NEW DEVELOPMENTS IN MEDICAL RESEARCH

# Laboratory and Clinical Transfusion Medicine Good Clinical Transfusion Practices

N 0 v

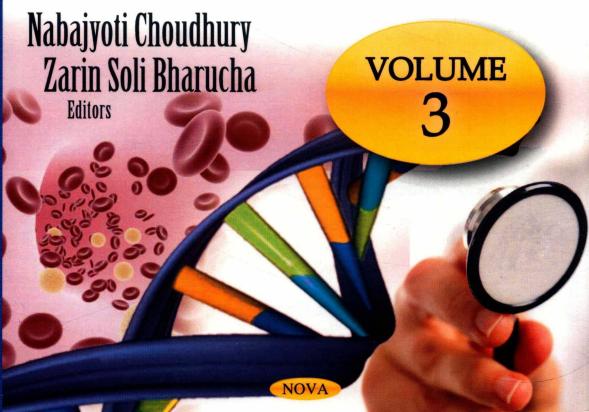
a

B

o m e d

i

a



# A TEXTBOOK ON LABORATORY AND CLINICAL TRANSFUSION MEDICINE. VOLUME 3

### GOOD CLINICAL TRANSFUSION PRACTICES

NABAJYOTI CHOUDHURY
AND
ZARIN SOLI BHARUCHA
EDITORS



Copyright © 2017 by Nova Science Publishers, Inc.

**All rights reserved.** No part of this book may be reproduced, stored in a retrieval system or transmitted in any form or by any means: electronic, electrostatic, magnetic, tape, mechanical photocopying, recording or otherwise without the written permission of the Publisher.

We have partnered with Copyright Clearance Center to make it easy for you to obtain permissions to reuse content from this publication. Simply navigate to this publication's page on Nova's website and locate the "Get Permission" button below the title description. This button is linked directly to the title's permission page on copyright.com. Alternatively, you can visit copyright.com and search by title, ISBN, or ISSN.

For further questions about using the service on copyright.com, please contact:

Copyright Clearance Center

Phone: +1-(978) 750-8400 Fax: +1-(978) 750-4470 E-mail: info@copyright.com.

#### NOTICE TO THE READER

The Publisher has taken reasonable care in the preparation of this book, but makes no expressed or implied warranty of any kind and assumes no responsibility for any errors or omissions. No liability is assumed for incidental or consequential damages in connection with or arising out of information contained in this book. The Publisher shall not be liable for any special, consequential, or exemplary damages resulting, in whole or in part, from the readers' use of, or reliance upon, this material. Any parts of this book based on government reports are so indicated and copyright is claimed for those parts to the extent applicable to compilations of such works.

Independent verification should be sought for any data, advice or recommendations contained in this book. In addition, no responsibility is assumed by the publisher for any injury and/or damage to persons or property arising from any methods, products, instructions, ideas or otherwise contained in this publication.

This publication is designed to provide accurate and authoritative information with regard to the subject matter covered herein. It is sold with the clear understanding that the Publisher is not engaged in rendering legal or any other professional services. If legal or any other expert assistance is required, the services of a competent person should be sought. FROM A DECLARATION OF PARTICIPANTS JOINTLY ADOPTED BY A COMMITTEE OF THE AMERICAN BAR ASSOCIATION AND A COMMITTEE OF PUBLISHERS.

Additional color graphics may be available in the e-book version of this book.

#### Library of Congress Cataloging-in-Publication Data

ISBN: 978-1-63484-979-1

ISSN: 2471-3856

# A TEXTBOOK ON LABORATORY AND CLINICAL TRANSFUSION MEDICINE. VOLUME 3

GOOD CLINICAL TRANSFUSION PRACTICES

## NEW DEVELOPMENTS IN MEDICAL RESEARCH

Additional books in this series can be found on Nova's website under the Series tab.

Additional e-books in this series can be found on Nova's website under the eBooks tab.

