



# DEMENTIA

## Interactive Case Tutorial #3

MARK BOSMA MD, FRCPC JUNE 2006

Modified by

Heather Rea MSW, Dr. Cathy Hickey, Mary Ritchie RN



# Objectives

- Review the key features of FTD
- Review some of the approaches used in the classification of FTD
- Review the clinical presentations of FTD
- Briefly review treatment approaches related to a case

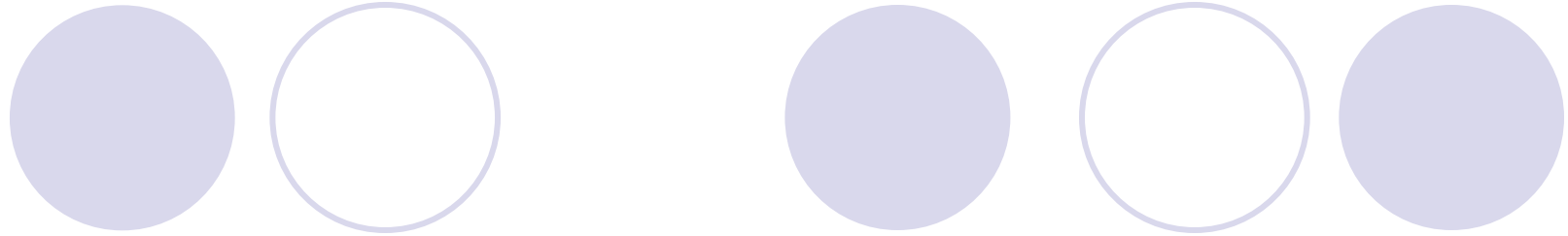
# Referral



You are a clinician working in geriatric psychiatry. You are asked to see the following referral:

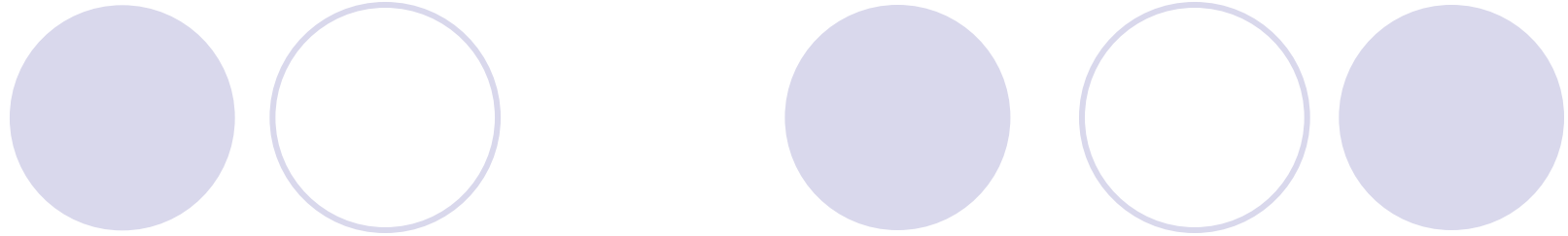
*“Mr. Frank T. Duffy is a 59 year old businessman who has had a personality change over the past year. He makes inappropriate comments, hugs people randomly, and has made some ‘mistakes’ at work. He does not realize these changes have occurred.”*

The family physician wonders if this could be an early form of dementia. You arrange to see Mr. Duffy.



## WHAT IS YOUR DIFFERENTIAL DIAGNOSIS?

- Neurodegenerative disorder (dementia)
- Delirium
- Medical conditions leading to cognitive/behavioural changes
  - Vascular disease
  - CNS condition (eg tumour, Huntington's)
  - Systemic condition (eg hypothyroidism)
- Mania
- Substance use
  - EtOH



You speak with Mr. Duffy. He does not feel this assessment is necessary. He admits to hugging some of the female employees at his car dealership, but doesn't think they mind. He does not report any depressive or manic symptoms, and is not psychotic. He denies substance use, other than the occasional drink. He doesn't see any problems with his job performance, and thinks his family is overreacting. He attempts to make many jokes with you, and is overly friendly.



