

The Labor Progress Handbook

Early Interventions to Prevent and Treat Dystocia

FOURTH EDITION



PENNY SIMKIN
LISA HANSON
RUTH ANCHETA

WILEY Blackwell

The Labor Progress Handbook

Early Interventions to Prevent and Treat Dystocia

Fourth Edition

The Labor Progress Handbook

Early Interventions to Prevent and Treat Dystocia

Fourth Edition

Penny Simkin, BA, PT, CCE, CD(DONA)

Senior Faculty, Simkin Center for Allied Birth

Vocations at Bastyr University

Independent Practice of Childbirth Education

and Labor Support, USA

Lisa Hanson, PhD, CNM, FACNM

Professor and Director, Midwifery Program

Marquette University, USA

Ruth Ancheta, BA, MA, ICCE, CD(DONA)

DONA-Approved Doula Trainer

Independent Practice of Childbirth Education

and Labor Support, USA

with

contributions by

Wendy Gordon, LM, CPM, MPH

Suzy Myers, LM, CPM, MPH

Gail Tully, BS, CPM, CD(DONA)

Illustrated by **Shanna dela Cruz and Dolly Sundstrom**

WILEY Blackwell

Copyright © 2017 by John Wiley & Sons, Inc. All rights reserved
Illustrations by Shanna dela Cruz ©Ruth Ancheta

Published by John Wiley & Sons, Inc., Hoboken, New Jersey
Published simultaneously in Canada

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning, or otherwise, except as permitted under Section 107 or 108 of the 1976 United States Copyright Act, without either the prior written permission of the Publisher, or authorization through payment of the appropriate per-copy fee to the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923, (978) 750-8400, fax (978) 750-4470, or on the web at www.copyright.com. Requests to the Publisher for permission should be addressed to the Permissions Department, John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030, (201) 748-6011, fax (201) 748-6008, or online at <http://www.wiley.com/go/permissions>.

The contents of this work are intended to further general scientific research, understanding, and discussion only and are not intended and should not be relied upon as recommending or promoting a specific method, diagnosis, or treatment by health science practitioners for any particular patient. The publisher and the author make no representations or warranties with respect to the accuracy or completeness of the contents of this work and specifically disclaim all warranties, including without limitation any implied warranties of fitness for a particular purpose. In view of ongoing research, equipment modifications, changes in governmental regulations, and the constant flow of information relating to the use of medicines, equipment, and devices, the reader is urged to review and evaluate the information provided in the package insert or instructions for each medicine, equipment, or device for, among other things, any changes in the instructions or indication of usage and for added warnings and precautions. Readers should consult with a specialist where appropriate. The fact that an organization or Website is referred to in this work as a citation and/or a potential source of further information does not mean that the author or the publisher endorses the information the organization or Website may provide or recommendations it may make. Further, readers should be aware that Internet Websites listed in this work may have changed or disappeared between when this work was written and when it is read. No warranty may be created or extended by any promotional statements for this work. Neither the publisher nor the author shall be liable for any damages arising herefrom.

For general information on our other products and services or for technical support, please contact our Customer Care Department within the United States at (800) 762-2974, outside the United States at (317) 572-3993 or fax (317) 572-4002.

Wiley also publishes its books in a variety of electronic formats. Some content that appears in print may not be available in electronic formats. For more information about Wiley products, visit our web site at www.wiley.com.

Library of Congress Cataloging-in-Publication Data

Names: Simkin, Penny, 1938– author. | Hanson, Lisa, 1958– author. | Ancheta, Ruth, author.

Title: The labor progress handbook : early interventions to prevent and treat dystocia /

Penny Simkin, Lisa Hanson, Ruth Ancheta ; with contributions by Wendy Gordon,
Suzy Myers, Gail Tully ; Illustrated by Shanna dela Cruz and Dolly Sundstrom.

Description: Fourth edition. | Hoboken, New Jersey : John Wiley & Sons Inc., [2017] | Includes bibliographical references and index.

Identifiers: LCCN 2016039438 | ISBN 9781119170464 (pbk.) | ISBN 9781119170471 (Adobe PDF) | ISBN 9781119170501 (epub)

Subjects: | MESH: Dystocia–prevention & control | Birth Injuries–prevention & control | Labor, Obstetric | Handbooks

Classification: LCC RG701 | NLM WQ 39 | DDC 618.5–dc23

LC record available at <https://lcn.loc.gov/2016039438>

Cover image: ©Tercer Ojo Photography – Tercerojo/GettyImages

Set in 9/11pt Plantin by SPi Global, Pondicherry, India

Dedication

We dedicate this book to childbearing women, their partners, and their caregivers in the hope that some of our suggestions will reduce the likelihood of cesarean delivery for dystocia; also to the wise, patient, and observant midwives, nurses, doulas, family doctors, and obstetricians whose actions and writings have inspired and taught us.

Contents

<i>Foreword to the Fourth Edition</i>	xvii
<i>Acknowledgments</i>	xx
Chapter 1: Introduction	1
Penny Simkin, BA, PT, CCE, CD(DONA) and Ruth Ancheta, MA, ICCE, CD(DONA)	
Causes and prevention of labor dystocia: a systematic approach	1
Differences in maternity care providers and practices in the united kingdom, the united states, and canada	5
Notes on this book	5
Changes in this fourth edition	6
A note from the authors on the use of gender-specific language	6
Conclusion	7
References	7
Chapter 2: Normal Labor and Labor Dystocia: General Considerations	9
Penny Simkin, BA, PT, CCE, CD(DONA) and Ruth Ancheta, MA, ICCE, CD(DONA)	
What is normal labor?	10
What is labor dystocia?	14
Why does labor progress slow down or stop?	15
Prostaglandins and hormonal influences on emotions and labor progress	17
“Fight-or-flight” and “tend-and-befriend” responses	
to distress and fear during labor	19
Optimizing the environment for birth	21
The psycho-emotional state of the woman: wellbeing or distress?	21
Pain versus suffering	21
Assessment of pain and distress in labor	22
Assessment of women’s ability to cope with the pain	23
Psycho-emotional measures to reduce suffering, fear, and anxiety	24
Before labor, what the caregiver can do	24
During labor: tips for caregivers and doulas, especially if meeting the laboring client for the first time in labor	26
	vii

An integrated philosophy on caring for trauma survivors	27
Trauma histories: why they matter	27
Childhood sexual abuse (CSA) and trauma in adulthood	27
Traumatic births	28
Trauma-informed care as a universal precaution	31
Physical and physiologic measures to promote comfort and labor progress	32
During labor: physical comfort measures	32
During labor: physiologic measures	32
Why focus on maternal position?	33
Techniques to elicit stronger contractions	35
Maintaining maternal mobility while monitoring contractions and fetal heart	36
Auscultation	36
When EFM is required: options to enhance maternal mobility	37
Continuous EFM	37
Intermittent EFM	39
Wireless telemetry	40
Conclusion	42
References	42

Chapter 3: Assessing Progress in Labor **49**

Wendy Gordon, LM, CPM, MPH, Suzy Myers, LM, CPM, MPH, with contributions by Gail Tully, BS, CPM, CD(DONA) and Lisa Hanson, PhD, CNM, FACNM

Before labor begins	50
Fetal presentation and position	50
Abdominal contour	52
Location of the point of maximum intensity (PMI) of the fetal heart tones via auscultation	53
Leopold's maneuvers for identifying fetal presentation and position	55
Abdominal palpation using Leopold's maneuvers	55
Estimating engagement	58
Malposition	62
Influencing fetal position prior to labor	62
Identifying those fetuses likely to persist in an OP position throughout labor	63
Influencing fetal position during labor	63
Other assessments prior to labor	64
Estimating fetal weight	64
Assessing the cervix prior to labor	64
The Bishop scoring system	65
Assessments during labor	66
Visual and verbal assessments	66
Hydration and nourishment	66
Psychology	67

Quality of contractions	68
External assessments	69
Vital signs	69
Quality of contractions	69
Abdominal palpation (Leopold's maneuvers)	70
Assessing the fetus	70
Gestational age	71
Meconium	71
Fetal heart rate (FHR)	71
Internal assessments	75
Vaginal examinations: indications and timing	77
Performing a vaginal examination during labor	77
Assessing the cervix	79
Assessing the presenting part	81
The vagina and bony pelvis	87
Putting it all together	87
Assessing progress in the first stage	87
Features of normal latent phase	88
Features of normal active phase	88
Assessing progress in the second stage	88
Features of normal second stage	88
Conclusion	89
References	89
 Chapter 4: Prolonged Prelabor and Latent First Stage	 95
Penny Simkin, BA, PT, CCE, CD(DONA) and Ruth Ancheta, MA, ICCE, CD(DONA)	
The onset of labor: key elements in diagnosis	96
Prelabor vs labor: the dilemma for expectant parents	96
Symptoms that differentiate prelabor from early labor	97
The six ways to progress in labor—prelabor to birth	99
The Bishop Score	100
Use of the "Six Ways to Progress" and the Bishop Score to help parents differentiate prelabor from labor	100
Prolonged prelabor and latent phase of labor	101
Can prenatal actions prevent some postdates pregnancies, prolonged prelabors, or early labors?	102
Prenatal preparation of the cervix for dilation	102
Attention to fetal factors that may prolong early labor	107
Optimal fetal positioning: prenatal features	107
Prenatal assessment and correction of suboptimal maternal musculoskeletal variations	109
The woman who has hours of latent labor contractions without dilation	109
Support measures for women who are at home in prelabor and the latent phase	109

