
1999
3.1%


2014
8.0%
Blood Pressure
Anxiety
Migraine
Sleep
Heartburn
Back Pain
Cholesterol

Quantifying problematic prescribing cascades

saphia
Scientific Association of Pharmacists in Amsterdam

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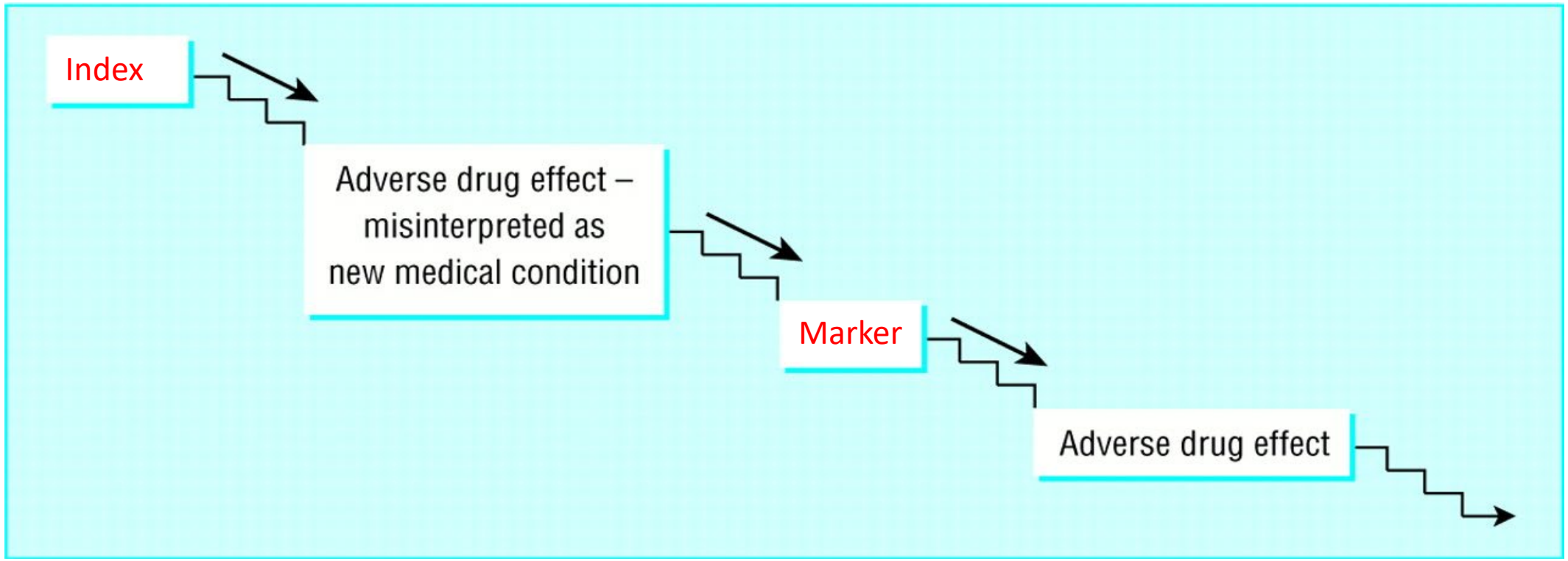
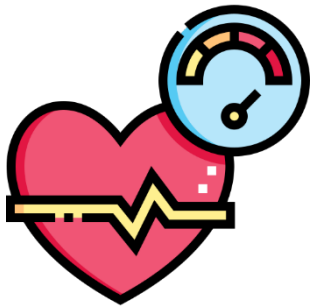
What is a prescribing cascade?

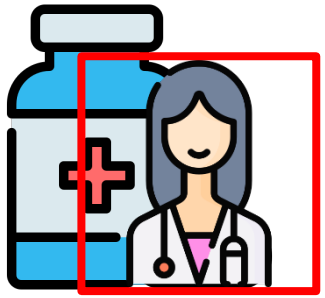


Rochon P, Gurwitz J. Optimising drug treatment for elderly people: the prescribing cascade. BMJ. 1997;315(7115):1096-1099.

