

# KSKidsMAP

*Kansas Together for Pediatric Mental Health Care  
Access*

**Pediatric Mental Health Toolkit  
Topic: ADHD**

**Part 2: First line treatment and interventions**



This project is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as a part of an award totaling \$2,134,666 with 20% financed with nongovernmental sources. The contents are those of the authors and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS, or the U.S. Government.



# ADHD: First line treatment and interventions

- Studies consistently support the superiority of stimulant over the nondrug treatment (e.g., MTA study).
- Behavior therapy (e.g., behavioral parent training) may be recommended as an initial treatment if the patient's ADHD symptoms are mild with minimal impairment, diagnosis is uncertain, or parents reject medication treatment.



# ADHD: First line treatment and interventions

- Stimulants are highly efficacious in the treatment of ADHD.
- The effect size of stimulant treatment relative to placebo averages 1.0 which is one of the largest effects for any psychotropic medication.
- Two families of stimulant medications: methylphenidate (MPH) and amphetamine which are equally efficacious in the treatment of ADHD.
- Stimulants enhance dopaminergic and noradrenergic neurotransmission in the central nervous system and peripherally.



# ADHD: First line treatment and interventions

- Immediate-release and long acting formulations of MPH and amphetamine (employ delivery systems to allow a reduced number of doses per day).
- Physicians may use long-acting forms as initial treatment (single daily dosing is associated with greater convenience, compliance, and confidentiality).
- Short-acting stimulants are often used as initial treatment in small children (<16 kg in weight) for whom there are no long-acting forms in a sufficiently low dose.



# Short-acting Stimulant Compounds

Immediate-release Stimulants	Daily Dosage (mg/kg)	Daily Dosage Schedule
Dextroamphetamine (Dexedrine)	0.3 – 1.0	2 or 3 times
Mixed salts of levo and dextro amphetamine (Adderall)	0.5 – 1.5	1 or 2 times
Methylphenidate (e.g., Ritalin, Methylin)	1.0 – 2.0	2 or 3 times
Dexmethylphenidate (Focalin)	0.5 – 1.0	2 times

	FDA-approved <u>total</u> daily doses
Methylphenidate	60 mg
Dexmethylphenidate	20 mg
Mixed amphetamine salts	30 mg



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# Long-acting Stimulant Compounds

Medication	Daily dosage (mg/kg)	Daily dose schedule	Duration of behavioral effect	Comments
Methylphenidate (Concerta)	1 - 2	Once or twice	10 – 12 hr	<ul style="list-style-type: none"> <li>• Ascending profile</li> <li>• OROS technology</li> <li>• Capsules w/ IR &amp; DR beads [22:78 ratio (IR:DR)]</li> </ul>
Ritalin LA			8 – 9 hr	50:50 ratio (IR:DR)
Metadate CD			6 – 8 hr	30:70 ratio (IR:DR)
Focalin XR			10 – 12 hr	50:50 ratio (IR:DR)
Daytrana			12 hr (with 9 hr wear time)	Patch with variable wear time (skin redness or itching are common)



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# Long-acting Stimulant Compounds (cont.)

Medication	Daily dosage (mg/kg)	Daily dose schedule	Duration of behavioral effect	Comments
Quillivant XR			10 – 12 hr	<ul style="list-style-type: none"> <li>Extended-release oral susp.</li> <li>[20:80 ratio (IR/DR)]</li> </ul>
Mixed salts of levoamphetamine and Dextroamphetamine ( <b>Adderall XR</b> )	0.5 – 1.5	Once or twice	10 – 12 hr	<ul style="list-style-type: none"> <li>Capsules w/ IR &amp; DR beads [50:50 ratio (IR/DR)]</li> </ul>
Lisdexamphetamine ( <b>Vyvanse</b> )	0.5 – 1.5	Once	12 hr	<ul style="list-style-type: none"> <li>Prodrug</li> <li>Continuous conversion of non-active prodrug into active d-amphetamine</li> </ul>



