

# Behavioral Treatment for Tics

Douglas W. Woods, Ph.D.  
Associate Professor of Psychology  
University of Wisconsin-Milwaukee

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# Disclosure

“Comprehensive Behavioral Intervention for Children with Tics” (Co-PI; NIMH)

“Comprehensive Behavioral Intervention for Adults with Tics” (Co-Investigator; NIMH)

Medical Advisory Board Member, TSA

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# What Behavior Therapists **DO NOT** Believe About TS

- That tics are learned or are the fault of the parents
- That the child is doing tics intentionally
- That the failure to improve as a result of behavior therapy reflects some fault in the child or family
- That tics are simple habits like nail biting that can be easily stopped
- That medications are unnecessary

# What Behavior Therapists DO Believe About TS

- TS is a genetically-based neurological disorder
- A person's environment heavily influences, but does not cause tics
- Behavior therapy for TS is NOT a cure, but is a management strategy to help people live a better life
- Behavior therapy could potentially lead to neural changes

# Rationale for Using Behavior Therapy for Tics

- Events in the world push and pull tics
- Events in one's own body can maintain tics (i.e., reduction of the urge)
- Behavior therapy changes the environment to change the tics
  - Antecedents (places, activities, other people, and private experiences like emotions or urges)
  - Consequences (things that happen as a result of having a tic)

# Antecedent Events that Impact Tics

- Being upset or anxious (Silva et al., 1995)
- Watching TV (Silva et al., 1995)
- Being Alone (Silva et al., 1995)
- Social Gatherings (Silva et al., 1995)
- Stressful Life Events (Surwillo et al., 1978)
- Hearing Others Cough (Commander et al., 1991)
- Talking about tics (Woods et al., 2001)
- Premonitory Urges (Leckman et al., 1993)

# Consequence Events That May Impact Tics

- Tics increased by...
  - Social reactions (e.g., Watson & Sterling, 1998)
    - Giving attention or comfort after a tic
  - Escape from an difficult situation because of tics
  - Decreased premonitory urge as a result of a tic
- Tics can be decreased by...
  - Providing benefits for stopping tics
    - Potential benefits for stopping tics could include
      - Avoidance of teasing
      - Being able to participate in a social activity or sport
      - Avoidance of embarrassment

# Implications for Intervention Development

- The effects of the environment are unique to the individual
- To develop a useful treatment both the external and internal factors must be addressed
- External factors addressed through function-based intervention
- Internal factors addressed through habit reversal training

# Managing External Factors

Managed by functional assessment/intervention

**Example:** *Billy comes home from school stressed out and anxious. He goes to the den where his sister is watching TV and begins ticcing loudly. Billy's Sister gets upset and teases Billy. Billy's mom enters the room, sends his sister out of the room, comforts Billy, and lets him watch TV while he "gets himself together." Now Billy tics a lot right after school, especially when his sister is watching television.*

In doing a functional analysis, we look for antecedents (things that come before the tic) and consequences (things that may be reinforcing the tic).

## Antecedents

- 1) Billy's tics get worse when anxious

## Consequences

- 1) Teasing sister is sent to room
  - 2) Billy gets mom's love and attention
  - 3) Billy gets TV to himself
- } Billy's tics are reinforced

# Function-Based Interventions

After specific environmental variables are identified in the functional assessment, interventions are developed to decrease the effect of or contact with that variable

