Non-Pharmacologic Management of Geriatric Dementia: Music in Medicine  More

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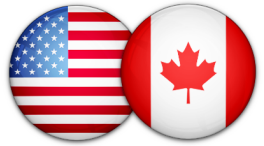
April 29th, 2019

RUTGERS Robert Wood Johnson Medical School
CentraState Family Medicine Residency Program
STFM SOCIETY OF TEACHERS OF FAMILY MEDICINE

Who Am I?



Bachelor of Sciences (BSc) Honors Specialization in Biology

University of Western Ontario, *London, ON, Canada*

Master of Sciences (MSc) Biology, Progesterone Metabolites in Breast Cancer

University of Western Ontario, *London, ON, Canada*

Medical Doctorate (MD)

St. George's University, *Grenada, West Indies*

Family Medicine Residency Program (PGY-II)

Rutgers University RWJMS at CentraState, *New Jersey, United States*

Goal & Objectives

Goal:

To ensure residents with geriatric dementia have a good quality of life.

Objectives:

At the end of this presentation, participants should be able to:

1) Explain at least 2 different non-pharmacologic therapies for our patients with geriatric dementia

2) Use at least 1 non-pharmacologic therapy to reduce behavioral disturbances with patients with geriatric dementia

3) Commit to teaching the use of non-pharmacologic interventions to manage geriatric dementia

Rationale & Prevalence

Dementia associated mortality is a significant proportion of mortality in the United States and Canada

2017 – *261,914 deaths* attributed to dementia in the United States

46% of dementia deaths attributed to *Alzheimer's Dementia*

The majority of deaths attributed to dementia occurred in *nursing homes or other long-term care facilities* [1]

[1] Karmarow & Tejada-Vera, 2019

Rationale & Prevalence

Figure 1. Causes of Mortality, 2017, NCHS Data.			
Rank	**Cause of Mortality**	**Number**	**Percentage (%)**
1	Heart Disease	647,457	23.0
2	Malignant Neoplasms (cancer)	599,108	21.3
3	**Dementia (including Alzheimer's)**	**261,914**	**9.5**
4	Accidents (unintentional injury)	169,946	6.0
5	Chronic Lower Respiratory Disease	160,201	5.7
6	Cerebrovascular disease (stroke)	146,383	5.2
7	*Other*	*759,269*	*27.7*
	Total	2,744,278	100

Rationale & Prevalence

Pharmacologic Intervention for Geriatric Dementia is often associated with adverse outcome

Updated 2019 American Geriatrics Society (AGS) Beers Criteria for Potentially Inappropriate Medication Use in Older Adults

Potentially Inappropriate Medication (defined by Beer's Criteria) use in older age individuals is associated with increased 1.6-fold increased mortality. [2]

[2] Muhlack *et al*., 2017

Background & Why This Is Important

Figure 2. Inappropriate Medications to Treat Dementia or Cognitive Impairment, per AGS Beers Criteria, 2019. [1]

Anticholinergics	**Benzodiazepines**	**Non-Benzo and Benzo Receptor Agonist Hypnotics**	**Antipsychotics *(chronic & as needed)***
Brompheniramine Carbinoxamine Chlorpheniramine Clemastine Cyproheptadine Dexbrompheniramine Dexchlorpheniramine Dimenhydrinate Diphenhydramine (oral) Doxylamine Hydroxyzine Meclizine Promethazine Pyrilamine Triprolidine	*Short & Intermediate:* Alprazolam Estazolam Lorazepam Oxazepam Temazepam Triazolam *Long Acting:* Chlordiazepoxide Clonazepam Clorazepate Diazepam Flurazepam Quazepam	Eszopiclone Zaleplon Zolpidem	1st Generation 2nd Generation

[1] List generated from "Moderate" Quality of Evidence and are considered "Strong" Recommendations. Table Adapted from American Geriatrics Society Beers Criteria, 2019

Cost (& more importantly, savings)

In 2019, the direct cost to the American society of caring for those with dementia totaled an estimated $290 billion dollars. [3]

