

Update on Assessment and Treatment of Tics and Functional Tic-Like Behaviours

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Learning Objective

1. Summarize up-to-date practice guidelines for assessment and treatment of tics
2. Describe how clinical presentations of tics and functional tics changed during pandemic
3. Differentiate tics vs. functional tic-like behaviours
4. Identify existing resources for providers, patients, and families

Tourette's Disorder

- A. Multiple motor and 1 or more vocal tics present at some time during illness
- B. Tics may wax/wane but have persisted for >1yr since onset of first tic
- C. Onset before age 18 years
- D. Not attributable to substance use or other medical condition

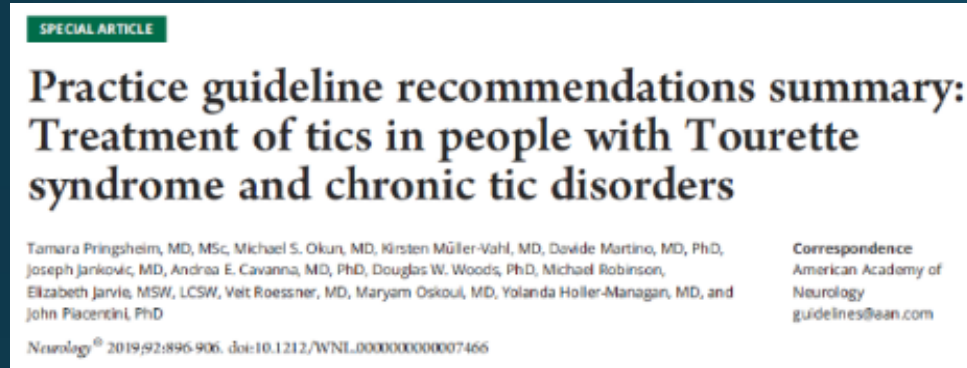
Persistent Tic Disorder – Motor or Vocal

- A. Single or multiple motor or vocal tics present at some time during illness
- B. Tics may wax/wane but have persisted for >1yr since onset of first tic
- C. Onset before age 18 years
- D. Not attributable to substance use or other medical condition
- E. Criteria have never been met for Tourette's disorder

Provisional Tic Disorder

- A. Single or multiple motor and/or vocal tics
- B. Tics but been present for <1 year since first tic onset
- C. Onset before age 18 years
- D. Not attributable to substance use or other medical condition
- E. Criteria have never been met for Tourette's disorder

Practice Guidelines



European Child & Adolescent Psychiatry (2022) 31:377–382
<https://doi.org/10.1007/s00787-021-01832-4>

REVIEW

European clinical guidelines for Tourette syndrome and other tic disorders: summary statement

Kirsten R. Müller-Vahl¹ · Natalia Szejko^{2,3,4} · Cara Verdellen^{5,11} · Veit Roessner⁶ · Pieter J. Hoekstra⁷ · Andreas Hartmann⁸ · Danielle C. Cath^{9,10}



Can J Psychiatry 2012;57(3): 144–151

In Review

Canadian Guidelines for the Evidence-Based Treatment of Tic Disorders: Behavioural Therapy, Deep Brain Stimulation, and Transcranial Magnetic Stimulation

Thomas Steeves, MD, MSc¹; B Duncan McKinlay, PhD²; Daniel Gorman, MD³; Lori Billingham, MD, MSc⁴; Lundy Day, BSc⁵; Alan Carroll, DPM, MRCPsych⁶; Yves Dion, MD⁷; Asif Doja, MD, MEd⁸; Sandra Luscombe, MD⁹; Paul Sandor, MD, FRCPC (Psych)¹⁰; Tamara Pringsheim, MD, MSc¹¹

Rule Out Other Medical Causes

- Allergies
- ENT issues
- Vision/eye problems
- Medication side effects
- Movement disorders
- Seizures



Assess Core Tic Symptomatology

- Topography of tics (#, distribution, motor, vocal, simple/complex)
 - Frequency
 - Severity/intensity
 - Premonitory urge
-
- Yale Global Tic Severity Scale (gold standard interview)
 - Parent Tic Questionnaire
 - Premonitory Urge for Tics Scale

Differentiate from ADHD

Tics	ADHD
Repetitive and patterned movements that interrupt normal motor activity	Overall behavioural hyperactivity and restlessness
Come on suddenly	Increase gradually in a given situation
Waxing/waning pattern	Chronic course
Temporary distraction due to tics and/or efforts to suppress tics	Broader pattern of inattention

Differentiate from OCD

Tics	Compulsions
Often preceded by sensorimotor urges	Typically preceded by obsessive thoughts/mental images
Sudden, brief, fragmented movements	Ritualized, goal-directed behaviour
Waxing and waning pattern; changing topography	Less change over time
May occur during sleep	Never during sleep

- Overlapping “grey zone”—*just right* phenomena, symmetry concerns, counting

Differentiate from Stereotypies

Tics	Stereotypic Movements
Unwanted, unpleasant	Pleasurable, soothing, fulfilling
Waxing/waning course	Non-waxing/waning course
Preceded by premonitory urge	No associated premonitory urge
Average onset age 6-7 years	Average onset age 0-3 years
Brief, abrupt	Prolonged periods of behaviour
Tics typically change over time	More fixed patterns of behaviour
Suppressing is highly effortful	Stopping is less effortful, more instantaneous
No associated fantasy/creativity	Sometimes associated with increased fantasy/creativity

Assess Comorbid Psychiatric Conditions

- Vast majority of individuals with TD have at least 1 other psychiatric disorder (85%)
- Multiple psychiatry comorbidities is common (60%)
- OCD
- ADHD
- Anxiety
- Mood
- Disruptive behaviour

Assess Tic-Related Functional Impact

- Physical well-being
- Social/emotional functioning
- Family relationships/functioning
- Academic achievement/learning
- Job performance
- Participation in extra-curricular activities

Best Practices in Treatment of Tics

SPECIAL ARTICLE

Practice guideline recommendations summary: Treatment of tics in people with Tourette syndrome and chronic tic disorders

Tamara Pringsheim, MD, MSc, Michael S. Okun, MD, Kirsten Müller-Vahl, MD, Davide Martino, MD, PhD, Joseph Jankovic, MD, Andrea E. Cavanna, MD, PhD, Douglas W. Woods, PhD, Michael Robinson, Elizabeth Jarvie, MSW, LCSW, Velt Roessner, MD, Maryam Oskoui, MD, Yolanda Holler-Managan, MD, and John Piacentini, PhD

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Neurology® 2019;92:896-906. doi:10.1212/WNL.0000000000007466

Treat ADHD and/or OCD First

- Treat ADHD first as ADHD symptoms interfere with response to behavioural treatment for tics
- Then consider treating OCD before tics, as tics sometimes respond well to exposure/response prevention

