Weighty matter

Anti-Psychotic Medications for Children and Youth

Should be chosen carefully and used only as long as needed.
Anti-psychotic Medications

Anti-psychotic medications (APMs) are effective for treating severe mental illness. Their use has expanded to include managing aggression in children and youth. Because their side effects can be serious and long-lasting – especially weight gain – anti-psychotic medications should be chosen carefully and used only as long as needed.

Second generation antipsychotics, such as aripiprazole (Abilify®) or risperidone (Risperdal ®), have almost completely replaced the older, first generation antipsychotic medications.¹

However, research in children does not prove or disprove their superiority.

There is wide variation in prescribing patterns for APMs. In the U.S., children are 1.5 times more likely to be prescribed an antipsychotic drug than children in the Netherlands.²

Use varies between Maine counties, and between MaineCare and privately insured children. While some of this variation may be due to patients’ risk factors, there may be some overuse that can be reduced.

Anti-psychotic Medications

OVERVIEW

For treating indicated mental illnesses, anti-psychotic medications (APMs) are by clinical standards effective. They are indicated for a range of conditions in children, youth, and adults – from schizophrenia to manic episodes. Anti-psychotic drugs can be prescribed for reducing aggression in children with or without autism. In these cases, anti-psychotic drugs are different from many other prescriptions that are indicated for a specific diagnosis.

Side effects can be serious, and can continue even after treatment ends.

SIGNIFICANT SIDE EFFECTS INCLUDE

- Weight gain³,⁴,⁵
- Type II diabetes/ insulin resistance
- Dyslipidemia⁶
- Prolactinemia⁷
- Agranulocytosis⁸
- Hypotension
- Extra-pyramidal symptoms
- Neuroleptic Malignant Syndrome⁹
- Sedation

For managing aggression and agitation in children and youth, atypical anti-psychotic drugs should be used along with proven psychosocial treatments.

Particularly for children with aggression and agitation, discontinuing atypical anti-psychotic drugs should be considered after six months if the patient is doing well.

A Case Study

YOUTH WITH AGGRESSION

Brett, a 14-year-old male, is brought in by his mother for further treatment for difficulty following family rules. He has frequent impulsive temper outbursts, has made verbal threats, and had one physical altercation when a limit was set and enforced. Brett is receiving individual psychotherapy. His parents have met with the therapist once, and the mother does not know what type of therapy he is getting. Brett took a stimulant medication for a couple of years in elementary school; this was discontinued for unclear reasons. Brett does not have a diagnosis of Autism Spectrum Disorder.

His mother has a friend whose son was having similar problems with verbal and physical aggression; the mother volunteers, “His doctor gave him Risperidone and it worked wonders!”

Brett’s parents are very concerned about his recent increase in aggression and
wonder if the same drug would be helpful for him. You question whether anti-psychotic medications are really the best option. Aren’t there other ways to help Brett and his parents?

What are Brett’s treatment options? What are the benefits and risks of anti-psychotic drug treatment, and alternative for patients like Brett?

Children and Youth

ANTI-PSYCHOTIC DRUGS FOR CHILDREN AND YOUTH

Brett’s is a typical case where achieving behavior goals is urgent and parents are struggling to cope. It may be challenging to persuade the parents to give a thorough trial to psychosocial and other drug treatments, but anti-psychotic medications for Brett’s aggression should not be the first line treatment.

TREATMENT OF Pediatric MALADAPTIVE AGGRESSION
MAXIMIZE FIRST LINE TREATMENT – PROVEN PSYCHOTHERAPY INTERVENTIONS

Brett is receiving psychotherapy which is first line treatment and can be very helpful in moderating aggression. For disruptive behavior like Brett’s, certain types of psychotherapy have strong evidence of effectiveness. For teens like Brett, Multi Systemic Therapy (MST) has the strongest evidence support and is widely available in Maine. Functional Family Therapy (FFT) is another strongly supported intervention. The American Academy of Pediatrics publishes a table listing psychosocial interventions for children, and the strength of evidence supporting their efficacy. (See AAP table in Appendix: Reprinted with permission, American Academy of Pediatrics.)

In Brett’s case, we do not know if his therapy is one of the types recommended. The benefit of psychosocial treatment should be maximized, along with pharmacological treatments.

