Psychotropic Medication Guidelines for Youth in Care with the Indiana Department of Child Services

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Developed by the Indiana Psychotropic Medication Advisory Committee (PMAC), Psychotropic Advisory Subcommittee

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About the Indiana Psychotropic Medication Advisory Committee (PMAC)

The Indiana Psychotropic Medication Advisory Committee (PMAC) was launched in January, 2013 to review the psychiatric treatment of DCS-involved youth, with a specific focus on psychotropic medication utilization patterns. This committee includes representatives from IUSM Department of Psychiatry, DCS, OMPP, DMHA, pediatricians, social workers, psychologists, pharmacists, child advocates and other identified stakeholders (see 2014 members below; see current, 2018 members below). The PMAC monitors Federal legislation, reviews best-practice guidelines for psychotropic medication use, monitors Indiana prescription patterns, reviews formularies and makes policy recommendations to DCS. Specific responsibilities of the committee include the following:

- Review the literature on psychotropic medication best practice (e.g., AACAP) and provide guidance to DCS, OMPP, IUSM and prescribing providers;
- Provide assistance to DCS in establishing a consultation program for youth in state care who are prescribed psychotropic medications;
- Publish guidelines for the utilization of psychotropic medications among DCS-involved youth, with revisions made on a semi-annual basis, as needed;
- Review DCS policies for requesting and obtaining consent to treat DCS-involved youth with psychotropic medications and make recommendations for change to DCS Permanency and Practice Support Division; and
- Identify non-pharmacologic, evidence-based mental health treatments for DCS-involved youth.

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Appendix:

I. Psychotropic Medication Utilization Parameters for Children and Youth in Foster Care, 65th Version, June 2019 (for Texas Department of Family and Protective Services)

II. Butler, M., & Curtin, M. (September 2019). “Therapy Cheat Sheet”. Indiana University School of Medicine, Indianapolis, IN.

Introduction:
In an attempt to provide improved utilization of psychotropic medications and therefore overall mental health care to Indiana's children in the placement and care of the Department of Child Services (DCS), DCS convened a work group in 2013 to lead this effort. To guide Indiana's prescribers, this work group, the Indiana Psychotropic Medication Advisory Committee (PMAC) agreed to adopt the September 2013 version of the *Psychotropic Medication Utilization Parameters for Children and Youth in Foster Care* ("Texas parameters;" TP) developed by the Texas Department of Family and Protective Services and The University of Texas at Austin College of Pharmacy (for current version, see Appendix I). To consider the applicability of the Texas parameters, the PMAC tasked its Psychotropic Advisory Subcommittee with a review of the Texas parameters. As a result of this review, the Subcommittee recommended adoption of the Texas parameters with the following modifications/clarifications and additions.

In February, 2015, upon the recommendation of the Indiana Medicaid Mental Health Quality Advisory Committee (MHQAC), the Indiana Medicaid Drug Utilization Review (DUR) Board approved exempting drug therapy regimens, based upon recommendations from the IUSM Department of Psychiatry, from prior authorization (PA). Subsequently, managed care entities (MCEs) administering pharmacy benefits for affected youth agreed to participate in this program and adopted the PA exemption process.

A first revision was completed January 2016. A second revision incorporated updated Texas parameters (Version 5), January 2018. This current revision incorporates updated Texas parameters (Version 6), June 2019.

I. Modifications/Clarifications:

General Principles:

1. In the state of Indiana, a comprehensive evaluation prior to the use of medications should be performed by a licensed professional or a qualified professional under the supervision of a licensed professional.
2. To clarify, a physical examination is not typically completed by a child psychiatrist or necessarily required for the use/start of psychotropic medications (excluding evaluation for extrapyramidal or other movement side effects). If warranted, it is the responsibility of the evaluating mental health professional to refer the child for a physical examination.
3. A standardized trauma assessment (e.g., CANS, Trauma Symptom Checklist) is preferred for clinical assessment of exposure to trauma and maltreatment. For youth with more extensive trauma histories, a comprehensive trauma assessment may be recommended by DCS. The service standard for comprehensive trauma assessments can be found at http://www.in.gov/dcs/3159.htm.
4. In addition to the need to identify DSM-5 diagnoses to direct treatment, diagnoses outlined in the relevant version of the International Classification of Diagnoses (e.g., ICD-10) are also appropriate.

5. Rating scales used to aid in diagnosis and identify response to treatment can be identified in numerous sources. A number of evidence-based questionnaires/rating scales can be found at the following link: https://projectteachny.org/rating-scales/
6. In addition to diagnoses, benefits/risk, lab findings, adverse events, alternatives, and risks of no treatment, informed consent to begin a psychotropic medication should also include expected duration of use and a discussion of possible medication interactions.
7. If a child does not improve in the care of a non-child psychiatrist, TP recommends referral to a child psychiatrist. We would like to clarify that the window for expected improvement for most childhood psychiatric disorders is 3 months.
8. When treating youth with medication for aggression, TP recommends a slow taper with discontinuation every 6 months. To clarify, youth with aggression resulting from any of the following disorders should be given an opportunity for a taper: oppositional defiant disorder, conduct disorder, disruptive mood dysregulation disorder, developmental disabilities and autism spectrum disorder. We would like to further note that such tapers may not be routine in current clinical practice, but they are now highly recommended.

Medication-Specific Recommendations:

1. Although short acting alpha agonists for use in the treatment of ADHD and tics are not FDA approved, they remain the recommended first line agents.
2. See Tables for additions
3. Routine lipid screening is recommended annually, rather than every 6 months, as outlined in the TP. If abnormal values are detected, more frequent monitoring (every 3-6 months) is recommended.
4. Fasting lipids and glucose are recommended to be checked on every pediatric patient prior to starting (or at first contact if medication has already been started) medications known to impact these labs (e.g., antipsychotics).
5. Although discontinuing an atypical antipsychotic (AAP) in adolescents with metabolic abnormalities is recommended, if the AAP is deemed essential for treatment then a trial of metformin may be helpful. Metformin is FDA-approved as an adjunct to diet and exercise to treat type 2 diabetes in patients 10 years of age and older and has evidence for reducing body-mass index in children ages 10-17 without diabetes.
6. Recommend vitamin D monitoring for any patient on an anticonvulsant. Initial levels should be drawn at 6 months and if deficient at first level, supplement and monitor every 3 months until normal. If not deficient would recommend monitoring annually.
7. Obtain a baseline and annual EKG with use of any antipsychotic and/or with using two or more QTc prolonging agents concurrently.
8. Evaluation of blood pressure, heart rate, weight and height is recommended for every medication monitoring visit and initial evaluation.
9. Clomipramine is recommended for obsessive compulsive disorder if the child or adolescent has failed two complete trials of serotonin reuptake inhibitors.
10. Due to concerns about the potential for cardiac conduction abnormalities, citalopram should not be prescribed at doses greater than 40 mg daily.
11. Orap (pimozide) should be used for the treatment of tics only if haloperidol use was a failure or intolerable.
12. Aripiprazole dosage for the treatment of tics is as follows (per package instructions):

Patient Weight	Start dose	Recommended dose	Maximum dose
<50 kg	2 mg	5 mg	10 mg
>/= 50 kg	2 mg	10 mg	20 mg

III. Additions:

General Principles:

1. Bipolar Disorder and Schizophrenia are very rare in children (<13 years old) and these diagnoses should be made strictly following DSM-5 criteria. For children and adolescents with histories of complex trauma, Autism Spectrum Disorder, developmental delays/intellectual disabilities, and/or substance use, symptoms concerning for Bipolar Disorder and Schizophrenia should be evaluated carefully within the context of these factors.
2. Evidence does not support routine clinical use of pharmacogenomic testing and pharmacogenomic guidance should not replace evidence-based medicine.
3. Medication "washouts" (abrupt discontinuation of all psychotropic medications, either by a provider or caregiver) are not recommended.

Medication-Specific Recommendations:

1. Given problematic weight gain among youth on psychotropic agents, diet and exercise counseling with referrals to primary care physicians, dieticians and specialized pediatricians is recommended for any child with weight changes, ideally early in the treatment course.
2. Conversely, youth on stimulants who are unable to gain weight at a rate appropriate for age should be assessed for stimulant dosage reduction or discontinuation. Dietary counseling is recommended.

Psychotherapy:

In addition to ensuring that children and adolescents in the DCS system are receiving appropriate and evidenced based pharmacologic treatment for their mental health disorders, it is equally important to ensure that children who are also receiving psychotherapy interventions are receiving interventions that are also evidenced based and empirically supported. For information about specific psychotherapy approaches the Division 12 of the American Psychological Association maintains an easily accessible resource list of different treatment approaches at https://www.div12.org/psychological-treatments/treatments/. The Society of Clinical Child and Adolescent Psychology also maintains a website that provides descriptions of different evidenced based psychotherapy interventions for children and adolescents. The website also has links to videos demonstrating each of these approaches so that case managers, caregivers, and medical providers can know what to expect when a child or adolescent is participating in a certain type of psychotherapy treatment. This website can be found at: https://effectivechildtherapy.org/therapies/. Case-managers, psychiatrists, and other medical providers can also help ensure that quality, evidenced based therapy services are being provided by asking helpful questions about therapy services during medical visits and check-ins. Examples of the types of questions that might be asked during a medical visit or check-in are included in Appendix II.

Criteria Indicating Need for Further Review of a Child's Clinical Status
The following situations indicate a need for review of a patient's clinical care. These parameters are the comprehensive criteria for the state of Indiana and differ from those set out in the TP on pages 9-10. These parameters do not necessarily indicate that treatment is inappropriate, but they do indicate a need for further review.

For a child being prescribed a psychotropic medication, any of the following suggests the need for additional review of a patient's clinical status:

1. Absence of a complete DSM-5 (or comparable ICD-10) diagnosis in the youth's medical record
2. Four (4) or more psychotropic medications prescribed concomitantly
3. Any psychotropic medication prescribed to a child less than one (1) year of age
4. Prescribing of:
    - Stimulants to a child less than three (3) years of age
    - Antipsychotics to a child less than five (5) years of age
    - Antidepressants to a child less than four (4) years of age
    - Mood stabilizers to a child less than four (4) years of age
    - Alpha Agonists to a child less than four (4) years of age
5. The psychotropic medication dose exceeds usual recommended doses (FDA and/or literature based maximum dosages).
6. The prescribed psychotropic medication is not consistent with the appropriate care for the patient's diagnosed mental disorder or with documented target symptoms usually associated with a therapeutic response to the medication prescribed.
7. Psychotropic polypharmacy (2 or more medications) for a given mental disorder is prescribed before utilizing psychotropic monotherapy.
8. Antipsychotic medication(s) prescribed continuously without appropriate monitoring of glucose and lipids at least every 6 months.
9. Prescribing of:
    - Two (2) or more concomitant stimulants*
    - Two (2) or more alpha-2 agonists, including the combination of short- and long-acting agents (i.e. clonidine ER plus clonidine immediate release)
    - Two (2) or more concomitant antidepressants, with the exception of concomitant antidepressant therapy in which one of the drugs is trazodone < 150 mg/day.
    - Two (2) or more lithium-based agents
    - Three (3) or more concomitant lithium-based mood stabilizers or other mood stabilizers (e.g., anticonvulsants)
    - Two (2) or more antipsychotics
    - Three (3) or more sedative-hypnotics

- Two (2) or more benzodiazepines
- Any long acting injectable antipsychotic
- Excessive (2 weeks of 4 or more days with PRN use) or inappropriate (3 or more at once; high dose) PRN medication use

*The prescription of a long-acting stimulant and an immediate release stimulant of the same chemical entity (e.g., methylphenidate) does not constitute concomitant prescribing.
Note: When switching psychotropics, medication overlaps and cross taper should occur in a timely fashion, generally within 4 weeks.

10. Use of medications (in a particular age range, when specified) when no evidence exists to support their use for psychiatric indications:

Stimulants and alternatives
amphetamine aspartate/amphetamine sulfate/dextroamphetamine (< 3 yrs)
nortriptyline

Antidepressants
isocarboxazid (< 16 yrs)
phenelzine sulfate (< 13 yrs)
tranylcypromine sulfate (< 13 yrs)

Antidepressants, SSRIs
paroxetine HCl/mesylate

Antidepressants, TCAs
amitriptyline HCl (< 13 yrs)
amoxapine (< 16 yrs)
nortriptyline (< 13 yrs)
doxepin (< 18 yrs)

Antipsychotics, Typical
thioridazine HCl (< 2 yrs)

Barbiturates
Butisol

Benzodiazepines
chlordiazepoxide HCl (< 6 yrs)

Mood Stabilizers
divalproex sodium, valproic acid, and valproate sodium (< 10 yrs)
lamotrigine (< 18 yrs)
carbamazepine (< 18 yrs)
oxcarbazepine (< 18 yrs)

III. Tables:

To address new medications or additional information, the following tables have been added, in order to supplement the tables provided in the TPs. [Abbreviations used in tables: Insufficient evidence=IE; Food and Drug Administration=FDA; NA= Not FDA approved for children or adolescents (i.e., safety and effectiveness in pediatric patients has not been established); milligram = mg]

Table 1. Long-Acting Injectable Psychotropic Medications[4]

Drug (generic)	Drug (brand)	Initial Dosage	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children and Adolescents	Schedule
Haloperidol decanoate	Haldol® decanoate	50mg[1]	100mg[1]	NA	Monthly
Fluphenazine decanoate	--	IE	IE	NA	IE
Risperidone long-acting injection	Risperdal® Consta®	--	25mg[2]	NA	Every 2 weeks
Paliperidone palmitate	Invega® Sustenna®/ Trinza®	--	39mg[3]/ 273mg, 410 mg, 546mg, 819mg	NA	Monthly for Sustenna Every 3 months for Trinza
Olanzapine for extended release injectable suspension	Zyprexa® Relprevv™	IE	IE	NA	IE
Aripiprazole for extended release injectable suspension	Abilify Maintena™	300mg(5)	400mg(5)	NA	Every 4 weeks
Aripiprazole lauroxil extended-release injectable suspension	Aristada™	IE	IE	NA	IE
Naltrexone for extended release injectable suspension	Vivitrol® (opiate/alcohol use disorders) (see Table 5)	IE	IE	NA	IE

References:

1. Alessi N, Alkhouri I, Fluent T, et al. Haloperidol decanoate in children. *J Am Acad Child Adolesc Psychiatry.* 2001 Aug; 40: 865-6.
2. Fu-I L, Boarati M, Stravogiannis, et al. Use of risperidone long-acting injection to support treatment adherence and mood stabilization in pediatric bipolar patients: a case series. *J Clin Psychiatry.* 2009 Apr; 70: 604-6.

3. Kowalski J, Wink L, Blakenship K. Paliperidone palmitate in a child with autistic disorder. *J Child Adolesc Psychopharmacol.* 2011 Oct; 21: 491-3

4. Lytle Sarah, McVoy Molly, and Sajatovic Martha. Long-Acting Injectable Antipsychotics in Children and Adolescents *Journal of Child and Adolescent Psychopharmacology*. February 2017, 27(1): 2-9.

5. Fortea A, Ilzarbe D, Espinosa L, et al. Long-acting injectable atypical antipsychotic use in adolescents: an observational study. J Am Acad Child Adolesc Psychiatry. 2018 Apr; 28:252-7.

Warnings and precautions, including black box warnings are the same as the oral preparations except for a delirium/sedation syndrome (including agitation, anxiety, confusion, disorientation) that has been observed following use of Zyprexa Relprevv. Prescribing information for Abilify Maintena includes dosing adjustments for drug interactions mediated by cytochrome P450 2D6 and 3A4.

Table 2. Sedative-Hypnotics Agents

Drug (generic)	Drug (brand)	Initial Dosage	Literature Based Max Dosage	FDA Approved Maximum Dosage for Children and Adolescents	Schedule	Black Box
Zolpidem	Ambien, Ambien CR, Edluar, Intermezzo, Zolpimist	≤ 17 years: 0.25mg/kg at bedtime[1]	0.5mg/kg OR 20mg[1]	NA	Nightly	--
Zaleplon	Sonata	IE	IE	NA	--	--

Warnings and Precautions:

Adverse Psychiatric Events: Abnormal thinking and behavioral changes (e.g., aggressiveness, uncharacteristic extroversion, bizarre behavior, agitation, hallucinations, depersonalization, amnesia) may occur unpredictably. Possible worsening of depression (including suicidal thinking) with sedative or hypnotic use in patients with depression. Immediately evaluate any new behavioral sign or symptom.