In the final 5 years of life, a person with dementia will cost $287,000

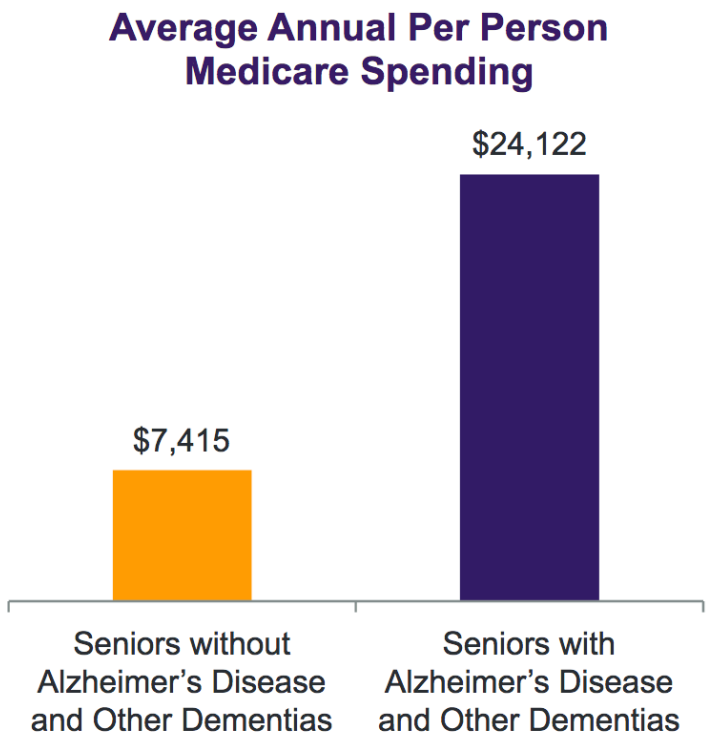
- Heart disease - $175,000
- Cancer - $173,000

Medicare & Medicaid - $186 billion in total costs in 2018

- 67% of total costs

[3] Alzheimer's Association: Facts & Figures, 2019

Cost (& more importantly, savings)



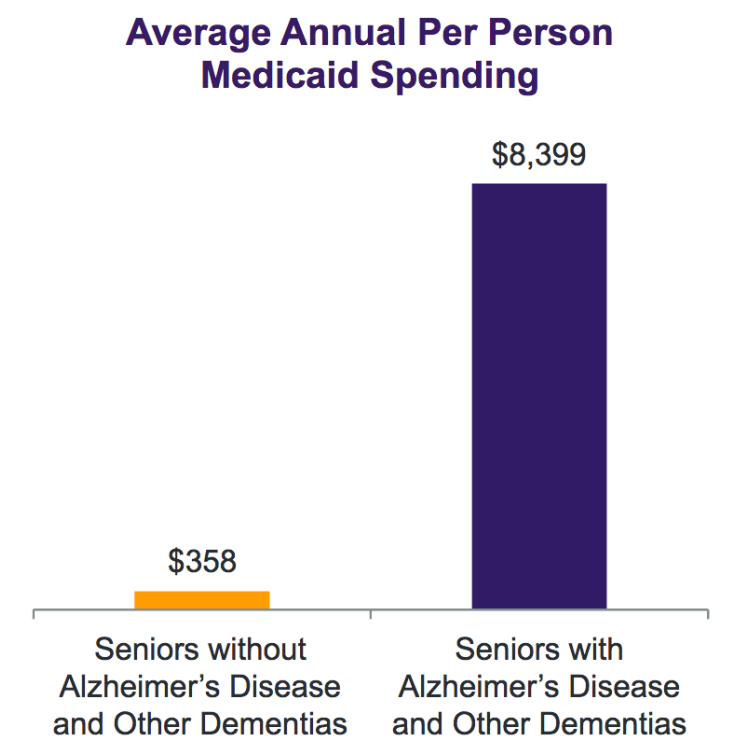


TABLE 11

Average Annual Per-Person Payments by Type of Service for Health Care and Long-Term Care Services, Medicare Beneficiaries Age 65 and Older, with and without Alzheimer's or Other Dementias, in 2018 Dollars

Service	Beneficiaries with Alzheimer's or Other Dementias	Beneficiaries without Alzheimer's or Other Dementias
Inpatient hospital	$11,306	$3,652
Medical provider*	5,728	3,568
Skilled nursing facility	6,977	477
Nursing home	15,984	774
Hospice	2,060	156
Home health care	2,578	374
Prescription medications†	3,503	3,005

*"Medical provider" includes physician, other medical provider and laboratory services, and medical equipment and supplies.

