Maternity, Newborn, and Women's Health Nursing

A CASE-BASED APPROACH

Second Edition

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Women's Health Nurse Practitioner
The Great Northwest, Hawaii, Alaska, Indiana, and Kentucky

Immediate Past President
Vermont Nurse Practitioners Association
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Amy Mandeville O'Meara was a clinical associate professor in the Department of Nursing, College of Nursing and Health Sciences, University of Vermont. She earned a bachelor of arts degree in anthropology with an emphasis in physical anthropology from Fresno State University. In 2006, she received her master of science in nursing degree, specializing in women's health, from Boston College as part of their direct entry program. Soon after, she earned her women's health nurse practitioner certification through the National Certification Corporation. She earned her doctor of nursing practice degree, with a focus on nursing education, from Drexel University in 2014. That same year she returned to school for a postgraduate certificate from the University of Vermont that enabled her to earn her adult gerontology nurse practitioner certification from the American Association of Nurse Practitioners.

From 2011 through 2018, Dr. O'Meara was a member of the University of Vermont faculty. She taught both undergraduate and graduate courses in maternity nursing and women's and gendered health, as well as health assessment, pathophysiology, nursing theory, and policy, politics, and ethics. She is a past president of the Vermont Nurse Practitioners Association. In 2018, she won the Vermont Advocate State Award for Excellence from the American Association of Nurse Practitioners.

Dr. O'Meara practices as a nurse practitioner in Hawai'i providing reproductive health and gender affirming hormone care. She previously practiced as a maternity visiting nurse, a medical assistant in a fertility center, and a nurse practitioner in a private practice caring for gynecology, urogynecology, and gynecologic oncology patients and as an adult gerontology nurse practitioner.

Dr. O'Meara is married to another Dr. O'Meara, John O'Meara, an astrophysicist. Together they have two young children, Madeleine and Eli. They share their home with three dogs, three cats, three parakeets, 10 chickens, and many, many fish. Dr. O'Meara enjoys painting, reading, gardening, paddling an outrigger canoe, hula, and overly ambitious home renovation projects.

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Preface

A Case-Based Approach: The Power of Storytelling

In a learning climate in which clinical placements are progressively shorter and harder to find, we often think of expensive simulation solutions as the best alternative. With these high-fidelity options and well-stocked labs, it's easy to forget as we run through our scenarios the power of the stories themselves. People learn by telling stories, by hearing stories, and by reading them. We remember the lessons of fables and legends because they are contextualized and compelling. We know that slow and steady can win the race because Aesop's tortoise and hare told us so. We learned from Icarus the folly of execution in the absence of adequate preparation. When dry facts fail, stories breathe into them meaning and importance. Stories are also the ancient and ultimate memory aid. Beowulf, an epic poem of 3,182 lines, was passed orally from person to person long before reading and writing were generally accessible and before anyone wrote it down.

Students often tell educators that everything they learn, they learn in clinical, which is a valid perception. What makes clinicals such an effective context for learning is not only the hands-on experience they offer but also the repetition of tasks and information a student experiences when caring for patients. Continually providing the same or similar information within fresh contexts and scenarios is what helps students retain information in a deep and lasting way. This book, building on that phenomenon, strives to provide a similar dynamic learning experience.

What is often of immediate importance in the context of maternity care is not so much the physical tasks of nursing (which may, in some cases of routine care, be fairly limited) but the psychosocial care. As new learners, however, nursing students have a tendency to concentrate—appropriately—on the concrete. Will I hurt the patient? Can I remember how to set an infusion pump? What if I miss something important? Learning can be very task based while neglecting more subtle aspects of care, such as family relations, economic context, and cultural variations. A story-based approach helps learners to contextualize a patient and a patient's care in a safe space without immediate concern for correctly executed tasks. Patients become not just a series of problems and tasks but people and personalities. Students are compelled to learn because they want to know what happens next. And after engaging in this safe practice, they can bring that same curiosity to real patient scenarios.

A Unique, Customizable Organization

An Embedded Learning Solution

As with any text, the content of this book can be reordered as seen fit by the instructor. There is a learning solution, however, embedded in the progression of this book. Each of the 13 scenarios in Unit 1 focuses on a different aspect of maternity and newborn care and women's and gendered health. Greater breadth and depth of content emerges as the reader continues; Units 2 through 4, although still striving for compelling context, offer a more traditional text that provides a greater wealth of information. Through the case snippets in these units that ask students to recall patients from Unit 1, students can link these later units to those scenarios for improved recall through repetition.

As our curricula change, we know that some programs of study may be truncated. Classes such as maternity and newborn nursing, which some programs once may have taught over a semester, now may be taught over half a semester or over a single month. These shorter programs may find the organization of this text particularly helpful because Unit 1, which covers the full breadth of required information, may be used apart from the remainder of the text.

In addition, most students are in clinical at the same time they are taking the related course and may struggle to function in the clinical setting without the foundational knowledge essential to that clinical experience. By providing students at the very beginning of their clinical experiences with holistic patient overviews that span pregnancy from preconception to the postpartum period, this book better prepares students to optimize their time with patients.

Structure of the Book

Each chapter in Unit 1, Scenarios for Clinical Preparation, presents a patient scenario that highlights essential and often overlapping aspects of routine nursing care as well as more unusual conditions and complications of pregnancy. (These comparatively rare situations, which students are less likely to witness or recognize during the course of their brief clinical rotations, include postpartum hemorrhage, preeclampsia, gestational trophoblastic disease, cord prolapse, and shoulder dystocia, to name a few.) In this way, although not every scenario captures every aspect of care, related pieces from different scenarios come together as a coherent and familiar whole.

Unit 2, Maternity and Newborn Nursing for Uncomplicated Pregnancies, shifts from the story-based format of Unit 1 to a more traditional textbook approach and provides an overview of routine pregnancy, delivery, and newborn care. All the chapters in this unit frequently refer back to aspects of pregnancy-related care first illustrated in context in Unit 1. Students are reminded, for example, of the preconception care provided to Bess, Lexi, and Letitia, and that Tatiana's physician said the fact that she was 2 cm dilated at 39 weeks was a normal finding in late pregnancy. These references act as memory cues to reinforce content with context. Chapter 14 includes a new section on health disparities, the factors that influence and perpetuate health inequities and individual nursing strategies to address them.

Unit 3, High-Risk Conditions and Complications, revisits issues and problems of pregnancy, delivery, and newborns found in Unit 1 while introducing some new ones. The chapters in Unit 3 are, as much as possible, ordered chronologically according to when problems are most likely to manifest in a pregnancy. Although some problems of pregnancy don't fit easily into a timeline, others do; for example, for molar pregnancy, gestational diabetes, and preeclampsia, the timeline is critical not only to understanding the problem but to recognizing it and successfully addressing it with a patient. Where relevant in this unit (as in Unit 2), characters from Unit 1 are reintroduced as "ticklers" to remind readers that they have had prior contextualized exposure to this information. This context reminder serves as an aid to memory and to facilitate comprehension of material that is often dense, complex, and difficult to access and retain.

Unit 4, Women's and Gendered Health, covers essential aspects of women's and gendered health care. As in Units 2 and 3, where appropriate, the experiences of the characters from Unit 1 are referenced in the chapters in Unit 4. This unit includes information about important aspects of subjects such as contraception and routine screening and also includes essential information about caring for transgendered patients and patients seeking abortion care.

Accessible Writing Style

Another unique feature of this text is the author's casual, conversational writing style. Because jargon can be alienating to the student reader, this text avoids it as much as possible. However, great care has been taken to ensure the accuracy and currency of the content. Unit 1 is written as a series of accessible stories in the third person from the patient's point of view and in the present tense, which lends them immediacy. This approach allows the student to experience pregnancy from the patient's perspective, and thus to develop empathy for patients from many different backgrounds. Units 2 through 4, although written in a more traditional textbook format, still prioritize accessibility. Whenever possible, language and style are simplified while continuing to provide clear, concise, updated, and evidence-based information.

Features of This Book

Please refer to the User's Guide (which immediately follows this preface) for explanations of this book's features, including the three features new to this edition—"Building Clinical Judgment", "Spotlight on Essential Nursing Competencies", and "Concept Mastery Alert"—and the "Clinical Judgment: The Nurse's Point of View" feature, which has been revised for this edition to emphasize clinical judgment.

Building Clinical Judgment Skills

Nursing students are required to obtain nursing knowledge and apply foundational nursing processes to practice effective clinical judgment. Being able to apply clinical judgment in practice is critical for patient safety and optimizing outcomes. The content provided in this text includes features such as "Clinical Judgment: The Nurse's Point of View," "Building Clinical Judgment," and "Think Critically" that strengthen students' clinical judgment skills by giving them opportunities to apply knowledge and practice critical thinking. Additionally, accompanying products CoursePoint+ and Lippincott NCLEX-RN PassPoint provide an adaptive experience that allows students to build confidence by answering questions like those found on the Next Generation NCLEX (NGN) examination.