Some reasons for excessive pain and duration of prelabor or the latent phase	112
Iatrogenic factors	112
Cervical factors	112
Other soft tissue (ligaments, muscles, fascia) factors	113
Emotional factors	113
Troubleshooting measures for painful prolonged prelabor or latent phase	114
Measures to alleviate painful, non-progressing, non-dilating contractions in prelabor or the latent phase	115
Synclitism and asynclitism	116
Open knee–chest position	119
Closed knee–chest position	120
Side-lying release	120
Conclusion	121
References	121

Chapter 5 Prolonged Active Phase of Labor 125

Penny Simkin, BA, PT, CCE, CD(DONA),
Ruth Ancheta, MA, ICCE, CD(DONA),
and Lisa Hanson, PhD, CNM, FACNM

What is active labor? Description, definition, diagnosis	126
When is active labor prolonged?	127
Observable characteristics of prolonged active labor	127
Possible causes of prolonged active labor	128
Fetal and fetopelvic factors	129
Malposition, macrosomia, malpresentation, and cephalopelvic disproportion	129
Persistent asynclitism	130
Occiput posterior	130
How fetal malpositions delay labor progress	132
Problems in diagnosis of fetal position during labor	133
Artificial rupture of the membranes with a malpositioned fetus	134
Specific measures to address and correct problems associated with a “poor fit”—malposition, cephalopelvic disproportion, and macrosomia	135
Maternal positions and movements for suspected malposition, cephalopelvic disproportion, or macrosomia	135
Forward-leaning positions	136
Side-lying positions	138
Asymmetrical positions and movements	140
Abdominal lifting	142
An uncontrollable premature urge to push	143
If contractions are inadequate	145
Immobility	145

Medication	147
Dehydration and fear of dehydration	147
Overhydration—excessive oral and/or intravenous fluids	148
Exhaustion	149
Uterine lactic acidosis as a cause of inadequate contractions	149
When the cause of inadequate contractions is unknown	150
Breast stimulation	150
Walking and changes in position	151
Acupressure or acupuncture	151
Hydrotherapy (baths and showers)	151
If there is a persistent anterior cervical lip or a swollen cervix	153
Positions to reduce an anterior cervical lip or a swollen cervix	153
Other methods	154
Manual reduction of a persistent cervical lip	155
If emotional dystocia is suspected	155
Assessing the woman's coping	155
Western cultural attitudes on coping with labor	155
Relaxation, Rhythm, and Ritual: The essence of "coping" during the first stage of labor	155
Indicators of emotional dystocia during active labor	156
Predisposing factors for emotional dystocia	157
Helping the woman state her fears	157
How to help a laboring woman in distress	158
Special needs of childhood abuse survivors	159
Incompatibility or poor relationship with staff	161
If the source of the woman's anxiety cannot be identified	161
Conclusion	162
References	162

Chapter 6 Prevention and Treatment of Prolonged

Second Stage of Labor **167**

Penny Simkin, BA, PT, CCE, CD(DONA),

Lisa Hanson, PhD, CNM, FACNM,

and Ruth Ancheta, MA, ICCE, CD(DONA)

Definitions of the second stage of labor	168
Phases of the second stage of labor	168
The latent phase of the second stage	169
Avoid directing the woman to push during the latent phase of the second stage	170
What if the latent phase of the second stage persists?	171
The active phase of the second stage	171
Support of spontaneous bearing down	171
Physiologic effects of prolonged breath-holding and straining	172
Effects on the woman	172
Effects on the fetus	172

Spontaneous expulsive efforts	172
Diffuse pushing	174
Second stage time limits	175
Possible etiologies and solutions for second stage dystocia	178
Maternal positions and other strategies for suspected occiput posterior or persistent occiput transverse fetuses	178
Why not the supine position?	179
Differentiating between pushing positions and birth positions	179
Leaning forward while kneeling, standing, or sitting	179
Squatting positions	179
Asymmetrical positions	179
Lateral positions	182
Supported squat or “dangle” positions	183
Other strategies for malposition and back pain	183
Manual interventions to reposition the occiput posterior fetus	187
Early interventions for suspected persistent asynclitism	190
Positions and movements for persistent asynclitism in second stage	192
Nuchal hand or hands at vertex delivery	193
If cephalopelvic disproportion or macrosomia (“poor fit”) is suspected	193
The influence of time on cephalopelvic disproportion	194
Fetal head descent	194
Positions for suspected “cephalopelvic disproportion” (CPD) in second stage	194
The use of supine positions	200
Use of the exaggerated lithotomy position	202
Shoulder dystocia	203
If contractions are inadequate	203
If emotional dystocia is suspected	204
The essence of coping during the second stage of labor	204
Signs of emotional distress in second stage	205
Triggers of emotional distress unique to the second stage	205
Conclusion	207
References	207

Chapter 7 Optimal Newborn Transition and Third and Fourth Stage Labor Management **211**

Lisa Hanson, PhD, CNM, FACNM,
and Penny Simkin, BA, PT, CCE, CD(DONA)

Overview of the normal third and fourth stages of labor for unmedicated mother and baby	211
Third stage management: care of the baby	213
Oral and nasopharynx suctioning	213
Delayed clamping and cutting of the umbilical cord	214
Management of delivery of an infant with a tight nuchal cord	216

Third stage management: the placenta	216
Physiologic (expectant) management of the third stage of labor	217
Active management of the third stage of labor	218
The fourth stage of labor	221
Keeping the mother and baby together	221
Baby-friendly (breastfeeding) practices	222
Supporting microbial health of the infant	223
Routine newborn assessments	225
Conclusion	226
References	227

Chapter 8 Low-Technology Clinical Interventions
to Promote Labor Progress **231**
 Lisa Hanson, PhD, CNM, FACNM

Intermediate-level interventions for management	
of problem labors	232
When progress in prelabor or latent phase remains inadequate	232
Therapeutic rest	232
Nipple stimulation	233
Management of cervical stenosis or the “zipper” cervix	233
When progress in active phase remains inadequate	234
Artificial rupture of the membranes (AROM)	234
Digital or manual rotation of the fetal head	235
Digital rotation	236
Manual rotation	237
Manual reduction of a persistent cervical lip	238
Reducing swelling of the cervix or anterior lip	238
Fostering normality in birth	239
Perineal management	239
Prenatal perineal massage	239
Perineal management during second stage	240
Verbal support of spontaneous bearing-down efforts	240
Maternal birth positions	241
Guiding women through crowning of the fetal head	241
Hand skills to protect the perineum	242
Differentiating perineal massage from other interventions	243
When progress in second stage labor remains inadequate	243
Duration of second stage labor	243
Precautionary measures	245
Warning signs	246
Shoulder dystocia maneuvers	246
The McRoberts’ maneuver	247
Suprapubic pressure	248
The Gaskin maneuver	249
Somersault maneuver	249

Non-pharmacologic and minimally invasive pharmacologic techniques for intrapartum pain relief	251
Acupuncture	251
Sterile Water Injections	252
Procedure for subcutaneous sterile water injections	253
Nitrous oxide	254
Topical anesthetic applied to the perineum	254
Conclusion	254
References	255

Chapter 9 Epidural and Other Forms of Neuraxial Analgesia for Labor: Review of Effects, with Emphasis on Preventing Dystocia **260**
Penny Simkin, BA, PT, CCE, CD(DONA)

Introduction: analgesia and anesthesia—an integral part of maternity care in many countries	261
Neuraxial (epidural and spinal) analgesia—new terms for old approaches to labor pain?	261
Physiological adjustments that support fetal growth and wellbeing	262
Multisystem effects of epidural analgesia on labor progress	263
The endocrine system	263
The central nervous system and peripheral nervous system (sensory, motor, and autonomic, including the sympathetic and parasympathetic nervous systems)	264
The musculoskeletal system	265
The genitourinary system	266
Can changes in labor management reduce problems of epidural analgesia?	266
1. Inform the woman ahead of time	266
2. Shorten the duration of exposure	267
3. Treat the woman as much as possible like a person who does not have an epidural	267
4. Attend to the woman's emotional needs	272
Restoring women to a central role	273
Conclusion	274
References	274

