Attention-Deficit/Hyperactivity Disorder (ADHD) in Adults

Academic Detailing Quick Reference Guide

Contents

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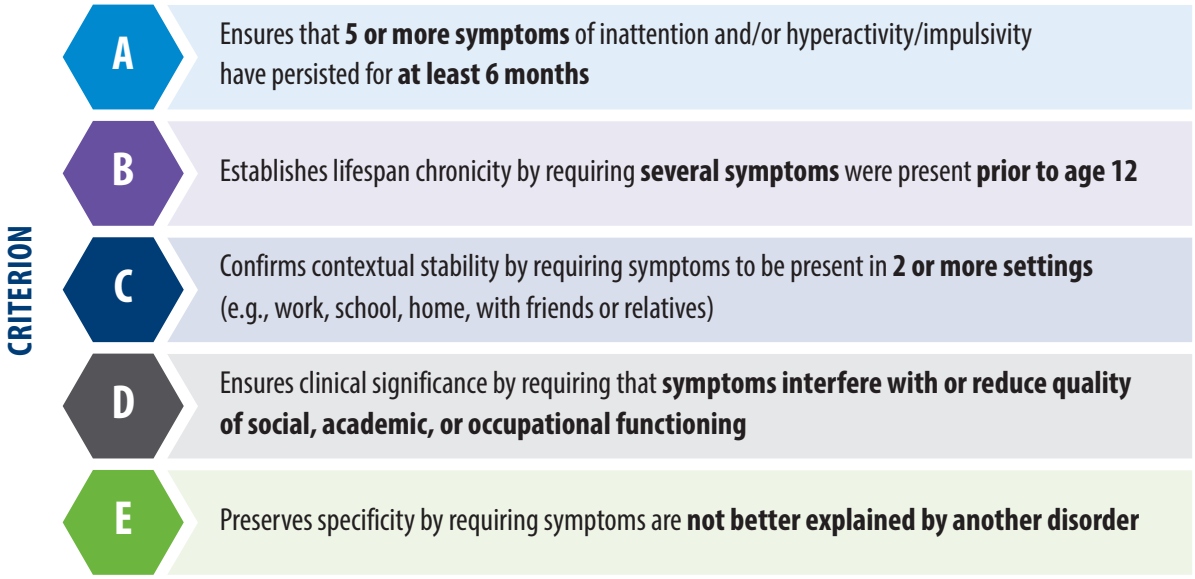
DSM-5-TR diagnostic criteria

The clinical interview and evaluation are the mainstay of attention-deficit/hyperactivity disorder (ADHD) diagnosis.[1] Use DSM-5-TR diagnostic criteria to guide your clinical assessment.[2-5]



ADHD diagnostic criteria[4]

Persistent pattern of (A) inattention and/or (B) hyperactivity-impulsivity that interferes with functioning or development, as characterized by A or B; several symptoms prior to age 12 years; several symptoms in ≥ 2 settings; symptoms do not occur only during the course of another disorder and are not better explained by another mental disorder.

A: INATTENTION

5 or more of the following persisting for ≥ 6 months that have a negative impact directly on social and academic/occupational activities:

1. Often fails to give close attention to details or makes careless mistakes
2. Often has difficulty sustaining attention in tasks
3. Often does not seem to listen when spoken to directly
4. Often does not follow through on instructions and fails to finish tasks
5. Often has difficulty organizing tasks and activities
6. Often avoids, dislikes or is reluctant to engage in tasks that require sustained mental effort
7. Often loses things necessary for tasks or activities
8. Often easily distracted by extraneous stimuli
9. Often forgetful in daily activities

B: HYPERACTIVITY AND IMPULSIVITY

5 or more of the following persisting for ≥ 6 months that have a negative impact directly on social and academic/occupational activities:

1. Often leaves seat in situations when remaining seated is expected
2. Often fidgets with or taps hands/feet or squirms in seat
3. Often feels restless
4. Often unable to engage in leisure activities quietly
5. Often "on the go" as if "driven by a motor"
6. Often blurts out an answer before a question has been completed
7. Often talks excessively
8. Often has difficulty waiting his or her turn
9. Often interrupts or intrudes on others

Stepped diagnostic procedure for ADHD in adults[2,4]

An "ideal" or "gold standard" adult ADHD evaluation should include a clinical interview, structured/semi-structured interview, informant reports or corroborating evidence (e.g., outside records), assessment of impairment, and alternative symptom sources.[2]

STEP 1

Assess each of the eighteen DSM-5-TR ADHD symptoms to ensure 5 or more are present for ≥ 6 months.[2] Combine self- and informant-reported symptoms and include ADHD rating scales as a part of the evaluation.[1]

- **Patient self-report:** Consider use of a structured or semi-structured interview along with a rating scale that provides quantitative measures of symptom severity and impairment to assess each of the 18 DSM-5-TR ADHD symptoms.[3]
- **Informant(s) report:** Obtain rating of symptoms to confirm symptoms are present across 2 or more settings using an **ADHD rating scale.**[2] Ideal informants know the patient well, can consider behavior, observe the patient across multiple contexts, and describe lifespan behaviors (e.g., parents, siblings, spouses).[2]

CLINICAL PEARL: Adults with ADHD commonly under-report symptoms and some informants have only partial opportunities to observe the patient. When compiling self- and informant-(s) reports, cast a wide net by adding the number of symptoms reported across various settings (e.g., family/home, social, work/school) to see if there are 5 or more. If reports are dramatically discrepant, consider follow-up interviews to gather additional information and/or obtaining a report from an additional informant.[2]

STEP 2

Establish chronicity (several symptoms present prior to age 12) and contextual stability (several symptoms are present in 2 or more settings).[2] A childhood developmental history is an important part of a comprehensive assessment. Accurate recollection of childhood symptoms and developmental history is difficult for adults. When possible, obtain the point of view of a parent/close family member who knows the patient's early history.[1]

- Diagnosis of ADHD does not require uninterrupted symptoms since childhood.[1,2,6]
  - Consider using rating scales, informant reports, and/or childhood documents (e.g., report cards, treatment records) to assess childhood ADHD symptoms. Informants can report age at which current symptoms appeared.
  - If childhood symptom origins cannot be established, explore stability across time in adulthood. Establish a timeline of symptom emergence, remission, recurrences, and exacerbations to clarify if ADHD symptoms are chronic and pervasive.
- If symptoms are restricted to a single setting (e.g., new job) or discrete period of life (e.g., immediately post-divorce), consider alternative symptom explanations.
- If symptoms appear situationally and temporally stable in adulthood, but without childhood origins, investigate and document factors that potentially stifled childhood symptoms and possible alternative explanations for ADHD symptoms (e.g., in combat Veterans, both PTSD and TBI can create problems with attention).

STEP 3

Establish clinically significant impairment.[2] The impact of ADHD may vary considerably in its severity, which is best judged by considering the level of impairment, pervasiveness, and familial and social context.[7] There should be clear evidence that symptoms interfere with or reduce quality of functioning. This can be done using standardized self- and informant-reported measures (e.g., Weiss Functional Impairment Scale) or semi-structured interviews that assess impairment across domains.[2]

ADHD's impairment criterion is an important protector against false positive diagnoses by providing checks and balances to the wide net applied to the A-criterion in Step 1. Informant reports of impairment should be obtained to corroborate patient reports.

