
Crisis Management in Acute Care Settings

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Crisis Management in Acute Care Settings

Human Factors and Team Psychology
in a High-Stakes Environment

Third Edition

 Springer

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ISBN 978-3-319-41425-6 ISBN 978-3-319-41427-0 (eBook)
DOI 10.1007/978-3-319-41427-0

Library of Congress Control Number: 2016956853

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Printed on acid-free paper

This Springer imprint is published by Springer Nature
The registered company is Springer International Publishing AG Switzerland

As authors we would like to dedicate this book to very special people

... to Ulrike who is the love of my life, and to three wonderful adult children: Marie-Catherine, Yannis Christoph, and Julian David

... Michael

... to my family, Michael, Daniel, and Julius, with gratefulness and love

... Gesine

... to my dear wife, Diane, and our children and in-law children: Bartholomew, Katie, Peter, Molly, Gabriel, Juliet, Xander, Kai, HueLinh and Hai. And to the 12 lights of our lives, the grandchildren: Oskar, Sadie, Henry, Malcolm, Desmond, Elena, Lewis, Lucie, Aquinnah, Larson, Kenny and Larissa

... Robert

... and to all our clinician colleagues who helped us shape this book by generously sharing their personal experiences caring for critically ill or injured patients when the stakes are high and time is limited. The dedication, skills and intelligence they apply every day to the sick and injured is awesome.

Foreword

The most significant exclusion from the third edition of *Crisis Management in Acute Care Settings* is any mention of Murphy's Law: *Anything that can go wrong, will go wrong*. Perhaps, Michael St.Pierre, Gesine Hofinger, and Robert Simon were uncomfortable about including a pseudoscientific law of nature that does not really exist? Or were they aware of the controversies surrounding the origin of this eponym? Whatever the case, this new edition of their now classic book does everything possible to explain the drivers of Murphy's Law in acute care settings.

Well covered is the notion that when people are under stress, time pressure, fatigue, or working within poorly designed structures many things can go wrong. This book discusses how these organizational, psychological, cognitive, social, or environmental systems can unravel. Importantly, the authors also reveal how to prevent or interrupt their progression to disaster in clinical practice.

With practical case examples and admirable parsimony, this book covers complex and diverse fields in easy-to-read prose. This book is a one-stop shop for those of us teaching or attempting to practice crisis management in acute care settings.

For those just needing a thumbnail sketch of topics such as cognition or communication under stress, the "in a nutshell" sections provide elegant one-page summaries synthesizing extensive research. The "quick tips" sections show clinicians and educators how to adapt their clinical management and teamwork to best crisis resource management practices. For those running blogs or journal clubs on teamwork or high reliability, each chapter can be read and discussed in depth; for those designing teamwork or CRM experiences, the extensive bibliography of each chapter provides a trove of evidence to explain the rationale behind learning objectives.

It is hard for all of us healthcare educators and quality and safety professionals to accept what Charles Perrow argued in his visionary book *Normal Accidents: Living with High-Risk Technologies*: that neither constant vigilance nor system design can prevent error and accidents in complex systems. Accidents and errors should not surprise us; rather, they are a normal part of what happens when humans

interact with each other in complex technologies and complex organizations. But *Crisis Management in Acute Care Settings* gives us a fighting chance to reduce error and improve performance even when the odds are against us.

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Preface

Alone we can do so little; together we can do so much.

Helen Keller

Providing safe patient care in an acute care setting has always been and still is one of the great challenges of health care. On a regular basis, healthcare professionals are faced with problems that are unexpected and threaten the lives and well-being of our patients. During these events we don't have time for in-depth reflection, yet these high risk, time-constrained situations call for swift and correct decisions.

There are research traditions that focus on the clinical aspects of high acuity, emergent medical crises, e.g., multi-trauma, heart attacks, etc. Equally, there are rich and informative lines of research on psychology, teamwork, and organizational behavior. Until the advent of this book, there has been no single source in the field of healthcare that provided ways to think about and act on the combination of those disciplines: medicine, the psychology of human behavior under stress, teamwork for high-performance teams, and modern organizational behavior. The intent of this book is not only to organize and provide an overview of those disciplines as they apply to healthcare, but to make the fundamental concepts accessible, understandable, and actionable by interested clinicians – all in one place. After reading this book, those who want to pursue advanced or specific understandings and applications are encouraged to take advantage of the burgeoning literature on the subject of performing patient care in high acuity, time-stressed, high risk situations. The journals cited in chapter reference sections are a good place to start and your own discipline's journals may well contain enlightening information. We encourage you to use journals that you might not normally use because many useful findings are quite likely to come from disciplines outside of healthcare.

A set of skills is needed to enable healthcare professionals to reliably translate knowledge into safe patient care despite varying and often hindering circumstances. These skills are what the following pages are about. You will not encounter any information concerning the clinical management of critical situations throughout the entire book. Instead, the book at hand focuses on people: on healthcare providers from various specialties and professions who are expected to manage the unexpected: nurses, physicians, paramedics, and technicians. All of them have a set of clinical *and* human factors-related skills that enables or constrains their ability to

manage critical situations. All of these practitioners can improve their performance by thoughtful application of the concepts, theories, and practical advice presented in Parts II, III, and IV of this book.

