

# Medication-related Emergency Department re-presentations: characterising the medication-related problems and examining the pharmacist's role

Ann Whitaker (Redcliffe Hospital Pharmacy, Queensland), A/Prof Neil Cottrell (University of Queensland)

## Background

- Preventable re-presentations add unnecessary burden onto resource-stretched hospitals
- All-cause Emergency Department (ED) re-presentation rates are:
  - 72 hours: 5%<sup>1</sup> 24 months: 15%<sup>2</sup>
- Medication-related 28-day readmission rate 23%<sup>3</sup>
  - 90% preventable via improved communication and monitoring, or more appropriate/optimised pharmacological therapy on discharge<sup>3</sup>
- Medication-related re-presentations: unknown**

## Aims

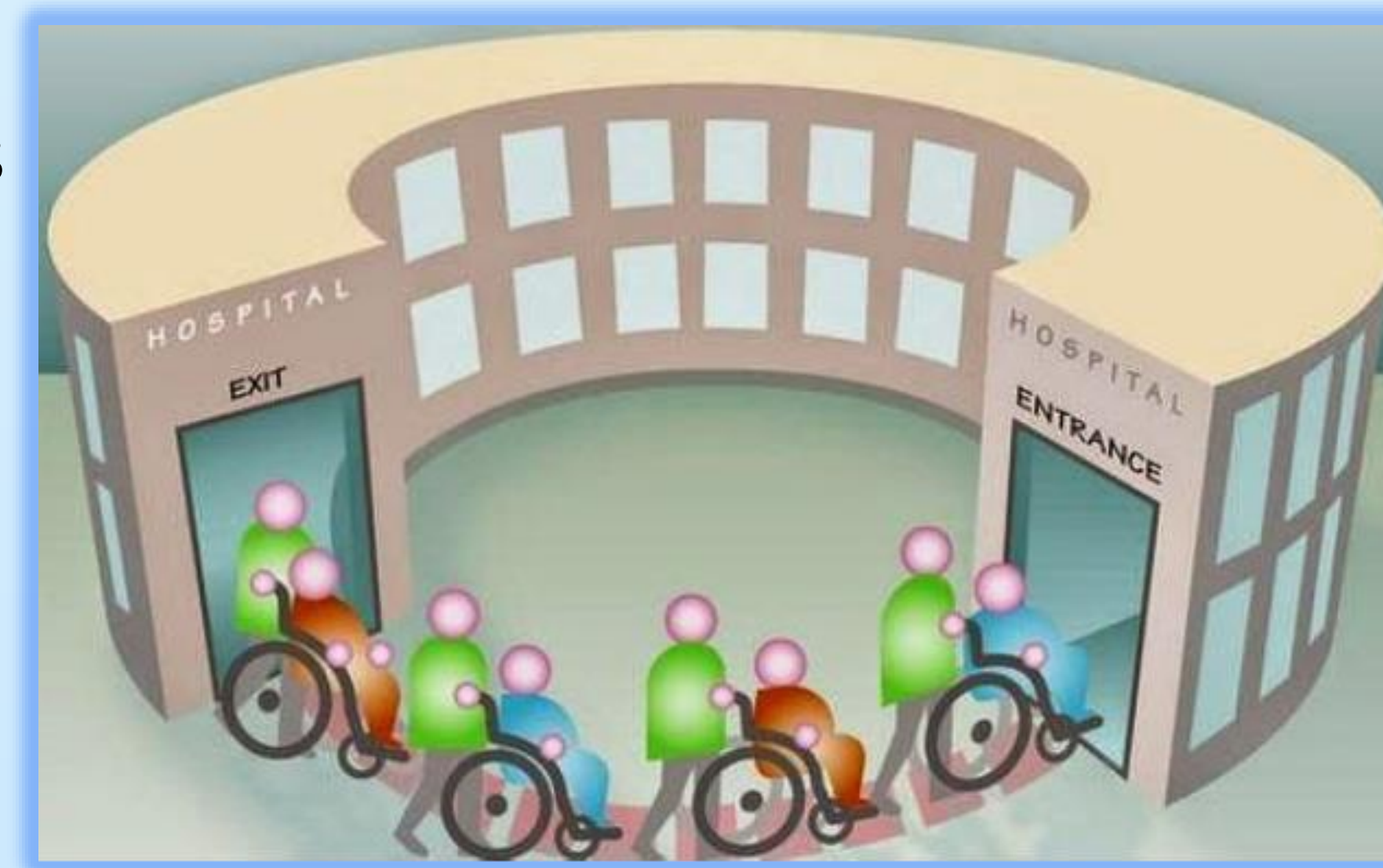
- To identify and categorise medication-related 28-day ED re-presentations
- To examine pharmacist interventions performed during the initial admission