CLINICAL PEARL: Assessing the effect of ADHD symptoms on impairment and quality of life should include an assessment of the broader range of problems linked to ADHD (e.g., executive dysfunction, sleep problems, irritability, internal restlessness) in addition to functional impairments (e.g., traffic accidents/repeat traffic citations, occupational/educational underachievement).[1] As with many mental health disorders, even minor levels of symptoms or impairment can cause considerable distress because of the chronic and persistent nature.[8] Focus on subjective accounts of mental state phenomena, as with someone who reports feeling depressed, experiencing a panic attack, or hearing a voice.[8]

STEP 4

Rule out other causes of symptoms: differential diagnosis.[1-3]

- Consideration should always be given to other possible causes of symptoms. A thorough ADHD evaluation may include a physical examination, necessary tests, and review of medical history to rule out other causes of symptoms.
- ADHD as a diagnosis may be eliminated if symptom onset is simultaneous with the onset of a separate physical or mental disorder, or if symptoms solely occur during substance use or withdrawal, medical problems, or other mental health disorders.[2]
- One distinction of ADHD from most adult-onset disorders is the typical early onset and trait-like persistence of symptoms.[8]

Table 1. Common contributors to and causes of ADHD-like symptoms[1,4,8-12]

Cognitive disorders	Toxic/metabolic/ infectious	Psychiatric conditions	Other	Medications
• Mild cognitive impairment • Traumatic brain injury • Dementia	• Nutritional deficiency/anemia • Hypoglycemia • Heavy metal toxicity (e.g., lead poisoning) • Infection (e.g., urinary tract infection)	• Depression • Anxiety • Post-traumatic stress disorder (PTSD) • Substance use disorder (SUD) • Bipolar disorder	• Parkinson's disease • Developmental disorders • Hearing or vision impairment • Sleep apnea/sleep disorders • Thyroid disease, thyroid replacement medication • Hepatic disease	• Steroids • Nicotine, caffeine • Bronchodialators • Decongestants • Central nervous system (CNS) sedating medications/substances (e.g., opioids, benzodiazepines, anticholinergics, mood stabilizers) • Antipsychotics that cause akathisia

Table 2. Key characteristics that can help differentiate ADHD from other mental health/ neurologic conditions[1,3,4,8,13,14]

	Distinct characteristics of other disorders	Characteristics of ADHD
Anxiety	• Inattention attributable to worry and rumination • Social inhibition • Fidgety only when anxious • Physical symptoms such as pounding heart, nausea, difficulty breathing, tremulousness, muscle tension • Persistent cognitive symptoms of intense fear and/or worry focused on unrealistic specific situations or thoughts	• Inattentive symptoms independent of emotional state • Social disinhibition • Often feels restless; not associated with worry and rumination • No subjective physical symptoms • Transient and realistic worries related to prior and actual functional impairment may be present (e.g., performance anxiety)
Depression	• Inattention/distractability due to ruminative or depressive thoughts or that occur only during depressive episodes • Changes in eating and/or sleeping, neurovegetative symptoms	• Often has problems concentrating • Often feels restless • May have unstable moods, impatience, irritability • May complain of insomnia or sleep disturbance • Chronic trait-like psychopathology linked to behavioral problems (e.g., emotional instability, impulsive behavior)
Bipolar disorder	• Episodic course • Episode-related distractibility and/or impulsivity • Increased impulsivity or inattention is accompanied by elevated mood, grandiosity, and other specific bipolar features	Symptoms are NOT episodic in nature as with bipolar disorder (e.g., restlessness, hyperactivity and/or impulsivity, distractibility, insomnia, impulsive sexual encounters, mood instability)
SUD	Acute cognitive/behavior impairments occur only the context of substance use (e.g., intoxication or withdrawal)	• Often fidgets, restless, acting as if "driven by a motor," talks excessively, blurts out answers, interrupts others • Often has difficulty staying focused, mind seems elsewhere, poor time management, forgetful • Differentiating ADHD from SUD may be problematic if the first presentation of ADHD symptoms follows the onset of abuse or frequent use. Clear evidence of ADHD before substance misuse from informants or previous records may be essential for differential diagnosis.[4]

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Table 2. Key characteristics that can help differentiate ADHD from other mental health/ neurologic conditions *(continued)*[1,3,4,8,13,14]

