

Telehealth Assessment of Tardive Dyskinesia





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Tardive Dyskinesia (TD) is Associated with Prolonged Exposure to Dopamine Receptor Blocking Agents (DRBAs)

Tardive Dyskinesia

Defined as abnormal, involuntary movements of the tongue, jaw, trunk, or extremities that develop in association with medications that block post-synaptic dopamine receptors

TD movements may be:*

Choreiform	Rapid, jerky, nonrhythmic
Athetoid	Slow, sinuous, continual
Semirhythmic	Repetitive, purposeless

Dance-like

Snake-like

Stereotypies

DRBAs can include:

- First-generation antipsychotics
- Second-generation antipsychotics
- Gastrointestinal medications, such as metoclopramide

*Movements are distinctly different from the rhythmic tremors (3-6 Hz) commonly seen in drug-induced parkinsonism¹

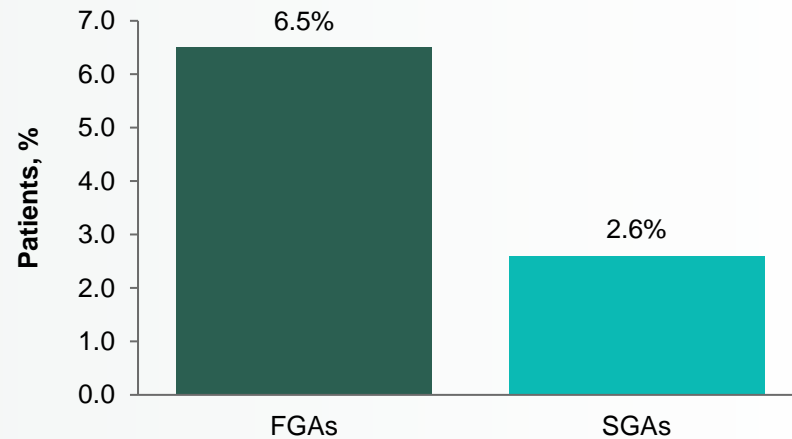
DRBA, dopamine receptor–blocking agent; TD, tardive dyskinesia; OBL, oral-buccal-lingual.

American Psychiatric Association: *Diagnostic and Stat Diagnostic and Statistical Manual of Mental Disorders*. Fifth Edition – Text Revision. American Psychiatric Association: Washington, DC; 2022

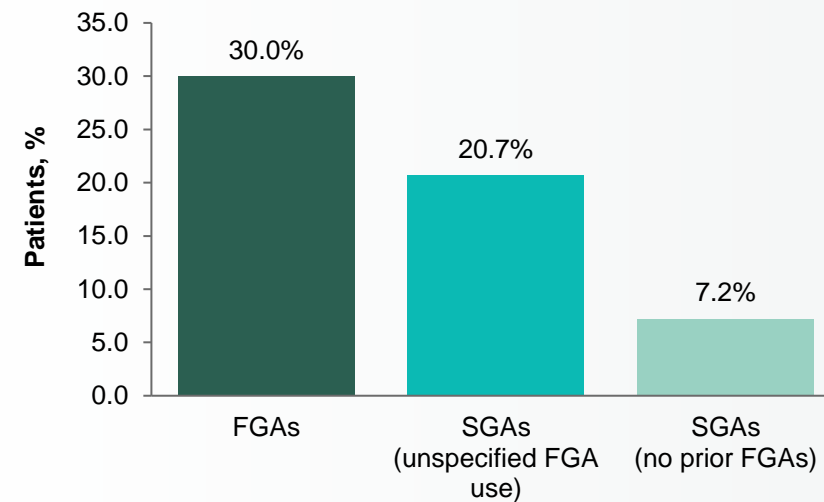


TD Is Associated With Prolonged DRBA Treatment

TD Annual Incidence^{1*}



TD Prevalence^{2†}



**~5 million patients in the US are treated with antipsychotics³
≥600,000 patients may have TD^{3,4‡}**

*2018 meta-analysis of 57 randomized controlled trials (FGA-SGA studies, N=10,706; SGA-SGA studies, N=9153). †2017 meta-analysis of 41 studies (N=11,493).

