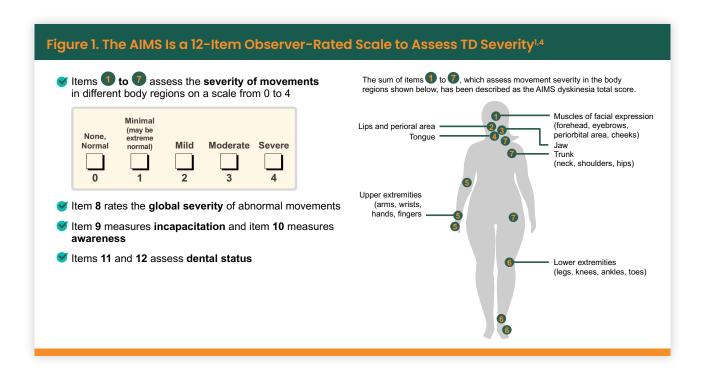




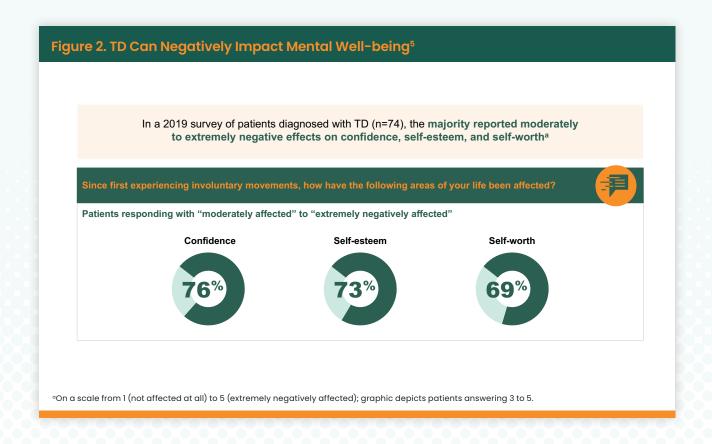
What is the AIMS?

- The AIMS is a 12-item observer-rated scale developed to assess the severity of tardive dyskinesia (TD) and follow its progression over time (**Figure 1**).
- The full AIMS exam usually takes approximately 10 minutes to administer.²
- Use of the AIMS as a screening tool for TD may help improve patient outcomes.3



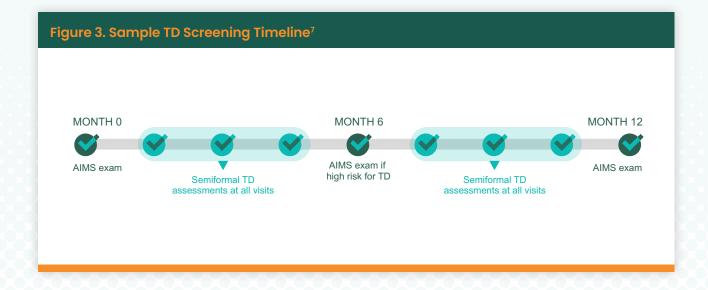
Why should I incorporate the AIMS into my practice?

- TD can negatively influence aspects of a patient's life, so it is important to screen for it and recognize it.
 - In one survey, patients reported that TD can have a significant negative impact on confidence, self-esteem, and self-worth (Figure 2).⁵
 - TD can reduce health-related quality of life, with greater impact on the physical domains, and lead to social withdrawal.⁶



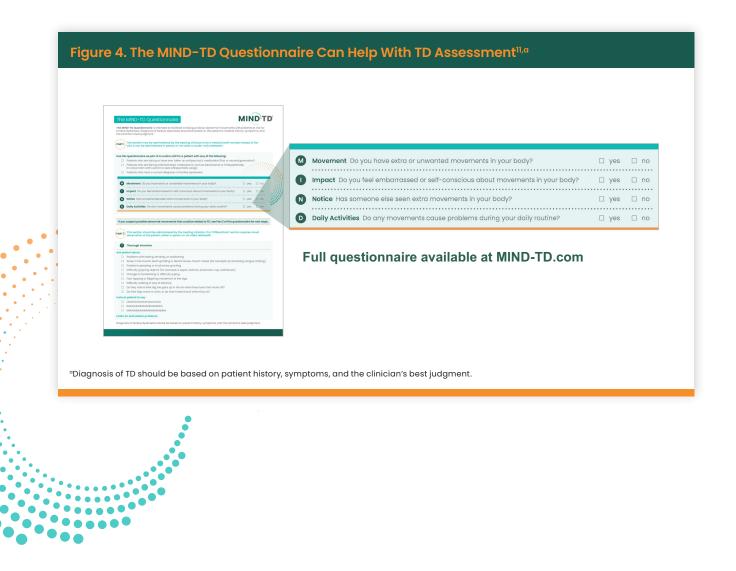
How often should I screen my patients for TD?