Chapter 10 The Labor Progress Toolkit
Part 1: Positions and Movements **277**
Penny Simkin BA, PT, CCE, CD(DONA)
and Ruth Ancheta MA, ICCE, CD(DONA)

Maternal positions and how they affect labor	278
Side-lying positions	279
Pure side-lying and semiprone (exaggerated Sims')	279
The "semiprone lunge"	284
Side-lying release	285

Sitting positions	288
Semisitting	288
Sitting upright	289
Sitting leaning forward with support	290
Standing, leaning forward	292
Kneeling positions	293
Kneeling, leaning forward with support	293
Hands and knees	295
Open knee–chest position	296
Closed knee–chest position	298
Asymmetrical upright (standing, kneeling, sitting) positions	299
Squatting positions	300
Squatting	300
Supported squatting (“dangling”) positions	302
Half-squatting, lunging, and swaying	304
Lap squatting	306
Supine positions	308
Supine	308
Sheet “pull-to-push”	309
Exaggerated lithotomy (McRoberts’ position)	310
Maternal movements in first and second stages	312
Pelvic rocking (also called pelvic tilt) and other movements of the pelvis	312
Hip sifting	314
Flexion of hips and knees in hands and knees position	315
The lunge	316
Walking or stair climbing	317
Slow dancing	318
Abdominal lifting	320
Abdominal jiggling with a rebozo	321
The pelvic press	323
Other rhythmic movements	324
References	326

Chapter 11 The Labor Progress Toolkit

Part 2: Comfort Measures

327

Penny Simkin, BA, PT, CCE, CD(DONA)
and Ruth Ancheta, MA, ICCE, CD(DONA)

Introduction: the state of the science regarding non-pharmacologic, complementary, and alternative methods to relieve labor pain	328
General guidelines for comfort during a slow labor	328
Non-pharmacologic methods to relieve labor pain	328
Non-pharmacologic physical comfort measures	330
Heat	330
Cold	331

Hydrotherapy	333
Touch and massage	337
How to give simple brief massages for shoulders and back, hands, and feet	338
Acupressure	343
Acupuncture	344
Continuous labor support from a doula, nurse, or midwife	345
How the doula helps	345
What about staff nurses and midwives as labor support providers?	346
Psychosocial comfort measures	347
Assessing the woman's emotional state	348
Techniques and devices to reduce back pain	350
Counterpressure	350
The double hip squeeze	351
The knee press	353
Cook's counterpressure technique No. 1: ischial tuberosities (IT)	354
Cook's counterpressure technique No. 2: perilabial pressure	355
Techniques and devices to reduce back pain	357
Cold and heat	357
Cold and rolling cold	358
Warm compresses	359
Hydrotherapy	359
Maternal movement and positions	360
Birth ball	360
Transcutaneous electrical nerve stimulation (TENS)	362
Sterile water injections for back pain	364
Breathing for relaxation and a sense of mastery	364
Simple breathing rhythms to teach on the spot in labor	365
Bearing-down techniques for the second stage	366
Spontaneous bearing down (pushing)	366
Self-directed pushing	367
Directed pushing	367
Conclusion	367
References	368

<i>Index</i>	371
--------------	-----

Foreword to the Fourth Edition

Traveling to many parts of the world in my role as President of the Royal College of Midwives over the last few years, particularly countries where the normal birth rate is lowest and the cesarean section rate is highest, I have been struck by the efforts being made to make a straightforward and healthy vaginal birth a possibility, in an apparent vacuum of expertise, understanding, and knowledge. Many want to know how to set up services where normal birth is a possibility. Many want to know how to support women through labor, enhancing the possibility of success, but recognizing when intervention is necessary, and also give a positive experience.

The Labor Progress Handbook, first published in 2000 and now in its fourth edition, is crucial and unique to this work. It is a source of knowledge that will be critical to filling the vacuum. Since the first edition was published, the knowledge base and expertise has grown exponentially. We are more aware than ever of that delicate balance of physiological and psychological processes that are so fundamental to the outcomes of birth (no matter what is the route of birth). There is growing awareness of the neurophysiological effects not only on health of pregnancy and progress of labor, but also relationships, especially between mother and baby, and long-term wellbeing, of this balance.

At the same time, frustratingly, the cesarean section rate continues to rise or the rate is intractable even where there is a commitment to bringing it down. Normal birth rates, however we define normal birth, are falling. Even in the United Kingdom, with a strong midwifery profession, the normal birth rate is low and the cesarean section rate is currently over 25%. We need not only a commitment to enabling normal birth, but also to know how to support it.

This fourth edition of the *Handbook* is a unique and critical resource of this knowledge and understanding. It is crucial to knowing how we might provide a safe and positive experience. *The Labor Progress Handbook* (4th edition) strikes at the most challenging issue we face as we try to increase rates of normal birth—how to recognize, support, and enhance progress in labor. Everyone concerned with the care of women, their babies, and the family during pregnancy and birth—midwives, doctors, nurses, doulas, childbirth educators, companions, all birth workers—will find the book brimming not only with evidence, skills, anatomy and physiology, step-by-step instructions, and clear

diagrams, but also a holistic approach that recognizes and explains the delicate neurohormonal physiology, the connection between body and mind, and the effect of fear and emotions, the impact of environment, and the importance of comfort, reassurance, and support.

The Labor Progress Handbook (4th edition) is not only for those newly entering the field; novices and experts alike will all gain from the concise but rich format, accessibility of information, and reconsideration of approaches and knowledge that are changing rapidly. Every one of us will be made to think and reconsider.

The holistic comprehensive approach is crucial, not only because a number of complex factors will affect the outcome of pregnancy and birth, but because a positive experience is crucial, no matter what the outcome. This comprehensive approach has a strong basis in evidence. To convey this complex evidence, not only summarized and applied but also evaluated, in such a readable form in such a compact book, is a remarkable achievement.

One of the really important aspects is the recognition that birth workers do not always work in ideal environments, and routine practices are not always evidence based. As understanding and ideas change so rapidly, few of us practice in ideal circumstances. While the book gives enough ammunition to challenge practices and approaches that may not be helpful and may be harmful, many will need to provide day-to-day care in settings that make support for labor progress more difficult. For example, rates of epidural anesthesia are very high in many parts of the world, and so one of the important changes in this new edition is a chapter on how to maintain progress when there is an epidural.

Since the first edition in 2000, knowledge and awareness of the extent to which birth might be traumatic has risen. There is more information on trauma-informed care in this new edition.

Every birth worker should use and carry this book. The “Toolkits” (the last two chapters) are of huge real-time use, and are designed for quick reference to deal with specific problems with slow progress or pain in labor.

One of the major indications for cesarean section performed in labor is dystocia. As we emerge from a world where in the affluent economies cesarean section has been performed almost routinely, we have lost the ability to assess progress of labor, to support progress while providing comfort and security to the laboring woman. Many managing the problems of long latent phase or pre-labor, or prolonged labor, need help in managing the woman’s care safely and humanely.

Now, as we seek to avoid cesarean section, particularly the first or primary c/s, *The Labor Progress Handbook* (4th edition) will be central to our work. Neither must we forget parts of the world where c/s and assisted birth is not easily accessible. The information contained here will be useful and important to the development of skilled birth attendants in less affluent parts of the world.

Now enjoy, read through, thumb through, look up, reread, test your skills and knowledge, carry in your pocket. Whether you are novice or expert you will find

understanding, knowledge, instructions, and the inspiration to find ways to help labor progress to healthy, safe, and joyful birth, and where that progress has not been possible, to know that your care has been of the best.

