

Impact of Medical Errors and Malpractice on Health Economics, Quality, and Patient Safety



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Marina Riga
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A volume in the Advances in
Medical Education, Research,
and Ethics (AMERE) Book
Series



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Published in the United States of America by

IGI Global

Medical Information Science Reference (an imprint of IGI Global)

701 E. Chocolate Avenue

Hershey PA 17033

Tel: 717-533-8845

Fax: 717-533-8661

E-mail: cust@igi-global.com

Web site: <http://www.igi-global.com>

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Library of Congress Cataloging-in-Publication Data

Names: Riga, Marina, 1982- editor.

Title: Impact of medical errors and malpractice on health economics, quality, and patient safety / Marina Riga, editor.

Description: Hershey, PA : Medical Information Science Reference, [2017] |

Includes bibliographical references.

Identifiers: LCCN 2016059043 | ISBN 9781522523376 (h/c) | ISBN 9781522523383 (eISBN)

Subjects: | MESH: Medical Errors--adverse effects | Malpractice--economics |

Medical Errors--economics | Quality Assurance, Health Care--methods |

Patient Safety | Patient Harm--prevention & control

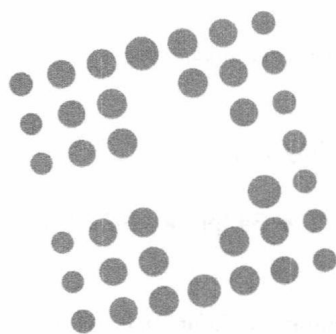
Classification: LCC R729.8 | NLM WB 100 | DDC 610.28/9--dc23 LC record available at <https://lccn.loc.gov/2016059043>

This book is published in the IGI Global book series Advances in Medical Education, Research, and Ethics (AMERE) (ISSN: Pending; eISSN: Pending)

British Cataloguing in Publication Data

A Cataloguing in Publication record for this book is available from the British Library.

All work contributed to this book is new, previously-unpublished material. The views expressed in this book are those of the authors, but not necessarily of the publisher.



Advances in Medical Education, Research, and Ethics (AMERE) Book Series

ISSN: Pending

EISSN: Pending

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Preface

Medical errors exist and can provoke discussion and debate about quality and patient safety issues of health care provision, with multiple and complex social and economic implications. The starting point for bringing them to the forefront of public attention was the reports of Institute of Medicine titled “To Err is Human: Building a Safer Health System” and “Crossing the Quality Chasm: A New Health System for the 21st Century”. On the report of Quality Interagency Coordination Task Force (n.d.), a medical error was determined as “the failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim. Errors can include problems in practice, products, procedures, and systems”. Researches worldwide revealed that the number of patients who have experienced a medical error in healthcare is worryingly high, while a significant proportion of harm refers to medical errors reasonably preventable. Under the burden of serious economic and social implications of physical harms and the finding that the root causes are mainly systemic in the overall health system, it is essential to take strategically designed actions to reduce medical errors, involving the health care professionals and patients, using Information Technology for detecting, reporting and analyzing the medical errors.

This book explores the impact of medical errors on patient safety, healthcare quality and on fiscal consolidation and cost containment on healthcare systems and looks to initiate a debate among health decision makers, health professionals and patients about accurate reporting of medical errors for empowering the culture of patient safety and healthcare quality. Additionally, chapters address the hidden weaknesses, failures and malpractices existing in healthcare systems globally, the variety of medical errors’ measurement methods, and the different aspects of incident reporting systems implementation. This book aims to be an essential reference source, building on the available literature in the field of the detection and analysis of the various implications of medical errors while providing for further research opportunities in this dynamic field.

Health decision makers, health managers, health professionals, patients, medical malpractice lawyers, academicians, researchers, advanced-level students, healthcare information technology developers, and government officials will find this book useful in furthering their research exposure to pertinent topics in the various implications of medical errors.

It is hoped that this book will provide the resources necessary for health decision makers and health professionals to adopt a culture of openness and implement a systematic review of medical errors in order to improve the quality of care and patients' safety in the healthcare system, worldwide as well as to achieve the health care cost containment.