IS THIS ENOUGH INFORMATION?

**NO**

WHAT WOULD YOUR NEXT STEP BE?

**COLLATERAL**



# Collateral

You meet with Mr. Duffy's wife and son, who both work at the car dealership. Mr. Duffy began hugging female employees one year ago, and recently hugged a stranger at a store. He also recently told an employee they were "too fat". Several employees have quit. He is easily angered when confronted about these issues, which is out of character. He has progressively made more errors at work, forgetting to place orders for customers. Last month, he wore a shirt with a stain on it to work. He is less interested in socializing, but does not seem depressed. He does not abuse alcohol. He denies his changes in behaviour are problematic.

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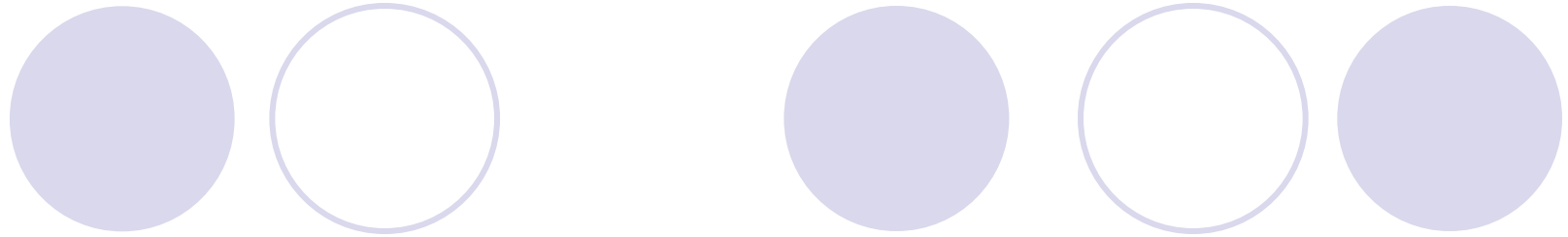
# Collateral

## Past Medical History

- Skin cancer 10 years ago
- No medications

## Family/Personal History

- His mother has Alzheimer's Disease and lives in a nursing home
- Graduated High School
- Married for 35 years with 3 children
- Has owned a car dealership for 20 years
- Otherwise unremarkable



YOU HAVE NOW RULED OUT MANIA AND  
SUBSTANCE USE. IF THIS IS  
DEMENTIA, WHAT TYPE MIGHT IT BE?  
**FRONTOTEMPORAL DEMENTIA**

# What is Frontotemporal Dementia?

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- DSM IV-TR states: “The specific diagnosis of a frontal lobe dementia such as Pick’s disease is usually established at autopsy with the pathological finding of characteristic intraneuronal argentophilic Pick inclusion bodies. Clinically, Pick’s disease often cannot be distinguished with certainty from atypical cases of Alzheimer’s disease or from other dementias that affect the frontal lobes.” (2000)

# Key features of FTD



- The key feature of the frontotemporal dementias is the involvement of a variety of disease processes of the frontal lobes and the front part of the temporal lobes of the brain.
- It is this characteristic distribution of the degenerative process that determines the clinical features of early personality change, language, and speech impairment.