Lesley Page CBE

PhD, MSc, BA, RM, RN, Honorary DSc, HFRCM

President Royal College of Midwives UK

Visiting Professor in Midwifery, King's College London UK, and Adjunct Professor of Midwifery, University of Technology Sydney and Griffith University Australia

Acknowledgments

We have been helped in writing this book by many wonderful people, especially:

- John Carroll, Alicia Huntley, Shauna Leinbach, Jenn McAllister, Sara Wickham, for reviewing parts of previous editions and giving us useful feedback.
- Diony Young, for her assistance and support.
- Anne Frye, midwife and author of *Holistic Midwifery*, for her stimulating conversation, generous sharing of ideas, and feedback on Chapters 3 and 4.
- Shanna dela Cruz, our dedicated and meticulous illustrator, and Dolly Sundstrom, who added some new illustrations for this edition.
- The mother and child depicted in the cover photo.
- The women and men who posed for our illustrations, including Robin Block, Asela Calhoun, Valerie Catton, Vic dela Cruz, Helen Vella Dentice, Carissa and Zsolt Farkas, Bob Meidl, and Lori Meidl Zahorodney, Katie Rohs, Maureen Wahhab, Celia Scouten, Susan Steffes, and class members in Penny Simkin's childbirth classes, staff members of Waukesha Memorial Hospital, Aurora Sinai Hospital, and St Mary's Hospital of Milwaukee, Wisconsin, USA, and the Medical Librarians at the Northridge Hospital in Northridge, California, USA.
- Celia Bannenberg, for permission to redraw the deBy birthing stool.
- Jan Dowers, Lesley James, Tracy Sachtjen, and Heather Snookal, Tanya Baer, Candace Halverson, and Molly Kirkpatrick, who provided support and assistance with manuscript preparation of previous editions.
- Leona VandeVusse PhD, CNM, and Dolly Sundstrom CD, for extensive editorial and reference assistance.
- Marvis Schorn PhD, CNM, FACNM for expert review of third-stage labor material.
- Ann Neal and Kimberly Belanger for their stimulating conversations regarding the content of the *Labor Progress Handbook*.
- Our patient and highly competent editor, Robert Hine.
- Special acknowledgment to Kathy Wilson and Katie Rohs, who were extraordinary doulas to Penny Simkin through the preparation of this edition.
- Last but not least, we wish to acknowledge our families who have helped us in countless ways as we devoted ourselves to this larger than expected task.

Chapter 1

Introduction

Penny Simkin, BA, PT, CCE, CD(DONA)
and Ruth Ancheta, BA, MA, ICCE, CD(DONA)

Causes and prevention of labor dystocia: a systematic approach, 1
Differences in maternity care providers and practices in the United Kingdom, the United States, and Canada, 5
Notes on this book, 5
Changes in this fourth edition, 6
A note from the authors on the use of gender-specific language, 6
Conclusion, 7
References, 7

CAUSES AND PREVENTION OF LABOR DYSTOCIA: A SYSTEMATIC APPROACH

Labor dystocia, dysfunctional labor, failure to progress, arrest of labor, arrested descent—all these terms refer to slow or no progress in labor, which is one of the most vexing, complex, and unpredictable complications of labor. Labor dystocia is the most common medical indication for primary cesarean sections. Dystocia also contributes indirectly to the number of repeat cesareans, especially in countries where rates of vaginal births after previous cesareans (VBAC) are low. In fact, the American College of Obstetricians and Gynecologists (ACOG) estimates that 60% of all cesareans (primary and repeat) in the United States are attributable to the diagnosis of dystocia.¹ Thus, preventing primary cesareans for dystocia enables the number of repeat cesareans to be brought down by a comparable number. The prevention of dystocia also reduces the need for many other costly and risky corrective obstetric measures, and spares numerous women from the discouragement and disappointment that often accompany a prolonged or complicated birth.

The possible causes of labor dystocia are numerous. Some are intrinsic:

- The *powers* (the uterine contractions).
- The *passage* (size, shape, and joint mobility of the pelvis and the stretch and resilience of the vaginal canal).
- The *passenger* (size and shape of fetal head, fetal presentation and position).
- The *pain* (and the woman's ability to cope with it).
- The *psyche* (anxiety, emotional state of the woman).

The Labor Progress Handbook: Early Interventions to Prevent and Treat Dystocia, Fourth Edition.
 Penny Simkin, Lisa Hanson and Ruth Ancheta.
 © 2017 John Wiley & Sons, Inc. Published 2017 by John Wiley & Sons, Inc.

Others are extrinsic:

- *Environment* (the feelings of physical and emotional safety generated by the setting and the people surrounding the woman).
- *Ethno-cultural factors* (the degree of sensitivity and respect for the woman's culture-based needs and preferences).
- *Hospital or caregiver policies* (how flexible, family- or woman-centered, how evidence-based).
- *Psycho-emotional care* (the priority given to non-medical aspects of the childbirth experience).

The Labor Progress Handbook focuses on prevention, differential diagnosis, and early interventions to use with dysfunctional labor (dystocia). The emphasis is on relatively simple and sensible care measures or interventions designed to help maintain normal labor progress, and to manage and correct minor complications before they become serious enough to require major interventions. We believe this approach is consistent with worldwide efforts, including those of the World Health Organization, to reserve the use of medical interventions for situations in which they are needed: "The aim of the care [in normal birth] is to achieve a healthy mother and baby with the least possible level of intervention that is compatible with safety."²

The suggestions in this book are based on the following premises:

- Progress may slow or stop for any of a number of reasons at any time in labor—prelabor, early labor, active labor, or during the second or third stage.
- The timing of the delay is an important consideration when establishing cause and selecting interventions.
- Sometimes several causal factors occur at one time.
- Caregivers and others are often able to enhance or maintain labor progress with simple non-surgical, non-pharmacological physical and psychological interventions. Such interventions have the following advantages:
 - compared to most obstetric interventions for dystocia, they carry less risk of harm or undesirable side effects to mother or baby;
 - they treat the woman as the key to the solution, not the key to the problem;
 - they build or strengthen the cooperation between the woman, her support people (loved ones, doula), and her caregivers;
 - they reduce the need for riskier, costlier, more complex interventions;
 - they may increase the woman's emotional satisfaction with her experience of birth.
- The choice of solutions depends on the causal factors, if known, but trial and error is sometimes necessary when the cause is unclear. The greatest drawbacks are that the woman may not want to try these interventions; they sometimes take time; or they may not correct the problem.
- Time is usually an ally, not an enemy. With time, many problems in labor progress are resolved. In the absence of clear medical or psychological contraindications, patience, reassurance, and low- or no-risk interventions may constitute the most appropriate course of management.
- The caregiver may use the following to determine the cause of the problem(s):
 - *objective observations*: woman's vital signs; fetal heart rate patterns; fetal presentation, position, and size; cervical assessments; assessments

- of contraction strength, frequency, and duration; membrane status; and time;
- *subjective observations*: woman’s affect, description of pain, level of fatigue, ability to cope using self-calming techniques;
 - *direct questions* of the woman and collaboration with her in decisions regarding treatment:
 - “What was going through your mind during that contraction?”
 - “Please rate your pain during your previous contraction.”
 - “Why do you think labor has slowed down?”
 - “Which options for treatment do you prefer?”
 - Once the probable cause and the woman’s perceptions and views are determined, appropriate primary interventions are instituted and labor progress is further observed. The problem may be solved with no further interventions.

Chart 1.1 illustrates the step by step approach followed in this book—from detection of little or no labor progress through graduating levels of interventions (from simple to complex) to correct the problem.

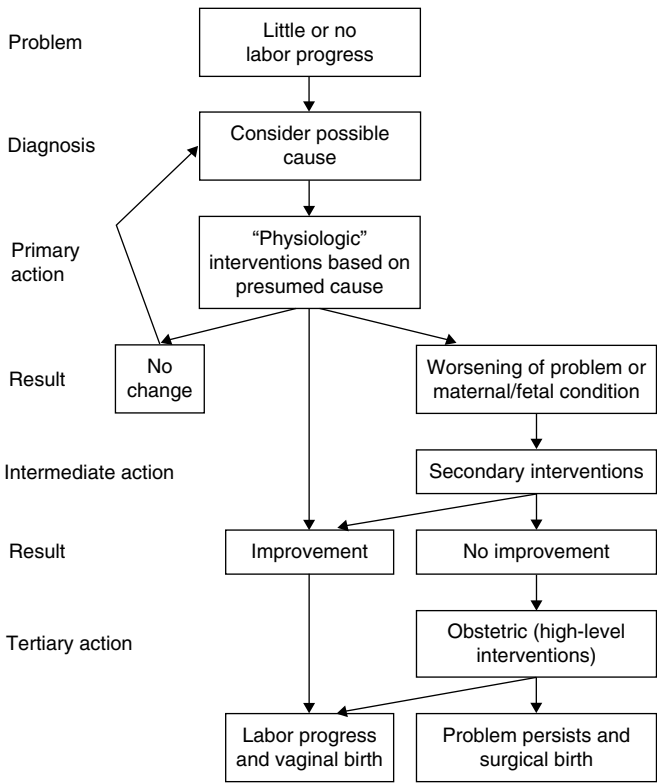


Chart 1.1. Care plan for the problem of “little or no labor progress.”

If the primary physiologic interventions are medically contraindicated or if they are unsuccessful, then secondary—relatively low-technology—interventions are utilized, and only if those are unsuccessful are the tertiary, high-technology obstetrical interventions instituted under the guidance of the physician or midwife. Other similar flow charts appear throughout this book showing how to apply this approach to a variety of specific causes of dysfunctional labor.

