



# Preventing Falls in Older Adults

## *A Matter of Safety*

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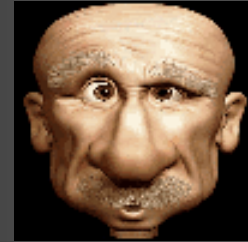
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# Overview of Presentation

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- Facts About Falling
  - The 6 Risk Factors
  - Understanding Medications Role in Falls
  - How to manage and reduce the risks
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# Paul Hall



- Paul is a 75-year-old male living in a long term care facility with a history of hypertension, osteoporosis, Alzheimer's, diabetes, Parkinson's and Schizophrenia, and hallucinations
- A nurses aide went into his room and found him on the floor.

# Paul Hall



- He medications are:
- Atenolol 50mg once daily, HCTZ 25mg once daily for hypertension
- a calcium/vitamin D supplement for osteoporosis,
- Aricept 10mg once daily for Alzheimer's,
- Haloperidol 5mg once daily for his Schizophrenia, Alzheimer's, delusions
- Glyburide 5mg and Metformin 1000 mg three times a day for diabetes
- Diazepam 5mg for sleeping and restlessness
- Levodopa/carbidopa 50/200 once daily for Parkinson's
- FBG = 3
- BP = 100/70

# Paul Hall

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What may have caused his fall?

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# Falls in Older Adults

- In 2001 the number of seniors over the age of 65 was 13% of the Canadian population
- By 2011 this will increase to 15% and by 2041 will balloon to 23%
- One in 3 Canadians aged 65 or over fall at least once a year. Many of these falls result in serious injuries (hip fractures), and loss of mobility and independence.
- Most falls can be **PREVENTED!**

# Falls in Older Adults

- One third of adults over the age of 65 personally experience at least one fall.
- The number increases to one in two for seniors over the age of 80.
- **50-60% of LTC residence experience at least 1 fall.\***
- 85% of all hospital admissions in Canadian Hospitals by individuals over the age of 65 years old was a result of fall-related injuries. (The Canadian Institute for Health-1995/96)
- **Direct and indirect healthcare costs for fall-related injuries are more than \$ 3 billion dollars annually in Canada.**

# Risk Factors

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FALLS



Medication

Lifestyle Choices

Physical Activity

Nutrition

Vision/Hearing

Environment

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# Understanding Medications

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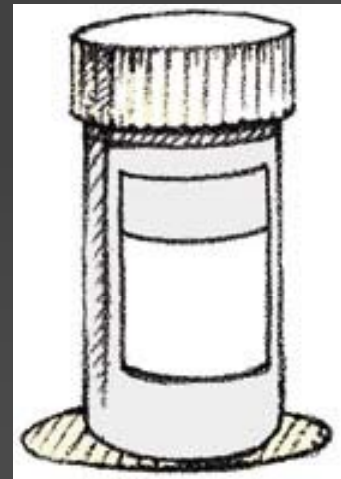
- Adherence is not the major issue
  - Problems related to:
    1. medical conditions
    2. medications prescribed,
    3. misinformation of caregivers,
    4. medication incidents
    5. lack of monitoring.
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# Medication Conditions

## Warning Signs

### ■ Conditions

- Alzheimer's disease/dementias
- Arthritis
- HF/stroke/CVD
- Depression
- Diabetes
- Osteoporosis
- Parkinson's
- COPD



# Understanding Medications

- Contribute to falls primarily because of:
  - Too many
  - Too much
  - Drug interactions
  - Side Effects

# Too Many

## Warning Signs

- 85% of older adults take at least one medication
- 48% of older adults take 3 or more medications
- LTC resident will receive approximately **eight to 10** medications per month in Ontario
- The number of medications that a residents take is directly associated with their fall risks

# Too Many

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Benefit of meds  
VS  
Associated risk

} Quality of Life

# Too Many

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## “Prescribing Cascade”

Happens when a side effect or adverse drug reaction is misinterpreted as a new diagnosis, resulting in unnecessary additions to the drug regime.

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# Too Many

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- “Any symptom in an elderly patient should be considered a drug side effect until provided otherwise” Gurwitz (1995)

# Too Many

- Paul Hall
  - Taking 9 medications
  - Prescribing Cascade
    - Haloperidol
    - Diazepam

# Too Much

- Inappropriate dose:

- text book dosing

- Aging:

- body systems

- Lower dose

- Start slowly

Geriatric Dose

$\frac{1}{2}$  to  $\frac{1}{4}$  dose and titrate slowly

# Too Much

- Paul Hall
  - Metformin 1000mg TID?
    - FBG= 3
  - Diazepam 5mg?
    - Correct medication
  - Atenolol 50mg QD?
    - decrease or eliminate

# Side Effects

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Side effect :

“unwanted, often negative, consequence associated with the use of a given medication”

# Side Effects

Common medications that can have an increase risk of falls are: see table

1. Antidepressants
2. Antipsychotics
3. Benzodiazepines
4. Anti-hypertensives: ACE inhibitors, ARBs, beta blockers, calcium channel blockers, vasodilators
5. Anti-hyperglycemics
6. Alzheimer's drugs
7. Narcotics
8. OTC/Herbal: dimenhydrinate, diphenhydramine, valerian root, melatonin
9. Alcohol
10. "Anticholinergic effects"

# Side Effects Anticholinergics

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Anticholinergic agents

is a substance that blocks the neurotransmitter acetylcholine in the central and peripheral nervous system.

