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David Nott  
*Editors*

# Disaster Medicine

A Case Based Approach

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 Springer

David MacGarty • David Nott  
Editors

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*Editors*

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# Disaster Medicine

*This book is dedicated to Sarah Houston. As a medical student she was actively interested in Global Health issues and she hoped to pursue this interest in her career. Her determination to help those in need, both at home and abroad, was inspirational and her legacy will remain with all those who knew and loved her.*

*Thanks to our mums and wives/girlfriends who put up with us while we burned the midnight oil.*

*Also special mention to: Brother Elio Croce ('bro Elio') – Director of St. Jude Children's Home and Technical Director at St. Mary's Hospital, Lacor (both in Gulu, Uganda) and Tom Hart – Programme Director in Guatemala for the charity Health Poverty Action (HPA).*

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# Prologue

I am writing this prologue during a quiet spell working as a surgeon for Medecins Sans Frontieres in Northern Syria during the current civil war. It is not just necessary to be able to perform surgery safely and competently in this poorly resourced environment but also to have an understanding of the rules that allow humanitarian interventions to proceed at all. For many of us that work in the developed world, it is difficult to imagine what it means to be involved in a human catastrophe and conflict. In 2010 I met a group of highly motivated final year medical students who wanted to understand the intricacies of health provision in situations alien to their world. To this end, both hard work and time spent talking to experts in their field, it has been possible to put together this book. It is hoped that it will provide the reader with an understanding of the complexities involved from the moment humanitarian aid is required whether it be for war or natural disaster. At the end of each chapter are case studies “putting it all together”, which will provide insight into how it all works in the real situation.

In disaster situations, usually the countries affected open their doors to humanitarian aid and more often than not are overwhelmed with Non-Governmental Organizations. This can lead to a complete lack of order and understanding between various aid providers causing multiplication of services and sometimes total confusion. Even though the United Nations should have ultimate overall control, they have little power to stop aid organizations from setting up shop and adding to the mayhem. The overall situation is usually contained as the event occurs once and those injured or made homeless are a group that can be treated and rehabilitated.

The present conflict in Syria exemplifies the problems of war and caring for internally displaced people and refugees. It is ongoing and the situation is constantly changing; it may go on for a very long time and take significant resources both in terms of human cost and infrastructure. Most countries of the world subscribe to the international humanitarian laws as laid down by the Geneva Conventions and upheld by the International Committee of the Red Cross. This conflict demonstrates how difficult it can be for the international community to act without the appropriate signatories. Although Humanitarian Organizations are by nature

apolitical, impartial, and neutral, this alone does not appear to provide security for the doctors and nurses and other healthcare workers who increasingly in this conflict are made to feel insecure.

This book will provide insight into these issues and I hope that you will enjoy it.

London, UK

David Nott



# Acknowledgments

Mr David Nott OBE is a Consultant General Surgeon at the Chelsea and Westminster Hospital specializing in upper GI laparoscopic surgery. He also works at St. Mary's Hospital where he is a vascular and trauma surgeon and at the Royal Marsden Hospital where he performs retroperitoneal and pelvic side wall surgery. He also runs the Definitive Surgical Trauma Skills course at the Royal College of Surgeons of England.

He is an authority in laparoscopic (keyhole) surgery and was the first surgeon to combine laparoscopic and vascular surgery. He was the first surgeon in the world to perform a totally laparoscopic distal arterial bypass and the first surgeon in Europe to perform a laparoscopic abdominal aortic aneurysm repair. He has written over 100 papers on various aspects of General, Vascular, and Trauma Surgery.

David has worked extensively for both Medecins Sans Frontieres (MSF) and the International Committee of The Red Cross. He has deployed to many conflict and catastrophe settings including Bosnia, Liberia, Sierra Leone, Ivory Coast, Chad, Libya (Misrata), Haiti, Sudan (Darfur), Pakistan, Afghanistan, and Iraq. He recently deployed to Syria (September 2012) to provide surgical care for the victims of conflict.

While working for MSF in the Democratic Republic of Congo, David famously performed a life-saving forequarter amputation on a 16-year-old boy whilst receiving instruction via text message. He is a member of the Royal Auxiliary Air Force and has a passion for flying. He holds commercial and helicopter pilot licenses and regularly flies a Learjet45 for a corporate company based in London.

Professor Jim Ryan OBE (OSU MB BCh BAO MCh FRCS DMCC, Hon FCE) was the first Leonard Cheshire Professor in Conflict Recovery at University College London, serving in that capacity from 1995 until 2007. In 2002, he was appointed International Professor of Surgery at USUHS, MD, USA. In 2007, he was further appointed Emeritus Professor to the Centre for Trauma, Conflict & Catastrophe Medicine at St George's University of London and he is tasked with taking the center forward.

His conflict and catastrophe experience covers military and humanitarian operations in Northern Ireland, Cyprus, the Falkland Islands, Nepal, the Balkans, the Caucasus, and Central Asia. He is a trustee of a number of charities, including the

Swinfen Charitable Trust—an organization that focuses on establishing telemedicine links between hospital-based practitioners in the developing world and medical and surgical specialists who give advice over the Internet. Professor Ryan's research interests include ballistic and terrorist injury, military and conflict medicine.

