# MEDICATION MANAGEMENT IN ELDERLY

Dr D Thangam, M.D.,

Madras Medical College

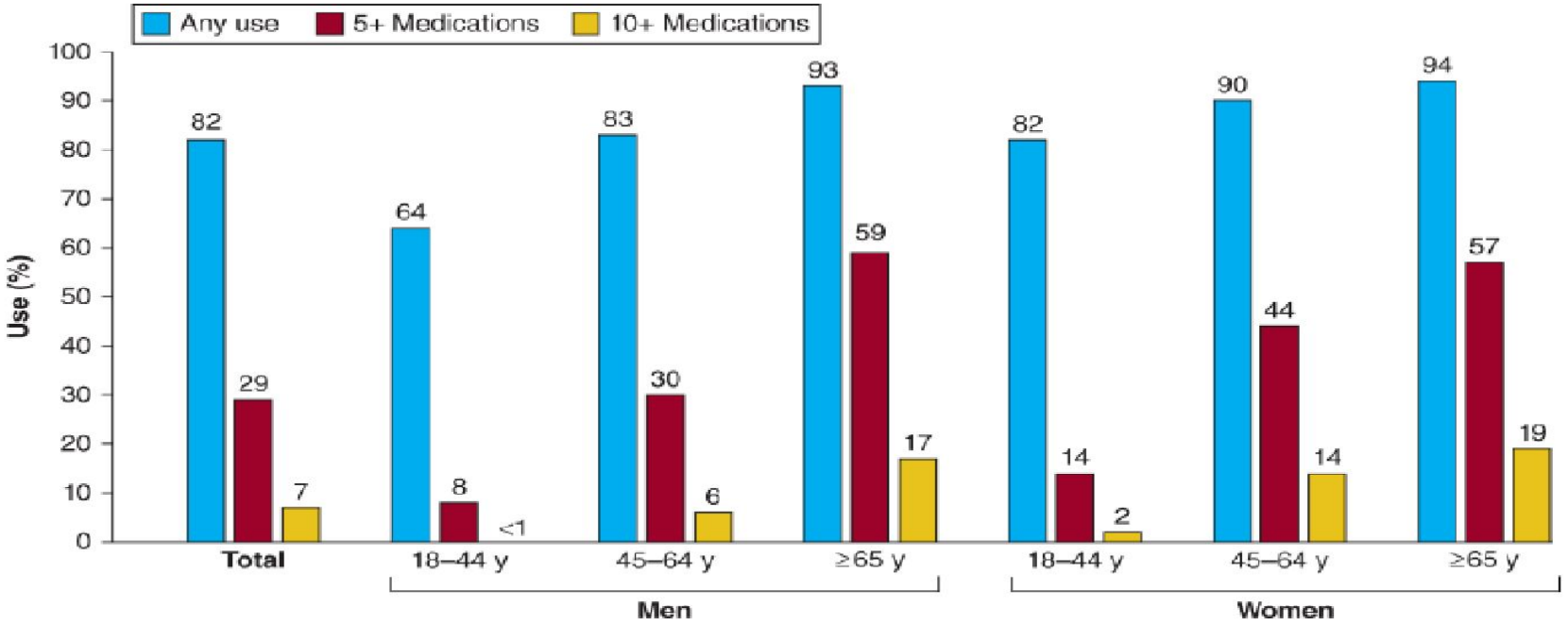
# Objectives

1. Older adults- unique features as medication users.
2. Considerations before any prescription.
3. Assuring the quality of prescription.
4. Perceived needs of Geriatric pharmacotherapy.

# Epidemiology

- 60+ population use medications thrice as much as younger ones with high interindividual variability.
- Multimorbidity is high and 75% take at least one or more medications.
- $\frac{1}{3}$ rd of their hospital admissions are due to ADR
- Use Non prescription medications- OTC and alternative medicines

# Polypharmacy



# Polypharmacy

**Delara et al. BMC Geriatrics (2022) 22:601**

Overall, our review indicates that polypharmacy is common with an estimated overall prevalence of 37%. Older age, inpatient clinical settings and more recent studies were associated with a higher prevalence of polypharmacy.

**Morin, Lucas et al. "The epidemiology of polypharmacy in older adults: register-based prospective cohort study." *Clinical epidemiology* vol. 10 289-298. 12 Mar. 2018, doi:10.2147/CLEP.S153458**

On average, individuals were exposed to 4.6 (SD =4.0) drugs at baseline. The prevalence of polypharmacy (5+ drugs) was 44.0%, and the prevalence of excessive polypharmacy (10+ drugs) was 11.7%.