# Key features of FTD

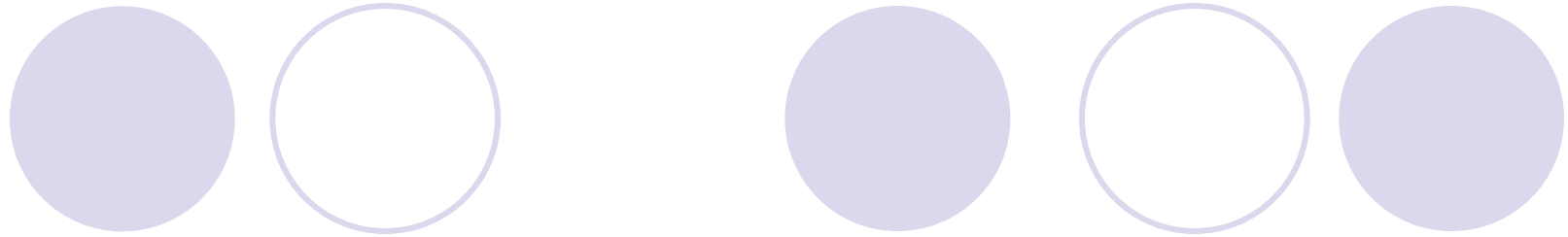


- First manifestations of the disease are often psychiatric symptoms, including personality changes, impaired judgment, socially inappropriate behavior, and Kluver-Bucy syndrome-like symptoms.
- Impairment of language and executive function becomes more apparent as the disease progresses, but memory loss occurs relatively late compared with Alzheimer's disease.



# Historical Perspective of FTD

- Pick's disease, first described by Arnold Pick in 1892 is the prototypic frontotemporal dementia.
- Pick's disease pathology (ie Pick bodies) is only found in a minority of cases.
  - Pick's disease is now under the heading of frontotemporal dementia



## WHAT PARTS OF THE ASSESSMENT HAVE YET TO BE COMPLETED?

- Cognitive testing
- Physical examination
- Investigations

# Cognitive Testing

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- MMSE 30/30
- Trails B: 3 minutes
- FAB 16/18

WHAT IS THE SIGNIFICANCE OF THE ABOVE RESULTS?

# Cognitive Testing



WOULD YOU SUGGEST ANY OTHER  
COGNITIVE TESTING?

- EXIT 25
- Neuropsychological testing
- MoCA

# Neuropsychological Testing

IN FRONTOTEMPORAL DEMENTIA, WHAT  
WOULD YOU EXPECT ON  
NEUROPSYCHOLOGICAL TESTING?

- Impairment on frontal lobe tests in the absence of severe amnesia, aphasia, or perceptuospatial abnormalities
  - Impulsivity
  - Perseveration
  - Inattention
  - Concreteness
  - Impaired set shifting



# Physical Examination

- No abnormal findings in Mr. Duffy
- In frontotemporal dementia, you may find:
  - Primitive reflexes
  - Incontinence
  - Akinesia, rigidity, and tremor
  - **Less likely to be found in early stages**

# Investigations

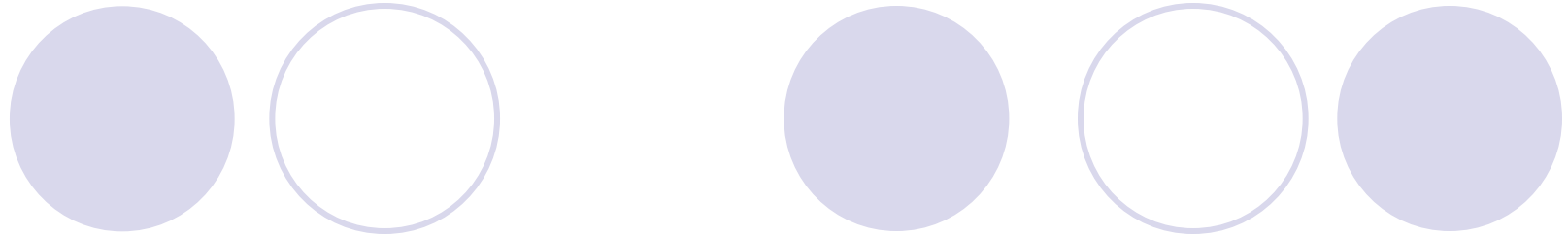


IF INVESTIGATING FOR FRONTOTEMPORAL DEMENTIA, WHAT “SCANS” WOULD YOU SUGGEST?

- MRI/CT
  - Tests brain “structure”
- SPECT scan
  - Tests brain “function”

WHAT RESULTS WOULD YOU EXPECT?

