

*A Comprehensive  
Textbook of Midwifery*



# *A Comprehensive Textbook of Midwifery*

**SECOND EDITION**

**Annamma Jacob**

MSc (N)

*Formerly*

Professor, St. Philomina's College of Nursing, Mother Theresa Road, Bengaluru

Principal, Graduate School for Nurses BNE, SIB, CMAI

Nurse Supervisor, Suburban Medical Center, Paramount, Southern California, USA

Assistant Director of Nursing, Al-Sabah Hospital, Ministry of Public Health, Kuwait

Sister Tutor, LT College of Nursing, SNTD Womens' University, Mumbai

Junior Tutor, College of Nursing, CMC Hospital, Vellore, Tamil Nadu

*Principal*

Bhagwan Mahaveer Jain College of Nursing

Millers Road, Vasanthanagar

Bengaluru (India)



**JAYPEE BROTHERS MEDICAL PUBLISHERS (P) LTD**

New Delhi • Ahmedabad • Bengaluru • Chennai • Hyderabad • Kochi • Kolkata • Lucknow • Mumbai • Nagpur

Published by

Jitendar P Vij

**Jaypee Brothers Medical Publishers (P) Ltd**

B-3 EMCA House, 23/23B Ansari Road, Daryaganj, **New Delhi** 110 002, India

**Phones:** +91-11-23272143, +91-11-23272703, +91-11-23282021,

+91-11-23245672, Rel: +91-11-32558559, Fax: +91-11-23276490, +91-11-23245683

e-mail: jaypee@jaypeebrothers.com, Visit our website: www.jaypeebrothers.com

### **Branches**

- ❑ 2/B, Akroti Society, Jodhpur Gam Road Satellite,  
**Ahmedabad** 380 015, Phones: +91-79-26926233, Rel: +91-79-32988717  
Fax: +91-79-26927094 e-mail: ahmedabad@jaypeebrothers.com
- ❑ 202 Batavia Chambers, 8 Kumara Krupa Road, Kumara Park East  
**Bengaluru** 560 001 Phones: +91-80-22285971, +91-80-22382956  
+91-80-22372664, Rel: +91-80-32714073 Fax: +91-80-22281761  
e-mail: bangalore@jaypeebrothers.com
- ❑ 282 IIIrd Floor, Khaleel Shirazi Estate, Fountain Plaza, Pantheon Road  
**Chennai** 600 008, Phones: +91-44-28193265, +91-44-28194897  
Rel: +91-44-32972089 Fax: +91-44-28193231 e-mail: chennai@jaypeebrothers.com
- ❑ 4-2-1067/1-3, 1st Floor, Balaji Building, Ramkote, Cross Road  
**Hyderabad** 500 095 Phones: +91-40-66610020, +91-40-24758498  
Rel: +91-40-32940929 Fax: +91-40-24758499 e-mail: hyderabad@jaypeebrothers.com
- ❑ Kuruvi Building, 1st Floor, Plot/Door No. 41/3098, B & B1, St. Vincent Road  
**Kochi** 682 018 Kerala Phones: +91-484-4036109, +91-484-2395739  
Fax: +91-484-2395740 e-mail: kochi@jaypeebrothers.com
- ❑ 1-A Indian Mirror Street, Wellington Square  
**Kolkata** 700 013, Phones: +91-33-22651926, +91-33-22276404, +91-33-22276415  
Rel: +91-33-32901926 Fax: +91-33-22656075  
e-mail: kolkata@jaypeebrothers.com
- ❑ Lekhraj Market III, B-2, Sector-4, Faizabad Road, Indira Nagar  
**Lucknow** 226 016 Phones: +91-522-3040553, +91-522-3040554  
e-mail: lucknow@jaypeebrothers.com
- ❑ 106 Amit Industrial Estate, 61 Dr SS Rao Road, Near MGM Hospital, Parel  
**Mumbai** 400 012 Phones: +91-22-24124863, +91-22-24104532  
Rel: +91-22-32926896, Fax: +91-22-24160828 e-mail: mumbai@jaypeebrothers.com
- ❑ "KAMALPUSHPA" 38, Reshimbag, Opp. Mohota Science College  
Umred Road, **Nagpur** 440 009 Phone: Rel: +91-712-3245220  
Fax: +91-712-2704275 e-mail: nagpur@jaypeebrothers.com

### **A Comprehensive Textbook of Midwifery**

©2008, Jaypee Brothers Medical Publishers

All rights reserved. No part of this publication should be reproduced, stored in a retrieval system, or transmitted in any form or by any means: electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the author and the publisher.

This book has been published in good faith that the material provided by author is original. Every effort is made to ensure accuracy of material, but the publisher, printer and author will not be held responsible for any inadvertent error(s). In case of any dispute, all legal matters are to be settled under Delhi jurisdiction only.

