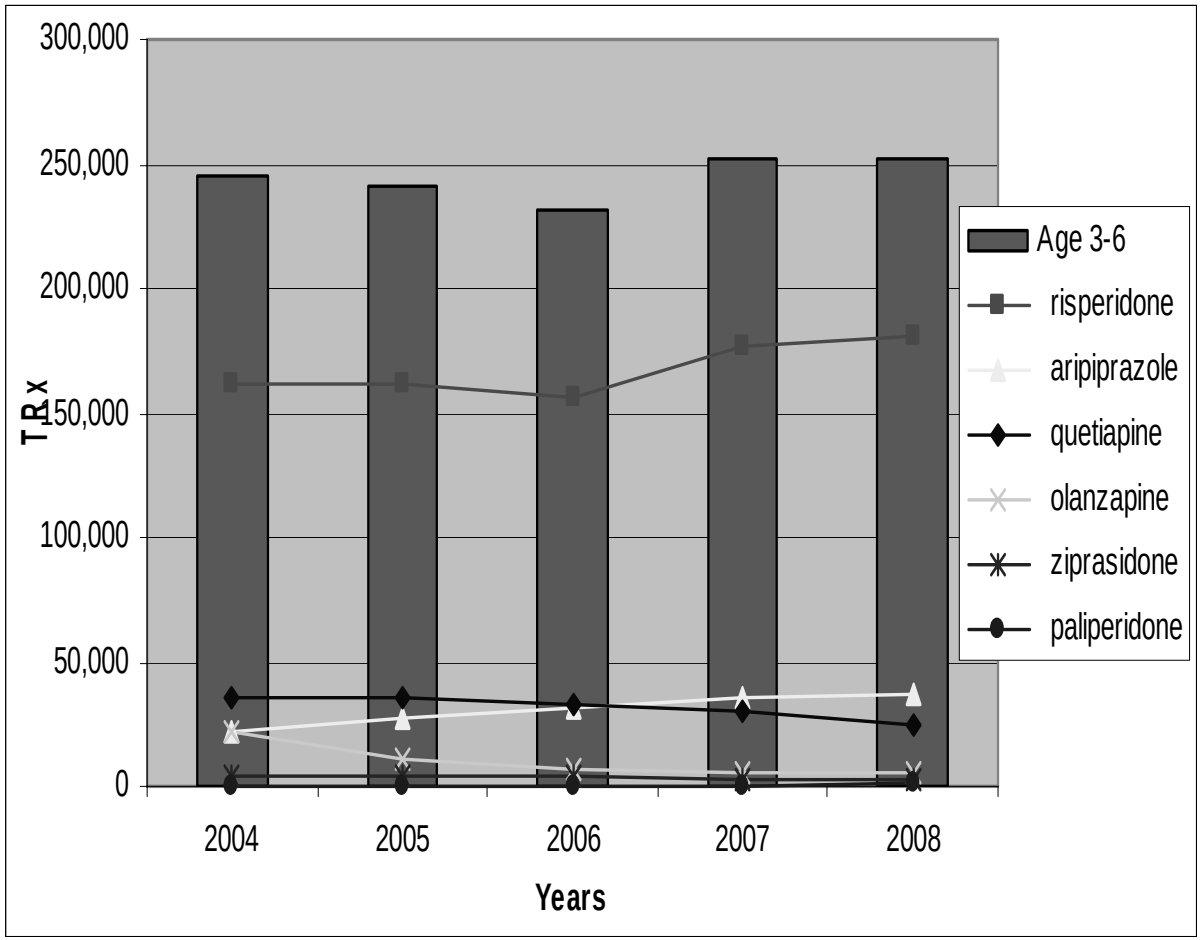


Age 0-2 years: 51% decrease in TRx between Y2004-Y2008

Risperidone *44.6% decrease*
Aripiprazole *1.1% increase*
Olanzapine *86.5% decrease*
Ziprasidone *63.2% decrease*
Paliperidone *327.3% increase (Y2007–Y2008)*

Atypical antipsychotic prescription use among pediatric patients aged 3-6 years old, Years 2004 – 2008