## Antecedents

1) Anxiety



## Functional Intervention

Teach relaxation strategies

## Consequences

1) Teasing sister sent to room



Sister stays in room and is asked to apologize

2) Mom comforts Billy



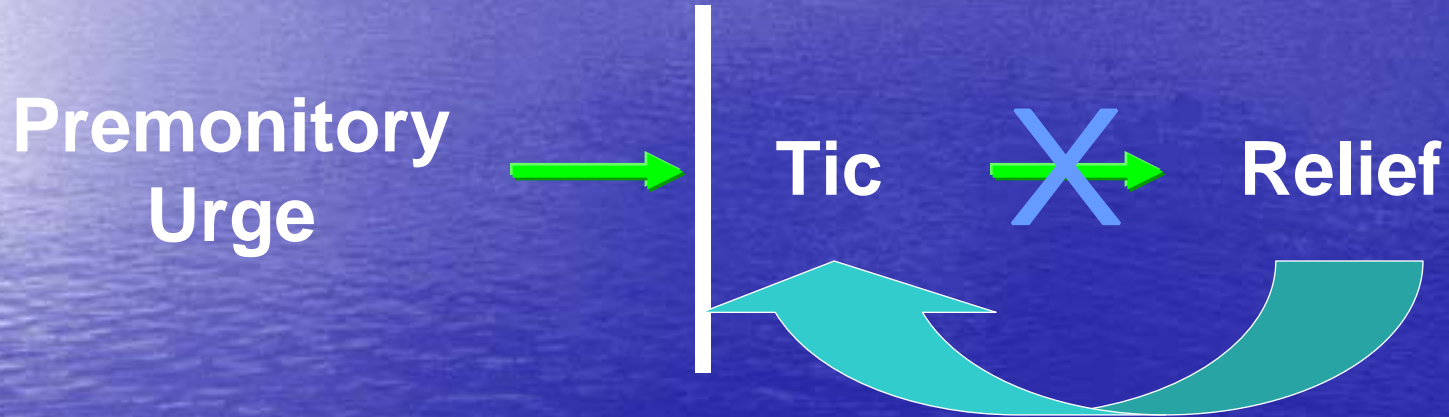
Mom no longer comforts Billy

3) Billy gets TV to himself



Mom turns TV off to provide Billy an opportunity practice his tic management strategies (e.g., a quiet place to tic, or habit reversal procedures)

# Changing Internal Factors



*Creates habituation to Premonitory Urge*

*Negative Reinforcement*

# Changing Internal Contingencies

- Habit reversal training
  - Forces habituation to the premonitory urge
  - Designed to disrupt a habitual motor pattern after it has started

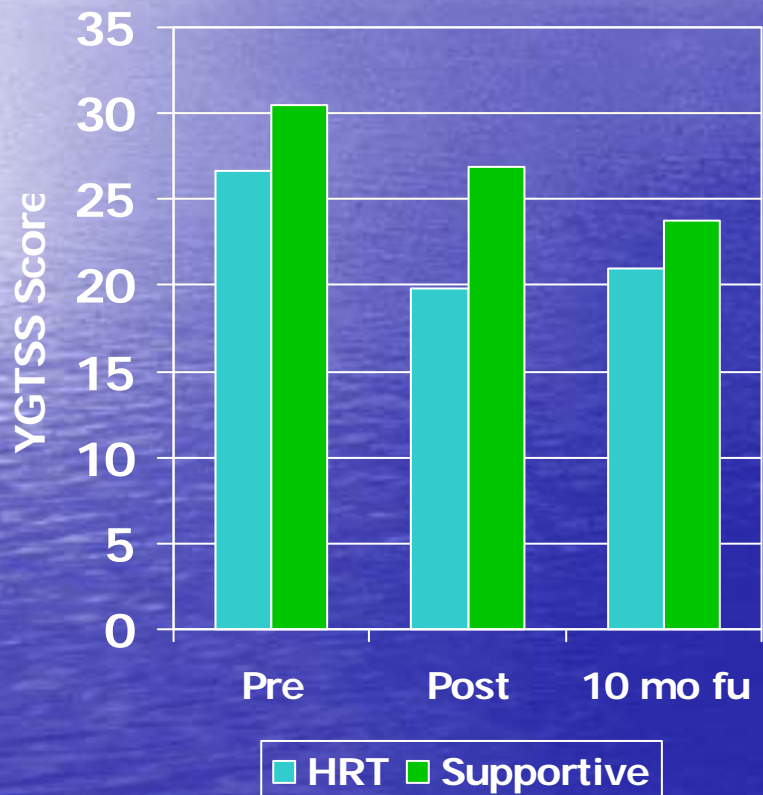
# Habit Reversal-What Is It?