- Atrophy in frontal/temporal lobes
  - May be asymmetric
- Decreased perfusion in frontal/temporal lobes



Mr. Duffy's bloodwork is normal, but there is evidence of frontal lobe atrophy and decreased perfusion on MRI and SPECT. The most likely diagnosis is frontotemporal dementia. The family members are understandably very upset, and have many questions for you. You start by researching basic information in order to give the best possible answers to their questions.



# What is frontotemporal dementia?

## Core diagnostic features (Neary)

- Insidious onset and gradual progression
- Early decline in social interpersonal conduct
- Early impairment in regulation of personal conduct
- Early emotional blunting
- Early loss of insight



# Frontotemporal lobar degeneration (FTLD)

Three syndromes of FTLD:

- Frontotemporal dementia (FTD)
  - At least 70% of cases
- Semantic dementia
  - Lose ability to name/understand words
  - Left temporal involvement
- Progressive non-fluent aphasia
  - aka primary progressive aphasia
  - Severe problems of word retrieval in context of preserved comprehension
  - Left frontal involvement

# Frontal Syndrome



- The frontal syndrome is characterized by behavioral abnormalities
- Patients become socially disinhibited, with some becoming aggressive and others apathetic
- There may be changes in eating and sexual behavior
- The term “frontotemporal dementia” is sometimes confined to this group



# Dysexecutive Syndrome

- Difficulties with control over attention and inhibition can emerge as perseveration or repeatedly performing the same activities.
- Echolalia (mindlessly repeating a phrase that has just been uttered)
- Echopraxia (mindlessly repeating a gesture)
- Limited productive behavior since performance is restricted to the execution of simple tasks
- Considerable guidance is needed (bathing)



# Progressive nonfluent aphasia

- PNFA is a form of progressive aphasia that refers to patients with speech production difficulties
- Early on they have excellent comprehension and may write well despite speaking with difficulty
- As the disease progresses they become mute

# Semantic Dementia



- Semantic dementia refers to patients with impairment of semantic memory
- This term refers to our knowledge of meaning
- Verbal semantic memory vs visual semantic memory

# Semantic Dementia



- Semantic memory contrasts with our memory for day to day events referred to as episodic memory
- Patients with semantic memory speak fluently but it is empty of meaning and they have major difficulty with understanding
- With this condition there is loss of tissue in the temporal lobes

# Pathology of FTLD



- Degeneration of prefrontal and anterior temporal lobes
- Frontotemporal
  - Pick's bodies with gliosis, and tau-positive neurofibrillary tangles are most common findings
  - **“tauopathy”**
- Semantic dementia and progressive non-fluent aphasia are usually non-tau

# What causes it?



- Degeneration in certain frontal areas leads to certain behavioural patterns
- Orbitofrontal:
  - Socially disinhibited
- Dorsolateral frontal:
  - Executive dysfunction
- Medial frontal:
  - Apathy

# Orbitofrontal Region



- Disinhibition
- Irritability
- Lability
- Euphoria
- Distractability
- Lack of remorse
- Impaired insight/judgment

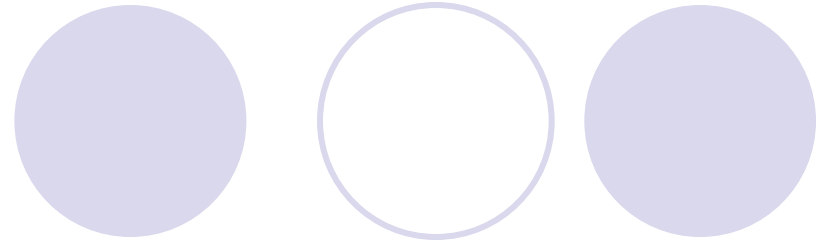
# Dorsolateral Region



## Executive dysfunction

- Deficiency in planning/ monitoring/ flexibility/ motivation
- Poor attention/ sustained effort
- Linger on trivial thoughts/ stimulus bound
- Mood disorders
- May have normal memory/ language/ visuospatial skills

