

## Chapter 5

# Medication Errors: The Role of Societal Attributes

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### ABSTRACT

*Depending on the statistics examined, medication errors are responsible for 44000 to 400000 deaths annually. This chapter examined the role of societal attributes in medication errors. Although several studies have been conducted on medication errors there is still no uniformity in the definitions which makes evaluation of medication errors difficult. Despite the non-uniformity of definitions, all the research articles reviewed agreed that enhanced oral and written communications between health care providers and patients or parents of patients was a step towards the prevention of medication errors. The health literacy level of both health care providers and consumers also contribute to medication errors.*

### INTRODUCTION

This chapter would examine possible reasons for medication errors by looking at factors from the patients' side and from the prescribing doctors' side. It would also explore the path the prescription takes from the doctor till the patient gets the medication. In addition, it would suggest ways that the errors can be prevented.

Medication errors are estimated to account for at least 7000 deaths annually in the United States (Kohn, Corrigan & Donaldson, 2000). The United States Food and Drug Administration (2009) reported that at least 1 death occurred per day and 1.3 million people were injured each year due to medication errors. The mean medical malpractice payment related to medication errors between 1990 and 2002 was \$157,945 (Annual Report, National Data Bank, US DHHS, 2002).

The first and second leading causes of death in the United States in 2006 were heart disease and cancer respectively. The fifth leading cause of death was unintentional injuries or accidents. Medication errors that lead to death fall under unintentional injuries (Center for Disease Control, 2006). Adverse drug events are injuries caused by the overdose, the under dose or the stoppage of a drug or by an adverse drug reaction. If a medication is stopped before it is able to cause harm to the patient, this is known as

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a 'near miss' or a potential medication error. Medication errors include prescription errors (Lewis et al, 2009; Ross, Bond, Rothnie, Thomas & Macleod, 2008). Deaths due to preventable adverse events exceed the deaths attributable to motor vehicle accidents (45,458), breast cancer (42,297) or AIDS (16,516) (National Vital Statistics Report, 2009). Out of 119.2 million emergency department visits in 2006, 1.9 million visits were for adverse effects of medical treatments including complications of medical and surgical procedures (Pitts, Niska, Xu, & Burt, 2006).

The publication of a two hundred and eighty-seven page book, *To Err is Human: Building a Safer Health System* was pivotal in the exposition of the magnitude and impact of medication errors in the health care system (Kohn et al., 2002). In the book, the Institute of Medicine reported that 44000 - 98000 Americans die annually from medication errors in hospitals. McDonald, Weiner and Hui (2000) disagreed with the book and said that the figures were exaggerated. On the other hand, James (2013) disagreed with the figures by the Institute of Medicine suggesting that they could be as high as 400000 per year. In 1983, 2876, people died from medication errors and in 1993, 7391 died from medication errors (Kohn et al., 2000). If the estimate by James (2013) was used, then medication errors would be the third leading cause of death behind heart disease and cancer.

There has been an increase in the number of deaths from medication errors. A medication error is "a failure in the treatment process that leads to or has the potential to lead to harm to the patient" (Ferner & Aronson, 2006). Flynn (1999) asserts that pharmacists were the pioneers in studying medication errors as far back as the 1960's while testing for quality control in drug distribution systems.

"A medication error is any *preventable* event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer. Such events may be related to professional practice, health care products, procedures, and systems including prescribing; order communication; product labeling, packaging, and nomenclature; compounding; dispensing; distribution; administration; education; monitoring; and use" (The National Coordinating Council for Medication Error Reporting and Prevention, 2001).

Ferner (2009) opined that epidemiological studies on medication errors have been made difficult because there was no agreed consensus on the definition of medication errors. However, he was able to classify medication errors into four classes, knowledge-based medication error, rule-based medication error, action-based medication error and memory-based medication error. Further, Ross et al., (2008) agreed that there was difficulty in research on medication errors because there was no consensus on the definitions.

A systematic literature review of the prescribing errors by junior doctors in Western Europe, North America and Australasia by Ross et al. (2008) showed that the errors were due to wrong dose, wrong frequency, omitted information, wrong route, contraindications due to allergy, wrong drug, inaccurate information, other contraindication, illegibility, unclear quantity and wrong patient. Wrong dose was the most common medication error followed by wrong frequency.

According to the United States Food and Drug Administration (2009), the common causes of medication errors are poor communication, ambiguities in product names, directions for use, medical abbreviations or writing, poor procedures or techniques or patient misuses. These errors can occur during prescribing, repackaging, dispensing, administering or the monitoring process.

Bruce (2009) divided adverse drug events into three groups; wrong drug, wrong dose and wrong patient. Certain human conditions also increase the susceptibility to medication errors. These include inattention, knowledge-based errors, after hour shifts errors and treating an unfamiliar patient (Bruce, 2009). Bruce (2009) also noted that in a study conducted in Australia, medication errors occurred shortly

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