Complex Sleep-related Behaviors: Complex behaviors such as sleep-driving (i.e., driving while not fully awake after ingesting a sedative and hypnotic drug, with no memory of the event), preparing and eating food, making phone calls, or having sex while not fully awake after taking a sedative and hypnotic drug, and usually with no memory of the event, reported.

Withdrawal Effects: Rapid dosage reduction or abrupt discontinuance of sedatives or hypnotics has resulted in signs and symptoms of withdrawal.

Abuse Potential: Abuse potential similar to that of benzodiazepines and related hypnotics.

Sensitivity Reactions: Angioedema involving the tongue, glottis, or larynx reported rarely following initial or subsequent doses of sedative and hypnotic drugs, including zolpidem. Some patients experienced additional symptoms (e.g., dyspnea, closing of the throat,

nausea and vomiting [suggestive of anaphylaxis]). Some individuals required medical treatment in an emergency department. Angioedema reported during post-marketing surveillance.

References:
1. Zolpidem monograph. Lexi-Comp™, Pediatric & Neonatal Lexi-Drugs Online™, Hudson, Ohio: Lexi-Comp, Inc.; December 30, 2013.
2. Stigler K, Posey D, McDougle C. Ramelteon for insomnia in two youths with autistic disorder. *J Child Adolesc Psychopharmacol.* 2006 Oct; 16: 631-6.

Table 3. Other Antipsychotics.

Generic name	Trade name	Initial dosage	Maximum dosage	FDA max	Schedule	Black Box	Warnings and Precautions
Thioridizine	Mellaril	0.5 mg/kg/d	3mg/kg/d	800 mg	TID	QT changes Mortality in Elderly Patients with dementia	Tardive Dyskinesia NMS Leukopenia
Trifluoperazine	Stelazine	1 mg	15 mg		Q-BID	same	same
Loxapine	Loxitane	10 mg	250 mg/d			same	same

Notes:

- Trifluoperazine is labeled for “Children, ages 6 to 12, who are hospitalized or under close supervision.”
- Loxapine-Very limited data on use in children; Label has no information on children. An OVID search of “loxapine & children” found only one positive case report 5 mg tid is positive in a child who had dystonia on haloperidol, elevated AST on risperidone & olanzapine, no effect of quietapine by history(J Child Adolesc Psychopharm V16 2006, pp 639-634) and one letter to the editor about an 8 year old boy who overdosed on 15 ml when prescribed 0.6 ml. Dose listed above is from table on p 233 of Wolraich et al. Developmental-Behavioral Pediatrics: Evidence and Practice, 2008.
- Clinical Pharmacology: “Thioridazine has not been evaluated for use in children under the age of 2 years. Thioridazine should not be used to treat conditions in children for which specific pediatric dosages have not been established. There is no known indication for use of thioridazine in infants or neonates.”
- Older antipsychotics are no longer used commonly in children. Extrapyramidal movement disorders, QT changes and the increasing evidence base for newer “atypical antipsychotics” have much diminished their use. None are labeled for use in children. Newer textbooks frequently do not list them in tables of treatment of children with disabilities. FDA labeling is often old without consideration of more recent standards.

Table 4. Tricyclic Antidepressants

Drug (generic)	Drug (brand)	Initial Dose	Lit. based	FDA-Approved Max Dosage	Schedule	Patient Monitor-ing	Black Box Warning	Warnings and Precautions

			max. dosage	for Children and Adoles.				
Amitriptyline (for depression)	Elavil	10 mg TID	IE	150mg daily (for 12 and above; not recommend-ed in <12)	Three times daily	Pulse ECG	Suicidality	●Use in combination with MAOIs ●Suicidal ideation ●Activation of mania/ hypomania ●Lowers seizure threshold ●Discontinuation syndrome ●Caution with cardiac disease
Clomipramine (for OCD) 10 and older	Anafranil	25 mg daily	IE	3 mg/kg/day or 200 mg, whichever is smaller	May give as single qHS dose once tolerated	Pulse ECG	See amitriptyl-ine	See amitriptyline
Protriptyline (for depression)	Vivactil	5 mg TID		60 mg daily (for 12 and above?)	Three to four times daily	Pulse ECG	See amitriptyl-ine	See amitriptyline
Imipramine (in children, efficacy established for nocturnal enuresis only)	Tofranil	30 mg daily for teens	IE	2.5 mg/kg/day in children; doses above 100 mg daily in teens "generally not necessary"	Divided doses	Pulse ECG	See amitriptyl-ine	See amitriptyline ●Methylphenidat e raises blood level ●Imipramine may block clonidine effect
Desipramine	Norpra-mine	25 mg	IE	Usual maximum 100 mg daily; up to 150 mg in more severely ill	Daily dose	Pulse ECG	See amitriptyl-ine	See amitriptyline and imipramine

Table 5. Medications used to treat substance use disorders

Drug (generic	Drug (brand)	Initial Dose	Lit. based max. dosage	FDA-Approved Max Dosage for Children and Adoles.	Schedule	Patient Monitor-ing	Black Box Warning	Warnings and Precautions
Naltrexone	Vivitrol (IM) Or orally dosed naltrexone (PO; revia)	380 mg (IM) or 25 mg (PO)	IE	None (FDA approved in adults for treatment of alcohol and opioid use disorders)	Once monthly (IM) and once-twice daily (PO)	Urine drug screen(mu st be abstinent for 7 days) Liver functions	None	●can precipitate severe opioid withdrawal ●Dose related hepatotoxicity
Buprenorphin e/naloxone	Suboxone; Subutex; Zubsolv; Bunavail	2mg/.5	IE	24mg/6mg (FDA approved for treatment of	Complex induction protocol; See	W/drawal signs Liver functions	None	●Requires waiver from DEA to prescribe

				opiod use disorder in 16 and older)	package insert			●Risk of diversion and misuse ●Lethal in overdose
N-acetyl cysteine	none	600 mg	IE	None	Twice daily	None	None	Can cause hypersensitivity reaction, nausea, wheezing

Evidence supports the use of buprenorphine, methadone and naltrexone for maintenance treatment of opioid use disorders in adolescents. Long-acting injectable naltrexone has also been found to improve outcomes in adolescents with alcohol use disorders. N-Acetyl Cysteine (600 mg by mouth twice daily) has been shown to improve cannabis cravings and withdrawal in adolescents motivated to quit (as adjunctive treatment to psychosocial interventions).

References:

1. Gray, K.M. et al. A double-blind randomized controlled trial of *N*-acetylcysteine in cannabis-dependent adolescents. Am J Psychiatry. 2012 Aug; 169(8):805-12.
2. Gray, K.M. et al. Research review: What have we learned about adolescent substance use? J Child Psychol Psychiatry. 2018 Jun;59(6):618-27.
3. Steele, D.W. et al. Interventions for substance use disorders in adolescents: A systematic review. Comparative effectiveness review no. 225. (Prepared by the Brown Evidence-based Practice Center under Contract No. 290-2015-00002-I) AHRQ publication No. 20-EHC014. Rockville, MD: Agency for Healthcare Research and Quality. May 2020. DOI: https://doi.org/10.23970/AHRQEPCCER225.

Table 6. New Stimulant Preparations

Drug (generic)	Drug (brand)	Initial Dose	Lit. based max. dosage *	FDA-Approved Max Dosage for Children and Adoles.	Schedule	Patient Monitor-ing	Black Box Warning	Warnings/Precautions & Additional Info
Methylphenidate hydrochloride	Adhansia XR	Age 6 and older: 25 mg once daily		Doses above 70 mg per day are associated with disproportionate increases in the incidence of adverse reactions	Administer in the morning	Same as other methylphenidate products	High potential for abuse and dependence	Extended release capsules - swallow whole or open capsule and sprinkle on applesauce or yogurt; do not chew or crush

*As these are simply new preparations of long established medications, the literature based maximum dose is specific for the product itself, and not the compound.

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De Hert, M., et al. Metabolic and endocrine adverse effects of second-generation antipsychotics in children and adolescents: a systematic review of randomized, placebo controlled trials and guidelines for clinical practice. European Psychiatry. 2011; 26:144-158.

Loy, J.H., et al. Atypical antipsychotics for disruptive behavior disorders in children and youths (Review). Cochrane Database of Systematic Reviews. 2012; 9. DOI: https://doi.org/10.1002/14651858.CD008559.pub2.

McClellan, J., et al. Practice Parameter for the Assessment and Treatment of Children and Adolescents with Schizophrenia. J. Am. Acad. Child Adolesc. Psychiatry. 2013;52(9):976-990.

Namerow, LB. Integrating pharmacogenomics into evidence-based medicine: the clinician's dilemma. J. Am. Acad. Child Adolesc. Psychiatry. 2019; 58(10):S79-S79. https://doi.org/10.1016/j.jaac.2019.07.464.

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Pringsheim, T., et al. The pharmacological management of oppositional behavior, conduct problems, and aggression in children and adolescents with Attention-Deficit Hyperactivity Disorder, Oppositional Defiant Disorder, and Conduct Disorder: a systematic review and meta-alnalysis. Part 2: Antipsychotics and traditional mood stabilizers. Can J Psychiatry. 2015;60(2):52-61.

Psychotropic Medication Utilization Parameters for Children and Youth in Texas Public Behavioral Health (6th Version)

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Introduction and General Principles

The Psychotropic Medication Utilization Parameters were initially developed in 2004 to provide evidence-informed guidance on the use of psychotropic medication with children and youth and suggest parameters for utilization review. While the most recent versions have focused primarily on children within the Texas foster care system, this sixth iteration of the Psychotropic Medication Utilization Parameters has been refocused to address the treatment of all children and adolescents served by the public behavioral health system in Texas. It has long been recognized that the Parameters are based upon sound psychiatric principles and scientific evidence that apply to all children and adolescents who are treated with these medications. Additionally, the development of the Parameters has returned to the public behavioral health section that sponsored the first edition in 2004. Currently the professionals responsible for the sixth version constitute a Workgroup of the Psychiatric Executive Formulary Committee (PEFC) of the Health and Specialty Division of the Texas Health and Human Services Commission. The PEFC addresses the formulary and prescribing parameters that are used in the Texas state mental hospitals, state supported living centers, local mental health authorities, local intellectual disability health authorities, and their contractors.

The use of psychotropic medications in children and adolescents is an issue confronting parents, other caregivers, and health care professionals across the United States. This population has multiple and complex care needs relating to rapid developmental changes, incomplete brain maturation, diagnostic uncertainty, incomplete long-term evidence base for most medication classes, impact of ecological systems such as family and school, and issues of self-determination. Additionally, children and youth, especially those in foster care for whom the Parameters were originally developed, may have treatment complexity related to emotional or psychological stress. They may have experienced abusive, neglectful, serial or chaotic caretaking environments. Birth family history may not be available. These traumatized children often present with a fluidity of different symptoms over time reflective of past traumatic events that may mimic or underlie many psychiatric disorders and result in difficulties with attachment, mood regulation, behavioral control, and other areas of functioning. In view of these considerations, the American Academy of Child and Adolescent Psychiatry (AACAP) emphasizes the importance of holistic and collaborative mental health treatment, recommending prescribers of psychotropic medication in child-serving systems utilize a biopsychosocial perspective guided by trauma-informed and system of care principles. A trauma-informed approach involves understanding the prevalence and impact of trauma, recognizing trauma signs and symptoms, responding with trauma-sensitive procedures and practices, and endeavoring to minimize re-traumatization. The system of care framework includes providing effective services that are family-driven and youth-guided, home and community-based, strengths-based and individualized and culturally and linguistically appropriate.

Additionally, it is important that a comprehensive evaluation be performed before beginning treatment for a mental or behavioral disorder. Except in the case of an emergency, a child should receive a thorough health history, psychosocial assessment, mental status exam, and physical exam before prescribing a psychotropic medication. The physical assessment should be performed by a physician or another healthcare professional qualified to perform such an assessment. It is recognized that in some emergency situations, it may be in the best interest of the child to prescribe psychotropic medications before a physical exam can be performed. In these situations, a thorough health history should be performed to assess for significant medical disorders and past response to medications, and a physical evaluation should be performed as soon as possible. A thorough psychosocial assessment should be performed by an appropriately qualified mental health clinician (licensed masters or doctoral level), a psychiatrist/ child

psychiatrist, or a primary care physician with experience in providing mental health care to children and youth. The child's symptoms and functioning should be assessed across multiple domains and multiple informants when possible, and the assessment should be developmentally age appropriate. It is very important that information about the child's history, including history of trauma and current functioning be made available to the treating physician in a timely manner, either through an adult who is well-informed about the child or through a comprehensive medical record. It is critical to meet the individual needs of patients and their families in a culturally competent manner. This requirement indicates a need to address communication issues as well as differences in perspectives on issues such as behavior and mental functioning. Interpretation of clinical symptoms and decisions concerning treatment should, whenever possible, be informed by the child's current level of biopsychosocial developmental as well as history of trauma, neglect or abuse and the timing of these stressors. In general, optimal outcomes are achieved with well-coordinated team-based care with members of different professions (e.g., child psychiatrist, child psychologist, social worker, primary care physician, etc.) each contributing their particular expertise to the treatment plan and follow- up. **Note well: At present there are no biomarkers to assist with the diagnosis of mental disorders, and imaging (e.g., MRI) and other tests (e.g., EEG) are not generally helpful in making a clinical diagnosis of a mental disorder. Consequently, the diagnosis is based on a comprehensive clinical assessment.**

Prescribers should be mindful of the important role of nonpharmacological, psychosocial treatments in remediating behavioral and emotional disturbances among youth. In many instances, especially with milder presentations, it is prudent to undertake psychotherapy or environmental changes before beginning pharmacotherapy. In other situations, pharmacotherapy may help attenuate symptoms and distress so that psychosocial treatment may be successfully implemented. For instance, youth with more severe anxieties may benefit from anxiolytic medications to enable their participation in evidence-based treatments that involve exposure and skills development. Similarly, children with highly disruptive or aggressive conduct with comorbid ADHD may first need pharmacotherapy that reduces ADHD-related impulsivity before behavioral therapies can gain traction. Therefore, whenever possible and appropriate, psychotherapy should generally begin before or concurrent with prescription of a psychotropic medication. Equally important, the role of the health care provider and the health care environment's potential to exacerbate a child's symptoms, given their respective trauma history, should be considered and minimized through trauma-informed approaches to care. Patient and caregiver education should be provided about the condition to be treated, treatment options (non-pharmacological and pharmacological), treatment expectations, and potential side effects that may occur during the prescription of psychotropic medications.

It is recognized that many psychotropic medications do not have Food and Drug Administration (FDA) approved labeling for use in children. The FDA has a statutory mandate to ensure that approved product labeling accurately reflects pharmaceutical company sponsored research on safety and efficacy for the indications listed. that. The FDA does not regulate physician and other health provider practice. In fact, the FDA has stated that it does "not limit the way a practitioner may prescribe an approved drug." Studies and expert clinical experience often support the use of a medication for an "off-label" use. This practice is particularly relevant in child psychiatry as there is a dearth of FDA-registration trials in youth. Physicians therefore must use the available evidence, expert opinion, their own clinical experience, and exercise their clinical judgment in prescribing what is best for each individual patient. To that end, clear documentation of the physician's rationale in the medical record facilitates continuity of care and minimizes misinterpretation.

