This document was developed by Community Care of North Carolina with the assistance of the Medication Management Workgroup of the Fostering Health NC initiative, a project of the NC Pediatric Society (<u>www.ncpeds.org/fosteringhealthnc</u>). The information contained in this guide is not intended to substitute or act as medical advice. If you have any questions about a medication prescribed to a child or adolescent in your care, contact the prescriber or a licensed medical professional.

Definition of Psychotropic Medication:

Medication used in the treatment of mental illnesses and capable of affecting the mind, emotions, and behavior.

Use of this Information:

The tables below offer information for care managers and foster and resource parents to use when they want to learn more about certain psychotropic medications. Specific information is outlined including the therapeutic class, brand and generic names, FDA approved uses, common evidence-based uses, potential side effects, and medication-specific safety/effectiveness monitoring necessary when prescribed to a child or adolescent. Because few medications have been FDA approved for use in children 5 years of age and under, there is a column in the table that lists the FDA approved status and age ranges for the approved uses of each medication. This guide also provides a color-coded quick reference guide for each medication (Appendix A), questions that a foster or resource parent should ask a prescriber (Appendix B), and a glossary of terms (Appendix C). *Information provided in this document is based on "Psychotropic Medication Utilization Parameters for Children and Youth in Foster Care"*, 5th Version- Texas Dept. of FPS; Lexicomp.

Table of Contents:	Page(s):
ADHD Medications	2
Depression & Anxiety Medications	3-4
Second Generation Antipsychotic Medications	5-6
Mood Stabilizer Medications	7-9
Sleep Medications	10-11
Appendix A: Color-Coded Psychotropic Medications	12-13
Appendix B: Questions to Ask the Prescriber	14
Appendix C: Glossary of Terms	15-16





Author:

Jerry McKee Pharm. D., M.S., BCPP Medical Affairs- Director of Pharmacy Community Care of North Carolina 2300 Rexwoods Drive, Suite 100 Raleigh, NC 27607 919-516-8118 | <u>_imckee@n3cn.org</u>

		ADHD	Medication	าร	
			Stimulants		
Generic Name	Brand Names	FDA Approval Age/Indication	Other Common Uses in Children	Potential Side Effects	Monitoring
Amphetamine Mixed Salts	Adderall, Adderall XR	3 and older; 6 and older (XR)	None	Increased blood pressureIncreased heart rate	HeightWeight
Dextroamphetamine	Dexedrine, Zenzedi	3 and older		Tics (abnormal movement	Heart rate
Lixdexamfetamine	Vyvanse	6 and older		most often in the face)	Blood pressure
Methylphenidate	Ritalin, Ritalin SR, Ritalin LA, Methylin, Methylin ER, Metadate ER, Metadate CD, Quillivant XR, Concerta	6 and older		 Weight loss Loss of appetite Sleep disturbance Irritability/anxiety 	
Dexmethylphenidate	Focalin, Focalin XR	6 and older			
		Other A	DHD Medication	IS	
Generic Name	Brand Names	FDA Approval Age/Indication	Other Common Uses in Children	Potential Side Effects	Monitoring
Atomoxetine	Strattera	6 and older	None	 Increased blood pressure Increased heart rate Sleep disturbance Stomach discomfort Dizziness 	 Height Weight Heart rate Blood pressure
Clonidine	Catapres, Kapvay	IR form not FDA approved for children; ER form ages 6-17	None	 Low blood pressure Decreased heart rate Feeling faint or dizzy Feeling tired 	 Heart rate Blood pressure
Guanfacine	Tenex, Intuniv	6 and older	None	1	

