

A Review on the Impact of Technology on Safe use of Medicines: Conceptualising Technology in Pharmacy Practices

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Background: A study reported that medical errors are the eighth leading cause of death in our country and about 7,000 people per year are estimated to die from medication errors alone. That's why for the provision of good pharmaceutical care and for management and implementation of technology, it is vital for pharmacist to not only have full understanding of pharmacy computer system for dispensing and documenting medication delivery but also have a fundamental role in the execution of computerized prescriber order entry system, bar code medication administration, personal digital assistants and electronic medication administration records in pharmacy practices. Barriers and challenges for delivering the integrated solutions are discussed by utilizing technologies in relation to their safety claims, meanwhile optimizing the role of pharmacists. To strengthen the medicine system, there is constant need for research, development and evaluation in pharmaceutical sector such as guaranteeing access to needed drugs and rationalizing the use of medicine to avoid adverse events. This requires practice of new models and technologies that reduces pharmacist's efforts into dispensing processes, improve their services on professional ground and ensure healthier patient's outcome. These reforms can be achieved by switching towards more automated processes, so that the involvement of pharmacist and medication errors could be reduced during dispensing.

Objectives: To provide environment where patients are given enough time for counseling on appropriate use of their medicines.

To make innovations that should allow pharmacist to provide their services more proficiently by decision-support system for making proper pharmaceutical care interventions for certain patients.

The services can be added into computer prescriber order entry system to lessen probable errors by giving alert to prescribers when decisions are made for treatment. Thus, averting errors proactively.

By having patient's track record and biomarkers, pharmacists can screen improved treatment outcomes by incorporating their work into patient's health technologies.

Utilizing dispensing technologies and digital health system can pretense optimistic impact on services and health outcomes in low resource settings in terms of medications adherence.

Method: In order to evaluate the impact of technology, Literature review of different articles published in last 20 year was performed from PubMed, scholar and Science direct. This paper conceptualize the framework that could be employed to analyze the relationship between productivity and pharmacy practices by harnessing educational and new technological input. This research demonstrate that how emerging technical innovations can maximize the quantum of health gain in patient-oriented practice.

Results: Published evidence on the effects of computerized physician order entry (CPOE), telepharmacy, bar coding, computerized medication administration records (CMARs) and Electronic medication administration records (EMARs) on medication errors and adverse drug events (ADEs) were reviewed. The outcomes of applied technologies are discussed in table below.

Conclusion: This frame work is designated towards technology for attaining the possible safeties to shape the nature and values of pharmacy practice. Examples of good practices could be develop by using this approach in both developed and under-developed countries. Research activities are further required to support this important policy agenda. Finally it can be concluded that to develop health care system resourceful, there is urgent need to acknowledge the importance of technology in terms of skills, method and techniques included in pharmaceutical care practices and dispensing processes.