# WAR SURGERY

## WORKING WITH LIMITED RESOURCES IN ARMED CONFLICT AND OTHER SITUATIONS OF VIOLENCE

## VOLUME 1

ICRC

REFERENCE

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### VOLUME 1

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# PREFACE

In 1863, a small group of Swiss citizens founded the International Committee of Geneva for the Relief of Wounded Soldiers. A year later, an international diplomatic conference negotiated the first Geneva Convention for the Amelioration of the Condition of Wounded Soldiers in the Field, which to this day is one of the cornerstones of international humanitarian law, and gave the International Committee of the Red Cross its definitive name.

International humanitarian law – the law of war – has developed since, and the mandate, role and activities of the ICRC have expanded to include both protection and assistance for all the victims of armed conflict and other situations of violence. Assistance and relief programmes are now run according to a public health approach and aim to be holistic regarding human needs while respecting the dignity of each and every one.

War surgery – the care of the wounded in armed conflict and other situations of violence – remains a pillar of the ICRC's identity. Over the years, ICRC hospital teams have unfortunately been witness to a great deal of physical and mental suffering in this world. Through caring for the sick and wounded in so many different conflict zones, the ICRC and its partners in the International Red Cross and Red Crescent Movement have developed an expertise they are keen to share, and created a pool of human resources ever willing and prepared to help alleviate some of the suffering.

This new manual presents some of this expertise, gained at great human cost, in the hope that one day it will no longer be required.

Jakob Kellenberger

President
International Committee of the Red Cross

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# INTRODUCTION

Our common goal is to protect and assist the victims of armed conflict and to preserve their dignity. This book is dedicated to the victims of situations which, in a better world, would not exist.

## Facing the challenges

One night while on duty Dr X, an experienced surgeon working in an ICRC field hospital in the midst of a civil war, performed a craniotomy on one patient injured by a bomb, an amputation following an anti-personnel landmine injury on another, and a laparotomy after a gunshot wound on the third; not to mention the emergency Caesarean section that arrived, as always, at the most inopportune time, after midnight. She was the only surgeon available that night. This was common practice at the time, and not very much has changed in the last thirty-odd years.

Standard peacetime health services are already limited or lacking in many low-income countries, and faced with the added burden of weapon-wounded they are quickly overwhelmed. A precarious healthcare system is one of the first victims of armed conflict: the disruption of supply lines, the destruction of premises and the flight of medical personnel are all too common.

The lack of adequate resources is not limited to diagnostic and therapeutic technologies. Above all there is a dearth of human resources. Surgeons trained to practise in multidisciplinary teams find themselves alone to face the entire surgical workload and deal with subspecialties with which they have, at best, only a passing acquaintance. Reverting to the philosophy, so common 50 years ago, of the multidisciplinary single surgeon who has to "do it all" is not an easy task.

ICRC teams usually include only one or two surgeons. They are generalists, able to treat all kinds of injuries from simple soft-tissue wounds to penetrating abdominal and head injuries and complicated fractures. They must also provide emergency non-trauma surgical and obstetric care for the civilian population in the area. Ideally, they should be very general surgeons with a broad approach and wide experience.

The principles of war surgery have been known for centuries but need to be relearned by each new generation of surgeons and in every new war.

This commonly held view remains true to this day. Whether performed by military or by civilian surgeons, war surgery has its particular characteristics that are due to the special nature of the context of armed conflict, its limitations and dangers, and the particular physio-pathology of high-energy, penetrating missile and blast wounds. The care of weapon-wounded patients follows accepted surgical standards, but is performed under extreme conditions, which is why the management of a gunshot wound due to criminal violence in a civilian context cannot be easily extrapolated to surgery in a situation of armed conflict.

> Where only limited resources are available the surgeon must accept that he cannot fully utilize his capacities and expertise.

Working with limited resources means that the limits of surgery that can be performed are not the expertise of the surgeon, but rather the level of anaesthesia and post-operative nursing care, and the availability of diagnostic and therapeutic equipment.

Limited resources, even in peacetime, may lead to the death of patients who would have survived had more sophisticated means been available. This is often the case in remote, and not so remote, hospitals in low-income countries; a situation exacerbated during armed conflict.