*First Edition:* 2005

*Second Edition:* **2008**

ISBN 978-81-8448-240-9

*Typeset at* JPBMP typesetting unit

*Printed at* RajKamal

## *Editor's Remarks*

---

*A Comprehensive Textbook of Midwifery* offers a unique opportunity to midwifery students as well as teachers, to assimilate an ever-growing body of scientific knowledge and to develop the technical and analytical skills necessary to apply the same into practice.

This book strives to provide the students with various aspects of midwifery to become competent and caring midwives. It includes the most accurate and clinically relevant information available, in a clearly written, visually appealing and logical format.

The book includes 11 sections and 57 chapters with an exhaustive glossary at the end. Each chapter is ending with a list of references which are useful to find out detailed information. In addition, a number of diagrams, tables, illustrations and nursing processes have been presented, wherever necessary. The book has been in simple language.

The current concept on Community Midwifery has been included, which stresses on Preventive Obstetrics and Domiciliary Care in maternity nursing. A detailed discussion on Primary Health Care, the Organization of Maternal and Child Health Programmes and the current evolution of Reproductive and Child Health Programmes is included which is of much use to the students to deliver Community, Maternal and Child Health Services.

I hope and trust that this midwifery textbook will be of a great help not only to midwifery students, but also to midwifery teachers, for study as well as for ready-reference.

With best wishes,

**TM Krishnaveni** PHN  
Former Asst. Director  
Directorate of H&FW Services  
Govt. of Karnataka  
Bengaluru



# *Preface to the Second Edition*

---

The goal of the second edition of *A Comprehensive Textbook of Midwifery* is to make the book more comprehensive. This edition is designed to provide nursing students with a care plan guide that can be adapted to nursing management of maternal clients in different stages of childbearing experience as well as neonatal clients in their early life. The primary focus of the care plans is the mother and baby in a health care setting. However, they provide direction to discharge planning and care at home for mothers and babies in the postpartum period.

Nursing diagnosis is explained in detail in Chapter 4 and care plans are given in Appendix for reference.

Another major change in the second edition is the inclusion of several photographs to make the explanation more vivid for readers. The photographs from three plates in the beginning pages have been transferred inside the book so that they appear with related explanations for easy comprehension. The author recognizes, with a debt of gratitude, all those who reviewed the book and offered suggestions which led to its revision.

**Annamma Jacob**





# *Preface to the First Edition*

---

The book is the culmination of ideas of a nurse educator who has practiced and taught maternal-neonatal nursing in India and in the United States of America. It is the fulfillment of the often-stated need among nurse educators and nursing students in India. Since long, teachers of midwifery have been relying on books written with an orientation for practice in the developed countries or those written by physician authors. As a midwifery educator, I became aware of the frustrations of students in trying to piece together the information from English and American midwifery texts or from physician-authored book. The former were too much in depth and generally oriented to conditions in the developed countries while the latter lacked nursing care aspects in order to plan and provide comprehensive care to maternity clients and newborns.

As the concept of nursing process has been incorporated into midwifery education, a chapter on nursing process is included to familiarize midwifery students to the appropriateness of using the problem-oriented approach with their maternity and newborn clients. With a few selected topics, the nursing processes that can be carried out are included which are hoped to serve as guidelines. In the chapter on drugs, nursing considerations are included with a view to foster the use of nursing process in drug administration. Pertinent information from other health sciences is included throughout the book, particularly as it relates to the childbearing and childrearing periods in the life of the family and from preconception through the first six weeks' postpartum.

This book is organized into 11 sections in logical sequence including all the units outlined in the syllabus prescribed by the Indian Nursing Council for Midwifery Course (INC syllabus 1986). Additional information includes the chapters on Nursing Process, Childbirth Education and Preparation and the current trends in National Reproductive and Child Health (RCH) program. This book is written completely in the Indian context and in a simple style and easy to understand language for the benefit of Indian nursing students. Practicing nurses will also find the content understandable and useful. Advances in the field of obstetrics and practice of midwifery in the developed countries are included wherever relevant.

Each chapter begins with a list of learning objectives. These tell the reader specifically what she or he should know after reading the chapter. The students can use this as a study aid. A large number of informative diagrams, tables and illustrations have been included. They have been designed to convey information in readily comprehensible form.

I sincerely hope that this book will greatly benefit the midwifery teachers, students and nurses practicing maternal-child nursing.

**Annamma Jacob**



# Acknowledgements

---

One of the most pleasant parts of writing a book is the opportunity to thank those who have contributed to it.

I am deeply appreciative of Dr TM Krishnaveni, Consultant to the Government of Karnataka Institute of Health and Family Welfare Services, for the patient and wholehearted efforts in editing the book.

Special acknowledgement and thanks to Mr Joji George RN and Miss Aswathy Alexander BSc (N) who drew a many figures in this book.