Overview: Treatment Guidelines

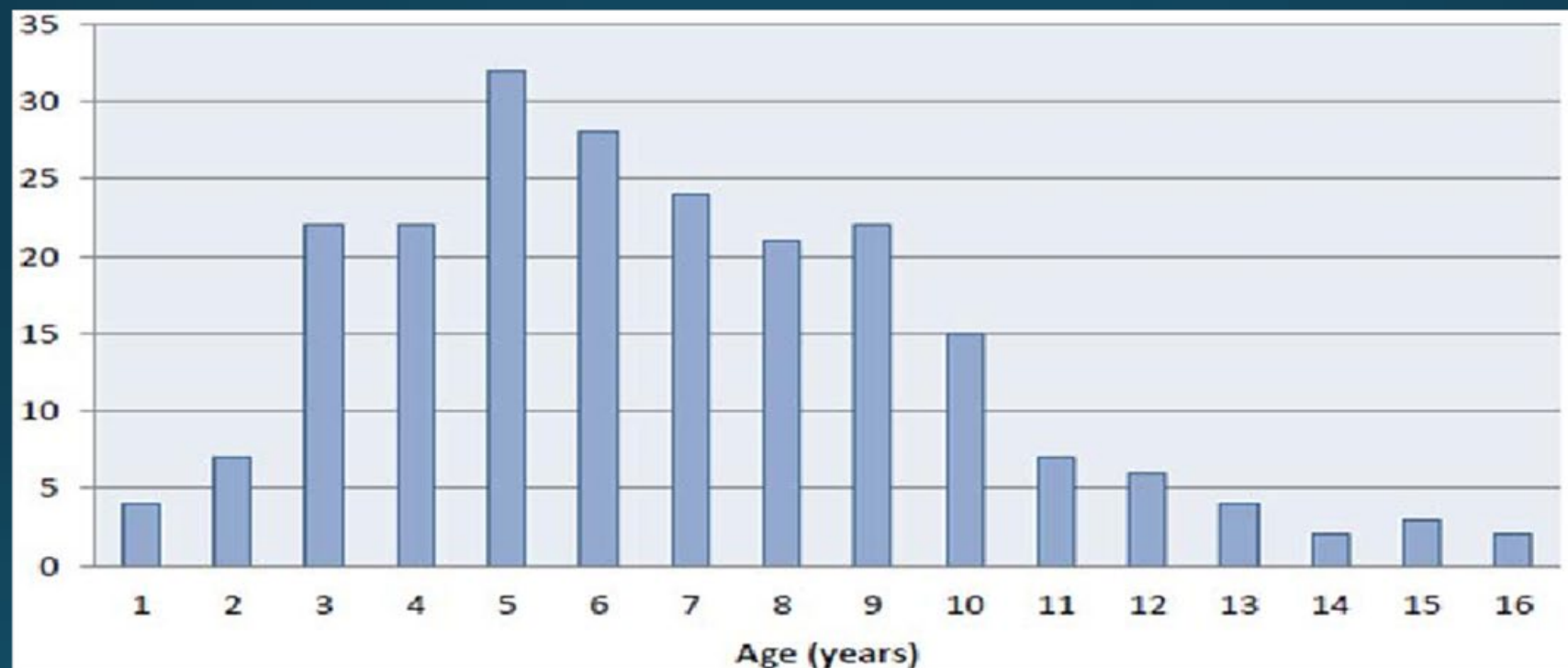


Level of Impairment	Interventions
Mild to moderate	Psychoeducation/advocacy “Watchful waiting”
Moderate	Psychoeducation/advocacy CBIT or HRT
Severe	Psychoeducation/advocacy CBIT or HRT Consider medication

Key Aspects of Psychoeducation

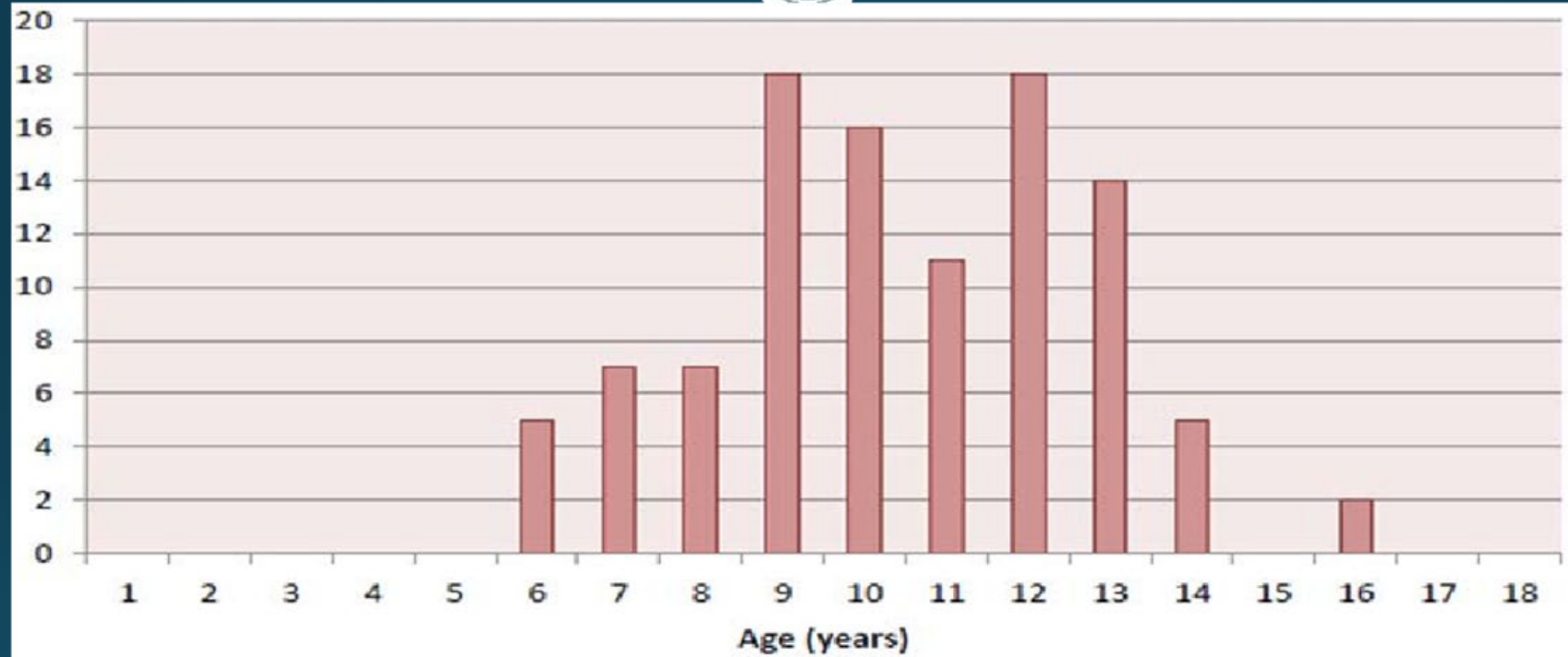
- Define tics and tic disorders
- Explain prevalence and natural history of tics
- Describe psychological and environmental factors that often exacerbate and ameliorate tics
- Encourage advocacy in personal life, school, extracurricular activities, etc.