- The American Psychiatric Association Practice Guideline for the Treatment of Patients With Schizophrenia⁷ and a modified Delphi consensus study⁸ recommend that all patients with a history of treatment with antipsychotics should be clinically assessed for abnormal involuntary movements, such as TD, at each visit.
- They also say that assessment with a structured instrument, such as the AIMS, should be conducted at less frequent intervals, such as every 12 months (or every 6 months in high-risk patients), or if a new onset or exacerbation of preexisting movements is detected (**Figure 3**).^{7,8}
 - Patients considered at increased risk include: those age greater than 55 years; female sex; White or African and African American race/ethnicity; presence of a mood disorder, intellectual disability, or central nervous system injury; and past or current akathisia, clinically significant parkinsonism, or acute dystonic reactions.⁷



When should I use the AIMS vs other screening resources?

- Certain insurers may require an AIMS score as part of preauthorization to treat patients with TD.9
- Some care settings or facilities, such as some long-term care facilities, may also require an AIMS score for patients diagnosed with or at risk for TD.¹⁰
- For regular, efficient assessments at each visit, guides like the MIND-TD Questionnaire (**Figure 4**) may help facilitate discussions between clinicians and their patients about possible abnormal movements related to TD and their impact.¹¹
- Regular assessments for TD may also help identify symptom fluctuations and related psychosocial stressors that may be causing these symptom fluctuations.⁷



Tips for using the AIMS for a diverse patient population

- It is sometimes necessary to use your clinical judgment to adapt the AIMS according to a particular patient's needs or circumstances.
- You may be using the AIMS across a diverse population of patients, who have varying mental and physical health statuses, across different settings of care.
- While you might not be able to complete the AIMS exam the same way with each patient, assessing each at-risk individual for TD is important.
- Consider the logistics before you start. How might you undertake the exam with this particular patient and their location? For example, determine how to collect as much information as possible even if the patient uses a walker or wheelchair. Be prepared to assess patients who may show different levels of cooperation.



"In my experience, there are patients for whom a formal examination is difficult, regardless of setting. For example, agitation, anxiety, or akathisia can interfere with a controlled assessment. For these patients, I find that I can look for involuntary movements while allowing the patient to walk about or do what they are comfortable doing. I make a point of documenting how the observations were made so that future comparisons are possible. For example, I'll note: 'Irregular, repetitive shoulder movements occurred while the patient was standing smoking a cigarette,' or 'Moderate amplitude jaw movements, athetoid, were noted when patient was pacing the room.' An AIMS score may be documented with an asterisk to note unusual circumstances."

Chris O'Brien, MD, FAAN Movement Disorder Neurologist Former Chief Medical Officer, Neurocrine Biosciences

Vashon, WA

"In my practice, I have had to adapt the AIMS for patients who can only stand and walk with the assistance of a walker. In cases such as this, I ask the patient to stand with only their nondominant hand on the walker. This constrains the spontaneous movements of that hand while freeing up the dominant hand. I observe as the dominant limb hangs loosely by the patient's side for a count of 10, and then ask and demonstrate for the patient to sequentially touch their dominant hand 4 fingers to their thumb repeatedly. I watch the face/mouth/tongue/jaw area as the patient concentrates on doing the finger movements. Next, I ask the patient to hold their dominant arm out straight in front of them, with the wrist limp and the fingers hanging loosely. I then ask the patient to come up with 5 words beginning with the letter "t" and watch for finger movements. Finally, I ask the patient to switch to holding the walker with the dominant hand, and do all the same tasks with the nondominant hand."



Joseph McEvoy, MD

Professor of Psychiatry and Health Behavior Medical College of Georgia–Augusta University Augusta, GA

Dr O'Brien and Dr McEvoy are paid consultants for Neurocrine Biosciences, Inc.