Role of Primary Care Providers

Primary care providers play a valuable role in the care of youth with mental disorders. Not only are they the clinicians most likely to initially interact with children who are in distress due to an emotional or psychiatric disorder, but also an inadequate number of child psychiatrists are available to meet children's mental health needs. Primary care clinicians are in an excellent position to perform screenings of children for potential mental disorders, and they can diagnose and treat relatively straightforward situations such as uncomplicated ADHD, anxiety, or depression. Primary care providers should provide advice to youth, including those in foster care, and their care givers about handling feelings and behaviors, recognizing the need for help, making decisions regarding healthy life styles, and the available treatments for childhood mental disorders. As always, consideration should be given regarding the need for referral for counseling, psychotherapy, or behavioral therapy. Primary care providers vary in their training, clinical experience, and confidence to address mental disorders in children. Short courses and intensive skills-oriented seminars may be beneficial in assisting primary care clinicians in caring for children with mental disorders. Active liaisons with child psychiatrists who are available for phone consultation or referral can be beneficial in assisting primary care clinicians to meet the mental health needs of children. For children and youth in foster care, the American Academy of Pediatrics has provided a policy statement ("Health Care Issues for Children and Adolescents in Foster Care and Kinship Care") which can be found at: http://pediatrics.aappublications.org/con- tent/136/4/e1131

General Principles

A DSM-5 psychiatric diagnosis should be made whenever possible before the prescribing of psychotropic medications. If a diagnosis cannot be reached, rational pharmacology based on specific symptom management may be necessary while additional clinical information is gathered.

Clearly defined target symptoms and treatment goals for the use of psychotropic medications should be identified and documented in the medical record at the time of or before beginning treatment. These target symptoms and treatment goals should be assessed at each clinic visit with the child and caregiver in a culturally and linguistically appropriate manner. Whenever possible, standardized clinical rating scales (clinician, patient, primary caregiver, teachers, and other care providers) or other measures should be used to quantify the response of the child's target symptoms to treatment and the progress made toward treatment goals.

In deciding whether to prescribe a psychotropic medication in a specific child, the clinician should carefully consider potential side effects, including those that are uncommon but potentially severe, and evaluate the overall benefit to risk ratio of pharmacotherapy. Except in the case of an emergency, informed consent should be obtained from the appropriate party(s) and assent from the child or adolescent before beginning psychotropic medication. Informed consent to treatment with psychotropic medication entails diagnosis, expected benefits and risks of treatment, including common side effects, discussion of laboratory findings, and uncommon but potentially severe adverse events. Alternative treatments, the risks associated with no treatment, and the overall potential benefit to risk ratio of treatment should be discussed.

Medication management should be collaborative. Youth, as well as caregivers, should be involved in decision- making about treatment, in accordance with their developmental level. Parents providing informed consent should be engaged, and where applicable, other caregivers, family, and child related agencies should be involved. Whenever possible,

trauma-informed, evidence-based psychotherapy, should begin before or concurrent with the prescription of psychotropic medication.

Before starting psychopharmacological treatment in preschool-aged children even more emphasis should be placed on treatment with non-psychopharmacological interventions, as this age group has few FDA-approved psychiatric treatments and even less of a clinical research base than older youth. Assessment of parent functioning and mental health needs, in addition to training parents in evidence-based behavior management can also reduce the need for the use of medication. During the prescription of psychotropic medication, the presence or absence of medication side effects should be documented in the child's medical record at each visit. Appropriate monitoring of indices such as height, weight, blood pressure, or laboratory findings should be documented.

Monotherapy regimens for a given disorder or specific target symptoms should usually be tried before polypharmacy regimens. While the goal is to use as few psychotropic medications as can be used to appropriately address the child's clinical status, it is recognized that the presence of psychiatric comorbidities may affect the number of psychotropic medications that are prescribed. When polypharmacy regimens are needed, addition of medications should occur in a systematic orderly process, accompanied by on-going monitoring, evaluation, and documentation. The goal remains to minimize polypharmacy while maximizing therapeutic outcomes.

Medications should be initiated at the lower end of the recommended dose range and titrated carefully as needed. Only one medication should be changed at a time, unless a clinically appropriate reason to do otherwise is documented in the medical record. (Note: starting a new medication and beginning the dose taper of a current medication is considered one medication change).

The use of "prn" or as needed prescriptions is discouraged. If they are used, the situation indicating need for the administration of a prn medication should be clearly indicated as well as the maximum dosage in a 24-hour period and in a week. The frequency of administration should be monitored to assure that these do not become regularly scheduled medications unless clinically indicated. The frequency of clinician follow-up should be appropriate for the severity of the child's condition and adequate to monitor response to treatment, including: symptoms, behavior, function, and potential medication side effects. At a minimum, a child receiving psychotropic medication should be seen by the clinician at least once every ninety days.

The potential for emergent suicidality should be carefully evaluated and monitored, particularly in depressed children and adolescents as well as those beginning antidepressant treatment, those having a history of suicidal behavior or deliberate self-harm, and those with a history of anxiety or substance abuse disorders. Youth at risk of suicide should have a written, collaborative safety plan that is regularly monitored. If the prescribing clinician is not a child psychiatrist, referral to or consultation with a child psychiatrist, or a general psychiatrist with significant experience in treating children, should occur if the child's clinical status has not shown meaningful improvement within a timeframe that is appropriate for the child's diagnosis and the medication regimen being used.

Before adding additional psychotropic medications to a regimen, the child should be assessed for adequate medication adherence, appropriateness of medication daily dosage, accuracy of the diagnosis, the occurrence of comorbid disorders (including substance abuse and general medical disorders), and the influence of psychosocial stressors. If a medication has not resulted in improvement in a child's target symptoms (or rating scale score), discontinue that medication rather than adding a second medication to it.

If a medication is being used in a child for a primary target symptom of aggression associated with a DSM-5 non-psychotic diagnosis (e.g., conduct disorder, oppositional defiant disorder, intermittent explosive disorder), and the behavior disturbance has been in remission for six months, then serious consideration should be given to slow tapering and discontinuation of the medication. If the medication is continued in this situation, the necessity for continued treatment should be evaluated and documented in the medical record at a minimum of every six months. The clinician should clearly document care provided in the child's medical record, including history, mental status assessment, physical findings (when relevant), impressions, rationale for medications prescribed, adequate laboratory monitoring specific to the drug(s) prescribed at intervals required specific to the prescribed drug and potential known risks, medication response, presence or absence of side effects, treatment plan, and intended use of prescribed medications.

Use of Psychotropic Medication in Preschool Age Children

The use of psychotropic medication in young children of preschool ages is a practice that is limited by the lack of evidence available for use of these agents in this age group. The Preschool Psychopharmacology Working Group (PPWG) published guidelines (Gleason 2007) summarizing available evidence for use of psychotropic medications in this age group. The PPWG was established in response to the clinical needs of preschoolers being treated with psychopharmacological agents and the absence of systematic practice guidelines for this age group, with its central purpose to attempt to promote an evidence-based, informed, and clinically sound approach when considering medications in preschool-aged children.

The PPWG guidelines emphasize consideration of multiple different factors when deciding on whether to prescribe psychotropic medications to preschool-aged children. Such factors include the assessment and diagnostic methods utilized in evaluating the child for psychiatric symptoms/illness, the current state of knowledge regarding the impact of psychotropic medication use on childhood neurodevelopmental processes, the regulatory and ethical contexts of use of psychotropic medications in small children (including available safety information and FDA status), and the existing evidence base for use of psychotropic medication in preschool aged children. It should be noted here that although the FDA many decades ago approved marketing of chlorpromazine for use in children down to the age of 6 months, this approval was based on clinical practice and not on a rigorous demonstration of efficacy and safety that would be required for approval today. Essentially this use was "grandfathered" in and current prescription for children and adolescents is limited, the evidence base is not current and very thin despite the long history of use in the past.

Very limited information is available regarding the use of antipsychotics in the preschool age population, and no information is available regarding the use of long-acting injectable (LAI) antipsychotics in this population. Not having information to describe the effects of antipsychotics on growth and development in preschoolers is of concern. Many antipsychotics produce significant weight gain in children, and this should be of concern in the preschool population. Akathisia may also be an issue in the preschool population. The use of antipsychotics in preschoolers should be limited to the most severe situations, and the goal should be for it to be of short duration. For these reasons, antipsychotic LAIs are not recommended in the preschool population.

The publication includes specific guidelines and algorithm schematics developed by the PPWG to help guide treatment decisions for several psychiatric disorders that may present in preschool-aged children, including Attention-Deficit Hyperactivity Disorder, Disruptive Behavioral Disorders, Major Depressive Disorder, Bipolar Disorder, Anxiety Disorders, Post-Traumatic Stress Disorder, Obsessive-Compulsive Disorder, Pervasive Developmental Disorders, and Primary Sleep

Disorders. The working group's key points and guidelines are like the general principles regarding the use of psychotropic medication in children already detailed in this paper. However, the working group's algorithms put more emphasis on treating preschool-aged children with non-psycho- pharmacological interventions (for up to 12 weeks) before starting psychopharmacological treatment, to be very cautious in introducing psychopharmacological interventions to rapidly developing preschoolers.

The working group also emphasizes the need to assess parent functioning and mental health needs, in addition to training parents in evidence-based behavior management, since parent behavior and functioning can have a large impact on behavior and symptoms in preschool-aged children.

Treatment of Opioid Use Disorders in Adolescents

Unfortunately, the opioid crisis in the US extends into the adolescent population and physicians are being confronted with the need to make recommendations and treatment decisions in this area. Although extensive discussion is beyond the scope of this document, there are 3 available options for Medication Assisted Treatment (MAT) in adolescents: buprenorphine, naltrexone and methadone. A good overview can be found in The ASAM National Practice Guideline for the Use of Medications in the Treatment of Addiction Involving Opioid Use (2015). This guideline makes the following recommendations which have not changed in the face of more recent albeit scant literature:

(1) Clinicians should consider treating adolescents who have opioid use disorder using the full range of treatment options, including pharmacotherapy that are available for adults. NB: Prescription of buprenorphine and/or methadone requires special provider qualifications. Further information may be found at https://www.samhsa.gov/medication-assisted-treatment/treatment.

(2) Opioid agonists (methadone and buprenorphine) and antagonists (naltrexone) may be considered for treatment of opioid use disorder in adolescents. Age is a consideration in treatment, and Federal laws and US FDA approvals need to be considered for patients under age 18. See 42 CFR 8.12 (.) (2): "Maintenance treatment for persons under age 18. A person under 18 years of age is required to have had two documented unsuccessful attempts at short-term detoxification or drug-free treatment within a 12-month period to be eligible for maintenance treatment. No person under 18 years of age may be admitted to maintenance treatment unless a parent, legal guardian, or responsible adult designated by the relevant State authority consents in writing to such treatment."

(3) Psychosocial treatment is recommended in the treatment of adolescents with opioid use disorder and required under federal law for those receiving methadone.

(4) Concurrent practices to reduce infection (e.g., sexual risk reduction interventions) are recommended as components of comprehensive treatment for the prevention of sexually transmitted infections and blood-borne viruses.

(5) Adolescents may benefit from treatment in hospitals or other specialized treatment facilities that provide multidimensional services.

Levels of Warnings Associated with Medication Adverse Effects

Psychotropic medications have the potential for adverse effects. Some adverse effects are time-limited and remit with continued treatment; others require intervention for effective management, and in some situations compel

discontinuation of the medication that causes them. Some adverse effects are detected prior to marketing and are included in the FDA approved product labeling provided by the manufacturers. When looking at product labeling, these adverse effects will be listed in the "Warnings and Precautions" section. As well, the "Adverse Reactions" section of the product labeling will outline those adverse effects reported during clinical trials, as well as those discovered during post-marketing evaluation. Many tertiary drug information resources also list common adverse effects and precautions for use with psychotropic medications.

At times, post-marketing evaluation may detect critical adverse effects associated with significant morbidity and mortality. The Food and Drug Administration (FDA) may require manufacturers to revise product labeling to indicate these critical adverse effects. If found to be particularly significant, these effects are demarcated by a box outlining the information at the very beginning of the product labeling, and have, in turn, been named boxed warnings. Boxed warnings are the strongest warning required by the FDA. It is important for clinicians to be familiar with all medication adverse effects, including boxed warnings, to appropriately monitor patients and minimize the risk of their occurrence. The medication tables include boxed warnings as well as other potential adverse effects. The list of potential adverse effects in the tables should not be considered exhaustive, and the clinician should consult the FDA approved product labeling and other reliable sources for information regarding medication adverse effects.

The FDA has in recent years taken additional measures to try to help patients avoid serious adverse events. New guides called Medication Guides have been developed and are specific to medication and medication classes. Medication Guides advise patients and caregivers regarding possible adverse effects associated with classes of medications and include pre- cautions that they or healthcare providers may take while taking/prescribing certain classes of medications. The FDA requires that Medication Guides be issued with certain prescribed medications and biological products when the Agency determines that certain information is necessary to prevent serious adverse effects, that patient decision-making should be informed by information about a known serious side effect with a product, or when patient adherence to directions for the use of a product are essential to its effectiveness. During the drug distribution process, if a Medication Guide has been developed for a certain class of medications, then one must be provided with every new prescription and refill of that medication.

Copies of the Medication Guides for psychotropic medications can be accessed on the FDA website at: http://www.fda.gov/Drugs/DrugSafety/ ucm085729.htm.

Criteria Indicating Need for Further Review of a Child's Clinical Status

The following situations indicate a need for review of a patient's clinical care. These parameters do not necessarily indicate that treatment is inappropriate, but they do indicate a need for further review. For a child being prescribed a psychotropic medication, any of the following suggests the need for additional review of a patient's clinical status:

- Absence of a thorough assessment for the DSM-5 diagnosis(es) in the child's medical record.
- Four (4) or more psychotropic medications prescribed concomitantly (side effect medications are not included in this count).
- Prescribing of:
    - Two (2) or more concomitant stimulants*
    - Two (2) or more concomitant alpha agonists*

- Two (2) or more concomitant antidepressants
- Two (2) or more concomitant antipsychotics
- Three (3) or more concomitant mood stabilizers

*The prescription of a long-acting and an immediate-release stimulant or alpha agonist of the same chemical entity does not constitute concomitant prescribing.

Note: When switching psychotropic medications, overlaps and cross taper should occur in a timely fashion, generally within 4 weeks.

- The prescribed psychotropic medication is not consistent with appropriate care for the patient's diagnosed mental disorder or with documented target symptoms usually associated with a therapeutic response to the medication prescribed.
- Psychotropic polypharmacy (2 or more medications) for a given mental disorder is prescribed before utilizing psychotropic monotherapy.
- The psychotropic medication dose exceeds usual recommended doses (literature based maximum dosages in the following tables).
- Psychotropic medications are prescribed for children of very young age, including children receiving the following medications with an age of:
  - Stimulants: Less than three (3) years of age
  - Alpha Agonists: Less than four (4) years of age
  - Antidepressants: Less than four (4) years of age
  - Mood Stabilizers: Less than four (4) years of age
  - Antipsychotics: Less than five (5) years of age
- Prescribing by a primary care provider who has not documented previous specialty training for a diagnosis other than the following (unless recommended by a psychiatrist consultant):
  - Attention Deficit Hyperactive Disorder (ADHD)
  - Uncomplicated anxiety disorders
  - Uncomplicated depression
- Antipsychotic medication(s) prescribed continuously without appropriate monitoring of glucose and lipids at least every 6 months.

Usual Recommended Doses

The attached medication charts are intended to reflect usual doses and brief medication information for commonly used psychotropic medications. The tables contain two columns for maximum recommended doses in children and adolescents – the maximum recommended in the FDA approved product labeling, and the maximum recommended in medical and pharmacological literature sources. The preferred drug list of medications potentially prescribed for foster children is the same as for all other Texas Medicaid recipients.

The tables are intended to serve as a resource for clinicians. The tables are not intended to serve as comprehensive drug information references or a substitute for sound clinical judgment in the care of individual patients. Circumstances may dictate the need for the use of higher doses in specific patients. In these cases, careful documentation of the rationale

for the higher dose should occur, and careful monitoring and documentation of response to treatment should be performed. If the use of higher medication doses does not result in improvement in the patient's clinical status within a reasonable time period (e.g., 2-4 weeks), then the dosage should be decreased, and other treatment options considered.