Inclusive Language

A note about the language used in this book. Wolters Kluwer recognizes that people have a diverse range of identities, and we are committed to using inclusive and nonbiased language in our content. In line with the principles of nursing, we strive not to define people by their diagnoses, but to recognize their personhood first and foremost, using as much as possible the language diverse groups use to define themselves, and including only information that is relevant to nursing care.

We strive to better address the unique perspectives, complex challenges, and lived experiences of diverse populations traditionally underrepresented in health literature. When describing or referencing populations discussed in research studies, we will adhere to the identities presented in those studies to maintain fidelity to the evidence presented by the study investigators. We follow best practices of language set forth by the *Publication Manual of the American Psychological Association, 7th edition* but acknowledge that language evolves rapidly, and we will update the language used in future editions of this book as necessary.

A Comprehensive Package for Teaching and Learning

Ancillary Package

To further facilitate teaching and learning, a carefully designed ancillary package has been developed to assist faculty and students.

Instructor Resources

Tools to assist you with teaching your course are available upon adoption of this book on thePoint® at http://thepoint.lww.com/OMeara2e.

- A **Test Generator** features National Council Licensure Exam (NCLEX)-style questions mapped to chapter learning objectives.

- An extensive collection of materials is provided for each book chapter:
  - **PowerPoint Presentations** provide an easy way to integrate the textbook with your students' classroom experience; multiple-choice and true/false questions are included to promote class participation.
  - **Guided Lecture Notes** are organized by outcome and provide corresponding PowerPoint slide numbers to simplify preparation for lecture.
  - **Discussion Topics** (and suggested answers) can be used in the classroom or in online discussion boards to facilitate interaction with your students.
  - **Assignments** (and suggested answers) include group, written, clinical, and Web assignments to engage students in varied activities and assess their learning.
  - **Case Studies** with related questions (and suggested answers) give students an opportunity to apply their knowledge to a client case similar to one they might encounter in practice.
- **Answers to the Think Critically questions in the book** reinforce key concepts.
- Sample **Syllabi** are provided for 7-week and 15-week courses.
- **Maps Linking Cases With Chapters** provide a visual representation of the links between the content covered in Unit 1 with the content covered in Units 2 and 3.
- A **Quality and Safety Education for Nurses (QSEN) Competency Map** identifies content and special features in the book related to competencies identified by the QSEN Institute.
- An **American Association of Critical-Care Nurses (AACN) Essentials Competency Map** identifies book content related to the AACN Essentials.
- A **Bachelor of Science in Nursing (BSN) Essentials Competency Map** identifies book content related to the BSN Essentials.
- An **Image Bank** lets you use the photographs and illustrations from this textbook in your course materials.
- **Learning Objectives** from the book are provided for your convenience.
- An **ebook** serves as a handy resource.
- Access to all **Student Resources** is provided so that you can understand the student experience and use these resources in your course as well.

Student Resources

An exciting set of free learning resources is available on thePoint® to help students review and apply vital concepts in maternity nursing. Multimedia engines have been optimized so that students can access many of these resources on mobile devices. Students can access all these resources at http://thepoint.lww.com/OMeara2e using the codes printed in the front of their textbooks.

- **Journal Articles** offer access to current research relevant to each chapter and available in Wolters Kluwer journals to familiarize students with nursing literature.
- **Watch & Learn Videos** (and accompanying **Video Skill Checklists**) reinforce skills from the textbook and appeal to visual and auditory learners.
- **Heart and Breath Sounds** are provided for your convenience.

vSim for Nursing

Available for separate purchase, vSim for Nursing, jointly developed by Laerdal Medical and Wolters Kluwer Health, offers innovative scenario-based learning modules consisting of Web-based virtual simulations, course learning materials, and curriculum tools designed to develop critical thinking skills and promote clinical confidence and competence. vSim for Nursing | Maternity includes 10 cases from the *Simulation in Nursing Education—Maternity Scenarios*, authored by the National League for Nursing. Students can progress through suggested readings, pre- and postsimulation assessments, documentation assignments, and guided reflection questions and will receive an individualized feedback log immediately upon completion of the simulation. Throughout the student learning experience, the product offers remediation back to trusted Lippincott resources, including Lippincott Nursing Advisor and Lippincott Nursing Procedures—two online, evidence-based clinical information solutions used in healthcare facilities throughout the United States. This innovative product provides a comprehensive patient-focused solution for learning and integrating simulation into the classroom.

Contact your Wolters Kluwer sales representative or visit wltrsklwr.com/vsimfornursing for options to enhance your maternity nursing course with vSim for Nursing.

Lippincott DocuCare

Available for separate purchase, Lippincott DocuCare combines Web-based academic electronic health record (I) simulation software with clinical case scenarios, allowing students to learn how to use an I in a safe, true-to-life setting while enabling instructors to measure their progress. Lippincott DocuCare's nonlinear solution works well in the classroom, simulation lab, and clinical practice.

Contact your Wolters Kluwer sales representative or visit wltrsklwr.com/DocuCare for options to enhance your maternity nursing course with DocuCare.

A Comprehensive, Digital, Integrated Course Solution: Lippincott® CoursePoint+

Lippincott® CoursePoint+ is an integrated, digital curriculum solution for nursing education that provides a completely interactive experience geared to help students understand, retain, and apply their course knowledge and be prepared for practice. The time-tested, easy-to-use, and trusted solution includes engaging learning tools, evidence-based practice, case studies, and in-depth reporting to meet students where they are in their learning, combined with the most trusted nursing

education content on the market to help prepare students for practice. This easy-to-use digital learning solution of *Lippincott® CoursePoint+*, combined with unmatched support, gives instructors and students everything they need for course and curriculum success!

Lippincott® CoursePoint+ includes the following:

- Leading content provides a variety of learning tools to engage students of all learning styles.
- A personalized learning approach gives students the content and tools they need at the moment they need it, giving them data for more focused remediation and helping to boost their confidence and competence.
- Powerful tools, including varying levels of case studies, interactive learning activities, and adaptive learning powered by PrepU, help students learn the critical thinking and clinical judgment skills to help them become practice-ready nurses.
- Preparation for Practice tools improve student competence, confidence, and success in transitioning to practice.
  - vSim® for Nursing: Codeveloped by Laerdal Medical and Wolters Kluwer, vSim® for Nursing simulates real nursing scenarios and allows students to interact with virtual patients in a safe, online environment.
  - Lippincott® Advisor for Education: With over 8,500 entries covering the latest evidence-based content and drug information, Lippincott® Advisor for Education provides students with the most up-to-date information possible, while giving them valuable experience with the same point-of-care content they will encounter in practice.
- Unparalleled reporting provides in-depth dashboards with several data points to track student progress and help identify strengths and weaknesses.
- Unmatched support includes training coaches, product trainers, and nursing education consultants to help educators and students implement CoursePoint+ with ease.

Acknowledgments

This book is the product not only of tremendous effort but also of tremendous opportunity. Those opportunities I must credit to others, including my husband, John O'Meara, and my parents, Joyce and John Mandeville. I gratefully acknowledge the patient persistence and work of Julie Vitale, Jodi Rhomberg, Robin Levin Richman, Darla Davidson, Remington Fernando, Samson Premkumar, and the rest of the talented team at Wolters Kluwer.

I gratefully acknowledge the encouragement, mentorship, and hard work of so many who directly or indirectly made this work possible, as well as the inspiration provided by my students, both past and present.

User's Guide

Maternity, Newborn, and Women's Health Nursing: A Case-Based Approach, Second Edition contains many accessible features to help students grasp the important content.

Case-Based Features That Build Clinical Judgment and Emphasize Essential Nursing Competencies

Chapter-long **Clinical Scenarios** make up each chapter of Unit 1, as mentioned in the preface. Each of the 13 scenarios in Unit 1 focuses on a different aspect of maternity and newborn care and women's and gendered health.

Bess Gaskell, who was pregnant for the third time (Chapter 1), anticipated fatigue as a normal part of early pregnancy.

Greater breadth and depth of content emerge as the reader continues; Units 2 through 4, although still striving for compelling context, offer a more traditional text that provides a greater wealth of information. Through the case snippets in these units that ask students to recall patients from Unit 1, students can link these later units to those scenarios.

NEW! As nursing students think through patient scenarios, it is imperative for them to keep essential nursing competencies in mind. Throughout the case scenarios in Unit 1, the **Spotlight on Essential Nursing Compentencies** feature allows students to see how the competencies can be put into practice.

Spotlight on Essential Nursing Competencies

Evidence-Based Practice

- Provide three examples of how evidence-based practice was used to try to stop Bess's postpartum bleeding prior to the hysterectomy.

Quality and Safety

- Describe three safety interventions that occur in the operating room to prevent complications.

Interprofessional Collaboration

- Describe the roles of the members of the healthcare team that were working to save Bess's life in the operating room.

Unfolding Patient Stories, written by the National League for Nursing, are an engaging way to begin meaningful conversations in the classroom. These vignettes, which appear at the end of the first chapter in each unit, feature patients from Wolters Kluwer's vSim for Nursing | Maternity (codeveloped by Laerdal Medical) and DocuCare products; however, each Unfolding Patient Story in the book stands alone, not requiring purchase of these products.

