Deprescribing in Older Adults during Inpatient Psychiatric Hospitalization: Impact of Pharmacist Intervention and Interprofessional Collaboration

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Background

- Older adults are at heightened risk of medication adverse effects due to changes in renal function, liver function, cellular metabolism, and body composition[1].
- Polypharmacy and inappropriate medication use is correlated with age, comorbidity, and disability and has been linked to several poor health outcomes[2,3].
- While numerous studies have explored medication burden and deprescribing in the community and nursing home settings, few studies have explored these interventions in a hospital setting[5].
- A retrospective analysis conducted at our psychiatric institution demonstrated increased medication burden in older adults during inpatient hospitalization. The most common medication classes added during hospitalization included vitamins, atypical antipsychotics, and laxatives[6].
- Pharmacists are uniquely positioned to evaluate complex medication regimens and identify opportunities to reduce medication burden[4].

Objectives

- Characterize medication burden and design a clinical pathway for pharmacist intervention to reduce medication regimen complexity
- Summarize medication optimization interventions and prescriber acceptance
- Examine the impact of a pharmacist-led collaborative intervention on medication burden in older adults during inpatient psychiatric hospitalization

Methods

Study Design: Interventional study with historical controls

January 1, 2019 to June 30, 2019 n=151 (historical controls)	Intervention Education	September 1, 2020 to March 31, 2021 n=123 (post intervention)

Study Setting: Inpatient Geriatric Psychiatry Unit

Inclusion Criteria:
- Adults ≥ 65 years old discharged from an inpatient geriatric psychiatry unit

Exclusion criteria:
- Patients emergently transferred to medical hospital during psychiatric hospitalization
- Encounters with incomplete admission medication histories

Primary outcome: Change in medication burden (as measured by number of total medications, scheduled medications, as needed mediations, scheduled doses per day and scheduled administration times)

Secondary outcomes: Interventions (number, target medications, acceptance), change in burden in vitamins atypical, antipsychotics, and laxatives, & change in anticholinergic burden

This study was approved by the UPMC Quality Improvement Review Committee.

Intervention

Prescriber and pharmacist education on increase in medication burden from admission to discharge during inpatient psychiatric hospitalization as identified in retrospective analysis

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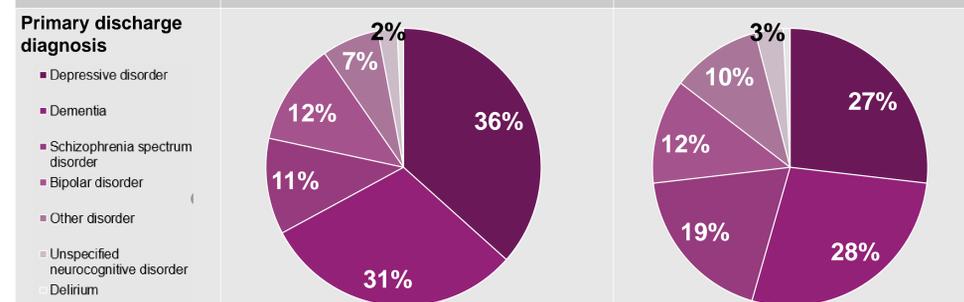Pharmacist medication burden review process implemented as standard of care for all geriatric psychiatry patients

Admission review ensuring accurate medication list documented in EHR	Weekly review for deprescribing and medication optimization opportunities by two geriatric psychiatry clinical pharmacists	Discharge review for accurate medication list in discharge paperwork and transition of care support

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Interprofessional collaboration on implementing medication changes as identified by pharmacists, psychiatrists, family medicine advanced practice providers and nurses

Results

Demographics

Demographic	Pre-Intervention (n=134)	Post Intervention (n=123)
Age (years)	Mean: 75 (Range: 65-94)	Mean: 74 (Range: 63-95)
Gender	Female: 81 (60%) Male: 53 (40%)	Female: 63 (51%) Male: 60 (49%)
Length of stay (days)	Mean: 22 (Range: 4-162)	Mean: 27 (Range: 2-176)
Any neurocognitive disorder diagnosis	74 (55%)	53 (43%)
Inpatient delirium	13 (10%)	23 (19%)
Inpatient catatonia	10 (7%)	5 (4%)
Inpatient ECT	17 (13%)	10 (8%)

Primary discharge diagnosis

Legend:
- Depressive disorder
- Dementia
- Schizophrenia spectrum disorder
- Bipolar disorder
- Other disorder
- Unspecified neurocognitive disorder
- Delirium

Pre-Intervention pie chart: 36%, 31%, 11%, 12%, 7%, 2%

Post Intervention pie chart: 27%, 28%, 19%, 12%, 10%, 3%

Interventions

Total interventions within study sample: 97

- Prescriber accepted interventions: 83 (86%)

Medications involved in interventions:

- 72 (74%) involved non-CNS medications

- Vitamins (22%) > Atypical antipsychotics (6%) > Cardioselective beta-blockers 5%

Results Continued

Medication Burden

Medication Burden Measures (Average differences between discharge and admission)	Pre-Intervention (n=134)	Post Intervention (n=123)	Comparison (two tailed t-test)
Total number of medications	Mean: 2 Range: -14 to 9 Std Dev: 4	Mean: 0 Range: -15 to 7 Std Dev: 3	**p=0.0056**
Number of **scheduled medications**	Mean: 2 Range: -9 to 9 Std Dev:3	Mean: 1 Range: -7 to 7 Std Dev: 3	**p=0.0069**
Number of **as needed medications**	Mean: 0 Range: -8 to 4 Std Dev:2	Mean: 0 Range: -8 to 3 Std Dev: 2	p=0.1431
Number of **doses per day**	Mean: 4 Range: -33 to 21 Std Dev:6	Mean: 2 Range: -12 to 24 Std Dev: 6	**p=0.0242**
Number of **scheduled times per day taking medications**	Mean: 1 Range: -2 to 3 Std Dev:1	Mean: 0 Range: -2 to 5 Std Dev: 1	**p=0.005**
Did **total** number of medications increase, decrease or not change?	Increase: 84 (63%) Decrease: 28 (21%) No Change: 22 (16%)	Increase: 54 (57%) Decrease: 26 (28%) No Change: 14 (15%)	
Top 3 most common medication added classes added during inpatient psychiatric hospitalization	1. Vitamins 2. Atypical Antipsychotics 3. Laxatives	1. Vitamins 2. Atypical Antipsychotics 3. Laxatives	

Conclusion

- When compared to historical controls, a structured pharmacist-led, interdisciplinary intervention resulted in clinically and statistically significant decreases in 4 of 5 measures of medication burden: number of total medications, scheduled medications, doses per day, and medication administrations times
- Targeted pharmacist interventions to reduce medication burden were primarily compromised of non-CNS medications and were widely accepted by prescribers
- Focusing on medication burden throughout the inpatient admission and during transitions of care resulted in secondary benefits and improved quality of care

References

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