

Michigan Child Collaborative Care Program
Psychopharmacology Reference Cards

MC3



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UNIVERSITY OF MICHIGAN

DEPARTMENT OF PSYCHIATRY

Antidepressants*

Generic (Trade) PC	Formulations (mg)	FDA appr. in Youth	Notes & Risks	(S)tart (mg)	Titration Interval	t ½ (h)
			All: Black Box Warning for SI	(T)arget (mg)		
Fluoxetine (Prozac) C	tab: 10, 20, 60; cap: 10, 20, 40 weekly cap: 90; liq: 4mg/mL	≥7y OCD ≥8y MDD	Long titration/washout = self-tapering Behaviorally activating; CYP 2D6 inhib.	S: 5-10 T: 20-60 [§]	7-14 d	96-384
Sertraline (Zoloft) C	tab: 25, 50, 100 liq: 20mg/mL	≥6y OCD		S: 12.5-25 T: 50-200 [§]	4 d	26
Escitalopram (Lexapro) C	tab: 5, 10, 20 liq: 1mg/mL	≥12y MDD	Few CYP interactions	S: 5-10 T: 10-30	4-5 d	27-32
Fluvoxamine (Luvox) C	tab: 25, 50, 100	≥8y OCD	CYP 2C9 inhib.	S: 25 T: 50-200 [§]	3-4 d	16
Citalopram (Celexa) C	tab: 10, 20, 40 liq: 2mg/mL	--	Few CYP interactions ↑QTc risk at >40mg	S: 5-10 T: 20-40	4-5 d	35
Bupropion (Wellbutrin) C	tab: 75, 100; er: 100, 150, 174, 200, 300, 348, 450, 522	--	Behaviorally activating; Used to augment SSRI, treat ADHD ↑Anxiety, ↑SZ risk	S: 37.5-75 T: 150-300	4-5 d	21-37
Trazodone C	tab: 50, 100, 150, 300 er: 150, 300	--	Used primarily for insomnia Priapism (rare)	S: 25 T: 50-100	2 d	10
Mirtazapine (Remeron) C	tab: 7.5, 15, 30, 45 dis: 15, 30, 45	--	Used to augment SSRI, treat insomnia Stimulates appetite = ↑Obesity risk	S: 7.5-15 T: 15-30	4-5 d	20-40
Duloxetine (Cymbalta) C	dr: 20, 30, 40, 60	≥7y GAD		S: 20 T: 30-60	3-4 d	12
Paroxetine (Paxil) D	tab: 10, 20, 30, 40 er: 12.5, 25, 37.5 liq: 2mg/mL	--	↓Lit. support in minors; Anxiolytic ↑SI risk among SSRIs Many CYP interactions	S: 5-10 T: 10-40	4 d	21
Venlafaxine (Effexor) C	tab: 25, 37.5, 50, 75, 100 er cap: 37.5, 75, 150 er tab: 37.5, 75, 150, 225	--	↓Lit. support in minors Hypertension risk	S: 25-37.5 T: 150-300	3-4 d	5-11

*Other uses include anxiety and chronic pain. [§]Higher doses needed for OCD. Greyed out medications are not recommended in minors. CYP = Cytochrome P450 protein; d = days; **PC** = Pregnancy Class; **tab** = tablet; **cap** = capsule; **liq** = oral liquid, **er** = extended release, **dr** = delayed release.