Tips for using the AIMS according to setting

- If it is not possible to see the patient in person, the AIMS can be conducted over telehealth (Figure 5).12-14
 - Although initial implementation of telehealth has been spurred by the COVID-19 pandemic,¹⁶ its continued use holds promise to address many access-to-care barriers for patients in rural areas or for those with limited mobility.
 - The success of telehealth visits can be increased by:
 - setting expectations before the visit (ie, equipment, environment, and helping hand);
 - engaging the patients during the visit; and
 - completing after-visit follow-ups (ie, patient summary, care plan, and patient feedback) with the patients.
- With training, the AIMS exam can be reliably administered by clinical staff members.

Figure 5. Many Elements of the AIMS Examination Can Be Covered via Video^{13,14}

Use a laptop or tablet instead of a phone screen so you can see the patient's arms, legs, and feet

If a companion is available, the extra pair of hands to hold the camera will allow the HCP to see the patient's movements

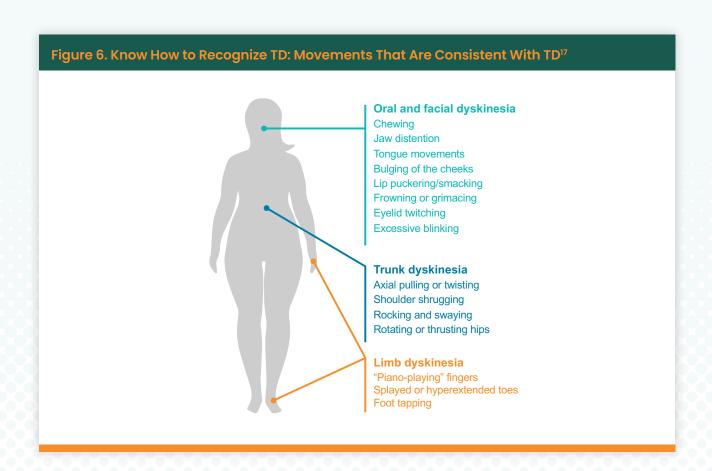
Observe various body regions, such as eyes, lips, face, hands and fingers, shoulders, and tongue, with and without activation

The camera can be tilted downward to examine the patient's feet and toes

Be prepared to model what you want the patient to do, especially for activation maneuvers

What should I be looking for during the AIMS exam?

- The Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5), defines TD as "involuntary athetoid or choreiform movements (lasting at least a few weeks), generally of the tongue, lower face and jaw, and extremities (but sometimes involving the pharyngeal, diaphragmatic, or trunk muscles) developing in association with the use of neuroleptic medication for at least a few months." ¹⁶
- To diagnose TD efficiently, it is important to understand what types of movements are consistent with TD (**Figure 6**)¹⁷ and differentiate them from those that are not consistent with TD.



To access real-world patient videos depicting these movements, <u>click here</u>.

What should I be looking for during the AIMS exam? (cont)

- Movements that are not consistent with TD include those observed with drug-induced parkinsonism and akathisia (**Table**).¹⁸⁻²⁰
- Drug-induced parkinsonism is defined in the *DSM-5* as the presence of resting tremor, muscular rigidity, akinesia, or bradykinesia that develops within a few weeks of starting or raising the dosage of a medication or after reducing the dosage of an antiparkinsonian agent. This disorder can be induced by antipsychotics, certain dopamine receptor blocking drugs used to treat nausea and gastroparesis (eg, prochlorperazine, promethazine, trimethobenzamide, thiethylperazine, metoclopramide), and the antidepressant amoxapine.
- Akathisia is defined by the DSM-5 as restlessness, fidgeting of the legs, rocking, pacing, and the inability to sit or stand still.¹⁷ Symptoms of akathisia typically present during the first few weeks of starting or increasing the dosage of an antipsychotic.²¹