‡Estimate from a 2014 analysis of prescriptions and incidence rates.

DRBA, dopamine receptor-blocking agent; FGA, first-generation antipsychotic; SGA, second-generation antipsychotic; TD, tardive dyskinesia.

1. Carbon M, et al. *World Psychiatry*. 2018;17(3):330-340. 2. Carbon M, et al. *J Clin Psychiatry*. 2017;78(3):e264-e278. 3. Cloud LJ, et al. *Neurotherapeutics*. 2014;11:166-176.

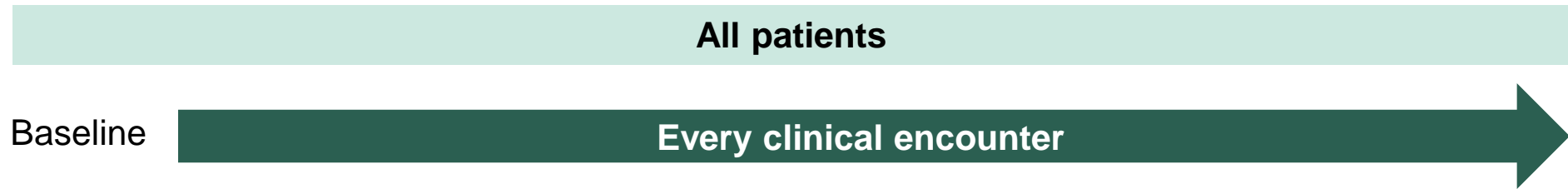
4. Data on file. Neurocrine Biosciences.



Screen All Patients Taking Antipsychotics at Each Visit

TD assessments should include regular clinical assessments and periodic assessments using a structured instrument (e.g., AIMS)^{1,2}

Clinical Assessments^{1,2}



Structured Assessments¹



TD, tardive dyskinesia; AIMS, Abnormal Involuntary Movement Scale.

1. American Psychiatric Association. The American Psychiatric Association Practice Guidelines for the Treatment of Patients with Schizophrenia. American Psychiatric Association; 2021.

2. Caroff SN, et al. J Clin Psychiatry. 2020;81(2):19cs12983.



Expert Panel: Key Points for Assessing TD via Telepsychiatry

- An expert panel of 6 neurologists, 3 psychiatrists, and 3 psychiatric nurse practitioners were gathered to participate in individual semi-structured interviews about in-person and virtual TD assessment and management in their practices
- The panel agreed on the following key points:



– Telepsychiatry visits for TD should include video



– Virtual visits cannot completely replace in-person visits



– Most new patients will probably require an in-person visit for evaluation and diagnosis



– All patients should have an in-office follow-up visit at least once a year (if possible)



Expert Panel: Strategies for Improving TD Diagnosis and Treatment via Telepsychiatry

Telepsychiatry can be part of an overall strategy for improving TD diagnosis and treatment



HCP Education

- HCP education on differential diagnosis might ultimately be the best tool for improving patient outcomes by ensuring that TD is appropriately treated with the right medication



Aligned Terminology

- Terminological differences across specialties need to be addressed in order to improve TD diagnosis and treatment (e.g., misuse of “EPS” as an umbrella term)



Shared Diagnostic Approach

- A shared diagnostic protocol across neurology and other specialties could result in more consistent TD screening and diagnosis



Telepsychiatry

- Communicating the potential benefits and challenges of telepsychiatry in the diagnosis and treatment of TD would help HCPs navigate virtual challenges



TeleSCOPE: Telehealth for the Detection and Treatment of Drug-Induced Movement Disorders

A Real-World Study



TeleSCOPE Overview

- During COVID-19, patient management rapidly shifted from in-person visits to telehealth, which affected the identification, assessment, and treatment of tardive dyskinesia (TD) and other drug-induced movement disorders (DIMDs)
- An observational survey study, “Real-World **Tele**-Health Evaluation of Tardive Dyskinesia **S**ymptoms **C**ommunication/**O**bservation **P**rocedure **E**valuation in Outpatient Clinical Settings” (**TeleSCOPE**), was conducted to better understand how this shift affected the evaluation of TD and other DIMDs



