The natural process of birth increasingly involves medical intervention, but the benefits of this trend are questionable at best. The inexorable growth in operative delivery rates is not validated by tangible improvements in perinatal outcomes. Rather, maternal morbidity has risen significantly. Apart from its physical impact, giving birth is one of the most profound emotional experiences in a woman’s life, but women’s satisfaction with childbirth remains a cause for common concern. Despite all good intentions, modern maternity care is often perceived as professional but impersonal, and labor is not infrequently described as a traumatic or even “dehumanizing” experience.\(^1-3\) This must be changed.

### 1.1 Purpose

The purpose of this manual is to present a cohesive, evidence-based plan for the care of the normal, healthy woman in labor, specifically designed to restore the balance between natural birth and medical intervention: proactive support of labor. The main target is to improve professional labor and delivery skills in order to promote spontaneous delivery and to enhance women’s satisfaction with childbirth. Proactive support of labor is a carefully orchestrated and audited expert team approach involving the laboring woman, nurse, midwife, and obstetrician committed to a safe and normal delivery for both mother and baby. Emphasis is placed as much on the physical challenge as on the emotional impact of childbirth. The principles and proposed practices are universally applicable.

The objective is to enhance women's childbirth experience by improving professional labor and delivery skills and the overall quality of obstetrical care.

### 1.2 Target readership

This manual is directed to:

- All professionals who are primarily responsible for the quality of childbirth: obstetricians, midwives, and labor room nurses. Obstetricians are in the prime position to improve all standards of care by creating the conditions for nurses and midwives to execute their labor support tasks properly.
- Medical students and student-midwives engaging in their first practical contacts with childbirth.
- All other health care providers involved in birth care such as family practitioners, childbirth educators, doulas, physiotherapists, sonographers, anesthesiologists, and home health nurses.
- Hospital administrators, health care policymakers, and health insurers, since high-quality care in labor requires a sound organization which should coincide with sound economics.
- Interested lay persons. No experience with childbirth is needed to understand the significance of proactive support of labor. Mothers-to-be have the most to gain from supportive care during pregnancy.
their labor and delivery effectively preventing everyday labor disorders. Although professional language is used, the text should be readily understandable to an educated lay-audience.

1.3 Presentation

This book is divided into three sections. The first section is a mirror for reflection, analyzing the mechanisms in everyday childbirth that explain excessive operative delivery rates and avoidable discontent of many women with their labor experience. The second section goes back to the basics and reviews the physiological prerequisites for a rewarding and safe birth that are all too often neglected in common childbirth practice. The third section proposes structural measures to solve most problems by introducing the principles and practice of proactive support of labor. Special attention should be paid to the subsection and paragraph headings as many address topics of critical importance that are seldom, if ever, discussed in standard textbooks.

Section 1: A wake-up call

To solve a problem, one must first admit that the problem exists and identify its causes. Inconsistencies in care, mismatches between women’s expectations and practice, controversial midwifery and medical services, and unfounded concepts and dogmas on both sides of the aisle will all be identified and discussed in detail, as well as the self-sustaining mechanisms and stubborn nuisance values hampering structural improvements.

Many elements of care during pregnancy and childbirth can facilitate or jeopardize the successful accomplishment of this natural process.

The numerous examples of preventable or overtly iatrogenic (provider-caused) birth disorders will be made undeniably apparent and will therefore confront childbirth professionals and even shock lay-readers. The defiant and provocative tone we adopt is by no means meant to question the integrity and devotion of obstetricians, midwives, and labor room nurses, or to belittle their efforts, but to promote debate. We wrote this section to serve as a mirror and an eye-opener, laying bare the fundamental problems plaguing modern childbirth practices all over the world.

Section 2: Back to basics

Many dogmas in mainstream childbirth practice have been relayed from teacher to student and from textbook to textbook without any serious attempt at verification until they have become the main impediments to improvements in everyday birth care. The critical reappraisals in this section will show that many conventional wisdoms about the physiology of labor are plain fallacies.

It is all too frequent in medicine to find ignorance about the most common events.

The chapters in this section offer a fundamental reinterpretation of and ample material for deliberation on the biophysics dominating the natural process of birth. The basic biology is organized in a coherent manner, giving structure and direction to a scientifically based policy for the supervision of labor from its early start. We will challenge the classic understanding and teaching concerning the onset of labor and the course of normal cervical dilatation. We will clearly demonstrate that it is not the mechanics of delivery but primarily the dynamics of first-stage labor that provide the optimal chance for a successful birth. Furthermore, a basic knowledge of the biophysical changes in the uterus prior to birth is essential for an accurate understanding of the initiation of labor and for an understanding of the negative impact that induction of labor has on the birth process. Equally important is an accurate understanding of the
physics of uterine contractions, dilatation, and expulsion. Crucial to the correct conduct and care of labor is recognition of the parasympathetic condition controlling birth and the negative impact that anxiety and stress have on the effectiveness of labor through adrenergic stimulation. These fundamental, universally valid aspects of labor and delivery are of such importance that each must be examined in considerable detail before genuine progress in labor supervision can be made.