Source: SDI: Vector One®: National. Data Extracted 8-4-09

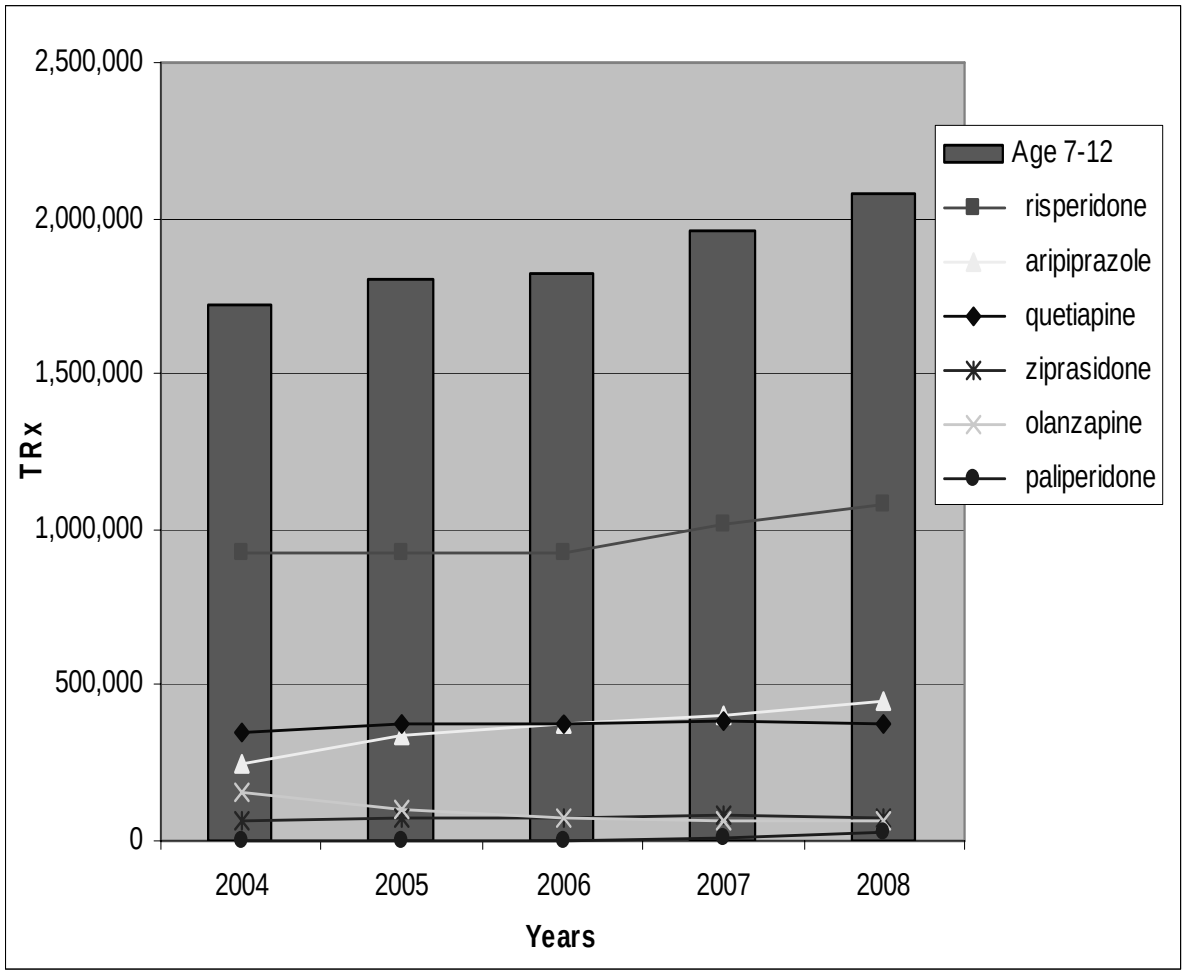


Age 3-6 years: 3% increase in TRx between Y2004-Y2008

Quetiapine *31.9% decrease*
Risperidone *11.3% increase*
Aripiprazole *70.6% increase*
Olanzapine *72.7% decrease*
Ziprasidone *37.2% decrease*
Paliperidone *111.4% increase (Y2007-Y2008)*

Atypical antipsychotic prescription use among pediatric patients aged 7-12 years old, Years 2004 – 2008