Many of the interventions described here are derived from the medical, midwifery, nursing, and childbirth education literature. Others come from the psychology, sociology, and anthropology literature. We have provided references for these, when available. Suggestions have also come from the extensive wisdom and experience of nurses, midwives, physicians, and doulas (labor support providers). Many are applications of physical therapy principles and practices. The fields of therapeutic massage and chiropractic provide methods to assess and correct soft tissue tension and imbalance that can impair labor progress. Some items fall into the category of “shared wisdom,” where the original sources are unknown. We apologize if we neglect to mention the originator of an idea that has become widespread enough to fall into this category. Finally, some ideas originated with the authors, who have used them successfully in their work with laboring women.

Scientific evaluation of non-medical non-pharmacological techniques is sparse and often inconclusive. During the past half-century, extensive scientific evaluation of numerous entrenched medical customs, policies, and practices, intended to improve birth outcomes, has found that many are ineffective or even harmful. Routine practices, such as enemas, pubic shaving, continuous electronic fetal monitoring, maternal supine and lithotomy positions in the second stage of labor, episiotomy, immediate clamping of the umbilical cord, routine suctioning of the baby’s airway after birth, and separation of the newborn from mother are examples of care practices that became widespread before they were scientifically evaluated. Then, once well-controlled trials of safety and effectiveness had been performed and the results combined in meta-analyses, these common practices were found to be ineffective and to increase risks.^{3,4}

Where possible in this book, we base our suggestions on scientific evidence and cite appropriate references. However, numerous simple and apparently risk-free practices have never been scientifically studied, yet are widely used and based on observation and the experience of leaders in the field. Other valid considerations, such as women’s needs, preferences, and values, also play a large role in the selection of approaches to their care.

This book points out various areas in which more research is needed. Some of the strategies suggested in this book will lend themselves to randomized controlled trials, while others may not. Perhaps readers will gather ideas for scientific study as they read this book and apply its suggestions.

DIFFERENCES IN MATERNITY CARE PROVIDERS AND PRACTICES IN THE UNITED KINGDOM, THE UNITED STATES, AND CANADA

This book is being published simultaneously in North America and the United Kingdom, where the approaches to maternity care are quite different from one another. For example, in the United Kingdom, midwives and general practitioners provided the maternity care for more than 80% of the 776,000 births in 2014.⁵ In the United States, less than 10% of the 4 million pregnancies and births per year are attended by midwives, while the vast majority, even those at low risk, are under the care of physicians, mostly obstetricians. During labor, women in the United States are usually cared for by nurses until shortly before they give birth, when physicians arrive to attend the actual birth and immediately post partum.

Canadian maternity care for approximately 390,000 births in 2015 was provided by approximately 2100 family doctors, 1650 obstetricians, and 1300 midwives.⁶ Obstetricians attend approximately 70% of all low-risk births in Canada. Family doctors attended approximately 22% of low risk births.⁷ Less than 10% were attended by midwives in 2013.

The differences in caregivers, with their differing approaches to childbirth, are reflected in the rates of interventions and cesarean births when labor is diagnosed as low risk at the outset. Where there are high numbers of obstetricians caring for low-risk women, practices such as inductions, cesareans, and admissions to intensive care nurseries are more common than where maternity care is provided by midwives and family physicians, who rely on less invasive approaches, and reserve the obstetric interventions for high-risk pregnancies.

Because of these differences in maternity care, the willingness to introduce new practices, and the power to do so, will vary among caregivers in different countries. We hope our readers will utilize the simplest, least risky measures when problems are first identified, reserving more complex interventions for more serious problems, and educate themselves and change policies where necessary.

NOTES ON THIS BOOK

This book is directed toward caregivers—midwives, nurses, and physicians—who want to support and protect the physiological process of labor, with the objective of avoiding complex, costly, and more risky interventions. It will also be helpful for students in obstetrics, midwifery, and maternity nursing; for childbirth educators (who can teach many of these techniques to expectant parents); and for doulas (trained labor support providers whose scope of practice includes use of many of the non-clinical techniques). The chapters are arranged chronologically according to the phases and stages of labor.

Because a particular maternal position or movement is useful for the same problem during more than one phase of labor, we have included illustrations of these positions in more than one chapter. This will allow the reader to find

position ideas at a glance when working with a laboring woman. Complete descriptions of all the positions, movements, and other measures can be found in the “Toolkit” chapters (10 and 11).

CHANGES IN THIS FOURTH EDITION

With this edition we welcome Lisa Hanson, CNM, PhD, as second author. We have updated content throughout the book, adding new suggestions, illustrations, and references. Chapter 2 includes a new section on incorporating a trauma-informed care approach into perinatal care, and references to more detailed sources. In Chapter 3, Wendy Gordon, LM, CPM, MPH, and Lisa Hanson, CNM, PhD, have updated information on assessments of progress and maternal-fetal wellbeing. Chapter 4 contains instructions for using Bishop Score criteria to differentiate pre-labor from labor and help parents adjust their expectations while maintaining their optimism. Another section reviews complementary and alternative medicine (CAM) techniques that are sometimes used in attempts to start labor.

Chapter 5 addresses new guidelines redefining the onset of active labor, and includes a detailed table comparing the Friedman, Zhang and NICE models of labor progress. Chapter 6 now includes information about the Ottawa Hospital Second Stage Protocol;⁸ Chapter 7 provides information on supporting the microbial health of newborns; and Chapter 8 updates information on routine rupture of the membranes, manual and digital rotation of the OP or OT fetus, and the potential of manual rotation to reduce the risks of cesarean birth and postpartum hemorrhage.

In acknowledgement of the widespread use of epidural analgesia, Penny Simkin has written a new chapter (Chapter 9) on epidural and other types of neuraxial analgesia (NA). Labors with epidural analgesia are frequently accompanied by slow progress, and the necessity for synthetic oxytocin, instrumental delivery, episiotomy, or cesarean delivery. However, strategies are available to reduce the need for these interventions.

Although women laboring with NA cannot use many of the maternal positions and movements that other women use, the same mechanical principles still apply. This chapter shows how to use them to foster labor progress. It also suggests simple, low-risk ways to reduce some of the undesirable medication effects, adapt the management that accompanies NA to further prevent dystocia, and help women who use NA to have positive psychological outcomes.

In addition to updating the “Toolkit” (Chapters 10 and 11), we now provide cross-references between it and the main text, to help readers retrieve information more quickly.

A NOTE FROM THE AUTHORS ON THE USE OF GENDER-SPECIFIC LANGUAGE

In these times of rapidly increasing awareness and acceptance of the wide variety of family configurations, we want to acknowledge and support the unique gifts provided by all, including heterosexual couples and their infants; single-parent

families; blended families formed by second marriages; and families with gay, lesbian, transgender parents, or gender-queer parents who will carry and give birth to their infants. Despite our support of all family configurations, after discussion with our publishers, we are retaining gender-specific language, referring to the pregnant person as “mother” or “woman.” We mean no disrespect to family groups who identify differently.

CONCLUSION

The current emphasis in obstetrics is to find better ways to treat dystocia once it occurs. This book focuses on prevention, and a step-wise progression of interventions aimed at using the least invasive approaches that will result in safe delivery.

To our knowledge, this is the first book that compiles labor progress strategies that can be used by a variety of caregivers in a variety of locations. Most of the strategies described can be used for births occurring in hospitals, at home, and in free-standing birth centers.

We hope this book will make your work more effective and more rewarding. Your knowledge of appropriate early interventions may spare many women from long, discouraging, or exhausting labors, reduce the need for major interventions, and contribute to safer and more satisfying outcomes. The women may not even recognize what you have done for them, but they will appreciate and always remember your attentiveness, expertise, and support, which contribute so much to their satisfaction⁹ and positive long-term memories of their childbirths.¹⁰

We wish you much success and fulfillment in your important work.

REFERENCES

1. ACOG (American College of Obstetricians and Gynecologists). (2003) Dystocia and augmentation of labor. ACOG Practice Bulletin Number 49. *Obstetrics & Gynecology* 102(6),1445–54.
2. World Health Organization. (1996) *Care in Normal Birth: A Practical Guide*. Geneva: WHO, Chapter 1. Available from: http://apps.who.int/iris/bitstream/10665/63167/1/WHO_FRH_MSM_96.24.pdf
3. Hofmeyr GJ, Neilson JP, Alfirevic Z, et al. (2008) Care during childbirth. In: *A Cochrane Pocketbook: Pregnancy and Childbirth*. Chichester: John Wiley & Sons, Ltd, Chapter 7; doi: 10.1002/9780470994627.ch7
4. Block J. (2007) *Pushed: The painful truth about childbirth and modern maternity care*. Cambridge, MA: Da Capo Lifelong.
5. Hamilton B, Martin J, Osterman M, et al. (2015) Births: Final Data for 2014. *National Vital Statistics Reports* 64(12).
6. Statista: The Statistics Portal. Number of births in Canada from 2000 to 2015 (in 1,000). Available from: <http://www.statista.com/statistics/443051/number-of-births-in-canada/> (retrieved on May 19, 2016).
7. Aubrey-Bassler K, Cullen RM, Simms A, et al. (2015) Outcomes of deliveries by family physicians or obstetricians: a population-based cohort study using an instrumental variable. *Canadian Medical Association Journal* 187(15), 1125–32.