	[)epression &	Anxiety Me	dications		
	9	SRIs (Selective Se	erotonin Reuptak	e Inhibitors)		
Generic Name	Brand Names	FDA Approval Age/Indication	Other Common Uses in Children	Potential Side Effects	Monitoring	
Citalopram* Escitalopram Fluoxetine Paroxetine* Fluvoxamine Sertraline Vilazodone*	Celexa Lexapro Prozac Paxil Luvox Zoloft Vibryd	18 and older12-17 for depression8 and older for depression18 and older8 and older for OCD6 and older for OCD18 and older	Obsessive Compulsive Disorder (OCD)	 Suicidal thoughts or behavior Weight gain Headache Stomach discomfort Sleep disturbance Flu-like symptoms if stopped too quickly Abnormal generalized bleeding risk 	 Suicidal thoughts or behavior Height Weight Sodium levels in the blood 	
*not approved for childr						
	SNR	s (Serotonin-Nore	<u>· · · ·</u>	ptake Inhibitors)		
Generic Name	Brand Names	FDA Approval Age/Indication	Other Common Uses in Children	Potential Side Effects	Monitoring	
Venlafaxine* Duloxetine	Effexor, Effexor XR Cymbalta	18 and older	Obsessive Compulsive Disorder (OCD)	 Suicidal thoughts or behavior Weight gain 	 Suicidal thoughts or behavior Height 	
Desvenlafaxine* Clomipramine	Pristiq Anafranil	18 and older 10 and older for OCD	_	• Hypona	 Headache Seizures Hyponatremia/low blood sodium levels 	 Weight Blood pressure during initial dose adjustment and periodically thereafter
Levmilnacipram* *not approved for childr	Fetzima en and adolescents	18 and older		 Hepatic toxicity/liver damage Skin reactions Stomach discomfort Sleep disturbance Flu-like symptoms if stopped too quickly Elevated blood pressure/pulse Abnormal bleeding risk 	 Hepatic function testing baseline and periodically CBC and EKG baseline and periodically 	

		Other Depressi	on & Anxiety Me	edications	
Generic Name	Brand Names	FDA Approval Age/Indication	Other Common Uses in Children	Potential Side Effects	Monitoring
Mirtazapine*	Remeron	18 and older	None	Suicidal thoughts or behavior	Suicidal thoughts or behavior
Vortioxetine*	Brintellix/Trintellix	18 and older	None	 Abnormal bleeding risk Weight gain Headache Hyponatremia Stomach discomfort Sleep disturbance Flu-like symptoms if stopped too quickly Dizziness Liver toxicity, seizures, and white blood cell decrease risk with mirtazapine 	 Height Weight Blood pressure-during titration and periodically Hepatic function testing baseline and periodically CBC baseline and periodically Cholesterol testing at baseline and periodically
Bupropion*	Wellbutrin, Wellbutrin XL/SR	18 and older	ADHD	 Increased blood pressure, elevated pulse Seizure risk Discontinuation Syndrome if stopped abruptly Appetite suppression Suicidal thoughts or behavior 	 Blood pressure and pulse during titration and periodically Suicidal thoughts or behavior Seizure risk with other medications Weight