An example

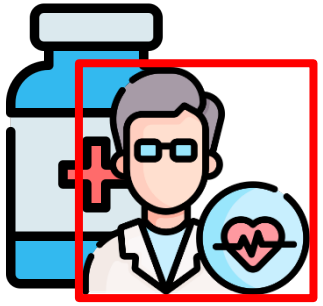


High blood pressure

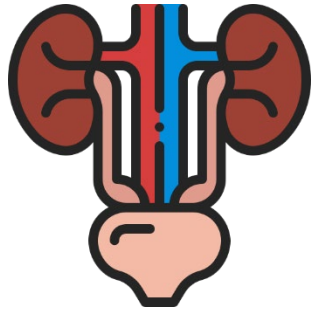


Amlodipine

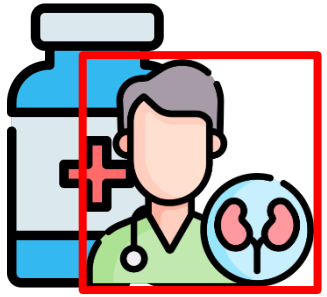
Edema



Furosemide

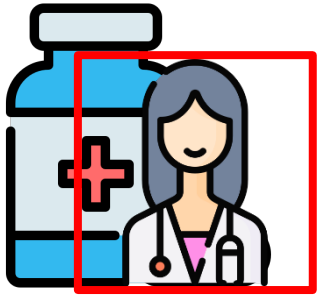


Overactive bladder



Fesoterodine

Dry mouth

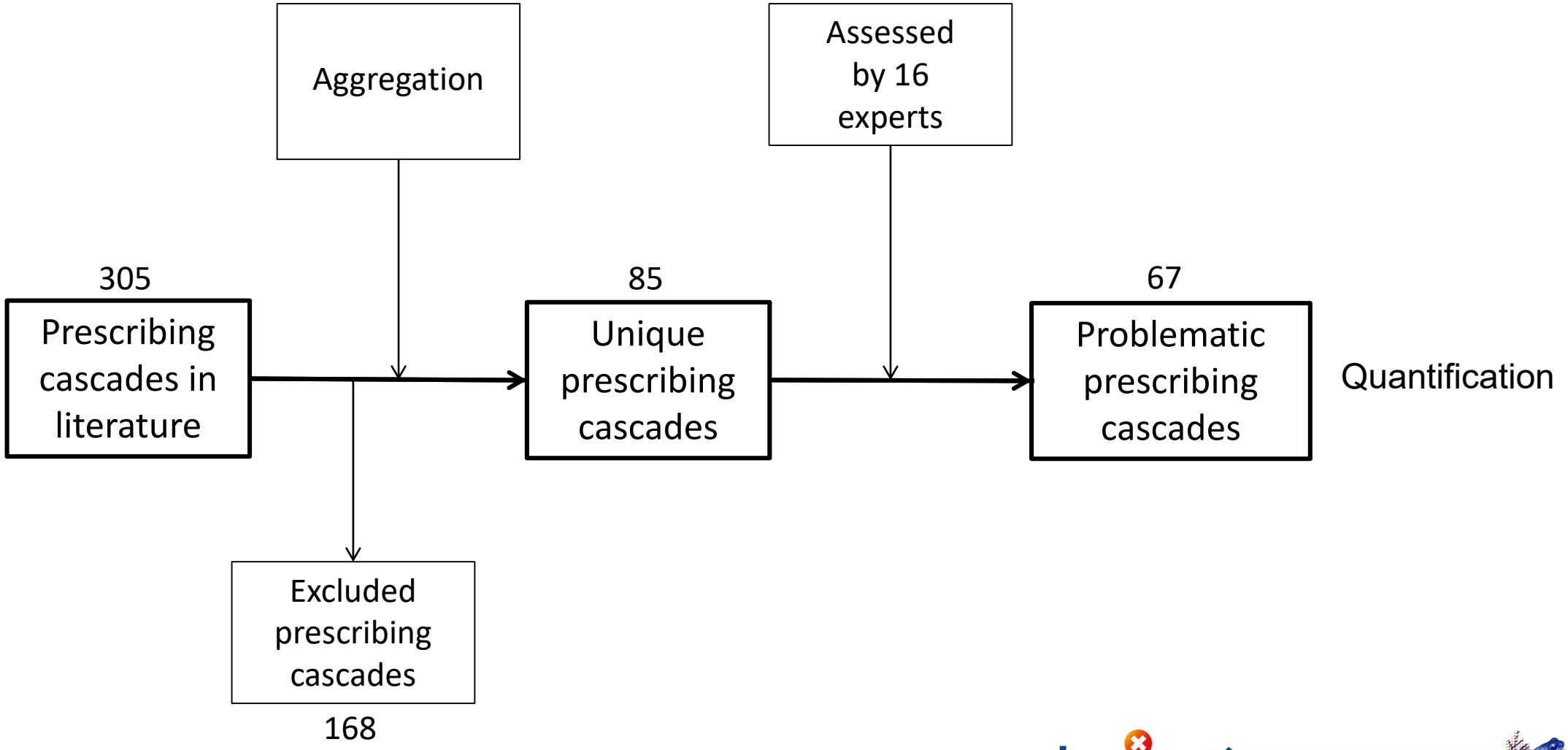


Saliva-stimulating medication

Fall

Nguyen PV, Spinelli C. Prescribing cascade in an elderly woman. *Can Pharm J (Ott)*. 2016;149(3):122-124.