Increasing Geriatric Population

2030 – all baby boomers will be older than age 65

1 in 5 residents will be at retirement age

Today approximately 5.5 million Americans aged 65 & older are living with Alzheimer's Disease

By 2050, this number expected to triple (~16 million)

Background & Why This Is Important

TEACH:

- explain to your caregivers why this is important

- explain to the staff that this may also decrease caregiver burden

- teach your staff to be advocates for non-pharmacologic intervention

Recognizing Behavioral Disturbances in Patients with Dementia

BPSD – Behavioral and Psychological Symptoms in Dementia

- affects up to 90% of patients with dementia

- screaming (disruptive vocalization), restlessness, repetitive questions, wandering, apathy

Recognizing Behavioral Disturbances in Patients with Dementia

BPSD – Behavioral and Psychological Symptoms in Dementia

Assessment of BPSD:

- What is the specific behavior?
- When does it occur?
- Does it occur with a specific demand? (when resident is asked to dress? Bathe? Eat?)
- What is the intensity?
- Any new medical conditions?
- Any new sensory loss? (hearing aid, eye-glasses, dentures)
- Review of medications

Recognizing Behavioral Disturbances in Patients with Dementia

BPSD – Behavioral and Psychological Symptoms in Dementia

Assessment of BPSD:

- Environment: over-stimulating? Too many items? Furniture too cluttered?

- Meal-time: overwhelming because too many choices?

- Environment: too loud? Too much glare? Is the environment familiar at all?

- Clothing: familiar to patient?

- Physical Discomfort: unrecognized pain? Hungry? Thirsty? Too full? Too bright? Too Dim? Too Loud? Too quiet? Loud noisy roommate?

Recognizing Behavioral Disturbances in Patients with Dementia

BPSD – Behavioral and Psychological Symptoms in Dementia

Resident that is exhibiting inappropriate vocal activity

- associated with depressive or anxious symptoms

- help seeking behavior?

- change in sensory modality (noise disturbance, temperature disturbance, etc)

Recognizing Behavioral Disturbances in Patients with Dementia

BPSD – Behavioral and Psychological Symptoms in Dementia

Resident that is exhibiting inappropriate sexual activity

- hands in pants, taking off pants

- Biologic explanation: resident may have a UTI?, constipation?

- Appropriate clothing? Too loose? Too tight? Diapers being changed?

Recognizing Behavioral Disturbances in Patients with Dementia

TEACH:

- teach staff how to recognize BPSD

- teach staff how to consider different non-pharmacologic modalities to manage BPSD

Non-Pharmacologic Interventions

Different modalities:

- aromatherapy
- massage
- touch therapy
- physical exercise
- occupational activities (tailored activities)
- cognitive rehabilitation
- light therapy
- combined therapy
- art therapy
- **music therapy**

Non-Pharmacologic Interventions

Different modalities:

- Aromatherapy
  - Cochrane review in 2014 – Lavender, beneficial for promoting sleep
  - Increased sleep time, reduced requirements for hyponotic medication
  - Study in 2015 – when combined with acupressure, has increased effect
- Massage
  - Cochrane review in 2008 – insufficient evidence regarding efficacy of massage intervention
  - Limited studies

Non-Pharmacologic Interventions

Different modalities:

- Physical Exercise
  - Limited study
  - Aquatic exercises over 12 weeks showed improvement reduction in BPSD
- Occupational Activities
  - Tailored to patient's abilities, interests, roles
  - Significant reduction in BPSD (shadowing, agitation, argumentation, repetitive questioning) in 60 days

Non-Pharmacologic Interventions

For the Caregiver:

- making bathing and dressing less complicated
- making meals more simple – using finger food
- flexible mealtimes
- caregiver support groups

Music in Medicine

Evidence for Music Therapy:

- Very complex field of study
- Allied fields of study: Mathematics, behavioral and social sciences, natural sciences, arts
- Heuristic working factor model for music therapy as a theoretical framework
  - Hillecke *et al.,* 2006
- (1) Attention modulation
- (2) Emotion modulation
- (3) Cognition modulation
- (4) Behavior modulation
- (5) Communication modulation

Music in Medicine

Evidence for Music Therapy:

- **(1) Attention Modulation**
- Music attracts attention
- Relaxational use of music, anxiolytic
- Auditive signal for waking up (aka alarm clock effect)
- This modulation is used in: (1) pain therapy and (2) autistic & ADHD children

- **(2) Emotion Modulation**
- Music stimulates complex and basic emotions; recall of emotional events
- Music is processed in emotional brain (limbic system, gyrus cinguli, paralymbic)
- Empirical study limited