CONSIDER OTHER MEDICATIONS

Brett’s aggression may be a symptom of another condition such as ADHD or anxiety; this primary condition should be treated first. Treatment for the primary condition may be medication, and/or it may be psychotherapy. (See Flow Chart for Treatment of Pediatric Maladaptive Aggression.) Addressing his primary condition should precede treating the aggression symptom.

<table>
<thead>
<tr>
<th>Diagnosis / Symptom</th>
<th>First line</th>
<th>Second line</th>
<th>Third line</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADHD&lt;sup&gt;10&lt;/sup&gt;</td>
<td>Stimulants (methylphenidate or amphetamine, e.g., Concerta, Focalin XR, Adderall XR, Vyvanse)</td>
<td>Atomoxetine, guanfacine, clonidine</td>
<td>Bupropion</td>
</tr>
<tr>
<td>Aggression, impulsive and maladaptive without Autism Spectrum Disorder&lt;sup&gt;11 (ASD)&lt;/sup&gt;</td>
<td>Psychotherapies: Parent Management, Incredible Years, Parent Child Interaction Therapy (PCIT), MATCH, MST, FFT, MDTFC</td>
<td>Least toxic medication for primary dx, with best risk/benefit profile.</td>
<td>Anti-psychotic medications</td>
</tr>
<tr>
<td>Anxiety, Generalized, Separation, Social, OCD, Panic Disorder</td>
<td>Cognitive Behavior Therapy (CBT), Modular Approach to Treatment with Children (MATCH)</td>
<td>SSRIs, SNRIs medications&lt;sup&gt;12&lt;/sup&gt;</td>
<td>Benodiazepines, tricyclic antidepressants</td>
</tr>
<tr>
<td>Autism Spectrum Disorder (ASD) /Aggression / Irritation</td>
<td>Functional Behavior Assessment (FBA) &amp; Applied Behavior Analysis</td>
<td>Anti-psychotic medications&lt;sup&gt;13&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Bipolar Disorder I: acute mania</td>
<td>Bipolar Disorder I: Mixed</td>
<td>Anti-psychotic medications&lt;sup&gt;14, 15&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>CBT or Interpersonal Psychotherapy, MATCH</td>
<td>Anti-depressants</td>
<td>Anti-depressants with augmentation strategies (use of additional antidepressants; lithium, atypical antipsychotic&lt;sup&gt;18&lt;/sup&gt;)</td>
</tr>
<tr>
<td>Oppositional Defiant Disorder or Conduct Disorder, Impulsive and maladaptive aggression without Autism</td>
<td>Parent training (if child is pre-teen); Multi-Systemic Therapy (MST); Functional Family Therapy (FFT), Multidimensional Treatment Foster Care (MTFC) if child is teen</td>
<td>Screen for depression, anxiety, ADHD; treat these if diagnosed</td>
<td></td>
</tr>
<tr>
<td>Post-Traumatic Stress Disorder (PTSD)</td>
<td>Trauma Focused CBT (TF-CBT)</td>
<td>SSRI anti-depressants&lt;sup&gt;19&lt;/sup&gt;</td>
<td>Anti-psychotic medications – off-label use&lt;sup&gt;20&lt;/sup&gt;</td>
</tr>
<tr>
<td>Schizophrenia&lt;sup&gt;21, 22&lt;/sup&gt;</td>
<td>First Generation Anti-psychotic (haloperidol and pemozide)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tourette’s Disorder&lt;sup&gt;23&lt;/sup&gt;</td>
<td>Anti-psychotic medications</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TABLE I - EVIDENCE-BASED TREATMENT OPTIONS
WHEN ANTI-PSYCHOTIC DRUGS ARE THE BEST OPTION

For Brett and many other patients, anti-psychotic drugs may be their best treatment option. Whether it is first, second, or third line treatment, we need to evaluate the potential side effects, how to manage these, and the benefit of treatment. Various anti-psychotic drugs have different risk/benefit combinations.

ANTI-PSYCHOTIC MEDICATIONS – PHARMACOLOGY

There are two types of anti-psychotic medications (APMs):

- First Generation Anti-psychotics (FGAs), also known as Typical Antipsychotics
- Second Generation Anti-psychotics (SGAs), also known as Atypical Anti-psychotics

The vast majority of anti-psychotic drugs prescribed today are the Second Generation or atypical class. Both types potently interact with dopamine neurotransmission, but have different neuro-physiological effects and different side effects.