Quantifying problematic prescribing cascades



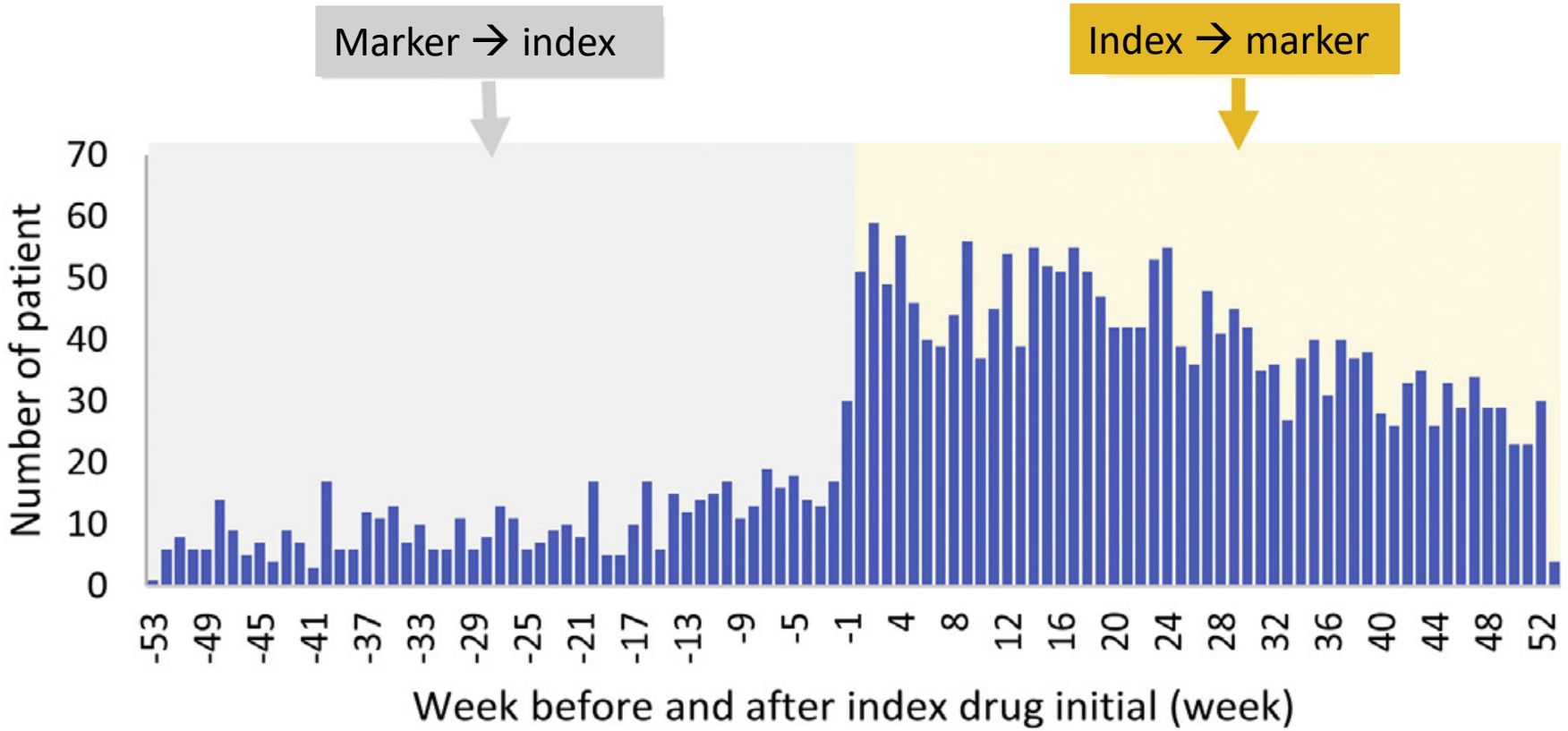
Prescription Sequence Symmetry Analysis (PSSA)

$$crude\ sequence\ ratio\ (cSR) = \frac{Cases\ (index\ \rightarrow marker)}{Controls\ (marker\ \rightarrow index)}$$

Adjustment for prescribing trends → adjusted sequence ratio (aSR)