Not all medications prescribed by clinicians for psychiatric diagnoses in children and adolescents are included in the following tables. However, in general, medications not listed do not have adequate efficacy and safety information available to support a usual maximum dose recommendation.

Stimulants for Treatment of ADHD

Drug (generic)	Drug (brand)	Initial Dosage	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children and Adolescents	Schedule	Patient Monitoring Parameters	Boxed Warning	Warnings & Precautions
Amphetamine mixed salts	Adderall®* (immediate-release tablet)	Age 3-5 years: 2.5 mg/day Age ≥ 6 years: 5mg once or twice daily	Age 3-5 years: 30 mg/day Age ≥ 6 years and ≤50 kg: 40 mg/day Age ≥ 6 years and >50 kg: 60 mg/day	Approved for age ≥ 3 years: 40 mg/day	One to three times daily	Baseline and ongoing: height, weight, heart rate, and blood pressure Baseline: Assessment using a targeted cardiac history of the child and the family, and a physical examination of the child with an EKG and/ or a pediatric cardiology consult as indicated	Abuse potential Sudden death and serious cardiovascular events (boxed warning for amphetamine products and dextroamphetamine)	• Risk of sudden death in those with pre- existing structural cardiac abnormalities or other serious heart problems • Hypertension • Potential for psychiatric adverse events (hallucinations, delusional thinking, mania, aggression, etc.) • Current evidence is unclear regarding a definitive answer as to whether extended use of stimulants leads to a permanent reduction in ultimate adult height; however, a small statistically significant reduction is possible. If mild growth suppression occurs, it is likely reversible upon discontinuation of stimulant • Tics • Decreased appetite and weight • Sleep disturbance/ insomnia • Serotonin Syndrome: Increased risk when co-administered with serotonergic agents (e.g., SSRIs, SNRIs, triptans) • Peripheral vasculopathy, including Raynaud's phenomenon, and associated signs and symptoms: Instruct patients to report any numbness, pain, or color change in fingers or toes.
	Adderall®XR* (capsule with 50% IR: 50% ER beads)	Age 6-12 years: 5-10 mg/day Age ≥13 years: 10 mg/day	Age ≥ 6 years and ≤50 kg: 30 mg/day Age ≥ 6 years and >50 kg: 60 mg/day	Approved for age ≥ 6 years: 30 g/day	Once daily			
	Mydayis® ER (capsule with triple-release beads; 16-hour duration)	Age 13-17 years: 12.5 mg/day	Age ≥ 13 years: 25 mg/day	Approved for age ≥13 years: 25 mg/day	Once daily			
Amphetamine sulfate	Evekeo® (immediate-release tablet)	Age 3-5 years: 2.5 mg once or twice daily Age ≥ 6 years: 5mg once or twice daily	Age ≥ 3 years: 40 mg/day	Approved for age ≥ 3 years: 40 mg/day	1-3 times daily			
Amphetamine base	Adzenys®XR-ODT (oral disintegrating tablet; 50% IR: 50% ER; orange flavor) Must be fully dissolved on tongue before swallowing	Age ≥ 6 years: 6.3 mg/day (3.1 mg = 5 mg Adderall®XR)	Age 6-12 years: 18.8 mg/day Age 13-17 years: 12.5 mg/day	Approved for age ≥ 6 years Ages 6-12 years: 18.8 mg/day (= to 30 mg Adderall®XR) Ages 13-17 years: 12.5 mg/day (= to 20 mg Adderall®XR); no evidence that higher doses conferred additional benefit in this age group	Once daily			
	Adzenys®ER (extended-release oral suspension; 50% IR: 50% ER; orange flavor)							
	Dyanavel® XR (extended-release oral suspension; bubblegum flavor)	Age ≥6 years: 2.5-5 mg/day (2.5 mg = 4 mg Adderall®XR)	Age ≥6 years: 20 mg/day	Approved for age ≥ 6: 20 mg/day	Once daily			
Dextroamphetamine	Dextroamphetamine immediate-release tablet* (Dexedrine brand name not available)	Age 3-5 years: 2.5 mg/day Age ≥ 6 years: 5 mg once or twice daily	Age 3-5 years: 30 mg/day Age ≥ 6 years and ≤50 kg: 40 mg/day Age ≥ 6 years and >50 kg: 60 mg/day	Approved for age ≥3 years: 40 mg/day	Once or twice daily			
	Zenzedi® (immediate-release tablet)							
	Procentra® (immediate-release oral suspension; bubblegum flavor)							
	Dexedrine* Spansule® (capsule with 50% IR: 50% ER beads)	Age 3-5 years: not recommended Age ≥ 6 years: 5 mg/day	Age ≥ 6 years and ≤50 kg: 40 mg/day Age ≥ 6 years and >50 kg: 60 mg/day	Age ≥ 6 years: 40 mg/day				

Drug (generic)	Drug (brand)	Initial Dosage	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children and Adolescents	Schedule	Patient Monitoring Parameters	Boxed Warning	Warnings & Precautions
Lisdexamfetamine	Vyvanse® (long-lasting prodrug capsule) Vyvanse® (long-lasting chewable tablets; strawberry flavor) Chewable tabs must be chewed completely before swallowing	Age 3-5 years: No data Age ≥ 6 years: 30 mg/day	Age 3-5 years: No data Age ≥ 6 years: 70 mg/day	Approved for age ≥ 6 years: 70 mg/day	Once daily			

Symbols and abbreviations: IR, immediate-release; ER, extended-release, XR, extended-release; ODT, orally disintegrating tablet.
*Generic available.
Amphetamine Table Footnotes:
See FDA-approved product labeling for each individual medication for complete boxed warnings.
Many extended-release stimulants have been found to have higher plasma exposure for patients ≤ 12 years at the same dose as adolescents, and higher rates of adverse effects. Clinicians may choose whichever stimulant formulation (IR/SR/ER, etc.) they deem appropriate. Monitor more closely for dose titrations in younger patients and consider reducing dose of medications should adverse events arise.
It is generally recommended to adjust stimulant doses in weekly increments, until desired clinical effect is achieved
If switching between stimulant formulations/products, it is recommended to discontinue the previous treatment, and then initiate and titrate using recommended titration schedule for the new agent; increase stimulant dose in weekly increments.
Beaded formulations enclosed in capsules may be helpful for children with difficulty swallowing tablets or capsules, as the capsules may be opened and sprinkled on cold or room temperature applesauce or other soft foods. Contents of the entire capsule should be consumed immediately, not stored. Beads should be swallowed whole, and not chewed.
In rare instances, it may be necessary to exceed the FDA-based maximum dose of stimulant medication to achieve optimal clinical efficacy; however, this should be done on a case-by-case basis with careful monitoring for treatment-emergent adverse effects.

Stimulants for Treatment of ADHD Continued

Drug (generic)	Drug (brand)	Initial Dosage	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children and Adolescents	Schedule	Baseline/ Monitoring	Boxed Warning	Warnings & Precautions
Methylphenidate	Ritalin®* (immediate-release tablet) Methylin®* (immediate-release chewable tab; grape flavor) Methylin®* (immediate-release oral solution; grape flavor)	Age 3-5 years: 2.5 mg twice daily Age ≥ 6 years: 5mg twice daily	Age 3-5 years: 22.5 mg/day Age ≥ 6 years: ≤50 kg: 60 mg/day >50 kg: 100 mg/day Any dose of methylphenidate exceeding 60mg/day should be used with caution, and with attentive monitoring	Approved for children >6 years: 60 mg/day	One to three times daily	Baseline and ongoing: height, weight, heart rate, and blood pressure Baseline: Assessment using a targeted cardiac history of the child and the family, and a physical examination of the child with an EKG and/ or a pediatric cardiology consult as indicated	Abuse potential	• Risk of sudden death in those with pre- existing structural cardiac abnormalities or other serious heart problems • Hypertension • Potential for psychiatric adverse events (hallucinations, delusional thinking, mania, aggression, etc.) • Conflicting data exist regarding whether extended use of stimulants leads to a reduction in ultimate adult height. However, if stimulant treatment is persistent until growth is complete, a small statistically significant reduction is possible. • Tics • Decreased appetite and weight • Sleep disturbance • Serotonin Syndrome: Increased risk when co-administered with serotonergic agents (e.g., SSRIs, SNRIs, triptans) • Peripheral vasculopathy, including Raynaud's phenomenon, and associated signs and symptoms: Instruct patients to report any numbness, pain, or color change in fingers or toes • Daytrana®TD patch: Post marketing reports of acquired skin depigmentation or hypopigmentation of the skin
	Methylin®ER* (intermediate-release tablet) Metadate®ER* (intermediate-release tablet)	Age ≥ 3 years: 10 mg/day			Once daily			
	Ritalin®LA* (extended-release capsule; 50% IR: 50% ER)	Age ≥ 6years: 10 -20 mg/day			Once daily			
	Metadate®CD* (extended-release capsule; 30% IR: 70% ER)	Age ≥ 6years: 20 mg/day			Once daily			
	Quillivant®XR (extended-release oral suspension; 20% IR: 80% ER; banana flavor)				Once daily Shake vigorously for at least 10 seconds for accurate dosing			
	QuilliChew®ER (chewable extended-release tablet; 30% IR: 70% ER; cherry flavor)				Once daily			
	Aptensio®XR (extended-release capsule; 40% IR: 60% ER)	Age ≥ 6years: 10 mg/day			Once daily			
	Cotempla XR-ODT (oral disintegrating tablet; 25% IR: 75% ER; grape flavor)	Age ≥ 6 years: 17.3 mg/day	Age 6-17 years: 51.8 mg/day	Approved for children 6 years and older: 51.8 mg/day	Once daily			

Drug (generic)	Drug (brand)	Initial Dosage	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children and Adolescents	Schedule	Baseline/ Monitoring	Boxed Warning	Warnings & Precautions
	Concerta®* (extended-release osmotic release oral tablet; 22% IR: 78% ER)	Age ≥ 6 years: 18 mg/day	Age 3-5 years: 36 mg Age ≥ 6 years: 72 mg/day	Approved for children ≥ 6 years Age 6-12 years: 54 mg/day Age 13-17 years: 72mg/day or 2 mg/kg/day, whichever is less	Once daily			
	Daytrana®TD patch (extended-release)	Age ≥ 6 years: 10 mg/day	Age 3-5 years: 20 mg/day Age ≥ 6 years: 30 mg/day	Approved for children ≥ 6 years	Once daily Note: Patch is designed to be worn for 9 hrs. Removing the patch early leads to a clinical effect, ending 2-3 hours after the patch is removed			
	Jornay PM (extended-release capsule containing beads with delayed-release coating and extended-release coating) Note: This is the ONLY stimulant formulation designed to be administered IN THE EVENING. Recommended time of administration is 8:00 pm (range: 6:30pm-9:30pm). Time of onset is approximately 10 hours following administration.	Age ≥ 6 years: 20 mg once a day given in the EVENING	Age ≥ 6 years: 100 once a day given in the EVENING	Approved for children ≥ 6 years: 100mg/day	Once daily in the EVENING			
	Focalin®* (immediate-release tablet)	Age ≥ 6 years: 2.5 mg twice daily	Age ≥ 6 years: 50 mg/day	Approved for children ≥ 6 years: 20 mg/day	Twice daily			
	Focalin®XR* (extended-release capsule; 50% IR: 50% ER)	Age ≥ 6 years: 5-10 mg/day		Approved for children ≥ 6 years: 30 mg/day	Once daily			

Symbols and abbreviations: IR, immediate-release; ER, extended-release, XR, extended-release; SR, sustained-release; CD, controlled delivery; LA, long-acting; TD, transdermal; ODT, orally disintegrating tablet

* Generic available.

Methylphenidate Table Footnotes:

See FDA-approved product labeling for each individual medication for complete boxed warnings.

Many extended-release stimulants have been found to have higher plasma exposure for patients ≤ 12 years at the same dose as adolescents, and higher rates of adverse effects.

Clinicians may choose whichever stimulant formulation (IR/SR/ER, etc.) they deem appropriate. Monitor more closely for dose titrations in younger patients and consider reducing dose of medications should adverse events arise.

It is generally recommended to adjust stimulant doses in weekly increments, until desired clinical effect is achieved

If switching between stimulant formulations/products, it is recommended to discontinue the previous treatment, and then initiate and titrate using recommended titration schedule for the new agent.

Beaded formulations enclosed in capsules may be helpful for children with difficulty swallowing tablets or capsules, as the capsules may be opened and sprinkled on cold or room temperature applesauce or other soft foods. Contents of the entire capsule should be consumed immediately, not stored. Beads should be swallowed whole, and not chewed.

In rare instances, it may be necessary to exceed the FDA-based maximum dose of stimulant medication to achieve optimal clinical efficacy; however, this should be done on a case-by-case basis with careful monitoring for treatment-emergent adverse effects.

Other ADHD Treatments

Drug (generic)	Drug (brand)	Initial Dosage	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children & Adolescents	Schedule	Baseline/ Monitoring	Boxed Warning	Warnings & Precautions
Atomoxetine	Strattera®*	Age ≥ 6 years and weight ≤70 kg: 0.5 mg/kg/day	Age ≥ 6 years: 1.8 mg/kg/day or 100 mg/day, whichever is less	Approved for treatment of ADHD (age 6-17 years): 1.4 mg/kg/day or 100 mg/ day, whichever is less	Once or twice daily	Baseline and ongoing: height, weight, heart rate, and blood pressure	Suicidal ideation in children and adolescents being treated for ADHD	• Severe liver injury • Contraindicated to use within 14 days of an MAOI • Increased blood pressure and heart rate • Psychiatric adverse events

Drug (generic)	Drug (brand)	Initial Dosage	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children & Adolescents	Schedule	Baseline/ Monitoring	Boxed Warning	Warnings & Precautions
		Age ≥ 6 years and weight >70 kg: 40 mg/day				Onset of therapeutic effect typically delayed 3 weeks		• Priapism (rare)
Clonidine	Catapres® (IR)*	Age ≥ 6 years and weight <45 kg: 0.05 mg/day Age ≥ 6 years and weight >45 kg: 0.1 mg/day	Age ≥ 6 years AND Weight 27-40.5 kg: 0.2 mg/day Weight 40.5-45 kg: 0.3 mg/day Weight >45 kg: 0.4 mg/day	Not approved for treatment of ADHD in children and adolescents	One to four times daily	Baseline and ongoing: heart rate and blood pressure Personal and family cardiovascular history	None	• Hypotension • Bradycardia • Syncope • Sedation/Somnolence • When tapering, total daily dose should be reduced in decrements of no more than 0.1mg for clonidine and 1mg for guanfacine every 3-7 days to avoid rebound hypertension • See product labeling for Kapvay® and Intuniv® for information about clinically significant drug interactions • Swallow ER tablets whole. Do not chew or break.
	Kapvay® (ER)*	Age ≥ 6 years: 0.1 mg/day	Age ≥ 6 years: 0.4 mg/day	Approved for monotherapy and adjunctive therapy to stimulants for treatment of ADHD (age 6-17 years): 0.4 mg/day	Once or twice daily			
Guanfacine	Tenex® (IR)*	Age ≥ 6 years and weight <45 kg: 0.5 mg/day Age ≥ 6 years and weight > 45 kg: 1 mg/day	Age ≥ 6 years AND Weight 27-40.5 kg: 2 mg/day Weight 40.5-45 kg: 3 mg/day Weight >45 kg: 4 mg/day	Not approved for children and adolescents	One to four times daily			CAUTION IF USED WITH ANTIPSYCHOTICS (↓ BP)
	Intuniv® (ER)*	Age ≥ 6 years: 1 mg/day	Age 6-12 years: 4 mg/day Age 13-17 years: 7 mg/day	Approved for monotherapy and adjunctive therapy to stimulants for treatment of ADHD Age 6-12 years: 4 mg/day Age 13-17 years: 7 mg/day **Doses > 4mg/day have not been studied in adjunctive trials.	Once daily Do not administer with high fat meals.			
Bupropion	Wellbutrin®*	Age ≥ 6 years: 3 mg/kg/day or 150 mg/day, whichever is less	Age ≥ 6 years: 6 mg/kg/day or 300 mg/day with no single dose >150 mg, whichever is less	Not approved for children and adolescents	One to three times daily	Blood pressure and Pulse Mental status exam and suicide assessment	Increased risk of suicidal thinking and behavior (suicidality) in short-term studies in children and adolescents with major depressive disorder (MDD) and other psychiatric disorders	• Lowers seizure threshold (use caution with other agents that may lower seizure threshold-e.g. antipsychotics, TCA's, excessive alcohol) • Discontinuation syndrome • Activation of mania/ hypomania • Suicidal ideation potential • Contraindicated for use within 14 days of an MAOI
	Wellbutrin®SR*		400 mg/day		Once or twice daily			
	Wellbutrin®XL*		450 mg/day		Once daily			
Imipramine	Tofranil®*	Reviewed but not included/recommended						• Caution with cardiac disease • Cardiac conduction abnormalities • Orthostatic hypotension • Activation of mania/ hypomania • Anticholinergic and cognitive adverse effects • Lowers seizure threshold • Discontinuation syndrome • Suicidal ideation potential • Use caution in those with history of suicide attempts; may be cardiotoxic in overdose • Contraindicated for use within 14 days of an MAOI
Tricyclic Antidepressant	Multiple Individual medications	Reviewed but not included/recommended						

*Generic available.

