POCKET GUIDES

# CRITICAL CARE PLACEMENTS

Rachel Dodd and Rachel Parkinson

Edited by Ruth Magowan

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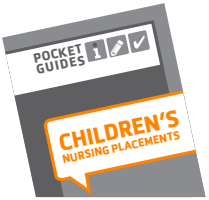


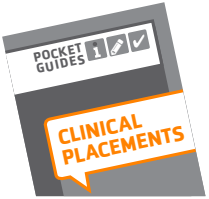




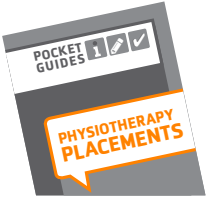


# Pocket Guides

**"A very useful, well-written and practical pocket book for any level of student nurse preparing for clinical placement. This book is also a great resource for lecturers and mentors to have, to help students get the most out of their placement time."** ★★★★★

**"This is such a useful guide that has just the right amount of need to know info for student nurses on clinical placement, as well as loads of little tips scattered throughout. A must-have for student nurses on placements!"** ★★★★★

**"Full of everything you need to know as a student nurse on placement. Written by students for students. Helpful little references to help with abbreviations and common medications. A must for any student about to head on placement."** ★★★★★

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# CRITICAL CARE PLACEMENTS

**Rachel Dodd and Rachel Parkinson**
**Edited by Ruth Magowan**
*Queen Margaret University*
*Edinburgh*

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# Personal information

Name: . . . . . .

Mobile: . . . . . .

Address during placement: . . . . . .

## UNIVERSITY DETAILS

University: . . . . . .

Programme leader: . . . . . .

Personal tutor: . . . . . .

## PLACEMENT DETAILS

Placement area: . . . . . .

Practice Education Facilitator: . . . . . .

Link lecturer: . . . . . .

## CONTACT IN CASE OF EMERGENCY

Name: . . . . . .

Contact number (mobile): . . . . . .

Contact number (home/work): . . . . . .

# Contents

## Toolkit

## Resources

# Foreword

I am delighted to endorse this pocket guide written *for* student nurses *by* student nurses. Rachel Dodd and Rachel Parkinson have been passionate about this project – their desire to pass information on to fellow nursing students that they wish they had had when in intensive and critical care areas. These areas of care can undoubtedly be daunting for any nurse and this book gives accessible and clear information about common illnesses and procedures that students are likely to encounter. Critical care placements provide a diversity of experience and a huge amount of new information. This book provides the essentials that you need to know.

The authors have collaborated in their writing and reviewing team with specialists from practice, academics and current students to ensure that the information in the book is current and relevant. It has been my privilege to support the writing of this book, and I look forward to continuing to work with the authors and wider team of collaborators in their ongoing work to extend the knowledge base and application of person-centred care to critical care and practice. I wish the team every success in all their future endeavours.

**Ruth E. Magowan**

BA (Hons) Nursing, MSc, PGCE, RSCN, RGN, SFHEA

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# Preface

This handbook is primarily written for student nurses. Critical care placements provide a diversity of experience and a huge amount of new information. At the time of writing this book we were both nursing students in our third year. We had just completed our critical care placements and were discussing how difficult it was to take in the huge amount of information each day. We decided to write this book to help other students understand the complex area that is critical care.

The absolute best advice we can offer is simply to get involved. This book will detail a variety of roles of healthcare professionals during specific treatments, including your role as a student nurse. We know that some situations can seem daunting and if you do not want to be hands-on immediately, that is OK; however, you can gain so much from simply observing, so never just walk away from a new experience.

Ask questions, research information that is new to you – if you are ever unsure if you should pull the emergency buzzer, pull it, watch everything and get involved in as much as you can, and you will get the most out of your placement.

All the information used in this handbook has been sourced from published evidence. We have included a reading list in *Chapter 21* if you wish to read further into a specific area. The list is compiled from information that we found easy to understand and is accessible for everyone.

