

Emergency Blood Supply and Disaster Management Policy

National Blood Service, Ghana



EMERGENCY
BLOOD SUPPLY
AND
DISASTER
MANAGEMENT
POLICY

First Edition

2013

Emergency Blood Supply and Disaster Management Policy
Published by the National Blood Service, Ghana

Copyright © National Blood Service Ghana 2013

ISBN: 9988-123456789

Mention of specific products or equipment does not represent an endorsement of such products by the National Blood Service Ghana, nor does it necessarily indicate a preference for those products over other similar competitive products.

Efforts have been made to have all publications of the NBSG to be consistent in regard to acceptable practices. However as new developments in the practice and technology of blood supply management occur, it may not always be possible to keep publications up to date with changes adopted by the NBSG.

For any enquiries, and for permission to reproduce this document in any form, please contact the Quality Manager at the address below:

National Blood Service Ghana
National Head Office
P. O. Box K B 78,
Accra, Ghana

Tel: (233) 0302 66 11 22
email: publications@nbsghana.org
www.nbsghana.org

All rights reserved. No parts of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, scanning, photography, or by any information storage and retrieval system, without permission in writing from the Publisher.

Printed in Ghana

Contents

1	Introduction	1
	Emergency Transfusion Problems	1
	Inadequately Labelled Samples	1
2	Major Disaster Arrangements	2
3	Arrangements at a Hospital or Casualty Blood Bank	4
4	Arrangements at Resuscitation Areas	6
	Annex 1: Abbreviated Compatibility Testing	7
	Annex 2: Blood Transfusion during acute haemorrhage	8
	Blood Sample Collection	
	Use of uncross-matched group O blood for emergencies	
	Provision of uncross-matched blood	
	Emergency cross-match procedures	
	Non-identical ABO transfusion	
	Conservation of Rh D-negative blood stocks	
	Annex 3: Practical Aspects of Resuscitation after Blood Loss	10

Acknowledgements

The National Blood Service acknowledges the members of the Technical Working Group on Quality, Good Manufacturing Practice and Laboratory Services (TWG6) for the HSRPIII Component 2:

1. Prof. J. K. Acquaye, Consultant Haematologist
University of Ghana Medical School
2. Dr. Nelson Damale, Consultant Obstetrician/Gynaecologist,
Korle Bu Teaching Hospital
3. Dr. C Enweronu Laryea, Consultant Paediatrician
Korle Bu Teaching Hospital
4. Dr. Ivy Ekem, Consultant Haematologist,
Korle Bu Teaching Hospital
5. Dr. Ernest Aniteye, Consultant Anaesthetist
Korle Bu Teaching Hospital
6. Dr. Justina K. Ansah, Director
National Blood Service
7. Dr. Lucy Asamoah-Akuoko, Immediate Past Head
Accra Area Blood Centre, National Blood Service
8. Dr. Shirley Owusu-Ofori, Head, Transfusion Medicine Unit,
Komfo Anokye Teaching Hospital

The National Blood Service, Ghana also acknowledges the contribution of the Ministry of Health's Project Implementation Unit.

Foreword

The Health Services Rehabilitation Project III (HSRP III) of the Ministry of Health of Ghana aims at reducing inter-regional disparities in performance and quality of health care delivery by addressing priority areas identified in the MOH's Second Five Year Programme of Work (2002-2006).

One of the components of the HSRP III is the 'Support to the National Blood Transfusion Services'. This component aims to achieve well-organized, coordinated and improved blood services in Ghana through the modernization and restructuring of the National Blood Service. The overall objective is the institutionalizing of the collection of safe blood and blood components from regular voluntary non-remunerated blood donors, and ensuring adequate and appropriate processing by trained and competent professional staff at three Area Blood Centres, for distribution to hospitals in Ghana.

The targeted outcomes of the HSRPIII Component 2 are:

1. Appropriate organization and management of blood transfusion services nationwide
2. Securing requiring professional staff and collaborating with stakeholders
3. Construction and equipping of a National Blood Service (NBS) Headquarters and Southern Area Blood Centre in Accra, a Kumasi Blood Centre, and a Tamale Blood Centre. These Area Blood Centres will, at least initially, cover the country together with numerous blood banks in hospitals.
4. Appropriately resourced blood donor programmes in place
5. Appropriate use of safe blood and blood components

A number of Working Groups provided technical assistance services for the HSRPIII Component 2. The Technical Working Group on Safe Clinical Transfusion Practice (TWG 5), comprising Blood Transfusion specialists, Consultants in Haematology, Obstetrics and Gynaecology, Paediatrics, and Anaesthesia completed this policy document on Emergency Blood Supply and Disaster Management.