Symbols and Abbreviations: IR, immediate release; SR, sustained-release formulation; ER, extended-release; XL, extended-length; BP, blood pressure; TCA, tricyclic antidepressant; MAOI, monoamine oxidase inhibitor.

Antidepressants - SSRIs

Drug (generic)	Drug (brand)	Initial Dosage	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children & Adolescents	Schedule	Patient Monitoring Parameters	Boxed Warning**	Warnings & Precautions
Citalopram	Celexa®*oral tablet Citalopram* oral solution (mint flavor)	Age 6-11 years: 10 mg/day Age ≥ 12 years: 20 mg/day	Age ≥ 6 years: 40 mg/day	Not approved for children and adolescents	Once daily	• Pregnancy test • as clinically indicated	Increased risk compared to placebo of suicidal thinking and behavior	• Suicidal ideation • Activation of mania/hypomania

Drug (generic)	Drug (brand)	Initial Dosage	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children & Adolescents	Schedule	Patient Monitoring Parameters	Boxed Warning**	Warnings & Precautions
Escitalopram	Lexapro®*oral tablet Escitalopram* oral solution (mint flavor)	Age 6-11 years: 5 mg/day Age ≥ 12 years (MDD): 10 mg/day	Age 6-11 years: 20mg/day Age ≥ 12 years: 30 mg/day	Not approved for children Approved for treatment of MDD in adolescents (age 12-17 years): 20 mg/day		• Monitor for emergence of suicidal ideation or behavior • Monitor weight and growth • Obtain serum sodium if symptoms of hyponatremia occur (e.g. headaches, confusion, etc.)	(suicidality) in children, adolescents, and young adults in short- term studies of major depressive disorder (MDD) and other psychiatric disorders	• QTc prolongation potential (citalopram, escitalopram, sertraline, fluoxetine) • Discontinuation syndrome • Abnormal bleeding • Contraindicated to use within 14 days of an MAOI; Do not start MAOI for 5 weeks after fluoxetine discontinuation • Serotonin Syndrome • Hyponatremia risk
Fluoxetine	Prozac®*oral capsule Fluoxetine* oral solution; (mint flavor)	Age 6-11 years: 5-10 mg/day Age ≥ 12 years: 10 mg/day	Age ≥ 6 years: 60/day	Approved for treatment of MDD (age 8-18 years): 20 mg/day Approved for treatment of OCD (age 7-17 years): 60 mg/day				
Paroxetine	Paxil®* oral tablet Paxil®* oral suspension (orange flavor) Paxil®CR*	Reviewed but not included/recommended – evidence of possible harm						
Fluvoxamine	Luvox®* *Brand name unavailable	Age ≥ 8 years: 25 mg/day	Age 8-11 years: 200 mg/day Age 12-17 years: 300 mg/day	Approved for treatment of OCD (age 8-17 years): Ages 8-11 years: 200 mg/day Ages 12-17 years: 300 mg/day	Immediate-release: daily doses >50 mg should be divided -CR tablets: once daily			
	Luvox®CR*	Lowest available dose (100mg) may not be an appropriate initial dose for pediatric patients						
Sertraline	Zoloft®*oral tablet Zoloft®*oral solution (menthol flavor) solution must be diluted before use	Age 6-12 years: 12.5-25 mg/day Age 13-17 years: 25-50 mg/day	Age ≥ 6 years: 200 mg/day	Approved for treatment of OCD (age 6-17 years): 200 mg/day	Once daily			
Vilazodone SSRI and 5-HT1A receptor partial agonist	Viibryd®	Age 12-17 years: 5mg/day on days 1-3, then 10mg/day on days 4-7	Age 12-17 years: 30mg/day	Not approved for children and adolescents	Once daily			

* Generic available.

Symbols and Abbreviations: CR, controlled-release; MDD, major depressive disorder; OCD, obsessive compulsive disorder, MAOI, monoamine oxidase inhibitor

** From Boxed Warning in FDA approved labeling for Antidepressants (SSRIs, SNRIs and Other Mechanisms): Patients of all ages who are started on antidepressant therapy should be monitored appropriately and observed closely for clinical worsening, suicidality, or unusual changes in behavior. Families and caregivers should be advised of the need for close observation and communication with the prescriber. Both patients and families should be encouraged to contact the clinician if depression worsens, the patient demonstrates suicidal behavior or verbalizations, or if medication side effects occur. The appropriate utilization of non-physician clinical personnel who are knowledgeable of the patient population can aid in increasing the frequency of contact between the clinic and the patient/parent.

Footnote:

Unless there are concerns regarding specific issues, such as drug interactions, etc., fluoxetine has the most efficacy and safety data in the pediatric depression literature. Fluoxetine should be tried as the first-line option in children and adolescents aged 8 and older to treat moderate-to-severe major depressive disorder for which psychological therapy is insufficient to relieve symptoms after a reasonable trial (4-6 sessions).

Antidepressants - SNRIs

Drug (generic)	Drug (brand)	Initial Dosage	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children & Adolescents	Schedule	Patient Monitoring Parameters	Boxed Warning	Warnings & Precautions
Venlafaxine*	Effexor®* Effexor®XR*	Reviewed but not included/recommended – evidence of possible harm				• Pregnancy test as clinically indicated • Monitor for emergence of suicidal ideation or behavior • Blood pressure during dosage titration and as clinically indicated • Monitor weight and growth Hepatic function testing baseline and as clinically indicated • CBC and EKG at baseline and as clinically indicated for Clomipramine	Increased risk compared to placebo of suicidal thinking and behavior (suicidality) in children, adolescents, and young adults in short-term studies of major depressive disorder (MDD) and other psychiatric disorders	• Suicidal ideation • Abnormal bleeding • Severe skin reactions • Discontinuation syndrome • Activation of mania/ hypomania • Hepatotoxicity • Elevated blood pressure and pulse • Serotonin Syndrome • Seizures • Hyponatremia • Contraindicated for use within 14 days of an MAOI • Rare cases of drug rash with eosinophilia and systemic symptoms (DRESS)
Duloxetine	Cymbalta®*	Age 7-17 years: 30 mg/day	Age 7-17 years: 120 mg/day	Approved for treatment of Generalized Anxiety Disorder Age 7-17 years: 120 mg/day Target dose 30-60mg/day	Once or twice daily			
Desvenlafaxine	Pristiq®*	Age 7-17 years 20 - <35 kg: 25mg 35 - <70 kg: 35mg ≥70 kg: 50mg	Age 7-17 years: 50mg/day	Not approved for children and adolescents	Once daily			
Levomilnacipran	Fetzima®	Reviewed but not included/recommended - insufficient evidence						
Clomipramine	Anafranil®*	Age 10-17 years: 25 mg/day	Age 10-17 years: 3 mg/kg/day or 200 mg/ day, whichever is less	Approved for treatment of OCD Age 10-17 years: 3 mg/kg/day or 200 mg/ day, whichever is less	Once daily			

Antidepressants – Other Mechanisms

Drug (generic)	Drug (brand)	Initial Dosage	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children & Adolescents	Schedule	Patient Monitoring Parameters	Boxed Warning	Warnings & Precautions
Mirtazapine	Remeron®* Remeron® Soltab ODT (orange flavor)	Age 7-17 years: 7.5 mg/day See comments – age of 3 based on one open label study, n=26	Age ≥ 3 years: 45 mg/day	Not approved for children & adolescents	Once daily	• Pregnancy test – as clinically indicated • Monitor for emergence of suicidal ideation or behavior • Blood pressure during dosage titration and as clinically indicated • Monitor weight and height • Serum cholesterol levels • CBC baseline and • periodically • Activation of Mania/Hypomania • Selegiline: Monitor for tyramine induced hypertensive crisis	Increased the risk compared to placebo of suicidal thinking and behavior (suicidality) in children, adolescents, and young adults in short term studies of major depressive disorder (MDD) and other psychiatric disorders In addition: EMSAM is contraindicated in patients less than 12 years of age (due to potential for hypertensive crisis)	• Suicidal ideation • Abnormal bleeding • Weight gain • Discontinuation syndrome • Activation of mania/ hypomania • Orthostatic hypotension and syncope • Serotonin Syndrome • Hyponatremia • Contraindicated for use within 14 days of an MAOI • Mirtazapine: Rare cases of hepatotoxicity, seizures, and neutropenia • Selegiline TD: tyramine rich foods and beverages should be avoided with doses of selegiline patch ≥ 9 mg per 24 hours or greater
Vortioxetine	Trintellix®	Reviewed but not included/recommended - insufficient evidence						
Selegiline	Emsam® (transdermal system)	Age ≥ 12 years: 6 mg per 24 hours	Age ≥ 12 years: 12 mg per 24 hours	Approved for treatment of Major Depressive Disorder: Age ≥ 12 maximum dose of 12 mg per 24 hours	One patch daily			
Monoamine oxidase inhibitors (MAOIs) oral formulations	Reviewed but not included/recommended – increased risk of adverse events possible; risk of safety issues in youth given drug-food interactions, drug-drug interactions, etc.							
St. John's Wort	Reviewed but not included/recommended - insufficient evidence							

* Generic available.

Symbols and Abbreviations: CR, controlled-release; MDD, major depressive disorder; OCD, obsessive compulsive disorder, MAOI, monoamine oxidase inhibitor; ODT = orally disintegrating tablet; TD = transdermal

** From Boxed Warning in FDA approved labeling for Antidepressants (SSRIs, SNRIs and Other Mechanisms): Patients of all ages who are started on antidepressant therapy should be monitored appropriately and observed closely for clinical worsening, suicidality, or unusual changes in behavior. Families and caregivers should be advised of the need for close observation and communication with the prescriber. Both patients and families should be encouraged to contact the clinician if depression worsens, the patient demonstrates suicidal behavior or verbalizations, or if medication side effects occur. The appropriate utilization of non-physician clinical personnel who are knowledgeable of the patient population can aid in increasing the frequency of contact between the clinic and the patient/parent.

Footnote:

Unless there are concerns regarding specific issues, such as drug interactions, etc., fluoxetine has the most efficacy and safety data in the pediatric depression literature. Fluoxetine should be tried as the first-line option in children and adolescents aged 8 and older to treat moderate-to-severe major depressive disorder for which psychological therapy is insufficient to relieve symptoms after a reasonable trial (4-6 sessions).

Antipsychotics: Second Generation (Atypical)

Drug (generic)	Drug (brand)	Initial Dosage	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children & Adolescents	Schedule	Patient Monitoring Parameters	Boxed Warning	Warnings & Precautions
Aripiprazole	Abilify® oral tablet* Abilify Discmelt®* (oral disintegrating tablet; vanilla flavor) Abilify® oral solution* (orange flavor)	Age ≥ 4 years: 2 mg/day	Age 4-11 years: 15 mg/day Age ≥12 years: 30 mg/day	Approved for treatment of Bipolar Mania or Mixed Episodes (age 10-17 years) and Schizophrenia(13-17 years): 30 mg/day Approved for treatment of irritability associated with Autistic Disorder (age 6-17 years): 15 mg/day Approved for Tourette's Disorder (6-18 years): weight < 50 kg 10mg/day; weight ≥ 50 kg 20mg/day	Once daily	• Fasting plasma glucose level or HbA1c – at baseline, at 12 weeks, then annually. • Lipid screening - at baseline, at 12 weeks, and as clinically indicated • Blood pressure, pulse – at baseline, 12 weeks, and annually • Weight (BMI) – at baseline, at 4 weeks, at 8 weeks, 12 weeks, and annually. BMI should be compared against growth charts www.cdc.gov/growthcharts Weight gain exceeding 90th percentile for age or a change of 5 BMI units for youths obese at treatment initiation should have weight management intervention and increased frequency of glucose and lipid monitoring	Increased the risk of suicidal thoughts and behavior in short-term studies in children, adolescents, and young adults with major depressive disorder and other psychiatric disorders	• Extrapyramidal side effects • Neuroleptic Malignant • Syndrome • Tardive Dyskinesia • Hyperglycemia and Diabetes Mellitus • Prolactinemia and gynecomastia (most common with risperidone and paliperidone) • Weight gain • Dyslipidemia • Orthostatic Hypotension • Leukopenia, neutropenia, and agranulocytosis • Lowers seizure threshold • Cognitive and motor impairment potential • Hyperthermia • Dysphagia
Quetiapine	Seroquel® * Seroquel®XR*	Age 5- 9 years: 12.5-25 mg/day Age 10-17 years: 25 mg twice day	Age 5- 9 years: 400mg/day Age 10-17 years: 800 mg/day	Approved for treatment of Bipolar Mania (age 10-17 years): 600 mg/day Approved for treatment of Schizophrenia (13-17 years): 800 mg/day	IR: One to three times daily XR: Once daily			