For your convenience, a list of all these case studies, along with their location in the book, appears in the "Case Studies in This Book" section later in this front matter.

Unfolding Patient Stories: Amelia Sung • Part 1

Amelia Sung is 36 years old and 8 weeks pregnant with her second child. She tells the nurse that she is considering an amniocentesis because of her age. What information would the nurse include when providing education on an amniocentesis? (Amelia Sung's story continues in Unit 3.)

Care for Amelia and other patients in a realistic virtual environment: ***vSim** for Nursing* (thepoint.lww.com/vSimMaternity). Practice documenting these patients' care in DocuCare (thepoint.lww.com/DocuCareEHR).

REVISED TO EMPHASIZE CLINICAL JUDGMENT! Clinical Judgment: The Nurse's Point of View feature in Unit 1 changes the narrator from the patient to a knowledgeable nurse preceptor who picks up the story from the nursing perspective, including information about how and why particular aspects of care are provided to a character. These features have been revised to indicate which steps of the National Council of State Boards of Nursing Clinical Judgment Measurement Model (NCJMM) the nurse and/or nurse practitioner are thinking through related to the patient situation.

Clinical Judgment: The Nurse's Point of View

Angela:

Recognize Cues: It's not uncommon for people to accidentally set off their call lights. It's an easy thing to do because they're attached to strings that are hooked to the bed and next to the toilet rail. Even though most of the time when someone pulls the emergency cord it's an accident, all available nurses on the floor still go running. A lot of people don't know this, but most of the time when women die from a complication of childbirth, it's after the birth. So though most times the alarm is an accident, when it's the real thing, we need a well-trained team there immediately.

Analyze Cues: I'm the first nurse in the room. When I see the blood, I immediately start uterine massage. Another nurse, Melanie, comes in right after me, then calmly leaves the room and comes back in with the supplies to start an IV, which she does with equal calmness, and then checks Tati's vital signs. A third nurse, Rachel, opens the computer and starts charting everything in real time. A fourth nurse, Janet, leaves and returns within 5 minutes with Joy, who is the on-call provider today and also happens to be the person who delivered Tati's baby.

Generate Solutions: I stop uterine massage and Joy checks Tati's uterus again. After she's done checking, I start massaging again. Joy looks up at Rachel, the nurse who came into the room with her. "Let's do a shot of methylergonovine maleate, 0.2 mg intramuscular," she says (The Pharmacy 2.2). "And I'd like to get a bedside ultrasound in here." Joy then turns to Tati. "I think you're hemorrhaging, which I know sounds terrifying, but it's a fancy way of saying you're bleeding more than we'd like you to. This happens sometimes. I think you may still have some placenta in your uterus that's keeping it from contracting and firming up. I want to use the ultrasound to check."

The Partner's Point of View feature, which appears in Chapter 6, conveys thoughts of the main character's partner.

The Partner's Point of View

Russ: There is a sign on the door to Rebecca's room with a leaf and a drop of water. One of the nurses told me it's the universal sign for stillbirth. To me, it is a mark of tragedy; a warning to anyone who passes that beyond this door lies an all-consuming sadness; a plea for sensitivity; a cue to not ask unprompted questions. I've heard someone use the term "angel baby," and I wish I could believe in heaven. But I don't want to hear that the baby is in a better place or with God. This is the place Rebecca and I made for her. This is where she belongs.

When Rebecca tells me and Dr. Walsh that she wants to see the body of our stillborn baby, I feel an impulse to run away, to drive for miles, to find a space to hide. I'm terrified at the thought of seeing it . . . of seeing her. Nothing about this is natural or good. It is the most awful thing I've ever experienced, in fact.

But how could I refuse Rebecca? She was the one who carried the child for nine months in her body, after all. She was the one who had to go through the trauma of the car wreck with the baby. So if she has the courage to see the baby, I think I can, too.

Concept Mastery Alert

Genetic Disorders

Pregnant couples who have recently been told their unborn child has a genetic disorder may think that genetic disorders only occur during proliferation of cell growth. In point of fact, congenital disorders occur at the moment an ovum is fertilized by the sperm and a zygote is created.

NEW! Building Clinical Judgment features in Units 2 and 3 relate the steps of the NCJMM to the patient scenarios in Unit 1. They are presented in SBAR (situation, background, assessment, and recommendation) format.

Building Clinical Judgment 15.2 Loretta Hale (Intimate Partner Violence, Formula Feeding, and Postpartum Depression)

SBAR

- **Situation:** Loretta is an 18-year-old high school dropout who lives with her boyfriend. She presents to the clinic with complaints of breast tenderness and exhaustion.
- **Background:** Loretta was raised in an abusive family. She didn't do well in high school and skipped classes frequently. She frequently smokes marijuana, drinks beer, and has unprotected sex with her boyfriend. She has no money, no job, no license, no high school diploma, and depends on her boyfriend for financial support and driving to appointments. She is covered by Medicaid insurance.
- **Assessment:** Temperature 37°C (98.6°F), pulse 78 beats/min, respirations 18 breaths/min, blood pressure (BP) 116/70 mm Hg, height 5 ft 4 in, weight 180 lb, body mass index (BMI) 31. Loretta states she starves herself for days to lose weight because her boyfriend called her a dumb pig but then ends up binge eating. Loretta's last menstrual period (LMP) was several months ago but she can't remember the date. Loretta's boyfriend became angry when he could not accompany Loretta to the exam room. Loretta stated she feels safe at home but her boyfriend swipes at her occasionally when he is angry but has never really hurt her.
- **Recommendation:** Perform a human chorionic gonadotropin (hCG) pregnancy test. Perform an ultrasound.

Clinical Judgment Development

- **Recognize Cues:** Which cues from this SBAR report do you consider pertinent to Loretta's well-being? Which cues require immediate follow-up? Which cues are distracting but are less important?
- **Analyze Cues:** Based on Loretta's signs and symptoms, what problems or conditions could Loretta be experiencing? What additional risk factors are present for Loretta? What additional information would be helpful in interpreting these cues?
- **Prioritize Hypotheses:** Which condition or risk factor is Loretta's greatest concern? What helped you make this determination? What additional risks need to be addressed in a plan of care? What are the risks for ignoring the additional risk factors?
- **Generate Solutions:** Provide three SMART (specific, measurable, attainable, relevant, and time-based) outcomes related to your hypotheses and place them in the order they need addressed. What interventions are needed for each of the SMART outcomes? What information should you include in your documentation (SBAR) for the next nurse following Loretta's case?

Cultural Diversity

- Would you approach this patient care differently if the patient came from a different socioeconomic background? If this patient was married? Explain.

Note: The steps of the NCSBN Clinical Judgment Measurement Model are from the National Council of State Boards of Nursing (NCSBN). (2021). *NCSBN clinical judgment model.* www.ncsbn.org/14798.htm

Chapter-Beginning Features

Learning Objectives state clear and concise learning goals for each chapter.

Objectives

1. Identify some initial nursing considerations for the assessment and treatment of a patient presenting with subfertility.
2. Identify signs of potential intimate partner violence and discuss proper nursing responses.
3. Distinguish between the risks and interventions related to preterm premature rupture of membranes (PPROM) and those related to premature rupture of membranes.
4. Describe the assessments commonly used with PPROM.
5. Identify signs of infant respiratory distress syndrome and describe appropriate nursing interventions to use in response to this condition.
6. Explain the potential risks of early postpartum discharge for a patient with PPROM.

Key Terms are listed at the beginning of each chapter, boldfaced on first use in the chapter text and included in a glossary at the back of the book.

Key Terms

Continuous positive airway pressure (CPAP)
Endometrial hyperplasia
Ferguson reflex
Leopold maneuvers
Lochia alba
Lochia rubra
Lochia serosa
Luteinizing hormone
Neonatal respiratory distress syndrome
Oligomenorrhea
Preterm premature rupture of membranes (PPROM)

Features That Teach Skills and Concepts

For your convenience, a list of all the features that teach skills and concepts, along with their location in the book, appears in the "Special Features in This Book" section later in this front matter.

Analyze the Evidence compares sometimes conflicting and contradictory research that supports or challenges current maternity nursing practice.

Analyze the Evidence 5.1 Fetal Movement Count

Pro	Con
Fetal movement counting may facilitate maternal/fetal bonding. There does not appear to be a detrimental effect on maternal anxiety or worry (AlAmri & Smith, 2022).	A 2020 meta-analysis did not show a reduced rate of perinatal death associated with fetal movement counting but did find a higher rate of preterm delivery associated with fetal movement counting (Bellussi et al., 2020). The level of fetal movement that may be associated with fetal distress has not been quantified (Flenady et al., 2009).

Lab Values 6.1

Evaluation for Disseminated Intravascular Coagulation

Disseminated intravascular coagulation is a condition in which there is widespread clotting throughout the body. Simultaneously, because the components of the blood used to stop bleeding are being used up, catastrophic bleeding can occur. It is always a complication of another condition. In Rebecca's case, it would be a complication of severe placental abruption.

