American Academy of Pediatrics Ohio Chapter

BUILDING Mental Wellness LEARNING COLLABORATIVE

Guide to 8 Medications for Prescribing

Within the four drug classes, eight specific medications met each of the effectiveness, dosing and monitoring, and safety criteria. The table below gives more information about each medication and its proposed use in pediatric populations: ADHD, anxiety, or major depressive disorder (MDD). The table also notes whether the proposed use matches the FDA indication for the medication in youth. For example, the FDA has not officially approved any medication for anxiety in pediatric patients, but prescribing SSRIs for certain forms of childhood anxiety is considered community standard. Each medication listed below will be available in generic form by 2012.

Psychiatric medications for use by pediatric primary care clinicians.			
Drug (class)	**Trade names**	**Proposed use in primary care**	**FDA indication?**
Methylphenidate (stimulant)	Ritalin, Concerta and others	ADHD	Yes
Amphetamines (stimulants)	Dexedrine, Adderall and others	ADHD	Yes
Guanfacine (alpha-2A adrenergic agonist)	Tenex, Intuniv	ADHD	Yes
Clonidine (alpha-2 adrenergic agonist)	Catapres, Kapvay	ADHD	Yes
Atomoxetine (SNRI)	Strattera	ADHD	Yes
Fluoxetine (SSRI)	Prozac	Anxiety* MDD	No Yes
Sertraline (SSRI)	Zoloft	Anxiety* MDD**	No No
Escitalopram (SSRI)	Lexapro	Anxiety MDD	No Yes

**Though the FDA has not officially approved fluoxetine and sertraline for treating anxiety disorders such as social phobia, separation anxiety, or generalized anxiety disorders, there is convincing evidence for using these medications for these disorders.*

*** Sertraline has some evidence supporting its use in MDD, but not enough evidence to support an FDA indication.*

Adverse Events

The eight medications above were selected with safety in mind, but clinicians should always be aware of potential adverse events associated with their use. The FDA lists adverse events associated with medications in order of severity. Here, we present a table of adverse events for the medications organized by frequency — most commonly seen, less commonly seen, and rare adverse events — as another resource for providers. The table groups medications by class, as all medications within a class will share similar adverse events. All the medications except fluoxetine and atomoxetine should be tapered to minimize withdrawal symptoms. A PDF of the withdrawal symptoms by medication and recommendations for vital signs to monitor in youth starting these medications is available.

Common adverse events associated with 8 medications for prescribing				
Medication class: Generic name	**Common adverse events**	**Less common adverse events**	**Rare events**	**Monitor**
Stimulants: Methylphenidate, dextroamphetamine, amphetamine salts	Insomnia, appetite suppression, headache, stomachache	Cognitive dulling, irritability, exacerbation of tics (controversial)	Growth retardation, hallucinations (visual or tactile, auditory less common), arrhythmia in those with preexisting cardiac disease	BP, P, BMI
alpha-2adrenergic agonists: Guanfacine, clonidine	Somnolence	Dry mouth, headache, nausea, decreased blood pressure	Elevated blood pressure, nervousness, headache, confusion	BP, P
SNRI: Atomoxetine	Dry mouth, insomnia, nausea, decreased appetite	Increased heart rate and blood pressure, palpitations, dizziness, sweating, dysuria, weight change	None	BMI, BP, HR
SSRIs: Fluoxetine, sertraline, escitalopram	"Activation" (restlessness, insomnia, impulsiveness, talkativeness — usually occurs early in treatment) without mood elevation, gastrointestinal upset, nausea, diarrhea	Diaphoresis, mydriasis, flushing, sinus tachycardia, hypertension, decreased libido, delayed ejaculation, akathisia	Serotonergic syndrome,* agitation, ataxia, diaphoresis, diarrhea, hyper-reflexia, mental state changes, myoclonus, shivering, tremor, hyperthermia neuroleptic malignant syndrome, suicidal thinking or behavior, true mania emergence, usually by 4th week of treatment	BMI, suicidality, activation**

**Serotonergic syndrome may be potentiated by drug interaction with other pro-serotoninergic agents (eg, MAOIs, trazodone, lithium, opioids, amphetamine/stimulants, cocaine, St John's Wort, or ginseng)*

***Clinicians should monitor youth specifically for worsening of depression, emergence of suicidal thinking, or behavior, especially with initiation or dose escalation, or unusual changes in behavior, such as sleeplessness, agitation, or withdrawal from normal social situations*

Boxed Warnings

The FDA has issued boxed warnings for a few of the eight medications. The warning for SSRIs and SNRIs says "antidepressants increased the risk compared to placebo of suicidal thinking and behavior (suicidality) in children, adolescents, and young adults." In practice, antidepressant-induced suicidality seems rare. A recent survey of data from 27 randomized clinical trials involving more than 5,300 participants found a 0.7 percent increase in risk of suicidality among youth taking antidepressants versus

those taking placebos. In 2007, the FDA released a guide for parents with more information about monitoring for signs of suicidality among youth taking antidepressants.

Amphetamines carry a boxed warning that states "misuse of amphetamines may cause sudden death and serious cardiovascular adverse reactions." Clinicians should be sure to take a youth's personal and family cardiac history — with specific questions about syncope, sudden unexplained death, and arrhythmias — before prescribing a stimulant.

The boxed warnings for both amphetamine and methylphenidate preparations warn about their high potential for abuse and dependence after prolonged administration, though there are no reports of children developing dependence after taking therapeutic doses. Children treated with stimulants for ADHD have increased risk of having substance abuse problems later in life than those who did not take stimulants. Finally, there is concern about youth selling prescription stimulants to others who might abuse them, a practice known as diversion.