Section 3: Proactive support of labor

The third section is the main emphasis of this book. It provides a step-by-step exposition of the policy framework for proactive support of labor. This method of supportive care is specifically designed to prevent everyday birth disorders and to detect and treat labor problems at an early stage, hence its name. This evidence-based concept of childbirth offers providers a foothold in negotiating the complexity of daily practice in the labor ward and guards them against clinical stalemates, inconsistent (non-) policies of care, and mismanagement of labor with self-created birth complications. If the strategy of proactive support of labor is followed, all elements of high-quality birth care will fall into place including fetal and maternal monitoring, pain relief measures, honoring women’s needs and desires, and the prevention and timely correction of everyday labor complications.

Proactive support of labor

A conceptual and evidence-based approach specifically designed to promote normal and rewarding labor and delivery. It is a cross-appeal to both obstetricians and midwives.

The key points include a clear diagnosis of the onset of labor, early recognition and correction of dysfunctional labor, consistent conduct, personal attention and commitment, and continuous supportive care on a one-on-one basis extended to all women in labor. This method of care is founded on the pioneering work of Kieran O'Driscoll and Declan Meagher, renowned leaders in the field of conceptual care during labor, but whose ideas have also been frequently misquoted, misunderstood, and abused. The present manual is an attempt to recreate interest in their original concept, now adding the clinical “evidence” from numerous studies all over the world.

Proactive support of labor encourages an active interest in the supervision of first-stage labor by all members of the delivery team and facilitates constant psychological support and good communication in labor. The central birth-plan promotes the development of team spirit between physicians, midwives, and nurses and dictates good labor ward organization which can improve labor care immensely. This well-defined policy at last makes possible a meaningful daily audit of all procedures in the supervision of childbirth, promoting and ensuring high-quality care. This approach effectively decreases operative delivery rates without any detrimental effects to the infants. Most importantly, this integrated, patient-centered care system invariably improves women’s satisfaction with their childbirth experience.

1.4 Evidence grading

The grading of studies and the hierarchy of evidence used in this book are adapted from Eccles and Mason:

<table>
<thead>
<tr>
<th>Evidence Category</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level I</td>
<td>Systematic review or meta-analysis of randomized controlled trials (Ia), or At least one randomized controlled trial (Ib).</td>
</tr>
<tr>
<td>Level II</td>
<td>At least one well-designed controlled study without randomization (Ila), or One other well-designed type of quasi-experimental study, such as a cohort study (IIb).</td>
</tr>
</tbody>
</table>
### Evidence Category Source

**Level III**  
Well-designed non-experimental descriptive studies, such as comparative studies, correlation studies, case-control studies and case studies.

**Level IV**  
Expert committee reports or opinions and/or clinical experience of respected authorities.

### Hierarchy Evidence

<table>
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<tr>
<th>Level</th>
<th>Evidence</th>
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</thead>
<tbody>
<tr>
<td>Level A</td>
<td>Directly based on category I evidence.</td>
</tr>
<tr>
<td>Level B</td>
<td>Directly based on category II evidence, and/or Extrapolation from category I evidence.</td>
</tr>
<tr>
<td>Level C</td>
<td>Directly based on category III evidence, and/or Extrapolation from category I or II evidence.</td>
</tr>
<tr>
<td>Level D</td>
<td>Directly based on category IV evidence, and/or Extrapolation from category I, II, or III evidence.</td>
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</tbody>
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### 1.5 Advice for readers

Although childbirth is the same physiological process worldwide, childbirth services – even if confined to western countries – have proved to be strongly influenced by cultural differences and social pressures. For this reason, transcultural diversities in birth philosophies, childbirth practices, and care organizations should not be ignored and will be addressed throughout this book. Time and again, the principles and practice of proactive support of labor will be contrasted with ubiquitous but controversial approaches – ranging from mid-wifery-based care that eschews intervention to high-tech, fully medicalized childbirth – in order to illustrate the need for structural reforms in each type of care. Typical American or European issues should not distract from the universally valid observations, statements, and evidence-based policy proposals on the supervision of labor made here.

