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REVIEW

# Systemic review on drug related hospital admissions – A pubmed based search



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## KEYWORDS

Adverse drug reaction;  
Drug related admission;  
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**Abstract** *Background:* Drug related admissions have significantly increased over the past few decades. According to various studies on drug related hospital admissions, it was estimated that around 5–10% of hospital admissions were due to drug related problems (DRP), in which 50% of them are avoidable.

*Objective:* The objective of the study was to derive results from various studies conducted on drug related hospital admissions and have an overall view about the incidence, frequency, cost of treatment, major causative drugs, problems for drug related hospital admissions, and preventable drug related admissions and summarize the factors responsible for the occurrence of DRP.

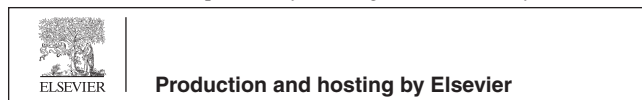
*Method:* Relevant literatures related to ‘drug related hospital admissions’ were obtained from PubMed database. Articles that were published from October 2007 to September 2012 were collected. All the studies being shown in the search results were considered for the study irrespective of the specialty department.

*Results:* A total of 366 articles were found based on the keyword ‘drug related hospital admission’, ‘drug related problem admission’, and ‘adverse drug event admissions’ search. Out of which

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49 articles were identified to be showing relevance to the study. Non-English, abstract-only articles, and out-patient adverse drug reaction (ADR) studies were filtered from 49 articles. Finally 15 articles were taken up for the study. Systemic analysis was made on these articles and the results were summarized.

*Conclusion:* Most of DRP studies were retrospective, multicenter studies conducted in general populations in Europe. The main objective of the studies was to estimate DRP frequency, incidence, risk factors and trends of DRP hospital admissions. Anti-neoplastic agents, CVS drugs and CNS drugs were related to most of the drug related problems. These studies concluded polypharmacy and older age were the major risk factors for developing drug related problems. It was found that the cost for the management of DRP was directly proportional to severity.

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## 1. Introduction

A drug related problem (DRP) is defined as an event or circumstance that involves a patient's drug treatment that actually, or potentially, interferes with the achievement of an optimal outcome (Bhalla et al., 2003; Roxburgh and Degenhardt, 2008).

Problems associated with the drug use have a wide set of factors that can be considered as DRP viz. adverse drug reactions, drug interactions, untreated indication, inappropriate drug selection, sub-therapeutic dosage, supra-therapeutic dosage, non-compliance and drug use without indication.

DRP admissions have been significantly increased over the past few decades. According to various studies on drug related hospital admissions, it was estimated that around 5–10% of hospital admissions were due to drug related problems, in which 50% of them are avoidable (Nelson and Talbert, 1996; Sekhar et al., 2011). DRP admissions need high attention as DRP related admissions on an average accounted for 8.36% (Conforti et al., 2012; Davies et al., 2010; Menéndez-Conde et al., 2011; Posthumus et al., 2012; Rodenburg et al., 2011; Singh et al., 2011; Stausberg and Hasford, 2011). Increased use of medicines, existence of multiple inter current disease states and polypharmacy are some of the risk factors for DRPs. Geriatric population showed a high incidence of DRP admissions. Pharmacological and pathological changes leading to alteration in pharmacodynamic and pharmacokinetic parameters of drug absorption, distribution, metabolism and excretion in elderly patients are believed to be the reasons why geriatric population is the most affected group among DRPs. Antiplatelets, anticoagulants, antineoplastics, immunosuppressive, diuretics, antidiabetics and antibiotics showed a high profile of drug related problems. Majority of DRP admitted patients presented with chief complaints of weakness due to dehydration, electrolyte imbalance; bleeding, GI

disturbances, anemia, hypoglycemia, secondary infections etc. It has been noticed that drug related problems associated with medications' use have contributed to a major portion of the health expenses in most of the countries (Carrasco-Garrido et al., 2010; Dibben et al., 2011; Stausberg and Hasford, 2010; Wu et al., 2010).

In a study conducted by Smith et al., the frequency of drug 'reaction' in hospitalized patients had been studied, and they had shown that more the number of drugs, higher is the incidence of DRPs. These authors attributed the increase in morbidity due to polypharmacy, mainly when the patients are on 10 or more drugs. Twenty-four percentage of DRPs were found out to be due to drug interactions (Smith et al., 1996).

## 2. Objective

The objective of the study was to derive results from various studies conducted on drug related hospital admissions and make an overall view about the incidence, frequency, cost involved for treatment, major drugs contributing for the event, complaints on drug related hospital admissions, and percent preventable ADR admissions and summarize the factors responsible for the occurrence of DRP.

## 3. Method

Relevant literatures related to 'drug related hospital' admissions were obtained from PubMed database. Articles that were published from October 2007 to September 2012 were collected. All the studies being shown in the search results were considered for the study irrespective of the specialty department. A total of 366 articles were found based on the keyword 'drug related hospital admission', 'drug related problem admission', and 'adverse drug event admissions' search. Out of which 49 articles

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