Antipsychotics

Generic (Trade)	PC RDE	Formulations (mg)	FDA Approved in Youth	Risks Advantages	(S)tart (mg) (T)arget (mg)	Titration Interval	Oral Peak (hr)	t 1/2 (hr)
Risperidone (Risperdal)	C 2	ir: 0.25, 0.5, 1, 2, 3, 4, 1mg/ml sl: 0.5, 1, 2, 3, 4 dp: 12.5, 25, 37.5, 50 mg	≥13y schizophrenia ≥10y mania/mixed 5-16y irritable (ASD)	↑Prolactin ↑Metabolic risk ↓Cost	S: 0.25 to 1 T: 0.5 to 4	q5-7d	1 to 2	20 to 30
Aripiprazole (Abilify)	C 7.5	ir: 2, 5, 10, 15, 20, 30, 1mg/ml sl: 10, 15 im: 7.5mg/ml	≥6y agitation (ASD) ≥10y bipolar mania ≥13y schizophrenia	Akathisia ↓Metabolic risk	S: 2 to 5 T: 2 to 30	q7-14d	3 to 5	50 to 72
Ziprasidone (Geodon)	C 60	ir: 20, 40, 60, 80 im: 20mg/ml	--	↑QT ↓Metabolic risk ↓EPS/NMS risk	S: 20 qd T: 20 to 60 bid	qd	5	5 to 7
Quetiapine (Seroquel)	C 75	ir: 25, 50, 100, 200, 300, 400 xr: 50, 150, 200, 300, 400	≥13y schizophrenia (ir formulation) ≥10y bipolar	Sedation ↓EPS/NMS risk	S: 12.5 to 50 T: 50 to 750	qd	2	6 to 7
Olanzapine (Zyprexa)	C 5	ir: 2.5, 5, 7.5, 10, 15, 20 sl: 5, 10, 15, 20 im: 10mg vial dp: 210, 300, 405 mg	≥13y schizophrenia ≥13y mania/mixed	↑Metabolic risk Sedation	S: 2.5 to 5 T: 2.5 to 20	q5-7d	6	21 to 54
Paliperidone (Invega)	C 3	ir: 1.5, 3, 6, 9 dp: 39, 78, 156, 234 mg	--	↑Prolactin	S: 3 T: 3 to 12	q5-7d	24	21 to 30
Lurasidone (Latuda)	B ?	ir: 20, 40, 60, 80, 120	≥13y schizophrenia		S: 20 T: 20-80	q5-7d	1 to 3	18
Haloperidol (Haldol)	C 2	ir: 0.5, 1, 2, 5, 10, 20, 2mg/ml im: 5mg/ml dp: 50, 100mg/ml	≥3y schizophrenia ≥3y disruptive d/o ≥3y Tourette's	↑EPS/NMS risk ↓Cost ↓Metabolic risk	S: 0.25 to 1 T: 1 to 6	q5-7d	2 to 6	12 to 22
Pimozide (Orap)	C 1.5	ir: 1, 2	≥12y Tourette's	↑EPS/NMS risk	S: 0.5 T: 0.5 to 10	Q 3-7d	7	55

ir = immediate release; xr = extended release; sl = sublingual, im = intramuscular, dp = depot; RDE= Relative Dose Equivalence (mg); EPS = Extrapyramidal Symptoms; NMS = Neuroleptic Malignant Syndrome; ASD = Autism Spectrum Disorder; PC = Pregnancy Class; Metabolic risk = ↑Wgt, ↑lipids, ↑HgA1c

Antipsychotics - Starting and Monitoring in Children

	Baseline	Every Visit	Titration	@3 Months	q6 Months	q Year	Comments
Patient and Family History	X					X	Obesity, hypertension, diabetes, dyslipidemia, hx of coronary heart disease (CHD) or equivalent (diabetes, peripheral arterial disease, abdominal aortic aneurysm, symptomatic carotid artery disease, arrhythmias, QT prolongation), hx of premature CHD in 1° relatives (males < 55y and females < 65y), hx of adverse/allergic reactions
Lifestyle/ Behaviors	X	X					Diet, exercise, smoking, substance use, sleep hygiene
Sex/Repro	X		X				
Weight	X	X					
BP/Pulse	X						
HgA1c/Glc	X			X	X		
Lipids	X			X	X		

Based on Correll, *Int Rev Psychiatry* 2008;20(2):195-201

Lithium and Antiepileptic (AED) Mood Stabilizers

Generic (Trade)	LS PC	Formulations (mg)	Risks , Notes & Boxed Warnings	Start (daily total mg)	Titration Schedule	Typical Goal (Blood Level)	t 1/2 (hr)
Lithium (Lithobid, Eskalith)	A D	ir: 150, 300, 600 dr: 300, 450 liq: 8mEq/5mL	↓Therapeutic window ↓Thyroid; NSAIDs toxic Brugada syndrome	<25kg: 300 25-40kg: 600 >40kg: 900	300 mg q3-5d	600-1500 mg 25-30mg/kg/d (0.6-1.2 mEq/L)	12-27
Valproic Acid (Depakene, Depakote)	B D	s: 125 dr: 125, 250, 500 liq: 50mg/mL	Hepatic necrosis (<2yo) Hepatitis; Pancreatitis Teratogenic	<25kg: 250 25-40kg: 375 >40kg: 500	10 mg/kg/d q3-4d	500-2000 mg 30mg/kg/d (50-120 mg/L)	4-14 child 9-18 adult
Carbamazepine (Tegretol, Carbatrol)	B D	ir: 200 c: 100 dr: 100, 200, 300, 400 liq: 20mg/mL	SJS/TEN (↑in Asians) Agranulocytosis Glaucoma	<25kg: 100 25-40kg: 200 >40kg: 400	100 mg q5d	400-1200 mg (8-12 mg/L)	18-55 initial 12-17 stable
Lamotrigine (Lamictal)	C C	ir: 25, 100, 150, 200 c: 5, 25 dr: 25, 50, 100, 200, 250, 300	SJS/TEN (↑in kids)	<40kg: 12.5 >40kg: 25	12.5-25 mg q7d	75 - 400 mg (4.5-7.5 mg/kg/d)	13
Topiramate (Topamax)	C D	ir: 25, 50, 100, 200 s: 15, 25 dr: 25, 50, 100, 150, 200	↑[NH ₄], Glaucoma Metabolic acidosis Very sedating	<40kg: 15 >40kg: 25	25 mg q3-7d	50 - 400 mg SZ: 5-9mg/kg/d	21
Oxcarbazepine (Trileptal)	D C	ir: 150, 300, 600 dr: 150, 300, 600 liq: 60mg/mL	SJS/TEN (↑in Asians)	8-10/kg/d	5 mg/kg/d q3d	600-2100 mg	parent: 2 10-OH: 9

