Medication underuse in older people: pharmaceutical care interventions

A systematic review and meta-analysis concluded that pharmaceutical care interventions such as medication reviews statistically significantly reduce medication underuse in people aged 65 years and older, and are more effective if used together with specific screening tools. However, the evidence has limitations that affect its application to practice. For example, the study only assessed medicines underuse caused by failure to prescribe, not medicines underuse caused by insufficient dosages of treatment, non-adherence to treatment or drug interactions. The NICE guideline on medicines optimisation recommends use of a screening tool, such as the STOPP/START tool in older people, to identify potential medicines-related patient safety incidents.

Overview and current advice

Medication underuse has been described as prescribing omissions of drugs that are indicated for the prevention or treatment of a disease (Meid et al. 2015). In comparison with other forms of potentially inappropriate prescribing (such as medication misuse and overuse) medication underuse is poorly understood. A systematic review and meta-analysis has aimed to assess the impact of pharmaceutical care interventions on medication underuse in older people (Meid et al. 2015).

According to the NICE pathway on medicines optimisation, medicines optimisation is defined as 'a person-centred approach to safe and effective medicines use, to ensure people obtain the best possible outcomes from their medicines'. The NICE guideline on medicines optimisation offers best practice advice on the care of all people who are using medicines and also those who are receiving suboptimal benefit from medicines. In order to better guide this care, the NICE pathway on medicines optimisation covers shared decision-making between healthcare professionals and the people for whom medicines are being considered to help understanding of each person's needs, preferences and values. The pathway includes recommendations from the NICE medicines adherence guideline to show how this decision-making process supports adherence to a treatment regimen with the aim of managing long-term conditions, multi-morbidities and polypharmacy.

New evidence

The systematic review by Meid et al. (2015) included studies that assessed people aged 65 years or older, specifically investigated medication underuse for several conditions, and used a controlled study design in which the control group did not receive any medication review or were treated by staff who had not received study-related educational training (usual care). The outcomes considered were the
proportion of people with 1 or more omitted drugs, and the number of omitted drugs per person after a pharmaceutical care intervention (for example, medication review or drug utilisation review). The definition of an omitted drug was based on clinical reasoning, guidelines, prescribing criteria or explicit (criterion-based) screening lists.

Nine studies (n=2542) were included; these were conducted in primary and secondary care and nursing home residents. Interventions consisted of unstructured medication reviews, medication reviews based on screening tools, or an educational intervention that included use of screening tools. Explicit screening tools primarily identified under prescribing of medicines that are commonly used for chronic conditions, such as beta-blockers for ischaemic heart disease.

Meta-analyses found that the mean number of omitted drugs (6 studies [2 using the same data set], n=1469: mean difference $-0.44$, 95% confidence interval [CI] $-0.61$ to $-0.26$, number needed to treat [NNT] 3) was statistically significantly reduced in people receiving pharmaceutical care interventions compared with people receiving usual care. The proportion of people or pharmaceutical care issues with 1 or more omissions of indicated drugs (8 studies, n=1833: odds ratio 0.29, 95% CI 0.13 to 0.63, NNT 3) was also reduced to a statistically significant in people receiving pharmaceutical care interventions compared with usual care.

Of the subgroup analyses undertaken, only use of an explicit screening tool (START or ACOVE*), compared with an unstructured intervention without a screening tool, statistically significantly improved the outcomes of pharmaceutical care interventions targeting medication underuse ($p=0.033$). The setting (inpatient or outpatient), number of drugs at baseline, follow-up duration, mean age of participants, and the number of omitted drugs at baseline did not significantly influence outcomes.

The systematic review and meta-analysis by Meid et al. (2015) has limitations that affect its application to practice. Few studies aimed at reducing medication underuse were eligible for inclusion and they were heterogeneous and of variable quality. Meid et al. (2015) considered that the most notable contributors to the risk of bias were unclear allocation concealment and lack of blinding of personnel or outcome assessment. Importantly, medication underuse was assessed using omission of therapy but can also be caused by insufficient dosages of treatment, non-adherence to treatment or drug interactions, which were not assessed.

**Commentary**

**Commentary provided by Professor Nina L Barnett, Consultant Pharmacist, Care of Older People, London North West Healthcare NHS Trust & NHS Specialist Pharmacy Service**

The concept of medication underuse came to national attention following publication of the 2001 National Service Framework for Older People as part of the first chapter on ‘rooting our age discrimination’, which states that treatment should not be denied solely on the basis of age. However, medicines underuse has remained a relatively poorly investigated aspect of prescribing in older people. This systematic review highlights the lack of research in this area and draws the conclusion from the small number of disparate studies that use of explicit screening tools improves the effectiveness of medication review in addressing medication underuse compared with unstructured medication review. The STOPP/START tool is now a well-known validated method for identifying potentially appropriate medication that older patients might benefit from and may not yet have been prescribed. It is interesting to note that implicit (judgment-based) review tools (for example, the Medication Appropriateness Index or Assessment of Underutilisation index) were identified as being less often used in practice.

Although it is laudable that the paper has raised the profile of medication underuse, methods of translating research into practice are still being developed. For example, the STOPP/START tool is
being refined to facilitate use by the bedside. It must also be remembered that only medicines underuse caused by ‘under prescribing’ is explored in the study, whereas in practice it can also be caused by patients not taking their prescribed medication. Although the paper highlights the potential benefits of using explicit tools to identify medicines that have not been prescribed, the appropriateness of the identified ‘underused medicine’ requires further and ongoing discussion with the individual patient, their carers and the clinical team to ensure the medication is, and remains, suitable for that person. Meid et al. (2015) pointed out that, although explicit prescribing criteria can focus the attention of healthcare professionals on potential flaws in patients’ current medication, they are not substitutes for careful clinical decision making. In addition, although the absence of indicated medicines might be detrimental to a person’s health, indiscriminate addition of medicines can also pose risks.

As part of the advice on systems for identifying, reporting and learning from medicines-related patient safety incidents, the NICE guidance on medicines optimisation recommends that use of a screening tool, such as the STOPP/START tool in older people, should be considered to identify potential medicines-related patient safety incidents in some groups of people; for example, older people, people taking multiple medicines (polypharmacy) and people with chronic or long-term conditions.

**Study sponsorship**

The systematic review and meta-analysis was sponsored in part by the German Federal Ministry of Education and Research.

*Links are to the most recent versions of the START and ACOVE tools, which may be more up-to-date than those used in the studies included in the meta-analysis.

**References**


**About this Medicines Evidence Commentary**

Medicines Evidence Commentaries form part of NICE’s Medicines Awareness Service and help contextualise important new evidence, highlighting areas that could signal a change in clinical practice. They do not constitute formal NICE guidance. The opinions of contributors do not necessarily reflect the views of NICE.

Visit Evidence Search

Copyright © 2016 National Institute for Health and Care Excellence. All Rights Reserved.