TeleSCOPE: Methodology

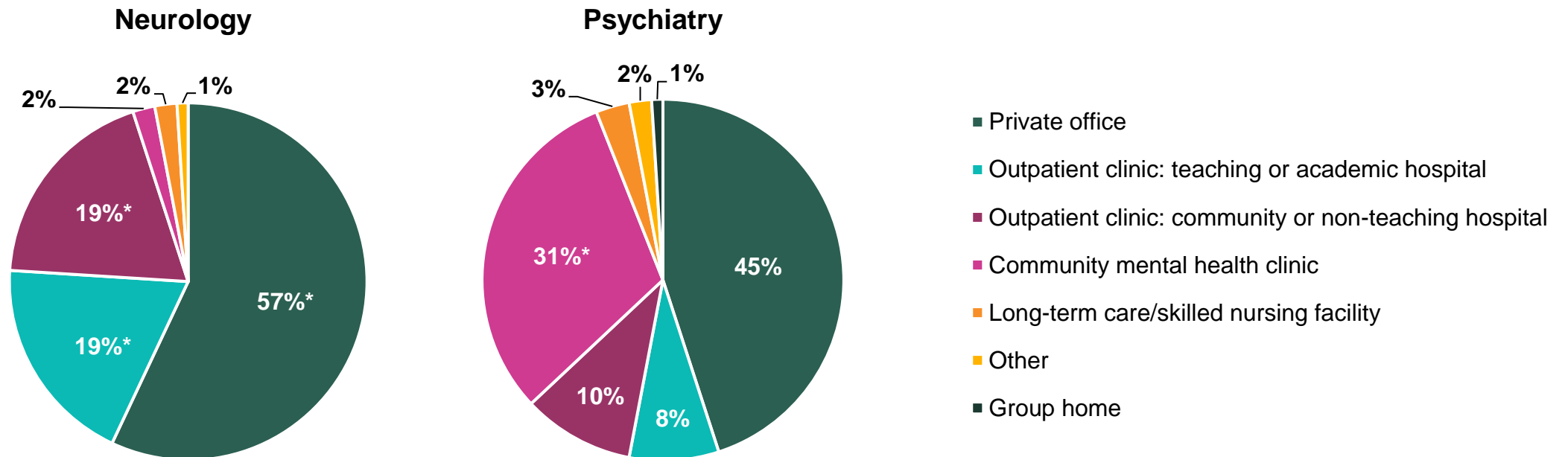
- Physicians, nurse practitioners, and physician assistants in psychiatry or neurology who met the following criteria were invited to participate:
 - Had ≥ 3 years of clinical experience
 - Currently treating mostly adults ($\geq 80\%$ of patients), with $\geq 70\%$ of time spent seeing patients
 - Prescribed a vesicular monoamine transporter 2 (VMAT2) inhibitor or benztropine for DIMDs at least once in the past 6 months
 - Conducted telehealth visits with $\geq 15\%$ of their patients from December 2020 to January 2021
- Study participants completed a 20-minute online survey with items related to their clinical practice and their recent experiences with telehealth, particularly with regard to the assessment and treatment of DIMDs
- Responses were periodically checked for quality and analyzed with no imputation of missing data



TeleSCOPE: Practice Differences by Medical Specialty

- Of the 277 responding clinicians, 61% were psychiatry specialists and 39% were neurology specialists
 - Neurology and psychiatry specialists reported spending 57% and 45% of their time, respectively, in private offices, with psychiatry specialists also spending 31% of their time in community mental health clinics
 - Neurology specialists tended to have larger practices than psychiatry specialists: neurology, 92% with ≥ 500 outpatients; psychiatry, 86% with ≥ 250 outpatients