Screen & Monitor for All: pregnancy, CBC, Chem7, thyroid function, kidney (lithium) or liver (AED) dysfunction.

LS = literature support: **A** = effective in placebo-controlled randomized trials (PC-RT) in children, **B** = effective in PC-RT in adults, **C** = positive results in child/adol open trial(s), **D** = positive in child/adol case report(s); **PC** = pregnancy class; SZ = dosing in seizures; **ir** = immediate release; **dr** = delayed release (XR, ER); **c** = chewable; **s** = sprinkles; **liq** = oral liquid.

SJS/TEN = Stevens-Johnson Syndrome/Toxic Epidermal Necrolysis

Stimulants

Type	Trade	Formulations (mg)	t ½	FDA Appr	FDA Max (mg/d)	Starting Dose
MPH	Ritalin	5, 10, 20	+	≥6y	60	0.25 to 1 mg/kg/d
	Methylin ^c	2.5, 5, 10				
	Methylin Soln.	1mg/ml, 2mg/ml				
	Ritalin SR [*]	20	++			
	Methylin ER [*]	10, 20				
	Metadate ER [*]	20				
	Ritalin LA ^s	10, 20, 30, 40	+++			
Metadate CD ^s	10, 20, 30, 40, 50, 60					
Concerta [*]	18, 27, 36, 54					
Daytrana (patch)	10, 15, 20, 30 /9 hrs					
Quillivant XR	5mg/ml					
QuilliChew ER	20, 30, 40					
Dex-MPH	Focalin	2.5, 5, 10	+	≥6y	30	0.1 to 0.5 mg/kg/d
	Focalin XR [*]	5, 10, 15, 20, 25, 30, 35, 40	+++			
AMPH	Adzenys XR-ODT	3.1, 6.3, 9.4, 12.5, 15.7, 18.8	+++	≥3y	40	0.1 to 0.5 mg/kg/d
	Adderall	5, 7.5, 10, 12.5, 15, 20, 30	+			
	Adderall XR ^s	5, 10, 15, 20, 25, 30	+++			
Dex-AMPH	Dexedrine	5, 10, 15	+	≥6y	70	20-30 mg
	Dexedrine CR ^s	5, 10, 15	++			
	Vyvanse	20, 30, 40, 50, 60, 70	+++			

For All: discuss risk for anorexia, insomnia, tics, ↑BP, arrhythmia, possible ↓height

MPH = Methylphenidate; **AMPH** = Amphetamine, * = do not crush or cut, **c** = chewable available, **s** = may be sprinkled on food

Stimulant Prescribing Notes

Pre-Screen	<ul style="list-style-type: none"> Pt and family cardiovascular hx (<i>consult a cardiologist if patient has a structural heart defect or a family history of sudden cardiac death</i>) Family history of tic disorders (stimulants may unmask) Baseline PE, HR, BP, height & weight
Dose Titration	<ul style="list-style-type: none"> q3-4 days to weekly Short-acting forms given BID or TID; Long-acting forms given once daily May supplement with a short-acting form after school Last dose no later than 4pm to avoid sleep disruption
Adequate Trial	<ul style="list-style-type: none"> 1 week at max dose
Monitor	<ul style="list-style-type: none"> Weekly for 2-4 wks (titration period) Monthly until “stable” then at discretion Review HR, BP, height, weight at each visit
Prognosis	<ul style="list-style-type: none"> Rule of thirds (1/3 remain syndromal, 1/3 subsyndromal, 1/3 remit) OK to consider drug holidays
Other Notes	<ul style="list-style-type: none"> Abuse/misuse potential (less w/ some formulations, e.g., Vyvanse, Concerta) Educate parents on securing and monitoring medication use Watch for rebound or irritability as stimulant wears off later in the day Watch for mood deterioration despite improvement in focus and impulsivity Higher doses may increase risk for psychosis Some forms should not be crushed, cut or chewed Mixed data on potential for growth suppression