1 Introduction

1.1 Emergency Transfusion Problems

- 1.1.1 Patients requiring emergency transfusions are at a greater risk of receiving mismatched blood, largely as a direct consequence of procedural short cuts.
- 1.1.2 Patient identification rules must be adhered to at all times.
- 1.1.3 Every health facility must have a clear standard procedure to handle unconscious or incompletely identified persons. Such patients must be given a unique number fixed to a wrist band.
- 1.1.4 Compatibility testing may have to be abbreviated as described in Annex 1.

1.2 Inadequately Labelled Samples

- 1.2.1 A continual state of vigilance is needed to ensure that blood transfusion samples arrive correctly identified.
- 1.2.2 Inadequately identified samples must not be processed. The Medical Officer should be informed immediately to provide another sample as soon as possible. The initial sample must be kept for medico legal reasons.
- 1.2.3 Recurrent episodes of this nature should be reported to the head of the clinical team involved.

2 Major Disaster Arrangements

- 2.1 All large hospital blood transfusion laboratories/blood banks, Area Blood Centre (ABC) laboratories and blood collection centres should have updated and accessible instructions for responding to a demand for treatment of mass casualties.
- 2.2 Although fortunately rare, such events may happen at times when senior staff are not instantly available within the timescale of the response required. On-call blood transfusion staff should therefore be briefed as to the correct course of action.
- 2.3 All Area Blood Centres (ABCs) will require the following list of names and telephone numbers:
 1. Senior medical and laboratory staff who may be required to liaise and organize help.
 2. Administrative and transport staff to organize dispatch of blood consignments and liaise with police or ambulance Services.
 3. The local police or Ambulance Services together with those of other emergency transportation facilities.
 4. Nearby hospital blood transfusion laboratories/blood banks and blood transfusion centres in case assistance is required to meet overwhelming demands.
 5. Blood donor organization staff. It is not usually necessary to organize special emergency donor sessions. These tend to add to the difficulties because large amounts of blood from previously untyped and untested donors have to be processed.
 6. Local press and radio. Liaison with the public via press and radio may, however, be required to handle an enthusiastic response to donate blood when this becomes necessary

- 2.4 Reliable information concerning blood or plasma needs may be difficult to ascertain. Unrealistic panic demands may, however, be made which could overwhelm the resources of those attempting to cope with the situation.
- 2.5 It is prudent to select an emergency predetermined package of the common groups of blood and of albumin solution, so that this can be dispatched promptly to the receiving hospitals as a holding operation until more precise information becomes available.
- 2.6 Blood and blood products should be packed in specially labelled containers and the utmost care must be taken to ensure that it is stored correctly following receipt, otherwise vital stocks may be jeopardized during the disorganization which may occur.

3 Arrangements at a Hospital or Casualty Blood Bank

- 3.1 Telephone numbers of senior staff must be available and kept up to date.
- 3.2 Extra laboratory staff may be required during emergency hours and these should be organized by the most senior member of the laboratory staff available.
- 3.3 Within the transfusion laboratory the following procedures may have to be considered.
 - 1. Samples of patients must be identified as a minimum by an accident number. This must be clearly written on the cross-match sample container.
 - 2. Samples must be handed over personally by the officer who is submitting, to the officer on duty at the blood bank.
 - 3. Specimens should be stored on the basis of a clearly indicated clinical priority, so that the most urgent requests are dealt with first.
 - 4. This situation must be clearly understood by clinical staff, who should alert the blood transfusion laboratory when clinical deterioration occurs in patients previously considered not to be at risk.
 - 5. Conversely, when a patient who is receiving massive transfusion support dies, the laboratory must also be notified promptly to prevent further expenditure of effort.
- 3.4 For the sake of technical simplicity, it will be sufficient to perform ABO typing by cell grouping alone.
- 3.5 Under conditions of extreme difficulty Rh 'D' typing could be restricted to women of reproductive age.
- 3.6 If staff and space permit, cross-matching areas for group O recipients and non-O recipients should be separated.

- 3.7 As far as possible, cross-matching staff should be deployed so that patients are attended to on a one-to-one basis.
- 3.8 It is most efficient to organize blood provision as described for treatment of acute blood loss in Annex 2.
- 3.9 The compatibility label may show only the accident unit number pertaining to the patient concerned. It may well be counter-productive to add additional, possibly inaccurate, information.
- 3.10 Blood stocks may be inadequate to cope with any substantial accident demand but an emergency human albumin solution (4.5% albumin) or alternative plasma expander solutions should be kept by all blood banks at which any significant risk of receiving casualties exists.
- 3.11 The arrangements operated by the Area Blood centre (ABC) for supply of blood under these circumstances should be clearly displayed.