This book describes a cohesive and consistent concept of birth care universally applicable to all societal contexts. All aspects of normal and abnormal labor and delivery will be discussed, but emphasis is placed on redefining basic birth parameters, reinterpretation of physiological data, hard clinical evidence, consistent thought processes, and strict adherence to logic. For this reason we recommend reading the chapters of each section in the order in which they are presented.

### 1.6 Classification of birth professionals

Terminology with regard to childbirth professionals may be quite confusing as many physicians of unequal educational status are involved, ranging from junior residents to senior consultants. Likewise, the titles “nurse,” “nurse-midwife,” and “midwife” may cover dissimilar and often overlapping content, substance, and responsibilities. Sensitivity to status and emotion are involved here and a few terms as used in this book may therefore benefit from definition.

**Obstetricians** hold a specialist qualification in obstetrics and gynecology. They bear the ultimate responsibility for the medical well-being of their patients. They may also be called “consultants.”

**Residents** are doctors in training to become a medical specialist. Senior residents are in their final years of training and largely function at a level equal to obstetricians after formal authorization.

**Interns** are undergraduate medical students performing their clinical rotations.

“Laborist” or “OB-hospitalist” is a new breed of caregiver still in its infancy but spreading fast. The titles refer to medical officers who work exclusively in the hospital, keeping watch over women in labor and performing deliveries. The role should be compared with that of other and more familiar hospital-based doctors such as emergency room physicians. Confusingly, education and responsibilities vary widely, ranging...
from the level of junior residents to fully certified obstetricians. The titles are therefore avoided in this manual except in Chapter 26 on professional working relations and organization. It is for laborists/obstetricians to decide how to recognize themselves in this book: either as residents or as fully qualified obstetricians.

**Labor room nurses** are general nurses with two years’ additional training in maternity care. They support women in labor and assist midwives and doctors. Labor room nurses do not perform vaginal examinations or deliveries. Whenever the term “nurse” is used in this book, labor room nurses are meant unless indicated otherwise.

**Midwives.** The general term “midwife,” as used in this manual, is a state-registered caregiver who has completed four years of vocational education at one of the official midwifery schools, including practice training programs in accredited hospitals and in home birth practices. They are regarded as specialists in the supervision of normal pregnancy and delivery. Midwives provide antenatal and postnatal care and supervise normal deliveries independently, mostly in the hospital and in some countries also in primary birth centers or still at the woman’s home. They are trained in risk assessment and the detection of disease, at which point they will or should seek consultation and transfer the patient. A “clinical” or “senior midwife” is a postgraduate with two years’ additional education and medical training, often to the academic level of a masters degree in “advanced midwifery.”

**Family practitioners.** Some primary care physicians (general practitioners) still attend births, mainly in the woman’s home. Their childbirth services resemble those of community-based midwives. Although they are not specifically mentioned throughout this manual for reasons of readability, this group of primary care providers is not forgotten: whenever midwives are mentioned, readers may include family practitioners as well.

**REFERENCES**

SECTION 1

A wake-up call

“Not everything that is faced can be changed. But nothing can be changed until it is faced.”

–James Arthur Baldwin
The purpose of professional care during labor and delivery is to ensure that every child is born as healthy as possible while causing the least possible damage to the mother. For the most part this dual goal was realized during the twentieth century as demonstrated by the sharp decrease in maternal and perinatal mortality. In the past few decades, however, obstetrics has failed to maintain its objectives. The once-declining rate of maternal morbidity and mortality is now on the increase.\(^1\) This untoward rise in maternal complications is due primarily to the ever-increasing cesarean birth rate without any benefits to overall neonatal outcome.\(^2,3\) This is a trend that must be changed.

### 2.1 The cesarean pandemic

An ideal overall cesarean rate is not known, but on the basis of available databases little noticeable improvement in fetal outcome is observed once cesarean rates rise above 10–15\%.\(^4,5\) In the past decade, however, the cesarean birth rate in all western countries far exceeded these target figures.\(^6\) By 1970, 5.5\% of all babies in the USA were delivered through cesarean section. The rate doubled in five years and continued to increase until 1990 when it peaked at 22.7\%. It remained stable and even declined slightly through the 1990s before picking up again in 1998. The temporary stabilization in the early 1990s can be explained by campaigns of national health officials and leading obstetricians who sounded the alarm and promoted a trial of vaginal birth after cesarean (VBAC) to avoid routine repeat procedures. However, liability concerns regarding uterine scar-related complications effectively sliced the American VBAC rate to 9.2\% in 2004 and the old adage "once a cesarean, always a cesarean" again prevails. Today, one in three American babies is delivered by cesarean section. The rates of perinatal deaths and neonatal cerebral palsy, however, have remained steady over the past decades.\(^7,8\) The "cesarean problem" that first seemed to be an American affliction is now international. The overall cesarean rates now range between 20\% and 30\% in most western countries and continue to climb.\(^9–11\) In the private sector of India and Brazil even more shocking cesarean rates of between 50\% and 80\% have been reported.\(^12–14\) Although relatively low in the Netherlands and Scandinavia, the overall cesarean rates in these countries also doubled in the past two decades and their cesarean rates in first pregnancies now exceed 20\%.\(^15\)