**Bhagavathula, Akshaya S et al. "Prevalence of Polypharmacy, Hyperpolypharmacy and Potentially Inappropriate Medication Use in Older Adults in India: A Systematic Review and Meta-Analysis." *Frontiers in pharmacology* vol. 12 685518. 19 May. 2021, doi:10.3389/fphar.2021.685518**

Overall, the pooled prevalence of polypharmacy was 49% (95% confidence interval: 42–56; $p < 0.01$), hyperpolypharmacy was 31% (21–40; $p < 0.01$), and PIM use was 28% (24–32; $p < 0.01$) among older Indian adults.

# Drug history of an older person…

75 year old elderly gentleman develops **troublesome hiccup.**

He is prescribed

- Esomeprazole- levosulpride combination twice daily
- Baclofen - thrice daily
- Chlorpromazine 50 mg Hs
- Carbamazepine 200 mg twice daily

1 week later he is brought to emergency department in a drowsy state with h/o urinary incontinence, mobility issues.

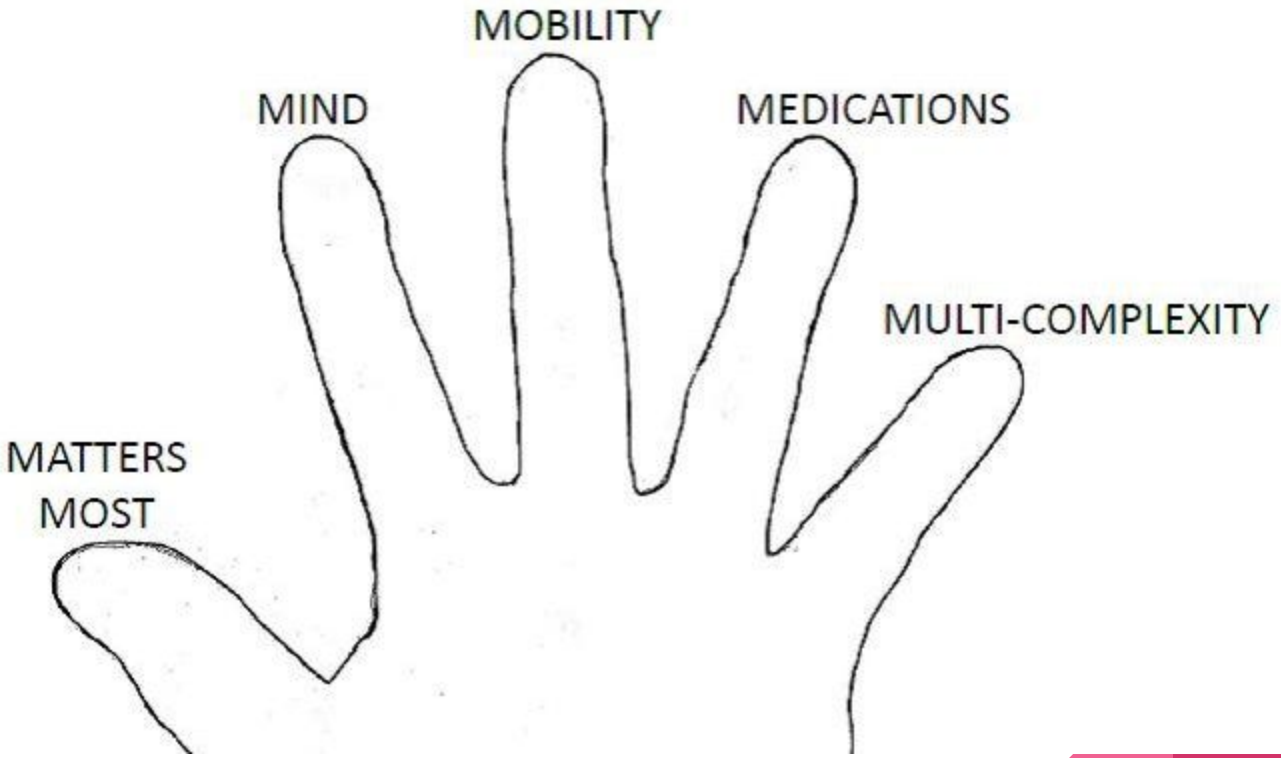
Examination revealed hypoactive delirium, retention of urine with overflow incontinence .