- Fibrinogen: decreased
- Fibrin degradation products: elevated
- D-dimer: elevated (less reliable in pregnancy)

Lab Values includes normal values as well as the significance of out-of-range values and appropriate nursing interventions.

Patient Teaching includes important points nurses must cover with patients to effectively educate them.

Patient Teaching 2.3 True Versus False Labor Contractions

Characteristic	True Labor Contractions	False Labor Contractions
Location felt	Lower back and abdomen, pressure in the pelvis	Abdomen
Quality of contractions	Regular, progressive; become stronger, closer together, and longer	Mostly irregular; may become regular for short periods of time
Effect of ambulation	Become more intense	May stop
Effect of rest and hydration	Do not resolve	Often resolve

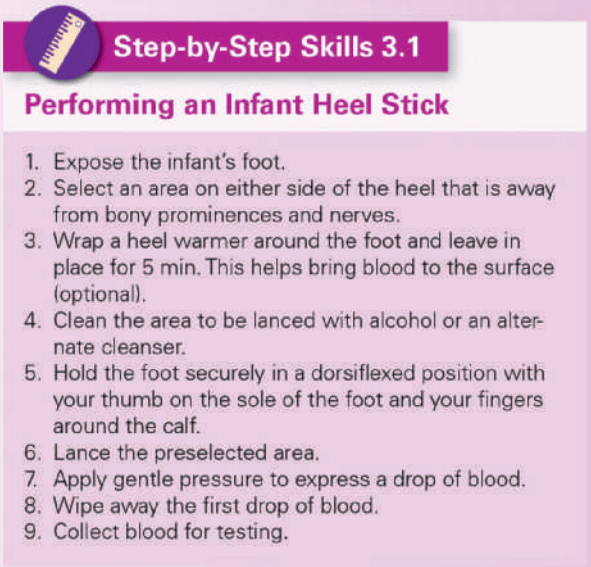
The Pharmacy provides must-know pharmaceutical information, including, where appropriate, dosing and common titration protocols as well as essential safety information.

The Pharmacy 17.1 Naloxone

Overview	Antidote
Route and dosing	• Opioid antagonist • IV initial dose: 0.02–0.2 mg for respiratory depression • IV infusion dose: 0.25 mcg/kg/h for pruritus
Care considerations	• Monitor for pain, arrhythmia, seizures, and withdrawal. • IV push is over 30 s if undiluted; perform a slow push if 0.4 mg is diluted in 9 mL of saline. • IV continuous infusion: Dilute to 4 mcg/mL in D_5W or normal saline. • Titrate slowly when using to reverse side effects to avoid reversing analgesic effect.
Warning signs	• Use may cause seizures in patients with a history of seizure disorder. • Abrupt reversal of opioids may cause nausea, vomiting, hypertension, tachycardia, diaphoresis, seizures, or cardiovascular events.

IV, intravenous.

Step-by-Step Skills presents clear, easy-to-follow boxed tutorials of common nursing procedures with rationales.



Step-by-Step Skills 3.1

Performing an Infant Heel Stick

1. Expose the infant's foot.
2. Select an area on either side of the heel that is away from bony prominences and nerves.
3. Wrap a heel warmer around the foot and leave in place for 5 min. This helps bring blood to the surface (optional).
4. Clean the area to be lanced with alcohol or an alternate cleanser.
5. Hold the foot securely in a dorsiflexed position with your thumb on the sole of the foot and your fingers around the calf.
6. Lance the preselected area.
7. Apply gentle pressure to express a drop of blood.
8. Wipe away the first drop of blood.
9. Collect blood for testing.

Chapter-Ending Features

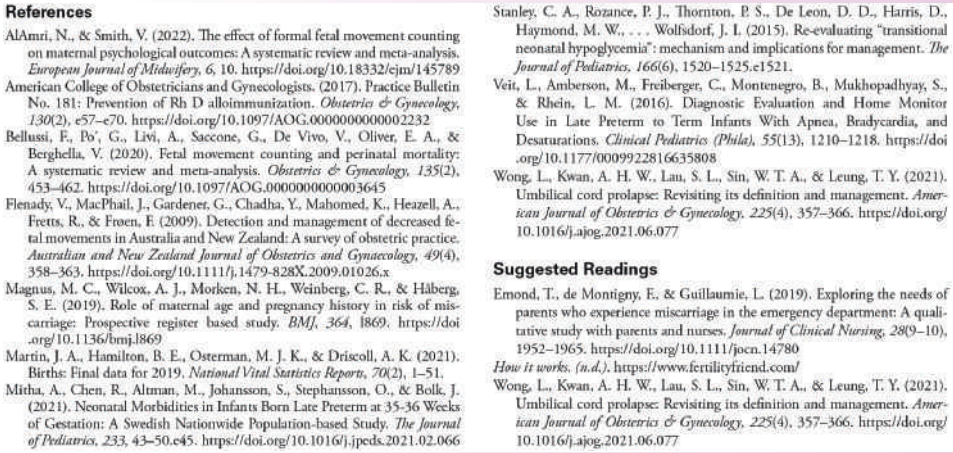
Think Critically offers short, often multipart questions requiring students to synthesize information found in the chapter. Suggested answers are available to instructors at http://thepoint.lww.com/OMeara2ew.

Think Critically

1. You are caring for a patient who is reporting a sexual assault. Write a short dialogue of the questions you think are important to ask at this time. Consider the best way of posing each question.
2. You are performing the intake for a new patient. The patient's partner is present. You need to ask the patient questions about IPV. What is your best approach?
3. You are caring for a patient who you suspect is a victim of human trafficking. List five different red flags that make you suspicious. How would you bring this up with the patient?
4. Find and review the mandated reporting laws for your state: https://www.childwelfare.gov/pubPDFs/manda.pdf#page=5&view=Summaries of State laws
5. You are caring for a female with a BMI of 16. What are your concerns? What questions should you ask her to assess her health and safety?
6. You are caring for a female in labor and delivery. She is in transition and is shackled to the bed. Consider how you might address the situation with the corrections officer.
7. Review the standards for pregnancy care for incarcerated females for your state: https://www.aclu.org/state-standards-pregnancy-related-health-care-and-abortion-women-prison-0
8. You are caring for a patient who is male but was identified as female at birth. You need to ask the patient what reproductive organs are present. How do you ask the question? What if the patient challenges you? How do you explain why the question and answer are important to the provision of care?

References cited are listed at the end of each chapter and include updated, current sources.

Suggested Readings include current evidence-based resources related to the key topics discussed in the chapter, so that students can expand and deepen their understanding of the content.



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Suggested Readings

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Contents

Unit 2
Maternity and Newborn Nursing for Uncomplicated Pregnancies 231

Unit 4
Women's and Gendered Health 619

Case Studies in This Book

Cases in Unit 1 That Are Referred Back to in Later Units

Bess Gaskell: Immediate Postpartum Hemorrhage

Unit 1	Ch. 1, pp. 2-25
Unit 2	Ch. 14, p. 25
	Ch. 16, p. 21
	Ch. 17, p. 4
Unit 3	Ch. 21, pp. 15, 19
	Ch. 22, p. 26
	Ch. 23, p. 6
Unit 4	Ch. 26, p. 5
	Ch. 29, p. 10

Tatiana Bennett: Later Postpartum Hemorrhage

Unit 1	Ch. 2, pp. 1-20
Unit 2	Ch. 14, p. 25
	Ch. 15, pp. 19, 28, 33
	Ch. 16, pp. 3, 10, 19
	Ch. 17, p. 10
	Ch. 18, p. 33
Unit 3	Ch. 19, p. 21
	Ch. 23, p. 3
Unit 4	Ch. 27, p. 17
	Ch. 29, p. 4

Susan Rockwell: Gestational Diabetes, Deep Vein Thrombosis, and Postpartum Pulmonary Embolism

Unit 1	Ch. 3, pp. 1-19
Unit 2	Ch. 14, pp. 7, 14
	Ch. 15, p. 15
	Ch. 17, pp. 10, 12, 17
	Ch. 18, pp. 19, 37
Unit 3	Ch. 19, p. 22
	Ch. 20, p. 19
	Ch. 22, p. 16
	Ch. 23, p. 11
	Ch. 24, p. 24
Unit 4	Ch. 26, p. 13
	Ch. 29, pp. 7,9

Sophie Bloom: Preeclampsia

Unit 1	Ch. 4, pp. 1-19
Unit 2	Ch. 14, p. 6
	Ch. 15, p. 22
	Ch. 16, pp. 25, 35
	Ch. 17, p. 2
	Ch. 18, pp. 7, 10
Unit 3	Ch. 20, p. 15
	Ch. 21, p. 2

Letitia Richford: Cord Prolapse and Nonreassuring Fetal Status

Unit 1	Ch. 5, pp. 1-20
Unit 2	Ch. 14, pp. 8, 20
	Ch. 15, p. 9
	Ch. 16, pp. 3, 20
	Ch. 17, p. 11
	Ch. 18, p. 28
Unit 3	Ch. 20, p. 6
	Ch. 21, p. 9
	Ch. 22, p. 21
	Ch. 24, p. 21
	Ch. 25, p. 3