Marina Riga

Health Economist-Research, Greece

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Quality Interagency Coordination Task Force. (n.d.). Retrieved from <https://archive.ahrq.gov/quic/>

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Vaughan Michell, Reading University, UK

Jasmine Tehrani, Reading University, UK

A key approach to improving patient safety is to seek to modify both formal and informal behaviours in response to the extensive reporting of error causes in the literature. This response is primarily in two parts; a) actions to minimise the risk of error or b) actions to control against error. For a) very valuable work has also been undertaken in running human factors courses to demonstrate and try to change poor behaviour via best practice models. In the case of b) much work has been done on increasing control regimes such as checklists and also formal rules in formal procedures. However, these actions tend to be specific to specific health units, are often piecemeal and are not integrated to complement each other. Little work has been done to integrate these formal and informal/social behaviour into clinical pathways or health activities. This chapter reviews current thinking and develops a methodology and proposal for identification and control of human error in clinical pathways based on the research of the two authors.

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Jayita Poduval, Pondicherry Institute of Medical Sciences, India

The impact of medical errors on the delivery of health care is massive, and it significantly reduces health care quality. They could be largely attributed to system failures and not human weakness. Therefore improving health care quality and ensuring quality control in health care would mean making systems function in a better manner. In order to achieve this all sections of society as well as industry must be involved. Reporting of medical error needs to be encouraged and this

may be ensured if health care professionals as well as administrators and health consumers come forward without fear of being blamed. To get to the root of the problem- literally and metaphorically- a root cause analysis and audit must be carried out whenever feasible. Persons outside the medical care establishment also need to work with medical service providers to set standards of performance, competence and excellence.

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Patient Safety and Medical Errors: Building Safer Healthcare Systems for Better Care 61

Vasiliki Kapaki, University of Peloponnese, Greece

Kyriakos Souliotis, University of Peloponnese, Greece

Patient Safety is considered to be the most important parameter of quality that every contemporary healthcare system should be aiming at. The terms “Patient Safety” and “Medical Errors” are directly linked to the “Safety Culture and Climate” in every organization. It is widely accepted that medical errors constitute an index of insufficient safety and are defined as any unintentional event that diminishes or could diminish the level of patient safety. This chapter indicates that a beneficial safety culture is essential to enhance and assure patient safety. Furthermore, health care staff with a positive safety culture is more probable to learn openly and successfully from errors and injuries.

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Application of Quality Management in Promoting Patient Safety and Preventing Medical Errors 91

Ali Mohammad Mosadeghrad, Tehran University of Medical Sciences, Iran

Abraha Woldemichael, Mekelle University, Ethiopia

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.

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This chapter presents the overview of medical errors; drug prescription errors and prescribing; the overview of medical error disclosure; medical errors and telemedicine; medical errors and medical education; the overview of nursing medication errors; and the aspects of medical errors in the health care industry. Reducing medical errors, increasing patient safety, and improving the quality of health care are the major goals in the health care industry. Medical errors are caused by mistakes in drug prescription, dosing, and medical administration in inpatient and outpatient settings. Health care-related guidelines, institutional safety practices, and modern health care technologies must be applied in hospitals, clinics, and medical offices to reduce the occurrence of medical errors. The chapter argues that understanding the perspectives of medical errors has the potential to enhance health care performance and reach strategic goals in the health care industry.

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The Role of Forensic Medicine in Medical Errors	144
<i>Grigorios Leon, Hellenic Society of Forensic Medicine, Greece</i>	

This chapter presents the importance of Legal and Forensic Medicine in medical malpractice and explains how autopsies have a crucial role for the evaluation and the prevention of medical errors. Health systems vary from country to country; however, experts are indispensable in each system. In fact, experts' opinions are asked for resolution of specific court cases. Standard of care is often assessed by expert medical witnesses who testify for one of the litigants. The physician who acts as an expert witness is one of the most important figures in malpractice litigation. Therefore, a doctor who is an expert witness has to have certain training and qualifications and to act under common recommendations. The ideal medical expert seems to be the forensic doctor. In the future, a harmonization of practices could be applied in medical liability cases and the guidelines provided by the medico-legal community could constitute a stable base for their evaluation.