_			onia	uced Movement [Akathisia		Akathisia		Jisol del s
Characteristic	Tardive Dyskinesia	Acute	Tardive	Acute	Tardive	Parkinsonism		
Typical time to onset ^a	Weeks to years ^b	Hours to days	Weeks to years	Days to months	Weeks to years	Days or weeks to years		
Movement phenomenology	Choreoathetotic (irregular, dance-like), athetotic (slow, writhing), and/or stereotypic (repetitive, purposeless) movements of the mouth, jaw, tongue, and face (mouth/jaw chewing, tongue protrusion, grimacing, lip smacking or pursing, blepharospasm); also, choreoathetotic and/or stereotypic movements of neck, trunk, and extremities (pianoplaying finger/hand movements, foot tapping, truncal rocking or thrusting)	Pulling, twisting, sustained, and repetitive movements or postures that are usually focal, involving the head, neck, eyes, mouth, jaw, tongue, and face (torticollis, trismus, jaw opening, grimacing, blepharospasm or		Inner feeling of restlessness with urge to move and inability to remain seated; may be associated with stereotypies such as foot tapping, shifting weight, or rocking		Tremor and/or bradykinesia; also, rigidity of neck, trunk, and extremities, hypomimia, reduced blink rate, reduced arm swing, flexed posture, and shuffling or freezing gait; also, rabbit syndrome (a parkinsonian variant that includes jaw tremor)		
Other clinical features	Difficulty speaking, eating, or ambulating; embarrassment; social isolation	cramps, di anxiety, dy	dysphagia, respiratory		Soft speech, dysphagia, fatigue			

[°]Following DRBA initiation or change in dose. Onset may occur earlier or later than the typical time frames listed.

Adapted with permission. Hauser RA, Meyer JM, Factor SA, et al. Differentiating tardive dyskinesia: a video-based review of antipsychotic-induced movement disorders in clinical practice. CNS Spectr. Published online November 20, 2020. doi: 10.1017/S109285292000200X

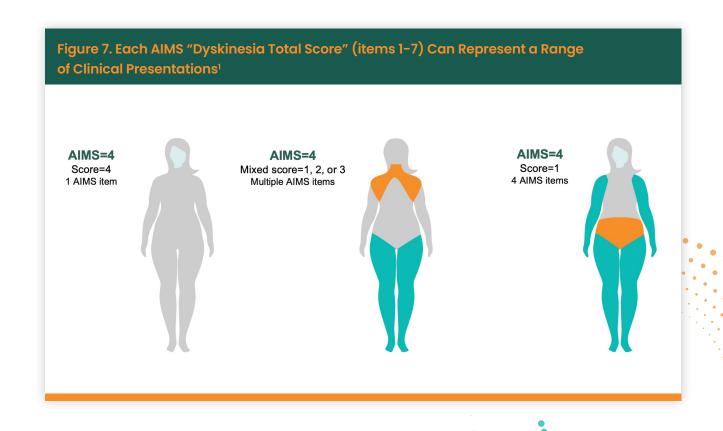
Watch the AIMS in practice.

<u>Click here</u> to view expert-led videos demonstrating the use of the AIMS with real patients.

bTD may be "masked" by DRBA treatment and first appear after DRBAs are withdrawn

So you've completed and scored an AIMS exam. Now what?

- Remember that each AIMS "dyskinesia total score" (the sum of items 1 to 7) can represent a range of clinical presentations (**Figure 7**).¹
 - For example, a total score of 4 could simply represent a score of 4 (severe) in 1 body region. In addition, a total score of 4 may represent a score of 1, 2, or 3 in multiple body regions, or a score of 1 in 4 body regions.
- Any symptom of TD, no matter the presentation, can negatively impact a patient's quality of life.⁷
 - For example, dyskinetic movements may lead to social withdrawal as well as interfere with activities of daily living.²²
 - A recent consensus panel recommended against using the term "mild" when referring to TD given the subjectivity of the term and the potential impact of movements on the patient's life.²²



For more detailed information on conducting and scoring an AIMS exam in your practice, see "The AIMS Exam: A How-To Guide" on pages 13-15.

9

Diagnosing and treating TD

Diagnosing TD

- A diagnosis of TD should be made based on patient history, symptoms, and the clinician's best judgment.
- The AIMS is a screening instrument and is not diagnostic; however, diagnostic criteria have been suggested, such as the Schooler-Kane criteria.²³
 - According to the Schooler-Kane criteria, a rating of 2 or higher in 2 or more areas, or a rating of 3 or higher in 1 or more areas, is considered a positive AIMS exam.²³
 - Recently, a modified Delphi consensus study of the screening, diagnosis, and treatment of TD reported consensus agreement among a panel of experts in psychiatry and neurology that a patient having a rating of 2 or greater in at least 1 body area should be considered as possibly having TD.8

Treating TD

- The American Psychiatric Association Practice Guideline for the Treatment of Patients With Schizophrenia recommends that patients who have moderate to severe or disabling TD associated with antipsychotic therapy be treated with a reversible inhibitor of VMAT2.7
- It also states that treatment with a VMAT2 inhibitor can be considered for patients with mild TD based on patient preference, associated impairment, or effect on psychosocial functioning.⁷