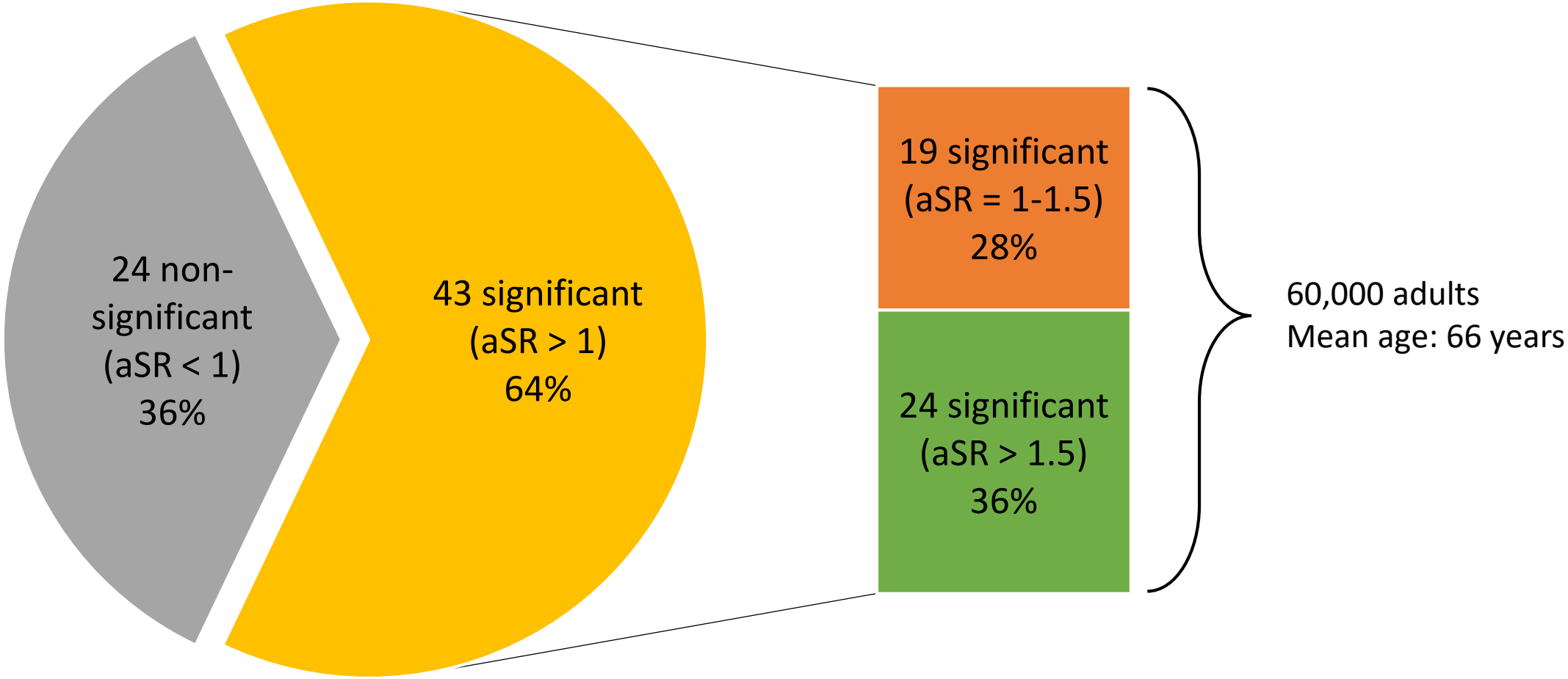
Morris EJ, Hollmann J, Hofer AK, Bhagwandass H, Oueini R, Adkins LE, et al. Evaluating the use of prescription sequence symmetry analysis as a pharmacovigilance tool: A scoping review. Res Social Adm Pharm. 2021.

Prescription Sequence Symmetry Analysis (PSSA)



Chen Y, Huang S, Hsu T, Peng L, Hsiao F, Chen L. Detecting Suspected Prescribing Cascades by Prescription Sequence Symmetry Analysis of Nationwide Real-World Data. JAMDA.2021; article in press

67 problematic prescribing cascades



Three highest aSRs

Index medication	ADR	Marker medication	cSR (index-marker)/ (marker-index)	aSR (95% CI)
Lithium	Parkinsonism	Dopaminergics	5.56 (50/9)	5.12 (4.41-5.83)
Amiodarone	Hypothyroidism	Thyroid hormones	5.68 (454/80)	4.87 (4.64-5.11)
Lithium	Tremor	Proranolol	132 (99/33)	2.79 (2.39-3.18)

Conclusion

- 64% of problematic prescribing cascades have a significant association
- 60,000 adults might be using unnecessary medication.

Take-home message

‘Any new symptom in an older adult should be considered a drug side effect until proven otherwise’.

Rochon, Paula A., and K. E. Schmader. "Drug prescribing for older adults." *Dostpuno na https://www. uptodate. com/contents/drug-prescribing-for-older-adults. Pristupljeno* (2013).

Thank you for listening