- Multi-component treatment (Azrin & Nunn, 1973)
- Used to treat tics
- 3 main components
  - Awareness Training
  - Competing Response Training
  - Social Support

# Does HRT Work?

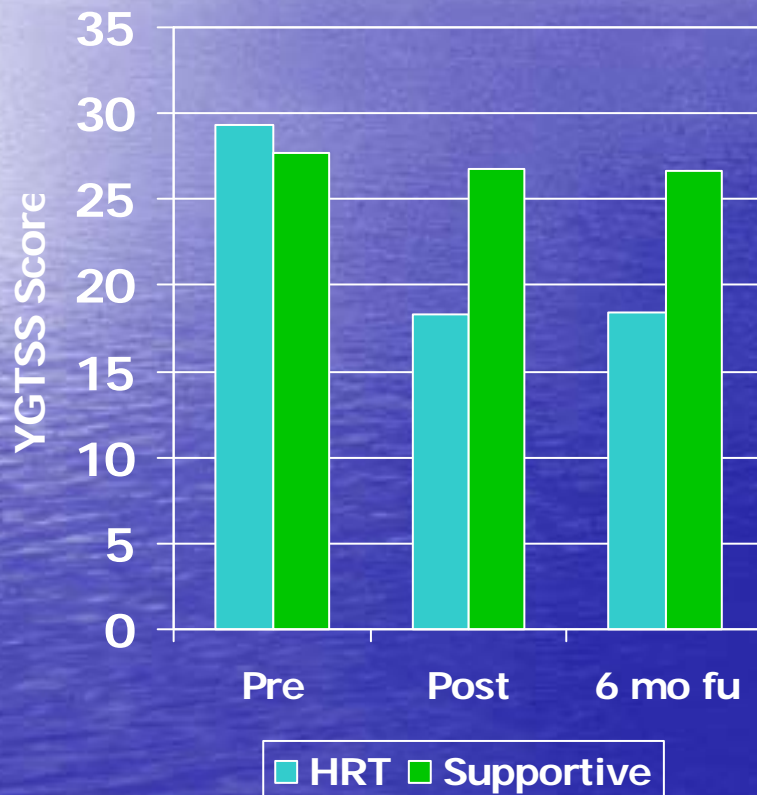
- HRT has been studied for over 30 years using small-n and group experimental designs
- Considered an effective treatment for tics according to APA Division 12 Criteria (Cook & Blacher, 2007)
- To date, 6 Randomized Controlled Trials (RCTs) have been conducted
- N's have ranged from 10-42
- Adults and children have been studied
- Controls have either been wait list, supportive therapy, or another behavioral treatment
- Results have all shown separation from waitlist or supportive therapy

# HRT vs. Supportive Therapy (Wilhelm et al., 2003; Am J Psychiatry)



- 32 adults with TS randomly assigned to HRT or ST
- 14, 1 hour sessions
- 29 completed at least 8 sessions
- HRT more effective than ST at post treatment
- HRT maintained gains at 10 month follow-up
- No difference between supportive therapy and HRT at follow-up
- Patterns for YGTSS-Impairment scale were similar

# HRT vs. Supportive Therapy (Deckersbach et al., 2006; Behav Res Ther



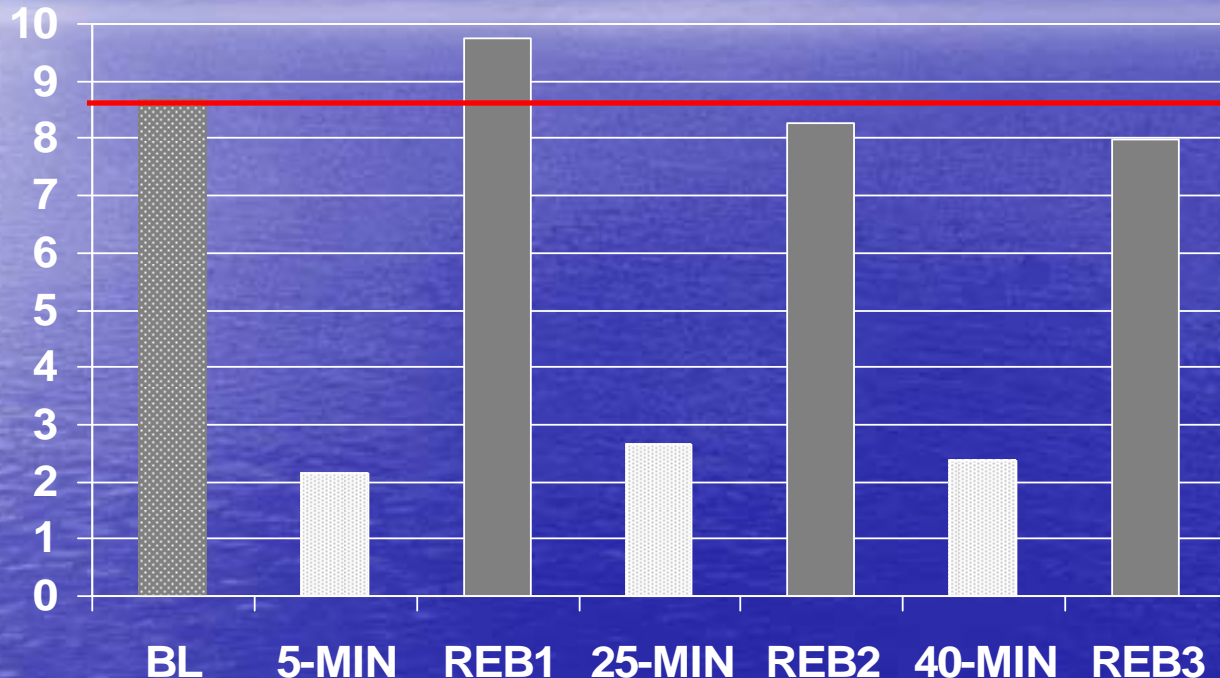
- 30 adults with TS randomly assigned to HRT or ST
- 14, 1 hour sessions
- 2 subjects dropped from the study
- 10/15 in HRT had CGI-I of 1 or 2 at post treatment
- 2/15 in ST had CGI-I of 1 or 2 at post treatment
- HRT more effective than ST at post treatment and 6-mo follow-up
- Poor pretreatment performance on a go-no go task predicted poorer response to HRT