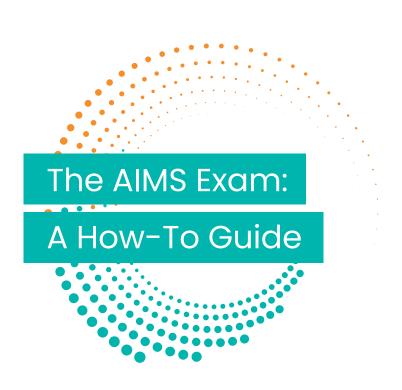


Demetrice Grier, PMHNP-BC (left), and Noemi Bermudez, DO (right), examine real patients living with TD for muscle rigidity as part of the AIMS exam, to help differentiate TD from drug-induced parkinsonism.

Mr Grier and Dr Bermudez are paid consultants for Neurocrine Biosciences, Inc.

References

- 1. Guy W. ECDEU Assessment Manual for Psychopharmacology. US Department of Health, Education, and Welfare, Public Health Service, Alcohol, Drug Abuse, and Mental Health Administration, National Institute of Mental Health, Psychopharmacology Research Branch, Division of Extramural Research Programs; 1976.
- 2. AIMS Abnormal Involuntary Movement Scale. April 1, 2019. Accessed January 5, 2022. https://www.psychiatrictimes.com/view/aims-abnormal-involuntary-movement-scale
- **3.** Madubueze N, Hammonds LS, Lindfors E. Implementing the Abnormal Involuntary Movement Scale AIMS as an evidence based practice screening tool in adult patients taking antipsychotics to detect and treat tardive dyskinesia. *J Psychiatry*. 2019;22(1):1-7.
- **4.** Munetz MR, Benjamin S. How to examine patients using the Abnormal Involuntary Movement Scale. *Hosp Psychiatry*. 1988;39(11):1172-1177.
- 5. Data on file. Neurocrine Biosciences, Inc.
- 6. McEvoy J, Gandhi SK, Rizio AA, et al. Effect of tardive dyskinesia on quality of life in patients with bipolar disorder, major depressive disorder, and schizophrenia. *Qual Life Res.* 2019;28(12):3303-3312.
- 7. American Psychiatric Association. The American Psychiatric Association Practice Guideline for the Treatment of Patients With Schizophrenia. 3rd ed. American Psychiatric Association; 2021.
- 8. Caroff SN, Citrome L, Meyer J, et al. A modified Delphi Consensus Study of the screening, diagnosis, and treatment of tardive dyskinesia. *J Clin Psychiatry*. 2020;81(2):19cs12983.
- 9. Kosicek C. Insurance coverage tips for VMAT2 inhibitors as tardive dyskinesia treatment. August 9, 2021. Accessed January 5, 2022. https://www.hmpgloballearningnetwork.com/site/pcn/podcasts/insurance-coverage-tips-vmat2-inhibitors-tardive-dyskinisia-treatment
- 10. Department of Developmental Services. DDS Medical Advisory #2000-2 (Revised #86-3, # 92-1) Monitoring for Abnormal Involuntary Movements (Tardive Dyskinesia) September 2000. Accessed January 5, 2022. https://portal. ct.gov/DDS/Divisions/Health-Medical-Advisories-and-Health-Standards/20002-Monitoring-for-Abnormal-Involuntary-Movements-Tardive-Dyskinesia-Screening
- 11. Lundt L, Jain R, Matthews M, et al. Development of the MIND-TD Questionnaire as a screening tool for tardive dyskinesia. Poster presented at: Neuroscience Education Institute Congress; November 4-7, 2021; Colorado Springs, CO.
- 12. Amarendran V, George A, Gersappe V, Krishnaswamy S, Warren C. The reliability of telepsychiatry for a neuropsychiatric assessment. *Telemed J E Health*. 2011;17(3):223-5.
- 13. Psychiatry & Behavioral Health Learning Network. Treating TD in the COVID-19 era: 5 steps to success. June 8, 2020. Accessed January 5, 2022. https://www.psychcongress.com/multimedia/treating-td-covid-19-era-5-steps-success
- 14. Psychiatry & Behavioral Health Learning Network. Can the AIMS exam be conducted via telepsychiatry? December 9, 2019. Accessed January 5, 2022. https://www.psychcongress.com/article/can-aims-exam-be-conducted-telepsychiatry
- **15.** American Medical Association. *Telehealth Implementation Playbook*. Accessed January 5, 2022. https://www.ama-assn.org/system/files/2020-04/ama-telehealth-playbook.pdf
- American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders.
 American Psychiatric Association; 2013.
- 17. Tarsy D. Tardive dyskinesia. Curr Treat Options Neurol. 2000;2(3):205-214.
- 18. Hauser RA, Meyer JM, Factor SA, et al. Differentiating tardive dyskinesia: a video-based review of antipsychotic-induced movement disorders in clinical practice. CNS Spectr. Published online November 20, 2020. doi: 10.1017/S109285292000200X
- 19. Ward KM, Citrome L. Antipsychotic-related movement disorders: drug-induced parkinsonism vs. tardive dyskinesia-key differences in pathophysiology and clinical management. *Neurol Ther.* 2018;7(2):233-248.
- 20. Savitt D, Jankovic J. Tardive syndromes. J Neurol Sci. 2018;389:35-42.
- 21. Rathbone J, Soares-Weiser K. Anticholinergics for neuroleptic-induced acute akathisia. *Cochrane Database Syst Rev.* 2006;2006(4)CD003727.
- **22.** Jackson R, Brams MN, Citrome L, et al. Assessment of the impact of tardive dyskinesia in clinical practice: consensus panel recommendations. *Neuropsychiatr Dis Treat*. 2021;17:1589-1597.
- 23. Schooler NR, Kane JM. Research diagnoses for tardive dyskinesia. Arch Gen Psychiatry. 1982;39(4):486-487.