# Medial Region



- Apathy

- Limited spontaneous movement/ speech/  
gestures

# What behaviours can be expected?

- Decline in personal hygiene and grooming
- Hyperorality and dietary changes
  - Carbohydrate cravings
- Stereotyped behaviours
  - Repeated use of a phrase
  - Humming
- Utilisation behaviour
- **Disinhibition**
  - Swearing
  - Inappropriate sexual behaviour
- Impulsivity
- Compulsions
- **Apathy**

# What behaviours can be expected?

- Patients may have a wide variety of symptoms
- Symptoms can be on a spectrum of severity
- Symptoms may be extremely different from one patient to the next
  - **one patient may have profound disinhibition and another one may have profound apathy**



# What language changes can be expected?

- Altered speech output
  - Aspontaneity
  - Economy of speech
  - Pressured speech
- Stereotypies
- Echolalia
  - Repeating the speech of another person verbatim
- Perseveration
  - Certain phrases or words repeated numerous times
- Mutism
  - Complete absence of speech



The Duffy family did not realize that a person so young could suffer from dementia. They had only heard of Alzheimer's Disease, and thought "demented people" were always old. They want to know how common frontotemporal dementia is, and if their family is at risk of inheriting the disorder.

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What age group is most at risk?

- FTD is a **presenile** dementia
- Commonly occurs b/w ages 45 - 65
- Recorded from ages 21 - 85

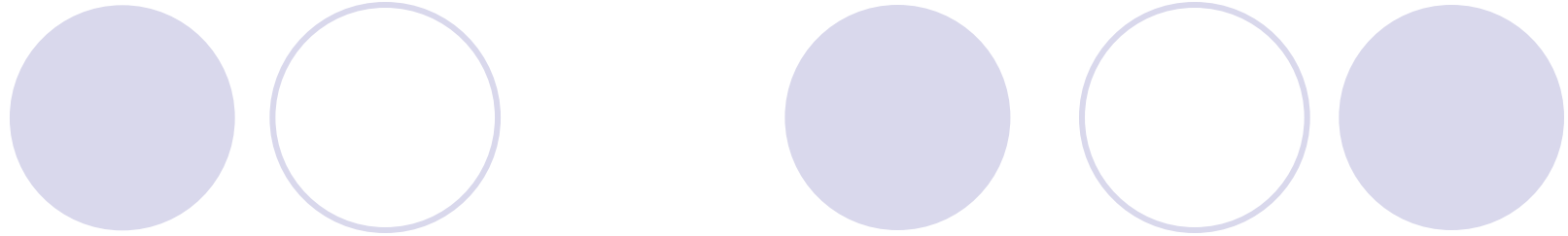


# How common is FTD?

- 5-10% of all dementias
- Affects men, women equally
- Different studies report different rates
  - UK - 15/100 000 (45 - 64)
  - Netherlands - 3.6/100 000 (50 - 59)  
- 9.4/100 000 (60 - 69)
- AD more common in <65 population
  - Approximately 4:1 ratio AD:FTD

# Can it be inherited?

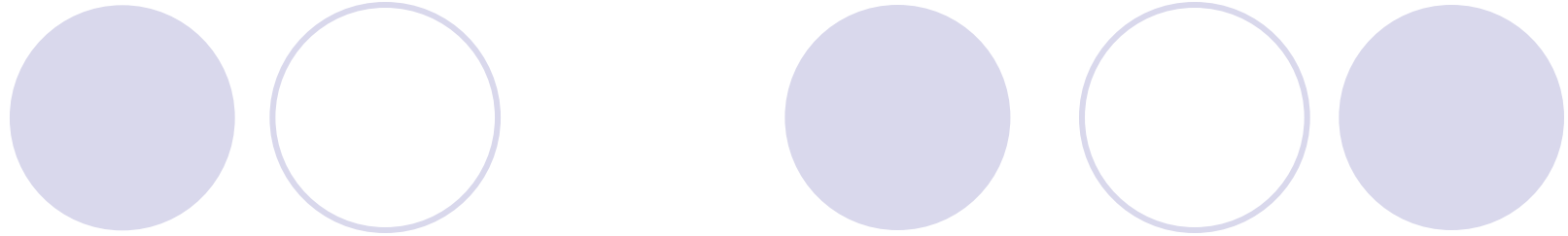
- 40% have a family history of dementia
- Some cases of familial FTD
  - Progranulin mutations (chromosome 17)
  - Tau mutations
- $\epsilon 4$  allele does not increase risk



The Duffy family would like to know if any interventions would be helpful at this time.