The first part of the book addresses basic principles of errors, complexity, and human behavior. It is designed to provide an overview of the problems that humans face in complex organizations in general and healthcare in particular. Data on human error and accidents are presented and an argument is made about why the characteristics of acute clinical care intensify the possibility for errors. The part presents a modern view of errors in healthcare, a view that the authors of this book subscribe to: Errors in healthcare are predominantly caused by people who are smart, capable, care about doing their best, and who are committed to improving their practice – but the human condition, poor teamwork, and organizational weaknesses combine to create circumstances that lead to poor performance or errors.

Parts II, III, and IV focus on three areas of importance regarding how we function within healthcare organizations when there is an emergent, high risk, temporally bound crisis: individual, team, and organizational. Part II focuses on the psychology of our shared human condition. Despite the best of intentions and superior clinical training, healthcare providers have inescapable cognitive limitations that contribute to errors and hinder successful crisis management. To help healthcare providers better understand their natural strengths and weaknesses as human decision makers and action takers, this part provides an outline of the way the human mind operates when the stakes are high and time is limited. Humans think and act the way they do because natural underlying psychological mechanisms provide an approach to cope with environmental demands. Given that healthcare providers are normally trying their best to help their patients, we present why errors are not the product of irrational psychological mechanisms, but instead are rational and originate from otherwise useful mental and psychological processes – most of which stem from and are common to all humans. Some of them, like communication patterns, can be changed. Other mechanisms have absolute limits or are very difficult to change or reorient – our perception, attention, motivations, feelings, and thoughts are not entirely subject to our will.

The third part of the book attends to teamwork considerations in healthcare.¹ Acute medical care, in fact all of modern healthcare, is not delivered by one person; instead it is provided through the combined efforts of professionals from various disciplines and specialties cooperating for a patient's sake. In emergent, acute situations, a team is all in one place at the same time and must share information and coordinate actions when it is highly likely that no one has all the needed information and no one can take all the needed actions. Performance-limiting factors that result in less than optimal care or errors are very often the result of applying weak, uninformed, or faulty teamwork practices. Many weaknesses in teamwork are amenable to training with feedback complemented by periodic reinforcement. Thus, knowledge of successful strategies for improving team performance and having opportu-

¹ Thanks to Walter Eppich, M.D., from the Feinberg School of Medicine, Northwestern University for contributions made to this book's 2nd Edition's teamwork section.

nities for practice and reinforcement will most certainly create a safer and more effective clinical environment.

The fourth part of the book focuses on human behavior in organizations. Organizations and their systems are deeply embedded in the culture of every health-care organization and resistant to change. Changing the culture and putting effective systems in place is especially hard work. It is our firm belief, however, that raising human factors to a higher level of importance in organizational design and daily work habits will have a high payoff in terms of effectiveness and safety. There are many successful organizations around the world that place these considerations high among their priorities, e.g., aviation, nuclear power, and a number of other businesses that seek to be high reliability organizations.

There are two ways you may want to read the book. You may follow through the text according to its inner logic, chapter by chapter. Or you may prefer to read selected chapters. The book has a modular character in which every chapter stands alone and can be read without knowledge of previous ones. To avoid excessive redundancy, basic concepts are explained only once and then cross-referenced.

Every chapter follows the same pattern: A case study from an acute care situation illustrates central aspects of the subject matter and is then used as the reference point for the topic.² Every chapter provides answers to the same questions: “What is the relevance of the subject? What problems can be explained by this particular human factor? What can we transfer to our clinical environment? How can we apply the knowledge to improve clinical effectiveness and patient safety?” To enhance practicability, the chapters on individual and team factors offer “tips for daily practice” that are meant to provide helpful advice. Every chapter ends with a short “in a nutshell” paragraph summarizing the essential points made in the chapter.

A book like this one requires the combined perspectives of several disciplines. This book grew out of a longstanding cooperation and friendship between a physician with acute medical care background (anesthesia, intensive care, prehospital emergency medicine) providing simulation-based team training at his institution (St.Pierre) and two psychologists who have spent their professional lives doing research in psychology, teamwork, and organizational behavior, and who have taken those findings to develop and provide training to high performance teams in aviation (Simon), crisis management (Hofinger), and healthcare (Hofinger, Simon).

To write this book, each of us shared our expertise with one another so that we could write a cohesive book that is understandable and useful for clinicians seeking to improve their practice and/or provide a useful basic text for those starting in the field. The result we aimed for is a text rooted in the clinical environment of acute clinical care wrapped in a cohesive theoretical framework of cognitive, social, and organizational psychology. The clinical relevance and the practicability of this book have been our major concerns. Since this is our third edition of the book, we are pretty confident that we are doing something that many have deemed valuable.

²Thanks to Toni Walzer, M.D., from the Center for Medical Simulation and Harvard Medical School in Boston for providing us special expertise and insights for the obstetrics-oriented vignette in Chap. 15.

For us, this book has been a teamwork experience at its best. The process of writing this book has been a challenging yet fruitful time for each of us. All of us contributed to every chapter; we all take the responsibility for the inevitable errors. We have benefitted from feedback on the first and second editions and will continue to be grateful for any remarks concerning the content of this book.

With the advent of the third edition, we continued working to enhance the book with additional information and even added a chapter. As with our endeavors toward the second edition, we found ourselves happily taking the opportunity to collectively revisit, rethink, and rewrite a number of concepts presented in the earlier book. We also continued to improve the writing and sharpen the description of the concepts and examples. While two of us are native German language speakers (St. Pierre and Hofinger), a native English speaker and experienced educational psychologist (Simon) had substantial influence over how the book's content was expressed in terms of the English language and the behavioral science presented in the book. The result, we hope, is an improved and even more worthwhile book that we are anxious to put in the hands of the interested reader.

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