8 *The Labor Progress Handbook*

8. Osborne K, Hanson L. (2014) Labor down or bear down. *Journal of Perinatal & Neonatal Nursing* 28(2), 117–26.
9. Hodnett E. (2002) Pain and women's satisfaction with the experience of child-birth: A systematic review. *American Journal of Obstetrics and Gynecology* 186(5), S160–S172.
10. Simkin, P. (1992) Just another day in a woman's life? Part 11: Nature and consistency of women's long-term memories of their first birth experiences. *Birth* 19(2), 64–81. doi: 10.1111/j.1523-536X.1992.tb00382.x

Chapter 2

Normal Labor and Labor Dystocia: General Considerations

Penny Simkin, BA, PT, CCE, CD(DONA)
and Ruth Ancheta, BA, MA, ICCE, CD(DONA)

What is normal labor?, 10

What is labor dystocia?, 14

Why does labor progress slow down or stop?, 15

Prostaglandins and hormonal influences on emotions and labor progress, 17

“Fight-or-flight” and “tend-and-befriend” responses to distress and fear during labor, 19

Optimizing the environment for birth, 21

The psycho-emotional state of the woman: wellbeing or distress?, 21

Pain versus suffering, 21

Assessment of pain and distress in labor, 22

Assessment of women’s ability to cope with the pain, 23

Psycho-emotional measures to reduce suffering, fear, and anxiety, 24

Before labor, what the caregiver can do, 24

During labor: tips for caregivers and doulas, especially if meeting the laboring client for the first time in labor, 26

An integrated philosophy on caring for trauma survivors, 27

Trauma histories: why they matter, 27

Childhood sexual abuse (CSA) and trauma in adulthood, 27

Traumatic births, 28

Trauma-informed care as a universal precaution, 31

Physical and physiologic measures to promote comfort and labor progress, 32

During labor: physical comfort measures, 32

During labor: physiologic measures, 32

Why focus on maternal position?, 33

Techniques to elicit stronger contractions, 35

Maintaining maternal mobility while monitoring contractions and fetal heart, 36

Auscultation, 36

When EFM is required: options to enhance maternal mobility, 37

Continuous EFM, 37

Intermittent EFM, 39

Wireless telemetry, 40

Conclusion, 42

References, 42

The Labor Progress Handbook: Early Interventions to Prevent and Treat Dystocia, Fourth Edition.

Penny Simkin, Lisa Hanson and Ruth Ancheta.

© 2017 John Wiley & Sons, Inc. Published 2017 by John Wiley & Sons, Inc.

WHAT IS NORMAL LABOR?

Normal labors may be long or short; very painful or hardly painful; low-risk or high-risk. A normal birth may result in the birth of a small or a large baby; and may take place in a hospital or in another location.

Despite these variations, all such labors, if they meet the following criteria, would be considered normal by the World Health Organization (WHO),¹ which defines *normal labor* as having the following features:

- spontaneous onset of labor between 37 and 42 completed weeks of pregnancy;
- low risk at the start, and remaining so throughout labor and delivery;
- spontaneous birth of an infant in the vertex presentation;
- mother and baby in good condition after birth.

The WHO criteria for normal labor have not changed since 1996, when they were first published. The problem is that it is impossible, using these criteria, to diagnose labor as normal until after (not during) the birth; this uncertainty sometimes leads to treatment of all labors as high risk until proven otherwise after the births. In other words, one can diagnose labor as normal only in retrospect. WHO estimates that “between 70 and 80% of all pregnant women may be considered low-risk at the start of labor” (ref. 1, p. 3). Because treating all labors as high risk involves added expense, intensive training for care providers, and risks that are inherent in the treatments themselves, WHO states, “In normal birth there should be a valid reason to interfere with the normal process.” (ref. 1, p. 3). However, assessments of risk must continue throughout pregnancy and labor: “At any moment early complications may become apparent and induce the decision to refer the woman to a higher level of care” (ref. 1, p. 2). By emphasizing the need for ongoing surveillance of maternal and fetal wellbeing, WHO answers many of the concerns resulting from the impossibility of predicting which low-risk women will remain low risk throughout labor and birth.

Influential organizations and working groups of care providers (midwives with various trainings and backgrounds; obstetricians; family physicians) in North America and Europe have taken up the challenge of defining *normal labor*.^{2–6} Table 2.1 describes some of these efforts. Others have taken on the challenge of developing tools to evaluate maternity care providers (individuals and institutions) on how well or how poorly they promote normal birth.^{7–13}

Although none of the definitions of *normal birth* in Table 2.1 specifies rates of labor progress, numerous authors consider adequate labor progress to be a defining characteristic of normality and a major focus of intrapartum care, along with the wellbeing of mother and fetus. Given the wide range of normality, however, it is not surprising that many varying points of view exist on the meaning of abnormal progress and on how to prevent, identify, and correct this troublesome problem.

Table 2.1. Many ways to define “normal birth.”

Defining organization or individual	Definition	Comments
World Health Organization (WHO), 1996 ¹	“Spontaneous in onset, low-risk at the start of labor and remaining so throughout labor and delivery. The infant is born spontaneously in the vertex position between 37 and 42 completed weeks of pregnancy. After birth mother and baby are in good condition.”	This is a retrospective definition of normal labor is based on healthy outcomes. Normal labor can only be diagnosed in retrospect
Society of Obstetricians and Gynecologists of Canada (SOGC); Association of Women's Health, Obstetric and Neonatal Nursing of Canada (AWHONN); Canadian Association of Midwives (CAM); College of Family Physicians of Canada (CFPC); and Society of Rural Physicians of Canada (SRPC) ²	Same as WHO, above, plus: “ Normal birth includes the opportunity for skin–skin holding and breastfeeding in the first hour after the birth. A normal birth does not preclude possible complications such as postpartum hemorrhage, perineal trauma and repair, and admission to the neonatal intensive care unit. Normal birth may also include evidence-based interventions in appropriate circumstances to facilitate labor progress and normal vaginal delivery; for example: <ul style="list-style-type: none">• Augmentation of labor and artificial rupture of the membranes (ARM) if it is not part of medical induction of labor• Non-pharmacologic and pharmacologic pain relief (nitrous oxide, opioids and/or epidural)• Managed third stage of labor• Intermittent fetal auscultation A normal birth does not include: <ul style="list-style-type: none">• Elective induction of labor prior to 41 +0 weeks• Spinal analgesia, general anesthetic• Instrumental delivery• Cesarean delivery• Routine episiotomy• Continuous electronic fetal monitoring for low risk birth• Fetal malpresentation	This is a prospective process-based definition of normal labor . With this definition, one may have a normal labor, but a poor outcome. The group advocates: <ul style="list-style-type: none">• Spontaneous labor onset• Freedom to move throughout• Continuous labor support• No routine intervention• Spontaneous pushing in woman's preferred position• Fetal surveillance by auscultation• Good information for women• Education on normal birth for childbirth educators and care providers

(Continued)

Table 2.1. (Continued)

Defining organization or individual	Definition	Comments
UK Maternity Care Working Party (MCWP) 2007, including the Royal College of Midwives (RCM), Royal College of Obstetricians and Gynecologists (RCOG), and National Childbirth Trust (NCT) ² and Australian College of Midwives, National midwifery guidelines for consultation and referral, 2008 ⁴	<p>The “normal delivery” group includes:</p> <ul style="list-style-type: none">women whose labor starts spontaneously, progresses spontaneously without drugs, and who give birth spontaneously;AND women who experience any of the following, provided they do not meet the exclusion criteria (see below):• augmentation of labor, artificial rupture of the membranes (ARM) if not part of medical induction of labor,• nitrous oxide/oxygen,• opioids,• electronic fetal monitoring,• managed third stage of labor,• antenatal, intrapartum, or postnatal complications (postpartum hemorrhage, perineal tear, repair of perineal trauma, admission to SCBU or NICU). <p>The “normal delivery” group excludes:</p> <ul style="list-style-type: none">women who experience any one or more of the following:• induction of labor (with prostaglandins, oxytocics or ARM),• epidural or spinal, general anesthetic,• forceps or vacuum,• cesarean section, or episiotomy. <p><i>“Some MCWP members would like the Information Centre definition tightened in future to also exclude procedures like augmentation of labor, use of opioid drugs, artificial rupture of membranes or managed third stage. This would depend on the necessary statistics being routinely collected. Alternatively, a tighter definition could lead to the establishment of a separate definition of ‘physiological’ or ‘natural’ birth.”</i></p>	<p>Similar to SOGC definition above, this is another Prospective Process-based definition except it does not include epidural, and does include electronic fetal monitoring in the definition of “normal.”</p>

