

# Cognitive Behavioral Therapy (CBT) for Tinnitus

Caroline J. Schmidt, PhD  
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*"The ringing in your ears—I think I can help."*

# Keeping Things Legal

- The opinions expressed do not necessarily reflect the position or policy of the Department of Veterans Affairs or the United States
- Consultation for VA CRADA: Desyncra



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# Learner Outcome #1

Participants will be able to describe the rationale for basic components of cognitive behavioral therapy.



# Learner Outcome #2

Participants will be able to describe the clinical evidence supporting CBT and PTM



# Learner Outcome #3

Participants will be able to describe two delivery models for offering CBT within PTM.



# Topics

1. Literature Review

2. Implementation of CBT-T

A. Session contents

B. Future directions



# 1. Literature Review

# Reviews of CBT-T

- Systematic reviews
- Cochrane Reviews
- Clinical practice guidelines (CPGs)

# CBT for Tinnitus Studies

Authors	Year	Number of Sessions	Country
Cima, Maes, Joore, Scheyen, El Refaie, Baguley, Anteunis, Breukelen, Vlaeyen	2012	Up to 12 sessions	Netherlands
Graul, Klinger, Greimel, Rustenbach, Nutzinger	2008	Variable (inpatient); Average length of stay 56.12 days (SD = 8.55)	Germany
Kaldo, Levin, Widarsson, Buhrman	2008	7	Sweden
Robinson, Viirree, Bailey, Kindermann, Minassian, Goldin	2008	8	USA
Sadler, Stephens, Kennedy	2007	4	UK
Andersson, Porsaeus, Wiklund, Kaldo, Larsen	2005	6	Sweden
Hiller, Haerkotter	2005	10	Sweden
Andersson, Kaldo	2004	6	Sweden
Zachriat, Kroner-Herwig	2004	11	Germany
Kroner-Herwig, Frenzel, Fritsche, Schilkowsky, Esser	2003	11	Germany
Andersson	2002	6-10 (review)	Sweden
Andersson, Strömgren, Ström, Lyttkens	2002	6	Sweden
Wise, Rief, Goebel	1998	10	Germany
Henry (JL), Wilson	1996	6	Australia
Davies, McKenna, Hallam	1995	6 (2 additional sessions as needed)	UK
Kroner-Herwig, Hebing, Van Rijn-Kalkmann, Frenzel, Schilkowsky, Esser	1995	10	Germany
Jakes, Hallam, McKenna, Hinchcliffe	1992	5	UK

# CBT for tinnitus vs. WLC

## Effect Sizes

1. Cima, et al (2012); N=336; THI  
 $d = 0.32$  (3 months)  
 $d = 0.52$  (8 months)
2. Andersson, et al (2005); N=23; TRQ  
 $d = 0.34$  (post-tx)

# Cochrane Reviews Relating to Tinnitus Management

- **CBT:** Overall strongest body of evidence supporting its effectiveness for tinnitus.
- **Sound therapy:** Studies have not shown that sound therapy *on its own* provides significant benefit.
- **Hearing aids for tinnitus:** No new reviews but there is recent evidence of significant benefit for tinnitus.

# *Recommendations for Clinical Practice for Patients with Tinnitus*

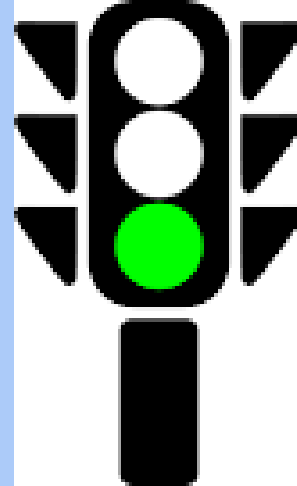
American Academy of Otolaryngology – Head & Neck Surgery Foundation (AAO-HNSF)

1. History and physical exam (ENT)
2. Audiologic exam (some patients)
3. Distinguish acute v chronic & bothersome
4. Educate about treatment options
5. Hearing aid evaluation
6. Cognitive-behavioral therapy (CBT)

# AAO-HNSF

## *Other care options*

1. Audiologic exam (all patients)
2. Sound therapy



# Possible Components: CBT-T

- Psychoeducation
- Stress management
- Behavioral activation
- Cognitive restructuring
- Exposure (internal/external sound)
- Sleep management
- Controlling distractibility



# VA Studies of PTM

- CBT for Tinnitus (pilot study)
- Tele-PTM (pilot study)
- Multi-site Evaluation of PTM (RCT)
- Tele-PTM (RCT)



# CBT for tinnitus (pilot)

- Research question: How can we cater tinnitus interventions to best serve Veterans distressed by tinnitus?
- Design: Single-blind, randomized, parallel treatment concurrent design
- Inclusion/Exclusion: Tinnitus “primary” health concern; minimal distress levels; no vestibular complaints; no SI
- Intervention: CBT by psychologist vs. Counseling by audiologist

Funded by: VA RR&D CDA-1 (C. Schmidt) and VA RR&D pilot Merit (R. Kerns)

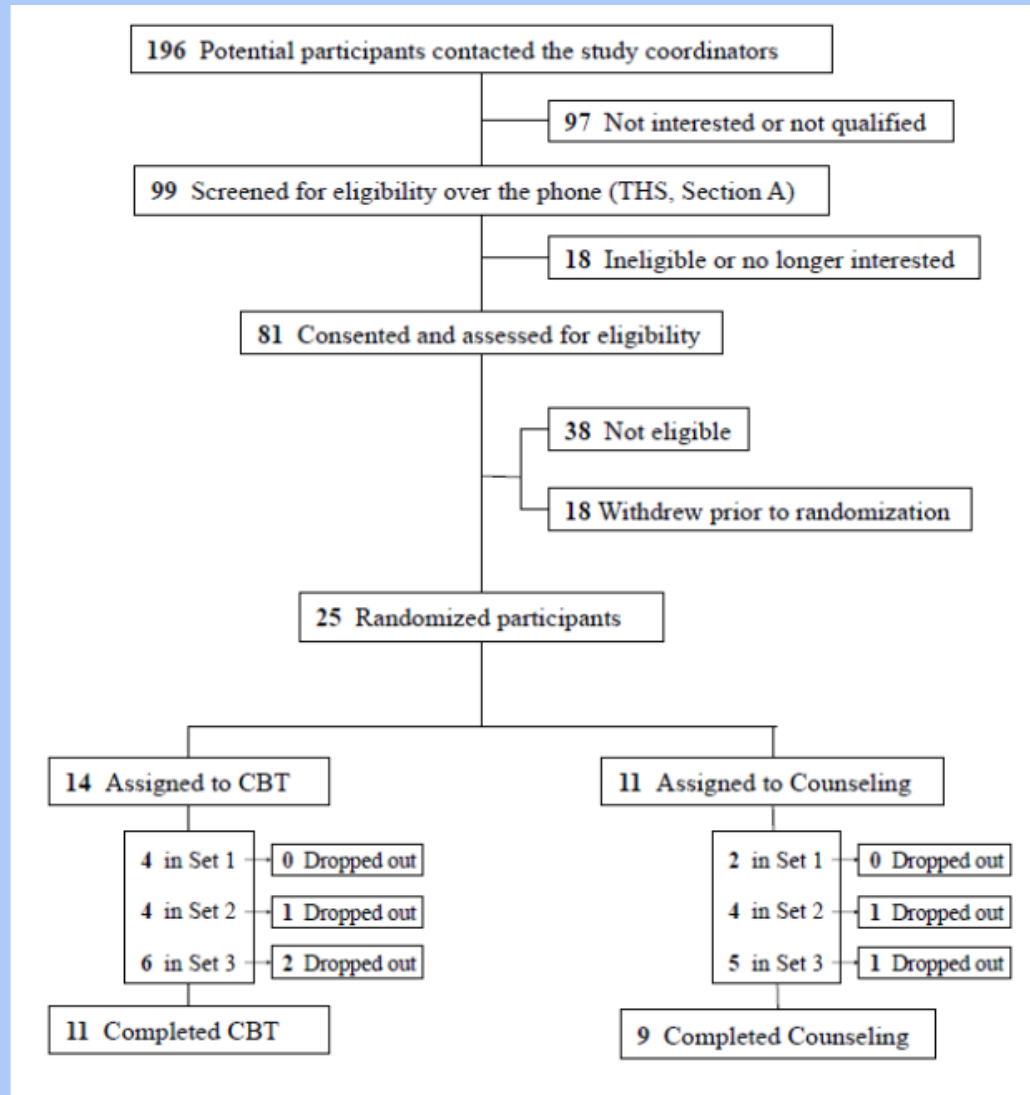
# Veterans are Unique

- 1) Increased probability of low health literacy and socioeconomic status
- 2) Increased likelihood of a history of acoustic and/or psychological trauma
- 3) Overrepresentation of males
- 4) Increased probability of having a mental health disorder
- 5) Highly diverse