# Changing metabolism of drugs with ageing

| Processes involved | Ageing changes | Impact |
|---|---|---|
| **Absorption** | ↓gastric and enteric blood flow<br><br>Delayed emptying | No change in general<br><br>Drug interactions |
| **Distribution** | Relative ↑ in body fat<br><br>Relative ↓in body water<br><br>↓ in lean body mass | Differing volume of distribution<br><br>Unpredictable half life and drug levels<br><br>Delayed toxicity |

| | | |
|---|---|---|
| **Hepatic clearance**<br>Phase I and Phase II metabolism | ↓in liver size, blood flow<br>↓metabolism of drugs cleared by Microsomal enzymes<br>No change in Phase II metabolism | Change in maintenance dose, Toxicity<br><br>↓Prodrug conversion |
| **Renal clearance** | ↓size of kidneys<br><br>reduced GFR ( ≅8ml/decade) | ↑ half life of water soluble drugs<br>Toxicity of low TI drugs |
| **Pharmacodynamics** | Not well studied | High inter individual variability |

# The **5 M** concept of Geriatrics



# Considerations before any prescription

- Understand the barriers.
- Beware of the comorbidities.
- Beware of common errors of prescribing in elderly
- Use of non pharmacological approach
- Risks and benefits of Deprescribing

# Ensure compliance

**Patient and care giver related problems**

- Sensory- poor vision, Hearing
- Mind- depression, dementia
- illiteracy
- Unaffordable cost

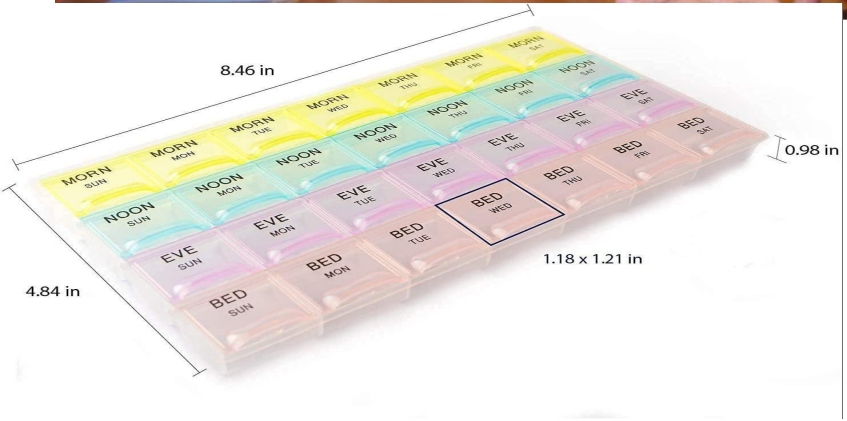
**Solutions**

- Discuss - need , duration, cost of the drug
- Written instructions
- Pill box
- Choose less costly substitute
- Periodic checking

# Monitoring/ Maintaining quality

- Medication review/ reconciliation
  - Brown bag technique
- Avoid Prescription Cascade.
- Suspect DDI/ ADEs for any new symptoms.
- Beware of potentially inappropriate medications.
- Make use of the tools

# Medication review-Improving compliance and adherence


# Old lady - multimorbidity-transitional care

**HOME**

68 years old female a k/c/O SHT, DM, CAD developed symptomatic UTI , admitted

- ➔ Amlodipine 5mg 0D
- ➔ Telmisartan + indapamide OD
- ➔ Dapagliflozin 10mg OD
- ➔ Metformin 500mg thrice daily
- ➔ Dual antiplatelets for past 2 years
- ➔ Atorvastatin 40mg once daily
- ➔ Pantoprazole 40mg twice daily
- ➔ Ginkobiloba containing health supplement once daily
- ➔ On and off unknown OTC pain killer

**Additions at Sub Acute care**

Lab

Elevated TC, PMN leucocytosis, creatinine of 1.7, sodium 130mg%, k+ of 3mg%

Meropenem 1g twice daily

Injectable rabeprazole ,

Ondansetron

# Transition

**D/C - going back home**

- Patient requested discharge after 48 hrs of treatment as she became better.
- **Prescription**

  Oral antibiotics,

  Rabeprazole- domperidone

  Continue regular medications

- Readmitted after 1 week
- delirium and a fall at home.