Source: SDI: Vector One®: National. Data Extracted 8-4-09



Age 7-12 years: 21% increase in TRx between Y2004-Y2008

Quetiapine *9.2% increase*

Risperidone *17.1% increase*

Aripiprazole *85.6% increase*

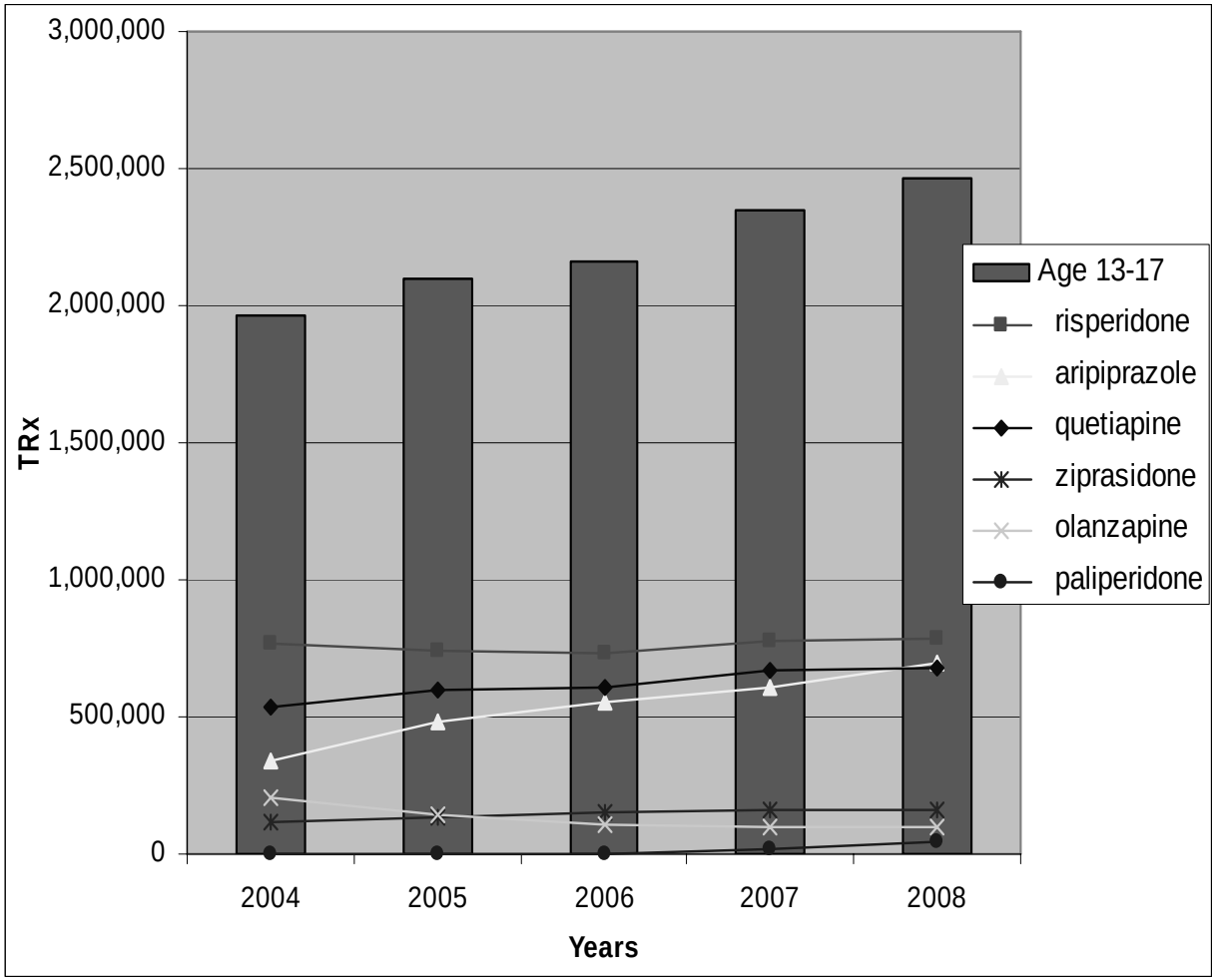
Olanzapine *56.5% decrease*

*Z*iprasidone *24.5% increase*

Paliperidone *149.2% increase (Y2007-Y2008)*

Atypical antipsychotic prescription use among pediatric patients aged 13-17 years old, Years 2004 – 2008

Source: SDI: Vector One®: National. Data Extracted 8-4-09



Age 13-17 years: 25% increase in TRx between Y2004-Y2008

Quetiapine *26.7% increase*

Risperidone *2.5% increase*

*A*ripiprazole *106.0% increase*

Olanzapine *-53.9% decrease*

*Z*iprasidone *42.6% increase*

Paliperidone *116.9% increase (Y2007-Y2008)*

Analysis by sub-age groups

- Majority of antipsychotic use during year 2008 was among those aged 13-17 years
  - 13% of aripiprazole TRx to patients aged 13-17 years
  - 10% of risperidone " " "
    - highest proportion of TRx to pediatric patients aged 7-12 years (14%)
  - 7% of ziprasidone " " "
  - 7% of paliperidone " " "
  - 6% of quetiapine " " "
  - 2% of olanzapine " " "

- In general, use in pediatric patients aged 0-2 years and 3-6 years accounted for less than 1%
  - Except for risperidone in which 2% of prescriptions are dispensed to patients aged 3-6 years

Prescribing specialties

- The majority of prescriptions dispensed to patients were prescribed by Psychiatrists over the entire study period for the pediatric as well as adult age groups for all of the agents studied.
- During year 2008, Nurse Practitioners were the second most common prescriber for aripiprazole, ziprasidone and paliperidone for both adult and pediatric age groups.
- For risperidone, quetiapine, and olanzapine, GP/FM/DO were the second most common prescribers of these medications to both adult and pediatric age groups.