	Distinct characteristics of other disorders	Characteristics of ADHD
Personality disorders (e.g., borderline, narcissistic)	• Has intense relationships with often "black and white" reactions and underlying intense fear of abandonment • Rapid changes in self-identity and self-image • Periods of stress-related paranoia and loss of contact with reality	• Pattern of relationship challenges/impairments • Often demonstrates impulsivity and risky behavior (e.g., gambling, reckless driving, unsafe sex, spending sprees, binge-eating or drug misuse) • May have mood swings, inappropriate/intense anger • ADHD is not characterized by fear of abandonment, self-injury, extreme ambivalence, or other features of personality disorder[4]
PTSD	• Symptoms begin after trauma and are present along with intrusive symptom(s), avoidance, negative alterations in cognitions and mood • Inattention may result from re-experiencing, hypervigilance, or avoidance of traumatic stimuli • Hyperarousal may be misconstrued as hyperactivity[15]	• Often restless, unable to sit still • May avoid certain situations, activities, or places that require remaining in place or staying quiet • Often demonstrates verbal impulsivity, overreacting to frustrations • Often has difficulty remaining focused, mind seems elsewhere, easily sidetracked, poor time management, forgetful • Inattention in the absence of situations that may activate PTSD symptoms
Traumatic brain injury (TBI)	• Symptoms begin after brain injury • Accompanying neurological signs (e.g., headaches, vertigo, photophobia, and/or parkinsonism)[9] • Mild TBI often causes transient impairment while moderate/severe TBI may cause ongoing residual symptoms • Decline from previously attained level of functioning (see neurocognitive disorders, DSM-5-TR)[4]	• Often has attention deficit/executive dysfunction symptoms (e.g., difficulty remaining focused, mind seems elsewhere, difficulty managing sequential tasks, easily sidetracked, poor time management, loses belongings, forgetful) • Symptoms would not be expected to begin only following an injury and will typically remain relatively stable
Neuro-degenerative conditions/ neurocognitive disorders[9]	• New onset memory, visuospatial, language, or executive dysfunction • Apraxia, agnosia, aphasia, personality change, apathy • Progressive gait disturbance/other parkinsonian features	• Often has difficulty remaining focused, mind seems elsewhere, difficulty managing sequential tasks, easily sidetracked, poor time management, loses belongings, forgetful • Inattention present prior to age 12 and does not represent a decline from previous functioning

STEP 5 Finalize diagnosis:[2]

If the patient meets DSM-5-TR criteria for ADHD, determine presentation and current severity to finalize the diagnosis. When making a first-time ADHD diagnosis in adulthood, consider documenting factors that may have prevented childhood diagnosis.[2]

PRESENTATION[4]	**Combined**	Both **Inattention and Hyperactivity-Impulsivity criterion are met** for the past 6 months.
	Predominately Inattentive	If **Inattention criterion is met**, but Hyperactivity-Impulsivity criterion is **not** met for the past 6 months.
	Predominately Hyperactive/Impulsive	If **Hyperactivity-Impulsivity criterion is met**, and Inattention criterion is **not** met for the past 6 months.
	Other specified ADHD	Symptoms characteristic of ADHD cause clinically significant distress or impairment in social, occupational, or other important areas of functioning predominate but do not meet the full criteria for ADHD or any of the disorders in the neurodevelopmental disorders diagnostic class. **Clinician chooses to communicate** the specific reason the presentation does not meet criteria for ADHD.
	Unspecified ADHD	Same as "Other specified ADHD" *(see box above)*, but **Clinician chooses NOT to communicate** the specific reason the presentation does not meet criteria for ADHD.
CURRENT SEVERITY[4]	**Mild**	Few, if any, symptoms in excess of those required to make the diagnosis are present, and symptoms result in no more than minor impairments in social/occupational functioning.
	Moderate	Symptoms or functional impairment between "mild" and "severe" are present.
	Severe	Many symptoms in excess of those required to make the diagnosis, or several symptoms that are particularly severe are present, or the symptoms result in marked impairment in social or occupational functioning.