FGAs clinical efficacy closely parallels the binding affinity at the dopamine receptors. Common motor side effects include Parkinsonian symptoms such as dystonia, motor restlessness (akathisia), as well as tardive dyskinesia, a potentially irreversible movement disorder. In addition, elevation of prolactin commonly occurs. Emergence of adverse effects is thought to be mediated by the blockade of dopamine receptors.

While SGAs also bind to dopamine receptors, their serotonin receptor blockade is thought to mitigate against adverse neurologic effects. Thus, SGAs have a lower risk of neurologic toxicity. However, SGAs are clearly associated with potentially severe weight gain, diabetes, and lipid abnormalities in both children and adults. Children may be more susceptible to the weight gain side effect than adults.

The FDA approved indications for APMs has substantially increased since 1994 when APMs were introduced. Initially, APMs were for severe mental illness; such as schizophrenia and Bipolar Disorders. Today, they are also used for a broad range of mood disorders, augment anti-depressants, and to target symptoms of aggression.

### TABLE II - FDA APPROVED PEDIATRIC INDICATIONS

<table>
<thead>
<tr>
<th>Indication</th>
<th>Schizophrenia</th>
<th>Bipolar I: Acute Mania</th>
<th>Bipolar I: Mixed</th>
<th>Irritability associated with autism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aripiprazole</td>
<td>13-17 yrs.</td>
<td>10-17 yrs&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td>10-17 yrs&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td>6-17 yrs.</td>
</tr>
<tr>
<td>(Abilify®)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Olanzapine</td>
<td>13-17 yrs.</td>
<td>13-17 yrs&lt;sup&gt;1&lt;/sup&gt;</td>
<td>13-17 yrs&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>(Zyprexa®)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quetiapine</td>
<td>13-17 yrs.</td>
<td>10-17 yrs&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Seroquel®)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risperidone</td>
<td>13-17 yrs.</td>
<td>10-17 yrs&lt;sup&gt;1&lt;/sup&gt;</td>
<td>10-17 yrs&lt;sup&gt;1&lt;/sup&gt;</td>
<td>5-16 yrs.</td>
</tr>
<tr>
<td>(Risperdal®)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>1</sup> Monotherapy  <sup>2</sup> Adjunct therapy to lithium or divalproex
Variation in Prescribing

ANTI-PSYCHOTICS

Studies in the United States and abroad show considerable variation from country to country and state to state in prescribing antipsychotics. A 2008 study showed that prescribing of anti-psychotics in the US is about 1.5 times that of the Netherlands, and twice that of Germany. A 2004-2007 study of Medicaid children showed significant variation among sixteen states. Maine was in the top quartile, with 3.1% of Medicaid members under age 19 receiving a prescription for an antipsychotic, twice the rate of the 16-state median.

Variation also exists among Maine counties. MaineCare members under age 18 living in six counties have at least twice the rate of receipt of antipsychotics (3-4.2%) than members living in seven other counties. Finally, children covered by Medicaid, especially foster children, have a much higher prescribing rate than their privately insured peers.

Incidence and severity of a psychiatric problem in a population or availability of alternative medical and psychosocial treatments may explain some of the variation in prescribing. While there is no data on the “right” level of antipsychotic prescribing, the wide variation raises the question of what is the appropriate usage of these medications, especially for children.

Graph I

VARIATION IN ANTI-PSYCHOTIC MEDICATION PRESCRIBING BY COUNTY - MAINECARE MEMBERS AGE 0 - 18 CY 2010
TABLE III: PERCENTAGE OF PEOPLE PRESCRIBED ANTI-PSYCHOTIC MEDICATIONS CALENDAR YEAR 2010

<table>
<thead>
<tr>
<th>Age</th>
<th>MaineCare Members</th>
<th>Privately insured Members</th>
<th>Total all insured Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 0-6</td>
<td>0.5%</td>
<td>0.1%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Age 7-17</td>
<td>4.5%</td>
<td>1.0%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Age 18+</td>
<td>6.0%</td>
<td>2.5%</td>
<td>3.3%</td>
</tr>
</tbody>
</table>