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# Side Effects Anticholinergics

- Medications with Anticholinergic effects\*
  1. Tricyclic antidepressants (amitriptyline)
  2. Antihistamines (diphenhydramine, hydroxyzine)
  3. Gastrointestinal antispasmodics (hyoscine)
  4. Parkinson medications (trihexyphenidyl)
  5. Opioids (codeine)

# Side Effects Anticholinergics

- Symptoms are\*:
  1. Ataxia-loss of coordination
  2. Xerostomia-dry mouth
  3. Increase body temperature
  4. Increase heart rate
  5. Increase intraocular pressure
  6. Memory problems
  7. Constipation

# Side Effects Extrapyramidal Symptoms (EPS)

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Extrapyramidal Symptoms  
symptoms that manifest themselves in  
various movement disorders..

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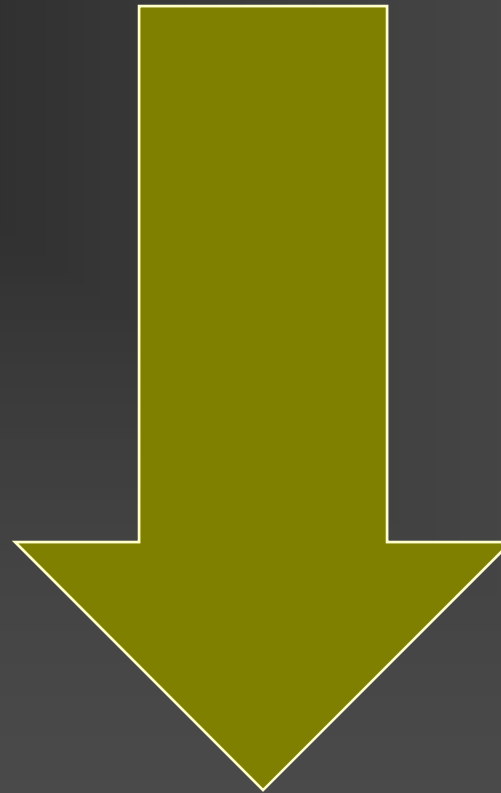
# Side Effects

## Extrapyramidal Symptoms (EPS)

- Antipsychotics have EPS
- can be used for:
  - Alzheimer's-Behavioural disturbances associated with dementias
    - (agitations, depression, insomnia, and hallucinations)\*
  - Parkinson's-dementias

# Extrapyramidal Symptoms (EPS)

Haloperidol  
Loxapine  
Risperidone  
Olazapine  
Quetiapine



Most EPS

Least EPS

# Extrapyramidal Symptoms (EPS) Side Effects

- Involuntary movement
  - Tremors and rigidity
  - Body restlessness
- 
- **Treat with Valium?**

# Side Effects

- To reduce possible side effects:
  - Give the lowest effective dose of a particular medication

**LOW AND SLOW**

# Drug Interactions

## Drug Interaction examples:

- Benzodiazepines (Diazepam) and Amitriptyline – increased drowsiness, anticholinergic effects (dry mouth)
- Benzodiazepines and Cimetidine (heart burn) – enhanced side effects of benzodiazepines
- Nifedipine and Atenolol – hypotension (low blood pressure) and heart failure
- Tricyclic antidepressants and Anticholinergics – enhanced anticholinergic effects

# Drug interactions

- Drug interactions
  - “occurs when a drug, food, natural product, or disease affects the activity of a medication.”
  - Can be a result of adding, discontinuing or changing the dose of a medication.
  - Increase, Decrease, or a New Effect may occur
  - Contribute to falls by increasing side effects associated with the resident’s medications

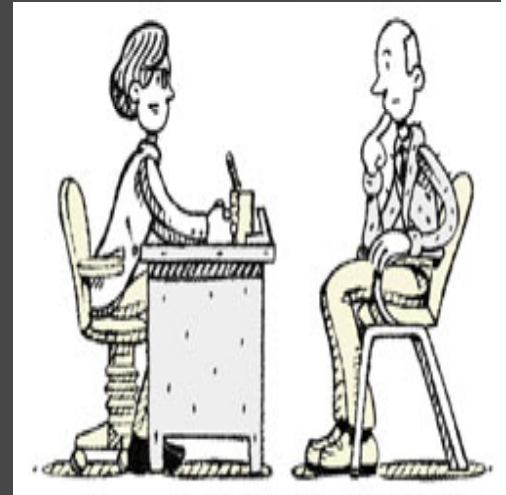
# What to Remember When Assessing Medications

- Age changes drug absorption, metabolism, distribution, and excretion as well as patient response to therapy
- People age at different rates – use low doses and keep regimens as simple as possible
- Assess risk/benefit ratio
- Consider alternative medications
- Give the lowest effective dose and increase slowly (**LOW AND SLOW**)
- Discontinue unnecessary medications gradually
- Avoid the “**prescribing cascade**”

# Reduce the Risk

## Pharmacist's Role

- **Do med review (every 6-12 months)**
- Look for drug interactions
- Multi-medical conditions
- Discuss SE like drowsiness, visual disturbance, postural disturbances, hypotension, anticholinergic side effect with team
- Involve family and other healthcare team



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# Questions





# Thank You

Developed and Presented

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# References

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Optometrist, Seniors organizations, Dietician, Family physician.