**Rachel Dodd and Rachel Parkinson**
Queen Margaret University

# Acknowledgements

Creating this handbook has not been without its struggles. There have been many people who have guided us during the writing process, to ensure it is as useful and as practical as possible. We would like to thank Professor Brendan McCormack for reviewing and discussing with us the person-centred elements; Ronnie Dornan for evaluating and assisting with the physiological aspects; Stephanie Norton-Alexander for giving us the perspective from another nursing student; and all of the students who participated in our survey and took the time to listen and discuss our ideas with us. The biggest thank you must go to Ruth Magowan, for without her, there would simply be no book. Ruth's guidance and advice have been invaluable throughout this process.

The publishers would like to thank Kirstie Paterson and Jessica Wallar, authors of *Clinical Placements*, the first in the Pocket Guide series, and Kath MacDonald, their editor, for permission to use some of the content from their book as well as the overall framework.

# Abbreviations

| | |
|---|---|
| ABG | arterial blood gas |
| ACS | acute coronary syndrome |
| AED | automated external defibrillator |
| ATLS | Advanced Trauma Life Support |
| AVPU | alert, voice, pain, unresponsive |
| BP | blood pressure |
| bpm | beats per minute |
| COPD | chronic obstructive pulmonary disorder |
| CRT | capillary refill time |
| ECG | electrocardiogram |
| GCS | Glasgow Coma Scale |
| GTN | glyceryl trinitrate |
| IV | intravenous |
| JVP | jugular venous pulse |
| MAP | mean arterial pressure |
| MI | myocardial infarction |
| NEWS | National Early Warning Score |
| NG | nasogastric |
| $O_2$ | oxygen |
| PCC | person-centred care |
| PCI | percutaneous coronary intervention |
| PEA | pulseless electrical activity |
| PR | per rectum |
| PV | per vagina |
| SBAR | situation, background, assessment, recommendation |
| TIA | transient ischaemic attack |
| UTI | urinary tract infection |
| VF | ventricular fibrillation |
| VT | ventricular tachycardia |

Confusion in the use of abbreviations has been cited as the reason for some clinical incidents. Therefore you should use these abbreviations with caution and only in line with local Trusts' Clinical Governance recommendations which vary between departments!

# 3 Advanced Life Support

## 3.1 Cardiac arrest definition

Working in critical care areas can be daunting, as your patients are seriously unwell. They can deteriorate quickly and as a student nurse you may witness a cardiac arrest. A cardiorespiratory arrest can be defined as the sudden cessation of the heartbeat and cardiac function, resulting in failure of effective circulation and respiration.

### Cardiac arrest

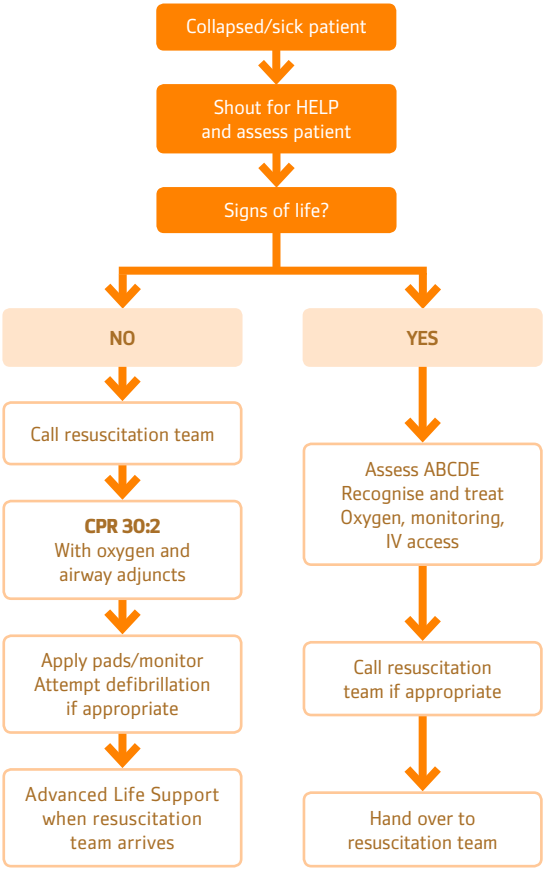
A cardiac arrest is identified by:

- loss of consciousness
- absence of central pulse (carotid/femoral)
- absence of spontaneous respiration.