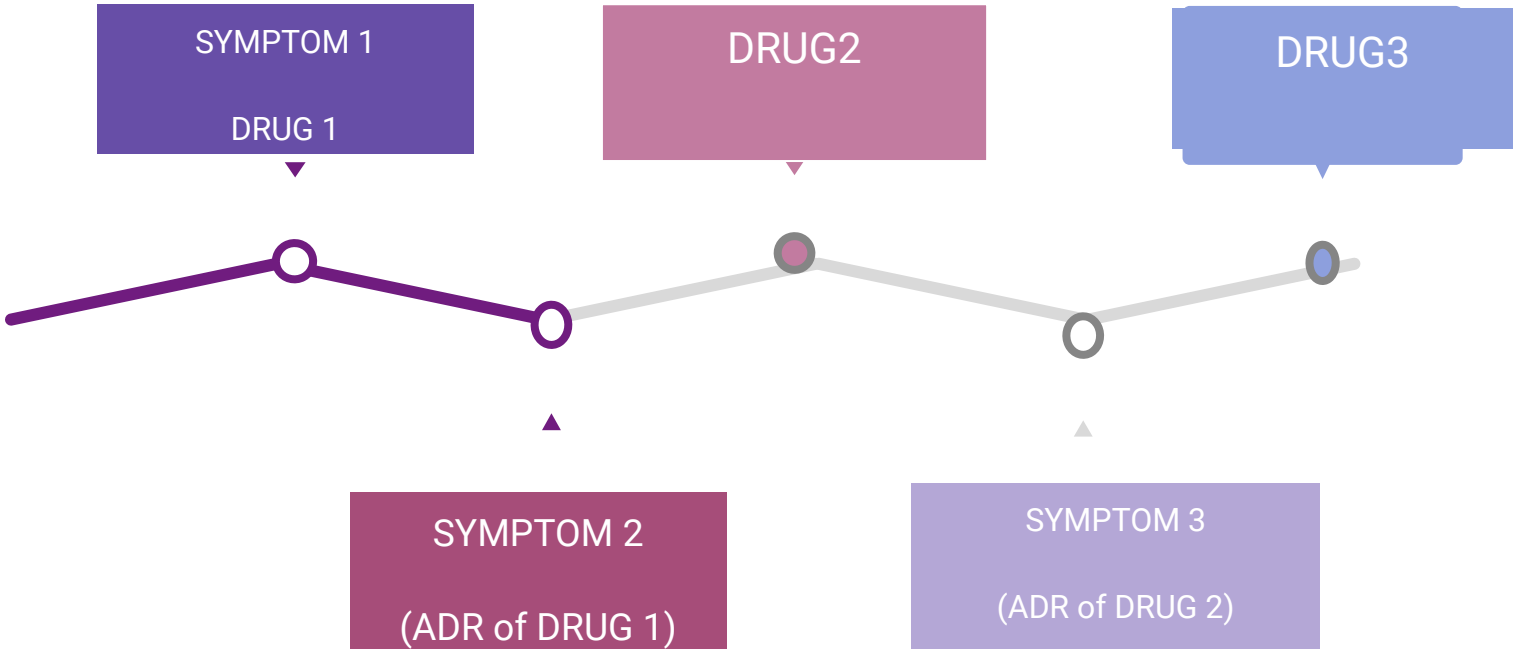
# Medication Reconciliation

Medication reconciliation refers to the process of avoiding medication errors **across transitions in care** by reviewing the patient's complete medication regimen at the time of

- **admission,**
- **transfer, and**
- **discharge** and

Giving a clear idea about the medication regimen to be followed in the new setting.

# Prescription cascade



Antipsychotics

Drug induced Parkinsonism

Pakinsonian therapy

Hypotension and delirium

# Drug interactions

- Elderly patients are considered a high risk population for DDIs.
- **Female sex, advanced age, frailty, cognitive impairment, and increased drug utilization** are all factors that contribute to an individual patient's risk for developing a drug-related problem
- The prevalence of DDIs in elderly **outpatients** with multimorbidity was recently reported to be between 25.1% and 100%, where the number of DDIs per 100 patient ranged from 30 to 388.3.
- **In patients**-Diuretics, antihypertensive drugs, anticoagulants, cardiac glycoside drugs and antithrombotic agents were found to be implicated in the majority of drug interactions

de Oliveira LM, Diel JdAC, Nunes A, et al. Eur J Hosp Pharm 2021;28:4–9.