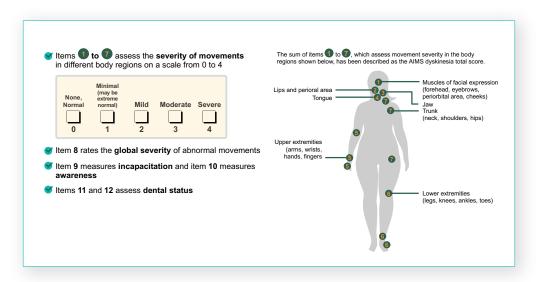
The AIMS Exam: A How-To Guide

Who should be assessed?

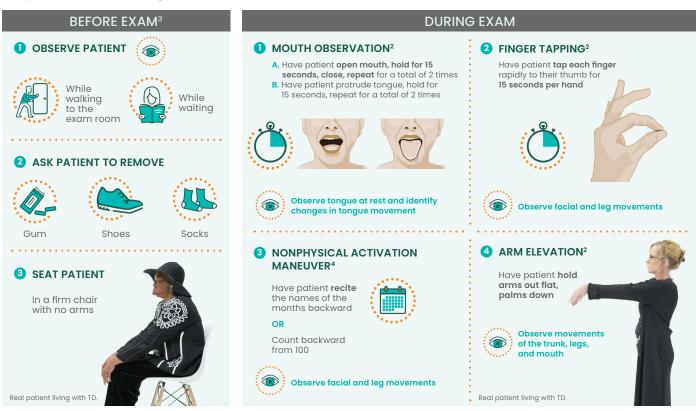
Patients taking antipsychotics or other dopamine receptor blocking agents should be assessed regularly for tardive dyskinesia (TD), which can develop in 7% to 30% of patients taking antipsychotics.¹

AIMS Overview

The Abnormal Involuntary Movement Scale (AIMS) is a 12-item observer-rated scale to assess TD severity.^{2,3}



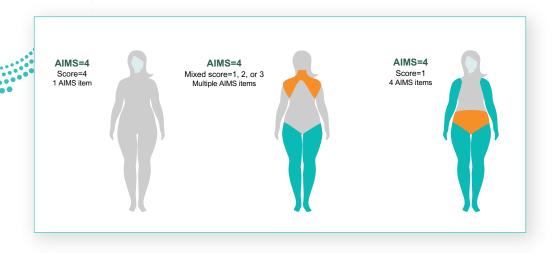
Tips for Performing the Exam²⁻⁴



How to Score the AIMS Exam²

	Items 1-7		0=None; 1=Minimal or extreme end of normal; 2=Mild; 3=Moderate; 4=Severe
	Item 8	Overall severity of abnormal movements	
	Item 9		0=None; 1=Minimal or extreme end of normal; 2=Mild; 3=Moderate; 4=Severe
	Item 10	Rate on a 5-point scale	0=No awareness; 1=Aware, no distress; 2=Aware, mild distress; 3=Aware, moderate distress; 4=Aware, severe distress
•	AIMS dyskinesia total score	Sum of items 1-7	