## A TEXTBOOK ON LABORATORY AND CLINICAL TRANSFUSION MEDICINE VOLUMES 1-3

#### **CONTRIBUTING AUTHORS**

#### Adil, Dr. Salman Naseem

MBBS, FCPS

Professor

Department of Pathology and Laboratory Medicine,

Aga Khan University Hospital, Karachi, Pakistan

E-mail: Salman.adil@aku.ed

#### Agarwal, Dr. Prashant

MD. PDCC

Additional Professor

Department of Transfusion Medicine,

Sanjay Gandhi Post Graduate Institute of Medical Sciences,

Lucknow, India

Email: prashantsgpgi@gmail.com

#### Agarwal, Dr. Surendra Kumar

MS, MCh,

Professor

Department of Cardio Vascular and Thoracic Surgery,

Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India

E-mail: surendra2000\_in@yahoo.com

#### Ajmani, Dr. Ranjeet S.

PhD

Chief Executive Officer

PlasmaGen Biosciences Pvt.Ltd., KCI Chamber,

5th Main Road, Chamarajpet, Bangalore, India

Email: ranjeetajmani@gmail.com

#### Allain, Dr. Jean Pierre

MD. PhD

Professor

University of Cambridge, Dept. of Haematology

Cambridge Blood Center, Cambridge CB22 Pt, UK

Email: jpa1000@com.ac.uk

#### Allisaheb, Mr. Nadaf Zakir

MSc

PlasmaGen Biosciences Pvt.Ltd., KCI Chamber, 5<sup>th</sup> Main Road, Chamarajpet, Bangalore, India

Email: zakirnadaf@gmail.com

#### Ansari, Mr. Muhammad Asim

BS MLT, MSc, MPhil, Dip HHM, Dip Pub Health Adm Manager, Department of Pathology, Kulsum International Hospital Islamabad, Pakistan.

Email: muhammadasimansari@gmail.com

#### Arabi, Dr. Shaghayegh

MSc

Iranian Blood Transfusion Organization, Tehran, Iran Department of Immunology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran E-mail: shaghayegh.arabi@modares.ac.ir

#### Bagga, Dr. Rashmi

MD. DNB

Professor

Department of Obst and Gynaecology,

Post Graduate Institute of Medical Education and Research,

Chandigarh, India

E-mail: rashmibagga@gmail.com

#### Best, Dr. Susan

MApp Sci, MBA,

Director

National Serology Reference Laboratory,

41 Victoria Parade, Melbourne, Australia

E-mail: sue@nrl.gov.au

#### Biagini, Dr. Silvana

MD, PhD

Blood Bank, Hospital Sírio Libanês, São Paulo, Brazil

E-mail: biaginis@ihsl.com.br

#### Bisht, Dr. Akanksha

PhD

Scientific Assistant & Member Secretary Indian Pharmacopoeia Commission, Sector-23, Ghaziabad, Delhi (NCR), India

Email: akankshabisht83@gmail.com

#### Brand, Dr. Anneke

MD, PhD

Sanquin Blood Bank, Amsterdam &

JJ van Rood Center for Transfusion Research, Leiden &

Department of Immunohematology and Blood Transfusion,

Leiden University Medical Centre, Leiden, The Netherlands

Email: a.brand@sanquin.nl

#### Chappel, Mr. Roderick

B. Agr. Sc., PhD

National Serology Reference Laboratory,

41 Victoria Parade, Melbourne, Australia

E-mail: roderick@nrl.gov.au

#### Choudhury, Dr. Sangeeta

PhD

Senior Consultant

Department of Research, Sir Ganga Ram Hospital, New Delhi, India

Email: dr.sangeeta.sgrh@gmail.com

#### Colah, Dr. Roshan

MSc, PhD

Diector-in-Charge

National Institute of Immunohaematology, Parel, Mumbai, India

E-mail: colahrb@gmail.com

#### CR, Dr. Siddhartha

MS

Senior Resident

Department of Cardio Vascular and Thoracic Surgery,

Sanjay Gandhi Post Graduate Institute of Medical Sciences,

Lucknow, India

E-mail: sid4ever@gmail.com

#### Deepak, T.

MD

Senior Resident

Department of Medical Parasitology,

Postgraduate Institute of Medical Education and Research, Chandigarh, India

E-mail: drdeepaktju@gmail.com

#### Desai, Dr. Priti

MD, DCP

**Associate Professor** 

Department of Transfusion Medicine, Tata Memorial Hospital,

Parel, Mumbai, India.