Rebecca Sweet: Placental Abruption and Fetal Loss

Unit 1	Ch. 6, pp. 1-17
Unit 2	Ch. 15, p. 18
	Ch. 16, p. 30
Unit 3	Ch. 20, p. 4
	Ch. 21, p. 14
	Ch. 22, p. 29
Unit 4	Ch. 29, p. 7

Hannah Wilder: Chorioamnionitis and Neonatal Sepsis

Unit 1	Ch. 7, pp. 1-15
Unit 2	Ch. 14, p. 26
	Ch. 15, pp. 16, 24
	Ch. 16, pp. 10, 19, 20, 34
Unit 3	Ch. 21, pp. 2, 10, 17
	Ch. 22, p. 2
	Ch. 24, p. 13
	Ch. 25, p. 22
Unit 4	Ch. 28, p. 6

Graciella Muñez: Preterm Premature Rupture of Membranes and Neonatal Respiratory Distress Syndrome

Unit 1	Ch. 8, pp. 1-20
Unit 2	Ch. 15, p. 17
	Ch. 16, pp. 4, 12, 14
	Ch. 17, pp. 3, 8
	Ch. 18, pp. 2, 19
Unit 3	Ch. 21, p. 3
	Ch. 22, p. 28
	Ch. 24, pp. 8, 21

Nancy Ng: Gestational Diabetes, Macrosomia, and Neonatal Cephalohematoma

Unit 1	Ch. 9, pp. 1-18
Unit 2	Ch. 14, pp. 3, 5, 14, 25
	Ch. 15, pp. 21, 25
	Ch. 16, pp. 13, 15
	Ch. 17, pp. 12, 13
	Ch. 18, pp. 8, 14, 24
Unit 3	Ch. 20, p. 19
	Ch. 21, p. 14
	Ch. 22, pp. 5, 7
	Ch. 24, p. 25
	Ch. 25, p. 14
Unit 4	Ch. 29, p. 24
	Ch. 30, p. 13

Lexi Cowslip: Advanced Maternal Age, HELLP Syndrome, and Neonatal Necrotizing Enterocolitis

Unit 1	Ch. 10, pp. 1-16
	Ch. 14, p. 8
Unit 2	Ch. 18, p. 6
Unit 3	Ch. 20, p. 15
	Ch. 21, p. 9
	Ch. 22, p. 15
	Ch. 24, pp. 2, 5, 9, 17
	Ch. 25, p. 10

Edie Wilson: Migraine With Aura, Shoulder Dystocia, and Brachial Plexus Palsy

Unit 1	Ch. 11, pp. 1-19
Unit 2	Ch. 16, p. 21
	Ch. 17, pp. 7, 14
Unit 3	Ch. 19, p. 12
	Ch. 20, p. 16
	Ch. 22, pp. 5, 11
	Ch. 23, p. 8
	Ch. 24, p. 27

Loretta Hale: Intimate Partner Violence, Formula Feeding, and Postpartum Depression

Unit 1	Ch. 12, pp. 1-16
Unit 2	Ch. 14, pp. 3, 9
Unit 3	Ch. 19, p. 26
	Ch. 20, p. 24
	Ch. 23, p. 19
Unit 4	Ch. 26, p. 11
	Ch. 30, p. 4

Tanya Green: Gestational Trophoblastic Disease (Molar Pregnancy) and Advanced Maternal Age

Cases That Unfold Across Units

Unfolding Patient Stories: Brenda Patton

Unfolding Patient Stories: Amelia Sung

Unfolding Patient Stories: Fatime Sanago

Unfolding Patient Stories: Carla Hernandez

Special Features in This Book

Analyze the Evidence

Building Clinical Judgment

Lab Values

Patient Teaching

Spotlight on Essential Nursing Competencies

Step-by-Step Skills

The Pharmacy

9 Nancy Ng: Gestational Diabetes, Macrosomia, and Neonatal Cephalohematoma

Nancy Ng, age 25

Objectives

1. Identify special considerations associated with providing reproductive health care to a same-sex couple.
2. Discuss some implications of maternal obesity.
3. Discuss the risks of macrosomia to the pregnant person and the fetus or newborn.
4. Identify strategies for resolving urinary retention postpartum.
5. Describe the care considerations for a patient diagnosed with gestational diabetes.
6. Compare the three different kinds of scalp injuries presented in the case.

Key Terms

Caput succedaneum
Cephalohematoma
Diabetogenic
Hemoglobin A_{1c}
Hypoxia
Intracervical insemination
Intrauterine insemination
McRoberts maneuver
Perineum
Periosteum
Polyhydramnios
Subgaleal hemorrhage

Before Conception

Nancy Ng is a third-generation American. If you ask her where her people are from, she'll tell you "Poughkeepsie." She and her wife, Missy, have a 1-year-old son, Teddy, who was conceived by artificial insemination and carried and delivered by Missy. Now they would like for Nancy to be inseminated and to have their second child.

Nancy and Missy met at a party their junior year of college and started dating. They broke up once a few months later but soon got together again. Then, after graduation, they parted ways again. Missy moved to the city to start a production job for a multilingual online news organization, whereas Nancy stayed on at the college as an admissions counselor for a while. But Nancy couldn't stand being apart from Missy, and she bought a bus ticket to the city.

"It always comes back around to you," said Nancy when Missy opened the door of her walk-up apartment. "Every conversation I have with a student about my time in college ends up being about you."

"We've done this twice, Nance. Why is now any different?"

"Miss, everything is better with you. Things smell and look and taste better. I like who I am when I'm with you. You make me a better version of me."

"My parents do not like you."

"Your parents do not like that you're with a girl—any girl. That's not going to change, Miss. You know that. It's nothing to do with me."

"They say you're big and loud."

"I am big and loud. I take up space, and why shouldn't I? Miss, if I were a man taking up this kind of space, do you think they'd complain?"

"Nan, I don't want to choose between you and them."

"I don't want that either, Miss. And if I thought that was the choice I'd walk out of here right now and leave you alone forever. But Miss, this is us we're talking about. We're a part of each other. You're not choosing between your parents and me. You're choosing between your parents and us, between your parents and yourself. They'll come around, Miss. I promise."

"What if they don't?"

"Then we'll have one less set of people to keep happy at Thanksgiving."

They married 6 months later in a city park, attended by broad spreading trees, friends, and family, including Missy's parents, who implied that they continued to strongly hope for grandchildren.

They decided that Missy would bear the pregnancy.

"This is like buying shoes online," said Nancy.

They were looking through an online catalog of available donor sperm from a sperm bank on the other side of the country. They could narrow down the profiles by eye color, ethnicity, ancestry, availability, and previous successful pregnancies.

"I was hoping for one with more of a heel," said Nancy.

"Stop it," said Missy. "This is serious. This is the father of our future child."

"Perspective," said Nancy. "This is half the genetic material of our future child."

Missy initially wanted the donor profile to match Nancy as closely as possible, but Nancy wanted to be able to use the same donor when it was time for their second child, if possible.

"If we choose someone who seems like me now, when it's my turn the baby will be a little Nancy clone, and no one wants that."

In the end they chose someone whom they both thought they might be friends with, if ever they met. They reserved several vials of sperm, some for Missy and the rest for a second sibling pregnancy.

"You could just choose a friend to donate sperm," pointed out a college friend.

"We could," agreed Missy. "But then they would have a claim to the child, and anything could happen. No sperm donor is going to claim parental rights. Plus, all of this sperm is cleaned and scrubbed and safe. No weirdness."

"Well, less weirdness," said Nancy. "In fairness."

An advantage of Missy going first was her extremely predictable 28-day menstrual cycle (Fig. 9.1). Each month of sperm, which would arrive in a container of liquid nitrogen, cost almost $1,000, all told, and the company estimated a 13% success rate with the at-home insemination method, which equated to a turkey baster. The method, also called **intracervical insemination**, required simply depositing the semen next to the cervix and hoping for the best. They'd learned in their reading that **intrauterine insemination** (Fig. 9.2), depositing the sperm directly into the uterus, would likely be more effective but also more expensive and would need to be done by a trained medical provider.

"You're an absolute, amazing, show-off," Nancy told Missy affectionately when the pregnancy test returned two pink lines just 2 weeks after the first insemination attempt. "Truly you are. And I suppose you'll go on to have a typical pregnancy and textbook birth."

Which she did; 40 weeks and 2 days later, she gave birth to a baby boy. They named him Theodore—Teddy for short.

Now, a year later, they discuss Nancy becoming pregnant. She begins with the at-home insemination approach that Missy used. They hope to have their second child about 2 years after Teddy's birth, but Nancy's menstrual cycle is unpredictable. As she begins, she takes her basal body temperature daily before she lifts her head from her pillow or has a drink of water. She evaluates her cervical mucus, assessing for the sticky spinnbarkeit (Fig. 9.3), which would indicate imminent ovulation. Sometimes she thinks she can predict when her ovulation will occur and other times not. The ease of Teddy's conception is almost intimidating. Nancy is worried her body will let her down somehow. She buys a large box of ovulation test strips to better determine when her predictive surge of luteinizing hormone will occur, cueing ovulation.