Percent of Time Spent in Practice Settings by Clinician Specialty

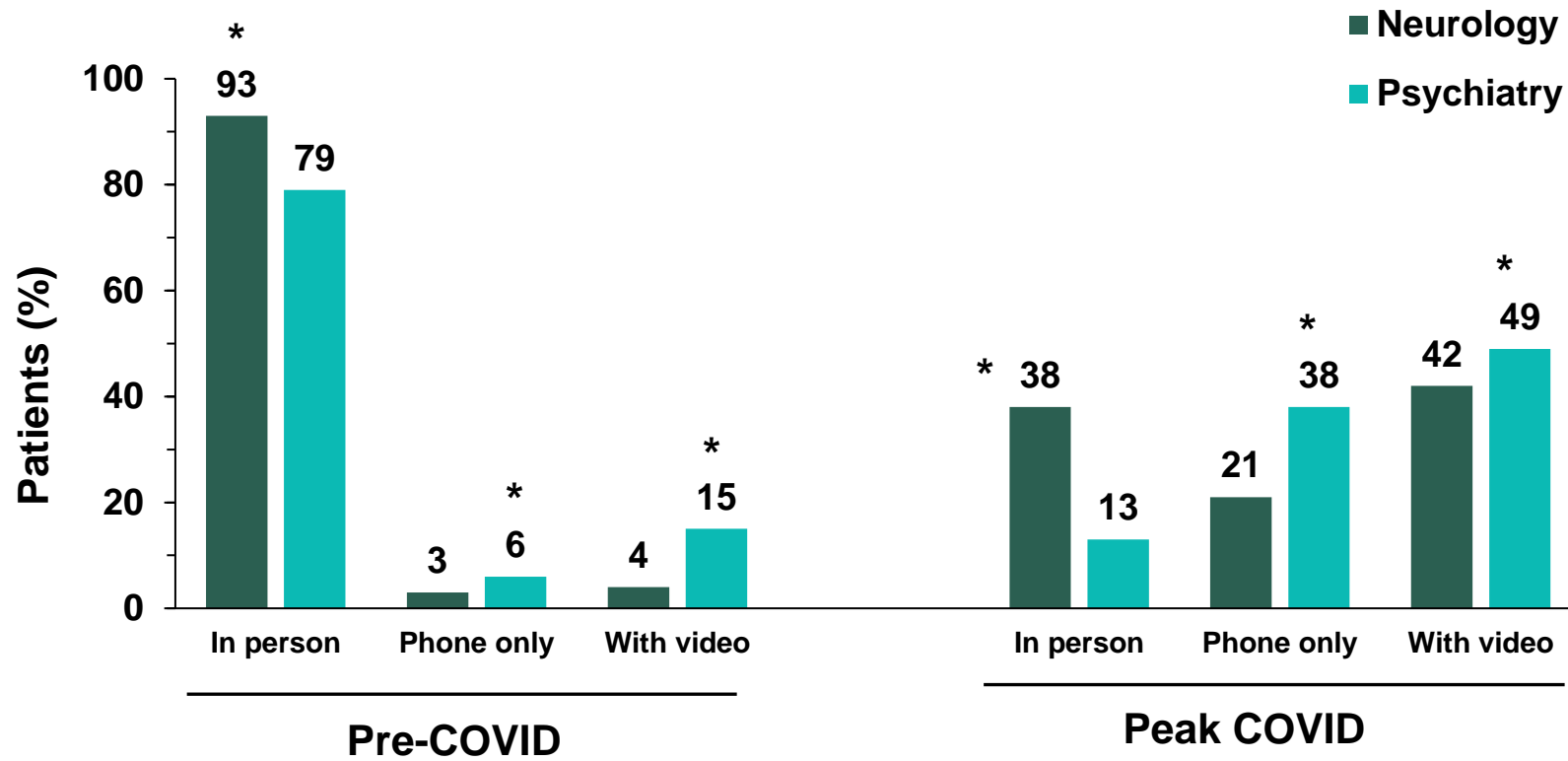


* $P < 0.05$, neurology vs. psychiatry.
Bera R, et al. Psych Congress 2021.