Age of Onset



Adapted from Woods et al., 2008

Peak Tic Severity

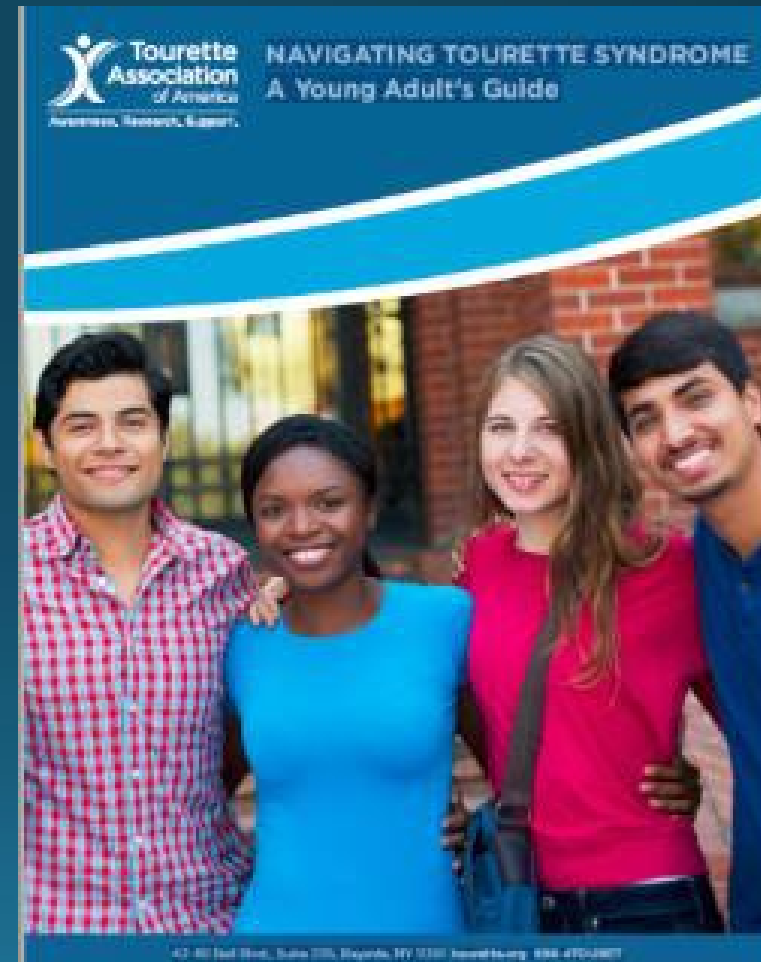
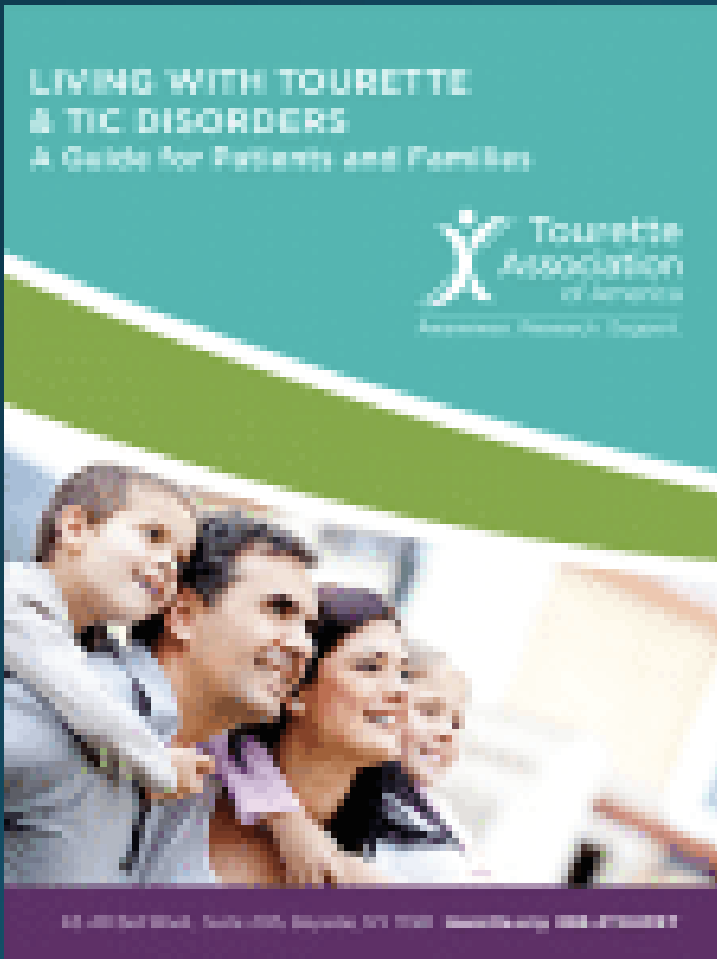


Adapted from Woods et al., 2008; see also Block & Lechman, 2009

Goals of Psychoeducation

- To address common myths and misconceptions
- To reduce stigma, shame, and blame
- To reassure/promote realistic optimism

Psychoeducation Resources



Available on Tourette America website

Introducing CBIT to Families

- CBIT (or HRT) is an effective treatment to *manage* tics symptoms and minimize their impact on daily life
- Inform patients that treatments for tics *infrequently* result in complete elimination of tics



Overview: Treatment Guidelines

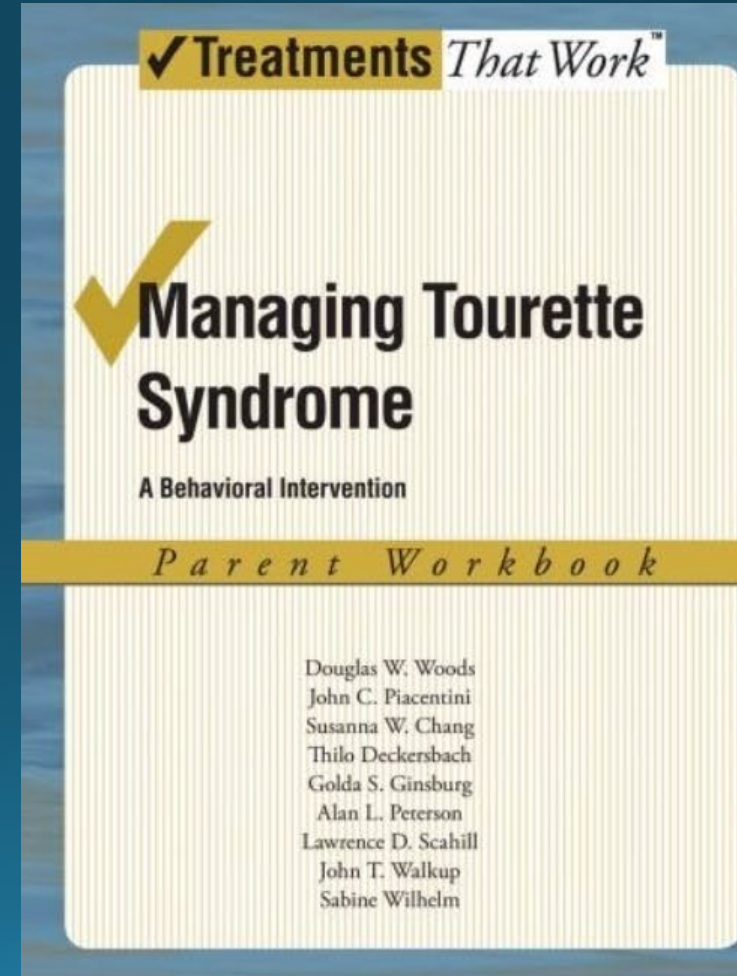
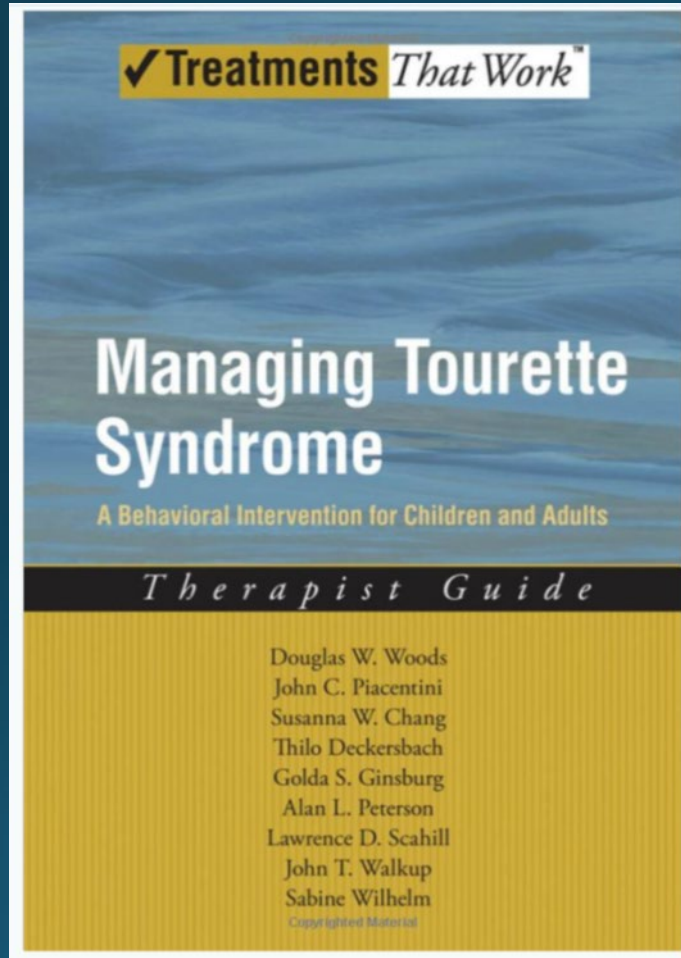


