



EDITORIALS

Tackling potentially inappropriate prescribing

Opportunities to intervene are often missed

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In 2017 the World Health Organization launched its third global patient safety challenge with the aim of reducing severe avoidable medication related harm by 50% over a five year period.¹ Demonstrating such reductions may be difficult, but countries such as the UK are in a strong position to meet the spirit of this challenge with strong integration of healthcare systems and better use of electronic health records.

One important approach is to identify potentially inappropriate prescribing and correct it where necessary, with the expectation that this will avoid serious harm. Primary care in the UK is well placed to do this using electronic searches to identify patients at risk: effective interventions are available to reduce hazardous prescribing,² and some evidence shows that this can also reduce associated hospital admissions.³ Secondary care is also increasingly enabled to tackle potentially inappropriate prescribing as electronic prescribing becomes more commonplace and pharmacists have a greater role in the prescribing and monitoring of medication.^{4,5}

Nevertheless, the size and scale of the problem is considerable, and the observational study by Pérez and colleagues (doi:10.1136/bmj.k4524) shows that close to half of older patients in the Republic of Ireland are exposed to potentially inappropriate prescribing each year.⁶ This echoes findings from a large cross sectional study in the UK, albeit using different indicators of prescribing safety and reporting a somewhat lower prevalence of potentially inappropriate prescribing.⁷ Potentially inappropriate prescribing is associated with subsequent adverse drug events and hospital admissions, as well as reduced quality of life,⁶ but what the new study also shows is that the risk of potentially inappropriate prescribing is increased after hospital admission.⁶

Pérez and colleagues analysed data from general practices before and after discharge from hospital, and their findings therefore reflect prescriptions issued by those general practices (and not necessarily the drugs that patients were receiving at the point of discharge). The authors note several important reasons for the increase in potentially inappropriate prescribing, such as the intensification of existing drug regimens and the failure to stop

certain drugs (or reduce doses) after discharge from hospital. A recent English observational study reported that 17% of medication changes suggested at hospital discharge are not actioned by general practices (without a documented reason), including requests to stop medicines or change doses.⁸

Although a hospital admission is clearly an opportunity for a more holistic approach to a patient's drug treatment, this does not always happen. Individual specialists view evidence based guidelines as an important part of their practice, and new diagnoses usually lead to new drug therapy. Despite efforts to avoid inappropriate polypharmacy, additional comorbidities often lead to potentially inappropriate prescribing.⁹ Some specialists may not feel empowered to change or stop pre-admission medicines when they prescribe for new conditions. In the past, the routine outpatient appointment after discharge from hospital was another opportunity for medication review, but outpatient follow-up is no longer routine practice for many hospital clinicians.

All of these factors help to explain why potentially inappropriate prescribing is more common after hospital discharge. They also highlight the importance of interventions known to improve outcomes at discharge, including better communication between secondary and primary care, involvement of pharmacists, closer monitoring of patients, and better self management.¹⁰

Secondary care clearly has an important role in both avoiding and tackling potentially inappropriate prescribing. In the modern era of increased specialisation and intensive treatment schedules, all healthcare episodes should include a more generalist review and an opportunity to stop any inappropriate polypharmacy.

Comprehensive hospital care models are becoming more popular and are often set up for people with complex healthcare needs, especially older patients.¹¹ Medication reviews can be an important part of this process, often leading to the withdrawal of prescribed drugs ("deprescribing" (<https://deprescribing.org/>)). New protocols and guidelines are being evaluated to improve the safety and effectiveness of deprescribing—for example, by avoiding drug withdrawal states. The deprescribing process can

be further supported by written or electronic algorithms, and computerised interventions seem to be particularly effective.¹²

Reducing potentially inappropriate prescribing requires interventions grounded in primary care, in secondary care, and at the interface between the two. Effective multidisciplinary working, particularly involving pharmacists, is important, as is making the best use of electronic health records for identifying patients at risk and providing decision support.

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- 1 World Health Organization. *Medication Without Harm - Global Patient Safety Challenge on Medication Safety*. World Health Organization, 2017.
- 2 Avery AJ, Rodgers S, Cantrill JA, et al. A pharmacist-led information technology intervention for medication errors (PINCER): a multicentre, cluster randomised, controlled trial and cost-effectiveness analysis. *Lancet* 2012;379:1310-9. 10.1016/S0140-6736(11)61817-5 22357106
- 3 Dreischulte T, Donnan P, Grant A, Hapca A, McCowan C, Guthrie B. Safer prescribing—a trial of education, informatics, and financial incentives. *N Engl J Med* 2016;374:1053-64. 10.1056/NEJMsa1508955 26981935

- 4 Pontefract SK, Hodson J, Slee A, et al. Impact of a commercial order entry system on prescribing errors amenable to computerised decision support in the hospital setting: a prospective pre-post study. *BMJ Qual Saf* 2018;27:725-36. 10.1136/bmjqs-2017-007135 29572298
- 5 Seidling HM, Stützle M, Hoppe-Tichy T, et al. Best practice strategies to safeguard drug prescribing and drug administration: an anthology of expert views and opinions. *Int J Clin Pharm* 2016;38:362-73. 10.1007/s11096-016-0253-1 26964781
- 6 Pérez T, Moriarty F, Wallace E, McDowell R, Redmond P, Fahey T. Prevalence of potentially inappropriate prescribing in older people in primary care and its association with hospital admission: longitudinal study. *BMJ* 2018;363:k4524.
- 7 Stocks SJ, Kontopantelis E, Akbarov A, Rodgers S, Avery AJ, Ashcroft DM. Examining variations in prescribing safety in UK general practice: cross sectional study using the Clinical Practice Research Datalink. *BMJ* 2015;351:h5501. 10.1136/bmj.h5501 26537416
- 8 Spencer RA, Spencer SEF, Rodgers S, Campbell SM, Avery AJ. Processing of discharge summaries in general practice: a retrospective record review. *Br J Gen Pract* 2018;68:e576-85. 10.3399/bjgp18X697877 29914879
- 9 Dumbreck S, Flynn A, Nairn M, et al. Drug-disease and drug-drug interactions: systematic examination of recommendations in 12 UK national clinical guidelines. *BMJ* 2015;350:h949. 10.1136/bmj.h949 25762567
- 10 Le Berre M, Maimon G, Sourial N, Guériton M, Vedel I. Impact of Transitional Care Services for Chronically Ill Older Patients: A Systematic Evidence Review. *J Am Geriatr Soc* 2017;65:1597-608. 10.1111/jgs.14828 28403508
- 11 Boulton C, Green AF, Boulton LB, Pacala JT, Snyder C, Leff B. Successful models of comprehensive care for older adults with chronic conditions: evidence for the Institute of Medicine's "retooling for an aging America" report. *J Am Geriatr Soc* 2009;57:2328-37. 10.1111/j.1532-5415.2009.02571.x 20121991
- 12 Dalton K, O'Brien G, O'Mahony D, Byrne S. Computerised interventions designed to reduce potentially inappropriate prescribing in hospitalised older adults: a systematic review and meta-analysis. *Age Ageing* 2018;47:670-8. 10.1093/ageing/afy086 29893779

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