## 3.2 Basic Life Support

It is important to remember that within critical care areas most cardiac arrests are anticipated. Therefore, it is important to recognise cardiac arrest, summon help and commence Basic Life Support as seen in the algorithm below.

### Notes

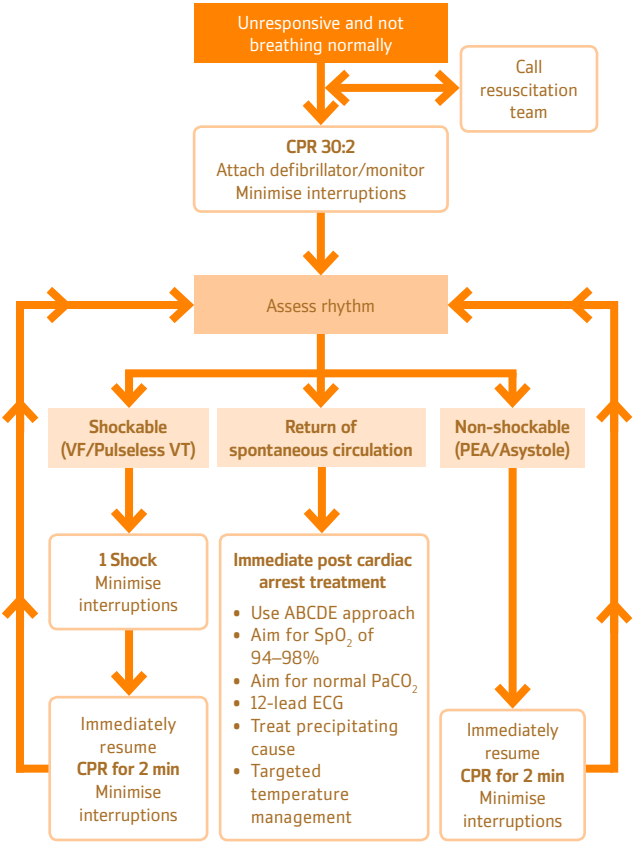



In-hospital cardiac arrest algorithm (Resuscitation Council, 2015). Reproduced with the kind permission of the Resuscitation Council (UK).

## 3.3 Management of cardiac arrest

The management of cardiac arrests has been standardised by the Advanced Life Support (ALS) protocols developed by the Resuscitation Council (UK)(2015), as seen below. However, it is still important to familiarise yourself with local policy where you are on placement. VF (ventricular fibrillation) and VT (ventricular tachycardia) are the only shockable rhythms (see *Chapter 15* for more information on shockable and non-shockable rhythms). The optimum treatment for VF and pulseless VT is early defibrillation (see *Section 3.4*).

**Notes**


Unresponsive and not breathing normally
Call resuscitation team
CPR 30:2
Attach defibrillator/monitor
Minimise interruptions
Assess rhythm
Shockable (VF/Pulseless VT)
Return of spontaneous circulation
Non-shockable (PEA/Asystole)
1 Shock
Minimise interruptions
Immediately resume CPR for 2 min
Minimise interruptions
Immediate post cardiac arrest treatment
• Use ABCDE approach
• Aim for SpO2 of 94–98%
• Aim for normal PaCO2
• 12-lead ECG
• Treat precipitating cause
• Targeted temperature management
Immediately resume CPR for 2 min
Minimise interruptions

(continued)

**During CPR**

- Ensure high quality chest compressions
- Minimise interruptions to compressions
- Give oxygen
- Use waveform capnography
- Continuous compressions when advanced airway in place
- Vascular access (intravenous or intraosseous)
- Give adrenaline every 3–5 min
- Give amiodarone after 3 shocks