#### 2.1.1 Operative solutions for failed labors

The cesarean pandemic is not the result of standard elective surgery for indications such as breech presentations, multiple pregnancies, or severely compromised pregnancies, since they represent only a small minority of all births. Neither do emergency interventions to rescue babies from neurological damage or death explain the rising cesarean excess.
The overall US cesarean rate for “fetal distress” has remained stable between 3.8% and 4.2% in the past decade. The alarming observation is that the vast majority of cesarean deliveries today are performed as the easy-exit strategy for first-stage labor disorders in healthy women with a singleton term fetus in the cephalic presentation – the precise population presumed to be low risk. As could be expected, fetal outcome in this group has not improved at all during the past three decades of this trend.

There is a growing tendency to resolve the problems of first-stage labor by surgical intervention. The American College of Obstetricians and Gynecologists (ACOG) clearly identified dystocia or failure to progress as the primary impetus for the dramatic expansion of cesarean deliveries, in particular in first labors. These failed labors and related repeat operations in next pregnancies account for two-thirds of all cesarean deliveries in the USA. National statistics from all other countries with accurate obstetric records confirm similar trends worldwide. Faced with decreasing VBAC rates, a reduction in the primary cesarean section rate should have a significant effect on the need for subsequent surgical delivery and therefore a large impact on the overall cesarean delivery rate. Obviously, when trying to reduce undue cesarean rates one should focus on the supervision of low-risk first labors. That is precisely the emphasis of this manual (Sections 2 and 3).

Failure to progress accounts for the majority of cesarean deliveries in first labors and, by inference, for the largest proportion of elective repeat procedures.

A detailed discussion regarding the recent trend of elective (planned) cesareans for no reason other than the patient’s request falls outside the scope of this book, at least directly. Nonetheless, such requests must be considered in the overall context of current practice in which the appellant – upon denial of her request – still has a very high chance of a cesarean or an instrument-assisted vaginal delivery. In fact, most requests for elective cesarean relate to a previous traumatic labor experience or discouraging horror stories from others. Indeed, the overall cesarean rate is effectively determined – directly and indirectly – by the women-friendly conduct and care of first labors.

### 2.2 Instrumental delivery rates

With rising cesarean rates, fewer women reach the second stage of labor and the rates of instrumental vaginal deliveries should therefore decrease. However, this has not happened. In general, countries and hospitals with high cesarean rates also have high operative vaginal delivery rates. The main indication is second-stage arrest. A forceps or vacuum delivery is not a trivial intervention either, as instrumental delivery is particularly damaging to a woman’s pelvic floor and potentially risky and certainly painful for her child. Instrumental delivery is strongly associated with serious perinatal birth injuries.

First-time mothers-to-be (nulliparas) run the highest risks of operative delivery. Even when a nullipara manages to escape the major surgery of a cesarean, she still has a 25% chance of an instrument-assisted vaginal delivery – in most cases for failure to progress. Of course, these are average figures as the rates vary greatly among hospitals and even among practitioners in the same institution. Overall, however, only half of all women in western countries deliver their first babies spontaneously by the normal route nowadays. There are only two possible explanations: either modern women are no longer capable of normal childbirth or modern childbirth services fail.
2.3 Conceptual flaws

High intervention rates in childbirth are often attributed to the supposedly changing needs of child-bearing women and their babies. Some authors suggest an association between increasing maternal age and weight and dysfunctional labor.\textsuperscript{33–38} In reality, however, the predominant contributors to excessive operative delivery rates more likely relate directly to the caregivers and reflect birth philosophies, culture, organization, the extent to which doctors are paid on a “piecework” basis, their propensity for convenience and control, the extent to which malpractice litigation is feared, and so forth. It is impossible to express the relative impact of each of these factors in absolute numbers, but they all add up to current obstetric performance. The literature addressing these topics is extensive, but mostly vague, and it generally misses the point: the spiraling operative delivery rates actually reflect a progressive lack of normal labor and delivery skills of birth professionals.