"We could go to a professional this time," suggests Missy, "if you're so worried about it. We could have someone do the intrauterine insemination."

"No, not unless we have to," says Nancy. "Most couples get to make babies at home without involving medical teams. Obviously, we need this outside sperm, but I'd rather not have other people involved."

"Well, we could order multiple vials each month," suggests Missy. "We could try it a few days in a row instead of having just one shot. It would be like having sex twice near ovulation."

"Double your chances, double your fun?" says Nancy. "Also double the cost. I don't want to end up having to raise Teddy on noodle soup because we're trying to give him a little brother or sister."

"So compromise. We'll try three times with a single vial for cycles, just us. If it doesn't work, we'll go for outside help," says Missy. She gives Nancy a shrewd look. "What's this really about? Do you not want to do it? Do you want me to do it again? Because I would. I loved being pregnant. I would definitely do it over again."

"No," says Nancy. "I do want to. It just feels weird, like a total change in identity. I'm not girly. I don't wear skirts, I don't wear makeup, and I get my hair cut by a barber. But part of me is all woman, and I don't know that part as well. It's daunting, but I want to get in touch with that part of me, too. This birth and pregnancy, growing a whole human—It's all so amazing."

"It is," says Missy. "But it's okay if you don't want to go through with it. There's no shame in wanting to bypass the experience."

"No," says Nancy again. "I want to. You're my family, both of you. Sometimes I feel like I just want to curl up with both of you and never go anywhere. But there's someone missing, you know? And that's this little person it's up to me to make."

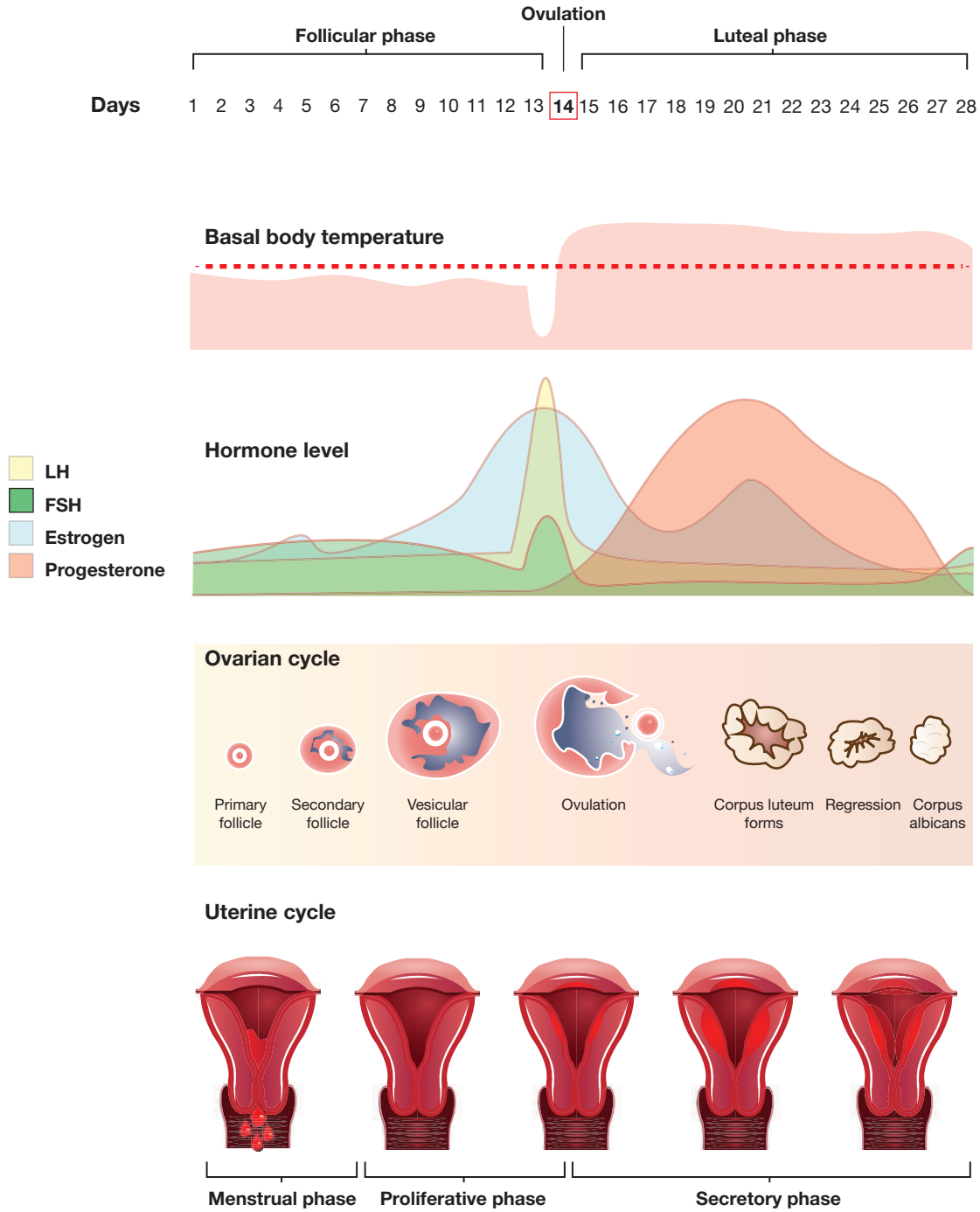

Figure 9.1. A simplified version of a cycle chart. Note that this chart applies to a 28-day menstrual cycle and that the timing of events varies by the duration of a cycle. FSH, follicle-stimulating hormone; LH, luteinizing hormone.

Pregnancy

First Trimester

It takes a total of three inseminations 3 months in a row before Nancy has a positive pregnancy test, which is a relief and less than what they'd budgeted for. Based on some reading, they know that with sexual intercourse, there's a 30% chance of pregnancy with the first cycle and up to a nearly 59% chance of conception within the first 3 months of trying. They also know that the per-cycle success rate is much lower with donated sperm that have been processed, cleaned, frozen, shipped, and defrosted. So they had feared a longer wait. Seeing the results is like waking up to tulips in January. Nancy isn't ready for it. She sits in the bathroom for nearly 10 minutes, looking at the

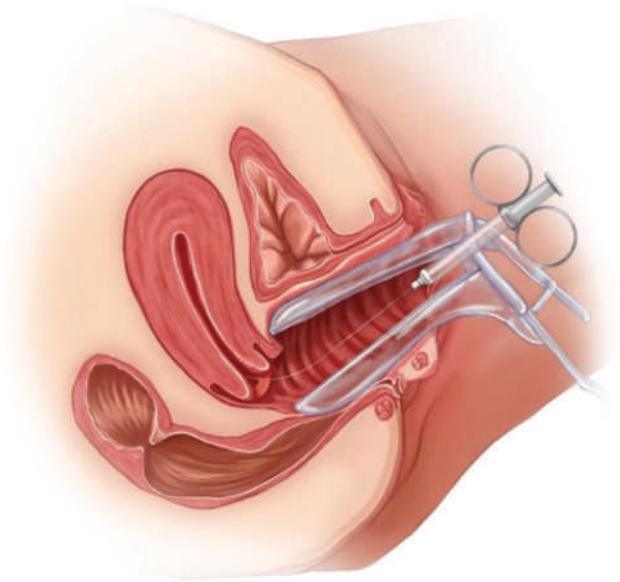

Figure 9.2. Intrauterine insemination. In this procedure, sperm that has been washed off the semen donor's white blood cells and prostaglandins, as well as dead sperm, is injected directly into the uterus via the cervical os through a narrow catheter. (Reprinted with permission from Ricci, S. S. [2013]. *Essentials of maternity, newborn, & women's health nursing* [3rd ed., Fig. 4.2B]. Wolters Kluwer.)

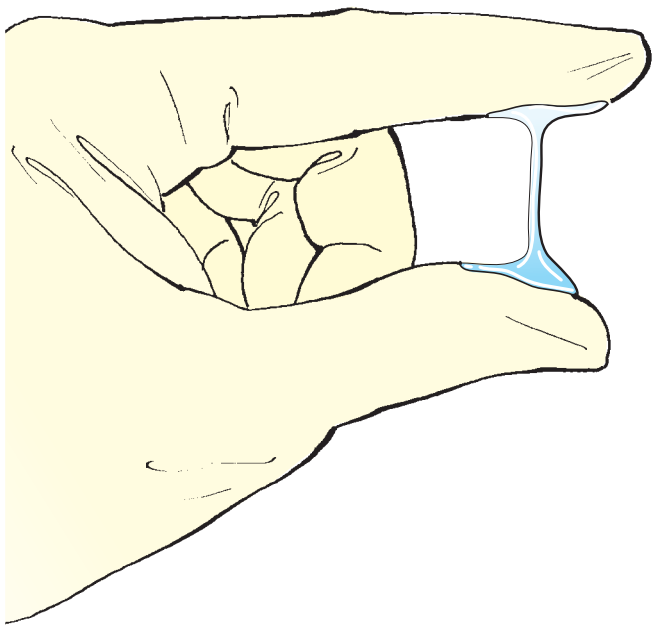

Figure 9.3. Spinnbarkeit mucus. This discharge, which is typical of ovulation, has the slippery, stretchy quality of egg whites and is usually colorless. (Reprinted with permission from Hatfield, N. T., & Kincheloe, C. A. [2022]. *Introductory maternity and pediatric nursing* [5th ed., Fig. 4.3]. Wolters Kluwer.)

test and processing this monumental change and long-sought identity challenge.