**Treat Reversible Causes**

- Hypoxia
- Hypovolaemia
- Hypo-/ hyperkalaemia/ metabolic
- Hypothermia
- Thrombosis – coronary or pulmonary
- Tension pneumothorax
- Tamponade – cardiac
- Toxins

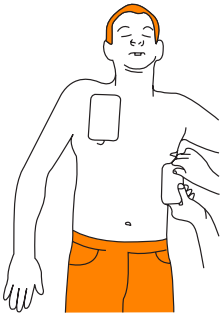
**Consider**

- Ultrasound imaging
- Mechanical chest compressions to facilitate transfer/ treatment
- Coronary angiography and percutaneous coronary intervention
- Extracorporeal CPR

Adult advanced life support algorithm (Resuscitation Council, 2015). Reproduced with the kind permission of the Resuscitation Council (UK).

## Notes

## 3.4 Correct placement of defibrillation pads



If a defibrillator (also known as an AED; automated external defibrillator) is used when you are on shift, go and watch and, if possible, get involved. You may be asked to place the defib pads on the patient.

## 3.5 Four Hs and four Ts

The 4 Hs and 4 Ts is a mnemonic used to help remember the reversible causes of cardiac arrest. To successfully resuscitate you must reverse the cause.

| | | |
|---|---|---|
| **The 4 Hs** | | |
| **H**ypoxia (low $O_2$) | → | Give $O_2$ |
| **H**ypovolaemia (low blood volume) | → | Give blood products and do blood tests |
| **H**ypothermia (low temperature) | → | Take core temperature and warm slowly |
| **H**ypercalcaemia (imbalance of ions) | → | Blood tests and give ion that is missing |
| **The 4 Ts** | | |
| **T**hrombolytic disorders (e.g. MI) | → | Give clot-busting medication; CPR will help move clot |
| **T**oxins (anaphylaxis or overdose) | → | Blood test and toxicology |
| **T**amponade (blood in pericardial space) | → | Blood has to be removed |
| **T**ension pneumothorax (collapsed lung) | → | Chest tube |

## 3.6 Effective CPR

Ensure high quality chest compressions:

- Depth of 5–6 cm
- Rate of 100–120 compressions per minute
- Allow the chest to recoil completely after each compression
- Take approximately the same amount of time for compression and relaxation
- Minimise any interruptions to chest compression (hands-off time).

Always remember the ABCDE. You cannot move on to the next step until the previous one has been resolved. For example, you cannot start trying to treat breathing issues without a secure airway. Further information about ABCDE can be found in *Section 4.1*.

| | |
|---|---|
| **A** | Airway |
| **B** | Breathing |
| **C** | Circulation |
| **D** | Disability |
| **E** | Exposure |

When working in Critical Care areas you may witness and be asked to participate in a resuscitation attempt. Unlike in movies and TV shows, these are usually anticipated and very well organised. A doctor or an experienced nurse will take charge and allocate roles. Communication between the members of the multidisciplinary group is key to a smooth and effective resuscitation attempt. The doctor in charge will usually look after the airway, someone will start chest compressions and there will be someone to take over once they get tired. While someone starts compressions the resus trolley will be brought, and defibrillation pads will be placed

on the chest with minimal interruption to compressions. Another person will be responsible for drawing up and administering the drugs that are required, while someone will record the rounds of CPR and the medications given. As a student you may be asked to do compressions or help draw up medications with another nurse.

Further information can be found on the Resuscitation Council (UK) website, www.resus.org.uk

**Also consider looking after yourself:**

As a nursing student you see a lot of hard things to deal with emotionally. It is important to reflect and debrief about the situations you are involved in within your practice. It's good to seek out support from others if required, to help deal with what you may witness on placement. Person-centred care is not just the care of others around you, but also includes self-care.

**Notes**

Resuscitation Council (2015) *Resuscitation Guidelines*. Available at: bit.ly/Resus-2015