TeleSCOPE: Treatment Setting Before and at Peak COVID by Clinician Specialty

Use of telehealth was more common in psychiatry than neurology before and during COVID-19; however, use of telehealth visits increased during COVID-19 in both specialties





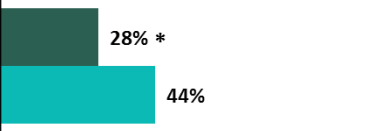







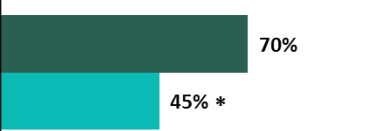
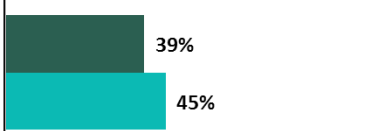
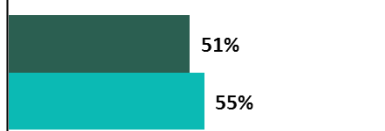
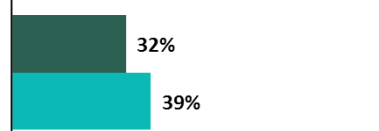
*P<0.05, neurology vs. psychiatry.
Bera R, et al. Psych Congress 2021.



TeleSCOPE: Challenges of Telehealth DIMD Assessment

More than 3 out of 4 patients on DRBAs were not evaluated for DIMDs when the visit was limited to a phone call

- Evaluation, differential diagnosis, and monitoring of DIMDs via phone were all rated as somewhat/very difficult by >75% of responding clinicians

	 Neurology  Psychiatry	Patients on DRBAs Not Evaluated for DIMD (%)	DIMD Objectives Rated as Somewhat/Very <u>Difficult</u> (% of Clinicians)		
			Evaluation	Differential Diagnosis	Monitoring
In person		 28% * 44%	 4% 2%	 4% 11% *	 4% 4%
Phone only		 91% 76% *	 85% 90%	 85% 91%	 78% 82%
With video		 70% 45% *	 39% 45%	 51% 55%	 32% 39%

*P<0.05, neurology vs. psychiatry.

DIMD, drug-induced movement disorder; DRBA, dopamine receptor blocking agent.

Bera R, et al. Psych Congress 2021.



TeleSCOPE: Drivers of DIMD Evaluation and Telehealth Assessment Challenges

In both specialties, the top driver for further DIMD evaluation was mention of tics or movements by family members or others

- Evaluation of gait/falls/walking/standing was the most challenging aspect of virtual assessment

Drivers, n (%)	Neurology (N=109)	Psychiatry (N=168)	Signs and Symptoms Not Available via Telehealth (%)	
			Phone Only	With Video
			Neurology Psychiatry	Neurology Psychiatry
Family members or others mention tics/movements	89 (82)	149 (89)	31% 22%	26%* 15%
Trouble with gait, falls, walking, standing	84 (77)	143 (85)	57% 53%	31% 26%
Difficulty swallowing or eating	75 (69)	131 (78)	37% 38%	27% 18%
Difficulty writing, using phone, computer	75 (69)	121 (72)	36% 39%	17% 20%
Difficulty speaking	78 (72)	117 (70)	12% 19%	15% 15%
Embarrassment and avoidance of personal interaction	72 (66)	106 (63)	24% 30%	17% 19%
Difficulty dressing or showering	62 (57)	87 (52)	29% 38%	15% 14%
Withdraw from usual activities, work/school	64 (59)*	70 (42)	23% 26%	20% 14%
Painful movements	60 (55)*	70 (42)	38% 29%	17% 10%
Employment challenges due to symptoms	60 (55)*	69 (41)	20% 22%	17% 14%
Difficulty driving	44 (40)	57 (34)	39% 42%	30% 40%
Stopping employment	46 (42)*	36 (21)	13% 22%	13% 17%

*P<0.05, neurology vs. psychiatry; DIMD, drug-induced movement disorder. Bera R, et al. Psych Congress 2021.