E-mail: drpriti\_99@yahoo.com

#### Devi A, Dr. Surekha

MBBS, DCP

Consultant and Head

Transfusion Medicine, Global Hospitals, Lakdikapul, Hyderabad, India

E-mail: dr.surekhadevi@gmail.com

#### Dimech, Mr. Wayne

B. App.Sci, MBA, FAIMS, FFSc (Research) (RCPA)

National Serology Reference Laboratory,

41 Victoria Parade, Melbourne, Australia

E-mail: wayne@nrl.gov.au

#### Doda, Dr. Veena

MBBS, DHHM

Head, Department of Transfusion Medicine (Rtd),

Dr Ram Manohar Lohia Hospital, New Delhi, India

E-mail: veenadoda@gmail.com

#### Dufour, Dr. Claudio Darío

MD

Department of Oncology & Hematology,

Navy Hospital Buenos Aires,

Buenos Aires & School of Medicine,

University of Buenos Aires, Buenos Aires, Argentina

E-mail: claudiodufour@yahoo.com.ar

#### Elhence, Dr. Priti

MD

Professor

Department of Transfusion Medicine,

Sanjay Gandhi Postgraduate Institute of Medical Sciences,

Lucknow, India

E-mail: pelhence@hotmail.com

#### Faber, Dr. Jean-Claude

MD

Chief Executive Officer, LCT

8, Rue Siggy L-193, Luxembourg

E-mail: jean.claude.faber@numericable.lu

#### Ganguly, Dr. Nimal K.

MD, DSc, DSc (hc), FAMS, FNA, FNASc, FRCPath Ex Director General, Indian Council of Medical Research, Govt. of India, New Delhi & Chairman, Department of Research, Sir Ganga Ram Hospital, New Delhi, India

Email: nkganguly@nii.ac.in

#### Ghosh, Dr. Kanjaksha

MD, DNB (haem), MRCP, MRCPI, MNAMS (path),
MRCPath (Lond) FRCPath (Lond) FRCP (Glasg), FACP (USA) FAMS, FNASc.
Ex Director, National Institute of Immunohematology, Parel, Mumbai, India
& Director, Surat Raktadan Kendra and Research Centre, Surat, India
E-mail: kanjakshaghosh@hotmail.com

#### Ghosh, Dr. Susanta

MD

Transfusion Medicine Specialist, (Rtd), New Zealand Blood Service & FE 466, Sector -3, Salt Lake, Kolkata 700106, India Email: susanta.ghosh92@yahoo.com

#### Gogri, Ms. Harita

MSc

Senior Research Fellow Department of Transfusion Medicine, National Institute of Immunohematology, Mumbai, India Email: harita\_08@yahoo.co.in

#### Gopinath, Ms. Sudha V.

MSc

Scientist-III

National Institute of Biologicals, A-32, Sector 62,

Institutional area Noida-201309, India

Email: sudhavg@nlb.gov.in

#### Gunasekera, Dr. Anand

Msc.(Medical Admin), MCMA Director General of Medical Services (Rtd) 30/1B, Dewani Rajasinghe Mawatha, Sri Lanka Email: ananda.gunasekera1@gmail.com

#### Gupta, Dr. Indu

MD, PhD, FAMS, FNASc, FIMSA

Ex Professor, Obst and Gynaecology,

Post Graduate Institute of Medical Education and Research, Chandigarh, India

E-mail: indurc43@gmail.com

#### Gupte, Dr. Snehalata C.

MSc. PhD

Ex. Director

Surat Raktadan Kendra and Research Centre, Surat, Gujarat, India

E-mail: guptesurat@yahoo.co.in

#### Hemlata, Dr.

DNB, PDCC

Assistant Professor,

Department of Anaesthesiology,

King Georges' Medical University, Lucknow, India

Email: hema2211@yahoo.co.in

#### Ingram, Dr. Charlotte Felicity

MD, NDT Analytical Chem, FRCPath (Haem), MMed (Haem), MBA South African National Blood Service (SANBS), Johannesburg, South Africa Email: Charlotte.Ingram@sanbs.org.za

#### Joshi, Dr. Sanmukh R.

PhD

Associate Professor (Rtd),

Allianze University College of Medical Science,

Waziria Medical Square, Kepala Batas, 13200, Penang, Malaysia

& 402 Gayatri, Off JP Road. Andheri (West), Mumbai-400053, India

Email: sanmukhj@yahoo.com

#### Karim, Dr. Farheen

MBBS, FCPS

Senior Instructor

Department of Pathology and Laboratory Medicine,

Aga Khan University Hospital, Karachi, Pakistan

E-mail: Farheen.mahar@aku.edu

#### Kaur, Dr. Gagandeep

MD

Associate Professor

Department of Transfusion Medicine,

Government Medical College Hospital, Chandigarh, India

Email: docvpsingh@yahoo.co.in

#### Khayamei, Dr. Mohammad Esmail

MD

Blood Transfusion Research Center,

High Institute for Research and Education in Transfusion Medicine,

Iranian Blood Transfusion Organization, Tehran, Iran

Email: Khayyamime2@mums.ac.ir

此为试读,需要完整PDF请访问: www.ertongbook.com

#### Kulkarni, Dr. Swati

MSc, PhD

Scientist 'C'