**WHAT TWO TYPES OF INTERVENTIONS  
MIGHT YOU CONSIDER?**

- Non-pharmacological
- Pharmacological



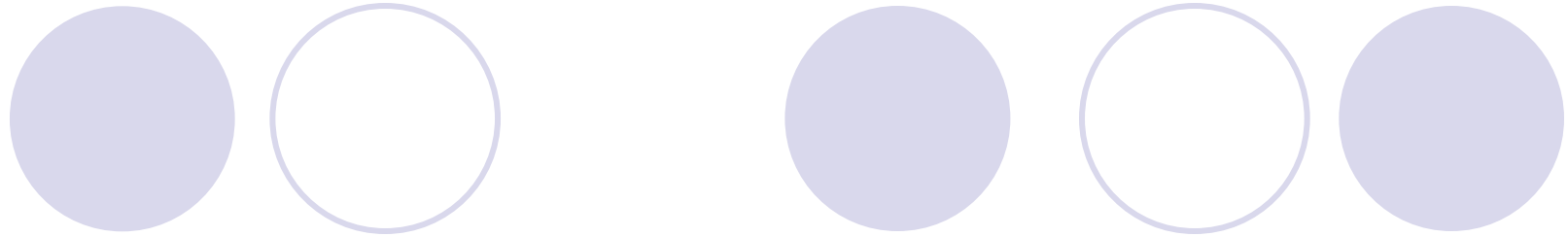
## WHAT ARE SOME NON-PHARMACOLOGICAL INTERVENTIONS?

- Psychoeducation
  - Alzheimer's Society
- Develop list of triggers
  - Structure and Routine
    - Involve patient
  - Avoid triggers as much as possible
- Avoid arguments
  - Focus on emotional content, do not try to reason
- "What to expect"
  - Driving
  - Employment
- Early planning for incapacity
  - POA

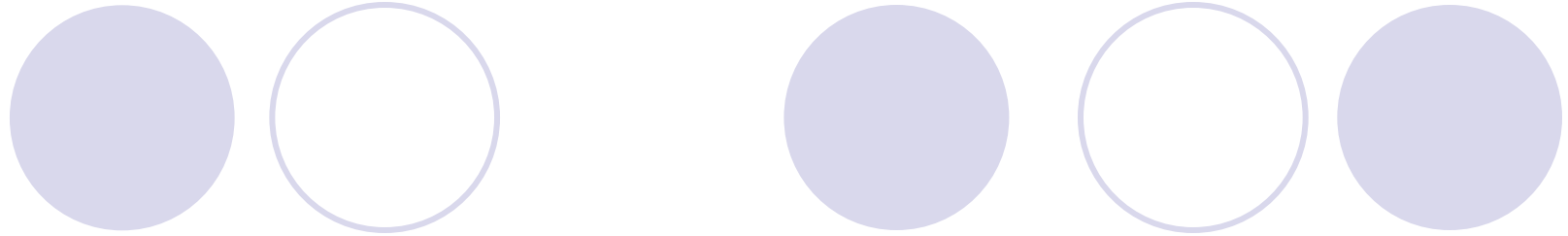


# Pharmacological options

- SSRI's
  - Depression, anxiety
  - Impulsivity, aggression, sexual disinhibition
  - Compulsions, carbohydrate craving
  - Irritability
- Atypical antipsychotics
  - Psychosis
  - Agitation/aggression
- Valproic acid
  - Agitation/aggression
- Cholinesterase inhibitors
  - No evidence at this time



Celexa is titrated to 40 mg OD, which helps improve irritability. Over the next two years, Mr. Duffy quits working, stops driving, and is looked after by his wife (who has also stopped working). He develops some memory problems, has poor hygiene, and is quite apathetic. He has also been banned from Zeller's for hugging several strangers. He has no insight into his behaviour. When you last saw them, Mrs. Duffy looked very down, and cried throughout much of the interview.