Source: Maine Health Data Organization

**Adverse Effects**

SGAs are less likely than First Generation Antipsychotics (FGAs) to cause extrapyramidal symptoms or other neurologic toxicities, but such risks remain. Side effects include:

- Weight gain
  - Associated with obesity, cardiovascular complications, hypertension, hypercholesterolemia and insulin resistant diabetes

- Prolactinemia
  - Sexual dysfunction, galactorrhea, amenorrhea; possibly decreased bone density, breast and endometrial cancer

- Agranulocytosis
  - (< 500 WBD) (clozapine)

- Dyslipidemia

- Hypotension

- Type II diabetes/ insulin resistance

- Extra-pyramidal symptoms (EPS)
  - Dystonia, Parkinsonism and tardive dyskinesia

- Neureleptic Malignant syndrome

- Cardiac
  - QTc prolongation (ziprasidone)

- High discontinuation rate (for Early Onset Schizophrenia Spectrum Disorder.)

- Sedation (most common reason for discontinuation in children)

*While SGAs also bind to dopamine receptors, their serotonin receptor blockade is thought to mediate the neurologic effects.*
Long term safety of anti-psychotic drugs in children is unknown. Because the long-term safety is unknown, it is very important to assess the risk and benefit of these drugs closely. It is important to use anti-psychotic medications carefully for children with aggression and to taper off and discontinue use after six months of treatment, if the patient is doing well.

Children’s metabolic rate is higher than adults and they may need higher doses of anti-psychotic drugs per kilogram of weight than adults. On the other hand they have a higher density of dopamine receptors and may be more sensitive to medication and do well on low doses. Children appear to be more sensitive to the metabolic side effects than adults. They also seem to be more sensitive to the side effects of sedation, EPS, withdrawal dyskinesia, and abnormalities in prolactin and lipids. Weight gain, along with related insulin resistance and metabolic syndrome, is a common and serious side effect. Research has shown significant weight gain for children age 5 to 19, even with Aripiprazole, the SGA whose weight gain side effect is mildest. Many psychiatrically ill youth are already overweight or obese; anti-psychotic drug use exacerbates their existing weight-related health issues. See table below.

When considering an APM for a pediatric patient, many factors are relevant: the parent’s willingness and capability to participate in managing the side effects, especially weight gain; the patient’s ability to attend regular visits for monitoring side effects. (See Table V, Monitoring Protocol.)

The side effects can have a long-lasting impact on the child’s health, though treatment with the drug may be short-lived. The weight gain may be difficult to reverse, when treatment discontinues, leading to other weight-related conditions.

Graph II: APM-associated Weight Gain after 12 weeks in youth age 5 – 19 years
Given the serious side effects of anti-psychotic medications, a monitoring plan is essential. Below is a monitoring schedule for pediatric and adult patients.

**TABLE IV: COMPARING SIDE EFFECTS OF APMS**

<table>
<thead>
<tr>
<th>Side effect</th>
<th>++</th>
<th>+</th>
<th>+/−</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight Gain</td>
<td>clozapine/olanzapine</td>
<td>risperidone/quetiapine</td>
<td>ziprasidone/aripiprazole</td>
</tr>
<tr>
<td>Sedation</td>
<td>clozapine&gt;quetiapine</td>
<td>olanzapine&gt;resperidone</td>
<td>ziprasidone/aripiprazole</td>
</tr>
<tr>
<td>Hyperprolactinemia</td>
<td>risperidone</td>
<td>ziprasidone/olanzapine</td>
<td>clozapine</td>
</tr>
<tr>
<td>Extrapyramidal Effects</td>
<td>resperidone&gt;aripiprazole</td>
<td>ziprasidone&gt;olanzapine</td>
<td>clozapine&gt;quetiapine</td>
</tr>
<tr>
<td>QTc Prolongation</td>
<td>Ziprasidone</td>
<td>Clozapine/olanzapine/resperidone</td>
<td>aripiprazole</td>
</tr>
<tr>
<td>Dyslipidemia</td>
<td>clozapine/olanzapine</td>
<td>quetiapine/resperidone</td>
<td>aripiprazole/ziprasidone</td>
</tr>
<tr>
<td>Glycemic changes</td>
<td>Olanzapine/olanzapine</td>
<td>quetiapine/resperidone</td>
<td>aripiprazole/ziprasidone</td>
</tr>
<tr>
<td>*Agranulocytosis</td>
<td>clozapine (1-2%)</td>
<td>Aripiprazole</td>
<td>Olanzapine/quetiapine/resperidone/ziprasidone</td>
</tr>
</tbody>
</table>