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<i>Mary I. Gouva, TEI of Epirus, Greece</i>	

The current chapter examines the psychological implications emerging from medical errors. Whilst the psychological effects have studied, nonetheless the consequent impacts and the underlying psychological causes have not been sufficiently analysed and/ or interpreted. The chapter will add to the literature by using a psychodynamic

approach in analysing the psychological impact of medical errors and provide interpretations of the underlying causes. The chapter concludes that medical errors lead to a series of implications. For the patient the quality of interactions with health professionals are directly affected and usually have immediate consequences. The impact of these consequences in the patient is mediated by the patient’s personality, history of the individual and the psychoanalytic destiny of the patient. For the patient’s relatives medical errors create emotional cracks leading to regression and eventual transference of the medical errors as a “bad” object. For health professionals medical errors impact upon the psychological defence mechanisms of the psychic Ego.

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 Paraskevi K. Skourti, National and Kapodistrian University of Athens,
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 Andreas Pavlakis, Neapolis University Pafos, Cyprus

Medical error happens when an action within the medical field is not fulfilled as planned, or the plan is performed incorrectly. Patient and family are the first victim of an adverse event. The damage in a patient’s health, leads in a distressing situation not only for the patient, but also for the clinician who is responsible for this outcome. The term “second victim” refers to the trauma that a health professional sustains due to a serious adverse event in the healthcare system. After a medical error the caregivers are experiencing the aftermath in their personal and professional life. They feel isolated and abandoned, and some of them are coming up against the law with penal and disciplinary ramifications as a consequence of the blame culture in the health care system. Some health professionals experienced the consequences of an unfortunate incident even if it did not lead in harm to the patient’s health.

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Chapter 1

Clinical Pathways and the Human Factor: Approaches to Control and Reduction of Human Error Risk

Vaughan Michell
Reading University, UK

Jasmine Tehrani
Reading University, UK

ABSTRACT

A key approach to improving patient safety is to seek to modify both formal and informal behaviours in response to the extensive reporting of error causes in the literature. This response is primarily in two parts; a) actions to minimise the risk of error or b) actions to control against error. For a) very valuable work has also been undertaken in running human factors courses to demonstrate and try to change poor behaviour via best practice models. In the case of b) much work has been done on increasing control regimes such as checklists and also formal rules in formal procedures. However, these actions tend to be specific to specific health units, are often piecemeal and are not integrated to complement each other. Little work has been done to integrate these formal and informal/social behaviour into clinical pathways or health activities. This chapter reviews current thinking and develops a methodology and proposal for identification and control of human error in clinical pathways based on the research of the two authors.

DOI: 10.4018/978-1-5225-2337-6.ch001

1. INTRODUCTION AND BACKGROUND

1.1 Patient Safety

Although large numbers of people continue to be successfully cared for and treated in the National Health Service, a significant number of errors and other forms of harm occur. It has been calculated that up to 10% of patients admitted to NHS hospitals are subject to a patient safety incident and that up to half of these incidents could have been prevented ((Osborn and Williams, 2004; Vincent et al., 2001). Surprisingly, up to half of the 10% of Iatrogenic or accidental errors could have been prevented (Michell et al, 2012). It was estimated by a Bristol Royal Infirmary Inquiry (Bristol HMSO, 2001) that around 25,000 preventable deaths occur in the NHS each year due to patient safety incidents. These incidents also generate a significant financial burden that includes avoidably prolonged care, additional treatment and litigation costs.

Avoidable unintended or accidental outcomes of medical care, medical errors are also a serious and challenging issue in many other countries including North America. The influential Institute of Medicine's (IOM's) report, *To Err Is Human* highlighted the extent of the problem and the need for remediation was documented in *Building a Safer Health System* (1999), where between 44,000 and 98,000 people die in hospitals each year as the result of medical errors. There is broad international agreement on the importance of achieving improvements to quality in this area (Milligan, 2007). The recorded event where an error is noticed ie a safety incident is defined by the National Patient Safety Agency (NPSA, 2004) as: any unintended or unexpected incident which could have or did lead to harm for one or more patients receiving NHS funded care“. These types of incidents are also referred to in the literature as adverse events/incidents, medical error, clinical error, and include the concept of near miss. The latter is a situation in which an error or some other form of patient safety incident is averted, such as noticing and therefore avoiding giving the wrong drug to a patient.