WHAT IS THE MOST IMPORTANT ISSUE  
AT THIS TIME?

**CAREGIVER STRESS**

# How common is caregiver stress?

- Mahoney et al 2005
  - Looked at caregivers of people with AD
  - 23.5% “anxious”
  - 10.5% “depressed”
  - Female caregivers at greater risk



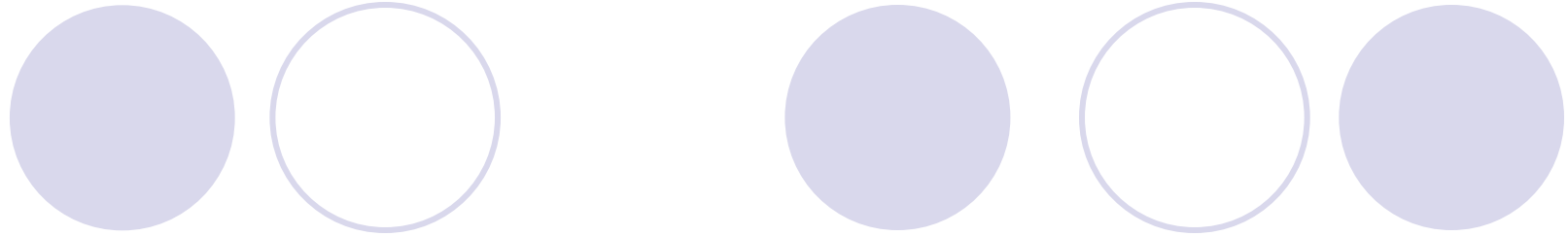
# How common is caregiver stress?

- Caregivers have increased morbidity and mortality
- Can be evaluated by using the Caregiver Burden Scale



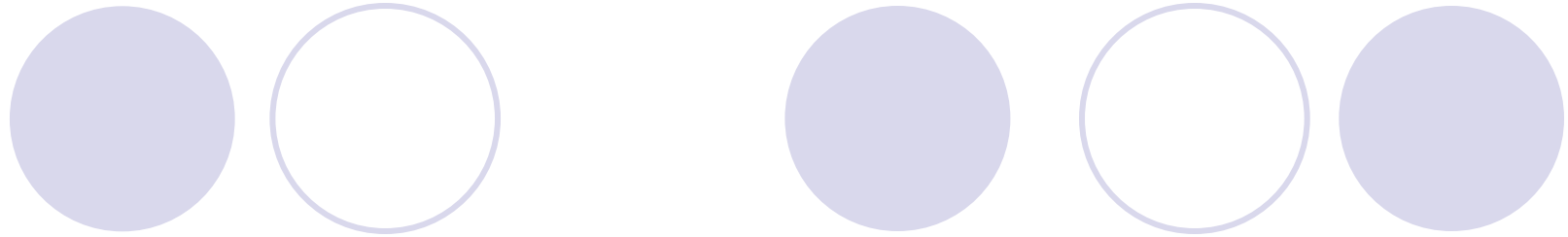
# Caregivers

- Caring for a person with dementia can be physically and emotionally exhausting
- Frontotemporal Dementia can be even harder on families because:
  - The personality changes and behaviors are very distressing
  - The diagnosis is often delayed
  - There is not as much public awareness about the disease
  - Patients affected with FTD are often younger
  - Language problems develop earlier