Side effects can have a long-lasting impact on the child’s health…

**TABLE V:ADA/ APA/AACE/ NAASO CONSENSUS ON ANTIPSYCHOTIC DRUGS AND OBESITY AND DIABETES: MONITORING PROTOCOL**

<table>
<thead>
<tr>
<th></th>
<th>Start</th>
<th>4 weeks</th>
<th>8 weeks</th>
<th>12 weeks</th>
<th>Quarterly</th>
<th>12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal/family Hx</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Weight (BMI)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Waist circumference</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Fasting glucose</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Fasting lipid profile</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Note: more frequent assessments may be warranted, based on clinical status.
Additional Monitoring Suggestions at Baseline and Follow-Up

- Family history of early cardiac problems and of seizures
- AIMS (Abnormal Involuntary Movement Scale)
- CBC and WBC for patients on clozapine
- Electrolytes and ECG for patients on ziprasidone
- Prolactin levels
- Pregnancy test, if appropriate
- Review drug-to-drug interactions
- Dietary and exercise counseling

The Story’s Ending
Brett may benefit greatly from anti-psychotic drugs. Selecting, monitoring, and managing treatment is a balancing act. Risks, benefits, and quality of life factors all interplay differently for each patient. Below is a brief summary of the important things to consider.

For Children and Youth...
- For treating aggression: is the aggression a symptom of another condition, which needs to be treated?
- Have psycho-social interventions been maximized? (especially proven psychotherapy techniques and Parent Training Therapy)
- Have other less toxic medications been tried and failed?
- Does the diagnosis or behavior goal warrant using an anti-psychotic drug?
- Have you discussed with the patient and parent potential side effects, and how these will be monitored and managed?
- What other treatments or supports can be planned for the long-term management of the condition, after anti-psychotic medications are able to be tapered after six months?