TeleSCOPE: Additional Telehealth Challenges



Patient Factors

- Limited access to computers/telephones
- Living alone or in a group home
- Poor financial status
- Lack of place for private conversation



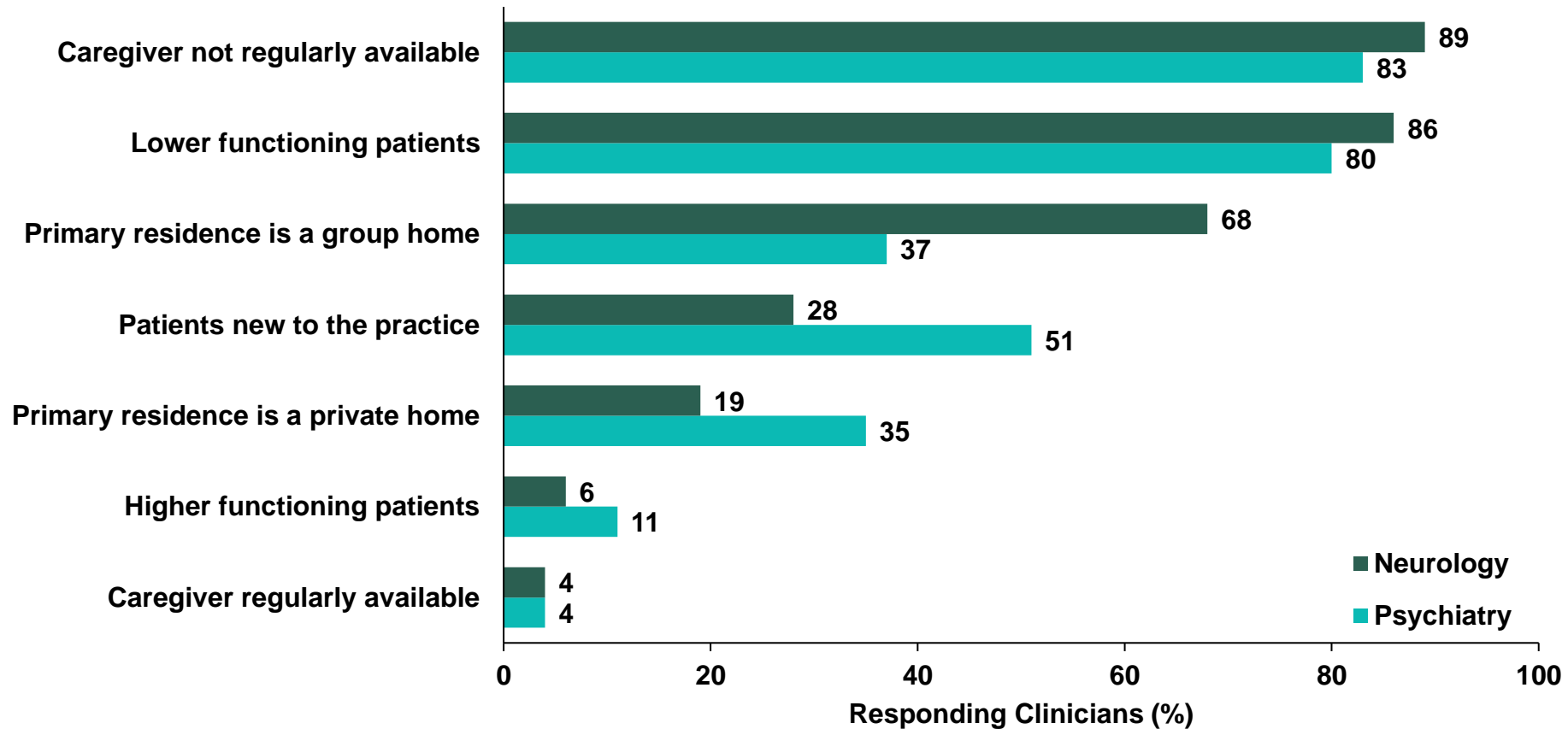
Clinician Factors

- Insufficient training for clinicians and staff
- Greater difficulty in obtaining reimbursements, especially for complex telehealth visits



TeleSCOPE: Patient Types at Risk of Missed DIMD Diagnosis

Patients without a participating caregiver, along with lower functioning patients, were at the highest risk of a missed DIMD diagnosis



*P<0.05, neurology vs. psychiatry.
DIMD, drug-induced movement disorder.
Bera R, et al. Psych Congress 2021.