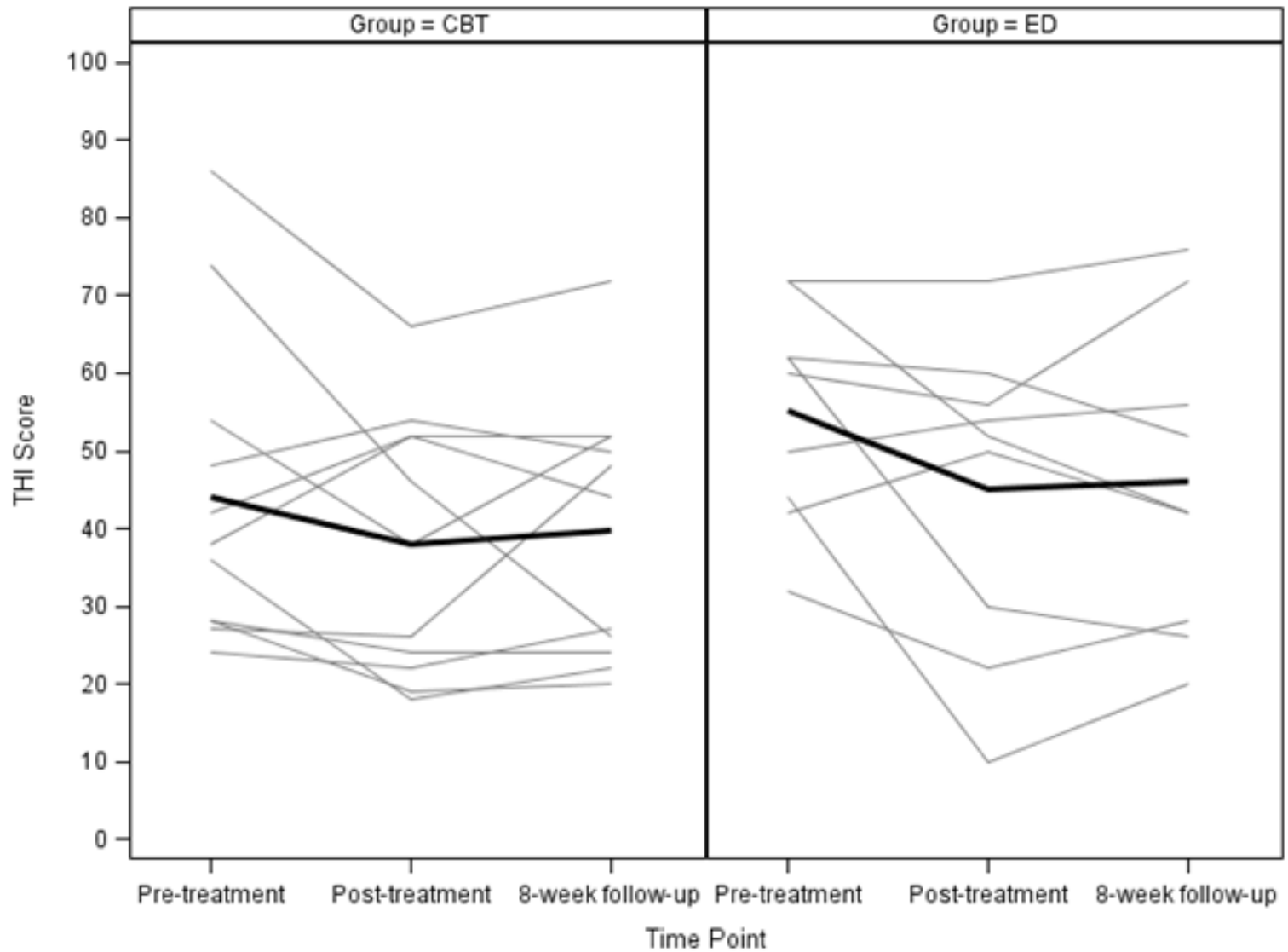
# Components: CBT-T in Pilot

- Psychoeducation
- Stress management
- Behavioral activation
- Cognitive restructuring
- Exposure (external sound)
- Sleep management

