Research & Reviews: Journal of Hospital and Clinical Pharmacy

Informatics in Clinical Pharmacy

Jerry Barbee Jr*

Department of Pharmacy, HCA, West Florida, USA

Commentry

*For Correspondence

Jerry Barbee Jr, PharmD, BCPS, CPh, Clinical Pharmacist, HCA West Florida, USA.

E-mail: jerry.barbee@hcahealthcare.com

Keywords: Clinical, Pharmacy, Informatics.

INTRODUCTION

Technology has become an integral part of the pharmacy practice. Automation and pharmacy's utilization of data coalition are rapidly taking pharmacy to an exciting and challenging level. These automated systems include: electronic prescribing, electronic health records (EHR), automated dispensing systems, unit dose packaging, bar coding, automated retrieval systems, and drug surveillance [1]. Conglomeration of big data utilization has fostered many new opportunities for the clinical pharmacist. This changing pharmacy paradigm has aided in altering outcome measurements and impacts of the clinical pharmacist's interventions. Over the course of several years, automated systems have been integrated into hospitals and other pharmacy practices. The pace of change seems to be increasing with the portability and power of new digital devices. The purpose of these systems is to simplify the prescribing and administration process that occurs in the hospital so that there is improvement in patient safety and wellness [2].

Once a mainstay of hospitals and medical offices in the past, technology has drastically altered the need for pen and paper order forms [1]. The increasing use of automation has reduced the probability of errors and adverse effects when it comes to patient health. Pharmacy informatics can increase the safety and efficacy of medication orders by identifying medication duplications, interactions, and increasing legibility of prescription orders [1,3]. The improvement of formulary management, drug protocols and inventory control are but a few of the positive additions of the automated pharmacy. Automated dispensing, storage, and retrieval systems (i.e., unit dose packaging, carousels, automated dispensing machines, robot delivery systems, inventory management, barcode scanning, and smart pumps) alter the workload and assignments of the clinical pharmacists, which creates time for focusing on optimizing patient outcomes [3,4].

In hospitals throughout the country, prescribers can input orders by using computerized physician order entry (CPOE). The effective utilization of the CPOE system allows for several steps to be analyzed and made before the medication is delivered to the patient. The clinical pharmacist processes a review of orders, by verifying patient allergies, medication duplications, drug-drug interactions, disease state management, and effective drug dosing [5,6]. A meta-analysis detailing the effectiveness of CPOE systems used in the U.S. concluded this automated prescription system had decreased hospital errors by 48% in one year, which is equivalent to about $17.4 million [7].

Medication databases assist with medication reconciliation and medication therapy management (MTM) services. Medication errors occur more frequently in the hospital when the patient is transferred between levels of care and then ultimately discharged from the hospital into outpatient care [2,8]. Utilization of medication reconciliation databases is helpful in ensuring a thorough evaluation of the patient's ordered hospital medications and home medications by the clinical pharmacist. This clinical review provides an increased opportunity for clinical pharmacist involvement to improve patient outcomes [8].

Informatics and automation in clinical pharmacy is the future of pharmacy. Automated systems and data surveillance

programs allow the clinical pharmacist to improve the standard of care and improve patient outcomes [5]. As a greater number of hospitals and clinical staff implement automated systems, the profession will benefit from a more efficient workflow, optimization of patient medication usage, and improved patient care. Informatics is a necessity to improve patient care and decrease cost while achieving improved patient outcomes [9-11]. By embracing this change in our profession, it offers the clinical pharmacist an opportunity to improve patient's lives.

REFERENCES

1.	How pharmacy informatics saves lives. University of South Florida Online Morsani College of Medicine. 2011.

2.	Figge HL. Embracing pharmacy technology U.S. pharmacist. 2011.

3.	ASHP statement on the pharmacist's role in clinical informatics. Am J Health Sys Pharm. 2016;73:410-413.

4.	Informatics and the health-system pharmacist. ASHP Intersections RSS2. 2011.

5.	Zimlichman E, et al. computerized provider order entry. Patient Safety Network. 2013.

6.	Use of technology and pharmacy informatics on the rise. American Pharmacists Association. 2014.

7.	Radley DC, et al. Reduction in medication errors in hospitals due to adoption of computerized provider order entry systems. JAMIA. 2013;20:470-476.

8.	The Joint Commission. Using medication reconciliation to prevent errors. 2006.

9.	Do automated dispensing machines improve patient safety? Can J Hosp Pharm. 2009;62:516-519.

10.	Defining biomedical informatics–UT Health School of Biomedical Informatics. 2011.

11.	Fox BI, et al. Knowledge, skills, and resources for pharmacy informatics education. Am J Pharm Educ. 2011.