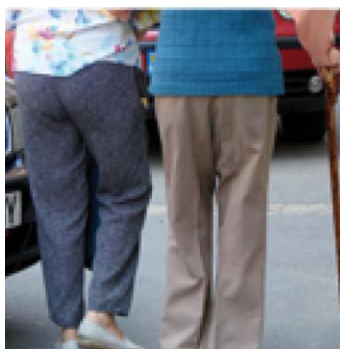


HRB Centre for Primary Care Research Research Briefs

Population studies in Ireland and Northern Ireland

Potentially inappropriate prescribing in older people



Medications deemed potentially inappropriate are those which lack evidence-based indications, pose a higher risk of adverse effects and/or are not cost effective. Older people are particularly vulnerable to inappropriate prescribing because of their multiple drug regimens, co-morbid conditions and age associated physiological changes.

Inappropriate prescribing in older people is associated with increases in morbidity, adverse drug events, hospitalization and mortality and therefore optimising prescribing in this population is a priority due to the significant clinical and economic costs of drug related illness.

The Health Research Board (HRB) Centre for Primary Care Research (www.hrbcentreprimarycare.ie) in collaboration with the School of Pharmacy, at Queens University, Belfast, has recently published two population studies, examining the prevalence, predictors and costs of potentially inappropriate prescribing (PIP) in older people, in the Republic of Ireland and Northern Ireland (NI).



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The first study, comprising all older people (≥ 70 years) in the primary care reimbursement service (PCRS) database, in the Republic of Ireland, in 2007 ($n=338,801$), reported that approximately one third of older people (36%) were prescribed at least one PIP, based on a subset of the European STOPP criteria. There is a significant association between polypharmacy and the risk of PIP. The most prevalent PIP drugs were: proton pump inhibitors at maximum therapeutic dosage for >8 weeks; non-steroidal anti-inflammatory drugs for >3 months; long-acting benzodiazepines for >1 month; and drug duplication within the same therapeutic class. The total expenditure (net cost) on PIP was €45, 631, 319, in 2007, which was 9% of the overall expenditure on pharmaceuticals, in those aged ≥ 70 years, in Ireland.

A further study, conducted in Northern Ireland, examined PIP prevalence among persons aged ≥ 70 years in the enhanced prescribing database (EPD) in 2009/2010 ($n=166,108$). The overall PIP prevalence was similar to that reported in the study in the Republic of Ireland, at 34%, using a subset of the STOPP criteria and a significant association between polypharmacy and PIP was also reported. The most common examples of PIP identified were: proton pump inhibitors at maximum therapeutic dose for >8 weeks, non-steroidal anti-inflammatory drugs for >3 months and long-term long-acting benzodiazepines. These were similar to those reported in the Republic of Ireland study. The cost of PIP, in the NI study (€6,098,419), was lower than that reported in the Republic of Ireland's study as only the gross cost could be estimated (not the Net cost). Differences in the cost of PIP in these studies may also have been related to varying levels of generic prescribing in the two jurisdictions.

Both studies highlighted the high prevalence of PIP in Ireland and that the risk of receiving a PIP is strongly associated with polypharmacy. A further study, currently being undertaken by researchers in the HRB Centre for Primary Care Research, using the United Kingdom clinical practice research database (CPRD), will estimate the prevalence of PIP in the UK and a comparative analysis between different countries will be made.

The issue of PIP is of considerable public health importance as the proportion of those aged 65 years and over in the Irish population has been projected to rise considerably in the future.

These population studies, carried out in the HRB Centre for Primary Care Research, have informed the development of a randomised controlled trial, using a clinical decision support system, with the aim of modifying GP prescribing behaviour in order to reduce levels of PIP.

The articles can be viewed at:

[1] Cahir C, Fahey T, Teeling M, Teljeur C, Feely J, Bennett K. Potentially inappropriate prescribing and cost outcomes for older people: a national population study. *British Journal of Clinical Pharmacology* 2010; 69(5): 543-552.

www.ncbi.nlm.nih.gov/pubmed/20573091

[2]. Bradley MC, Fahey T, Cahir C, Bennett K, O'Reilly D, Parsons C, Hughes CM. Potentially inappropriate prescribing and cost outcomes for older people: a cross-sectional study using the Northern Ireland Enhanced Prescribing Database. *European Journal of Clinical Pharmacology* 2012 Mar 25.

www.ncbi.nlm.nih.gov/pubmed/22447297