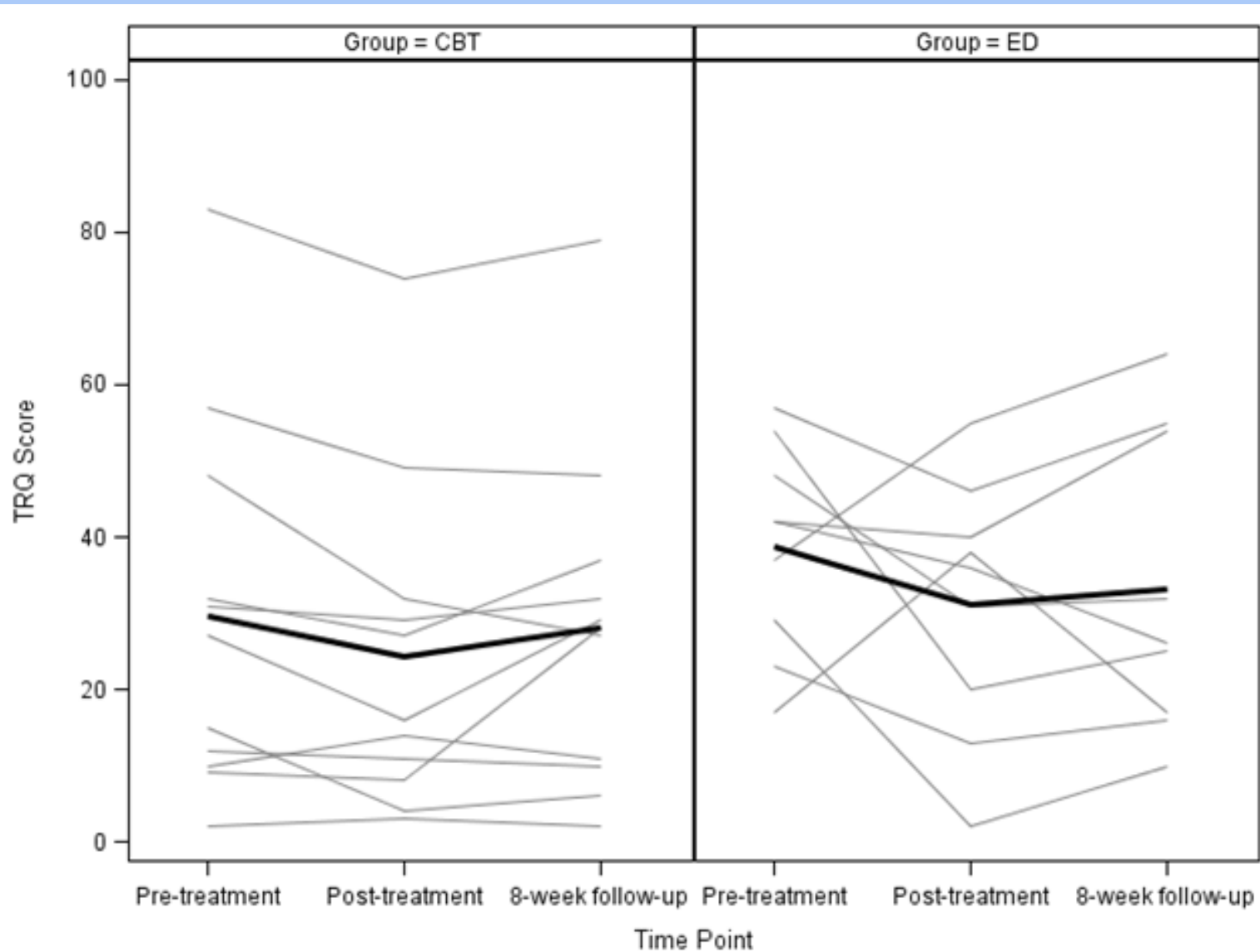
# Participant Flow



# THI



# TRQ



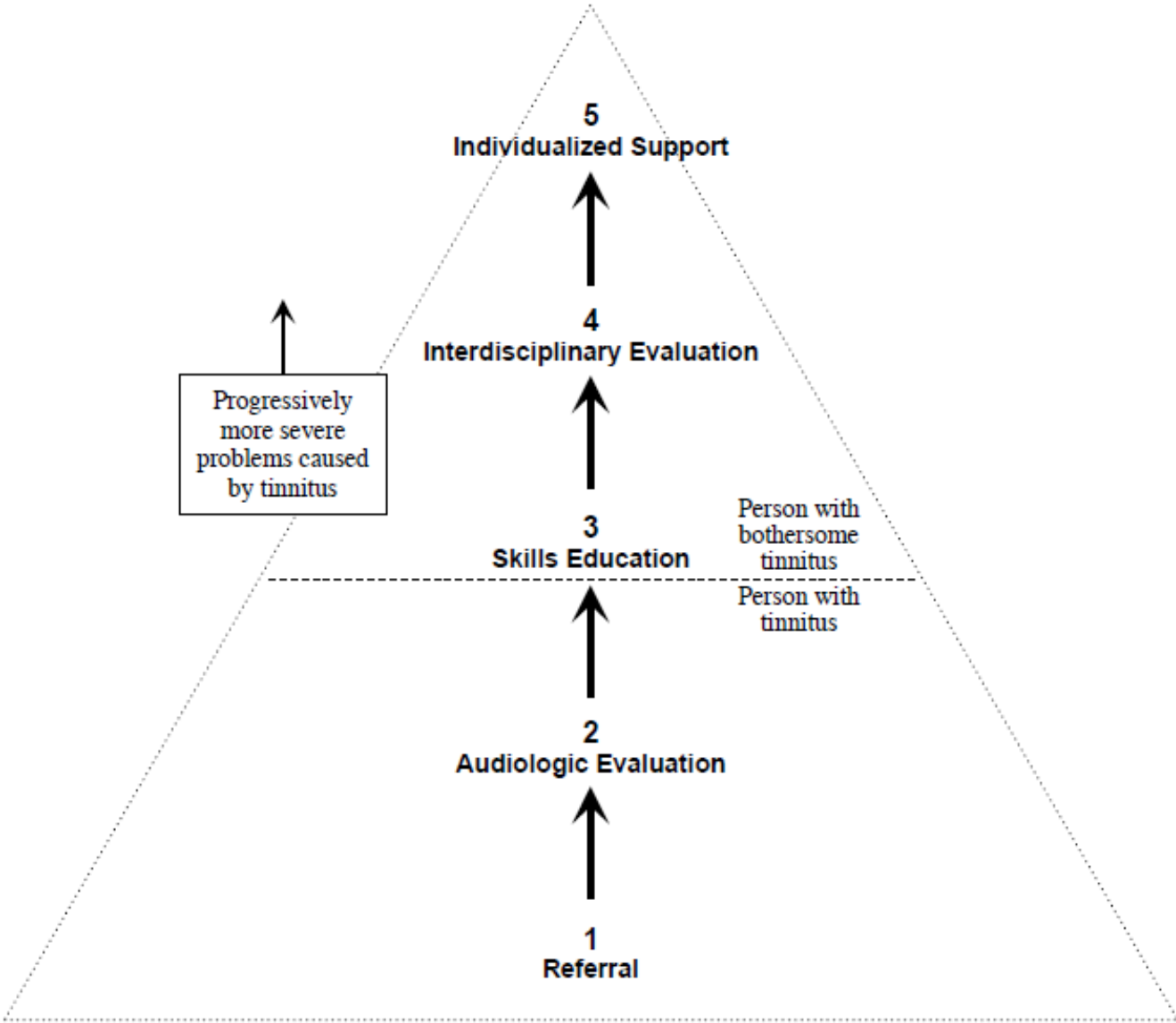
# Specific Modifications to CBT-T for Veterans

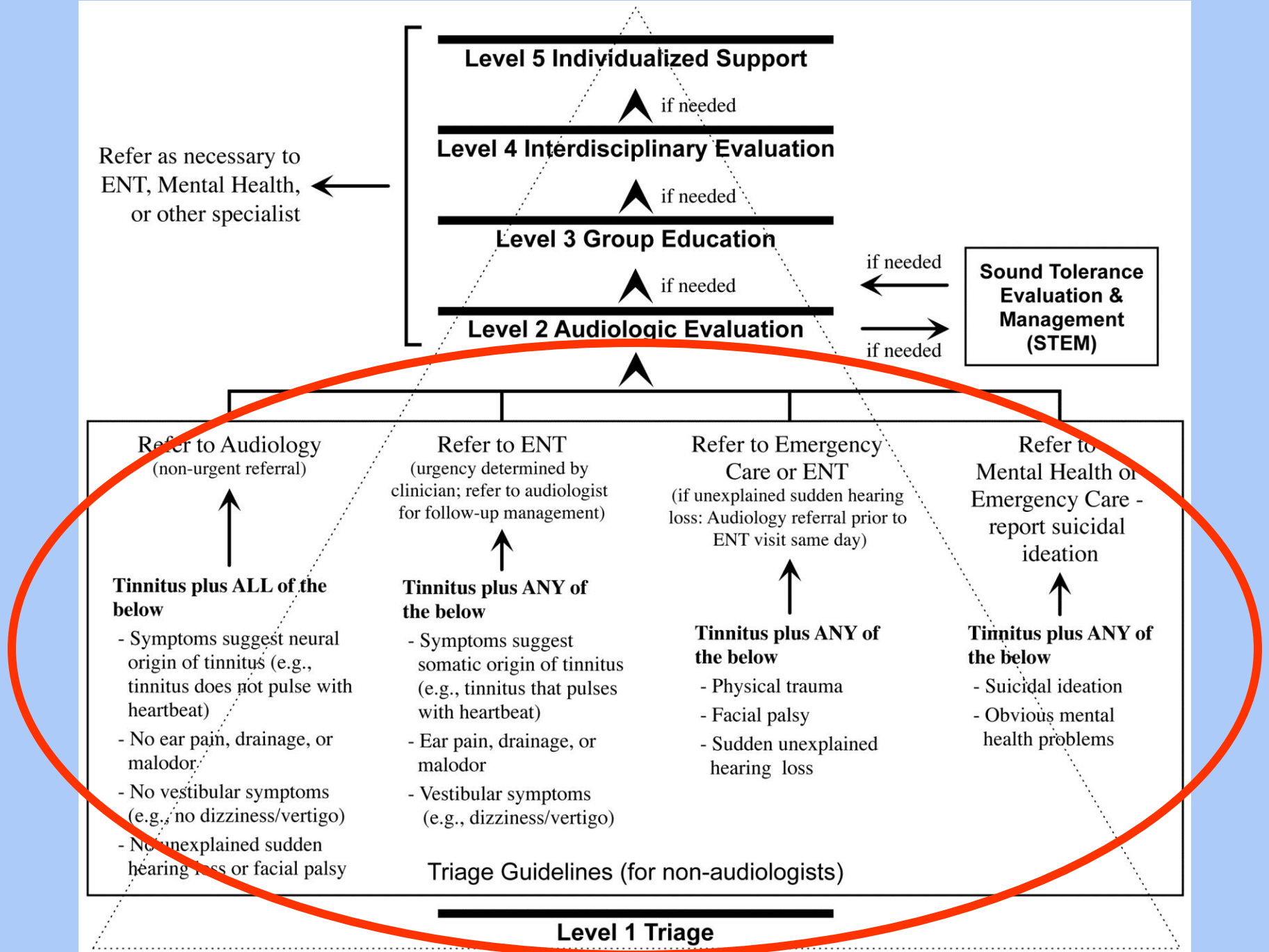
1. More clearly describe the rationale for components
2. Use steps for behavioral activation (pleasant activities)
3. Integrate services with Audiology