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Mild to moderate	Psychoeducation/advocacy "Watchful waiting"
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When is CBIT Indicated?

- Patient is considerably bothered by tics and at least moderately motivated to reduce them
- At least 8-10 years old (developmental level)
- Co-morbidities mild or moderately well-managed

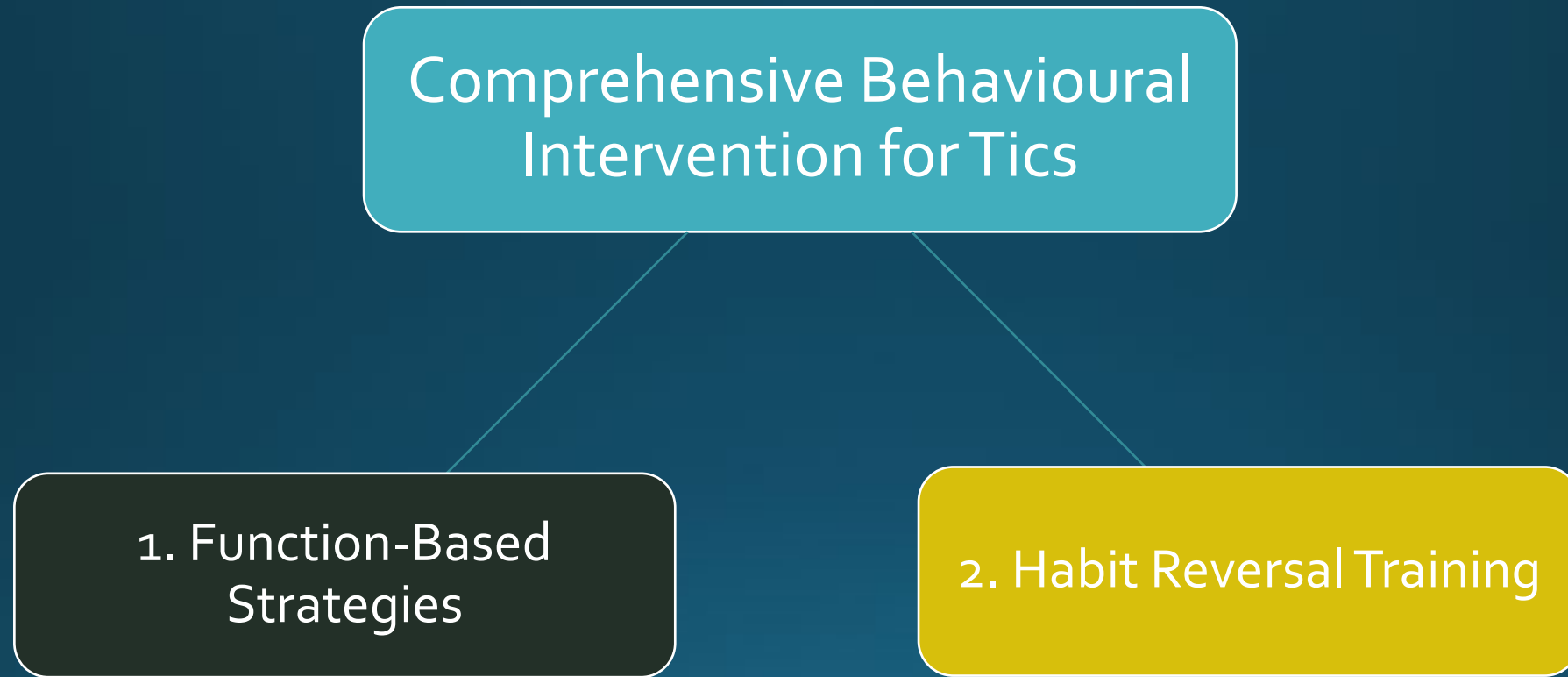
CBIT Treatment Manual/Workbook



“A revolution has taken place;
Behavioural Therapy has acquired a significant evidence base in the
form of Comprehensive Behavioural Intervention for Tics”

(Freeman, 2015, p. 225)

CBIT Overview



Common Antecedents

- Anxiety/stress
- Poor sleep/fatigue
- Excitement
- Frustration/anger
- Boredom
- Performance situations
- Being at school/work
- Doing unpleasant tasks
- Being in quiet settings
- Overstimulation (e.g., screens)