	Secon	d Generation	Antipsychoti	ic Medications	
Generic Name	Brand Names	FDA Approval Age/Indication	Other Common Uses in Children	Potential Side Effects	Monitoring
Aripiprazole	Abilify	Approved for children 10 and older for bipolar disorder, manic or mixed episodes. Approved for adolescents 13 to 17 -for schizophrenia and bipolar disorder. Approved for 6 to 17 year olds for irritability associated with autistic disorder	Approved for bipolar mania or mixed episodes (10-17 years); schizophrenia (13-17 years); irritability associated with autism spectrum disorder (6-17 years)	 Acute Extrapyramidal symptoms Tardive dyskinesia Neuroleptic malignant syndrome Hyperglycemia, diabetes mellitus Elevated prolactin, gynecomastia, amenorrhea Weight gain Dyslipidemia 	 Fasting plasma glucose or hemoglobin A1c and lipids at baseline, 3 months, then every 6 months EKG- baseline and periodically CBC- baseline and periodically Blood pressure each visit Pulse each visit Weight/height/BMI at each visit
Quetipine	Seroquel, Seroquel XR	Approved for adolescents 13 and older for schizophrenia. Approved for young adults 18 and older for bipolar disorder. Approved for 10 to 17 years olds for manic and mixed episodes of bipolar disorder	Approved for bipolar mania (10-17 years); schizophrenia (13-17 years)	 CBC abnormalities Lowered seizure threshold Dysphagia Hyperthermia/lowered heat tolerance Cognitive impairment (confusion and/or inability to focus that differs from baseline) 	 EPS evaluation baseline and weekly until dose stabilized Tardive dyskinesia evaluation every 3 months Clozapine-requires REMS Vision assessment for changes annually Sexual function-at each visit for first 12 months then every 6 months
Olanzapine	Zyprexa	ETC. 18 and older- schizophrenia; 13 to 17- second line treatment for manic or mixed episodes of bipolar disorder	Approved for bipolar mania or mixed episodes and schizophrenia (13-17 years)		
Risperidone	Risperdal	ETC. 13 and older- schizophrenia; 10 and older- bipolar mania and mixed episodes; 5 to 16- irritability associated with autism	Approved for schizophrenia (13-17 years); bipolar mania or mixed episodes (10- 17 years); irritability associated with autism spectrum disorder (5- 16 years)	Same as previous page	Same as previous page

Psychotropic Medications in Children and Adolescents: Guide for Use and Monitoring (03.22.17)

Generic Name	Brand Names	FDA Approval Age/Indication	Other Common Uses in Children	Potential Side Effects	Monitoring
Clozapine*	Clozaril, FazaClo, Versacloz	18 and older	None		
Asenapine	Saphris	18 and older	Approved for acute treatment of bipolar mania and mixed episodes (10-17 years)		
lloperidone*	Fanapt	18 and older	None		
Paliperidone	Invega	12 and older	Approved for treatment of schizophrenia (12-17 years)		
Ziprasidone*	Geodon	18 and older	None		
Lurasidone*	Latuda	18 and older	None		
Brexpiprazole*	Rexulti	18 and older	None		

		Mood St	tabilizer Me	dications	
Generic Name	Brand Names	FDA Approval Age/Indication	Other Common Uses in Children	Potential Side Effects	Monitoring
Carbamazepine	Tegretol, Tegretol XR, Epitol, Carbatrol, Equetro	Not FDA approved for bipolar disorder or mood lability in children and adolescents*	FDA approved for seizures-all ages	 Stevens-Johnson Syndrome (severe rash) Aplastic anemia Suicidal ideation Teratogenicity CBC abnormalities Hyponatremia Induces metabolism of many other medications and decreases their efficacy- including oral contraceptives Withdrawal seizures Ataxia/dizziness Sedation Slurred speech Nausea/vomiting 	 Baseline then every 6-12 months CBC with differential, comprehensive chemistry panel[‡], EKG Pregnancy test at baseline Drug levels every 1-2 weeks for initial 2 months, then every 3-6 months
Divalproex Sodium	Depakote, Depakote ER, Depakote Sprinkles	Not FDA approved for bipolar disorder or mood lability in children and adolescents*	FDA approved for seizures-ages 2 and older	 Transient increase in liver function tests up to hepatotoxicity Pancreatitis Bruising Urea cycle disorders Teratogenicity Suicidal ideation CBC abnormalities Hyperammonemia Multi-organ hypersensitivity reaction Polycystic ovary syndrome Weight gain Nausea/vomiting Alopecia Withdrawal seizures 	 Baseline then every 6 months CBC with differential, comprehensive chemistry panel[‡] Pregnancy test at baseline Drug levels weekly for 2-3 weeks, then every 3-6 months Weight Suicidal thoughts or behavior