# Overview of CBT within PTM

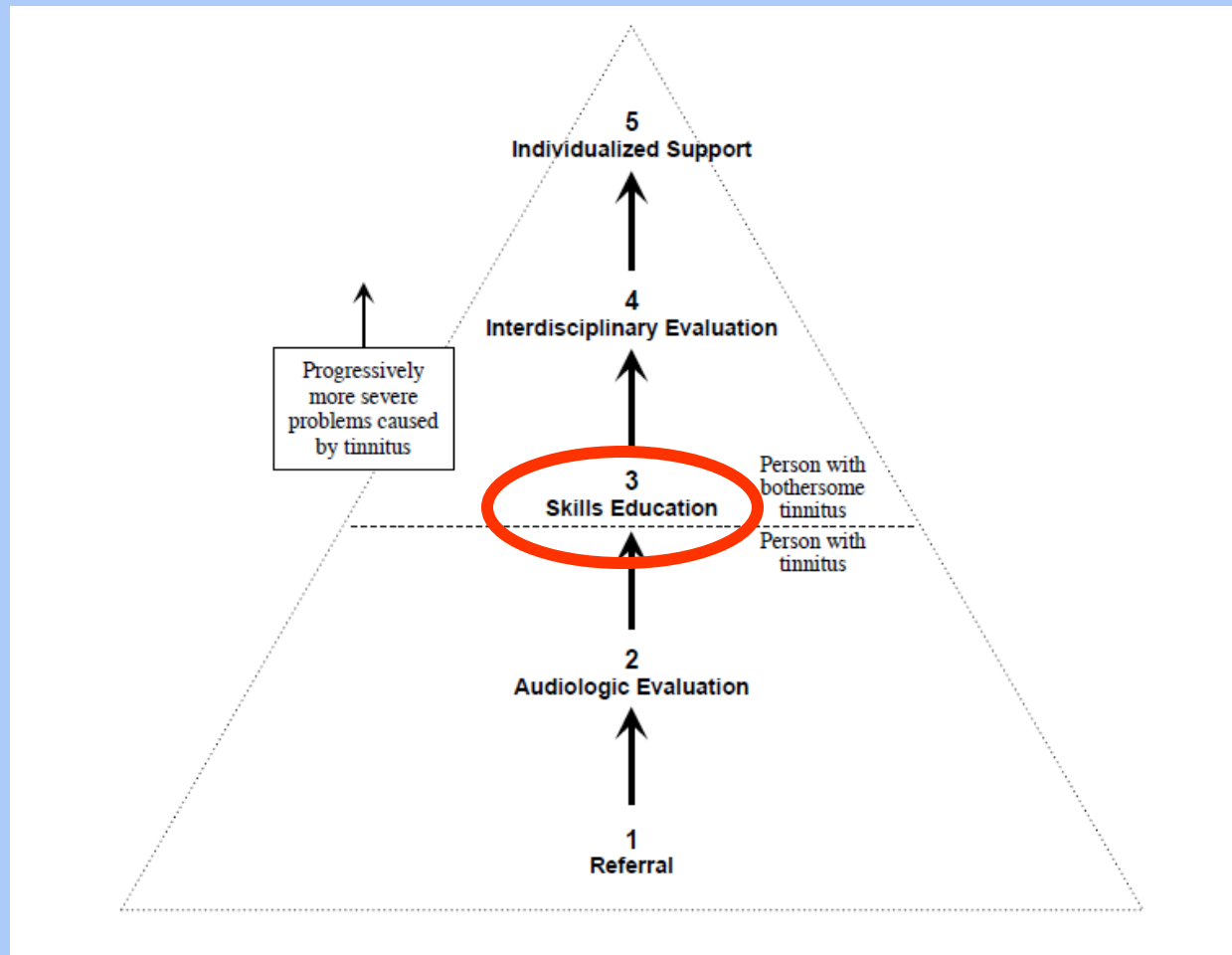
# Five Hierarchical Levels of PTM





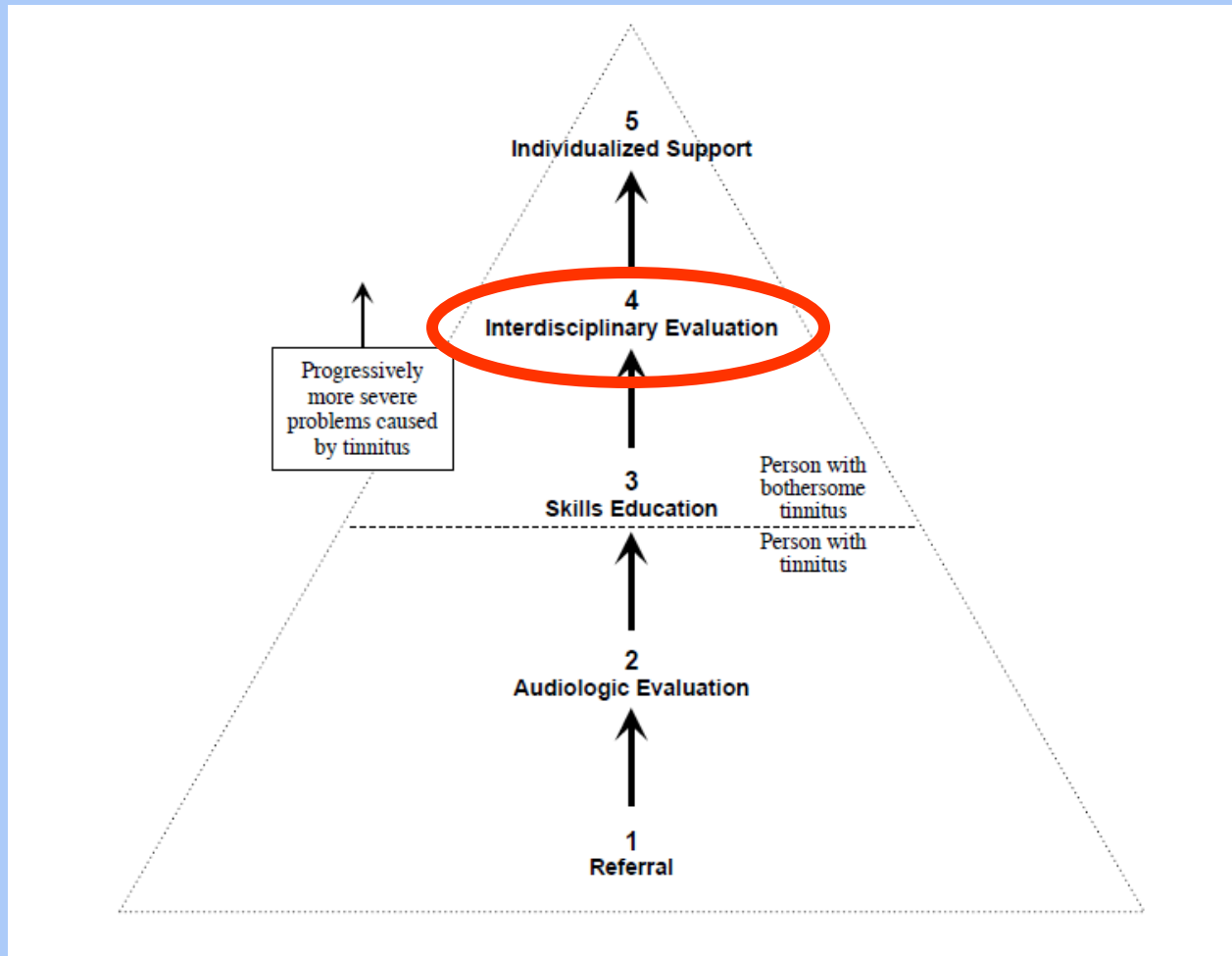
# Level 3 Skills Education

- **Workshops** or one-on-one for patients who require tinnitus-specific intervention