Drug (generic)	Drug (brand)	Initial Dosage	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children & Adolescents	Schedule	Patient Monitoring Parameters	Boxed Warning	Warnings & Precautions
Olanzapine *Not recommended to try as a first-line treatment option due to risk of significant weight gain*	Zyprexa®* Zyprexa Zydis®* (oral disintegrating tablet; unflavored, sweetened)	Age 4-5 years: 1.25 mg/day Age 6-12years: 2.5 mg/day Age ≥ 13years: 2.5-5 mg/day	Age 4-5 years: 12.5 mg/day Age 6-17 years: 20 mg/ day	Approved for treatment of Bipolar Mania or Mixed Episodes Schizophrenia (age 13-17 years): 20 mg/day Approved for treatment of depressive episodes associated with Bipolar I Disorders (age 10-17 years): 12 mg/day in combination with 50mg/day fluoxetine	Once daily	• CBC as clinically indicated. • Pregnancy test – as clinically indicated • EPS evaluation (examination for rigidity, tremor, akathisia) – before initiation of any antipsychotic medication, then weekly for the first 2 weeks after initiating treatment with a new antipsychotic or until the dose has been stabilized and weekly for 2 weeks after a dose increase • Tardive Dyskinesia evaluation (AIMS or NRS) at regular intervals throughout treatment (at least every 3 months) • Sexual function– inquire for evidence of galactorrhea/gynecomastia, menstrual disturbance, libido disturbance or erectile/ejaculatory disturbances in males (priapism has been reported with SGAs); This inquiry should be done at each visit for the first 12 months and every 6 months thereafter. • Vision questionnaire – ask whether the patient has experienced a change in vision and should specifically ask about distance vision and blurry vision-yearly • Cardiovascular – obtain family history at baseline. In patients with family history of cardiac abnormalities or sudden death, personal history of syncope, palpitations, or cardiovascular abnormalities, baseline EKG and subsequent monitoring is recommended • For patients with resting HR > 130 bpm, PR interval > 200 msec, QRS > 120 msec, or QTc > 460 msec, consider alternate therapy (AACAP Practice Parameter for the use of atypical antipsychotic medications in children and adolescents 2011) • **Clozapine** Monitoring Parameters: Clozapine is associated with severe neutropenia (absolute neutrophil count (ANC) less than 500/μL). The requirements to prescribe, dispense, and receive clozapine are incorporated into a single, shared program called the Clozapine Risk Evaluation and Mitigation Strategy (REMS). Must follow specific requirements for CBC monitoring as per product labeling and clozapine REMS website. • Prescribers and pharmacies must certify the	Increased the risk of suicidal thoughts and behavior in short-term studies in children, adolescents, and young adults with major depressive disorder and other psychiatric disorders	• Rare cases of DRESS (Drug Reaction with Eosinophilia and Systemic Symptoms) Presence of a fever with a rash and swollen lymph glands, or swelling to the face. Requires immediate medical attention. • Possible increase in the risk of unexplained sudden death. However, this is still rare, and causality has not been established.
Risperidone	Risperdal®* Risperdal M-Tab®*(oral disintegrating tablet; peppermint flavor) Risperdal® (oral solution; unflavored)	Age 4-5 years: <20 kg: 0.25 mg/day >20 kg: 0.5 mg/day Age ≥6 years: 0.5 mg/day	Age 4-11 years: 3 mg/day Age ≥12 years: 6 mg/day	Approved for treatment of Schizophrenia (age 13-17 years) and Bipolar Mania or Mixed Episodes (age 10-17 years): 6mg/day Approved for treatment of irritability associated with autistic disorder (age 5-16 years): 3 mg/day	Once or twice daily		None related to youth	
Clozapine *Reserved for treatment-resistant psychosis, following 2 failed trials of antipsychotic medications with adequate dose/duration*	Clozaril®* FazaClo®* (oral disintegrating tablet; mint flavor) Versacloz® oral suspension (unflavored, sweetened)	Age 8-11 years: 6.25-12.5 mg/day Age ≥ 12 years: 6.25-25 mg/day	Age 8-11 years: 150-300 mg/day Age ≥ 12 years: 600 mg/day Target serum clozapine level of 350 ng/mL for optimal efficacy	Not approved for children and adolescents	Once or twice daily		• Severe neutropenia • Seizures • Orthostasis, bradycardia, syncope • Myocarditis, cardiomyopathy, mitral valve incompetence	
Asenapine	Saphris® (sublingual tablet; black cherry flavor)	Age ≥ 10 years: 2.5 mg twice daily	Age ≥ 10 years: 10 mg twice daily	Approved for acute treatment of Bipolar Mania and Mixed Episodes (age 10-17 years): 10 mg twice daily	Twice daily. Avoid eating or drinking for 10 minutes after sublingual administration		None related to youth	

Drug (generic)	Drug (brand)	Initial Dosage	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children & Adolescents	Schedule	Patient Monitoring Parameters	Boxed Warning	Warnings & Precautions
						use of Clozapine at www.clozapinerems.com		
Iloperidone	Fanapt®	Reviewed but not included/recommended - insufficient evidence					None related to youth	
Paliperidone	Invega®*	Children: Insufficient Evidence Adolescent: (Age ≥ 12years): 3 mg/day	Children: Insufficient Evidence Adolescents (Age ≥ 12 years), Schizophrenia: Weight < 51 kg: 6 mg/day Weight ≥ 51 kg: 12 mg/day	Approved for treatment of Schizophrenia (age 12-17 years): Weight < 51 kg: 6 mg/day Weight ≥ 51 kg: 12 mg/day	Once daily		None related to youth	
Ziprasidone	Geodon®*	Bipolar Disorder (age 10-17 years): 20 mg/day	Bipolar Disorder (age 10-17 years) Weight ≤ 45 kg: 80 mg/day Weight > 45 kg: 160 mg/day	Not approved for children and adolescents	Twice daily; take with ≥500 calorie meal		None related to youth	
Lurasidone	Latuda®	Schizophrenia (age 13-17 years): 40 mg/day Bipolar I Depression monotherapy (age 10-17 years): 20 mg/day	Schizophrenia (age 13-17 years) 80 mg/day Bipolar I Depression (age 10-17 years) 80 mg/day	Approved for treatment of Schizophrenia (age 13- 17 years) and Bipolar I Disorder, depressed phase, as monotherapy: 80 mg/day	Insufficient Evidence Once daily taken with >350 calorie meal		Increased the risk of suicidal thoughts and behavior in short-term studies in children, adolescents, and young adults with major depressive disorder and other psychiatric disorders	
Brexpiprazole	Rexulti®	Reviewed but not included/recommended - insufficient evidence Not approved for children and adolescents					None related to youth	
Cariprazine	Vraylar®	Reviewed but not included/recommended - insufficient evidence Not approved for children and adolescents					None related to youth	
Combination Antipsychotic-Antidepressant Formulation(s)								
Olanzapine/ Fluoxetine	Symbyax®*	Age 10-17 years: 3 mg olanzapine/25 mg fluoxetine once daily	Age 10-17 years: 12 mg olanzapine/50 mg fluoxetine once daily	Acute Depressive Episodes Associated with Bipolar I Disorder for age 10-17 years: 12 mg olanzapine/50 mg fluoxetine	Once Daily		Increased the risk of suicidal thoughts and behavior in short-term studies in children, adolescents, and young adults with major depressive disorder and other psychiatric disorders	

Symbols and Abbreviations: XR, extended-release; HbA1c, hemoglobin A1c; BMI, body mass index; kg, kilograms; HR, heart rate; msec, milliseconds; AACAP, American Academy of Child and Adolescent Psychiatry; AIMS, Abnormal Involuntary Movement Scale; NRS, Neurological Rating Scale.

*Generic available.

+ XR, extended-release

** While iloperidone alone can cause QTc prolongation, concomitant administration with a CYP2D6 inhibitor (e.g., paroxetine) or a CYP3A4 inhibitor (e.g., ketoconazole) can double QTc prolongation compared with administering iloperidone alone. No long-acting injectable antipsychotic formulations are FDA-approved for use in children and adolescents.

Note: A cohort study found an increase of an additional 5.9 deaths/10,000-person years (7.7 – 1.8 deaths/10,000 person years) in children and youth receiving antipsychotics as compared with the control group. Their sample size was not adequate to compare potential risk of different antipsychotics (Ray 2019).

Antipsychotics: First Generation (Typical)

Drug (generic)	Drug (brand)	Initial Dosage	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children & Adolescents	Schedule	Patient Monitoring Parameters	Boxed Warning	Warnings & Precautions
Chlorpromazine*	Thorazine® (Brand name discontinued)	Age > 6 months: 0.25 mg/lb. every 4-6 hours, as needed Adolescents: 10-25 mg/dose every 4-6 hours	Age < 5 years: 40 mg/day Age 5-12 years: 75 mg/day Age > 12 years: 800 mg/day	Approved for treatment of severe behavioral problems (age 6 months-12 years) Outpatient Children: 0.55 mg/kg every 4-6 hours, as needed Approved for the management of manifestations of Psychotic Disorders (age> 12 years): 1000 mg/day	1-6 times daily	• Fasting plasma glucose level or HbA1c – at baseline, at 12 weeks, then annually. • Lipid screening - at baseline, at 12 weeks, and as clinically indicated • Blood pressure, pulse – at baseline, 12 weeks, and annually • Weight (BMI) – at baseline, at 4 weeks, at 8 weeks, 12 weeks, and annually. BMI should be compared against growth charts www.cdc.gov/growthcharts Weight gain exceeding 90th percentile for age or a change of 5 BMI units for youths obese at treatment initiation should have weight management intervention and increased	None related to youth	• Tardive Dyskinesia • Neuroleptic Malignant Syndrome • Leukopenia, neutropenia, and agranulocytosis • Drowsiness • Orthostatic hypotension • EKG changes • EEG changes and seizures possible • Extrapyramidal symptoms • Ocular changes • Hyperprolactinemia • Anticholinergic effects (constipation, dry mouth, blurred vision, urinary retention) • Risk of prolonged QTc interval and torsades de pointes (particularly with pimozide)
Haloperidol*	Haldol® (Brand name discontinued)	Age 3-12 years: Weight 15-40 kg: 0.025-0.05 mg/kg/day Weight ≥ 40 kg: 1 mg/day	Age 3-12 years: 0.15 mg/kg/day or 6 mg/day, whichever is less	Approved for treatment of Psychotic Disorders, Tourette's Disorder, and severe behavioral problems (age ≥3 years).	One to three times daily		None related to youth	

Drug (generic)	Drug (brand)	Initial Dosage	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children & Adolescents	Schedule	Patient Monitoring Parameters	Boxed Warning	Warnings & Precautions
		Age > 12 years: 1 mg/day	Age >12 years: Acute agitation: 10 mg/dose Psychosis: 15 mg/day Tourette's Disorder: 15 mg/ day	Psychosis: 0.15 mg/kg/day Tourette's Disorder and severe behavioral problems: 0.075 mg/kg/day Severely disturbed children: 6 mg/day		frequency of glucose and lipid monitoring • CBC as clinically indicated. • Pregnancy test – as clinically indicated • EPS evaluation (examination for rigidity, tremor, akathisia) – before initiation of any antipsychotic medication, then weekly for the first 2 weeks after initiating treatment with a new antipsychotic or until the dose has been stabilized and weekly for 2 weeks after a dose increase • Tardive Dyskinesia evaluation (AIMS or NRS) at regular intervals throughout treatment (at least every 3 months) • Sexual function– inquire for evidence of galactorrhea/ gynecomastia, menstrual disturbance, libido disturbance or erectile/ ejaculatory disturbances in males (priapism has been reported with SGAs); This inquiry should be done at each visit for the first 12 months and every 6 months thereafter. • Vision questionnaire – ask whether the patient has experienced a change in vision and should specifically ask about distance vision and blurry vision- yearly • Cardiovascular – obtain family history at baseline. In patients with family history of cardiac abnormalities or sudden death, personal history of syncope, palpitations, or cardiovascular abnormalities, baseline EKG and subsequent monitoring is recommended for patients with resting HR > 130 bpm, PR interval > 200 msec, QRS > 120 msec, or QTc > 460 msec, consider alternate therapy (AACAP Practice Parameter for the use of atypical antipsychotic medications in children and adolescents 2011) EKG required at baseline and as clinically indicated for pimozide (use with other medications with QTc prolongation potential is contraindicated e.g., escitalopram, citalopram, macrolides, etc.)		
Perphenazine*	Trilafon®* (Brand name discontinued)	Age 6-12 years: Insufficient Evidence Age > 12 years: 4-16 mg two to four times daily	Age 6-12 years: Insufficient Evidence Age > 12 years: 64 mg/day	Approved for treatment of psychotic disorders (age≥12 years). Outpatient: 24 mg/day Inpatient: 64 mg/day	Two to four times daily		None related to youth	
Pimozide	Orap®*	Age ≥7 years: 0.05 mg/kg once a day At doses > 0.05mg/kg/day CYP2D6 genotyping should be performed. In poor 2D6 metabolizers, dose should not exceed 0.5mg/kg/day	Age 7-12 years: 6 mg/day or 0.2 mg/kg/day, whichever is less Age ≥ 12 years: 10 mg/day or 0.2 mg/kg/day, whichever is less	Approved for treatment of Tourette's Disorder (age ≥12 years): 10 mg/day or 0.2 mg/kg/ day, whichever is less	Once or twice daily		None	

*Generic available.

Symbols and Abbreviations: HbA1c, hemoglobin A1c; BMI, body mass index; kg, kilograms; HR, heart rate; msec, milliseconds; AACAP, American Academy of Child and Adolescent Psychiatry.

Mood Stabilizers

Drug (generic)	Drug (brand)	Initial Dosage	Target Dosage Range	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children& Adolescents	Schedule	Patient Monitoring Parameters	Boxed Warning	Warnings & Precautions
Carbamazepine	Epitol®* tablet Tegretol®* tablet Tegretol®* (oral suspension; citrus vanilla flavor) Tegretol®* (chewable tab, cherry flavor some generic formulations) Tegretol®XR* tablet	Age 4-5 years: 10-20 mg/ kg/day in 2-3 divided doses Age 6-12 years: 100mg twice daily Age ≥ 13 years: 200mg twice daily	Age 4-5 years: 35 mg/kg/day Ages 6-12 years: 400-800 mg/day Age ≥ 13 years: 800- 1200 mg/day	Age 4-5 years: 35 mg/ kg/day Ages 6-12 years: 800 mg/day Age 13-15 years: 1000 mg/day Age >15	Approved for treatment of Seizure Disorders in all ages Age < 6 years: 35 mg/kg/day Age 6-12 years: 1000 mg/day Age >15 years: 1200 mg/day	Two to four times daily Twice daily	• CBC with differential - baseline and 1 to 2 weeks after each dose increase, annually, and as clinically indicated • Electrolytes - baseline and 1 to 2 weeks after each dose increase, annually, and as clinically indicated	Serious dermatological reactions and HLA-B*1502 allele Aplastic anemia and agranulocytosis	• Stevens-Johnson Syndrome • Aplastic anemia • Suicidality • Teratogenicity • Neutropenia and • agranulocytosis • Hyponatremia • Induces metabolism of itself and many other drugs (strong CYP 3A4 inducer)

Drug (generic)	Drug (brand)	Initial Dosage	Target Dosage Range	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children& Adolescents	Schedule	Patient Monitoring Parameters	Boxed Warning	Warnings & Precautions
	Carbatrol®* (extended release capsule) Equetro® (extended release capsule)			years: 1200 mg/day	The safety and effectiveness of EQUETRO in pediatric and adolescent patients have not been established.		• Hepatic function - baseline, monthly for first three months, annually and as clinically indicated. • Pregnancy Test --- baseline as appropriate, and as clinically indicated • Carbamazepine levels ---obtain 1 week after initiation and 3-4 weeks after dose adjustment, then as clinically indicated • For patients with Asian descent, genetic test for HLA- B*1502 at baseline (prior to the initiation of carbamazepine). May use results of previously completed testing. Patients testing positive for the allele should not use carbamazepine unless benefit outweighs the risk • Consider HLA-A*3101 genetic testing at baseline for those to be considered at high risk (most common in Asian, Native American, European, and Latin American descents) • Monitor for the emergence of suicidal ideation or behavior • Usual therapeutic trough level is between 4-12 mcg/ml		• Decreased efficacy of oral contraceptives • Withdrawal seizures • Contraindicated to use within 14 days of an MAOI
Divalproex Sod	Depakote®* delayed-release tablets Depakote® ER* extended- release tablets Depakote® sprinkle capsules*	Age ≥6 years: 10-15 mg/kg/d	Age ≥6 years: 30-60mg/kg/day	Age ≥6 years: Serum level: 125 µg/mL, or 60 mg/kg/day	Approved for treatment of Seizure Disorders (age ≥ 10 years) Maximum dose based upon serum level: 50-100 µg/mL, or 60 mg/kg/day	One to three times daily	• CBC - with differential and platelet count - baseline then 1 to 2 weeks after each dosage increase, every 3 months for the first year of treatment, then annually and as clinically indicated • Comprehensive Metabolic Panel (hepatic function, serum creatinine, BUN and electrolytes) – baseline, every 3 months for the first year of treatment, then annually and as clinically indicated. • Pregnancy Test – baseline as appropriate, and as clinically indicated • Trough Valproic acid level – 1-2 weeks after initiation and dosage change, then as clinically indicated. • Weight – baseline, quarterly for the first year of treatment, then annually and as clinically indicated • Monitor for the emergence of suicidal ideation or behavior	• Hepatotoxicity (increased risk with young children) atients (i.e., between 3 months and 10 years) have 50% higher clearances (i.e., mL/min/kg) than do adults. Over the age of 10 years, children have pharmacokinetic parameters that approximate those of adults. • Teratogenicity • Pancreatitis	• Hepatotoxicity • Pancreatitis • Urea cycle disorders • Teratogenicity • Suicidal ideation • Neutropenia and leukopenia (significant increased risk with quetiapine co-administration) • Thrombocytopenia • Hyperammonemia • Multi-organ hypersensitivity reaction • Withdrawal seizures • Polycystic ovarian syndrome • Weight gain potential • Aecia