# Beliefs Inhibiting Use of Behavior Therapy for Tics

- Rebound effects
  - Trying to stop tics makes you tic more
- Symptom substitution
  - Stopping one tic makes others worse, or are replaced by new ones
- Inability to suppress and do other things at the same time

# Is there a Rebound Effect?

Woods et al. (2008). *J Ab Child Psych*; Funded by TSA



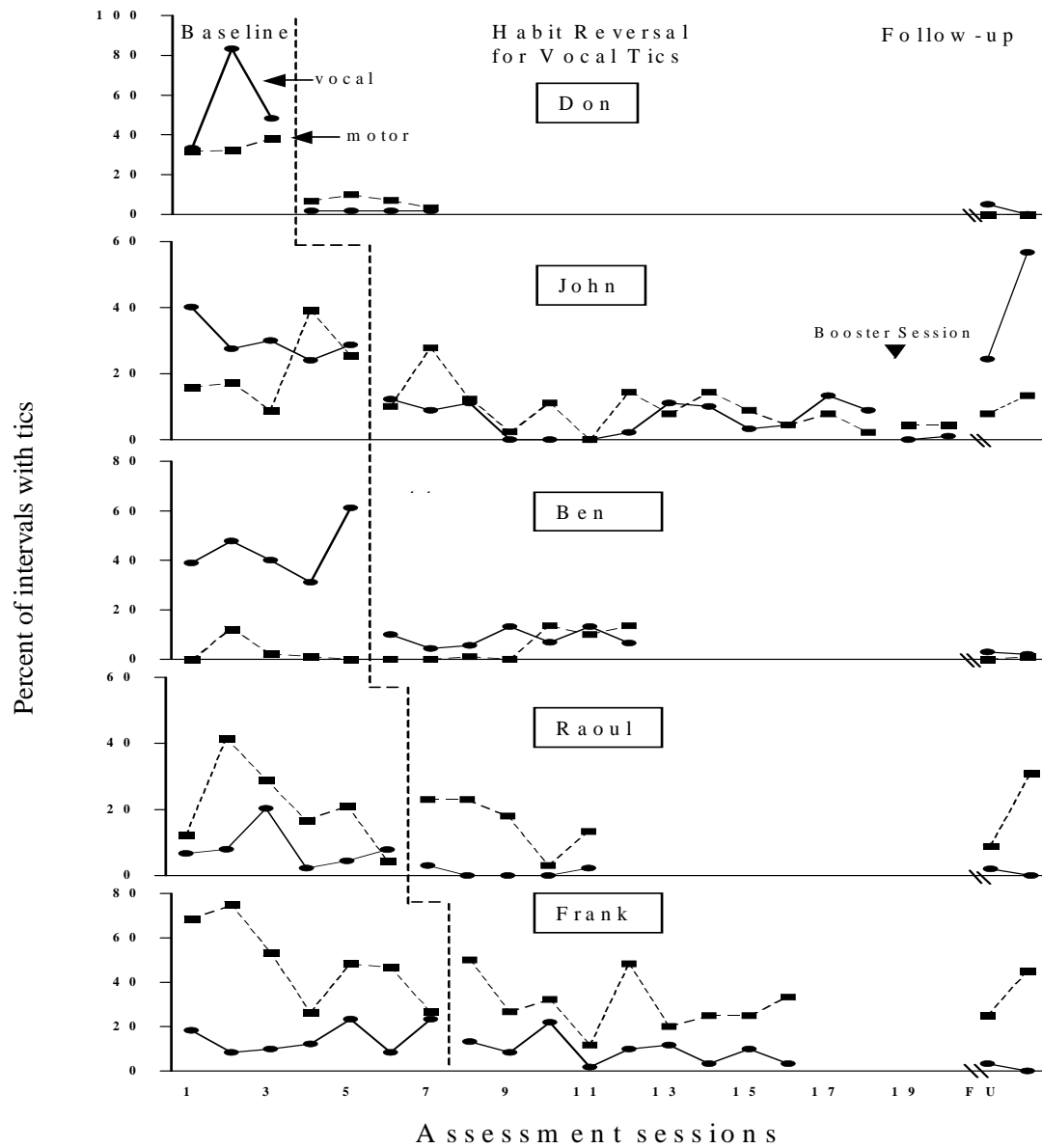
13 children with TS or CTD

Mean YGTSS = 28.2

Similar results found in Himle & Woods (2006). *Behav Res Ther*

# Does Symptom Substitution Occur?

- Multiple BL Across 5 Subjects with TS
- In home recordings