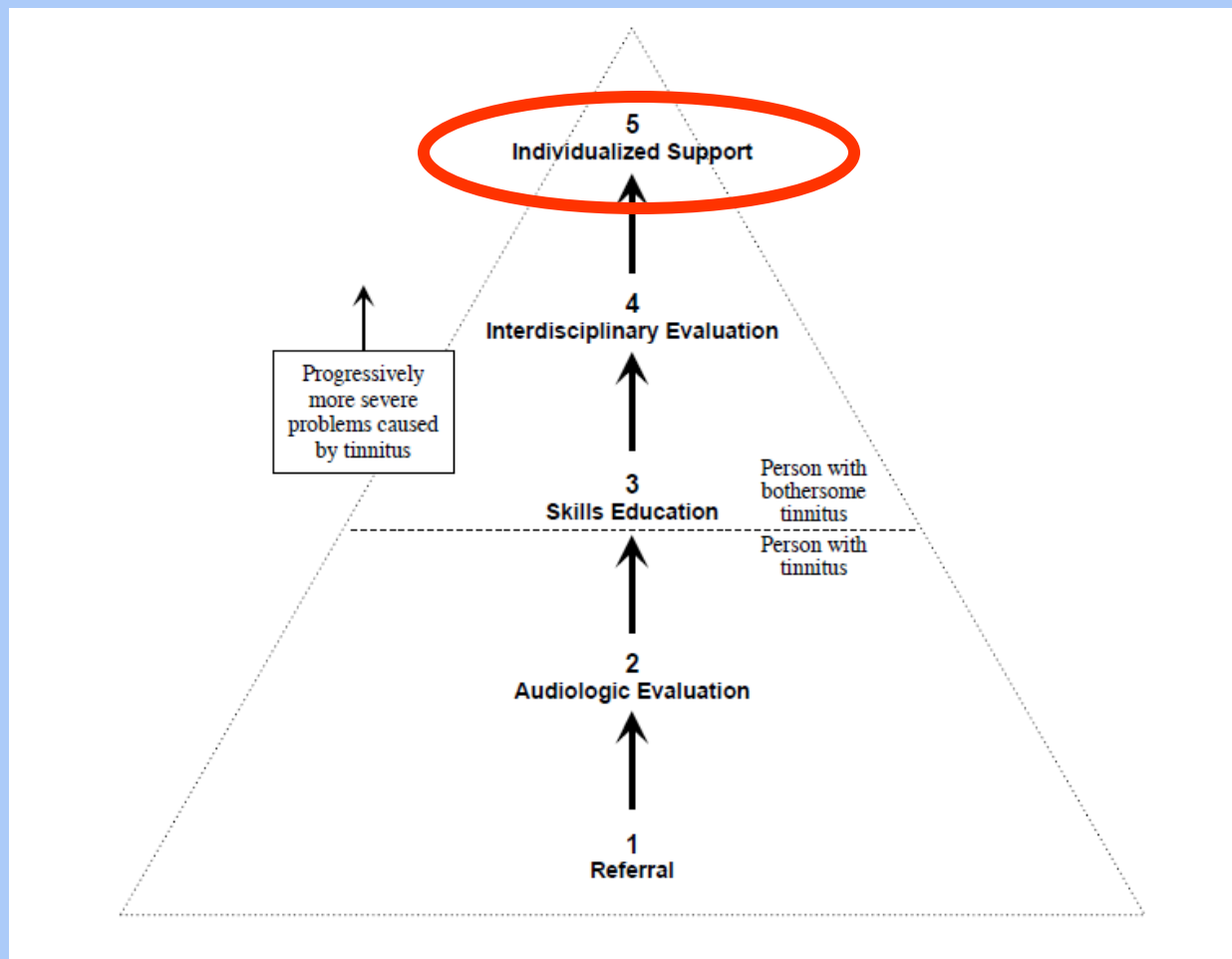
# Level 4 Interdisciplinary Evaluation

- **In-depth tinnitus evaluation** by audiologist and psychologist



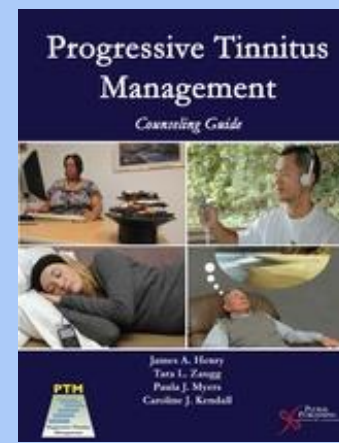
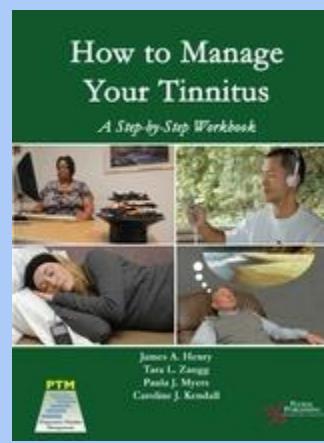
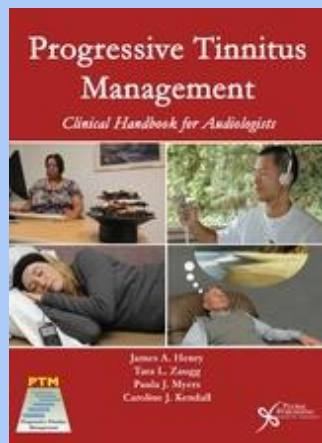
# Level 5 Individualized Support

- **One-on-one support** from audiologist and/or psychologist



# PTM Books

1. *Progressive Tinnitus Management: Clinical Guide for Audiologists*
2. *How to Manage Your Tinnitus: A Step-by-Step Workbook*
3. *Progressive Tinnitus Management: Counseling Guide*



# First Question: *Does the Person Have Tinnitus?*

- Differentiation from auditory hallucinations
  - Musical tinnitus
  - AH without psychotic disorder
- Overlap among symptoms and disorders
- Erring on the side of empathy and caring
- Veterans versus non-military personnel



## Tinnitus & Hearing Survey

*No, not a problem*     *Yes, a small problem*     *Yes, a moderate problem*     *Yes, a big problem*     *Yes, a very big problem*

### A. Tinnitus

Over the last week, tinnitus kept me from sleeping.

0     1     2     3     4

Over the last week, tinnitus kept me from concentrating on reading.

0     1     2     3     4

Over the last week, tinnitus kept me from relaxing.

0     1     2     3     4

Over the last week, I couldn't get my mind off of my tinnitus.

0     1     2     3     4

Grand Total

Total of each column

### B. Hearing

Over the last week, I couldn't understand what others were saying in noisy or crowded places.

0     1     2     3     4

Over the last week, I couldn't understand what people were saying on TV or in movies.

0     1     2     3     4

Over the last week, I couldn't understand people with soft voices.

0     1     2     3     4

Over the last week, I couldn't understand what was being said in group conversations.

0     1     2     3     4

Grand Total

### C. Sound Tolerance

Over the last week, sounds were too loud or uncomfortable for me when they seemed normal to others around me.

0     1     2     3     4

Please list two examples of sounds that are too loud or uncomfortable for you, but seem normal to others:

\_\_\_\_\_

\_\_\_\_\_

Grand Total

# What if the Patient Needs Hearing Aids?

- Fit combination instruments (hearing aids with embedded sound generators)
- Suggest leave sound turned off at first to determine potential effects of amplification on tinnitus
- Reassess with *patient preferences*

# Reach Out to Primary Care

- Audiologist or MH provider role
- Inform of tinnitus services: how we help
- Provide handouts for patients
- Discuss preferred communication b/t providers and with patients
- How to discuss tinnitus with patients
- Be prepared with research evidence
- Discuss specific patients

# Entry Points for Receiving PTM at VA Connecticut

## 1. Audiologist

- formal consult (Level 2)
- drop in to Audiology clinic (Level 2)
- education groups (Level 3)

## 2. Psychologist

- formal consult (Level 2 or Level 3)
- education groups (Level 3)

# What is Health Psychology?

- Specializes in bio-psycho-social model
- Explores these effects on physical health
- Promotion and maintenance of health
- Prevention, treatment and rehabilitation of illness and disability
- Improvement of the health care system

# The Role of MH Providers in Tinnitus Management

- Education with patients: etiology, interventions, comorbid conditions and symptoms
- Consultation: candidacy for group/ind, priority of care, crisis, MH symptoms, shared decisions, communication strategies with patients
- Reinforcement: skills, rationale, goals

# How to Discuss MH with Patients

- Emphasize the program: Evidence based
- Explain what a Health Psychologist does
- Show you want provide optimal care
- Reaffirm their experience and inform:
  - We believe your tinnitus is real.
  - Psychologists can help people cope with a variety of chronic health problems such as pain, insomnia, and tinnitus.
  - This does not mean you have a MH disorder (even though you might have one).