Music in Medicine

Evidence for Music Therapy:

- **(3) Cognition Modulation**
- Music represents a neurocognitive capacity – processing complexity comparable to speech
- Understanding music = thinking and creating *subjective* significance and experience
- *Subjective*: the psychological and cognitive associations
- Used to facilitate recall of episodic memory

- **(4) Behavior Modulation**
- Music can evoke and condition behavior (ex: association of music and dance)
- Can be used in behavioral conditioning (eg: Pavlov)

Music in Medicine

Evidence for Music Therapy:

- **(5) Communication Modulation**
- Music represents a complex paradigm of non-verbal communication
- Music

Music in Medicine

Evidence for Music Therapy:

- Sung *et al.,* 2012
  - Evaluated Anxiety & agitation
  - Group-session
  - **Thirty minute sessions, twice weekly, for 6 weeks**
  - Significantly reduced **anxiety** ($p = 0.004$)

- Svansdottir and Snaedal, 2006
  - Music therapy significantly improves aggressiveness and anxiety
  - Included instruments / active participation

Music in Medicine

- **Music decreases depressive symptoms, blood pressure, heart and respiratory rates in elderly in community**
  - Chan, Chan, Mok, Tse and Yuk, 2009
  - 4 weeks daily music listening; n=47
- **Significant improvement in anxiety and depression in older care home residents**
  - Guetin et al., 2009
  - Music once per week for 16 weeks; n=30
- **"Wrong" type of music can be boring or irritating and intensify depressive syndromes, aggressiveness and anxiety**
  - MacDonald et al., 2003 & Burack, Jefferson, Liblow, 2003
  - Consideration must be given to the selection of the *appropriate music*

Music in Medicine

- **“Dosages”**
  - Total sessions ranged from 1 to 48
  - Duration ranged from 20 to 90 minutes
  - Cochrane review: 3-week period is sufficient for differences to be observed
  - Recommends *minimum of 30 minutes* for each session

- **“Evaluation”**
  - Interviews carried out regarding pain, depression anxiety with ‘scores’
  - Baseline evaluation followed by treatment and follow-up evaluation

Music in Medicine

- **The Case of AP**
  - 75 year old male with a past medical history of advanced Alzheimer's dementia
  - US Army Veteran, Portuguese heritage
  - Previously worked in shipping

  - Behavior: constantly wanders, often into other resident's rooms
  - Grabs random items and leaves with them
  - Non-Verbal, only says "OK"
  - Been at the nursing home for 4 years

Old Paradigm – pharmacologic therapy

- Physicians gets a call from the nursing home at 3:00 am. A geriatric resident, who has severe dementia is wandering into a neighbor's room and would not leave. The resident and his neighbor are becoming agitated. Attempts to move the resident are met with aggression. Nurse asks for medication or something to help calm the resident down. What do we treat with?

  - A) Ativan 1 mg PO
  - B) Benadryl 50 mg PO
  - C) Haldol 2 mg IM
  - D) Xanax 0.25 mg PO

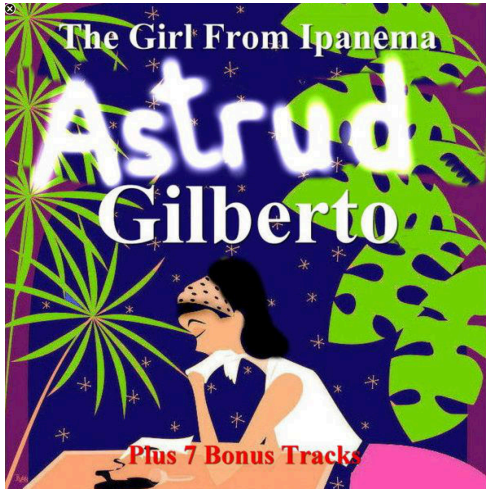
Music in Medicine

- **Culturally Curated Music**
  - Ms. Alexandra Doucette, Activity Specialist at the Manor
  - 6+ residents enrolled
  - 2 to 8 hours per day depending on resident
  - iPODs donated to the Manor
  - Each iPOD contains the same music, however each “resident” has an individual playlist.
  - Volunteers downloading and uploading music
  - Research done by activity coordinator as to what music each individual would like

Music in Medicine

- **Culturally Curated Music**
  - **“Astrud Gilberto – Mamae Eu Quero”, 1937**
  - “one of the most famous Brazilian songs of all time”
  - Performed in the 2016 Summer Olympics in Maracana Stadium