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# Non-Stimulants

At least 30% of individuals affected by ADHD do not adequately respond or cannot tolerate stimulant medication

Medication	Daily dosage (mg/kg)	Daily dose schedule	Main indications	Mechanism of action
Atomoxetine	0.5 – 1.4	Once or twice	ADHD ADHD + Tic disorder ADHD + anxiety disorder	<ul style="list-style-type: none"> <li>Noradrenergic-specific reuptake inhibitor</li> </ul>
Common Adverse Effects / Comments				
<ul style="list-style-type: none"> <li>Mild/moderate appetite decrease</li> <li>Gastrointestinal symptoms</li> <li>Mild initial weight loss</li> <li>Cardiovascular effects (mild increase in blood pressure, pulse)</li> <li>Not abusable</li> <li>Rare serious hepatotoxicity</li> </ul>			<ul style="list-style-type: none"> <li>Full therapeutic effect may not be seen until after a month of starting treatment.</li> <li>Less appetite suppression</li> <li>Less insomnia</li> <li>Rare serious hepatotoxicity</li> <li>Possible increase in suicidal ideation</li> </ul>	



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# Alpha-2 Agonists (immediate-acting)

Medication	Daily dosage (mg/kg)	Daily dose schedule	Main indications
Clonidine ( <b>Catapres</b> )	0.003 – 0.010	TID or QID	ADHD and/or Tourette's disorder Aggression / Sever agitation Opioid withdrawal syndrome
<b>Common Adverse Effects</b>			
<ul style="list-style-type: none"> <li>• Sedation (very frequent)</li> <li>• Hypotension (rare)</li> <li>• Dry mouth</li> <li>• Confusion (with high doses)</li> </ul>		<ul style="list-style-type: none"> <li>• Depression</li> <li>• Rebound hypertension</li> <li>• Localized irritation with transdermal preparation</li> </ul>	
Guanfacine ( <b>Tenex</b> )	0.015 – 0.05	BID or TID	Same as Clonidine
<b>Common Adverse Effects</b>			
<ul style="list-style-type: none"> <li>• Same as clonidine</li> </ul>		<ul style="list-style-type: none"> <li>• Less sedation, hypotension</li> </ul>	



# Alpha-2 Agonists (long-acting)

Medication	Daily dosage (mg/kg)	Daily dose schedule	Main indications
Clonidine extended release ( <b>Kapvay</b> )	0.1 – 0.4	BID Divided doses	ADHD and/or Tourette's disorder Aggression / Sever agitation Withdrawal syndromes
<b>Common Adverse Effects</b>			
<ul style="list-style-type: none"> <li>Sedation (very frequent)</li> <li>Hypotension (rare)</li> <li>Dry mouth</li> </ul>	<ul style="list-style-type: none"> <li>Confusion (with high doses)</li> <li>Depression</li> <li>Rebound hypertension</li> </ul>		
Guanfacine extended-release ( <b>Intuniv</b> )	1 – 4	Once (morning or evening)	Same as clonidine
<b>Common Adverse Effects</b>			
<ul style="list-style-type: none"> <li>Same as clonidine</li> </ul>	<ul style="list-style-type: none"> <li>Less sedation, hypotension</li> </ul>		



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# Disclosure

Thank you for viewing the KSKidsMAP toolkit on ADHD. KSKidsMAP intends for this toolkit to be used in conjunction with the KSKidsMAP program and not as a stand-alone resource. KSKidsMAP provides case-based consultation with experts in pediatric mental health, ongoing education and mentorship through the Virtual TeleECHO clinic, and physician and clinician wellness resources to those providing medical care to youth and adolescents with mental illness. Please connect with KSKidsMAP by emailing [KSKidsMAP@kumc.edu](mailto:KSKidsMAP@kumc.edu) or calling 1-800-332-6262.



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