Reinforcing Power of Post-Tic Events

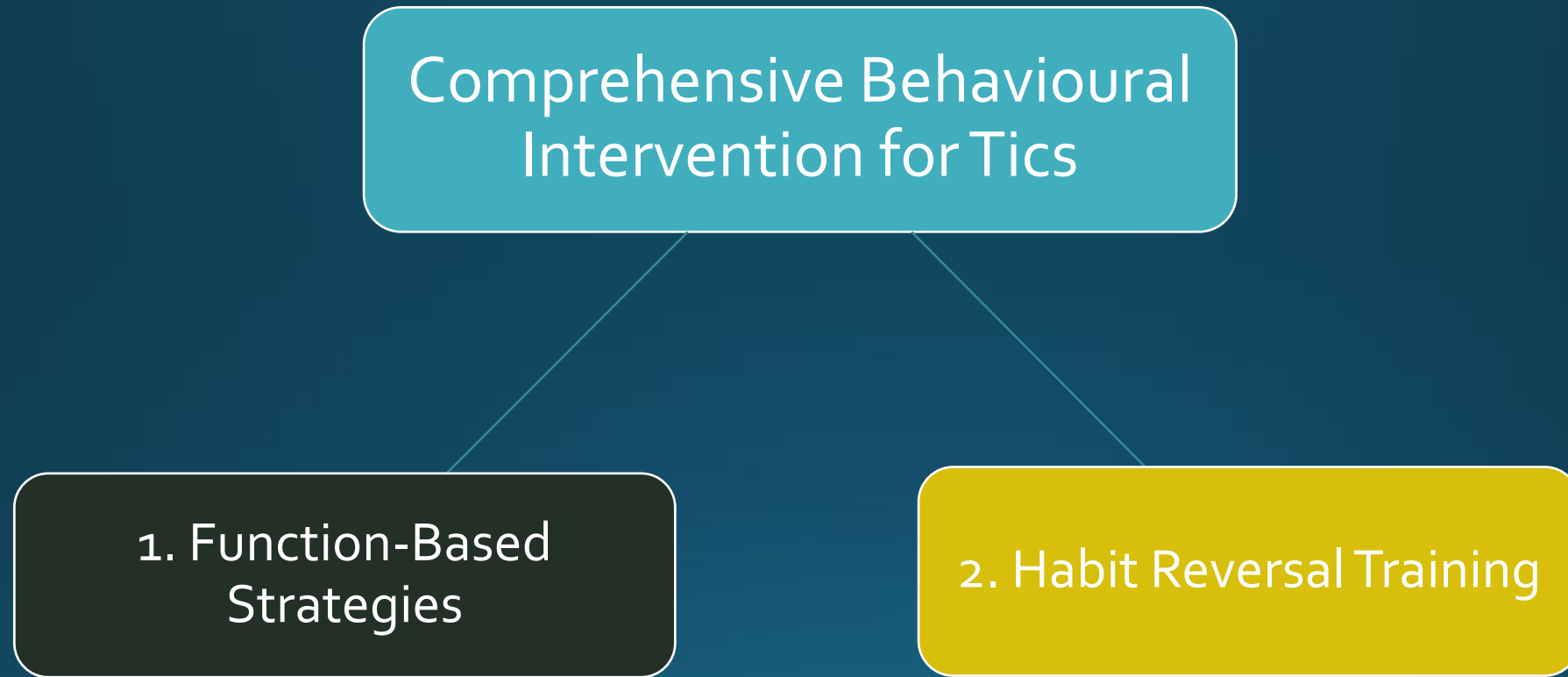
- Responses to tics may inadvertently function to reinforce them
- Increased (positive or negative) attention from others
- Escape from an undesirable task or unpleasant situation



CBIT: Function-Based Interventions

- Prevent (or minimize) triggers (when appropriate)
- Managing the impact of triggers (when appropriate)
- Minimize inadvertent reinforcement of tics
 - “Tic neutral environment”