- Habit Reversal (Woods, 2001)
  - 1, 1 hr session; 2, 1/2 hour booster sessions
  - 1 session per week for 3 consecutive weeks
  - Awareness training, competing response training, social support training

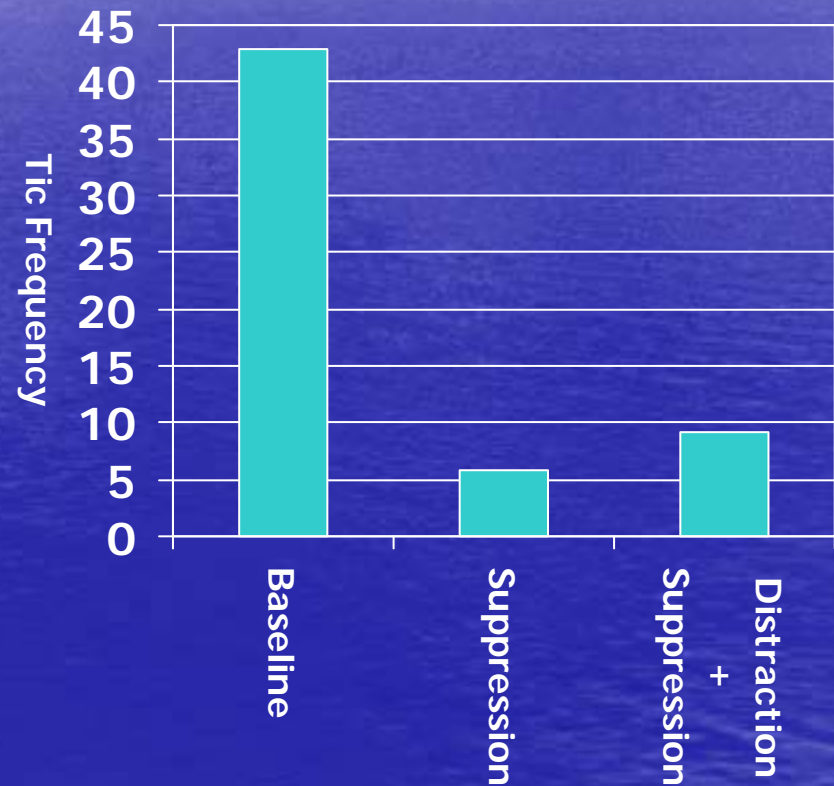


# Does Symptom Substitution Occur?

- Vocal tics decreased, untreated motor tics did not change or decreased
  - 83% reduction in vocal tics
  - 26% reduction in motor tics
- No negative impact on untreated symptoms
- Other HRT studies have not reported adverse symptom increases
- Other HRT studies have not reported excessively high dropout rates