- Considerable Subjective improvement in BPSD
  - Employed when the patient wanders
  - No longer wanders in patient room
  - Much more redirectable
  - Less apathetic



Music in Medicine

- **Shared with permission from the family:**
  - Vocal for the first time in years
  - Signing, moving to the music

New Paradigm – non-pharmacologic therapy

- Physicians gets a call from the nursing home at 3:00 am. A geriatric resident, who has severe dementia is wandering into a neighbor's room and would not leave. The resident and his neighbor are becoming agitated. Attempts to move the resident are met with aggression. Nurse asks for medication or something to help calm the resident down. What do we treat with?

  - A) Place headphones onto the patient with his favorite music, and employ music therapy
  - B) Redirect the patient by speaking to him calmly
  - C) Entice AP to leave the room using a box and calling it a shipping package
  - D) Calling Mr. AP by his rank and title and ordering him to leave this resident's room

Music in Medicine

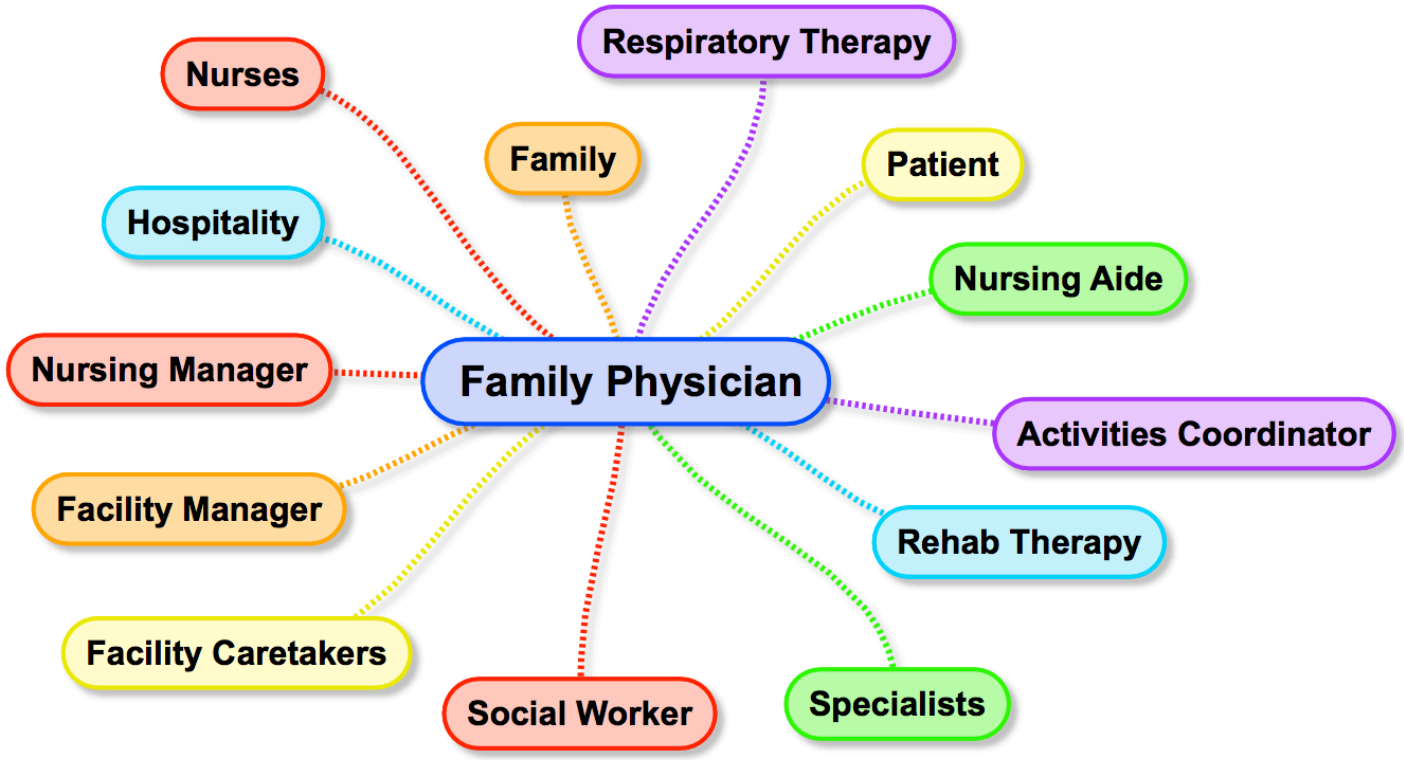
TEACH:

- Treatment with music is *evidence based*, with plenty of ongoing research

- Music is *one* of many non-pharmacologic modalities that should be employed *first line* to combat behavioral disturbance in geriatric dementia

Music in Medicine: Teaching this Program

Is a multidisciplinary approach



Music in Medicine: Teaching this Program

- Initial Assessment:

- Incorporate *Music Preference* into the initial assessment of each patient
- Ethnic and religious background may influence this preference
- May be enhanced by collaboration by family members
- Eg: ask family member to provide a 'favorite album' from patient's personal collection
- Music obtained from libraries and philanthropic groups
- Inexpensive, requires minimum time expenditure

- Ongoing Assessment

- Assess patient response to particular music (find one that works)

Music in Medicine: Teaching this Program

- Activities Coordinator
- Procuring devices (grants, donations), used iPods
- Culturally curating music (research)
- Measuring success
  - Subjective vs Study
- Live vs Personal Music
- Music as respiratory therapy

Hand-out

Non-Pharmacologic Management of Geriatric Dementia: Music in Medicine & More

STFM 2019

- Dementia associated mortality is a significant proportion of mortality in the United States and Canada
- Pharmacologic intervention for Geriatric Dementia is associated with adverse outcome
- Dementia care is expensive, and non-pharmacologic intervention may save taxpayer money
- The geriatric population is increasing, and expected to triple in 30 years.
- Non-Pharmacologic therapy is evidence based, and in many cases, more effective

The old paradigm of dementia management:

Figure 2. Inappropriate Medications to Treat Dementia or Cognitive Impairment, per AGS Beers Criteria, 2019.[1]

Anticholinergics	Benzodiazepines	Non-Benzo and Benzo Receptor Agonist Hypnotics	Antipsychotics *(chronic & as needed)*
Brompheniramine	*Short & Intermediate:*	Eszopiclone	1st Generation
Carbinoxamine	Alprazolam	Zaleplon	2nd Generation
Chlorpheniramine	Estazolam	Zolpidem	
Clemastine	Lorazepam		
Cyproheptadine	Oxazepam		
Dexbrompheniramine	Temazepam		
Dexchlorpheniramine	Triazolam		
Dimenhydrinate	*Long Acting:*		
Diphenhydramine (oral)	Chlordiazepoxide		
Doxylamine	Clonazepam		
Hydroxyzine	Clorazepate		
Meclizine	Diazepam		
Promethazine	Flurazepam		
Pyrilamine	Quazepam		
Triprolidine			

[1] List generated from "Moderate" Quality of Evidence and are considered "Strong" Recommendations. Table Adapted from American Geriatrics Society Beers Criteria, 2019

Non-Pharmacologic Management:

- Aromatherapy
- Massage
- Touch Therapy
- Physical Exercise
- Occupational Activities
- Cognitive Rehabilitation
- Light Therapy
- Combined Therapy
- Art Therapy
- **Music Therapy**

Share your success & feedback! Seek help for your challenges!
Dr. Arthur Kwok, MD, MSc; akwok@centrastate.com

Starting a Music Program to Manage Geriatric Dementia

1) Collaborate and build a plan with your Activities Coordinator

2) Procure grants or donations to obtain iPods or other personal music devices.

3) Culturally curate music for each patient. Include music preference in their *initial assessment*. Involve the family.

4) Obtain music, load the iPods with personal playlists for each resident

5) Train staff to use non-pharmacologic management as *first line* including using music to combat BPSD

6) Measure success, and record what *works* for a patient. Recall music may not work with every patient.

7) Share your success with others, and *advocate* for this program.

Music in Medicine: Teaching this Program

1) Non-pharmacologic therapies to combat BPSD in dementia are proven with success and should be considered “first-line”
2) Not all non-pharmacologic therapies work with every resident – every resident is unique
3) Teach your staff, teach your residents, teach families to make a difference
4) Take initiative and become an advocate and leader of this program in your institution

Music in Medicine: Teaching this Program

TEACH:

- Music therapy program is a *multidisciplinary approach*

- Necessitates *'buy-in'* from your caregivers

- You *CAN* start this – BE the factor that enacts change for the better

Questions? Feedback?

Thank you!

Contact Information:

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Full bibliography on request, and will be published with these slides