		Mood St	abilizer Me	dications	
Generic Name	Brand Names	FDA Approval Age/Indication	Other Common Uses in Children	Potential Side Effects	Monitoring
Lithium	Eskalith, Eskalith CR, Lithobid	Approved for adolescents age 12 and older for bipolar disorder	Approved for manic episodes and bipolar maintenance for children >=12 years	 Narrow therapeutic index drug Chronic renal impairment Polyurea/polydipsia Tremor of hands, upper extremities Diarrhea Nausea/vomiting (take with food) Lethargy, weakness, confusion Hypothyroidism Teratogenicity 	 Baseline then every 6-12 months CBC with differential, comprehensive chemistry panel[‡], EKG, thyroid function testing Pregnancy test at baseline Drug levels after 1-2 weeks of treatment or each dosage change, monthly for 3 months, then every 3- 6 months
Lamotrigine	Lamictal	Not FDA approved for bipolar disorder or mood lability in children and adolescents*	FDA approved for seizures ages 2 and older	 Potential Stevens-Johnson Syndrome (severe rash)-risk increases with rapid titration Multi-organ hypersensitivity reaction Suicidal ideation Dizziness/Ataxia Headache Nausea/vomiting Diplopia Aseptic meningitis Drug interaction with divalproex increases lamotrigine; with carbamazepine, phenytoin decreases lamotrigine levels Concomitant use with oral contraceptives decreases lamotrigine levels Withdrawal seizures 	 Dermatologic evaluation at baseline and patient education regarding reporting of new skin rash Suicidal thoughts or behavior

Generic Name	Brand Names	FDA Approval Age/Indication	Other Common Uses in Children	Potential Side Effects	Monitoring
Oxcarbazepine	Trileptal	Not FDA approved for bipolar disorder or mood lability in children and adolescents*	FDA approved for seizures ages 4 and older	 Hyponatremia risk Anaphylactic reactions with angioedema Drug-drug interaction potential Dizziness, ataxia Diplopia Tremor Slurred speech Serious dermatologic reactions Withdrawal seizures Multi-organ hypersensitivity Hematologic changes 	• Electrolytes at baseline and every 3-6 months
agents listed, while no	Hematologic changes While difficult to establish a definitive diagnosis of bipolar disorder in children and adolescents, the mood stabilizing antiepileptic agents listed, while not FDA approved for use in children and adolescents, do have some body of published evidence based support and have received FDA approval for seizure disorder management, suggested a reasonable safety margin for that use.				

		Sle	ep Medicati	ons	
Generic Name	Brand Names	FDA Approval Age/Indication	Other Common Uses in Children	Potential Side Effects	Monitoring
Diphenhydramine	Benadryl	Approved for children 12 and older for the treatment of insomnia	None	 Drowsiness Dizziness Dry mouth Nausea Nervousness Blurred vision Decreased mental alertness Paradoxical excitation May lower seizure threshold 	 Caution – Assess compliance with avoiding operation of machinery or power equipment until medication effects with use of this medication are determined Daytime sedation/hangover
Trazodone*	Desyrel	18 and older	None	 Suicidal thoughts or behavior Abnormal generalized bleeding risk Hyponatremia Stomach discomfort Flu-like symptoms if stopped too quickly Orthostatic hypotension/syncopy Cognitive/motor impairment Priapism-males QT prolongation and risk of sudden cardiac death 	 Suicidal thoughts or behavior Seizure risk with other medications Weight Blood pressure baseline and periodically EKG baseline and periodically
Eszopliclone*	Lunesta	18 and older	None	 Abnormal thinking and behavioral changes Withdrawal effects Drug abuse and dependence Tolerance 	 Caution - Do not operate machinery or power equipment until medication effects with use of this medication Daytime sedation/hangover