Stimulant Alternatives

	Dosing	Notes
Atomoxetine (Strattera)	<p><u>≤70 kg</u>: 0.5 mg/kg/d; Advance to 1.2 mg/kg/d after 1-2 wks Max: 1.4 mg/kg/d or 100 mg/d</p> <p><u>>70 kg</u>: 40 mg/day Advance to 60-80 mg/d after 1-2 wks Max: 100 mg/d</p> <p>ir: 10, 18, 25, 40, 60, 80, 100mg</p> <p>Preg class: C; t ½ = 5 hrs</p>	<ul style="list-style-type: none"> • FDA approved in children ≥ 6y • Black box warning (suicidality) • Effect not readily apparent for 2-4 weeks • Adj. dose if on CYP2D6 inhibitors • Adj. dose for hepatic insufficiency • Up to 1.6 to 1.8 mg/kg/d may be OK • BID dosing better tolerated <p>SEs: n/v, decreased appetite, dizziness, fatigue, mood swings, headache, insomnia, hot flushing</p>
Bupropion (Wellbutrin)	<p><u>8-12y</u>: 75mg/d ↑q1-2wk by 50-75mg</p> <p><u>Adol</u>: 100 mg/d ↑q1-2wk by 50-100mg Max: Least of 6 mg/kg/d or 300 mg</p> <p>ir: 75, 100 mg (BID to TID) sr: 100, 150, 200mg (Daily) xl: 150, 300, 450mg (Daily)</p> <p>Preg class: C; t ½ = 21 to 37 hrs</p>	<ul style="list-style-type: none"> • Not FDA approved in children • Black box warning (suicidality) • Indications (in adult) also include intolerance to stimulants, smoking cessation, ADHD with depression, seasonal mood disorder • Lowers seizure threshold: limit to < 150mg/8hr • Avoid in bulimia, anorexia, or bipolar disorder <p>SEs: insomnia, tremor, agitation, weight loss, n/v, dizziness</p>

ir = immediate release; **sr** = sustained release; **xl** = extended release

Alpha-2 Agonists

	Dosing	Notes
Clonidine (Catapres, Kapvay)	<p>Start: 0.05 to 0.1 mg at time needed ↑ by 0.05 mg every 3 to 7d Typical range: 0.05 to 0.4 mg/d</p> <p>ir: 0.1, 0.2, 0.3mg (qHS to QID) patch: 0.1, 0.2, 0.3mg/24h (daily) er: (Kapvay) 0.1mg (daily; do not crush or chew)</p> <p>Preg class C; $t_{1/2}$ = 12-16 hr</p>	<ul style="list-style-type: none"> • FDA approved for ADHD, but also used for tics, insomnia, agitation, aggression associated with intellectual disability or TBI, opiate withdrawal • Consider baseline EKG • Monitor BP @ baseline, dose Δ, at f/u • Rebound HTN, insomnia if stopped abruptly: taper over 1-2 wks • Caution against other PRNs if using for insomnia • Kapvay: more expensive, better compliance. <p>SEs: sedation, dizziness, anorexia, orthostatic HTN, ↓BP, ↓HR, depression, enuresis</p>
Guanfacine (Tenex, Intuniv)	<p>Start: 0.5 to 1 mg at time needed ↑ by 0.5 to 1 mg per week Typical range: 0.5 to 4 mg/d</p> <p>ir: 1, 2mg (qHS to TID) er: (Intuniv) 1, 2, 3, 4mg (daily; do not crush or chew)</p> <p>Preg class B; $t_{1/2}$ = 17 hr</p>	<ul style="list-style-type: none"> • FDA approved for ADHD; other uses similar to clonidine • Consider baseline EKG • Monitor BP @ baseline, dose Δ, at f/u • Less risk for rebound HTN (vs clonidine) • Intuniv: more expensive, better compliance <p>SEs: less sedation than clonidine, otherwise similar</p>

ir = immediate release; **er** = extended release

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The information on these cards is intended to offer general guidelines on psychotropic medications used to treat behavioral health conditions. It is not a substitute for specific professional medical advice.

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