

Abstract: Impact of health care systems on drug use

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Introduction

It is estimated that half or more of all medicines are used inappropriately worldwide, both by providers and consumers. A review by WHO in 2004 of 630 medicine use surveys done during 1990-2004 in developing and transitional countries shows that more than half of all patients are not treated in compliance with clinical guidelines. Such inappropriate use wastes resources and can cause poor patient outcomes, adverse drug reactions and increased antimicrobial resistance. Many different actors are involved in medicines use and they are greatly influenced by many different factors, many of which are directly related to the health care system in place. Health system factors and policies that influence medicine use may be considered in terms of four main areas, although all are intricately interdependent:

- Information and educational factors and policies
- Managerial and infrastructural factors and policies
- Economic factors and policies
- Regulatory factors and policies

Understanding the factors and influencing medicine use within a health system is critical to designing and implementing effective strategies to promote rational use of medicines. Often, changes in health policy are implemented without thought for the consequences on drug use and without any evaluation of their impact on drug use.

Informational and educational factors

Informational and educational factors inform and persuade prescribers, dispensers, patients and consumers. Important health system factors include:

- Education of all cadres of health worker both at the undergraduate level and at the level of continuing in-service medical education
- Consumer education
- Independent accurate medicines information
- Drug promotion by the pharmaceutical industry

The quality and content of health worker education is important. Inclusion in the curricula of important policies to promote rational use of medicines, e.g. standard treatment guidelines and essential medicines lists, will support prescriber compliance with them. Problem-based pharmacotherapy teaching has been found to be more effective than didactic lectures in teaching prescribing. Sales representatives are often the major source, and sometimes the only source, of medicines information for prescribers and continuing medical education is also often heavily dependent on the pharmaceutical industry. A review by WHO in 2005 of 2700 articles on drug promotion showed that: prescribers who see sales representatives often prescribe more medicines and more new medicines than their colleagues who see sales representatives less often; and that direct-to-consumer advertising is associated with increased patient requests and prescriptions. Patient demand influences prescribing and public education

campaigns, using printed materials and the media have been successful in reducing antimicrobial consumption. Many educational interventions have been implemented often with good initial impact, but unless their main messages concerning medicines use are repeated regularly their initial impacts are lost. Furthermore, printed educational materials alone without accompanying training or other interventions are ineffective.

Managerial and infrastructural factors

Managerial and infrastructural factors structure and guide provider and consumer decisions with regard to medicines use. Important factors in the health system include:

- Essential medicines lists and standard treatment guidelines that are consistent with each other developed and implemented in such a way as to encourage provider compliance;
- Drug and Therapeutics Committee to ensure the safe and effective use of medicines in the facility or area under its jurisdiction;
- Drug procurement and distribution systems which impact on availability of medicines;
- Prescriber-targeted strategies such as supervision with audit, peer group monitoring, structured order forms, automatic stop orders
- Dispensing strategies such as course of treatment packaging, labelling, generic substitution.

Managerial factors have an enormous impact on the use of medicines. No amount of education on rational medicines use will work if basic adverse managerial policies are present or infrastructure is lacking. Essential medicines will not be used if they are not available due to poor distribution systems. Clinical guidelines will not be used if the health professions do not trust them (not having been involved in the process of development), or if they have never been told about them (not being included in the education curricula) or if they are not distributed to the health facilities. Prescribers will not consult guidelines or other information if they are forced to see one patient a minute. Junior doctors will not prescribe contrary to their chiefs. Supervision, monitoring and peer review have all been found to be effective in promoting improved prescribing. Consumer use can also be improved through the use of course of treatment packaging and appropriate labelling of medicines. Medicine costs can be contained through generic substitution. With so many factors affecting how medicines are used, it is critical to have people within the health system who are responsible for promoting their rational use. Unfortunately this is often lacking. Drugs and therapeutics committees (DTCs) are well-established in industrial countries as a successful way of promoting rational use of medicines (mostly in terms of formulary management). In developing countries DTCs are less established and their success often limited due to a lack of experienced staff and a high staff turnover. Governments may encourage hospitals to have DTCs by making an accreditation requirement to various professional societies.