Generic Name	Brand Names	FDA Approval Age/Indication	Other Common Uses in Children	Potential Side Effects	Monitoring
Melatonin	Dosing: 0.05- 0.15mg/kg/day up to total dose of 5mg/day in children and adolescents	Not FDA regulated	Regulated by FDA as a dietary supplement and not as a medication	 Sedation May adversely affect reproductive organ development Give directly before sleep onset desired due to short half-life 	 Caution - Do not operate machinery or power equipment until medication effects with use of this medication Daytime sedation/hangover
Ramelteon*	Rozerem	18 and older	None	 Abnormal thinking and behavioral changes CNS depression Decreased testosterone Hyperprolactinemia 	 Caution - Do not operate machinery or power equipment until medication effects with use of this medication Daytime sedation/hangover
Hydroxyzine	Vistaril, Atarax	All ages for anxiety- and all ages for Pruritis/ for the treatment of Itchy skin-	Approved for anxiety and tension; approved as pre- procedural sedation and following general anesthesia	 Drowsiness Dizziness Dry mouth Nausea Nervousness Blurred vision Decreased mental alertness Paradoxical excitation associated with small risk of QT prolongation and Torsades 	 Caution - Do not operate machinery or power equipment until medication effects with use of this medication Daytime sedation/hangover

Appendix A: Color-Coded Psychotropic Medications - Match the Color with the Therapeutic Class Above					
Amphetamine Mixed Salts	Eszopliclone	Quetipine			
Abilify	Fanapt	Quillivant XR			
Adderall, Adderall XR	Fetzima	Ramelteon			
Anafranil	Fluoxetine	Remeron			
Aripiprazole	Fluvoxamine	Rexulti			
Asenapine	Focalin, Focalin XR	Risperdal			
Atomoxetine	Geodon	Risperidone			
Benadryl	Guanfacine	Ritalin, Ritalin SR/LA			
Brexpiprazole	Hydroxyzine	Rozerem			
Brintellix	lloperidone	Saphris			
Bupropion	Invega	Seroquel, Seroquel XR			
Carbamazepine	Lamictal	Sertraline			
Catapres, Kapvay	Lexapro	Strattera			
Celexa	Lithium	Tegretol, Tegretol XR, Epitol, Carbatrol, Equetro			
Citalopram	Lixdexamfetamine	Tenex, Intuniv			
Clomipramine	Lamotrigine	Trazodone			
Clonidine	Latuda	Trileptal			
Clozapine	Levmilnacipram	Trintellix			
Clozaril, FazaClo, Versacloz	Lunesta	Venlafaxine			
Concerta	Lurasidone	Vibryd			
Cymbalta	Luvox	Vilazodone			
Depakote, Depakote ER, Depakote Sprinkles	Melatonin	Vistaril, Atarax			
Desvenlafaxine	Metadate ER, Metadate CD	Vortioxetine			
Desyrel	Methylin, Methylin ER	Vyvanse			
Dexedrine, Zenzedi	Methylphenidate	Wellbutrin, XL/SR			
Dexmethylphenidate	Mirtazapine	Ziprasidone			

Psychotropic Medications in Children and Adolescents: Guide for Use and Monitoring (03.22.17) Page 12

Appendix A: Color-Coded Psychotropic Medications - Match the Color with the Therapeutic Class Above		
Dextroamphetamine	Olanzapine	Zoloft
Diphenhydramine	Oxcarbazepine	Zyprexa
Divalproex Sodium	Paliperidone	
Duloxetine	Paroxetine	
Effexor, Effexor XR	Paxil	
Escitalopram	Pristiq	
Eskalith, Eskalith CR, Lithobid	Prozac	