Table 3. Example rating scales for assessing ADHD symptoms*

Tool	Domain	Comments
Adult ADHD Self-Report Scale (ASRS)–V1.1[16]	Inattention, hyperactivity	Calibrated for DSM-IV
Wender Utah Rating Scale (WURS)[17]	Inattention, hyperactivity	Designed to retrospectively assess childhood ADHD symptoms
Conners' Adult ADHD Rating Scales (CAARS)[18]	Hyperactivity/restlessness, impulsivity/ emotional liability and inattention/ cognitive regulation	Calibrated for DSM-IV
Wender-Reimherr Adult Attention Deficit Disorder Scale[19]	Hyperactivity and inattention	Interviewer administered; based on WURS, highly correlated to CAARS
Weiss Functional Impairment Rating Scale[20]	Functional impairment	Used in outcomes trials for treatment of ADHD; response = 30% reduction in symptoms
Barkley Deficits in Executive Function Scale[21]	Executive function: time management, self restraint, self motivation, self regulation, organization and problem solving	Includes a section for adult ADHD

*This is not a comprehensive list of available tools. Select scale based on site availability and patient factors.

Table 4. Cardiovascular (CV) screening recommendations/assessment for potential cardiac risk from stimulant use*[12]

Thorough medical history	• History of fainting or dizziness • High blood pressure • Heart murmur • Congenital or other heart problems • Seizure history • Rheumatic fever	• Chest pain or shortness of breath with exercise, decrease in exercise tolerance • Palpitations or fast heart rate, skipped beats • Viral illness associated with chest pain or palpitations • Current medication and supplement use
Family history	• Sudden cardiac death, heart attacks, or event requiring resuscitation in persons younger than 35 years old • Death during exercise • Hypertrophic or other cardiomyopathy	• Long or short QT syndromes, or Brugada syndrome • Wolff-Parkinson-White syndrome, or other abnormal rhythm conditions • Marfan syndrome
Physical exam	• Presence of an abnormal heart murmur • Vital signs	• Cardiovascular abnormalities • Marfan syndrome

*If suspicion of CV disease, abnormality, and/or elevated cardiac risk, then a CV work up or consultation is needed prior to starting treatment.

Figure 1. Interpreting Urine Drug Tests (UDT) in patients on stimulants for ADHD[22]

Drug or class	Expected result	Considerations
Amphetamine	Immunoassay—amphetamine (Amphetamine is a direct metabolite of methamphetamine)	• Screening test is subject to many false positives and should be interpreted with caution; false positives may be caused by bupropion, chlorpromazine, desipramine, fluoxetine, labetalol, promethazine, ranitidine, pseudoephedrine, trazodone, and other common medications. Confirm unexpected positive results with the laboratory. • Methylphenidate should not result in a positive immunoassay for amphetamine; confirmation testing should be performed.[23]
Methylphenidate	Most UDT screens only screen for amphetamines, therefore methylphenidate will not be detected; Check with local laboratory.	• Due to short half-life, immediate release products may not result in positive test depending on last use.

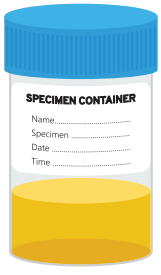

Table 5. Adverse effects of medications to treat ADHD in adults[24-28]