# Getting MH Involved

- Look in record or ask patient if they already see MH (in VA MHTC or notes)
- Meet with leadership (CHP or Chief)
- Inform them of existing protocol and research evidence for CBT-T
- Clarify the role: consultation, collaboration, transfer of care (depending on your need)
- Use MH to assist with challenging patients
- Offer an in-service



# Information to Provide MH

- PTM Workbook and Jim and my contacts
- Describe what help you need at any given moment (consultation, intervention, group, assessment, etc.)
- Develop a plan for referrals (consultation requests, drop-in groups, additional signer on notes, scheduling directly into clinics)

## Changing Thoughts and Feelings Worksheet

1. From the Tinnitus Problem Checklist, write down one bothersome tinnitus situation \_\_\_\_\_

2. Check one or more of the three skills to manage the situation

**Relaxation exercises**

<i>breathe</i>
<b>Relax</b>
<i>imagine</i>

*Deep breathing*

*Imagery*

*Other* \_\_\_\_\_

**Plan pleasant activities**

<i>golf, write, walk</i>
<b>Pleasant activities</b>
<i>dance, paint</i>

Activity 1 \_\_\_\_\_

Activity 2 \_\_\_\_\_

Activity 3 \_\_\_\_\_

**Changing thoughts**

<b>Think</b>
↓
<b>Feel</b>

Old thought \_\_\_\_\_

New thought \_\_\_\_\_

4. Use your plan over the next week. How helpful was each exercise?

	<i>Not at all</i>	<i>A little</i>	<i>Moderately</i>	<i>Very much</i>	<i>Extremely</i>
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5. **Comments**  
When you find something that works well (or not so well) please comment. You do not need to wait 1 week to write your comments.

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## Sound Plan Worksheet

1. Write down one bothersome tinnitus situation \_\_\_\_\_

2. Check one or more of the three ways to use sound to manage the situation

Soothing sound



_____	_____
_____	_____
_____	_____

Background sound



_____	_____
_____	_____
_____	_____

Interesting sound



_____	_____
_____	_____
_____	_____

3. Write down the sounds that you will try

4. Write down the devices you will use

5. Use your sound plan over the next week. How helpful was each sound after using it for 1 week?

6. **Comments**  
When you find something that works well (or not so well) please comment. You do not need to wait 1 week to write your comments.

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# Tele-PTM (Pilot Study)

# Results

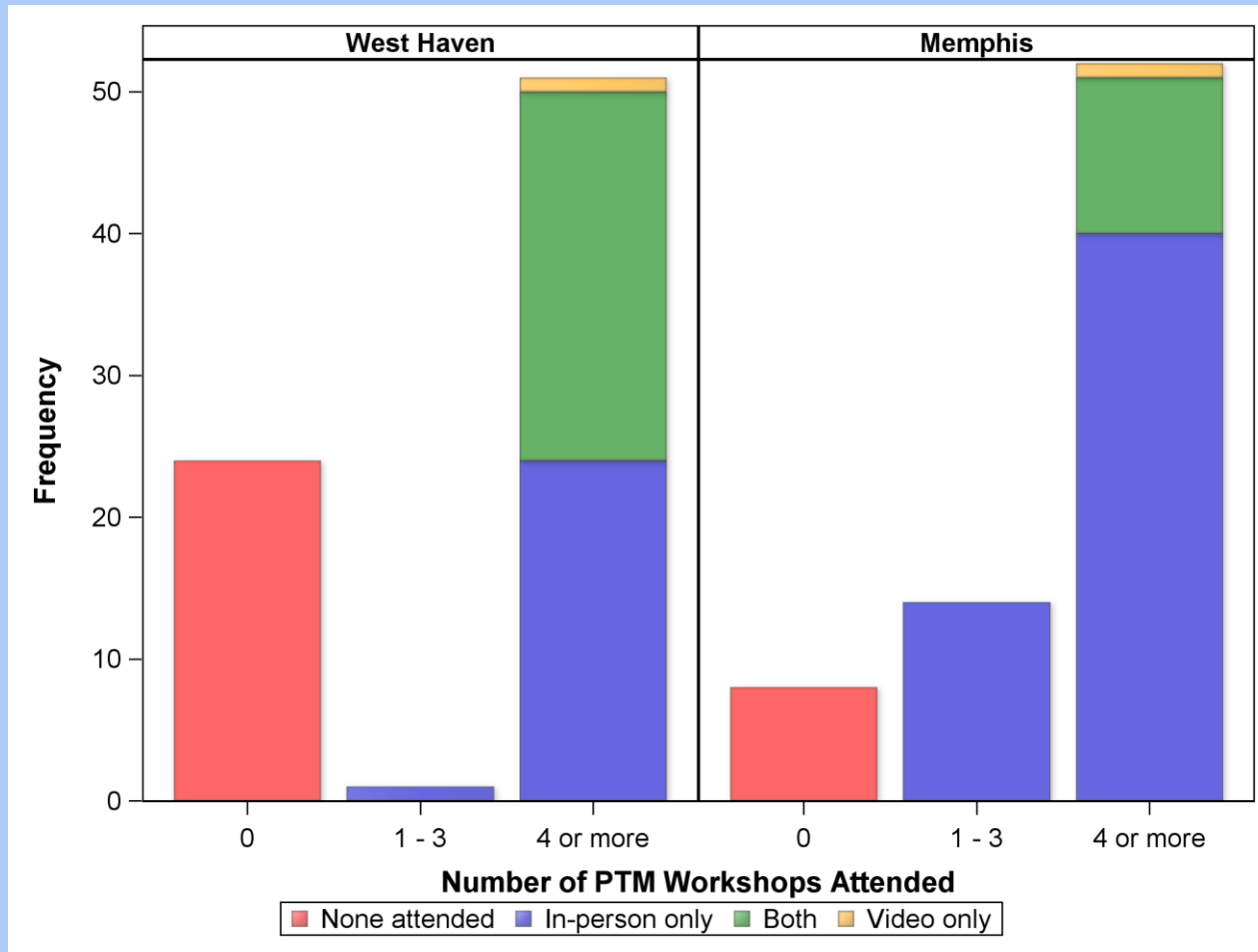
- All 3 groups showed similar improvement in mean THI scores demonstrating moderate to large effects.
- Participants in the mTBI and m-sTBI groups reported greater prevalence of sleep disturbance and anxiety with probable PTSD.
- Suicidal ideation is very challenging to address from a distance by telephone.

# Multi-site Evaluation of PTM (RCT)

# Summary of Findings

- PTM is significantly more effective than WLC for decreasing tinnitus distress as measured by the THI and TFI and improving self-efficacy.
- Methods to increase attendance is needed (only 36% attended all 5 sessions; 61% either attended all 5 sessions or reported viewing the videos).

# Results – Attendance (Immediate Care)





Tele-PTM (RCT)  
(in review)

# CBT-T: Session #1

- Group support basics
- Addressing stigma
- Problem solving
- **Rationale** for program/CBT cycle
- Stress management (relaxation)
- Behavioral activation (pleasant activities)



## Changing Thoughts and Feelings Worksheet

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*Other* \_\_\_\_\_

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<i>golf, write, walk</i>
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Activity 1 \_\_\_\_\_

Activity 2 \_\_\_\_\_

Activity 3 \_\_\_\_\_

**Changing thoughts**

<b>Think</b>
↓
<b>Feel</b>

Old thought \_\_\_\_\_

New thought \_\_\_\_\_

4. Use your plan over the next week. How helpful was each exercise?

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5. **Comments**  
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## Sound Plan Worksheet

1. Write down one bothersome tinnitus situation \_\_\_\_\_

2. Check one or more of the three ways to use sound to manage the situation

Soothing sound



_____	_____
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_____	_____

Background sound



_____	_____
_____	_____
_____	_____

Interesting sound



_____	_____
_____	_____
_____	_____

3. Write down the sounds that you will try

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5. Use your sound plan over the next week. How helpful was each sound after using it for 1 week?