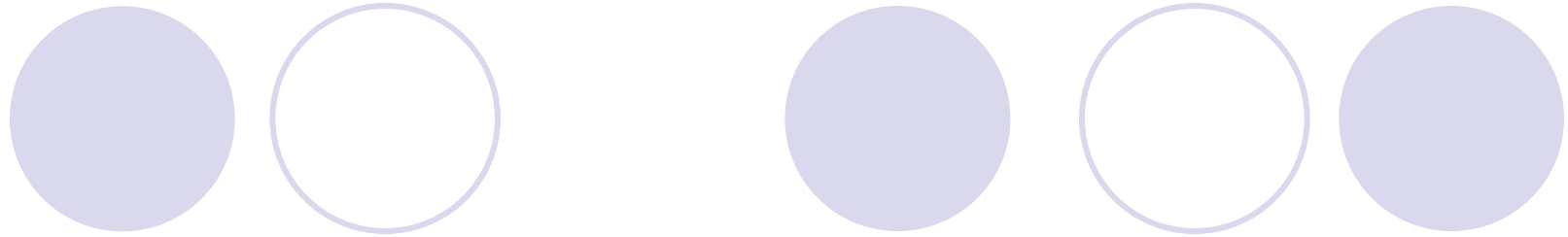


## HOW WILL YOU HELP MRS. DUFFY, THE PRINCIPLE CAREGIVER?

- **Mobilize supports**
  - Home care
  - Respite care
  - Local programs
  - Family/friends
  - Support groups
- Refer caregiver to mental health clinic
  - Treatment of depression
- Grief counseling



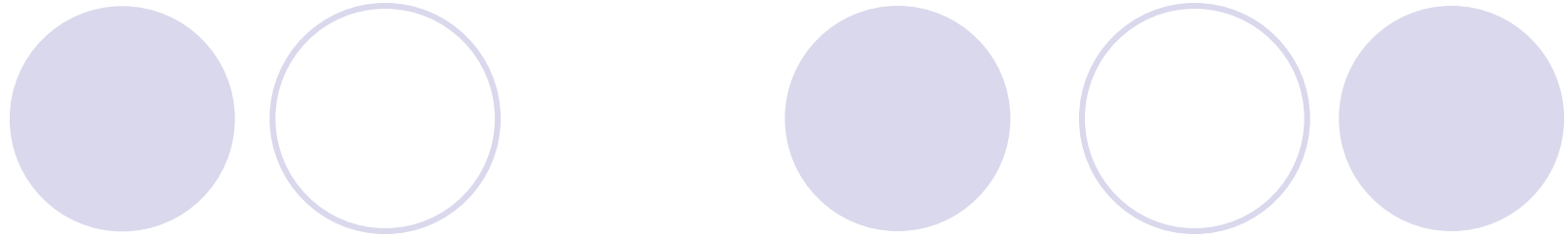
Your team social worker becomes involved and helps arrange supports for Mrs. Duffy, including daily home care and weekly respite care. Over the next year, Mr. Duffy's condition worsens. On one occasion he wandered out of the house and was found walking on the road. He is more irritable, and threatened to hit his wife when she took away a bag of cookies he was eating.



## WHAT APPROPRIATE INTERVENTIONS MIGHT YOU DO AT THIS TIME?

- Environmental/behavioural manipulation
  - Eg lock cupboards
  - Eg alarm on doors
  - Wandering Registry
  - Access emergency services/numbers
- Add medication

## WHAT MEDICATION MIGHT BE TRIED?



Seroquel is titrated to 50 mg BID. Mr. Duffy is less irritable but continues to wander. Mrs. Duffy is still having trouble coping, and over the next year a decision is made to place Mr. Duffy in a nursing home. You are unaware of the outcome, but certainly have gained sufficient knowledge about frontotemporal dementia from this case.



# References

- Mahoney et al. “Anxiety and Depression in Family Caregivers of People with Alzheimer Disease: the LASER-AD Study”. *Am J Geriatr Psychiatry* 2005 Sep;13(9):795-801.
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- Snowden et al. “Frontotemporal Dementia”. *British Journal of Psychiatry* 2002;180:140-143.