## Method

- Retrospective medical record review of re-presentations 1/7/2016 to 31/12/2016
- Every third adult ED re-presentation within 28 days of discharge reviewed (some exclusions)
- Medication-related problems (MRPs) and pharmacist interventions analysed and categorised<sup>4-6</sup>
- Multidisciplinary panel validation of analyses (25% of re-presentations)

## Results

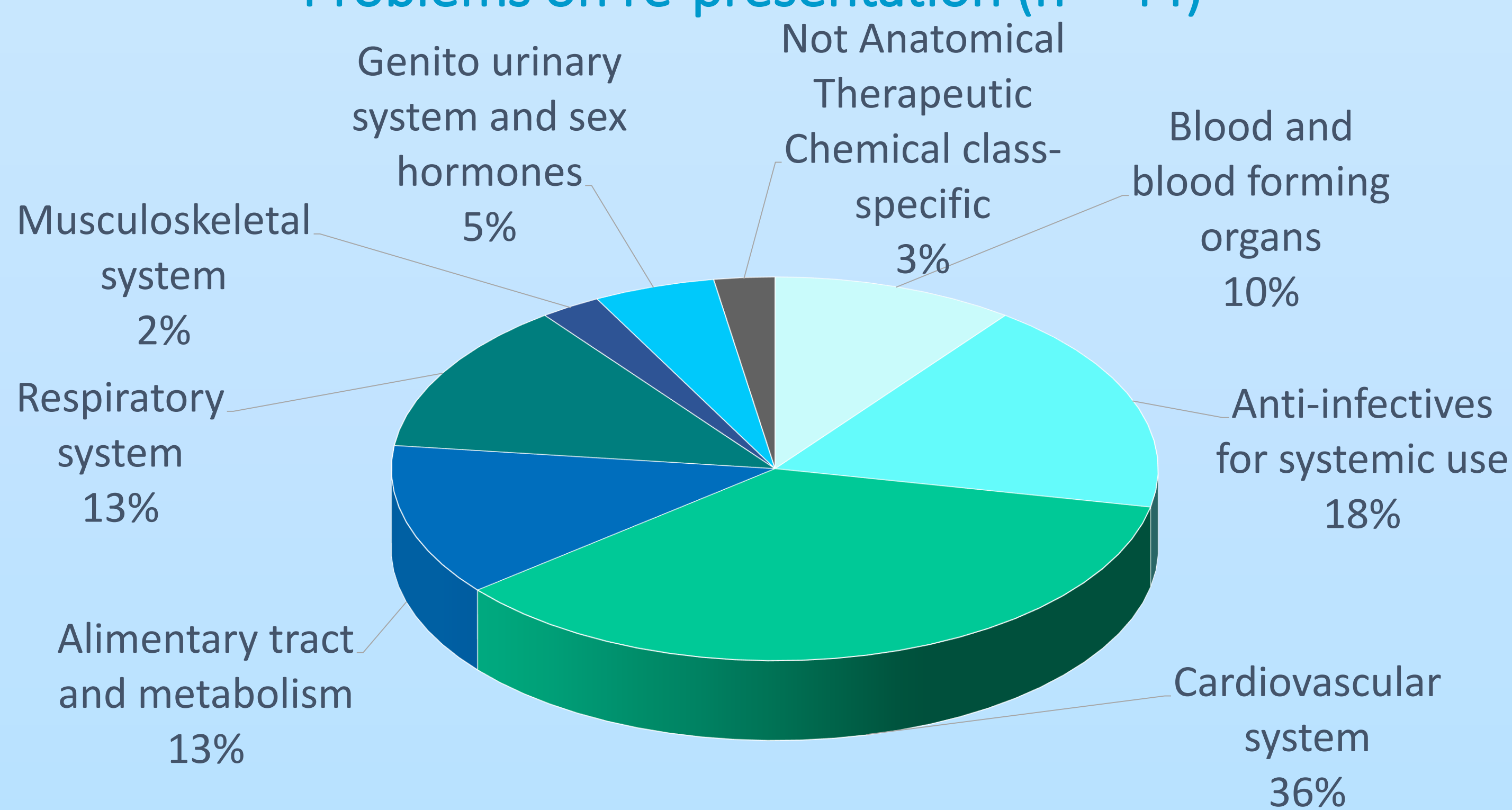
- 196 sampled from 631 eligible re-presentations
- 21%** of re-presentations were considered medication-related
  - Associated with 44 MRPs<sup>4</sup>
- 78%** of medication-related re-presentations were considered preventable<sup>5</sup>



