**Prev Care Nurs Midwifery J (PCNM)**
http://dx.doi.org/

**PCNM. 2026;16(1):1-3**
**Peer-Reviewed | Open Access**

Preventive Care in Nursing and Midwifery Journal

# Editorial

## Inappropriate Prescribing – How Can Nurses Help?

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## Article Info

**Keywords:**
Inappropriate prescribing
Patient safety
Nurse's role
Pharmacotherapy
Clinical decision support systems
Polypharmacy

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**How to Cite This Article:**
Jankovic S. Inappropriate Prescribing – How Can Nurses Help? Prev Care Nurs Midwifery J. 2026;16(1):1-3.



## Editorial

Potentially inappropriate drug prescribing (PIP) represents one of the biggest challenges of modern clinical practice, especially in the context of an aging population and an increasing prevalence of chronic diseases. Potentially inappropriate prescribing includes prescribing drugs when the risks of use exceed the potential clinical benefits, prescribing a drug that is not indicated for a given diagnosis, and omitting a clinically indicated drug [1]. This concept includes polypharmacy - the simultaneous administration of five or more drugs - as well as potentially harmful drug interactions and inappropriate dosing [2].

Explicit and implicit criteria have been developed to identify PIPs. Explicit criteria are based on lists of drugs that are generally considered inappropriate for certain populations, most often elderly patients. The Beers criteria of the American Geriatrics Society were the most widely applied and include categories of drugs that should be avoided regardless of diagnosis, drugs that are inappropriate for certain diseases or syndromes, and drug combinations that should be avoided [3]. The European alternative is the STOPP/START (Screening Tool of Older Person's Prescriptions / Screening Tool to Alert doctors to Right Treatment) criteria, which, in addition to detecting potentially inappropriate drugs (STOPP), also indicate clinically justified drugs that have been omitted (START) [4] [5].

Implicit criteria are based on clinical judgment and take into account individual patient characteristics. The most widely known implicit instrument is the Medication Appropriateness Index (MAI), which evaluates each drug according to 10 parameters: indication, effectiveness, dosage, proper administration, drug interactions, drug-disease interactions, unnecessary duplication, length of therapy, patient acceptability, and therapy costs [6].

The prevalence of PIPs worldwide varies with the criteria used and the population studied, but is estimated at 20%-50% among hospitalized elderly patients [7]. Meta-analyses indicate that PIPs are particularly prevalent in nursing homes, with incidence rates exceeding 40% [5][8].

The clinical consequences of PIPs are multiple and serious. Inadequately prescribed drugs are associated with adverse effects (AEs), many of which are preventable – it is estimated that 28% to 56% of AEs that lead to hospitalization originate from PIPs [7]. Elderly patients are especially at risk of falls, cognitive impairment, cardiac arrhythmia, and gastrointestinal bleeding. In addition to direct clinical consequences, PIPs contribute to prolonged hospitalization, rehospitalizations, and increased health care costs [2]. The costs of treating PIP-related side effects in developed healthcare systems reach billions of euros per year, underscoring the exceptional public health importance of this problem [7].

In some countries, including Great Britain, Australia, Canada, and the USA, nurses with specialized education have a legally defined right to prescribe drugs (nurse prescribing) [9]. This right can be exercised as independent prescribing, in which the nurse takes full responsibility for diagnosis and therapy, or as supplementary prescribing, based on the clinical plan established by the doctor [9]. In many countries, current regulations do not permit independent prescribing of drugs by nurses, but nurses are assigned important roles in pharmacotherapy monitoring and evaluation, drug administration, and patient education [10].

Nurses have a number of validated instruments at their disposal to recognize PIPs. The Beers criteria and the STOPP/START criteria are available as practical checklists for daily use [3,4]. The MAI provides a structured framework for evaluating each individual therapy [6]. Electronic Clinical Decision Support Systems (CDSS), integrated into hospital information systems, automatically warn of potential drug interactions, contraindications, and inappropriate doses, providing nurses with valuable real-time support [11]. The use of pharmacotherapeutic databases (e.g., Micromedex, Lexicomp) represents an additional resource in the daily clinical evaluation of therapy.

When a nurse recognizes a potentially inappropriate medication, clear and structured communication with the prescribing physician is necessary. For this purpose, the SBAR (Situation, Background, Assessment, Recommendation) technique is recommended, as it enables the effective transfer of clinical information and the proposal of an alternative solution [12]. The nurse has a professional and ethical obligation to advocate for the patient's safety, document the assessment and the steps taken, and, if the initial communication did not elicit an appropriate response, report the situation to the competent physician or clinical pharmacist [10]. In case of immediate danger to the patient, the nurse is authorized to temporarily postpone the administration of the drug and urgently consults the responsible doctor, with mandatory documentation of all actions taken [10].

Systematic education of nurses about PIPs should be an integral part of the initial educational program and of continuous professional education. Studies show that intervention programs combining theoretical lectures, case studies, and simulation exercises lead to statistically significant improvements in nurses' knowledge and skills in recognizing PIPs [13]. A multidisciplinary approach, which includes the collaboration of nurses, physicians and pharmacists within pharmacotherapy teams, has proven to be particularly effective in improving the quality of prescribing [14]. Continuing professional development should include modules dedicated to recognizing PIPs, applying relevant criteria and tools, and communicating in an interprofessional team.

Artificial Intelligence (AI) brings transformative opportunities to the field of PIP recognition and prevention. Machine learning algorithms, by analyzing large datasets of clinical data, can identify prescribing patterns that indicate potential errors and risks much faster and more accurately than manual reviews [15]. Integrating AI into CDSS systems enables personalized alerts to nurses based on the individual patient profile – taking into account renal function, body mass, comorbidities, and concomitant

therapy [11,15]. Research indicates that such systems reduce the frequency of clinically significant drug interactions and potentially harmful prescriptions, contributing at the same time to the relief of nurses from routine checks [15]. However, it is important to emphasize that AI should be seen as a tool to support the nurse's clinical judgment and not to replace it – critical thinking and communication skills remain indispensable elements of safe pharmacotherapy.

Inappropriate prescribing of drugs is a complex but solvable problem of modern medicine. Nurses, as the most numerous and closest professional group to patients on the healthcare team, play a key role in recognizing, preventing, and addressing this problem. The application of validated criteria, structured communication, continuous education, and the use of modern digital tools - including artificial intelligence - provide a strong framework for improving the safety of pharmacotherapy. The development of legislation that would grant nurses greater authority in pharmacotherapy, along with adequate education and supervision, represents an important next step towards safer, better health care.

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