Used wisely, anti-psychotic drugs can help patients live healthy, productive lives.
<table>
<thead>
<tr>
<th>Problem Area</th>
<th>Level 1 - BEST SUPPORT</th>
<th>Level 2 - GOOD SUPPORT</th>
<th>Level 3 - MODERATE SUPPORT</th>
<th>Level 4 - MINIMAL SUPPORT</th>
<th>Level 5 - NO SUPPORT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxious or Avoidant Behaviors</td>
<td>Cognitive Behavior Therapy (CBT), CBT and Medication, CBT with Parents, Education, Exposure, Modelling</td>
<td>Assertiveness Training, CBT for Child and Parent, Family Psychoeducation, Hypnosis, Relaxation</td>
<td>Contingency Management, Group Therapy</td>
<td>Biofeedback, Play Therapy, Psychodynamic Therapy, Rational Emotive Therapy</td>
<td>Attachment Therapy, Client Centered Therapy, CBT with Parents Only, Eye Movement Desensitization and Reprocessing (EMDR), Psychoeducation, Relationship Counseling, Teacher Psychoeducation</td>
</tr>
<tr>
<td>Attention and Hyperactivity Behaviors</td>
<td>Behavior Therapy and Medication, Self-Verbalization</td>
<td>Biofeedback, Contingency Management, Education, Parent Management Training (alone, with Problem Solving, or with Teacher Psychoeducation), Physical Exercise (with or without Relaxation), Social Skills and Medication, Working Memory Training</td>
<td>None</td>
<td>Parent Management Training and Social Skills, Relaxation, Self-Verbalization and Contingency Management, Social Skills</td>
<td>Attention, Client Centered Therapy, CBT, CBT and Anger Control, Family Therapy, Parent Coping/Stress Management, Parent Management Training and Self-Verbalization, Problem Solving, Self-Control Training, Self-Vebralization and Medication, Skill Development</td>
</tr>
<tr>
<td>Depressive or Withdrawn Behaviors</td>
<td>CBT, CBT and Medication, CBT with Parents, Family Therapy</td>
<td>Client Centered Therapy, Expressive Writing/ Journalism/Diary, Interpersonal Therapy, Relaxation</td>
<td>None</td>
<td>Problem Solving, Self-Control Training, Self-Modeling</td>
<td>Life Skills, Psychodynamic Therapy, Psychoeducation, Social Skills</td>
</tr>
<tr>
<td>Eating Disorders</td>
<td>None</td>
<td>CBT, Family Therapy, Family Systems Therapy</td>
<td>None</td>
<td>None</td>
<td>Client Centered Therapy, Education, Goal Setting</td>
</tr>
<tr>
<td>Mania</td>
<td>None</td>
<td>CBT</td>
<td>None</td>
<td>None</td>
<td>Family-Focused Therapy, Psychoeducation</td>
</tr>
<tr>
<td>Substance Use</td>
<td>CBT, Community Reinforcement, Family Therapy</td>
<td>Assertive Continuing Care, Contingency Management, Family Systems Therapy, Functional Family Therapy, Goal Setting/ Monitoring, Motivational Interviewing/ Engagement with and without CBT, Multidimensional Family Therapy, Purdue Brief Family Therapy</td>
<td>Drug Court, Drug Court with Multisystemic Therapy and Contingency Management</td>
<td>Goal Setting</td>
<td>CBT and Functional Family Therapy, Client Centered Therapy, Drug Court and Multisystemic Therapy, Education, Family Court, Group Therapy (!!), Motivational Interviewing/ Engagement with CBT and Family Therapy, Multisystemic Therapy, Project CARE (!!), Twelve Step Program</td>
</tr>
<tr>
<td>Suicidality</td>
<td>None</td>
<td>Multisystemic Therapy, Social Support Team</td>
<td>None</td>
<td>None</td>
<td>Accelerated Hospitalization, Counselors Care, Counselors Care and Anger Management</td>
</tr>
<tr>
<td>Traumatic Stress</td>
<td>CBT, CBT with Parents</td>
<td>None</td>
<td>None</td>
<td>Play Therapy, Psychodrama</td>
<td>Client Centered Therapy, CBT and Medication, CBT with Parents Only, EMDR, Interpersonal Therapy, Relaxation</td>
</tr>
</tbody>
</table>

Note: Level 5 refers to treatments whose tests were unsupportive or inconclusive. The symbol (!!) indicates that at least one study found negative effects on the main outcome measure. The risk of using treatments so designated should be weighed against potential benefits. This report updates and replaces the "Blue Menu" originally distributed by the Hawaii Department of Health, Child and Adolescent Mental Health Division, Evidence-Based Services Committee from 2002-2009.

The recommendations in this publication do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

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Evidence-Based Child and Adolescent Psychosocial Interventions

Background

The AAP Report on Evidence Based Child and Adolescent Psychosocial Interventions is created twice each year and posted on the AAP Web page (www.aap.org/mentalhealth/), using data from the PracticeWise Evidence Based Services Database. The table is based on an ongoing review of randomized clinical psychosocial and combined treatment trials for children and adolescents with mental health needs. The contents of the table represent the treatments that best fit a patient’s characteristics, based on the primary problem (rows) and the strength of evidence behind the treatments (columns). Thus, when seeking an intervention with the best empirical support for an adolescent with depression, one might select from among cognitive behavior therapy (CBT) either alone or with medication, CBT with parents included, or family therapy. Each clinical trial must have been published in a peer-reviewed scientific journal, and each study is coded by 2 independent raters, whose discrepancies are reviewed and resolved by a third expert judge. Prior to report development, the data are then subject to extensive quality analyses to identify and eliminate remaining errors, inconsistencies, or formatting problems.

Strength of Evidence Definitions

The strength of evidence classification utilize a 5-level system that was originally adapted from the American Psychological Association Division 12 Task Force on the Promotion and Dissemination of Psychological Procedures (1995). These definitions can be seen in Table 1. Higher strength of evidence is an indicator of the reliability of the findings behind the treatment, not an index of the expected size of the effect. In other words, stronger evidence levels in this report typically reflects that a treatment approach has a larger number of studies behind it than those at a lower level, not that the level 1 treatments would necessarily have a larger effect than the level 2 treatments.