4 Arrangements at Resuscitation Areas

- 4.1 Clinical aspects of resuscitation should follow the principles outlined in Annex 3.
- 4.2 In general it is to be expected that casualties will be resuscitated with saline and colloid solutions until arrival at hospital.
- 4.3 Blood transfusion at the site of the casualty area should be an uncommon event, with the exception of seriously bleeding subjects who are trapped in vehicles or buildings.
- 4.4 Where transfusion must be undertaken under such circumstances, the patient must be identified as described above and blood samples collected before transfusion is attempted.

Annex 1

Abbreviated Compatibility Testing

- A1.1 During massive transfusions elaborate procedures for compatibility testing of individual units become superfluous.
- A1.2 Following determination of an antibody screen, continued issues of blood by immediate spin cross-match is entirely adequate. This procedure serves to ensure that no organizational error results in ABO incompatibility. It is most important to appreciate that the biggest step in assuring safety of transfusion is gained by avoidance of ABO incompatibilities.
- A1.3 Further serological compatibility procedures make a comparatively small contribution to safety. Although important in routine transfusions, these consideration assume lesser significance in a haemorrhaging patient beset with a multiplicity of life-threatening complications.

Annex 2

Blood Transfusion During Acute Haemorrhage

A2.1 Blood sample collection

A2.1.1 Blood samples should be taken and dispatched promptly for blood grouping and cross-matching, full blood count (including platelets) and, where massive loss has occurred, for coagulation screen tests.

A2.1.2 Blood samples should be identified accurately.

A2.1.3 A fail-safe system should exist for the identification of transfusion samples from emergency admissions.

A2.1.4 The degree of urgency for transfusion should be accurately conveyed to the blood bank.

1. Normal procedures for blood grouping, antibody screening and compatibility testing should be followed as far as practicable unless it is obvious that urgent and massive transfusion is likely.
2. If emergency provision of blood is required this should be clearly indicated by the written request.

A2.2 Use of uncross-matched group O blood for emergencies

A2.2.1 The use of uncross-matched group O Rh D-negative blood should be restricted to those patients who must receive red cells before the emergency provision of ABO and Rh D-compatible blood is possible.

A2.3 Provision of uncross-matched blood

A2.3.1 In extreme urgency the blood bank/transfusion laboratory should be able to provide ABO and Rh D-identical blood shortly after receipt of the cross-match sample.

A2.3.2 Whenever uncross-matched blood is released the donation number must always be recorded and a sample of donor red cells retained for subsequent compatibility testing.

- A2.3.3 The ABO compatibility of issued blood units must always be confirmed by an immediate spin procedure.
- A2.4 Emergency cross-match procedures
 - A2.4.1 Where time permits an indirect antiglobulin cross-match should be performed unless antibody screening has already been done.
 - A2.4.2 An appropriate agreed shortening of the incubation time (e.g. 5 minutes for saline techniques) should be used.
- A2.5 Non-identical ABO transfusion
 - A2.5.1 Where blood stocks are likely to be insufficient, AB people should receive group A blood, and group B people should receive group O blood.
 - A2.5.2 Plasma-depleted units are obviously to be preferred at least until one blood volume has been exchanged.
- A2.6 Conservation of Rh D-negative blood stocks
 - A2.6.1 If Rh-negative stocks are judged insufficient to cover the likely blood needs of an Rh D-negative patient, a decision to use Rh D-positive blood is best taken sooner rather than later.
 - A2.6.2 Priority for Rh D-negative blood is clearly highest for girls and women of childbearing age.
 - A2.6.3 It is, however, a serious misjudgement to allow the life of any patient to be jeopardized through inability to supply adequate amounts of Rh D-negative blood.
 - A2.6.4 If extreme urgency demands, Rh D-positive blood should be dispatched and transfused without delay. The risk of anti-D sensitization is unimportant when faced with potentially catastrophic blood loss.
 - A2.6.5 It should be remembered that a small percentage of patients, particularly women, may have already been sensitized to the Rh D antigen. This should be readily revealed by antibody screening.

Annex 3

Practical Aspects of Resuscitation after Blood Loss

- A3.1 Arrest of further bleeding and the alleviation of hypoxaemic shock are the primary objectives of resuscitation. Skilful management of severe blood loss is an art to be learnt at the bedside and in the operating theatre rather than from written texts, which can only serve as a guide to general principles.
- A3.2 Actual regimens in successful practical use vary considerably according to individual practitioner's preferences. Many of the different and seemingly important choices have proved difficult to evaluate in acceptable randomized controlled circumstances.
- A3.3 Successful treatment of haemorrhage requires:
1. Assessment of the severity of blood loss and of the patient's pre-existing physical condition.
 2. Decisions concerning the urgency and choice of resuscitative measures.
 3. Monitoring of clinical signs and physical measurements to allow the best choices to be made regarding continued treatment.
- A3.4 While the hypovolaemia of acute blood loss produces symptoms and signs common to all patients, their underlying physical condition must also be carefully evaluated as this also affects their chances of recovery and the selection of the best methods of treatment.