"Oh, thank goodness," says Missy. "I'm so excited! And you look down. What's going on?"

"No, I'm really happy," says Nancy. "It's just a big change. Remember how it was with Teddy? It's like working on a long, draining project, finishing it, and realizing that your reward is another long, draining project. I want to do it and I'm excited, but it's a lot to take in. This changes things—not bad changes, but changes, you know?"

Missy shakes her head no and smiles. "Yes, absolutely."

"Shush, you," says Nancy. "I have an OB appointment to make."

Nancy has never been small. She is nearly 6 ft tall and wears size 11 shoes and men's gloves because they fit better. She prefers to wear men's clothes in general because the sleeves and legs are longer, and she feels more like herself in them. She's never paid attention to a scale, but isn't surprised when her male obstetrician, Ron, tells her she's in the obese range.

"I've got big bones," Nancy tells Ron. "Look at these wrists, look at my hands. These bones are heavy!"

"Likely so," says Ron, "but you're experiencing obesity. Look at this chart with me. At 5 ft 11 in, a normal weight for you is between 136 and 172 lb. Nancy, you are at 225 lb" (Fig. 9.4).

"Big boned," says Nancy. "Besides, I'm muscular. Anyway, there's not much to do now but gain baby weight, right?"

"Nancy, I don't want you to be embarrassed," says Ron. "I'm not saying this to make you uncomfortable, but we need to think about how much weight you should be gaining in this pregnancy."

"My wife gained 26 lb for her pregnancy and you told her she was perfect," says Nancy.

"That may well have been perfect for Missy," says Ron, "but pregnancy isn't one size fits all. For someone with a normal body mass index, a weight gain between 25 and 35 lb is just right. For someone who is obese, weight gain should be 12 lb or less" (see Box 1.5).

"Seriously?"

"Seriously."

"I feel like I'm already eating that in saltines alone."

"Do you have nausea?"

"Yes, and it's awful. It's not just morning sickness, it's all-day sickness and in-the-middle-of-the-night sickness when I get up to pee."

"Well, no one seems to like me saying it, but nausea is a good sign. People who have nausea, particularly severe nausea, are less likely to have a miscarriage" (San Lazaro Campillo et al., 2019).

"So I just have to suffer through it?"

"If you like," says Ron. "Although I'd be happy to talk with you about some management strategies for the nausea. Tell me what you've tried."

"Saltines."

"That's it? What about real ginger tea, with ginger grated into it?"

Body Mass Index Table

	Normal						Overweight					Obese										Extreme Obesity																
BMI	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
Height (in)	**Body Weight (lb)**																																			
58	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167	172	177	181	186	191	196	201	205	210	215	220	224	229	234	239	244	248	253	258
59	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173	178	183	188	193	198	203	208	212	217	222	227	232	237	242	247	252	257	262	267
60	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179	184	189	194	199	204	209	215	220	225	230	235	240	245	250	255	261	266	271	276
61	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185	190	195	201	206	211	217	222	227	232	238	243	248	254	259	264	269	275	280	285
62	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191	196	202	207	213	218	224	229	235	240	246	251	256	262	267	273	278	284	289	295
63	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197	203	208	214	220	225	231	237	242	248	254	259	265	270	278	282	287	293	299	304
64	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204	209	215	221	227	232	238	244	250	256	262	267	273	279	285	291	296	302	308	314
65	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324
66	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216	223	229	235	241	247	253	260	266	272	278	284	291	297	303	309	315	322	328	334
67	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223	230	236	242	249	255	261	268	274	280	287	293	299	306	312	319	325	331	338	344
68	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230	236	243	249	256	262	269	276	282	289	295	302	308	315	322	328	335	341	348	354
69	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236	243	250	257	263	270	277	284	291	297	304	311	318	324	331	338	345	351	358	365
70	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243	250	257	264	271	278	285	292	299	306	313	320	327	334	341	348	355	362	369	376
71	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250	257	265	272	279	286	293	301	308	315	322	329	338	343	351	358	365	372	379	386
72	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258	265	272	279	287	294	302	309	316	324	331	338	346	353	361	368	375	383	390	397
73	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265	272	280	288	295	302	310	318	325	333	340	348	355	363	371	378	386	393	401	408
74	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272	280	287	295	303	311	319	326	334	342	350	358	365	373	381	389	396	404	412	420
75	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279	287	295	303	311	319	327	335	343	351	359	367	375	383	391	399	407	415	423	431
76	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287	295	304	312	320	328	336	344	353	361	369	377	385	394	402	410	418	426	435	443

Adapted from *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report.*

Figure 9.4. A body mass index (BMI) chart. BMI is an indicator of body composition that is calculated by dividing a person's weight in kilograms by height in meters. It does not reflect muscle or bone mass. (Adapted from The National Heart, Lung, and Blood Institute [NHLBI] of the National Institutes of Health. [2016]. *Aim for a healthy weight: Body mass index table.* www.nhlbi.nih.gov/health/educational/lose_wt/BMI/bmi_tbl.pdf)

"That sounds disgusting," says Nancy. "That sounds nausea-inducing."

"Well, some people think that the smell of fresh cut lemon is helpful, and peppermint. There's some evidence that a healthy dose of vitamin B_6 can help, as well."

"This sounds like hippy stuff, Ron," says Nancy. "What about meds?"

"There are some meds that can be helpful for some women," says Ron. "But we like to limit medications in pregnancy as much as we can, particularly in early pregnancy when the fetus is most vulnerable. We just don't know for sure that they don't do harm, so they're best avoided if we can do it."

"So I'll just suffer through it," says Nancy.

"Try the ginger tea. It's not bad if you add some lemon, and make it fresh so you can smell it, as well," says Ron. "When was the last time you visited your primary care provider?"

"For what?"

"For anything—a checkup, a Pap test—anything like that."

"College? Or maybe it was before, when I had to get my vaccination paperwork for school."

"So it's been a while."

"I haven't been sick," says Nancy. "Why go if I feel great?"

"It doesn't matter how good you feel. At your age, you still need a Pap every 3 years until you're 30, and then every 5 years" (see Patient Teaching 2.2). "We can do that for you today. I also want to check you for diabetes. If you're diabetic, we'll need to manage your pregnancy very differently."

"Who says I'm diabetic?" says Nancy, taken aback. "I'm not peeing all the time or downing water. I feel great."

"I know you do, and that's wonderful. But you're obese, and that can predispose you to having issues with your blood sugar levels and your insulin. We're going to screen you later in pregnancy because we screen everyone, but I also want to screen you today to make sure you don't already have diabetes."

"Is it just a blood test?"

"It's just a blood test. It just means we'll have to draw one more tube of blood in addition to the others we're drawing for other tests. I promise you'll never even miss it" (see Table 1.1).

"You're not diabetic," says Ron when he calls with test results a few days later. It's one of the reasons that Nancy and Missy like him, because he calls with his own test results. Most physicians don't.

"Great," says Nancy. "So I don't need to worry about it?"

"I won't say that," says Ron. "Nancy, the test I ran is something called a **hemoglobin A_{1c}**. It's like a snapshot of what your blood sugar has been like for the past 2 or 3 months. Normal range is 4% to 5.6%. You can be diagnosed as diabetic at 6.5%. Your hemoglobin A_{1c} was 5.7%, which means that you're not diabetic now, but you are at risk of developing diabetes during this pregnancy."

"Why would I be more likely to become diabetic during pregnancy?"

"Pregnancy is a **diabetogenic** state," Ron says, "particularly after the first trimester. That means the body demands progressively more insulin to do the job it can normally do with less. If your body is already having trouble keeping up with your insulin needs before pregnancy, it will likely keep up progressively less as you get into the second half of the pregnancy (Fig. 9.5). Now remember, the job of insulin is to get your cells to take in sugar, or glucose, from your blood. The more insulin you have circulating in your blood, the more glucose your cells will take in. If you don't have enough insulin, the cells won't take in the glucose, and you end up with too much glucose circulating in your bloodstream."

"So, too much glucose in the blood is bad," says Nancy.

"Yes," Ron says. "Too much sugar in the blood is definitely bad."

"What should do I do, then?" asks Nancy.

"I want you to start to live like you already have diabetes. First, I want you to exercise. It doesn't have to be strenuous. Start with walking. Nothing else you do is more effective at increasing cell sensitivity to insulin than exercise."

"Exercise," says Nancy, dully.