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# CBT-T: Session 1

## *The CBT Cycle*

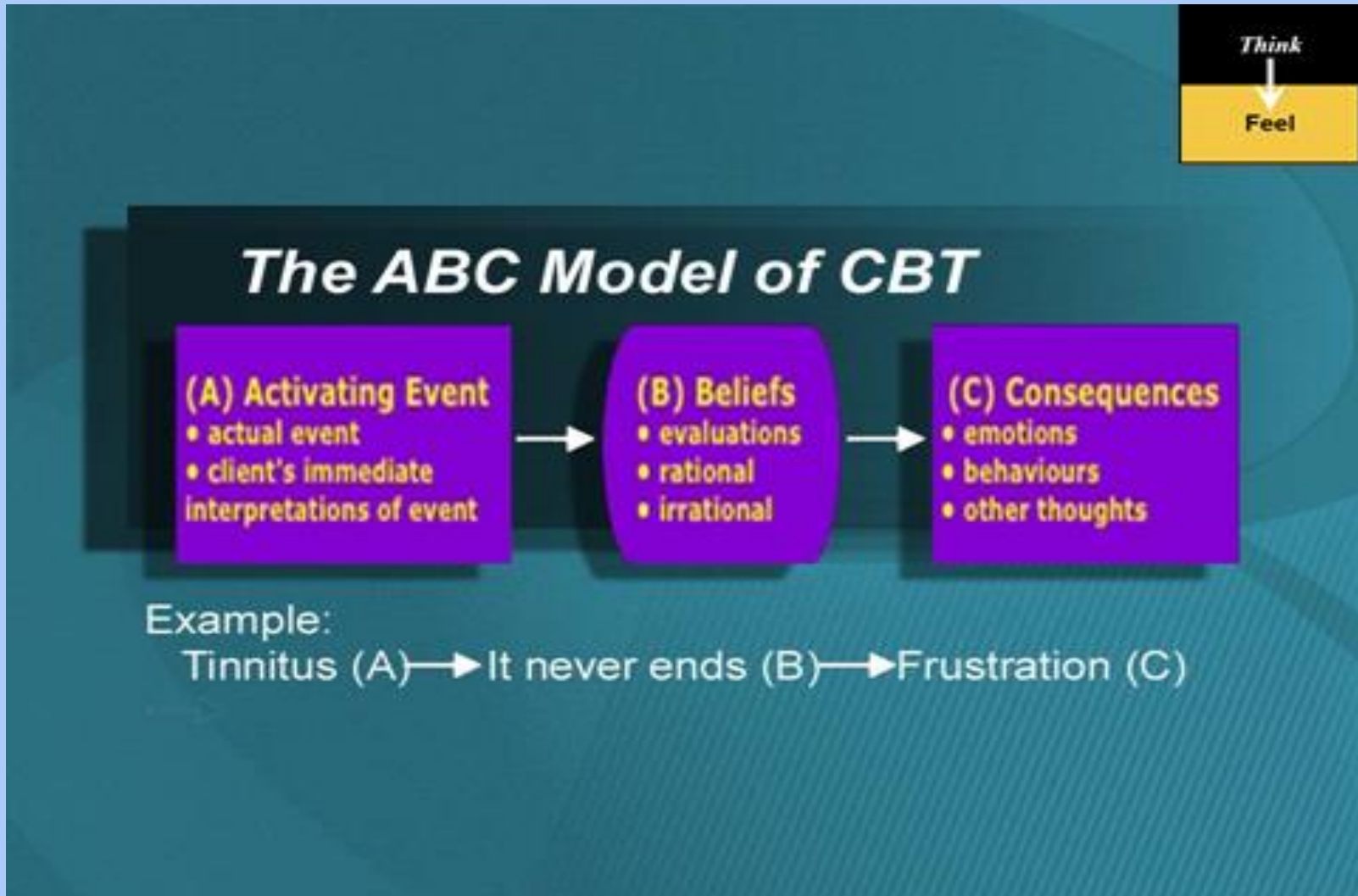
Behavior

Beliefs &  
Thoughts

Emotions



# ABC Model of CBT-T



# Stress Management: Rationale

*breathe*

**Relax**

*imagine*

- Reducing stress can help you cope w/ tinnitus and other health problems.
- Many people with tinnitus report it seems (more distressing, louder, more bothersome) when they are under stress.
- Sleep disturbance is often a concern among people with tinnitus; relaxation exercises can promote sleep.

[Note: be prepared with sound!]

*breathe*

**Relax**

*imagine*

# (Diaphragmatic) Deep Breathing Rationale

- The most basic relaxation exercise.
- Deep breathing is helpful for other more relaxation exercises.
- It promotes circulation and respiration.
- It can be practiced in many situations (car, work, bed)





# (Guided) Imagery Rationale

*breathe*

**Relax**

*imagine*

- Imagery is imagining you are some place calming, peaceful and safe
- More cognitively challenging
- Promotes more positive emotions
- Sensory focused



# CBT-T: Session #2

- Review of previous sessions
- Addressing barriers
- Defining thought errors
- Observing thoughts/emotions



# Planning Pleasant Activities

## Rationale

- When people are distracted, they don't notice their tinnitus as much.
- Pleasant activities can improve mood.
- Behavioral activation is a primary component of CBT for depression.
- There's no right or wrong way to plan more pleasant activities.

# Steps for Planning Pleasant Activities

- Step 1: Observe current activity level
- Step 2: Brainstorm activities
- Step 3: Plan pleasant activities



**Step 1: Track Your Activities.** Directions: Write down your activities over the next 6 days. Fill in the **Day** of the week, the **Activity** during each **Time** frame, and the **Category** of the activity.

Day	Time	Activity	Activity Category <i>Have to do = 1</i> <i>Like to do = 2</i>
Example: Day 1 <i>Monday</i>	Morning	Example: <i>Went to work</i>	1
	Afternoon	Example: <i>Still at work, worked out at the gym</i>	1, 1
	Evening	Example: <i>Made dinner, cleaned up the kitchen, watched TV</i>	1, 1, 2
Day 1	Morning		
	Afternoon		
	Evening		
Day 2	Morning		
	Afternoon		
	Evening		
Day 3	Morning		
	Afternoon		
	Evening		
	Morning		

**Step 2: Make a List of Pleasant Activities.** Before you can plan pleasant activities, you first need to know what activities you would enjoy. Below are some types of pleasant activities. List only activities you would enjoy.

Type of Activity	Example Activity	Activity
Social	<i>Dinner with friends</i>	
Recreational	<i>Taking dance lessons</i>	
Sporting	<i>Playing golf</i>	
Creative	<i>Writing poetry</i>	
Educational	<i>Taking a history class</i>	
Solitary	<i>A walk in the woods</i>	
Artistic	<i>Painting</i>	
Pampering	<i>Getting a massage</i>	
Musical	<i>Playing the piano</i>	
Interest-oriented	<i>Collecting old cameras</i>	
Travel	<i>Going to Hawaii</i>	
Food	<i>Baking bread</i>	

[Note: these categories adapted from JL Henry and Wilson<sup>6</sup>]

# Cognitive Restructuring

- Called “Changing Thoughts and Feelings” in PTM
- Step 1: Being mindful of thoughts
- “Catch it, check it, change it”
- [http://downloads.bbc.co.uk/headroom/cbt/catch\\_it.pdf](http://downloads.bbc.co.uk/headroom/cbt/catch_it.pdf)
- The least utilized skill, but it has potentially profound effects.

# 8 Automatic Thoughts (Thought Errors)

## 1. **Mental Filter**

Definition: When you pay the most attention to bad events or traits even though they are only a part of the picture. You might also not notice positive events or traits.

General example: “I don’t like my nose, and that means I am ugly.”

Tinnitus example: “My tinnitus is unpleasant, and that means I can’t have fun anymore.”

Positive thought example: “My tinnitus is unpleasant, but when I do fun things I notice it less.”



# 8 Automatic Thoughts (Thought Errors)

## 2. Mind Reading

Definition: When you believe you know what others are thinking without them telling you.

General example: You see some younger people watching you get into your car and hear one of them laugh. You tell yourself, “They think because I’m old I should stop driving.”

Tinnitus example: You share with a friend how your sleep is affected by your tinnitus. Your friend suggests you might be happier if you focused on the positive things happening in your life. You tell yourself, “That person thinks my tinnitus should not matter to me and only likes me when I talk about happy things.”