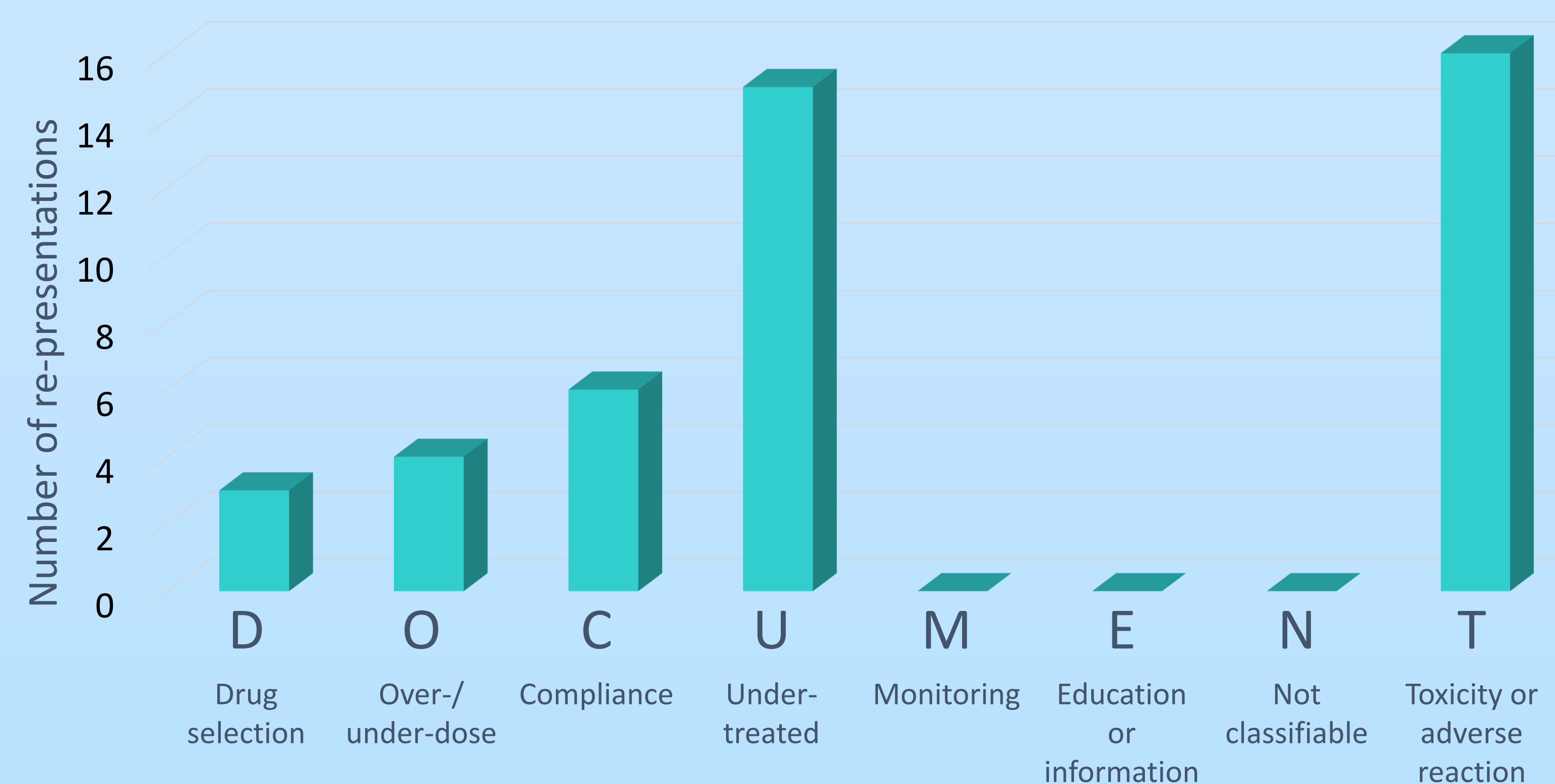
## Early medication-related re-presentations were common