CBIT Overview

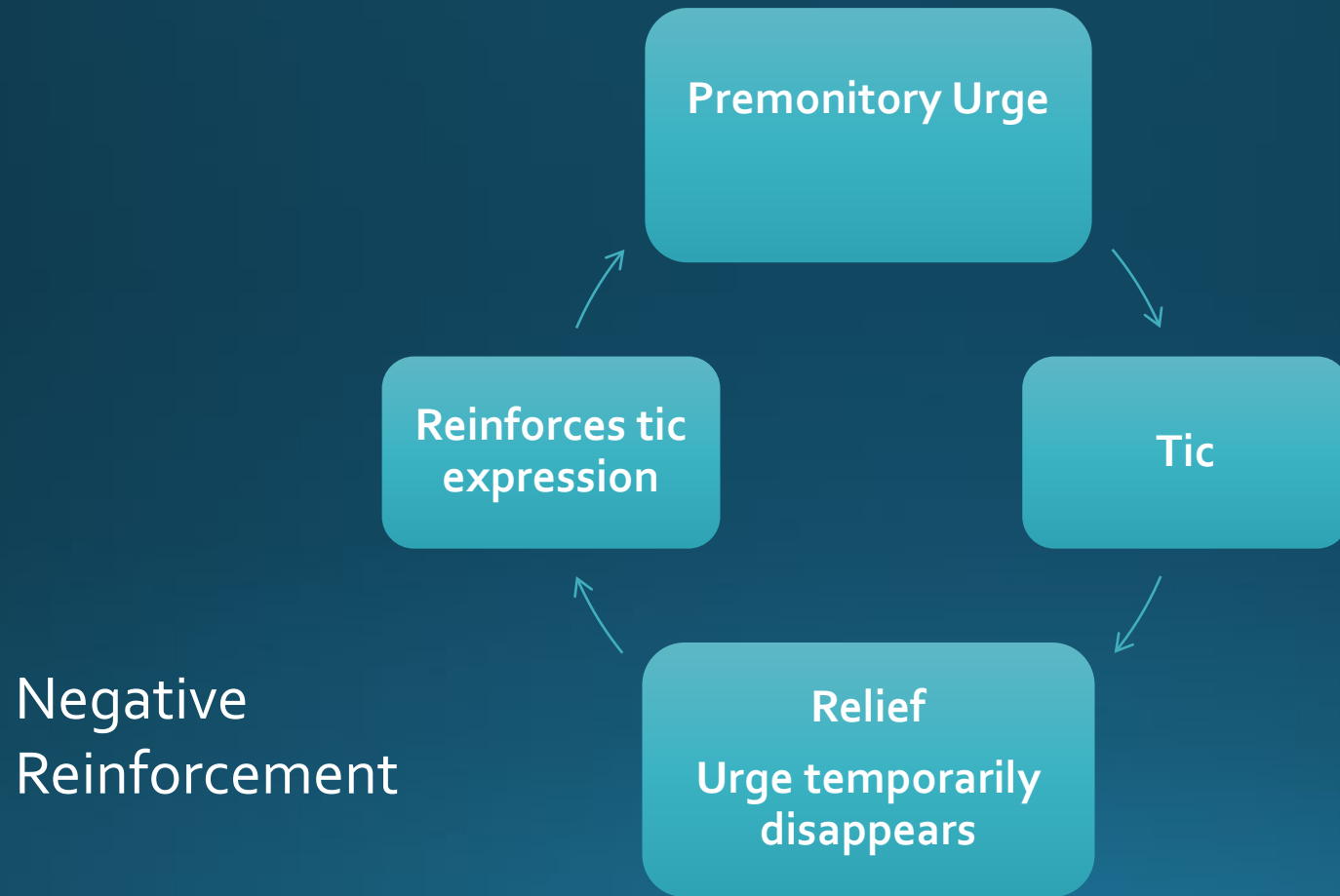


Introduction to HRT

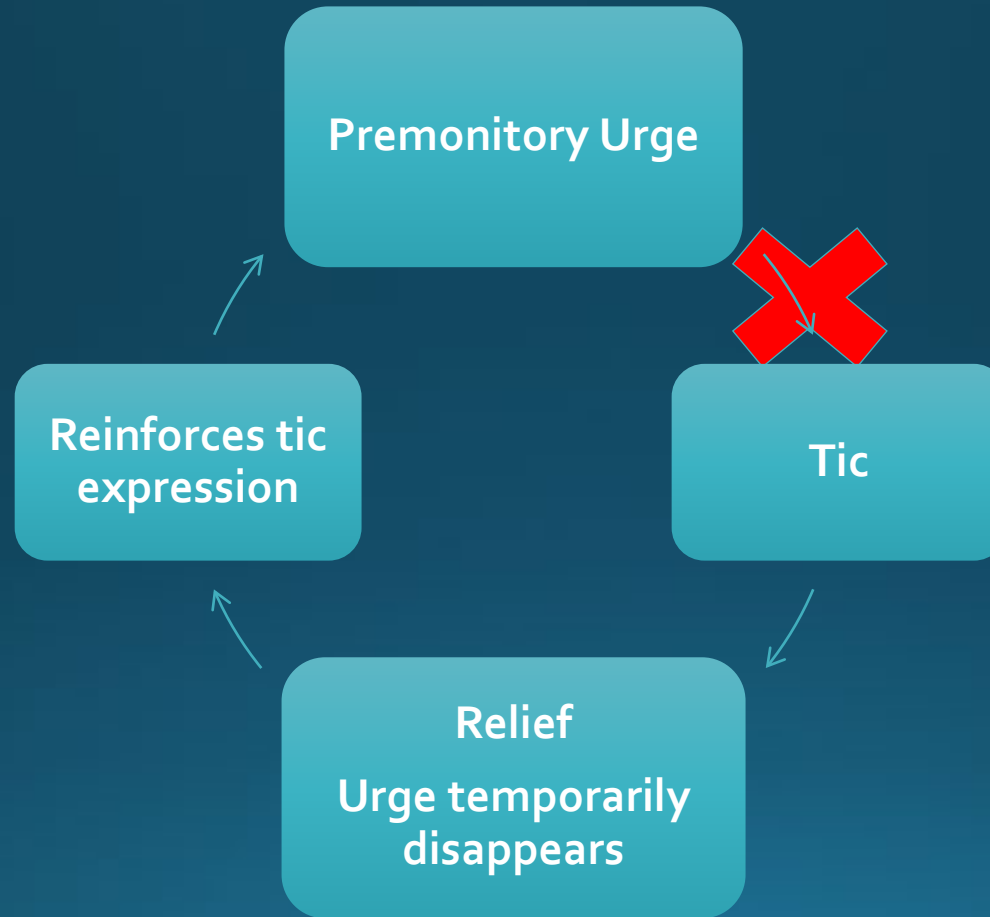


<https://childmind.org/article/how-habit-reversal-therapy-works-for-tics/>

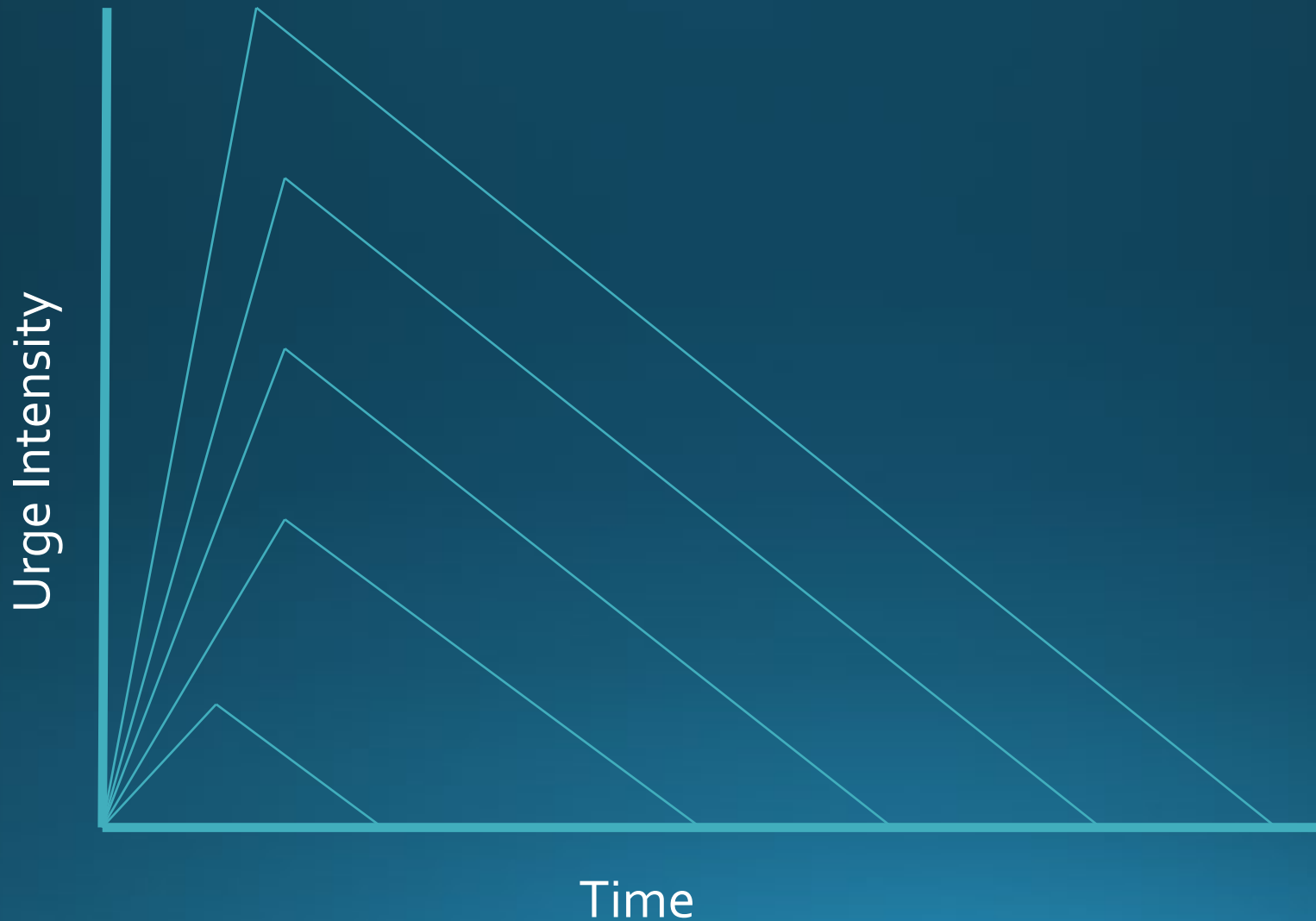
Negative Reinforcement Maintains Tics



HRT Aims to Break the Urge-Tic Connection



Impact of CR on Urge Intensity



Treatment Efficacy

- Medium to large effect sizes comparing CBIT to control conditions
- Reductions in number of tics, severity, frequency, functional impact
- Treatment is well-tolerated
- Gains typically maintained at 6-month follow-up



Promising Evidence of Alternative Methods of Delivering CBIT

- Group format
- Virtual/video-based delivery
- Brief delivery in primary care
- Intensive, short-term (e.g., 1-week) outpatient treatment
- Modified version for younger children (ages 5-8 years)
- Online self-help version (www.tichelper.com)

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Medications/Medical Interventions

- α -agonists followed by antipsychotics when benefits outweigh risks
- Other experimental options (e.g., botox)

SPECIAL ARTICLE

Practice guideline recommendations summary: Treatment of tics in people with Tourette syndrome and chronic tic disorders

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Neurology® 2019;92:896-906. doi:10.1212/WNL.00000000000007466

What Happened During Pandemic?