> When the principles of triage are applied, saving "life and limb" for the greatest number, with the least possible expenditure of time and resources, often takes precedence.

Indeed, these characteristics mean that war surgery is very different from that practised in peacetime, when most operations are elective and most trauma is blunt, and the surgeon concentrates on doing everything he possibly can – using the full range of resources necessary – for each and every patient.

Furthermore, the work of medical staff in a situation of armed conflict is governed by a special set of rules, in addition to standard medical ethics: international humanitarian law, or the law of war. This is yet another specificity of this type of surgical care and is important for the security of patients and medical personnel alike living and working under dangerous circumstances.

> International humanitarian law – the law of war – complements medical ethics in times of armed conflict or other situations of violence.

## The ICRC's experience

The ICRC has been providing medical care for the war-wounded ever since its inception, for example during the Franco-Prussian War (1870). The 1970s and 80s, however, saw a tremendous increase in the already considerable humanitarian activities for the victims of war, armed conflict, and other situations of violence. These included relief efforts for refugees, internally displaced persons, and the affected resident population, and medical care for the sick and wounded. In addition, many new organizations were founded and, together with United Nations agencies, they deployed renewed efforts to respond to these humanitarian challenges.

The ICRC embarked on large-scale programmes to provide surgical care for the victims of war. Several independently-run ICRC hospitals were established and surgical staff recruited from various national Red Cross/Red Crescent Societies and Switzerland. A large number of enthusiastic and idealistic surgical staff set off on humanitarian missions. The surgeons were well-trained and experienced, but their training and experience were largely confined to sophisticated hospital facilities in industrialized countries. They faced a steep learning curve.

The ICRC also faced a steep learning curve and has acquired considerable expertise in caring for the victims of conflict in settings where the healthcare system is severely disrupted. This know-how derives from three different, but related programmes in various countries afflicted by armed conflict and other situations of violence around the world.

1. Independent ICRC-run hospitals.
2. Support to local hospitals through the short-term presence of expatriate surgical teams, with a strong focus on training and capacity building; the provision of supplies and equipment; the renovation of infrastructure and water and sanitation facilities; and financial incentives and salaries for local staff when necessary.
3. Organization of war surgery seminars, which provide opportunities for colleagues to exchange experiences and expertise.

This three-pronged approach has enabled the ICRC to develop basic clinical protocols and procedures for surgical techniques appropriate to the management of weapon-wounded patients in situations of limited resources and precarious circumstances. In addition, over the last thirty years, the ICRC has trained and maintained a pool of experienced hospital personnel who do not have to re-invent everything with each new conflict.

However, thanks to more widespread educational opportunities in recent years, there has been a sharp increase in the number of surgeons in conflict-afflicted countries. This has allowed the ICRC to switch the emphasis of its programmes from one of substitution – i.e. independent ICRC hospitals – for a poorly-functioning or non-existent hospital system to one that focuses on support and training of medical personnel in the niceties of the management of patients wounded by the weapons of war.

As part of its training programmes, the ICRC has co-organized more than 120 war surgery seminars – over a dozen a year – in the last decade. On these occasions much expertise and many ideas have been exchanged between surgeons from a number of countries – with a varying degree of experience in war trauma – and ICRC surgeons. We have all learned from these discussions, and some of the lessons are reflected in the contents of this new book.

However, in several contexts the ICRC has continued to provide direct surgical services in a neutral and impartial manner. This form of substitution contributes a fundamental element to the protection of the victims and the medical mission in situations where these humanitarian principles have been sorely tried.

While a number of manuals on war surgery have been published, they are mostly produced by and for the armies of industrialized countries. Their operational norms usually require large investments in means and personnel: helicopter evacuation of patients; well-trained field medics and stretcher-bearers; sophisticated technology; multidisciplinary teams of specialist surgeons, anaesthetists, and nurses. ICRC surgical staff refer to these manuals as references but the conditions and means described therein are seldom met in present-day theatres of armed conflict. Many of their "lessons" are inadequate – or even irrelevant – to humanitarian war surgery or the functioning of public hospitals in many countries working with limited resources.

