Chapter 18
Application of Quality Management in Promoting Patient Safety and Preventing Medical Errors

Ali Mohammad Mosadeghrad
Tehran University of Medical Sciences, Iran

Abraha Woldemichael
Mekelle University, Ethiopia

ABSTRACT

The combination of healthcare professionals, processes and technologies bring significant benefits for patients. However, it also involves an inevitable risk of adverse events. Patients receiving health care in health institutions have the potential to experience some forms of medical errors. The word medical error commonly encompasses terms such as mistakes, near misses, active and latent errors. This signifies the complexity and multidimensional nature of the error. The consequences can be costly to the patients, the health professionals, the health care institutions, and the entire health care system. The costs may involve human, economic, and social aspects. Thus, ensuring quality health care can contribute to patients' safety by reducing potential medical errors in practice. This chapter aims to introduce a quality management framework for improving the quality and effectiveness of services, reducing medical errors and making the healthcare system safer for patients.

INTRODUCTION

Health care is not as safe and reliable as it might be. Healthcare delivery is a complex process involving multiple independent agents and clinical pathways. One component of the system is interdependent and interacts with other multiple components. The occurrence of errors during the healthcare services delivery is inevitable. Medical errors are frequently occurring, complex and pervasive public health

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concerns that pose serious challenges to patient safety and could cause death and injury. The prevalence of the issue is gaining immense attention in recent years.

Unfortunately, the deaths due to preventable medical errors exceed the number of death from road accidents, cancer, or AIDS. Evidence from hospitalized patients consistently revealed high rates of adverse events (McLean, 2015). Preventable medical errors and adverse events are commonly observed in patients receiving care in hospitals and healthcare facilities. For example, evidence from US shows the occurrence of an estimated 161,655 medical errors in 2008 and 170,201 medical errors in 2009. The extrapolated estimate showed that there were more than four million unique injury visits containing more than one million unique medical errors each year in the entire US population (David *et al*., 2013). Although reports from developing countries are limited, medical errors are worldwide concerns.

Insufficient technical skills and motivation of healthcare professionals, poor quality of infrastructure, equipment, and drugs, and shortcomings in infection control and healthcare waste management particularly in developing countries make the probability of adverse events much higher than in industrialized nations.

Improving healthcare processes and enhancing health care quality are critical and enduring steps in promoting patient safety and reducing medical errors. This can be achieved through improving professional knowledge, meticulous health care delivery, adherence to policy and procedures and safe service delivery, improving institutional transparency and patient involvement in decisions, building good institutional culture and functional monitoring and evaluation.

This chapter presents the details of aspects of medical errors in connection with health care quality, and possible approaches to reduce medical errors and improve patient safety. The overall purpose of this chapter is to introduce a quality management framework to assist healthcare practitioners to improve the quality and effectiveness of services and reduce medical errors and their consequences.

MEDICAL ERRORS AND ADVERSE EVENTS

Medical Errors

The concept of "medical error" encompasses many intertwined individual and healthcare system related factors that make describing it more challenging. Medical error is related to the supply side of the healthcare organization (i.e., the healthcare system and professionals). Reason (1990) defined medical error as "*a failure of a planned action to be completed as intended (error of execution) or the use of a wrong plan to achieve an aim (error of planning)*". Van Den Bos and colleagues (2011) described medical error as a "*preventable adverse outcome that results from improper medical management (a mistake of commission) rather than from the progression of an illness resulting from lack of care (a mistake of omission)*". Grober and Bohnen (2005) have also defined medical error as '*an act of omission or commission in planning or execution that contributes or could contribute to an unintended result*'. The concept of medical error, therefore, refers to a mistake in actions or thoughts (judgment) in healthcare settings whether or not harm the patient. This definition includes the main domains of error causation (planning and execution; omission and commission), and captures faulty processes that can lead to errors, whether adverse outcomes occur or not.

Medical errors can be classified in many ways. One way of classifying medical errors is preventable or unpreventable errors. Preventable errors are those errors that can be predicted and remediated. For instance, errors related to malfunctioning of a technology can be prevented through routine monitoring