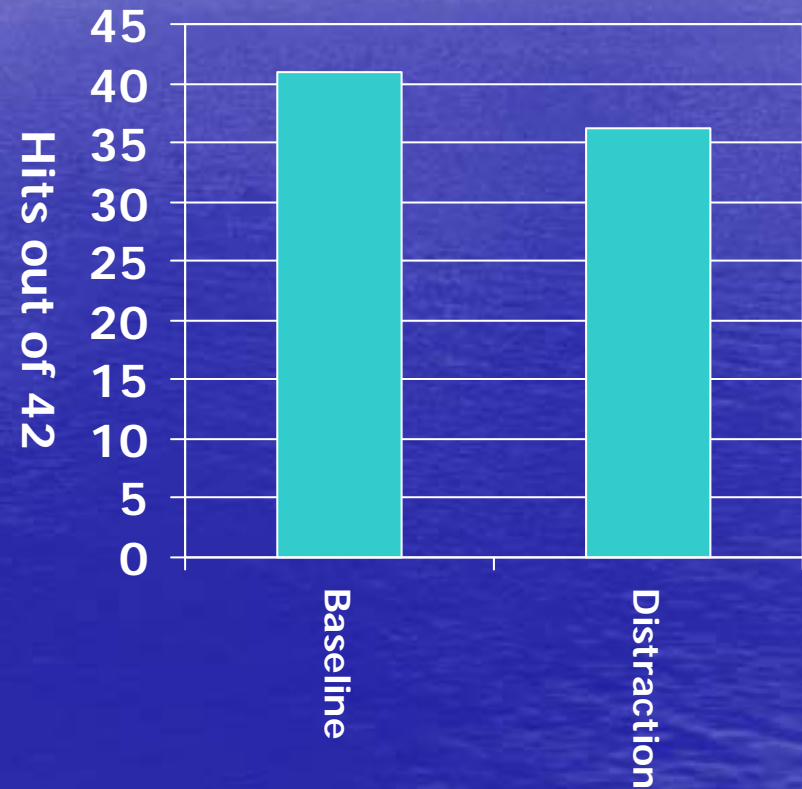
# Can Tics be Stopped While Doing Other Things?

- 9 children with TS were studied
- Tics were lower when children were asked to suppress, regardless of whether or not they were distracted while suppressing
- Reduction during suppression was 86% from BL
- Reduction during distraction was 76% from BL



# Does Stopping Tics Impact Ability to Do Other Things?

- Accuracy was reduced 11% on CPT when in the suppression+distraction condition



# Summary/Future Directions

- HRT/Behavior Therapy is a promising treatment for TS
- Still need...
  - Large studies with both children and adults
    - Who will behavior therapy work for?
    - How long do the effects last?
    - Why does the treatment work?
  - Why can't we find providers?
    - Usable manuals
    - Telehealth service delivery
    - Computerized therapist training packages
    - Educating appropriate care providers about availability of BT

# Comprehensive Behavioral Intervention for Tics Study (CBITS)

Two parallel studies comparing behavior therapy to ST

Child Study: 120 children (ages 9-17) with TS/CTD

Adult Study: 120 children and adults (ages 16+) with TS/CTD

8 session treatments over 10 weeks

Comprehensive multimodal assessment at BL, 5 wks, 10 wks (post treatment), 3 month follow-up, 6 month follow-up

Participating Sites (40 at each of 3 sites)

- UCLA (Child)
- Johns Hopkins University (Child)
- University of Wisconsin – Milwaukee (Child)
- Mass General Hospital/Harvard (Adult)
- Yale Child Study Center (Adult)
- U. of Texas Health Sciences Center (Adult)

**Funded by NIMH through two different mechanisms (R01 to TSA; Child study, and Collaborative R01s to Yale, Harvard, and UTHSC)**

# Activities being done to make behavior therapy for tics available

- CDC-TSA Partnership to deliver workshops and talks about CBIT
- Comprehensive Behavioral Intervention for Tics Therapist Guide and Patient/Family Workbook (Woods et al., 2008; Oxford Press)
- TSA-funded grant to develop telehealth system to delivery CBIT (Himle & Woods)
- Looking into a partnership with business to develop a DVD set to train therapists