ICRC surgical care aims to be economical, non-specialized, based on solid scientific principles, and offer good returns given the constraints. The clinical protocols and surgical techniques described in this manual are the standard procedures used among the ICRC's pool of experienced surgeons.

## Putting pen to paper

To meet the challenge posed by these conditions, our predecessors in the surgical department of the Medical Division of the ICRC edited a basic reference manual for surgeons embarking on their first humanitarian mission: *Surgery for Victims of War*.

The first three editions of this book have been extensively distributed and received wide acclaim the world over from surgeons who faced the challenge of treating war-wounded patients for the first time. The general surgeon in an isolated rural hospital has perhaps drawn the greatest benefit from it.

Originally intended as a fourth edition of *Surgery for Victims of War* to address the particular needs and specific requests many of our colleagues raised during ICRC-led seminars, as well as to reflect the developments in ICRC surgical practice, it soon became clear that a new book would better serve this purpose. This book now comprises a significant amount of new material to be presented in two volumes, while maintaining the basic reasoning of the original manual.

This first volume is devoted to broad topics, with a number of entirely new chapters of a more general character whose contents are relevant not only to surgeons but also to those responsible for the organization and coordination of surgical programmes in times of armed conflict and other situations of violence. It presents the characteristics of surgical care for the victims of war, in particular the epidemiological, organizational and logistic aspects, drawing on the experience of ICRC medical staff and other colleagues. The second volume will deal with weapon-related trauma to specific body systems.

The surgical techniques presented herein share many fundamental ideas with more sophisticated medical services. However, they also derive from tried-and-tested improvisation and the use of very simple methods of treatment aiming to use technological means as appropriate as possible to the prevailing conditions of limited infrastructure, equipment, and human resources.

The explanations of techniques are geared to the level of knowledge and practice of *general surgeons in a rural hospital*. These surgeons are often the first to see patients wounded in conflict and they know that, under the circumstances, referral to more sophisticated facilities – far away in an inaccessible capital city – is impractical or impossible. This book attempts to provide surgeons who do not have specialized training with basic advice about the treatment of various weapon wounds, describing the types of operations that have proved successful in ICRC and other comparable practice.

The manual and other basic ICRC surgical publications and documents of general interest are included in the DVD attached to this volume. The disk also contains several downloadable files – forms and checklists for example – that can be used in everyday practice and adapted by the reader.

Unless stated otherwise masculine nouns and pronouns do not refer exclusively to men, for the manual is gender neutral. Any use of trade or brand names is for illustrative purposes only and does not imply any endorsement by the ICRC.

We hope that civilian and military surgeons, as well as Red Cross/Red Crescent surgeons, facing the challenge of treating the victims of armed conflict and other situations of violence for the first time under precarious and, at times dangerous, circumstances will find this book useful.

Philippa Parker — Head of Health Unit, ICRC Assistance Division

Christos Giannou — Former ICRC Head Surgeon

Marco Baldan — ICRC Head Surgeon

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This manual is based on *Surgery for Victims of War*, first published by the ICRC in 1988 and edited by Daniel Dufour, Michael Owen-Smith, and G. Frank Stening. The authors included:
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The chapter on the Red Cross Wound Score is largely based on the revised edition of the ICRC brochure by Robin Coupland (United Kingdom), who also provided essential comments and advice on ballistics and epidemiology, and has moreover played an important role through his many other pertinent publications. Holger Schmidt (Germany) and Eric Bernes (France) gave advice on first aid and emergency room trauma care. Haide Beckmann (Germany) and Thomas Walker (Switzerland) made contributions to the chapter on anaesthesia and Dieter Jacobi (Germany) provided comments for the chapter on chronic infections.

The ICRC Master Surgeons Workshop, held in Geneva in March 2002, revised the Red Cross Wound Score, ICRC triage categories, and established the ICRC antibiotic protocol. Participants included:
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Both workshops also helped define the ICRC criteria for the adoption of new technologies, the level of laboratory expertise required, and general strategies for ICRC surgical programmes.

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