



# Pharmacists' medication review services in 37 Singapore nursing homes (NHs) over 2 years

- Identified 5082 drug-related problems (DRPs) among 4790 residents
- Reduced the number and cost of medications used



## Outcomes and impact of pharmacists' medication review services in Singapore nursing homes – A nationwide multi-site retrospective cohort study.

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## Background

- ✓ Under the 2016 Enhanced Nursing Home (NH) Standards by Ministry of Health (MOH) Singapore, a medication review at least every 6 months by a registered pharmacist is mandatory for all NH residents.
- ✓ The Intermediate and Long-Term Care (PSS ILTC) Pharmacists workgroup was also set up under the Pharmaceutical Society of Singapore for pharmacists to share good practices and ensure minimum standards of pharmaceutical care services provided.
- ✓ To date, the outcomes of the above-mentioned initiatives have not been measured.
- ✓ This nationwide study was conducted to characterize the outcomes of pharmacist review services in Singapore NHs.

## Methods

- ✓ Design: Retrospective cohort study
- ✓ Data source: PSS ILTC DRP reporting database
- ✓ Study period: Apr 2016 to Mar 2018
- ✓ Outcome measures: refer to Fig. 1
- ✓ Clarification with the respective pharmacists was made to ensure completeness and accuracy of reported data.

### Prevalence of DRP Types

Classified by reporting pharmacists based on the locally developed and validated DRP classification list<sup>1</sup> (modified from Hepler & Strand)

### Recommendation acceptance rate

% of DRPs with recommendations that are fully accepted by respective healthcare professionals

### Net Change in cost of medications used

Calculated using subsidized out-of-pocket cost under MOH, Singapore (S\$1.40/week/drug)

### Net change in number of medications used

Calculated based on before-and-after changes in line items from accepted recommendations

Fig. 1. Outcome measures

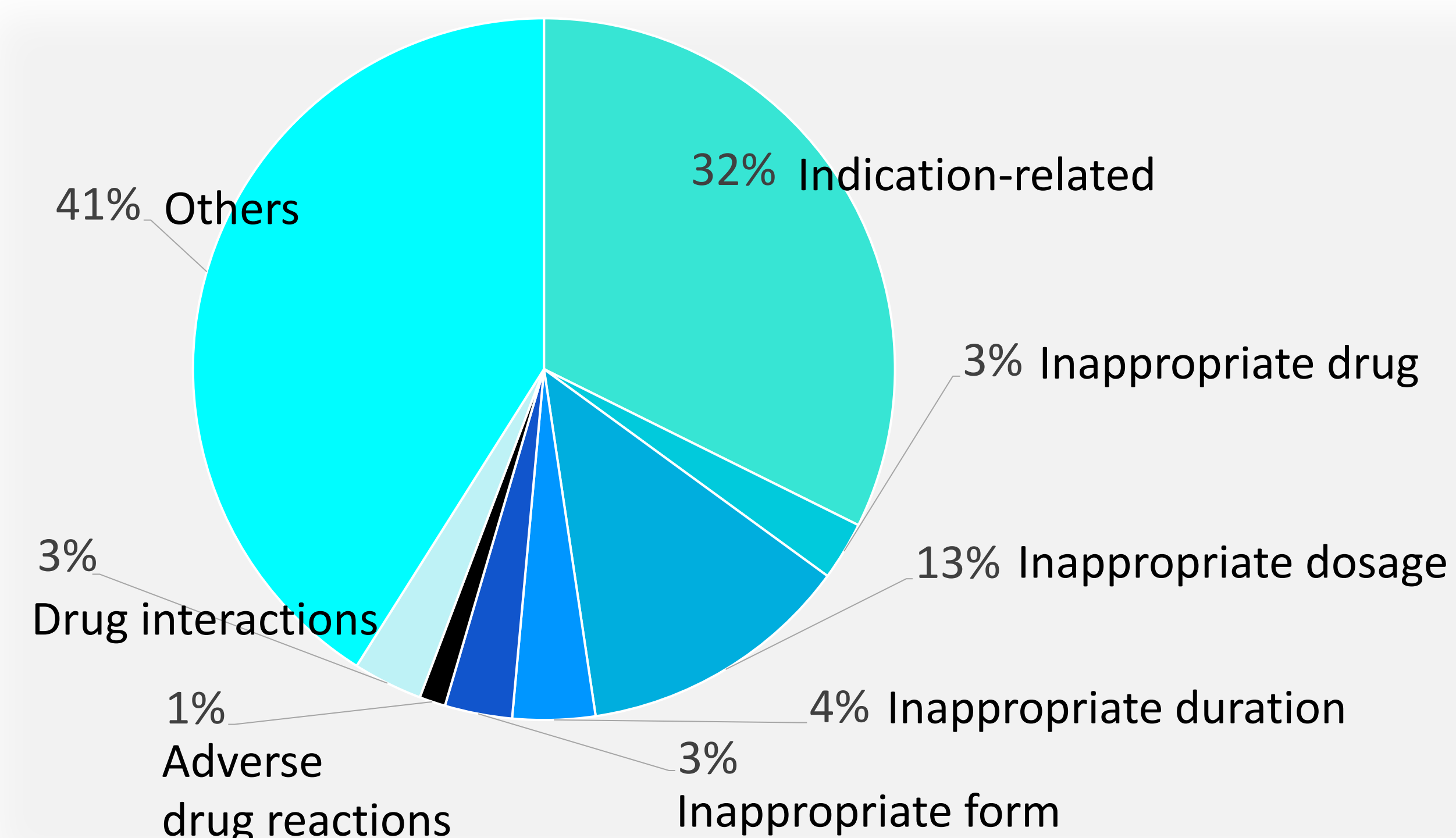


Fig. 2. Prevalence of DRP Types (main categories)

## Results

- ✓ Overall, 5082 DRPs (involving 5788 medications) were identified among 4790 residents from 37 NHs.
- ✓ Prevalence of DRP types (main categories) are shown in Fig. 2.
- ✓ Top 3 specific DRP types are:
  - drug use without indication (22.0%; under “indication-related”)
  - medical record-related discrepancies (17.2%; under “others”)
  - inadequate monitoring (15.4%; under “others”)
- ✓ Top 3 medication categories (WHO ATC) involved are:
  - drugs for peptic ulcer and GERD (9.6%; A02B)
  - drugs for constipation (5.2%; A06A)
  - iron preparations for anemia (5.0%; B03A)
- ✓ The 3760 recommendations accepted (acceptance rate = 74%) yielded a net decrease of 1,129 medications and potential out-of-pocket savings of S\$82,191.20/year.

## Discussion

- ✓ This is the first multi-site nationwide impact study on pharmacists' medication review services in about 50% of all NHs in Singapore.
- ✓ Although there was insufficient data for a more specific cost estimate, the conservative estimate in out-of-pocket savings can provide a baseline for comparison with future studies.

## Acknowledgement

- ✓ Members of PSS ILTC Pharmacists workgroup who contributed to the DRP database and their assistance in follow-up requests.

## Reference

1. XY Lim et al. Validation of a Drug-related Problem Classification System for the Intermediate and Long-term Care Setting in Singapore. *Pharmacy (Basel)*. 2018 Oct 3;6(4). pii: E109. doi: 10.3390/pharmacy6040109.