Office-based physician survey data
SDI, Physician Drug and Diagnosis Audit™

- Monthly survey composed of approximately 3,100 office-based physicians that monitors disease states and the physician intended prescribing habits on a national-level
- Designed to provide descriptive information on the patterns and treatment of diseases encountered in office-based physician practices in the U.S.
- Represents 29 specialties across the United States
- Link drug use with diagnosis by ICD-9 code
- Concomitant use with other class of drug products to treat the same condition

Diagnoses associated with the use of atypical antipsychotic agents in the pediatric population, Cumulative 1/2004 – 12/2008

SDI, Physician Drug and Diagnosis Audit™, Extracted 11/09

	Uses in thousands *(V%)*			
3-digit ICD-9 Diagnoses	**Age 0-2**	**Age 3-6**	**Age 7-12**	**Age 13-17**
295 Schizophrenic disorders	15 *(35%)*	14 *(3%)*	39 *(2%)*	234 *(7%)*
V40 Mental and behavioral problems	17 *(40%)*			
314 Hyperkinetic syndrome of childhood	7 *(15%)*	82 *(15%)*	315 *(16%)*	289 *(9%)*
313 Emotional disturbance of child/adol	4 *(10%)*	60 *(11%)*	184 *(9%)*	298 *(9%)*
296 Episodic mood disorders		168 *(31%)*	662 *(34%)*	1,078 *(34%)*
312 Conduct Disturbance NEC		79 *(15%)*	132 *(7%)*	228 *(7%)*
299 Pervasive developmental disorders		49 *(9%)*	230 *(12%)*	208 *(7%)*

Diagnoses associated with the use of atypical antipsychotic agents in the pediatric population, Cumulative 1/2004 – 12/2008

SDI, Physician Drug and Diagnosis Audit™, Extracted 11/09

	Uses in thousands *(V%)*			
4-digit ICD-9 Diagnoses	**Age 0-2**	**Age 3-6**	**Age 7-12**	**Age 13-17**
295.6 Residual Schizophrenia	15 *(35%)*			
V40.9 Mental/behavioral prob NOS	12 *(28%)*			
314.0 Attention deficit disorder	7 *(15%)*	82 *(15%)*	309 *(16%)*	289 *(9%)*
V40.3 Behavioral problems NEC	5 *(12%)*			
313.8 Other/mixed emotional disturb of childh/adol	4 *(10%)*	48 *(9%)*	174 *(9%)*	293 *(9%)*
296.7 Bipolar affective NOS		69 *(13%)*	402 *(20%)*	506 *(16%)*
296.9 Other/unspecified episodic mood disorder		51 *(10%)*	170 *(9%)*	263 *(8%)*
312.9 Unspecified disturbance of conduct		48 *(9%)*	102 *(5%)*	98 *(3%)*
299.0 Infantile autism		32 *(6%)*	129 *(7%)*	113 *(4%)*

Concomitant use with another class of products to treat the same diagnosis

- In those aged 7-12 years old, concomitant use with stimulant medications were most common for aripiprazole and risperidone.
  - For quetiapine, olanzapine and ziprasidone, mood stabilizing agents such as anticonvulsants, other antipsychotics, and antidepressants were commonly used together to treat the same diagnosis.
- In those aged 13-17 years mood stabilizing agents, other antipsychotics and antidepressants were the most commonly used with antipsychotic agents, except risperidone which had highest use with stimulant medications.

Limitations

- Only describing outpatient prescription use
  - Use in outpatient clinics, *long term care facilities*, and hospitals not captured/ analyzed
- “Drug uses" to refer to mentions of a drug in association with a diagnosis during an office-based patient visit. This term may be duplicated by the number of diagnosis for which the drug is mentioned.

Summary…

- Antipsychotic use among pediatric patients has increased by 22% over the 5 years. The greatest increase was seen for aripiprazole during this time period.
- Use among pediatrics aged 0-2 years and 3-6 years accounted for less than 1% of the total for each of the antipsychotic agents studied.
- Risperidone had the most prescriptions dispensed (26%) to pediatric patients and had a greater amount of use in younger children compared to the other antipsychotics. Aripiprazole had the second highest number of dispensed prescriptions (23%) in the pediatric population.

… Summary

- For all of the agents studied, the majority of prescriptions prescribed by Psychiatrists.
- Most common diagnoses in the overall pediatric population
  - "Bipolar Affective NOS", "Attention Deficit Disorder", "Other Emotional Disability Child", "Affective Psychoses NEC/NOS", "Infantile Autism"
- In children aged 7-12 years old, concomitant use with stimulant medications were most common with aripiprazole and risperidone. Mood stabilizing agents, other antipsychotics and antidepressants were the most common concomitant products for quetiapine, olanzapine and ziprasidone in this age group as well as for older age groups.