There have been many people who have touched and shaped my life and beliefs in maternal-child nursing. I am indebted to Mrs Nesamoni Lazarus, my teacher at College of Nursing, CMC Hospital, Vellore, from whom I learned a lot and Mrs Phyllis Berg and Miss Chris Hamilton, Nursing Managers at Suburban Medical Center, Paramount, California, USA who have influenced me profoundly.

I am thankful to my personal friends and professional colleagues in the institutions I had worked and with whom I shared my knowledge and aspirations. The inspiration for writing this book came as a result of my association and involvement with my former students at LT College of Nursing, SNDT Women's University, St Philomina's College of Nursing and Graduate School for Nurses, BNE, SIB, CMAI.

My special thanks go to my niece Pinky Ann Thomas, nephew Pinku Cherian Thomas and brother-in-law Mr George K Cherian for their suggestions, support and assistance in ways big and small.

Finally, not least but most, I acknowledge my husband Jacob, AJ who encouraged me and worked with me tirelessly to complete this book and in whose honor I have decided to publish this book.



# Contents

---

## Section 1: Midwifery

1. Historical Review ..... 3
2. Development of Maternity Services and Current Trends ..... 6
3. The Midwife ..... 13
4. The Nursing Process in Maternal-Newborn Care ..... 17

## Section 2: Reproductive System

5. The Female Pelvis and Generative Organs ..... 43
6. Hormonal Cycles ..... 60
7. The Male Reproductive System ..... 65

## Section 3: Embryology and Fetology

8. Fertilization, Implantation and Development of the Fertilized Ovum ..... 71
9. Development of the Placenta and Fetus ..... 75
10. Fetal Organs and Fetal Circulation ..... 88
11. The Fetal Skull ..... 92

## Section 4: Normal Pregnancy

12. Physiological Changes due to Pregnancy ..... 99
13. Diagnosis of Pregnancy ..... 111
14. Minor Disorders in Pregnancy ..... 116
15. Antenatal Care ..... 121
16. Specialized Investigations and Fetal Evaluation in the Antenatal Period ..... 141

## Section 5: Normal Labor

17. Physiology of the First Stage of Labor ..... 151
18. Management of the First Stage of Labor ..... 164
19. Physiology of the Second Stage of Labor ..... 185
20. Management of the Second Stage of Labor ..... 193
21. Physiology and Management of the Third Stage of Labor ..... 205
22. Management of the Fourth Stage of Labor ..... 219

## Section 6: The Normal Puerperium

23. Physiology and Management of the Normal Puerperium ..... 231
24. Family Planning ..... 248

## Section 7: Abnormalities of Pregnancy, Labor and Puerperium

25. Abnormalities of Early Pregnancy ..... 275
26. Sexually Transmissible and Reproductive Tract Infections ..... 293
27. Disorders of Pregnancy ..... 308
28. Hypertensive Disorders of Pregnancy ..... 319

29. Medical Disorders Associated with Pregnancy .....	335
30. Multiple Pregnancy .....	365
31. Preterm Labor, Premature Rupture of Membranes and Intrauterine Fetal Death .....	377
32. Postterm Pregnancy, Induction of Labor, Prolonged Labor and Disorders of Uterine Action .....	385
33. Malpositions and Malpresentations .....	402
34. Obstetric Operations .....	421
35. Obstetric Emergencies .....	440
36. Complications of Third Stage of Labor .....	453
37. Injuries to the Birth Canal .....	466
38. Complications of Puerperium .....	473

### Section 8: The Normal Neonate

39. The Baby at Birth .....	487
40. Physiology, Screening, Daily Care and Observation of the Newborn .....	505
41. Infant Feeding .....	515
42. The Low Birthweight Baby, The Preterm Baby and Intrauterine Growth Retarded Baby .....	529

### Section 9: The III Baby

43. Recognizing the III Baby .....	543
44. Respiratory Problems of the Newborn .....	552
45. Birth Trauma, Hemorrhage and Convulsions .....	561
46. Congenital Abnormalities .....	574
47. Jaundice and Infections in the Newborn .....	588
48. Metabolic and Endocrine Disorders in the Newborn .....	605

### Section 10: Community Midwifery

49. Preventive Obstetrics and Domiciliary Care in Maternity Nursing .....	615
50. Primary Health Care in India .....	625

### Section 11: Special Topics

51. Pain Relief and Comfort in Labor .....	635
52. Childbirth Education and Preparation .....	645
53. Special Exercises for Pregnancy, Labor and Puerperium .....	654
54. Drugs Used in Obstetrics .....	664
55. Vital Statistics in Obstetrics .....	684
56. Perinatal Loss and Grief .....	693
57. Radiology and Ultrasonics in Obstetrics .....	699

<i>Appendix : Nursing Care Plans for Maternal-Neonatal Clients .....</i>	<i>705</i>
--	------------

<i>Glossary .....</i>	<i>739</i>
-----------------------	------------

<i>Index .....</i>	<i>757</i>
--------------------	------------