Referrals for tics and functional tic-like behaviours during Covid-19 pandemic

Center	Pre-pandemic: estimated percentage of referrals for FTLBs as the primary problem	January–June 2021: estimated percentage of referrals with FTLBs as the primary problem	Pre-pandemic: average number of referrals received per year for tics/movement disorders	2020–2021: average number of referrals received per year for tics/movement disorders
Calgary Alberta Children's Hospital Tourette Clinic	1–2	30	186	290
Sydney Children's Hospital at Westmead Tic Clinic	2–5	35	82	116
Tic and Neurodevelopmental Movements (TANDeM) Evelina London Children's Hospital Guy's and St. Thomas' (GSTT) MD	2	30	300	600
Cincinnati Children's Movement Disorders Clinic	1	20	600	600
UCLA Child OCD, Anxiety and Tic Disorders Program	2	20	92	71

Tics Worsened During Pandemic

- Increased number of different tics
- Increased frequency
- Increased severity
- Increased tic-related functional impairment

Rise in Acute, Severe Tic-Like Behaviours

- Explosive (overnight) onset, rapid escalation
- Severe, complex symptoms and extreme impairment
- Mostly among individuals with no known history of tics

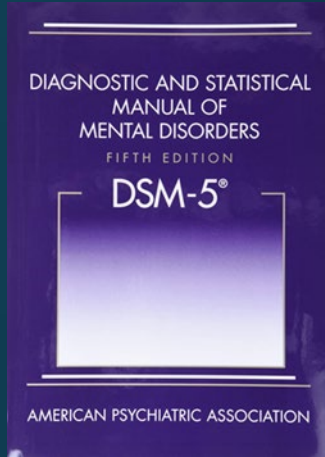
Similarities Between Tics and TLBs

- Topography/expression of symptoms
- Symptom suggestibility
- Reduction in symptoms with distraction
- Worsening of symptoms under stress

Differentiating Tics and Functional Tics

Tics	Functional Tic-Like Behaviours
Childhood onset	Adolescent onset/exacerbation
Onset typically gradual	Abrupt onset, rapid escalation of symptoms
Primarily in people born male	Primarily in people born female
Typical progression simple to complex, motor to vocal	Elaborate, complex tics present from onset
Premonitory urge (among older children & teens)	No premonitory urge (or nonspecific)
Suppressibility (for short periods)	Symptoms often not suppressible
Comorbid ADHD, OCD, anxiety, depression, disruptive behaviours	Comorbid anxiety, depression
Family history of tics common	Family history of tics often absent

Functional Neurological Disorder



- A. A specific type of symptom of altered voluntary motor or sensory function
- B. Clinical evidence of the incompatibility of the symptom or deficit and any recognized neurological or medical disorder
- C. The symptom or deficit causes clinically significant distress or impairment or warrants medical evaluation

Form of Somatization

- Physical expression of stress/emotional distress in the body (through mind-body connection)
- Physical symptoms are real, not made up or exaggerated
- The cause of physical symptoms is stress-related/emotional (rather than neurological or medical)



Why Did Tics and Functional Tics Increase During Pandemic?

- Impact of pandemic-related changes on mental health
- Disrupted routines
- Individual, family-level, and societal stress
- Social isolation, loneliness, helplessness, despair, depression
- Uncertainty, fear, anxiety

Cultural Shifts in Social Media

- Social media exploded with videos depicting dramatic tic-like symptoms, typically in a positive, endearing, humorous light
- Popular social media personalities/influencers posting these videos
- Millions – even billions – of views, likes, followers, positive comments, videos posted in response



TikTok Videos – Egg/Water Challenge



<https://www.youtube.com/watch?v=5XC15BjOR7g>

Changes in Social Media Use

- Youth spent more time viewing social media
- Youth spent less time socializing “in real life”
- Some youth spent hours and hours viewing/creating/posting videos and comments related to tics and/or tic-like behaviours
- “Tourette community” blossomed on social media; youth felt supported, accepted, recognized, sense of belonging

Mechanisms of Effect

- Secondary gain: Positive attention and notoriety from posting videos, sense of belonging from participating in social media
- Suggestibility: Tic-like behaviours are highly susceptible to mimicking so viewing videos may exacerbate symptoms

Prognosis: The Good News

- Emerging empirical data on this
- Prognosis generally good but may take time



Practice Considerations for Functional Tics



INVITED COMMENTARY

Rapid Onset Functional Tic-Like Disorder Outbreak: A Challenging Differential Diagnosis in the COVID-19 Pandemic

Gabriel Amorelli MD¹; Davide Martino MD, PhD¹; Tamara Pringsheim MD,

Journal of the American Academy of
**CHILD & ADOLESCENT
PSYCHIATRY**
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CHILD & ADOLESCENT
PSYCHIATRY
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LETTER TO THE EDITOR | VOLUME 60, ISSUE 12, P1445-1447, DECEMBER 01, 2021

Distinguishing and Managing Acute-Onset Complex Tic-like Behaviors in Adolescence

Joseph F. McGuire, PhD • Shannon M. Bennett, PhD • Christine A. Conelea, PhD •

Michael B. Himle, PhD • Seonaid Anderson, PhD • Emily J. Ricketts, PhD • Matthew R. Capriotti, PhD •

Adam B. Lewin, PhD • Devin C. McNulty, PhD • Laurie Gayes Thompson, PhD • Flint M. Espil, PhD •

