

# Medication Errors: How to Avoid Them

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A medication error can be defined as 'a failure in the treatment process that leads to, or has the potential to lead to, harm to the patient' [1]. The term 'failure' in the definition implies that certain standards should be set, against which failure can be judged. All those who deal with medicines should establish or be familiar with such standards. They should institute or observe measures to ensure that failure to meet the standards does not occur or is unlikely. Everybody involved in the treatment process is responsible for their part of the process. It is important to detect medication errors, whether important or not, since doing so may reveal a failure in the treatment process that could on another occasion lead to harm. There is also evidence that the death rate from medication errors is increasing [2].

The best way to understand how medication errors happen and how to avoid them is to consider their classification, which can be contextual, modal, or psychological [3]. Contextual classification deals with the specific time, place, medicines and people involved. Modal classification examines the ways in which errors occur (for example, by omission, repetition or substitution). Psychological classification is to be preferred, as it explains events rather than merely describing them. Its disadvantage is that it concentrates on human rather than systems sources of errors.

Mistakes (knowledge- and rule-based errors), slips (action-based errors) and lapses (memory-based errors) have been called 'active failures'.

Knowledge-based errors can obviously be prevented by improving knowledge, e.g. by ensuring that students are taught the basic principles of therapeutics and tested on their practical application and that prescribers are kept up to date. Computerized decision-support systems can also train prescribers to make fewer errors [4]. Mistakes that result from applying bad rules, or misapplying or failing to apply good rules (rule-based errors), can be prevented by improving rules. Training can help in preventing technical (action based) errors. Memory-based errors are the most difficult to prevent. They are best tackled by putting in place systems that detect such errors and allow remedial actions. Check lists and computerized systems can help.

However, there are several properties of systems (so-called 'latent factors') that make prescribers susceptible to error [5]. For example, working overtime with inadequate resources, poor support, and low job security all contributed to an increased risk of medication errors by nurses. Among nurses depression and exhaustion are important. Errors are more likely to occur when tasks are carried out after hours by busy, distracted staff, often in relation to unfamiliar patients. There is a particular risk of errors when doctors first arrive in hospital, because of short comings in their knowledge, and presumably also because they are unfamiliar with local prescription charts and other systems. Improved education and improved working conditions, including better induction processes, should reduce the risk of errors that are due to these factors; a national prescription form would help.

Medication errors, which can lead to adverse drug reactions, require clear and unambiguous definitions, so that patients, prescribers, manufacturers, and regulators can all understand each other. We all make errors from time to time. There are many sources of medication errors and different ways of avoiding them. However, we must start by being aware that error is possible and take steps to minimize the risks. The essential components of this are monitoring for and identifying errors, reporting them in a blame-free environment, analysis of their root causes, changing procedures according to the lessons learnt and further monitoring.

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