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Prevention of medication errors: detection and audit

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1. Medication errors have important implications for patient safety, and their identification is a main target in improving clinical practice errors, in order to prevent adverse events.
2. Error detection is the first crucial step. Approaches to this are likely to be different in research and routine care, and the most suitable must be chosen according to the setting.
3. The major methods for detecting medication errors and associated adverse drug-related events are chart review, computerized monitoring, administrative databases, and claims data, using direct observation, incident reporting, and patient monitoring. All of these methods have both advantages and limitations.
4. Reporting discloses medication errors, can trigger warnings, and encourages the diffusion of a culture of safe practice. Combining and comparing data from various and encourages the diffusion of a culture of safe practice sources increases the reliability of the system.
5. Error prevention can be planned by means of retroactive and proactive tools, such as audit and Failure Mode, Effect, and Criticality Analysis (FMECA). Audit is also an educational activity, which promotes high-quality care; it should be carried out regularly. In an audit cycle we can compare what is actually done against reference standards and put in place corrective actions to improve the performances of individuals and systems.
6. Patient safety must be the first aim in every setting, in order to build safer systems, learning from errors and reducing the human and fiscal costs.

Medication errors and drug-related adverse events have important implications – from increased length of hospitalization and costs to undue discomfort and disability or increased mortality [1, 2]. Reason has proposed two approaches to considering errors and accidents [3]. First, identify individual problems and deficiencies that can lead to error; second, analyse faulty systems design. Problems with both individuals and systems are responsible for most accidents. However, individual problems can also result from defective systems. The frequency and severity of medication errors are not evenly distributed in the population, and there are clusters of patients, drugs, and settings that are associated with higher risks; however, these can generally be attributed to common underlying contributory/latent factors [4, 5].

Detection

In order to build safer systems we must be able to learn from previous errors [6], and detection is the first crucial step. Scientific societies and surveillance agencies, reviews, original studies, and case reports may warn us to be on the alert and promote knowledge of risks and improved performance. For this purpose, reports, alerts and recommendations are available on the web, issued by national and federal healthcare systems, regulatory agencies, and non-profit-making organizations [the Food and Drug Administration (FDA), European Medicines Agency (EMEA), United States Pharmacopeia (USP-MEDMARX), UK – National Health Service (NHS), Veterans Health Administration (VHA), Australian Patient Safety Foundation (APSF), Joint Commission on the Accreditation of Healthcare Organizations (JCAHO)] [7, 8].

The approaches used to detect errors are likely to be different in research and routine care, given the available resources [9]. In order to prevent medication errors and reduce the risks of harm, organizations need tools to detect them [10]. Any system must then be able to analyse errors and identify opportunities for quality improvement and system changes. The major methods for detecting adverse events are chart review, computerized monitoring, incident reporting, and searching claims data. Medication errors are mainly detected by means of direct observation, voluntary reporting (by doctors, pharmacists, nurses, patients, and others) and chart review. Research applies