Drug (generic)	Drug (brand)	Initial Dosage	Target Dosage Range	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children& Adolescents	Schedule	Patient Monitoring Parameters	Boxed Warning	Warnings & Precautions
							Usual therapeutic trough levels: Bipolar disorder: 50- 125 mcg/ml for valproic acid and Divalproex delayed release (Depakote®). Acute mania: 85-125 mcg/ml for divalproex extended release (Depakote ER®). A lower therapeutic trough level may be needed with divalproex extended release for maintenance treatment. For extended release products, a trough level is considered to be 18 to 24 hours after the last dose.		
Lithium	Lithium carbonate capsules Eskalith® CR (450 mg) extended-release tablet) Lithobid® ER (300 mg extended-release tablet) Lithium citrate* (oral solution, 300mg/5mL, raspberry flavor)	Age 6-11 years: 150mg twice per day Age ≥12 years: 300 mg twice per day	Dose adjustment based upon serum level; increase in weekly increments 12-hour post dose serum level: 0.6-1.2 mEq/L	Age ≥12 years: Serum level: 1.2 mEq/L, or 1800 mg	Approved for treatment of manic episodes and maintenance of Bipolar Disorder (age ≥ 7 years) Maximum dose: 20-30 kg: acute: 1500 mg maintenance: 1200 mg >30 kg: 1800 mg 12-hour post dose serum level: acute: 0.8-1.2 mEq/L maintenance: 0.8-1 mEq/L	One to four times daily	• EKG – baseline, yearly • CBC – baseline, yearly • Thyroid studies – baseline; then TSH every 6 months • Comprehensive Metabolic Panel, baseline, 3 months, annually. Caution: BUN: serum creatinine ratio >20 may be an indication of dehydration. • UA - baseline • Pregnancy Test • Trough Lithium Levels – one week (i.e., 5-7 days) after initiation or dosage change, 3 months after initiation; for maintenance treatment every 6 months • Weight – baseline, every 6 months • Usual trough therapeutic level: 0.6-1.2 meq/L (12 hrs. post dose)	Toxicity above therapeutic serum levels	• Toxicity above therapeutic serum levels; narrow therapeutic index • Chronic renal function impairment • Increased risk of toxicity possible for patients with significant renal disease, dehydration, sodium depletion, concomitant drug interactions (ACEI, ARBS, NSAIDs, COXII inhibitors, diuretics, etc.) • Polyuria • Tremor • Diarrhea • Nausea • Hypothyroidism • Teratogenicity

*Generic Available.

Symbols and Abbreviations: CR, controlled-release; ER and XR, extended-release; CYP, cytochrome P450; MAOI, monoamine oxidase inhibitor; ODT = orally disintegrating tablet; ACEI, Ace Inhibitor antihypertensive medication; ARP, Angiotensin Receptor Blocker antihypertensive medication, NSAIDs, non-steroidal anti-inflammatory drug; COX II inhibitors, cyclooxygenase II inhibitor pain medication; EKG, electrocardiogram; CBC, complete blood count; BUN, blood urea nitrogen; UA, urinalysis.

Drug (generic)	Drug (brand)+	Initial Dosage	Target Dosage Range	Literature Based Maximum Dosage	FDA Approved Maximum Dosage for Children & Adolescents	Schedule	Patient Monitoring Parameters	Boxed Warning	Warnings & Precautions
Lamotrigine	Lamictal® * Lamictal® CD* (chewable dispersible tablets) Lamictal® ODT* (oral disintegrating tablet; blackcurrant flavor)	Age 6-11 years: 2-5 mg/ day Age ≥12 years: 25 mg/day (increase by 25 mg every 2 weeks)	Epilepsy dosing Age 6-11 years Monotherapy: 4.5-7.5 mg/kg/day With Valproate: 1-3 mg/kg/day With Valproate and EIAEDs□: 1-5 mg/kg/day With EIAED's: 5-15 mg/kg/day Age ≥12 years Monotherapy: 225-375 mg/day With Valproate: 100-200 mg/day With Valproate and EIAEDs□: 100-400 mg/day With EIAEDs□: 300-500 mg/day See product labeling for detailed charts for alternate dosing in the presence of drug interactions i.e., divalproex/valproic acid OR EIAEDs (carbamazepine, phenytoin, phenobarbital, primidone)	See dosing tables below main table for recommended lamotrigine titration for 10-12-year-old and 13-17 year olds for pediatric bipolar disorder. Dosing is from a t randomized, placebo-controlled study conducted by Findling and colleagues for youth with bipolar disorder	Approved for adjunctive therapy for Seizure Disorders: Age 2-12: 400 mg/ day Age >12: 500 mg/day Use of doses > 200mg/day in adults with bipolar depression has not conferred additional efficacy) Not FDA-approved for treatment of Bipolar Disorder in patients younger than 18 years	Once or twice daily	• Renal Function - baseline and as clinically indicated • Hepatic Function - baseline and as clinically indicated • Pregnancy Test - baseline and as clinically indicated • CBC – baseline and as clinically indicated • Monitor for the emergence of suicidal ideation or behavior • Monitor for rash, especially during the first two months of therapy	Serious rashes including Stevens-Johnson syndrome	• Dermatological reactions • Potential Stevens-Johnson Syndrome; risk increased with too-rapid titration • Drug reaction with eosinophilia and systemic symptoms (DRESS) reactions have occurred • Suicidal ideation • Aseptic meningitis • Concomitant use with divalproex increases serum lamotrigine levels significantly (increased risk of rash/SJS without lamotrigine dose adjustment) • Concomitant use with enzyme inducing AEDs (carbamazepine, phenytoin, phenobarbital, primidone) reduces serum lamotrigine levels significantly (reduced lamotrigine efficacy possible without lamotrigine dose adjustment) • Concomitant use with oral contraceptives increases lamotrigine clearance • Withdrawal seizure potential
	Lamictal XR® * (extended-release tablet)	Age ≥ 13 years: 25 mg/day	Age ≥13 years (without concomitant drug interactions): 25mg once daily for 2 weeks, then 50mg once daily for 2 weeks, then 100mg once daily for 1 week, then 150mg once daily for 1 week, then 200mg once daily for 1 week, then increase to maintenance dose of 300-400mg/day thereafter. (Use of doses > 200mg/day in adults with bipolar depression has not conferred additional efficacy) See product labeling for detailed charts for alternate dosing in the presence of drug interactions i.e., divalproex/valproic acid OR EIAEDs (carbamazepine, phenytoin, phenobarbital, primidone)	Lamictal XR® has no published data for mood stabilization in pediatrics	Approved for adjunctive therapy for Seizure Disorder 13 years or older Maximum dose depends on presence of concomitant drug interactions, see product labeling Not FDA-approved for treatment of Bipolar Disorder in patients younger than 18 years	Once daily			
Oxcarbazepine	Trileptal® (film coated tablet) Trileptal® oral suspension* (plum-lemon flavor) Oxtellar XR® extended-release tablet	Reviewed but not included/recommended - insufficient evidence						None related to youth	

*Generic Available.

Symbols and Abbreviations: CD, chewable dispersible; ER and XR, extended-release; ODT, oral disintegrating tablet; kg, kilograms; XR, extended-release; EIAED's - Enzyme Inducing Anti-Epileptic Drugs (e.g. Carbamazepine, Phenobarbital, Phenytoin, Primidone).

Lamotrigine Dosing

Lamotrigine Dose Titration for Adolescents 10-12 years of age.

	For Patients Taking Valproate[a] (mg/kg/day)	For Patients not Taking Carbamazepine (or Other Enzyme-Inducing Drugs) and not Taking Valproate[b] (mg/kg/day)	For Patients Taking Carbamazepine (or Other Enzyme-Inducing Drugs) and not Taking Valproate[b] (mg/kg/day)
Study Week			
Weeks 1 and 2	0.15	0.3[a]	0.6
Weeks 3 and 4	0.3	0.6	1.2
Week 5	0.6	1.2	2.4
Week 6	0.9	1.8	3.6
Week 7	1.2	2.4	4.8
Week 8	1.5	3.0	6.0
Week 9	1.8	3.6	7.2
Week 10	2.1	4.2	8.4
Week 11	2.4	4.8	9.6
Week 12	2.7	5.4	10.8
Weeks 13–18	3.0	6.0	12.0
Maximum Dose	3 mg/kg/day or 100 mg/day[a] whichever occurred first	6 mg/kg/day or 200 mg/day[b] whichever occurred first	12 mg/kg/day or 300 mg/day[b] whichever occurred first

Note: [a]In 1 or 2 divided doses.
[b]In 2 divided doses (unless noted otherwise).

Lamotrigine Dose Titration for Adolescents 13-17 years of age.

Study Week	For Patients Taking Valproate	For Patients not Taking Carbamazepine (or Other Enzyme-Inducing Drugs) and not Taking Valproate	For Patients Taking Carbamazepine (or Other Enzyme-Inducing Drugs) and not Taking Valproate
Weeks 1 and 2	25 mg every other day	25 mg/day	50 mg/day
Weeks 3 and 4	25 mg/day	50 mg/day	100 mg/day[a]
Week 5	50 mg/day (minimum dose)	100 mg/day (minimum dose)	150 mg/day[a]
Week 6	75 mg/day	150 mg/day	200 mg/day[a] (minimum dose)
Week 7	100 mg/day (target dose)	200 mg/day (target dose)	250 mg/day[a]
Week 8	125 mg/day	250 mg/day[a]	300 mg/day[a] (target dose)
Week 9	150 mg/day (maximum dose)	300 mg/day[a] (maximum dose)	350 mg/day[a]
Weeks 10–18	150 mg/day	300 mg/day[a]	400 mg/day[a] (maximum dose)

Note: [a]In two divided doses.

Sedatives/Hypnotics

Drug (generic)	Drug (brand)	Initial Dosage	Literature Based Maximum Dosage**	FDA Approved Maximum Dosage for Children & Adolescents	Schedule	Black Box Warning**	Warnings & Precautions
Diphenhydramine	Benadryl®*	Age 3-5 years: 6.25-12.5 mg (1mg/kg max) Age 5-11 years: 12.5-25 mg Age ≥12 years: 25-50 mg	25-37 lbs: 12.5 mg 38-49 lbs: 19 mg 50-99 lbs: 25 mg ≥100 lbs: 50 mg Evidence suggests that tolerance develops to the hypnotic effects of diphenhydramine within 5-7 nights of continuous use.	Approved for treatment of insomnia (age ≥12 years): 50 mg at bedtime	Once at bedtime	None	• Drowsiness • Dizziness • Dry mouth • Nausea • Nervousness • Blurred vision • Diminished mental • alertness • Paradoxical excitation • Respiratory disease • Hypersensitivity reactions • May lower seizure threshold (avoid in epilepsy)
Trazodone*	Desyrel®*	Children: Insufficient Evidence Adolescents: 25 mg	Children: Insufficient Evidence Adolescents: 100 mg/day	Not approved for use as a hypnotic.	Once at bedtime	Increased the risk compared to placebo of suicidal thinking and behavior (Suicidality) in children, adolescents, and young adults in short-term studies of major depressive disorder (MDD) and other psychiatric disorders	• Serotonin Syndrome • Use Contraindicated within 14 days of an MAOI • Suicidal ideation • Activation of mania/hypomania • Discontinuation syndrome • Abnormal bleeding • QT prolongation and risk of sudden cardia death • Orthostatic hypotension and syncope • Abnormal bleeding • Priapism • Hyponatremia • Cognitive and motor impairment
Eszopiclone	Lunesta®*	Reviewed but not included/recommended - insufficient evidence/increased rate of adverse events in pediatric patients				None	• Complex sleep behaviors possible • Abnormal thinking and behavior changes • Withdrawal effects • Drug abuse and dependence • Tolerance
Melatonin	No brand name	Age 3-5 years: 0.5mg Age ≥6 years: 1mg	Age 3-5 years: 0.15 mg/kg or 3 mg, whichever is less Age ≥6 years: 0.15mg/kg or 6mg, whichever is less	Regulated by FDA as a dietary supplement and not as a medication (no FDA approved indications)	Once at bedtime or alternatively, give 5-6 hrs before Dim Light Melatonin Onset (DLMO)	None	• Sedation • Should be given directly before onset of sleep is desired due to short half-life
Ramelteon	Rozerem®	Reviewed but not included/recommended - insufficient evidence				None	• Hypersensitivity reactions • Need to evaluate for comorbid diagnoses • Abnormal thinking and behavioral changes • CNS depression • Decreased testosterone possible • Hyperprolactinemia possible
Hydroxyzine*	Vistaril®*	Age 3-5 years: 25 mg Age ≥6 years: 50mg	Age 3-5 years: 25 mg Age 6-11 years: 50mg Age 12 years and older: 100 mg	Approved for treatment of anxiety and tension: Age <6 years: 50 mg/day in divided doses Age = 6 years: 50-100 mg/day in divided doses Approved as a sedative when used as a premedication and following general anesthesia: 0.6 mg/kg	Once at bedtime	None	• Drowsiness • Dry mouth • Involuntary motor activity • Blurred vision, dizziness, diminished mental alertness • Paradoxical excitation associated with a small but definite risk of QT interval prolongation and torsades de pointes
Suvorexant	Belsomra®	Reviewed but not included/recommended - insufficient evidence				None related to youth	• Sleep paralysis • Somnolence
Zolpidem	Ambien®*	Reviewed but not included/recommended – evidence of possible harm				None related to youth	• Hallucinations in children 6-17 have been reported • Complex sleep behaviors possible • Abnormal thinking and behavior changes • Withdrawal effects • Drug abuse and dependence • Tolerance
Benzodiazepines	Alprazolam/ Xanax®* Clonazepam/ Klonopin®* Diazepam/ Valium®* Lorazepam/ Ativan®* Oxazepam/ Serax®* (brand name unavailable) Temazepam/ Restoril®*	Reviewed but not included/recommended – evidence of possible harm/increased incidence of adverse effects and potential for abuse and/or addiction				Risks from concomitant use with opioids	• Withdrawal effects • Drug abuse and dependence • Tolerance • Sedation potential

*Generic Available

Special Considerations

It is best to optimize the dose of psychotropic medication and allow an adequate trial (usually 4-8 weeks, depending on medication class) before a switch in psychotropic medication is performed, unless adverse effects prohibit or limit the current treatment.

Titration of Antidepressant Medications

For most antidepressant medications, start at the recommended initial dose and wait approximately one week in between dose increases (as tolerated) until the target dose is achieved. It is recommended to start low and go slow to reduce treatment-emergent anxiety and potential activation. Guidelines suggest weekly contact with the young patient and their parent/caregiver for the first 4 weeks of treatment and bi-weekly thereafter. (NICE 2005; AACAP 2007; FDA) As with other medications treatments for Major Depressive Disorder and anxiety disorders, symptom improvement/response may be delayed until 4 weeks of treatment or longer.

Taper of Antidepressant Medications

For antidepressant treatment duration >4-6 weeks, taper is recommended to avoid withdrawal symptoms (flu-like symptoms, anxiety, irritability, nausea, 'electric shock' sensation, etc.) and to reduce potential for symptom worsening and relapse. The taper schedule should be tailored depending on patient diagnosis and individual characteristics.

Abrupt discontinuation of antidepressant medications is generally NOT recommended. For significant or severe adverse effects, abrupt discontinuation may be advised; however, withdrawal adverse effects and relapse/symptom exacerbation are possible. A number of strategies for switching or discontinuing antidepressant medications have been studied in adults. A paucity of evidence exists to guide best practice for antidepressant tapering and discontinuation in youth. The following is based on review of available data, clinical experience, and expert consensus.

Tapering to discontinue: Antidepressant taper should occur slowly over at least 4 weeks [Example taper schedule: 10-20-25% dose reduction (from initial dose) each week until discontinuation is complete].

For patients achieving remission on antidepressant medications for a significant duration of time OR if significant withdrawal symptoms/symptom recurrence occur(s) during taper, a longer and slower taper can be considered (up to 12 weeks).