- 50%** of medication-related re-presentations occurred within the **first week** of discharge;
  - 20%** occurred on **Day 1**

## Therapeutic classes<sup>6</sup> implicated in Medication Related Problems on re-presentation (n = 44)



## Medication-Related Problem<sup>4</sup> on re-presentation (n = 44)



Compared to non-medication-related re-presentations,

**medication-related re-presentations were older and prescribed more medications on initial discharge**



- Average patient age: 70 years vs 60 years ( $p < 0.01^t$ )
- Average number of medications on initial discharge: 13.5 vs 10 ( $p < 0.01^t$ )

No significant differences in:

- Gender ( $p = 0.3814^{FE}$ )
- Length of stay of initial admission ( $p = 0.51^t$ )
- Number of medication changes at initial discharge ( $p = 0.36^t$ )
- Readmissions/transfers during re-presentation ( $p = 0.0903^{FE}$ )



Patients re-presenting with MRPs were

**more likely to have received Pharmacy services**

during the initial admission

- Best Possible Medication History ( $p = 0.0014^{FE}$ )
- Medication reconciliation ( $p = 0.0008^{FE}$ )
- Pharmaceutical review ( $p < 0.01^t$ )
- Discharge Medication Record ( $p < 0.0001^{FE}$ )
- Interventions: ( $p = 0.0051^{FE}$ )

*Most common DOCUMENT MRPs<sup>4</sup>*

- 'Drug selection' (n = 14, 22.2%)
- 'Over-/under-dose' (n = 13, 20.6%)
- 'Compliance' (n = 12, 19.1%)
- 'Under-treated' (n = 16, 25.4%)

## Conclusion

A large proportion of 28-day ED re-presentations were medication-related, almost 80% of which were deemed preventable. Activities such as early pharmaceutical review post-discharge may assist in reducing the wide array of medication-related problems observed.

## References

- Dinh M, Berendsen R, Bein K, Chalkley D, Muscatello D, Paoloni R et al. Trends and characteristics of short-term and frequent representations to emergency departments: A population-based study from New South Wales, Australia. *Emerg Med Australas*. 2016 Jun;28(3):307-12.
  - Moore G, Gerditz M, Manias E, Hepworth G, Dent A. Socio-demographic and clinical characteristics of re-presentation to an Australian inner-city emergency department: implications for service delivery. *BMC Public Health* 2007 Nov 10;7:320.
  - Rothwell M, Jukka C, Lum E, Mitchell C, Kyriakides P. Retrospective analysis of emergency readmissions to rural and regional hospitals. *J Pharm Prac Res*. 2011 Dec;41(4):290-4.
  - Williams M, Peterson G, Tenni P, Bindoff I, Stafford A. DOCUMENT: a system for classifying drug-related problems in community pharmacy. *Int J Clin Pharm*. 2012 Feb;34(1):43-52.
  - Hepler C, Strand L. Opportunities and responsibilities in pharmaceutical care. *Am J Hosp Pharm*. 1990;47:533-43.
  - WHO Collaborating Centre for Drug Statistics Methodology. ATC/DDD Index 2017 [Internet]. 2016 Dec 19 [cited 2017 Aug 20]. Available from: <https://www.whooc.no/atc-ddd-index/>
- Image from: Space Coast Daily.com. Kaiser Health News Report: Medicare's readmission penalties hit new high [Internet]. 2016 Aug 4 [cited 2017 Oct 13]. Available from: <http://spacecoastdaily.com/2016/08/kaiser-health-news-report-medicare-readmission-penalties-hit-new-high/>

## Acknowledgements

Validation panel (Dr Joel Dulhunty, Ms Natasha Eaton, Mr Geoffrey Grima); Redcliffe Hospital; University of Queensland

t = independent t-test; FE = Fisher's exact test

Metro North Hospital and Health Service  
Putting people first