Professor Kim Mulholland (MB BS, FRACP, MD) is a pediatrician who joined the Medical Research Council (MRC) unit in the Gambia in 1989 where he undertook research into pneumonia, neonatal infections, and vaccine evaluation, which culminated in the pivotal Gambia Hib vaccine trial. Between 1995 and 2000, he was based in Geneva at WHO where he was responsible for research in child health and bacterial vaccines. In 2000, he established the Centre for International Child Health at Royal Children's Hospital, Melbourne (the hospital where he trained). Since 2005 he has held a personal chair in Child Health and Vaccinology at the London School of Hygiene and Tropical Medicine. He is a Professor of International Child Health at the Menzies School of Health Research, Darwin, and at the Murdoch Children's Research Institute, Melbourne.

Dr Michael Brown is an infectious diseases physician at the Hospital for Tropical Diseases, London, and a senior lecturer at the London School of Hygiene and Tropical Medicine. He runs the HIV/AIDS distance learning MSc module and has research interests in HIV testing and in imported infections.

Jane Gilbert is a Consultant Clinical Psychologist based in the United Kingdom. She specializes in workshops/training on psychological and mental health issues in cross-cultural contexts and consultancy to international NGOs. She has worked in The Gambia, Uganda, Lesotho, Ghana, Jordan, and Liberia. Her particular interests include the effects of culture and language on personal identity, and the integration of different cultural understandings in training and mental health services.

Professor Clare Gilbert worked as a clinical ophthalmologist for 10 years and has an MD in Surgical Retina. Following an MSc in Epidemiology at London School of Hygiene and Tropical Medicine in 1995, she worked in the Institute of Ophthalmology, London, from 1990 before joining the London School in 2002. Clare is a professor at the International Centre for Eye Health (ICEH), and has been medical advisor to Sight Savers International since 1995. Since January 2006, Clare has been co-director of ICEH and is a member of the School's Ethics Committee.

Kate Godden is a nutrition expert with 20 years experience with NGOs, UN and donors. She has an MSc from the London School of Hygiene & Tropical Medicine and is a registered Public Health Nutritionist with the Association for Nutrition. She has worked principally in sub-Saharan Africa and Asia and is a member of the capacity development working group of the UN global nutrition cluster. Kate also teaches at the University of Westminster on an MSc International Public Health Nutrition.

Dr Daniele Lantagne is an assistant professor at Tufts University (Boston, MA) who researches and provides technical assistance to organizations on the development,

implementation, and assessment of water and sanitation interventions in both developing countries and emergency contexts to prevent diarrheal disease.

Dr Jessi Tucker is an emergency medic at the Royal London Hospital who promotes education and awareness in pre-hospital, wilderness and conflict and catastrophe medicine. She is a member of the Conflict and Catastrophes Forum at the Royal Society of Medicine, the medical cell of the Royal Geographical Society and she lectures at St George's on the BSc module in Leadership in Disaster Medicine.

Dr Rachel Brand is a Clinical Psychologist in south London who works for both an early intervention in psychosis service and a traumatic stress service and is experienced in assessing and treating refugees and asylum seekers in a mental health context.

Drs David MacGarty, Will Barker, Shao Foong Chong, James Houston, and Ed Mew met as medical students at St. Georges University of London in 2007. They developed their passion for pre-hospital care and disaster medicine by attending electives with the HEMS helicopter service at the Royal London Hospital and completing the diploma course in Conflict and Catastrophe Medicine run by the Worshipful Society of the Apothecaries in London. Under the influence of Professor Jim Ryan, they helped in setting up the BSc module in "Leadership in Disaster Medicine" at St Georges. Now FY2 doctors they are all focused on developing their clinical skills with the aim of using them in conflict and catastrophe settings in the future.

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# **Part I**

## **Disaster Response**

Section reviewed by David Nott

Working for NGOs as a surgeon involves frequently deploying to areas of the world that are prone to conflict or catastrophe. Your phone goes off and you agree in principle to go on the mission; but you have to clear it with your family, colleagues, and the hospital managers. Shackles removed the reality of the mission sets in. Other than the work itself the potential risk from the environment and from warring parties are high on the agenda.

Your job is well defined by the NGO and all the hard work involving negotiations between parties to secure your safe travel have been performed by local logistical and headquarters staff. The most dangerous part of a mission is getting to and from the area. The well-marked vehicle you are traveling in should be given free passage but you have to be aware that drug and alcohol fuelled soldiers and bandits do not adhere to the rules. Being stopped at a checkpoint in the Congo and the barrel of a rifle pressed into my neck was a defining moment in my life. I was saved by a patient in the back of the landcruiser whom I had just operated upon because he was of a higher rank than the crazed guard.

As a humanitarian aid worker one needs to remain focused on the job in hand and that job is to help to relieve human suffering. Remember that despite what is happening around you, you have three priorities; yourself, the team, and the patients. Always adhere to the rules. The head of mission has ultimate responsibility but you are a member of the team and everyone has a role in the safe running of the mission, whether it be in a conflict zone, natural disaster, or looking after refugees.

David Nott





# Chapter 1

## Immediate Response to Disasters

Ed Mew



**Fig. 1.1** Picture of Banda Aceh with surviving Mosque (Permission kindly granted courtesy of Project Hope/US Navy healthcare team)

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