Economic factors

Economic factors offer incentives and disincentives in the use of medicines. Important factors in the health system include:

- (1) Perverse financial incentives such as:

- Prescribers' salaries from drug sales so encouraging over-prescription of medicines and the use of more expensive medicines
- Flat prescription or consultation fees covering all medicines in whatever quantities so encouraging poly-pharmacy
- Insurance policies that reimburse non-essential medicines, incorrect doses and incorrect treatments

(2) Appropriate financial incentives such as:

- Separation of prescribing and dispensing functions
- Fees per medicine item preferably covering a full course
- Insurance policies that reimburse essential medicines and correct treatments.

Economic policies influence very strongly the use of medicines use, yet they are often introduced without regard for their possible impact on use of medicines. Dispensing doctors have been shown repeatedly world-wide to prescribe more medicines and more expensive medicines than non-dispensing doctors. Over-prescribing has repeatedly been shown in facilities operating the Bamako Initiative where prescribers gain income from the sales of medicines. The type of user fee or insurance co-payment can also influence the use of medicines. A flat rate user fee, covering all medicines in whatever quantities, is associated with the prescription of more medicines per patient as compared to a fee per medicine since the extra fee charged for an extra medicine dissuades prescriber and patient from that extra medicine. The level of fee is also important as excessive fees reduce access to care. Even quite small fees can reduce access to care if the quality of care offered to patients is not perceived as sufficiently good. Insurance systems have great potential for influencing the way medicines are used. Policies that only reimburse essential medicines and correct treatments encourage much more rational prescribing than those that reimburse all medicines and incorrect treatments. While reimbursement of essential medicines may be easily implemented, reimbursement of only correct prescriptions is much more difficult.

Regulatory factors

Regulatory factors restrict choices and limit decisions in the use of medicines. Important factors in the health system include:

- Registration of medicines to ensure that only safe efficacious medicines of good quality are available in the market and that unsafe non-efficacious medicines are banned;
- licensing of health professionals to ensure that all practitioners have the necessary competence with regard to diagnosis, prescribing and dispensing;
- licensing of medicine outlets to ensure that all supply outlets maintain the necessary stocking and dispensing standards;
- limiting prescription of medicines by level of prescriber; this includes limiting certain medicines to being available only with prescription;
- setting educational standards for health professionals and developing and enforcing codes of conduct; this requires the cooperation of the professional societies and universities;

- monitoring and enforcing regulation of medicines promotion to ensure that it is ethical and unbiased i.e. reliable, accurate, truthful, informative, balanced, up-to-date, capable of substantiation and in good taste.

Regulatory strategies are extremely important but often poorly enforced. In many developing countries, many prescribers and dispensers are unqualified and unlicensed, many outlets are not licensed, prescription drugs, including antibiotics and injections, are freely available over-the-counter and there is a great deal of unethical and uncontrolled promotion of medicines. Enforcing regulation requires political will. New regulations should be introduced with educational campaigns for stakeholders as otherwise they will adopt behaviours to thwart the new regulation e.g. using another inappropriate medicine in place of a banned one.

Changing the health system to improve medicines use

Experience has shown that a package of interventions, addressing the different factors, is more effective than a single intervention. In April 2004 in Thailand the second international conference for improving the use of medicines reviewed all the recent evidence for promoting rational use of medicines in developing countries and recommended that:

- National programmes to promote rational medicines use should be implemented
- Successful interventions should be scaled up
- More interventions addressing community use should be implemented.

In 2003 the WHO conducted a survey of all member states concerning pharmaceutical policy. It was found that many basic policies fundamental to promoting rational use of medicines were not being implemented. The percentage of Member States undertaking various policies was as follows:

- National drug use audit in the last 2 years: 59%
- National strategy to contain antimicrobial resistance: 33%
- Public education in the last 2 years: 50%
- Independent continuing medical education for prescribers: 44%
- Drug and Therapeutic Committees in most referral hospitals: 23%
- Drug information centre for prescribers: 41%
- Essential Medicines List used for insurance reimbursement: 33%
- Standard Treatment Guidelines updated in the last 5 years: 62%
- Essential Medicines List updated in the last 5 years: 72%

Conclusion

Health systems have a huge impact on medicines use. Only by understanding the various health system factors that impact on medicines use can we hope to improve medicines use. WHO recommends all countries to have a national strategy to promote rational use of medicines, this strategy comprising of policies and interventions that address educational/informational, managerial/infrastructural, economic and regulatory factors. Unfortunately, many member states are not yet implementing all the recommended strategies.