Switching between antidepressant classes: Cross-taper should occur over no longer than 4 weeks. Use caution using two antidepressant medications in higher doses to reduce the risk of serotonin syndrome (symptoms include: hyperthermia, hyperreflexia, agitation, tremor, sweating, altered mental status, tachycardia, etc.). An example taper schedule is: 25-50% dose reduction each week of previous antidepressant with titration of new antidepressant starting at 25% of target dose, then increasing over 2-4 weeks to target dose.

Switching between SSRIs: In cases of switching between SSRI medications, a direct switch can be performed (i.e., take the last dose of one SSRI medication one day, and then start an equivalent/therapeutic dose of a different SSRI the next day and discontinue previous SSRI). Taper is also possible, with a taper duration not to exceed approximately 2 weeks.

Individual medication considerations for tapering:

Fluoxetine: Due to the long half-life of fluoxetine (and active metabolite norfluoxetine), if dose is less than 40 mg/day, you may consider taper and discontinuation over 7-14 days [e.g., reduce to 20mg for 7 days, then 10mg for 7 days, then stop] depending on individual clinical factors. A longer taper is recommended if withdrawal symptoms occur or if clinical presentation worsens during taper.

Paroxetine: Due to the short half-life of paroxetine, a longer and slower taper may be necessary with a goal of discontinuation to prevent withdrawal and symptom exacerbation.

Titration of Antipsychotic Medications

Medication	Indication	Initial Dose	Titration Increments	Target Dose	Effective Daily Dose Range
Risperidone Usual dosing is once daily, but can change to twice daily for persistent somnolence	Schizophrenia adolescents	0.5 mg/day	0.5-1 mg; no more often than daily*	3 mg	1-6 mg
	Bipolar mania children and adolescents	0.5mg/day	0.5-1mg; no more often than daily*	1-2.5 mg	1-6 mg
	Irritability in autistic disorder body weight < 20 kg	0.25mg/day	Can ↑ to 0.5mg on Day 4; then ↑ by 0.25mg every 2+ weeks	0.5mg	0.5 – 3mg
	Irritability in autistic disorder body weight ≥ 20 kg	0.5 mg/day	Can ↑ to 1mg on Day 4; then ↑ by 0.5mg every 2+ weeks	1 mg	0.5 – 3mg
Aripiprazole Once daily dosing is recommended	Schizophrenia adolescents	2 mg/day	2mg x2 days; then 5mg x2 days; then 10 mg target; can ↑ in 5mg increments thereafter every 2+ weeks	10 mg	30 mg
	Bipolar mania children and adolescents	2 mg/day	2mg x2 days; then 5mg x2 days; then 10 mg target; can ↑ in 5mg increments thereafter every 2+ weeks	10 mg	30 mg
	Irritability in autistic disorder body weight < 20 kg	2 mg/day	2mg x2 days; then 5mg; can ↑ in 5mg increments gradually at intervals of no less than 1 week	5-10 mg	15 mg
	Tourette's body weight < 50 kg	2 mg/day	2mg x2 days; then 5mg; can ↑ in 5mg increments gradually at intervals of no less than 1 week	5 mg	10 mg
	Tourette's body weight ≥ 50 kg	2 mg/day	2mg x2 days; then 5mg x5 days, with a target dose of 10mg/d on Day 8; can ↑ in 5mg increments gradually at intervals of no less than 1 week	10 mg	20 mg
Quetiapine Usual dosing is twice daily, but can change to three times daily dosing for tolerability (sedation/somnolence);	Schizophrenia adolescents	25mg twice daily	Day 1: 50mg total dose, divided twice daily Day 2: 100mg total dose, divided twice daily Day 3: 200mg total dose, divided twice daily Thereafter, can gradually ↑ in increments of no more than 100mg/day; not to exceed the max recommended daily dose	400-800 mg/day	800 mg
	Bipolar mania children and adolescents	25mg twice daily	Same titration as above	400-600 mg/day	600 mg
Olanzapine Once daily dosing in the evening is recommended	Schizophrenia adolescents	2.5-5mg/day	Titration increments of 2.5-5 mg are recommended	12.5 mg	10-20mg
	Bipolar mania children and adolescents	2.5-5mg/day	Titration increments of 2.5-5 mg are recommended	10 mg	10-20mg
Asenapine Twice daily dosing is recommended Sublingual (SL) administration only; fully dissolve tablet under tongue, then wait 10 minutes to eat or drink	Bipolar mania in 10-17 year- olds	2.5 mg SL twice daily	2.5 mg SL twice daily x3 days, then 5mg SL twice daily x3 days. Thereafter can ↑ to 10mg SL twice daily if desired after no more than 3 days. Note: Faster titration may increase risk of dystonia.	2.5 – 10mg SL twice daily (5mg – 20mg total daily dose)	10mg SL twice daily
Paliperidone Once daily dosing is recommended	Schizophrenia adolescents body weight < 51 kg	3 mg/day	Initial dose titration is not required. Dose adjustments can be made in increments of 3mg, at intervals of 5+ days.	3-6 mg	6mg
	Schizophrenia adolescents body weight ≥ 51 kg	3 mg/day	Initial dose titration is not required. Dose adjustments can be made in increments of 3mg, at intervals of 5+ days.	3-12 mg	12mg
Lurasidone Once daily dosing is recommended Take with food ~ at least 350 calories	Schizophrenia adolescents	40mg/day	Initial dose titration is not required	40-80mg	80mg
	Depressive episode in Bipolar I disorder in children and adolescents	20mg/day	Initial dose titration is not required. The dose may be ↑ after 1 week based on response & tolerability.	20-40mg	80mg
Olanzapine (O) /fluoxetine (F) combination Once daily dosing in the evening is recommended	Depressive episode in Bipolar I disorder in children and adolescents	2.5mg (O) +20mg (F) once a day	Titration increments of 2.5-5 mg (O) are recommended; Titration increments of 10-20 mg (F) are recommended	2.5-10 (O)/ 20-50 (F)	12mg (O)/50mg (F)

Recommended titration for antipsychotic medications with FDA-approved indications in children and adolescents (based on individual product labeling/package inserts).
Abbreviations/symbols: ↑ = increase(d); QD = once daily dosing; BID = twice daily dosing (usually morning and evening, 10-12 hours apart); TID = three times daily dosing (usually 6-8 hours apart); kg = kilograms (1 kg is equivalent to 2.2 pounds); SL = sublingual; O = olanzapine/F = fluoxetine
*Slower titration may be advisable for some patients, particularly those with a history of adverse events or EPS with antipsychotic medications.

Taper of Antipsychotic Medications

Several strategies for switching or discontinuing antipsychotic medications have been studied in adults. A paucity of evidence exists to guide best practice for antipsychotic tapering and discontinuation in youth. The following is based on review of available data, clinical experience, and expert consensus.

In patients with antipsychotic use > 4 weeks, psychotic disorders, patients with a history of repeated relapse, or treatment resistant symptoms, abrupt antipsychotic discontinuation is generally not advised. Withdrawal adverse effects and relapse/symptom exacerbation are possible. For dangerous or severe adverse effects, abrupt discontinuation may be necessary to reduce the risk of potential harm to the patient. Neuroleptic malignant syndrome (NMS) is a life-threatening reaction to antipsychotic medications, which typically presents with high fever, muscle rigidity, confusion, autonomic instability, etc. In the case of neuroleptic malignant syndrome, abrupt discontinuation of the antipsychotic is required, as well as emergency management to reduce body temperature and blood pressure. For patients experiencing less-severe treatment-emergent adverse effects for which discontinuation is desired, a faster taper may also be possible, depending on clinician discretion/judgment.

For antipsychotic treatment duration >4 weeks, taper is recommended to avoid withdrawal symptoms (withdrawal dyskinesia, etc.) and to reduce potential for symptom worsening and destabilization. The taper schedule should be tailored depending on patient diagnosis and individual characteristics, as well as, the goal of medication switch vs. discontinuation. A faster taper may be possible under close monitoring during inpatient hospitalization.

Tapering to discontinue: Antipsychotic taper should occur in increments over at least 3-4 weeks [example taper schedule: 25%-50% dose reduction initially (from initial dose), then reduce by 25% bi-weekly or once a week]. A longer taper is recommended if withdrawal symptoms occur or if clinical presentation worsens during taper, or if the goal of taper is to discontinue after remission of symptoms has occurred for an adequate period depending on the condition being treated.

Switching between antipsychotics: If switching antipsychotics, it is generally advisable to cross-taper/titrate agents concurrently over approximately 2 weeks. Judicious dosing of the newly started agent is advised to reduce the potential for extrapyramidal adverse effects. Direct switch between antipsychotics has been studied in adult patients with mixed results. If direct antipsychotic switch is utilized in youth, close monitoring is recommended. Gradual discontinuation/cross-taper may be most appropriate for the majority of patients. In all cases, the period of overlapping antipsychotic administration should be minimized to no longer than 4 weeks.

Antipsychotic polypharmacy taper: In patients taking two antipsychotics concurrently for maintenance treatment, you may consider slowly tapering one antipsychotic agent over 6-8 weeks, with the goal of maintenance treatment with only one antipsychotic medication. Maintenance treatment with two antipsychotic medications (i.e., antipsychotic polypharmacy) is not advised due to a lack of evidence for efficacy as replicated in numerous studies, and evidence of significantly increased adverse effects.

In patients with neurodevelopmental disorders, slower antipsychotic taper (12-14 weeks) may be advised due to reported rebound symptomatology and agitation with more rapid taper (Baumeister, 1998; Kuijper, 2014).

Levels of Evidence for Efficacy in Child & Adolescent Psychopharmacology

This tool provides summary information for health care providers in determining levels of evidence for psychopharmacological treatment. Information summarized here is not reviewed at a level of detail to allow detailed inferences about specific medications within medication classes. For example, although there might be support for one medication within a class (e.g., SSRIs), there might be minimal or no support for others within that same class. For more specific information, please seek detailed reviews of specific medications and their use. FDA approved medications for a given indication are marked with an asterisk*

PROBLEM AREA	MEDICATION	SHORT-TERM EFFICACY	LONG-TERM EFFICACY
Anxiety Disorders	SSRIs Benzodiazepines	A C	B C
OCD	SSRIs*	A	C
ADHD	Stimulants* Atomoxetine* & TCAs Central Adrenergic Agonists*	A A A	A B C
Autism (for irritability and aggression)	Atypical antipsychotics *	A	B
Aggressive Conduct Problems with or without ADHD	Lithium Valproate Carbamazepine Atypical antipsychotics	B A - C A	C C C B
Bipolar Disorder	Lithium* Valproate Carbamazepine Atypicals*	A C C A	C C C C
Depression **Treatment Resistant MDD**	SSRIs* TCAs Switching: SSRIs = Venlafaxine	A C B	C C C
Schizophrenia (psychotic disorders)	Antipsychotics*	A	B
Tourette's	Antipsychotics* Central Adrenergic Agonists	A B	C C

SSRI = Selective Serotonin Reuptake Inhibitor TCA = Tricyclic Antidepressant

A = Adequate data to inform prescribing practices. For efficacy and safety: 2 ≥ randomized controlled trials (RCTs) in youth; long-term efficacy and safety are defined based on studies lasting 12 months or longer. Please note, for safety, "A" doesn't mean "safe", it merely indicates that the risks have been characterized in 2 or more carefully executed studies.

B = For short- and long-term efficacy and short-term safety: 1 RCT in youth or mixed results from ≥ 2 RCTs. For long-term safety, only 1 careful prospective study lasting 12 months or more, or mixed results from ≥ 2 longitudinal studies.

C = No controlled evidence or negative studies; case reports and FDA reports of adverse events only.

#=Safety category designations refer to whether sufficient data are available to determine the risks vs. benefits of treatment vis-à-vis the risks relatively common side effects. Very rare side effects cannot be anticipated and can sometimes be severe, so it cannot be assumed that the treatment benefits for a given child outweigh possible rare risks or side effects experienced by that child.

This table is provided for informational use, only by licensed health care providers, by The REACH Institute, www.TheReachInstitute.org. The table is not intended for use as a stand-alone guide but should only be used in conjunction with evidence- and consensus-based guidelines for specific disorders.

Adapted and used with permission from The Reach Institute Table last updated: December 20, 2018 -- Peter S. Jensen & M. Lynn Crismon

Glossary
ANC = absolute neutrophil count **BMI** = Body Mass Index. A measure of body fat based upon height and weight. **CBC** = Complete blood count. Lab test used to monitor for abnormalities in blood cells, e.g., for anemia. **Cp** = Plasma concentration **Serum creatinine** = A lab test used to calculate an estimate of kidney function. **EKG =** Electrocardiogram **EEG =** Electroencephalogram **EPS =** Extrapyramidal side effects. These are adverse effects upon movement, including stiffness, tremor, and severe muscle spasm **FDA =** U.S. Food and Drug Administration **HbA1c =** Hemoglobin A1c is a laboratory measurement of the amount of glucose in the hemoglobin of the red blood cells. Provides a measure of average glucose over the previous 3 months **LFTs =** Liver function tests **MAOIs =** Monoamine Oxidase Inhibitors **MRI =** Magnetic resonance imaging **PRN =** as needed **Prolactin =** A hormone produced by the pituitary gland **TFTs =** Thyroid Function Tests

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- Dr. Crismon has nothing to declare.
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- The other members of the working group do not have any financial relationships to disclose.

Disclaimer

The authors of this document have worked to ensure that all information in the parameters is accurate at the time of publication and consistent with general psychiatric and medical standards and consistent with FDA labeling and information in the biomedical literature. However, as medical research and practice continue to advance, therapeutic standards may change, and the clinician is encouraged to keep up with the current literature in psychiatry and clinical psychopharmacology. In addition, not all potential adverse drug reactions or complications are listed in the tables, and the clinician should consult the official FDA labeling and other authoritative reference sources for complete information. These parameters are not a substitute for clinical judgment, and specific situations may require a specific therapeutic intervention not included in these parameters.

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APPENDIX II

Therapy FAQ

What should I be asking my patients about their therapy?

- How often is your child / teen going to therapy?
- How are you involved in your child's / teen's therapy?
- What are you and your child learning in therapy?
- What about therapy is going well? What is not going well?
- What is the therapist giving you to think about / do between sessions?

What can I do if therapy resources are limited in my area?
Focus on how the therapy work is going with the available provider.

What type of providers can work with pediatric patients?
Appropriate therapy provider credentials include: PhD, PsyD, MD, DO, LMHC, LMFT, BCBA, MSW, LCSW. IN allows other kinds of degrees to advertise themselves as therapy providers; while these individuals can provide good support they aren't always trained in evidence based therapies.

Why do therapists play and use games with my patients? Play is frequently used in different types of therapies with young children for a variety of reasons (e.g. building rapport, allowing communication). Play is not the same as play therapy.

Therapy Format

Individual Therapy: Therapist works 1:1 with child / teen. Parent involvement should be based on patient's age.	**Family Therapy**: Typically involves child and at least one parent. May also include siblings and other family members. Focuses on improving family relationships and overall family functioning.	**Parent Management Training**: Therapist works with parents and child to change parenting behaviors, and teach positive reinforcement methods to help parents better manage behavior problems.	**Group Therapy**: Tend to be content-specific (e.g. anger management, grief / loss support, social skills). Most often available through CMHC's / schools.	**Skills Training:** Child / teen works with a clinician to help develop specific skills (e.g. social skills, coping skills, organizational skills, life skills).

Therapy Settings					
Outpatient Clinic: Therapy services provided in an outpatient clinic. Various location options / settings.	**Home-Based Therapy:** Therapy services provided in the home.	**School Based Therapy:** Therapy services provided in school; ideally include parent sessions outside of school. Offered typically by CMHC's affiliated with school. Availability varies during summer.	**Integrated Care:** Therapy provide consultation and short-term therapy services in pediatric primary care settings.	**Intensive Outpatient (IOP):** Directed toward patients who need more frequent group and individual therapy. Typically 2-3 times per week for 2-4 hours after school or in early evenings.	**Partial Hospitalization Program (PHP**): More intense than traditional outpatient counseling, but less intense than inpatient treatment. Full day programming, then return home.

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