Adverse effects*		Amphetamine/ dextroamphetamine salts	Methylphenidate	Lisdexamfetamine	Atomoxetine**	Viloxazine
Cardiovascular effects	Increased BP (2-4 mmHg)	– #	+	+	+++	– #
	Tachycardia (3-6 bpm)	++	++	++	++++	+
	Palpitations	++	+	+	+	?
Neurologic effects	Headache	++++	++++	+	++++	+++
	Insomnia	++++	+++	++++	++++	++
	Anxiety	++	++	++	–	?
	Dizziness	++	++	+	++	?
	Tremor/twitching	++	+	+	++	?
Psychiatric effects	Aggressive behavior	–	+	–	+	?
	Angry/irritable	++	+++	+	++	++
	Nervousness	+	+	?	+	?
	Restlessness	–	+	+	+	?
	Emotional lability	++	++	?	+	?
Dermatologic effects	Diaphoresis	++	++	?	+++	?
Endocrine/ metabolic effects	Weight loss	+++	++	++	+	–
Gastrointestinal effects	Abdominal pain	?	++	+	++++	++
	Appetite loss	++++	++++	++++	++++	++
	Nausea	++	+++	++	++++	++
	Vomiting	?	+++	+	++	++
	Indigestion/dyspepsia	?	+	+	++	?
	Xerostomia	++++	+++	++++	++++	?
Respiratory effects	Nasal congestion	?	+	?	?	?
	Nasopharyngitis	?	+	?	?	?

+ = 1-3%; ++ = 4-9%; +++ = 10-15%; ++++ = 16% or more; – = less than 1%; ? = unknown; # = elevations in BP are not well-documented in adults, but common in adolescents. BP monitoring is recommended.[28-30]

*Data primarily available for children and adolescents. **Erectile dysfunction and urinary hesitation occurred ≥ 5% and at least twice the incidence of placebo; monitoring is recommended for patients on atomoxetine.[7]

Table 6. Suggested dosing for converting between stimulants[31]

Methylphenidate IR*	Methylphenidate ER	Methylphenidate (Concerta®)	Dexmethylphenidate
10-15 mg	20 mg	18 mg	5-7.5 mg
20-30 mg	40 mg	36 mg	10-15 mg
30-45 mg	60 mg	54 mg	15-22.5 mg
40-60 mg	--	72 mg	20-30 mg

*Reflects total daily dose divided twice or three times daily. Serdexmethylpheidate/dexmethylphenidate (Azstarsys®): discontinue methylphenidate and initiate at lowest dose and titrate.[32]

Table 7. Precautions and contraindications of ADHD medications[24-26,28,33,34]

Medication*/ US boxed warning	Warnings/precautions	Contraindications	Clinical Pearls
Mixed amphetamine salts[35] (dextroamphetamine/amphetamine) **US boxed warning:** High potential for abuse and dependence; assess risk of abuse prior to starting and monitor for signs of abuse/ dependence while on therapy	• CNS effects • Peripheral vasculopathy • Visual disturbance (e.g., accommodation, blurred vision) • May exacerbate CV conditions by increasing HR or BP • May exacerbate tics (motor, phonic) and Tourette syndrome • May precipitate a mixed/manic episode in bipolar disorder • Caution with hepatic or renal impairment	• Hypersensitivity • Use during or within 14 days following MAOIs or those with MAOI activity (e.g., linezolid, IV methylene blue) • Advanced arteriosclerosis • Symptomatic CV disease • Moderate to severe hypertension • Untreated hyperthyroidism • Narrow angle glaucoma • Agitated states • History of drug abuse	• Acidifying substances (e.g., ascorbic acid) lower amphetamine plasma levels • Alkalinizing substances (e.g., proton pump inhibitors) increase amphetamine plasma levels and potentiate actions[36] (not for lisdexamfetamine)[37]
Methylphenidate (Ritalin®, Concerta®)[38,39] **US boxed warning:** High potential for abuse and dependence; assess risk of abuse prior to starting and monitor for signs of abuse/ dependence while on therapy	• May cause peripheral vasculopathy, Raynaud's Phenomenon • Visual disturbance (e.g., accommodation, blurred vision) • May precipitate a mixed/manic episode or psychosis in patients with preexisting mental illness • Emergence of new psychotic or manic symptoms • Caution in patients with CV conditions that might be exacerbated by increased BP or HR; avoid if serious CV problems • May lower seizure threshold • May exacerbate tics (motor, phonic) and Tourette syndrome • Priapism has been reported	• Concerta tablet should not be used in patients with GI narrowing due to the risk of intestinal obstruction • Hypersensitivity • Use during or within 14 days following MAOIs or those with MAOI activity (e.g., linezolid, IV methylene blue) • Marked anxiety, tension, and agitation • Narrow angle glaucoma • Family history or diagnosis of Tourette syndrome or tics	See package insert for formulation specific information