Appendix B: Questions to Ask the Prescriber

- 1. Are there behavioral interventions that might be tried before medication is used, or effectively used in combination with medication, which may help to lower the required medication dose?
- 2. Does research support the use of the recommended medication for a child that is my child's age and with similar needs?
- 3. How does medication fit within the overall treatment plan and how will we coordinate with other treatment, such as therapy, school behavior plans, and more?
- 4. Is the prescribed medication more, less, or equally effective as other non-medicinal interventions?
- 5. What should we be looking for in changes in behavior, changes in symptoms, and whom should we contact with questions about these changes and the medication?
- 6. How long will it take before we should begin seeing behavioral changes? Will those potential changes be significant or minor?
- 7. What are the potential risks and benefits of the medication and other treatment options, and what are the potential side effects?
- 8. If a medication dose is missed or stopped abruptly, are there potential adverse effects? What might those be and what should I do if I observe them?
- 9. How will our family, our child, and the treating provider monitor progress, behavior changes, symptoms, and safety concerns? (Close monitoring is critical with all medications at all times, however, it is especially important when medication is started and when dosages are changed.)
- 10. How will we know when it is time to talk about stopping medication treatment and what steps need to be taken before the medication is stopped?
- 11. How can we best develop a clear communication plan between our family and the treating providers (therapist and psychiatrist) to ensure open lines of communication?
- 12. What if my child has a crisis and is hospitalized? Who can we contact in your office, especially if someone wants to change medications?

Adapted from NAMI, "Choosing the Right Treatment: What Families Need to Know about Evidence-Based Practices, 2007."

Appendix C: Glossary of Terms

BMI	Stands for Body Mass Index. A measure of body fat based upon height and weight.
CBC	Stands for complete blood count. Lab test used to monitor for abnormalities in blood cells, e.g., for anemia.
Discontinuation Syndrome	A condition that can occur following the interruption, dose reduction, or discontinuation of antidepressant drugs. The symptoms can include flu-like symptoms and disturbances in sleep, senses, movement, mood, and thinking. In most cases symptoms are mild, short-lived, and go away without treatment.
ECG	Stands for electrocardiogram.
EEG	Stands for electroencephalogram.
EPS	Stands for extrapyramidal side effects- medication induced abnormal muscle function and include muscle stiffness, tremor, facial tics/movements, and severe muscle spasm.
ER	Stands for extended release and is a formulation of a medication designed to decrease the number of times per day in which the medication must be taken.
Evidence Based Use	Substantial peer reviewed clinical trials information is in the published medical literature supporting the safety and effectiveness of a certain practice or medication use.
FDA	Stands for (U.S.) Food and Drug Administration, the agency which reviews and approves medications for use in the United States.
Hemoglobin A1c	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.
Hepatic Toxicity	Liver damage which may be happen from a variety of potential causes.
Hyperammonemia	Metabolic problem due to elevated ammonia in the blood and is a medical emergency.
Hyponatremia	A condition of low blood sodium (Na) levels which may be associated with a number of medical symptoms such as decreased ability to think, headaches, nausea, and poor balance. More severe symptoms include confusion, seizures, and coma.
Indication	A term that means the FDA has approved a medication for use for a specific purpose and age group.
IR	Stands for immediate release of a form of a medication. May be necessary to take multiple times per day.
LFTs	Stands for Liver function tests.
MAOIs	Stands for Monoamine Oxidase Inhibitors. A class of medications used for depression.

MRI	Stands for Magnetic Resonance Imaging.
Narrow Therapeutic Index Drug	A medication for which the safe and effective range (as measured by blood levels) are close to the toxic range (e.g. lithium, carbamazepine, phenytoin).
Orthostatic Blood Pressure Changes	Lowering of blood pressure, typically upon sitting up or standing, which may be related to some medications and may contribute to falls and/or accidents.
PRN	A term that means the medication should be taken as needed.
Prolactin	A hormone produced by the pituitary gland.
Second Generation Antipsychotics	A classification of antipsychotics which are more often used in children and adolescents as compared to first generation antipsychotics which are more commonly associated with abnormal neurologic movements.
Serum Creatinine	A lab test used to calculate an estimate of kidney function.
Teratogenicity	Property of some medications meant to indicate that they are may potentially cause abnormalities in the developing fetus.
TFTs	Thyroid Function Tests.