TeleSCOPE: Summary

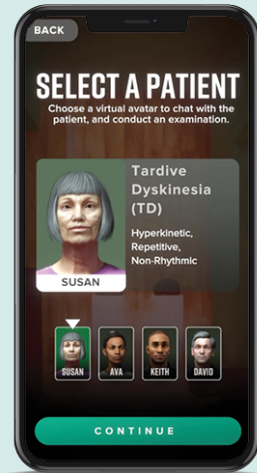
- During the COVID-19 pandemic, telehealth significantly reduced clinicians' ability or willingness to diagnose, assess, and monitor/treat DIMDs
- The presence of caregivers at virtual visits improved the likelihood of DIMD evaluation
- Many factors associated with telehealth increased the risk of a missed or incorrect DIMD diagnosis (e.g., difficulty of assessing gait/falls/walking/ balance), potentially contributing to inappropriate treatments (e.g., anticholinergics for TD)
- Additional challenges to optimal telehealth effectiveness included lack of patient access to computers, need for more clinician/staff training, lack of awareness of coverage, and need for sufficient fee reimbursement
- In-person evaluation continues to be the gold standard for assessing and treating DIMDs
- However, if telehealth is necessary, use of pre-visit materials (e.g., questionnaire) and specific questions/directions during virtual visits may improve communication and lead to more accurate assessments

FREE EDUCATIONAL RESOURCES on Tardive Dyskinesia and Other Drug-Induced Movement Disorders

These educational resources were sponsored and developed by Neurocrine Biosciences, Inc.

Discover TD®

Discover TD® is an interactive experience designed to inform health care providers about tardive dyskinesia and other drug-induced movement disorders. By interacting with hypothetical virtual patients, you can diagnose and determine an appropriate management plan.^a



^aFor educational purposes only. Should not be interpreted as medical advice for any particular patient. Individual results may vary.

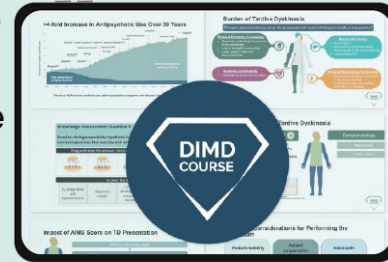
Experience
Discover TD®

mind-td.com/discover-td



DIMD Course

The **DIMD Course** is a free, virtual learning resource for health care providers that delves into various clinical aspects of the most common DRBA-induced movement disorders.



Join the
DIMD Course

dimdcourse.getlearnworlds.com



Neurocrine Medical Website

The **Neurocrine Medical Website** houses a variety of resources, such as educational podcasts and videos, to assist healthcare providers in the recognition and appropriate differentiation of DRBA-induced movement disorders.



Visit the
Neurocrine Medical Website

neurocrinemedical.com



DIMD, drug-induced movement disorder; DRBA, dopamine receptor-blocking agent; TD, tardive dyskinesia.

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MED-CON-TD-US-0101





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Appendix



Expert Panel: Methodology

- In July 2020, 12 experts (6 neurologists, 3 psychiatrists, 3 psychiatric nurse practitioners) participated in individual, semi-structured, qualitative interviews about how tardive dyskinesia (TD) is diagnosed and treated in real-world clinical settings*
- After these individual interviews were completed, a virtual roundtable was held in November 2020 to discuss how telepsychiatry can be used to diagnose, assess, and treat patients with TD
- No quantitative or statistical methods were applied
 - Key findings from the individual interviews and group discussions are intended to be narrative in nature

*Study sponsored by Neurocrine Biosciences, Inc.

EI-Mallakh RS, et al. ASCP 2021.