Positive thought example: “My friend really cares about me even if her advice isn’t helpful.”

## 8 Automatic Thoughts (Thought Errors)

### 3. **Fortune-Telling**

Definition: When you predict the future, usually assuming something bad will happen. When the future is uncertain, may automatically think about the worst case scenario.

General example: “If I go to the party, I won’t have fun.”

Tinnitus example: “My tinnitus is going to get worse and worse until I won’t be able to handle it.”

Positive thought example: “There’s no telling if my tinnitus will get worse. If it does, I have strategies to deal with it.”

# 8 Automatic Thoughts (Thought Errors)

## 4. “Should” Statements

Definition: When you have a fixed idea about how people or situations should or must be. When people (including you) and situations don't meet those expectations, you judge them very harshly. “Should” statements often go hand and hand with feelings of anger, impatience, guilt, and disappointment, and similar words such as “would,” “could,” and “ought.”

General example: “People should always drive the speed limit.”

Tinnitus example: “I should just suck it up and deal with my tinnitus (and if I'm not sucking it up there is clearly something wrong with me).”

Positive thought example: “Sometimes my tinnitus is annoying even when I use my coping skills. I'm doing my best. Some days are going to be better than others.”

# 8 Automatic Thoughts (Thought Errors)

## 5. **Labeling:**

Definition: When you attach a negative word to yourself or another person as a general statement.

General example: You don't complete a task and tell yourself, "I am just a lazy person."

Tinnitus example: You feel sad sometimes about your tinnitus, and you tell yourself, "I am not strong enough to handle this. I am weak and childish."

Positive thought example: "It's okay that I'm sometimes sad about having tinnitus."

# 8 Automatic Thoughts (Thought Errors)

## 6. Making things personal

Definition: When you think that things that happen are because of you, even though there could be many other causes.

General example: “That person didn’t say hello to me because he doesn’t like me.”

Tinnitus example: “I must have done something wrong to deserve my tinnitus.”

Positive thought example: “I’m a good person who happens to have a health problem.”

# 8 Automatic Thoughts (Thought Errors)

## 7. All or Nothing Thinking

Definition – You see things as good or bad with nothing in between. Using words like “always,” “never,” “no one,” “everyone,” and “all” are often clues that you are thinking in this way.

General Example: “You never come through for me.” (If this is said to a friend who sometimes is helpful and sometimes is not.)

Tinnitus example: “Either I find a cure for my tinnitus or I remain miserable.”

Positive thought example: “Even if I always have tinnitus, it doesn’t have to be the center of my life.”

# 8 Automatic Thoughts (Thought Errors)

## 8. Emotional Reasoning

Definition: You use your emotions as “proof” that something is true, even if there is no clear evidence to support the belief.

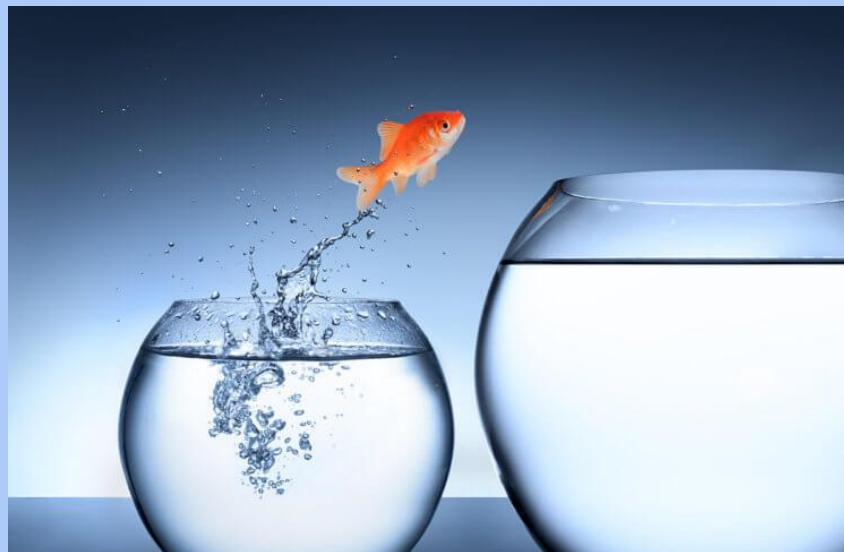
General example: Because you feel anxious about meeting new people, you tell yourself that it’s better not to meet new people because they will only reject you.

Tinnitus example: Because you are nervous about seeking help for your tinnitus, you tell yourself that no one can help you anyway.

Positive thought example: “Even though I am nervous about asking for help, I can still pick up the phone.”

# CBT-T: Session #3

- Review of previous sessions
- Addressing barriers
- Discussing observations about thoughts
- Changing thoughts
- Relapse prevention (next steps)





## Changing Thoughts Exercise

**Directions:** Keep track of three situations when you felt bad or upset during the week. Practice changing your thoughts in each situation using these steps.

Steps	Example	Your situation 1	Your situation 2	Your situation 3
<b>Step 1: Event</b>	<i>My tinnitus isn't getting any better</i>			
<b>Step 2: Thoughts</b>	<i>Why can't anyone help me?</i>			
<b>Step 3: Feelings</b>	<i>Helpless, frustrated and angry</i>			
<b>Step 4: Evidence for</b>	<i>I've been to so many doctors and still have tinnitus</i>			
<b>Step 5: Evidence against</b>	<i>I fell asleep easily last night. Maybe using sound is helping me, even if my tinnitus isn't any quieter.</i>			
<b>Step 6: New positive thought</b>	<i>I probably can't make my tinnitus quieter. Even so, I can find ways to feel better even if the tinnitus doesn't change.</i>			
<b>Step 7: Feelings when you think the new thought</b>	<i>Happier, more confident</i>			

**Step 8: Picture yourself in the future.** Think of an event in the future when you might have the negative thoughts again. Picture yourself thinking the positive thought instead.

# Changing Thoughts Step-by-Step

EXAMPLE:

**Step 1:** Identify the event that led to this thought:

**My coworker said his tinnitus is no big deal.**

**Step 2:** Fill in a negative thought about tinnitus from last week: **No one believes how loud my tinnitus is – not even other people with tinnitus.**

**Step 3:** Write down your feelings when you have this negative thought: **Lonely, frustrated, and angry**

# Changing Thoughts Step-by-Step

EXAMPLE (continues)

**Step 4:** What is true about the thought in Step 2? What makes sense or is evidence for that thought? **No one else has said they have experienced their tinnitus like I do.**

**Step 5:** What is not true about the thought in Step 2? What does not make sense about that thought? **Maybe they aren't saying what they believe; I haven't met a lot of people who have tinnitus.**

**Step 6:** Write a new, more helpful thought: **I can't read minds. It doesn't matter what other people believe.**

# Changing Thoughts Step-by-Step

EXAMPLE (continues)

**Step 7:** Write down feelings you have when you think about this new thought? **A little sad; and less frustrated.**

***[Pause to consider this:*** Are your feelings in Step 7 more positive than your feelings in Step 3? If no, go to Step 6 and revise your new thought. If yes, go to Step 8.]

**Step 8:** Think about the event happening in Step 1. Next imagine having the new thought in Step 6.

# Delivery Models

- Integrated: providers are co-located and share intervention responsibilities
- Stepped care: patients see one discipline at a time as needed
- Progressive: patients receive only the care they need
- Interdisciplinary: disciplines share framework
- Multidisciplinary: disciplines alternate (silos)

# Provider Overlap Varies



# When should audiologists provide CBT?

- Following supervised experience
- Share your level of expertise with patients

## Barriers:

- Local licensing laws
- Reimbursement issues



# Should psychologists provide sound therapy?

- Shared limitations with patients
- Must receive proper training and knowledge
- Consultation with audiologist
- Supportive role to audiologist



# Overall Future Directions

- Implementation challenges
  - Provider shortage
  - Integration of services
  - Tele-health
- Alternatives to CBT-T in PTM
  - Exposure therapy
  - Acceptance and Commitment Therapy (ACT)
  - Integrative medicine: mindfulness-based stress reduction, acupuncture, self-guided
  - Prioritizing goals and components

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[Caroline.Schmidt@va.gov](mailto:Caroline.Schmidt@va.gov)