Department of Transfusion Medicine,

National Institute of Immunohaematology (ICMR), Mumbai, India

E-mail: swatiskulkarni@gmail.com

#### Kuruppu, Dr. Kumudu Sri

MBBS, DTM, MD

In Charge, Quality Management,

National Blood Center,

Medawelikada, Rajagiriya, Sri Lanka

Email: kkskuruppu@gmail.com

#### Law, Dr. Arjun Datt

MBBS, MD, DM

Princes Margaret Hospital,

University Health Network,

Toronto, Ontario, Canada

Email: ARJUN.D.LAW@gmail.com

#### Majumdar, Dr. Gauranga

MS, MCh.

Additional Professor

Department of Cardio Vascular and Thoracic Surgery,

Sanjay Gandhi Post Graduate Institute of Medical Sciences,

Lucknow, India

E-mail: gaurangamajumdar@hotmail.com

#### Manchanayake, Dr. Champa

MBBS, DTM, MD Colombo

Consultant Transfusion Medicine SEBTS Clinical Services.

Royal Infirmary of Edinburgh, Edinburgh EH16 4SA, UK

Email: champa.manchanayake@nhs.net

#### Manivannan, Dr. S.

PhD

Deputy Drugs Controller (India), South Zone

CDSCO (South Zone) No.26, Haddows Road,

Shastri Bhawan, Chenni, India

E-mail: vksmani@gmail.com

#### Marwaha, Dr. Neelam

MD, FAMS,

Professor and Head

Department of Transfusion Medicine,

Postgraduate Institute of Medical Education and Research,

Chandigarh 160012, India

E-mail: neelam2918@yahoo.com

#### Mewara, Dr. Abhishek

MD

Assistant Professor

Department of Medical Parasitology,

Postgraduate Institute of Medical Education and Research, Chandigarh, India

E-mail: abhimewara@yahoo.com

#### Moghaddam, Dr. Esmail Sanei

Medical Laboratory Doctor (MLD)

Blood Transfusion Research Center,

High Institute for Research and Education in Transfusion Medicine,

Iranian Blood Transfusion Organization, Tehran, Iran

Email: saso1334@yahoo.com

#### Mohania, Dr. Deeraj

PhD

Associate Scientist Consultant

Department of Research, Sir Ganga Ram Hospital, New Delhi, India

Email: dmohania@gmail.com

#### Namini, Mr. Mehdi Tabrizi

Education in Transfusion Medicine

Blood Transfusion Research Center,

High Institute for Research and Education in Transfusion Medicine,

Iranian Blood Transfusion Organization, Tehran, Iran

Email: teff74@yahoo.com

#### Owusu-Ofori, Dr. Alex

MD, PhD

School of Medical sciences -KNUST, Kumasi

Department of Clinical Microbiology,

Kwame Nkrumah University of Science and Technology (KNUST),

Kumasi, Ghana

Email: owusu\_ofori@hotmail.com

#### Pande, Dr. Shantanu

MS, MCh,

Professor

Department of Cardio Vascular and Thoracic Surgery,

Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India

E-mail: shantanupande@hotmail.com

#### Perera, Dr. Kalinga

MBBS, DTM, MD

Senior Clinical Fellow

Department of Hematological Medicine,

King's College NAS Foundation Trust, London, SE5 9RS, U.K.

Email: kalinganbc@gmail.com

#### Pourfathollah, Dr. Ali Akbar

PhD

Managing Director, Iranian Blood Transfusion Organization,

Tehran, Iran & Department of Immunology,

Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran

Email: pourfa@modares.ac.ir

#### Rajadhyaksha, Dr. Sunil B.

MD, DTM, PGDMLS

Professor and Head

Department of Transfusion Medicine, Tata Memorial Hospital,

Parel, Mumbai, India.