2.3.1 Professional controversies

Professional birth care should be based on an astute comprehension of the fundamental processes of parturition such as the cervical and myometrial changes in late pregnancy, the onset of labor, the pattern of normal dilatation, and the length of normal labor. Although nature designed a biological blueprint for labor and delivery – fine-tuned over millions of years of evolution – appreciation of the basic biophysical processes controlling birth varies significantly among care providers. As a result, professional views range from understanding childbirth as a natural process, best supervised with the least possible interference, to the emphasis being placed on risks – leading to highly medicalized “management” of labor. This diversity in birth philosophies and practices echoes differences in opinion or lack of scientific knowledge, and the inexorable rise in failed labors seriously calls into question whether midwives and obstetricians still operate from valid concepts of childbirth, if from any.

Professional conduct and care of labor and delivery should be based on solid, scientific knowledge of the physiology of parturition.

2.4 Counting the costs

The high failure rate of normal labor and delivery is more detrimental than meets the eye and includes severe psychological and physical harm to women, adverse maternal and neonatal outcomes, as well as serious economic and social damage.

2.4.1 Psychological harm

Ideally, women experience childbirth as an empowering and ultimately satisfying event in which the care providers are allowed to participate. Unfortunately, practice shows that this gratifying scenario is not achieved by many women, particularly not for their first labor. Apart from the physical burden of a stalled labor that ends in a forceps, vacuum, or cesarean delivery, the woman may sustain substantial emotional damage owing to a feeling of frustration and failure. An operative delivery denies her the unique experience of giving birth to her child by her own efforts as well as the sense of personal accomplishment from which she could gain further self-esteem and self-confidence. The harsh reality of daily practice is that current birth care turns many a birth into an ordeal. In the worst-case scenario the parturient ends up in a deplorable condition; after a whole day or more of exhausting labor she undergoes surgery or a difficult extraction. The psychological damage from such a mismanaged labor can be worse than the...
emotional impact of an emergency cesarean for acute fetal distress: a lasting aversion to all things related to birth maintained by recurring nightmares and complicated by feelings of inadequacy and (sub)conscious feelings of hostility toward her child.

The prevalence and severity of these life-lasting effects are generally underestimated as they mainly develop outside the field of vision of childbirth professionals. However, several prospective psychological studies indicate that a large group of women currently experience childbirth as a genuinely traumatic event. In a recent Dutch study among a low-risk midwifery population, only 16% of the mothers showed no symptoms of post-traumatic stress disorder (PTSD) at six weeks postpartum, whereas 42% reported symptoms on two clusters of PTSD, and 11% reported on all three clusters of PTSD.39 In most international studies, 2–11% of new mothers suffer a full-blown PTSD as a consequence of childbirth.40–43

Instrumental deliveries strongly increase the risk of perinatal negative emotions, which in turn increase the risk of childbirth-related post-traumatic stress disorders.44,45 Cesarean section is not a preventive intervention, as is shown by a structured meta-analysis;46 mothers delivered by cesarean section express less immediate and long-term satisfaction with the birth process compared with mothers having a vaginal delivery, are less likely to breast-feed, experience a delay to first interaction with their infants, have less-positive reactions to them, and interact less with them at home (Evidence level B).

2.4.2 Direct physical harm

Although a cesarean section is safer than ever before, it remains major abdominal surgery and the direct risks are far from negligible. The short-term complications, such as excessive blood loss, infectious morbidity, thromboembolic complications, longer recovery time, extended hospital stay, and chance of rehospitalization are all too well understood.47–52 Moreover, the baseline maternal morbidity associated with cesarean delivery is severely increased in obese women, and obesity is another epidemic affliction of modern times.53

Generally less well-known is that the overall maternal mortality rate for cesarean section is more than four times greater than that for planned vaginal birth (relative risk \( \text{RR} = 4.9 \); 95% confidence interval \( \text{CI} = 3.0–8.0 \))^54 and the maternal death rate has been slowly but steadily increasing in western countries since the 1980s.55,56

The need for emergency hysterectomies has also increased: in about 1 per 200 cesarean deliveries as compared to 1 per 1000 vaginal deliveries.57–59 More than 40% of postpartum emergency hysterectomies for massive hemorrhaging follow primary cesarean delivery.

Spiraling cesarean delivery rates dramatically increase rates of severe maternal morbidity.

2.4.3 Medical harm to subsequent pregnancies

The negative implications for future childbirth are the most alarming although generally underrated. Firstly, the risk of unexplained stillbirth in women with a cesarean scar is doubled^60 and, secondly, up to 90% of American pregnant women with a previous cesarean undergo a repeat operation for fear of uterine rupture.2 Many hospitals have actually banned VBACs. Inevitably, the more first cesarean deliveries performed today, the more repeat cesareans will be necessary tomorrow.