In the UK, the terminology for self-inflicted errors by clinicians and health workers has evolved from serious untoward incident to 'significant event' or in extreme cases 'never events' with examples of over 1600 serious incidents occurring in one NHS region in one single year (Rosenorn-Lanng, 2014)

However, whatever the terminology these events are all dependent on the human in the room and in the loop, clearly driving the need to understand the human as a source of error. The study of the effect of the human condition on safety events and human errors is often termed 'human factors' and is clearly important in the understanding of safety problems since the care and intervention activities are primarily human driven.

1.2 Human Factors

Chapanis defines human factors as ‘a body of information about human abilities, limitations and characteristics that are relevant to the design process’ (Chapanis, 1996). In a work context, human factors include environmental, organisational and job factors, and individual characteristics which influence behaviour in a work environment. Clinicians have suggested ‘Human factors relate to the aspects of human behaviour that reduce certainty of actions and can set conditions for, and create, human errors. This alludes to the fact that human factors not only relate to the way the error is driven by human actions, or inaction, but also a human failing may be a precursor and contributing factor to an error by other individuals and indeed machines that are predicated on human decisions.

Human factors can perhaps be more simply understood as all the factors or conditions that affect human behaviour and particularly human fallibility or the propensity for error and unintended outcomes. Sadly, whilst human fallibility leading to errors can be moderated, they cannot be eliminated. It is inevitable that errors will occur in healthcare, as they do in other safety critical industries, because they are an intrinsic human trait – to err is human (Kohn et al., 2000).

There have been a number of attempts to propose a categorisation of human factors that lead to errors and patient safety issues. Reason (1995) analysed conditions under which human factors can contribute to safety failures and proposed a generic model of accident causation (Reason, 1995). (Chang et al, 2005) conducted a series of similar studies and presented an evaluation of existing patient safety terminologies and classifications and grouped the findings into five complementary root nodes: impact, type, domain, cause and prevention. In this paper, cause and type root nodes are further analysed for the purpose of better understanding of human factors and towards a generic taxonomy and classification schema of human factors influencing near misses and adverse events. As a basis for understanding the range of human factors Rosenorn-Lanng & Michell developed the ‘SHEEP’ structured factor model as an acronym for classifying the human factor variables that influence error into five groups; (S) systems, (H) human interaction, (E) environment, equipment, (P) personal (Rosenorn-Lanng & Michell, 2014). This approach can provide a useful checklist of human factors, both causal and influential that safety events and errors can be categorised against to understand the influence of human factors on activity and task failures. Ongoing capture and categorisation of these events can then yield a database of human factor patterns in a specific clinical environment that can be statistically analysed to focus sparse improvement resources to resolve them. Example factors from the SHEEP model are used to illustrate this chapter and can also be integrated with the other models mentioned. Our concern is to understand the human factors affecting human clinical actions and seek ways to moderate the

impact of these factors. The following sections investigate the cause of error and the range of human factor drivers. To develop the approach we adopt a modified form of Jackson & Flin's model of factors affecting patient safety (Figure 1) (Flin et al, 2009).

2. ERRORS

2.1 Individual Human Error Factors

Reason defined an error as 'a failure of a planned action' (Reason, 1995) and identified 3 key types of individual human error. He distinguished between slips – failure to do something and mistakes or failures to do the thing right. Leape suggested slips were due to attention issues or intention failures (Leape, 1994). Mistakes relate mainly to errors in the conscious human mind's judgement and decision making and cover rule based and knowledge based types. Rule based errors involve either applying the correct rule, to the wrong context due to incorrect situation perception or applying a rule that has been recorded incorrectly, to the right situation (Leape, 1994). Knowledge based errors resulted from cognitive processing failures of using an incorrect, familiar or incomplete mental model that does not represent the actual situation.

Figure 1. Factors affecting patient safety outcomes (adapted from (Flin et al, 2009))