E-mail: sunilrajadhyaksha@gmail.com

#### Rana, Dr. Bhupendra Kumar

PhD

Joint Director, National Accreditation Board for Hospitals and

Healthcare Providers (NABH), Quality Council of India

ITPI, 4-A Ring Road, IP Estate, New Delhi, India

Email: bkrana71@yahoo.com

#### Sachdev, Dr. Suchet

MD

Assistant Professor

Department of Transfusion Medicine, Postgraduate Institute

of Medical Education and Research, Chandigarh, India

E-mail: suchetsachdev@yahoo.com

#### Sehgal, Dr. Rakesh

MD, Dip NB

Professor and Head

Department of Medical Parasitology,

Postgraduate Institute of Medical Education and Research, Chandigarh, India

E-mail: sehgalpgi@gmail.com

#### Serjeant Dr. Graham R.

MD. FRCP

Chairman

Sickle Cell Trust (Jamaica),

14 Milverton Crescent, Kingston 6, Jamaica

E-mail: grserjeant@cwjamaica.com

#### Shah, Mr. Falak

BS

PlasmaGen Biosciences Pvt.Ltd.,

KCI Chamber, 5th Main Road, Chamarajpet, Bangalore, India

Email: fds5018@gmail.com

#### Sharma, Dr. Jayshree

MD, DTM

Professor

Department of Transfusion Medicine,

Seth G.S. Medical College & KEM Hospital, Parel, Mumbai, India

Email: jayshreesharma@kem.edu

#### Sharma, Dr. Ratti Ram

MD

Additional Professor

Department of Transfusion Medicine, Postgraduate Institute of Medical Education and Research, Chandigarh, India

E-mail: rrsdoc@hotmail.com

#### Sibinga, emProf. Cees Th. Smit

MD, PhD, FRCP Edin, FRCPath

IQM Consulting and University of Groningen

de Gast rt6, 9801AE Zuidhom, Netherlands

Email: c.sibinga@planet.nl

#### Singh, Dr. Ashutosh

MD, PDCC

Senior Resident

Dept. of Transfusion Medicine,

Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India

Email: drashullrm@gmail.com

#### Singh, Dr. Lipi

PhD

Executive

Advancells, Saffron Naturele Pvt. Ltd., Noida, India

Email: lipigene@gmail.com

#### Singh, Dr. Surender

MD

Director -Incharge,

National Institute of Biologicals, A-32, Sector 62,

Institutional area Noida, Delhi (NCR) India

Email: surendersingh\_n@yahoo.com

#### Solaz, Dr. Nusret Nuri

MD, MSc

Freelance Consultant; Turkish Blood Foundation

Dodurga Mah. Susam Cad. No:7-A D:6 Cankaya, Ankara, Turkey

Email: n.solaz26@yahoo.com

#### Tan, Ms. Cecilia

Deputy Secretary General, Operations

Singapore Red Cross Society

15 Penang Lane, Singapore

Email: cecilia.tan@redcross.sg

#### Taneja, Dr. Vibha

PhD

Consultant

Department of Research, Sir Ganga Ram Hospital, New Delhi, India

Email: vibha.taneja@sgrh.com

#### Teo, Dr. Diana

MBBS, MSc, FRCPath (UK)

Senior Doctor

Blood Services Group, Health Science Authority

Blood Services Group, Health Science Authority Outram Road,

Singapore 169078

E-mail: Diana\_TEO@hsa.gov.sg

#### Tripathi, Dr. Mukesh

MD. FAMS

Professor and Head.

Department of Anesthesiology, All India Institute of Medical Sciences-Rishikesh,

Virbhadra Marg, Rishikesh, Uttarakhand, India

E-mail: mukesh\_tripathi@yahoo.com

#### Varma, Dr. Subhash

MBBS, MD

Professor and Head

Department of Internal Medicine, Post Graduate Institute of Medical Education and Research, Chandigarh, India

E-mail: varma.sc@pgimer.edu.in

#### Vasantha, Dr. K.

MSc, PhD

Deputy Director (Rtd)

Department of Transfusion Medicine,

National Institute of Immunohaematology (ICMR),

Mumbai, India

E-mail: vasanthak2007@yahoo.co.in

#### Verma, Dr. Anupam

MD, PDCC

Additional Professor

Department of Transfusion Medicine,

Sanjay Gandhi Postgraduate Institute of Medical Sciences,

Lucknow, India

E-mail: aver2211@gmail.com

#### Viswanathan, Dr. Chandra

MD, PhD, DPB, DTM

Reliance Life Sciences, DALSC,

Rabale, Navi Mumbai, India

Email: chandra.viswanathan@ril.com

#### Waheed, Mr. Usman

BS MLT, MSc, MPhil, DPH

Technical ExpertSafe Blood Transfusion Programme and

Islamabad Blood Transfusion Authority,

Ministry of National Health Services, Islamabad, Pakistan

Email: usman.waheed07@gmail.com

#### Wendel, Dr. Silvano

MD, PhD

Blood Bank, Hospital Sírio Libanês, São Paulo, Brazil

E-mail: snwendel@terra.com.br