<p>American College of Nurse-Midwives, Midwives Alliance of North America, National Association of Certified Professional Midwives (NACPM), 2012⁵</p>	<p>"A normal physiological labor and birth is one that is powered by the innate human capacity of the woman and fetus"</p> <p>"Normal physiologic childbirth (NPC)"</p> <ul style="list-style-type: none"> • is characterized by spontaneous onset and progression of labor; • includes biologic and psychologic conditions that promote effective labor; • results in the vaginal birth of the infant and placenta; • results in physiologic blood loss; • facilitates optimal newborn transition through skin-to-skin contact and keeping the mother and infant together during the postpartum period; and • supports early initiation of breastfeeding." <p>The document names factors that influence Normal Physiologic Childbirth (NPC), including:</p> <ul style="list-style-type: none"> • for the mother—good health, autonomy, knowledge and confidence about the value of NPC; shared decision-making; and access to this type of care; • for the clinician—education, competence, skill, confidence in supporting NPC and helping women cope with pain; commitment to enhancing women's confidence and diminishing their fear, and sharing decision-making; • and a commitment to provide a birth setting and environment that fosters the elements required for success of NPC. 	<p>Includes prescriptive physiologic care practices and normal healthy outcomes in the definition of NPC</p>
<p>Debbie Gould, British midwife, 2000⁶</p>	<p>WHO definition, plus:</p> <ul style="list-style-type: none"> • labor and birth involves strenuous physical work by mother; • includes movement by mother (seeking comfort and progress); and • movement by fetus through the birth canal. • "Movement and the notion of hard work are crucial to a midwifery understanding of normal labor" (ref. 6, p. 424) <p>PLUS psychosocial outcomes:</p> <ul style="list-style-type: none"> • A healthy mother and baby who are ready to adjust together to their new roles. • Empowerment of the woman. • Sense of achievement resulting from her own productive efforts and her ACTIVE control (rather than passive) role in the birth. 	<p>This holistic definition includes references to the mother's and fetus's physical effort and emphasizes their shared roles in accomplishing the birth and postpartum adjustment together. With this definition, normal birth also includes psychological benefits for the mother⁶</p>
<p>Gould, a midwife scholar, believes that acceptance of this definition of <i>normal birth</i> would lead to improved care of women and help reverse the prevailing cultural trend toward increased maternal passivity and medicalization of birth. Gould's definition most closely embodies the approach to labor put forth in this book.</p>		

WHAT IS LABOR DYSTOCIA?

The term “labor dystocia” is a catch-all term that refers to protracted or arrested progress in cervical dilation during the active phase of labor, or protracted or arrested descent during the second stage. Numerous other terms, such as “dysfunctional labor,” “uterine inertia,” “persistent malposition,” “cephalopelvic disproportion,” “failure to progress,” “protracted labor,” and, as some clinicians have said in frustration, “WCO” (“won’t come out!”), have been used to refer to labor dystocia. In fact, E.A. Friedman compiled a list of 65 terms used to describe abnormal labor!¹⁴ Some caregivers are less patient than others and make the diagnosis of labor dystocia more quickly.

Diagnosis and management of labor dystocia vary, depending on the philosophy of the care provider.¹⁵ For example, proponents of “active management of labor” begin high-dose oxytocin augmentation of nulliparas any time after labor is diagnosed, if the rate of dilation is less than 1 cm/h for 2 hours.¹⁵ Friedman’s graphic analyses of labor progress, published between the mid-1950s and the 1970s, have profoundly influenced obstetrics in America and elsewhere for decades. He defined *labor dystocia* as a rate of dilation less than 1.2 cm/h in nulliparas and less than 1.5 cm/h in multiparas during the active phase of labor, which he defined as dilation from 3 to 10 cm.¹⁴ This work still carries great influence, although more recent research shows that the mean rate of dilation is markedly slower.

In the late 1990s, researchers began to question Friedman’s findings and whether they still applied to contemporary women. Albers et al. studied labor progress in almost 4000 midwife-attended births, in which outcomes were healthy, and neither oxytocin nor epidural analgesia was used. They found that active phases lasting as long as 19.4 hours in nulliparas and 13.8 hours in multiparas were associated with healthy outcomes.^{16,17} These durations were much longer than what Friedman described as labor dystocia.

Zhang et al. and the Consortium on Safe Labor¹⁸ obtained data from 19 US hospitals on more than 62,000 contemporary women who had given birth vaginally to singleton, vertex infants and had safe outcomes. These data indicated that between 4 and 6 cm, nulliparas and parous women dilate at a similar rate, and far more slowly than Friedman described. Furthermore, the rate of dilation often did not accelerate until 6 cm dilation, rather than at Friedman’s 4 cm. They conclude that a diagnosis of protracted or arrested labor should not be made until after 6 cm.

Reasons for the differences in findings between Friedman and The Consortium for Safe Labor include differences in study methodology and labor management, and differences in childbearing women themselves. Today’s typical obstetric management includes more use of oxytocin and epidural analgesia. Today’s women are also larger and have larger babies than the women in Friedman’s time.

In March 2014, the American College of Obstetricians and Gynecologists (ACOG) recommended, “Because they are contemporary and robust, it seems that the Consortium for Safe Labor data, rather than the standards proposed by

Friedman, should inform evidence based labor management.” ACOG also states, “Cervical dilation of 6 cm should be considered the threshold for the active phase of most women in labor. Thus, before 6 cm of dilation is achieved, standards of active phase progress should not be applied.”¹⁹

Applying this definition, with its more liberal time limits, is intended to bring about lower primary cesarean rates—and to reduce overall cesarean rates, without additional risks to mother or baby—when a diagnosis of dystocia is postponed until a delay in dilation exceeds at least 4 hours.^{18, 20} If the woman can be made comfortable and the fetus’s status appears reassuring, there is now less urgency to speed progress. Unfortunately, non-clinical factors often dictate the caregiver’s decision on when, whether, and how to intervene. These factors may include the adequacy of staffing now and later, the caregiver’s own availability and personal threshold for patience, and the woman’s needs or desires.

Implementation of this new definition of active labor (sometimes referred to as “6 is the new 4”) requires embracing a “tolerance for wide variations in normal labor”¹⁷ and attention to the needs of the laboring woman and her team for psychological support, self-help pain management techniques, nourishment, non-pharmacologic interventions (bath, movements, etc.), and patience, confidence, and continuous attendance on the part of those caring for them. These factors allow the labor process to unfold at its own pace.

WHY DOES LABOR PROGRESS SLOW DOWN OR STOP?

Even as the new ACOG guidelines are adopted, and cesarean rates for dystocia decline, some labors will still be protracted. Here we will examine factors that may cause slowing or arrest of labor progress.

Most cases of dystocia are caused by one or a combination of factors, as listed in Table 2.2. Some of these etiologies disappear with changes in labor management. Others are corrected with skilled diagnosis and appropriate treatments based on the diagnosis. With time, patience, and trial and error, others may self-correct. And lastly, some will not respond and obstetric interventions will be indicated.

Labor progress and prevention of dystocia depend on harmonious interactions among a variety of psycho-emotional, interpersonal, physical, and physiologic factors. As we shall see, progress is facilitated when a woman feels safe, respected, and cared for by her expert caregivers; when she can remain active, mobile, and upright; and when her pain is adequately and safely managed. Her sense of wellbeing is enhanced by a caring, attentive partner or loved ones; competent, confident, compassionate caregivers and doulas; and a calm comfortable, and well-equipped birthplace. If these are not available to her, she may feel ashamed, embarrassed, inhibited, incompetent, alone, judged, unsafe, restricted, disrespected, ignored, or insignificant.²² Such feelings may elicit a psychobiological reaction that interferes with efficient progress in labor.

Table 2.2. Etiologies and risk factors for labor dystocia.