Remember... the same AIMS "dyskinesia total score" (items 1-7) can look different across patients²



The American Psychiatric Association Practice Guideline for the Treatment of Patients With Schizophrenia recommends that even patients with mild TD may be treated, depending on patient preference, associated impairment, or effect on psychosocial functioning.⁵

References: 1. Carbon M, Hsieh CH, Kane JM, Correll CU. Tardive dyskinesia prevalence in the period of second-generation antipsychotic use: a meta-analysis. *J Clin Psychiatry*. 2017;78(3):e264-e278. 2. Guy W. *ECDEU Assessment Manual for Psychopharmacology*. US Department of Health, Education, and Welfare, Public Health Service, Alcohol, Drug Abuse, and Mental Health Administration, National Institute of Mental Health, Psychopharmacology Research Branch, Division of Extramural Research Programs; 1976. 3. Munetz MR, Benjamin S. How to examine patients using the Abnormal Involuntary Movement Scale. *Hosp Community Psychiatry*. 1988;39(11):1172-1177. 4. Citrome L. Clinical management of tardive dyskinesia: Five steps to success. *J Neurol Sci*. 2017;383:199-204. 5. American Psychiatric Association. *The American Psychiatric Association Practice Guideline for the Treatment of Patients With Schizophrenia*. 3rd ed. American Psychiatric Association; 2021.

Abnormal Involuntary Movement Scale (AIMS)

Score	Descriptors (For items 1-7)
0	No dyskinesia
1	Minimal or slight dyskinesia: Low amplitude, present during some but not most of the exam
2	Mild dyskinesia: Low amplitude and present during most of the exam (or moderate amplitude and present during some of the exam)
3	Moderate dyskinesia: Moderate amplitude and present during most of the exam
4	Severe dyskinesia: Maximal amplitude and present during most of the exam

Fo	acial and Oral Movements	None	Minimal	Mild	Moderate	Severe		
1.	Muscles of Facial Expression eg, movements of forehead, eyebrows, periorbital area, cheeks, include frowning, blinking, smiling, grimacing	0	1	2	3	4		
2.	Lips and Perioral Area eg, puckering, pouting, smacking	0	1	2	3	4		
3.	Jaw eg, biting, clenching, chewing, mouth opening, lateral movement	0	1	2	3	4		
4.	Tongue Rate only increase in movement both in and out of mouth, NOT inability to sustain movement	0	1	2	3	4		
E	Extremity Movements							
5.	Upper (arms, wrists, hands, fingers) Include choreic movements (ie, rapid, objectively purposeless, irregular, spontaneous), athetoid movements (ie, slow, irregular, complex, serpentine). DO NOT include tremor (ie, repetitive, regular, rhythmic)	0	1	2	3	4		
6.	Lower (legs, knees, ankles, toes) eg, lateral knee movement, foot tapping, heel dropping, foot squirming, inversion and eversion of foot	0	1	2	3	4		
Tı	runk Movements							
7.	Neck, shoulders, hips eg, rocking, twisting, squirming, pelvic gyrations	0	1	2	3	4		

Global Judgments		Minimal	Mild	Moderate	Severe		
8. Severity of abnormal movements overall	0	1	2	3	4		
9. Incapacitation due to abnormal movements	0	1	2	3	4		
10. Patient's awareness of abnormal movements (rate only Patient's report) 0=No awareness; 1=Aware, no distress; 2=Aware, mild distress; 3=Aware, moderate distress; 4=Aware, severe distress	0	1	2	3	4		
Dental Status							
11. Current problems with teeth and/or dentures		☐ Yes ☐ No					
12. Does the patient usually wear dentures?		Yes No					

Adapted from: Guy W. ECDEU Assessment Manual for Psychopharmacology. US Department of Health, Education, and Welfare, Public Health Service, Alcohol, Drug Abuse, and Mental Health Administration, National Institute of Mental Health, Psychopharmacology Research Branch, Division of Extramural Research Programs; 1976.



For more information on recognizing and screening for tardive dyskinesia in clinical practice, visit <u>MIND-TD.com</u>.