Treatment Definitions

The report uses a broad level of analysis for defining treatments, such that interventions sharing a majority of components with similar clinical strategies and theoretical underpinnings are considered to belong to a single treatment approach. For example, rather than list each cognitive behavior therapy protocol for depression on its own, the report handles these as a single group, which collectively has achieved a particular level of scientific support. This approach focuses more on “generic” as opposed to “brand name” treatment modalities, and it also is designed to reduce the more than 500 distinct treatments that would otherwise be represented on this report to a more practical level of analysis.

Problem Definition

The presenting problems represented in the table rows are coded using a checklist of 25 different problem areas (eg, anxious or avoidant behaviors, eating disorders, substance use). The problem area refers to the condition that a treatment explicitly targeted and for which clinical outcomes were measured. These problem areas are inclusive of diagnostic conditions (eg, all randomized trials targeting separation anxiety disorder are considered collectively within the Anxious or Avoidant Behaviors row), but also include the much larger number of research trials that tested treatments but did not diagnosis as a study entry criterion. For example, many studies use elevated scores on behavior or emotion checklists or problems such as arrests or suicide attempts to define participants. Mental health diagnoses are therefore nested under these broader categories.

History of the Report

This report has its origins with the Child and Adolescent Mental Health Division of Hawai’i’s Department of Health. Under the leadership of then Division Chief Christina Donkervoet, work was commissioned starting in 1999 to review the child mental health treatment outcome literature and to produce reports that could serve the mental health system in selecting appropriate treatments for its youth (Chorpita & Donkervoet, 2005). Following an initial review of over 120 randomized clinical trials (Chorpita et al., 2002), the Division began to issue the results of these reviews in quarterly, matrixed reports, known as the “Blue Menu” (named for the blue paper on which it was originally printed and distributed). This document was designed to be user-friendly and transportable, thereby making it amenable to broad and easy dissemination. As of 2010, the American Academy of Pediatrics now supports the posting of the next generation of this report. This report now represents 500 randomized trials of psychosocial treatments for youth, and PracticeWise continues to identify, review, and code new research trials and plans to continue providing updates to this report for the AAP for the foreseeable future.
Table 1 Strength of Evidence Definitions

**Level 1: Best Support**
I. At least 2 randomized trials demonstrating efficacy in one or more of the following ways:
   a. Superior to pill placebo, psychological placebo, or another treatment.
   b. Equivalent to all other groups representing at least one Level 1 or Level 2 treatment in a study with adequate statistical power (30 participants per group on average) and that showed significant pre-post change in the index group as well as the group(s) being tied. Ties of treatments that have previously qualified only through ties are ineligible.

II. Experiments must be conducted with treatment manuals.

III. Effects must have been demonstrated by at least 2 different investigator teams.

**Level 2: Good Support**
I. Two experiments showing the treatment is (statistically significantly) superior to a waiting-list or no-treatment control group. *Manuals, specification of sample, and independent investigators are not required.*
   OR

II. One between group design experiment with clear specification of group, use of manuals, and demonstrating efficacy by either:
   a. Superior to pill placebo, psychological placebo, or another treatment.
   b. Equivalent to an established treatment (see qualifying tie definition above).

**Level 3: Moderate Support**
One between group design experiment with clear specification of group and treatment approach and demonstrating efficacy by either:
   a. Superior to pill placebo, psychological placebo, or another treatment.
   b. Equivalent to an already established treatment in experiments with adequate statistical power (30 participants per group on average).

**Level 4: Minimal Support**
One experiment showing the treatment is (statistically significantly) superior to a waiting-list or no-treatment control group. *Manuals, specification of sample, and independent investigators are not required.*

**Level 5: No Support**
The treatment has been tested in at least 1 study, but has failed to meet criteria for levels 1 through 4.

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**REFERENCES**
AUTHORS:

Lindsey Tweed, M.D. Child & Adolescent Psychiatrist, Maine Department of Health and Human Services;

Jeffrey S. Barkin MD, DFAPA
Associate Medical Director Goold Health Systems;

Andrew Cook, M.D. Medical Director of Children’s Behavioral Health Services, Maine Department of Health and Human Services;

Elsie Freeman, M.D. Director of Integrated Projects, Maine Department of Health and Human Services;

Linda K. Riddell, MS, Principal, Health Economy, LLC.

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