Etiology	Description	Comments
Cervical qualities	Posterior unripe cervix at labor onset, scarred, fibrous cervix or "rigid os," "tense cervix" or thick lower uterine segment	Unripe cervix may prolong latent phase. Surgical scarring, damage from disease, or structural abnormality may increase cervical resistance
Emotional stressors	Maternal distress, fear, exhaustion, or severe pain	Increased catecholamine production may compete with oxytocin effects and inhibit contractions
Fetal characteristics	Malposition, asynclitism, large or deflexed head, lack of engagement	Pendulous abdomen, size and shape of pelvis or fetal head may predispose fetus to malposition
Iatrogenic events	Misdiagnosis of labor onset, active labor, second stage, or "protracted" labor; elective induction (nulliparous), inappropriate oxytocin use, maternal immobility, drugs, dehydration, disturbance	Misdiagnosis or unneeded interventions or restrictions can slow or interfere with labor progress
Pelvic characteristics	Malformation, pelvic shape other than gynecoid, small dimensions	Maternal movement, and upright, forward-leaning, or asymmetrical positions increase pelvic dimensions
Uterine factors	Inadequate, inefficient contractions, hypertonic uterus	May be secondary to fear, fasting, dehydration, supine position, cephalopelvic disproportion, lactic acidosis in myometrium, or structural abnormalities
Soft tissue characteristics (uterine, cervical, pelvic and spinal ligaments, muscles, and fascia). ²¹ See Box below (Spinning Babies)	Imbalance of tone or tension, due to mother's habitual posture or injury, may negatively influence flexibility and symmetry of pelvic structures, uterine activity, and fetal position	May reduce mobility of spine and pelvic joints, causing torque or other uneven pressures on the uterus, and impairing optimal fetal positions

The Spinning Babies approach: prevention and resolution of labor dystocia

Spinning Babies approaches birth preparation and the childbirth process from the perspective of fetal rotation, hence "spinning." This approach is based on the knowledge of soft tissue influences, pelvic mobility, fetal rotation, and descent. Spinning Babies borrows the architectural concept of "tensegrity" (tension integrity) to explain the play of forces among the soft tissues and bones,²³ and how they support the birth process.

The Spinning Babies' three principles of Balance, Gravity and Movement ease birth by restoring *Balance* before or along with the widely used techniques that utilize Gravity and Movement to facilitate labor progress. For example, getting a woman up and moving doesn't always advance her labor, as it does for many

women. The problem may be that some soft tissues—muscles, ligaments or connective tissue—may be too tight, too loose, or torqued. This can cause resistance, pain and even reduction in the pelvic diameters. The intention of Spinning Babies is to correct this problem.

Spinning Babies recommends activities during pregnancy designed to release muscles, ligaments, and connective tissue to promote pelvic flexibility. Currently, intrapartum care focuses on cervical dilation, baby’s size, and pelvic size as factors in labor progress. Spinning Babies, however, addresses pelvic station and fetal position to select solutions for labor dystocia or options in pain management. Specific progress techniques are matched to the level (high, middle, or low) of the pelvis where the baby’s progress stalls. In addition to its potential mechanical benefits, this approach empowers the mother instead of stirring fears about malposition.

The Questions We Ask Lead Us to the Solutions We Seek

Current questions	Spinning Babies questions
How far is her cervix dilated?	Where is the baby in the pelvis?
Is the baby too big?	Can fetal head flexion and/or rotation create more space?
Is her pelvis too small?	Can we maximize the pelvic space by increasing flexibility of the pelvic joints? Can we mobilize the sacrum?
Can we avoid interventions by giving more time?	Is this labor pattern reflecting a truly obstructed labor or will it resolve with Balance, Gravity and Movement?

PROSTAGLANDINS AND HORMONAL INFLUENCES ON EMOTIONS AND LABOR PROGRESS

Besides being influenced by the factors listed in Table 2.2, the labor process is influenced by a complex interplay of a variety of hormones. Each of these hormones—oxytocin, endorphins, catecholamines, and prolactin—has specific functions, which may either facilitate or inhibit the effects of the others. It is the balance of hormones that determines the net effects on labor progress, maternal postpartum mental health, mother–infant interaction, and the initiation of breastfeeding. See Box: “Endogenous hormones of labor and their functions in labor and early post partum.”

Michel Odent, MD, an observer and student of normal birth since the early 1960s, suggests that when women give birth “in the method of the mammals” (i.e., instinctively), their labors are more likely to proceed in a state of hormonal balance and without difficulty. He postulates that when the neocortex, the “newer,” more uniquely human part of the brain—the thinking, reasoning part—is overstimulated, the birth process is inhibited. Because the birth process involves coordinated activity between the endocrine system and the “older,” more primitive parts of the brain that humans share with other mammals, Odent advocates modifying present-day facilities and care practices to minimize stimulation of the neocortex. He notes that other mammals seek privacy in a comfortable, cozy, quiet space and dim light when they are about to give birth.

Such an environment for humans reduces activity in the neocortex and allows the midbrain and brainstem to set in motion the processes that allow labor to proceed undisturbed. Odent points out that in today's maternity facilities, the neocortex is constantly stimulated with bright lights, strangers, many questions, unfamiliar sights and sounds, and other disturbances, which may inhibit primitive brain function and the release of oxytocin and endorphins, while increasing the release of labor-inhibiting catecholamines, which contribute to dystocia in first stage labor.^{24, 25} See "Optimizing the environment for birth" later in this chapter.

Prostaglandins and hormones and their functions in labor and early post-partum

The following description of key hormones is synthesized from the published works of several prominent experts.^{24–27}

- *Prostaglandins*. In late pregnancy, prostaglandins promote changes that soften the cervix and make it more elastic.²⁶ Prostaglandins and a variety of hormones have been thought to promote the commonly noted increase in joint mobility during pregnancy. However, the actual processes that cause this are not well understood.²⁸ In Chapters 4 through 6, we suggest specific maternal positions and movements to make use of this flexibility to help the fetus rotate and descend.
- *Oxytocin*. Known as the hormone of "calm and connection," "closeness," or the "love" hormone, oxytocin contributes to uterine contractions, the urge to push, including the "fetus ejection reflex,"²⁹ the "letdown" of breastmilk, maternal behavior, and feelings of wellbeing and love. It reduces both pain perception and memory of aversive experiences.²⁶ It has effects opposite to those of catecholamines, as described later.
- *Endorphins*. These morphine-like hormones increase with pain, exertion, stress, and fear and tend to counteract associated unpleasant feelings. During labor, they are instrumental in creating an altered, trance-like state of consciousness (withdrawn, dreamy, and instinctual behavior) characteristic of women in active labor. They contribute to the "high" feelings that many unmedicated women have after birth. Once the stress or pain ends, the woman has the leftover euphoric effects of the endorphins.
- *Catecholamines*. These stress hormones—adrenaline (epinephrine), noradrenaline (norepinephrine), cortisol, and others—are secreted when a woman is frightened or angry, is in danger, or feels that she or her baby is in danger. These are the hormones of "fight-or-flight." Their physiologic effects enable the person's body to endure, defend against, or flee a dangerous situation. High levels of catecholamines tend to counteract the effects of oxytocin and endorphins during labor. During most of the first stage, excessively high levels of circulating catecholamines cause maternal blood to be shunted from the uterus, placenta, and other organs that are not essential for immediate survival, to the heart, lungs, brain, and skeletal muscle—the organs essential to fight-or-flight. The resulting decrease in blood supply to the uterus and placenta slows uterine contractions³⁰ and decreases the availability of oxygen to the fetus.³¹ Psychological effects on the laboring woman include muscle tension, hyperalertness, fear, help-seeking, and protectiveness of her unborn child. The term "fight-or-flight" accurately describes the *physiologic* response to danger of all mammals, as well as the *behavioral* response of males. Studies of female

behavior when in fear or danger have shown that female behavior is often better described as “tend-and-befriend”—that is, protecting their offspring and reaching out for support.³² See below for further discussion of “tend-and-befriend.”

In the second stage of labor, a surge of catecholamines is physiologic and helps mobilize the strength, effort, and alertness needed to push out the baby.²⁹

- *Prolactin*. This “nesting hormone” prepares the breasts for breastfeeding during pregnancy and after birth, promotes the synthesis of milk, and has mood-elevating and calming effects on the mother. It seems to play a role in the altruistic behavior of a new mother—the ability to put the baby’s needs before her own.

It is notable that the fetus and newborn also produce these hormones, which, depending on the balance among them, may either contribute to or undermine fetal wellbeing during labor, neonatal adaptation, initiation of breastfeeding, and other possible functions.

“Fight-or-flight” and “tend-and-befriend” responses to distress and fear during labor

The well-known “fight-or-flight” response, a physiologic process that promotes survival of the endangered or frightened animal or human, is initiated by the outpouring of catecholamines, or stress hormones. Triggered by physical danger, fear, anxiety, or other forms of distress, the fight-or-flight response has the potential of slowing labor progress (Fig. 2.1). During most of the first stage

Maternal Effects of Anxiety (‘Tend and Befriend’ Response) in Labor

Excessive maternal catecholamine levels in first stage of labor

Physiologic response in mother: decreased blood flow to uterus, suppression of oxytocin effects, decreased uterine contractions, increased duration of first stage of labor, decreased blood flow to placenta

Maternal psychological response: increased negative or pessimistic perception of events and the words of others, increased need for reassurance and support, protectiveness toward fetus

Physiologic response in fetus: increased fetal production of catecholamines, fetal conservation of oxygen, fetal heart rate decelerations

High catecholamine levels in second stage labor

Maternal effects: Alertness, renewed energy and strength

Fetal effects: same as listed above



Fig. 2.1. Physiological and psychological effects of anxiety on mother and fetus during labor.