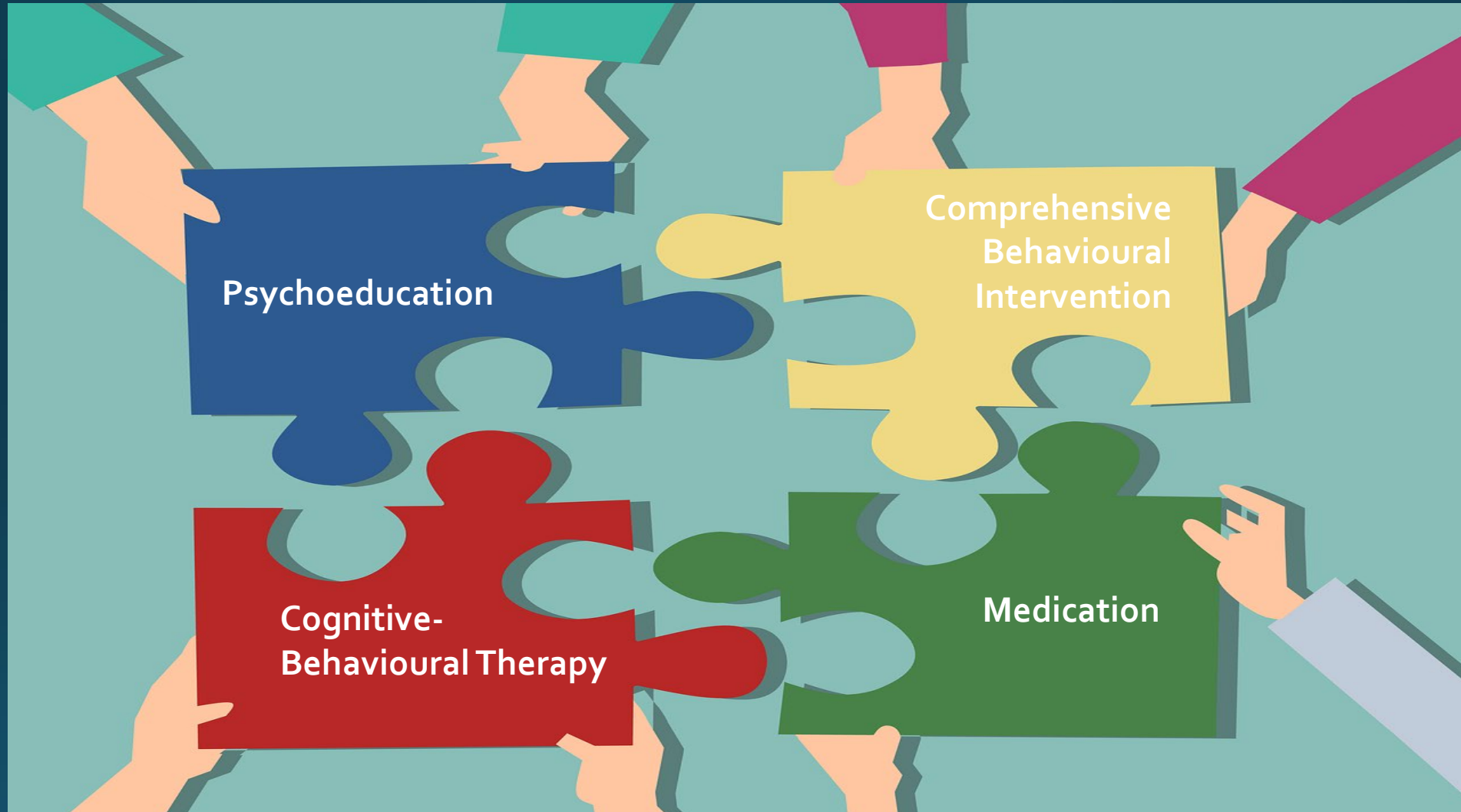
Sarah E. Nadeau, LMFT • Melanie McConnell, PhD • Douglas W. Woods, PhD • John T. Walkup, MD •

John Piacentini, PhD, ABPP • [Show less](#)

Treatment Considerations

- Multidisciplinary approach (e.g., neurology, psychology, psychiatry) recommended for relapsing or persistent symptoms
- Highly individualized treatment plan
- Likely multiple treatment targets and modalities

Key Aspects of Treatment



Psychoeducation

- Provide functional conceptualization/explain the diagnosis
- Explain the mind-body connection
- Stress, emotions, and mental health concerns can contribute to symptom severity and related impairment

Functional Aspects of CBIT

- **Monitor social media use and avoid exposure to symptom-exacerbating content (not all content is problematic)
- Reduce stress and teach stress management strategies
- Minimize distressing experiences (when feasible, without limiting quality of life) and teach emotion regulation skills

Identify and Reduce Reinforcers

- Provide neutral (non-reinforcing) environment with respect to responses to functional tics
- Monitor social media use for possible inadvertent reinforcement of symptoms and reduce social media use where relevant

Consider Habit Reversal Therapy

- Anecdotal reports of HRT helping with functional tics
- No empirical evidence yet
- Evidence of utility of similar approaches from FND treatment literature

CBT for Mental Health Concerns

- Target mental health conditions that may be causing or exacerbating functional tics
- Provide CBT for anxiety or depression
- Teach skills for identifying and reducing psychosocial stress/emotional distress
- Focus on improving quality of life, increasing adaptive functioning
- CBT has yielded the best treatment outcomes for other functional symptoms

Medication Considerations

- Expert consensus: tic-targeting medications do NOT work for functional tics
- Treat other psychiatric conditions with medication as usual

Resources...

Practice Guidelines - Tics

American Academy of Neurology (2019)

- Pringsheim, M.O., Müller-Vahl, K., Martino, D. et al. Practice guideline recommendations summary: Treatment of tics in people with Tourette syndrome and chronic tic disorders. *Neurology*. 2019 May;92 (19) 896-906.
- Link: <https://n.neurology.org/content/92/19/896>

European Society for the Study of Tourette Syndrome (2022)

- Müller-Vahl, K.R., Szejko, N., Verdellen, C. et al. European clinical guidelines for Tourette syndrome and other tic disorders: summary statement. *Eur Child Adolesc Psychiatry*. 2022;31, 377–382.
- Link: <https://link.springer.com/article/10.1007/s00787-021-01832-4>

Practice Guidelines - Tics

American Academy of Child and Adolescent Psychiatry (2013)

- Murphy TK, Lewin AB, Storch EA, Stock S. Practice parameter for the assessment and treatment of children and adolescents with tic disorders. *J Am Acad Child Adolesc Psychiatry*. 2013 Dec;52(12):1341-59.
- Link: <https://pubmed.ncbi.nlm.nih.gov/24290467/>

Canadian Psychiatric Association (2012)

- Steeves T, McKinlay BD, Gorman D, *et al*. Canadian guidelines for the evidence-based treatment of tic disorders: behavioural therapy, deep brain stimulation, and transcranial magnetic stimulation. *Can J Psychiatry*. 2012 Mar;57(3):144-51.
- Link: <https://pubmed.ncbi.nlm.nih.gov/22398000/>

Treatment/Support – Tics

- Tic Helper (www.tichelper.com)
- *Parent Tic Workshop* and consultation through Cornerstone (hopefully Tic Busters Group in future)
- Individual CBIT (in-person or virtual)
- Periodic online support groups through Tourette America or Tourette Canada

Practice Considerations – Functional Tics

- Amorelli G, Martino D, Pringsheim T. Rapid Onset Functional Tic-Like Disorder Outbreak: A Challenging Differential Diagnosis in the COVID-19 Pandemic. J Can Acad Child Adolesc Psychiatry. 2022 Aug;31(3):144-151.
- Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9275373/>
- McGuire JF, Bennett SM, Conelea CA, *et al.* Distinguishing and Managing Acute-Onset Complex Tic-like Behaviors in Adolescence. J Am Acad Child Adolesc Psychiatry. 2021 Dec;60(12):1445-1447.
- Link: <https://pubmed.ncbi.nlm.nih.gov/34391859/>

Treatment/Support - Functional Tics

- BC Children's Hospital Mind-Body Connection group
- Kelty Mental Health resources on somatization
 - <https://keltymentalhealth.ca/somatization>
- Individual psychological treatment focusing on mind-body connection and/or CBIT

Online Resources - Functional Tics

- Tourette OCD Alberta Network resources on functional tics
 - <https://cumming.ucalgary.ca/resource/tourette-ocd/children-and-adults/disorder-specific-resources/tourette-syndrome-and-o>
- Functional Neurological Disorders Guide and Functional Tics Fact Sheet
 - https://www.neurosymptoms.org/en_GB/symptoms/fnd-symptoms/functional-tics/

Thank you!