*See medication package insert for complete prescribing information. BP = blood pressure; CNS = central nervous system; CV = cardiovascular; GI = gastrointestinal; HR = heart rate; HTN = hypertension; MAOI = monoamine oxidase inhibitor

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Table 7. Precautions and contraindications of ADHD medications *(continued)*[31,35-37,42,43]

Medication*/ US boxed warning	Warnings/precautions	Contraindications	Clinical Pearls
Lisdexamfetamine (Vyvanse®) **US boxed warning:** High potential for abuse and dependence; assess risk of abuse prior to starting and monitor for signs of abuse/dependence while on therapy	• Risk of sudden death, stroke, and myocardial infarction in adults (avoid use in patients with known structural cardiac abnormalities, cardiomyopathy, serious heart arrhythmia, or coronary artery disease) • Monitor BP and HR • May cause psychotic or manic symptoms in patients with no prior history or exacerbate symptoms in patients with pre-existing psychosis • Peripheral vasculopathy • Serotonin syndrome, if administered with other serotoneric agents	• Hypersensitivity • Use during or within 14 days following MAOIs or those with MAOI activity (e.g., linezolid, IV methylene blue)	• Lisdexamfetamine is converted to dextro-amphetamine and l-lysine primarily in blood due to the hydrolytic activity of red blood cells
Atomoxetine (Strattera®)[27] **US boxed warning:** Suicidal ideation in children and adolescents	• Emergence of new psychotic or manic symptoms • Increased risk of mania/mixed episodes in patients with bipolar disorder/risk factors for bipolar disorder • Can cause severe liver injury (based on postmarket reporting) • Can increase BP and HR • Worsening of aggressive behavior/hostility • Caution in patients with a history of urinary retention, bladder outlet obstruction, BPH; may cause urinary retention/hesitancy • Priapism has been reported	• Hypersensitivity • Use during or within 14 days following MAOIs or those with MAOI activity (e.g., linezolid, IV methylene blue) • Narrow angle glaucoma • Current or history of pheochromocytoma • Severe cardiac or vascular disorders that would be expected to deteriorate with clinically important increases in BP or HR	• CYP2D6 drug interactions • Dosage adjustments recommended in CYP2D6 poor metabolizers • Monitor for signs/ symptoms of liver injury • No known abuse potential • Not thought to exacerbate tics
Viloxazine (Qelbree®) **US boxed warning:** Suicidal thoughts and behaviors	• Can increase BP and HR • Activation of mania or hypomania • Somnolence and fatigue: advise patients to use caution when driving or operating hazardous machinery	• Use during or within 14 days following MAOIs or those with MAOI activity (e.g., linezolid, IV methylene blue) • Concomitant administration of sensitive CYP1A2 substrates or CYP1A2 substrates with a narrow therapeutic range	**Clinically important drug interactions:** Viloxazine is a strong CYP1A2 inhibitor, weak CYP2D6 inhibitor, and CYP3A4 inhibitor

*See medication package insert for complete prescribing information. BP = blood pressure; BPH = benign prostatic hypertrophy; HR = heart rate; MAOI = monoamine oxidase inhibitor

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This reference guide was created to be used as a tool for VA providers and is available from the Academic Detailing SharePoint.

These are general recommendations only; specific clinical decisions should be made by the treating provider based on an individual patient's clinical condition.

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