# How to identify and avoid?- Process map

1. Write down patients new medical condition/ symptom

1. Review the list of medicines / think any drug might be the cause of the symptom

1. Identify any other investigation/ procedure / drug introduced for that symptom.

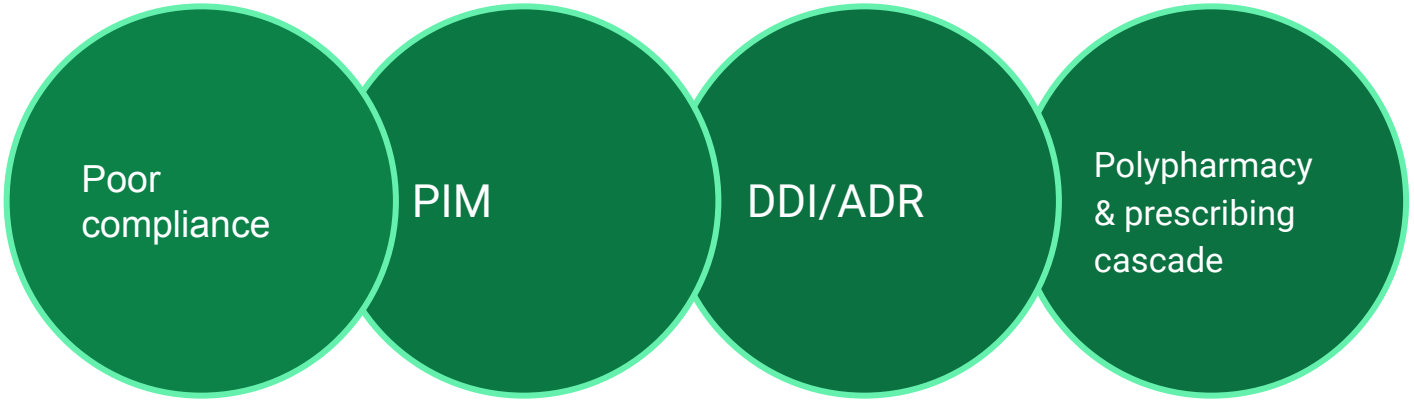
1. Evaluate the dosage/alternative to the drug/ Deprescribing

1. Re- evaluate the patient

# Potentially inappropriate prescribing

| | |
|---|---|
| **Risk**>benefit | Statins in a terminally ill patient |
| **Over prescribing-** excessive duration and dosage, number. | Antibiotics, duplication of drugs- different brands |
| **Mis prescribing**- usage of unfavorable medication | OHAs without considering creatinine clearance |
| **Under prescribing**- missing out clinically indicated medicines despite not having contraindication | Vit D, bisphosphonates in patient with high risk of falls |

# Vulnerable Elderly



# Quality of medication use- frame works

- To alert the clinicians about Potential Inappropriate medications in elderly
  - BEER's Criteria
  - Screening Tool of Older Person's potentially inappropriate Prescriptions (STOPP)
- Screening Tool to Alert Right Treatment (START)
- Drug Burden Index/Anticholinergic Risk Scale (ARS)
- Medication appropriateness index
- Fit for the Aged Criteria (FORTA)
- PRISCUS list

# Tools to ensure quality - BEER’S criteria

(1) medications that are potentially inappropriate in most older adults,

(2) those that should typically be avoided in older adults with certain conditions,

(3) drugs to use with caution,

(4) drug-drug interactions, and

(5) drug dose adjustment based on kidney function.

# STOPP/START

- **STOPP** -PIMS listed according to the physiological systems, with appropriate explanations.
  - e.g- Beta blockers in BA can exacerbate bronchoconstriction.
- **START-** alerts omissions, listed system wise.
  - E.g- Warfarin in AF.
- They are integrated in various geriatric tool kits and are downloadable for individual use

# Deprescribing

The process of identifying and **discontinuing** drugs in instances in which existing or **potential harms outweigh** existing or **potential benefits** within the context of an individual patient's

- care goal,
- current level of functioning,
- life expectancy,
- values and preferences.

E.g- PPI, Benzodiazepines, Tight hypoglycemic control in frail patients.

# Deficiencies in information and implementation

- Little evidence to guide choice of right medicine.
    - RCTs  do not  include older adults with multimorbidity- recommended doses may be high for women, frail individuals.
- Low dose formulations of medicines not widely available
- Pharmaco- epidemiological studies- for detection of rare/ delayed side effects,to assess long term safety and efficacy.

# Guide to optimising medication safety

**D**- Discuss the goals of care and consider what matters most

**R**-Review medications

**U**- use tools and frame works

**G**- Geriatric medicine approach- age related changes, geriatric syndromes, life expectancy

**S**- Stop- deprescribe

# THANK YOU