"Yes. And I want you to start eating like a diabetic. I'm going to give you some guidelines that you can take home and talk over with Missy. This is really a lifestyle change we're talking about, not a diet. You really need to embrace this" (Box 9.1).

"Okay, Doc," says Nancy. "What happens if I get diabetes anyway?"

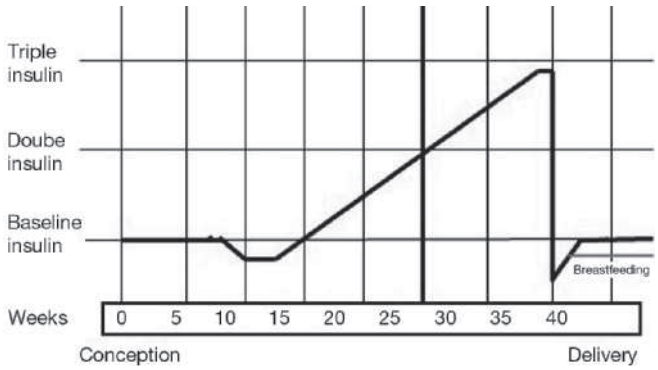

Figure 9.5. Insulin requirements during pregnancy. Baseline insulin needs are similar to what is required during the prepregnancy state. Note that insulin needs start to rise sharply after the first trimester of pregnancy and peak at the end of pregnancy. (Reprinted from California Department of Public Health. *California diabetes and pregnancy program.* https://www.cdph.ca.gov/programs/cdapp)

Box 9.1 Nutritional Recommendations for Nancy Ng

Caloric Intake

- BMI 18.5–29.9 (normal to overweight): 30 kcal/kg/d
- BMI ≥ 30 (obese): 22–25 kcal/kg/d
- Morbid obesity (BMI of 40 or higher or 30 or higher with health problems related to obesity): 12–14 kcal/kg/d

Nancy weighs 225 lb (102 kg) and has a BMI of 31.4. Ron suggests she consume between 2,224 and 2,550 kcal/d.

Nutrient Distribution

- 40% of calories from carbohydrates, primarily fruits and vegetables; avoidance of simple carbohydrates such as candy and baked goods
- 40% of calories from fat, avoidance of transfats
- 20% of calories from protein

Timing of Calories

- Breakfast: 10% of calories
- Lunch: 30% of calories
- Dinner: 30% of calories
- Snacks: 30% of calories

BMI, body mass index.

"Well, then we'd treat you."

"With what—medications and insulin?"

"Yes."

"Okay, so say I didn't take my medications. What's the worst that can happen?"

"Well, I would certainly recommend against that," says Ron. "Your baby could be very big and have some serious complications and you would be at significant risk for injuries at the time of birth" (see Chapter 4).

"Diet and exercise," says Nancy.

"That's right," says Ron. "Besides the eating guidelines, I can also refer you to a nutritionist, if you'd like."

Nancy shakes her head. "I think we can figure it out. I'll let you know, though."

The results from Nancy's routine first trimester laboratory tests are normal, diminishing her concerns about fetal abnormalities (see Table 1.1).

Second Trimester

In the second trimester, starting in her 13th week of pregnancy, Nancy starts monthly visits with Ron. Her fetal survey ultrasound at 18 weeks is normal. After 20 weeks, each visit includes a fundal height measurement, with Ron measuring her uterus in centimeters from her pubic bone to the fundus (see Fig. 2.8).

"Is it normal?" Missy asks after the first measurement. She's come to as many visits with Nancy as her schedule has allowed.

"She's measuring about 3 cm larger than what I'd expect at this gestation," says Ron, "but the pattern is really more

important than any isolated number. If she stays at this size over a series of measurements, that's fine. If the measurements become progressively larger than what I anticipate for the gestational age, we will be concerned."

"So we're good," says Nancy, sitting up with Ron's help and pulling her shirt back down.

"Nancy, we need to talk about your weight again," says Ron. "You're at almost 21 weeks, about halfway through the pregnancy, and you've gained 16 lb. Our goal was for you to gain 12 lb or less for the entire pregnancy."

"I can't help it," says Nancy. "I was nauseous until about a month ago, and the only thing that helped was food. I try not to eat much but my body is just gaining weight."

"I'd like you to think about seeing a nutritionist," says Ron. "Have you been exercising?"

"Not as much as she should," says Missy. "And I don't think having a nutritionist would help necessarily. I'm measuring out all of her meals, but she cheats."

"Missy!" says Nancy. "Tattle tale. I get hungry and I eat. I'm sorry."

"You're not sorry," says Missy.

"I don't think I've impressed on you the importance of diet and exercise at this time," says Ron.

"No, you have," says Nancy. "I'll get better. I promise. I'll go for walks every day and I won't sneak food. Much. I won't sneak much food."

"Nancy," says Missy.

"What? Fine. I'll be good. I'll be better than I have been."

"In a month, at 24 weeks, I want to test you for gestational diabetes," says Ron.

"Should we test for it earlier?" Missy asks.

"Studies have shown no value and no improvement in outcomes from earlier screening because 24 weeks is really when we start to see the body's insulin demands increase (ACOG, 2018)," says Ron, "but I like the way you're thinking."

"So she'll have the test where she drinks the orange soda and then has her blood taken an hour later?" asks Missy.

"Close," says Ron. "Nancy will have her blood taken first thing in the morning. Then she will drink the orange glucola and have her blood taken again 1 hour later and then 2 hours after she had the drink. It's a longer process than the standard test, but Nancy, you're so high risk I think you will have a positive result from the 1-hour screening test and would have to have the 3-hour test anyway. This saves us a step" (Box 9.2).

"Well," says a nurse named Tanisha shortly after taking Nancy's fasting blood sugar at 24 weeks, "your fasting blood glucose is over 105. Anything over 92 is diagnostic for diabetes."

"Are you kidding?" asks Nancy. "I haven't even had the drink yet and you're telling me I'm diabetic?"

"With this test you only need one elevated reading for a diagnosis, and you've got it."

"Well then," says Nancy. "As a consolation prize do I not have to do the drink or the other sticks?"

Tanisha shakes her head and hands her a bottle containing orange liquid. "Sorry. We need to measure your blood glucose level after sugar intake so we know how to adjust your insulin."

Box 9.2 Single-Step Combined Screening and Diagnosis Testing

1. After an overnight fast, fasting glucose level is checked.
2. A solution containing 75 g of glucose is drunk.
3. Blood glucose is again checked after 1 and 2 h.
4. If one of the following values is elevated, gestational diabetes is diagnosed:
   - Fasting ≥ 92 mg/dL
   - One hour ≥ 180 mg/dL
   - Two hours ≥ 153 mg/dL

Data from Sacks et al. (2012).

"Insulin?" says Nancy.

"Well, based on your chart, you've been working on diet and exercise since the beginning of the pregnancy. Ron typically starts women in your situation on insulin."

A few days after receiving the diagnosis of gestational diabetes, she and Missy are meeting with Ron.

"I have to take insulin?" asks Nancy. "I have to do finger sticks and get shots in the legs all day long? Really?"

"Insulin is our first-choice medication if diet and exercise fail, yes," says Ron. "Nancy, only one elevated level during a screening is required for a diagnosis, and all three of yours were elevated. We need to take this seriously. You don't need to think about it every hour, but you do need to be diligent in testing your blood glucose level and injecting your insulin."

"I don't believe this," says Nancy. "That means months of jabs and shots, right?"

Ron nods. "Yes, for the duration of your pregnancy you will have gestational diabetes. It's certainly manageable, but you are correct that it will take no small effort on your part."

"Ron," says Missy, "could this still be managed with diet and exercise? She hasn't gained more weight and I think she's recently cut back on extra food, but she could walk more."

Ron shakes his head. "I wouldn't recommend that at this time. The kind of results we would see from minor lifestyle tweaks would not be sufficient at this point. This is serious stuff, Nancy. This is about your health and your baby's health. I know both of these things are important to you."

"I know, I know," says Nancy. "I'm just in denial. So how does this go? What do I have to do?"

"I know this is challenging, Nancy. But you have good support from this office and at home. Tanisha will come in and explain our plan. I'd like to see you back in a week."

"I hate needles," Nancy mutters.

The nurse, Tanisha, enters and introduces herself again.

"Let's start with the finger sticks," says Tanisha. "You'll be doing these four times a day: once before breakfast and then 1 or 2 hours after the start of each meal."

"How long will I be doing that?" asks Nancy.

"You'll do that every day throughout the rest of your pregnancy," says Tanisha. "The machine will track the actual

numbers, but during this time we encourage you to write down your results, times, food diary, and whether the level is fasting or after your first bite of food, and how long after that first bite. This will give you an at-a-glance visual to see how you're doing."

Tanisha hands a little log book to Nancy, who flips through the empty pages (Fig. 9.6). Tanisha brings out a box containing a glucometer and a package of test strips (Fig. 9.7). She reviews with Nancy and Missy glucose targets and the technique for obtaining capillary blood from the side of the finger to test it (Step-by-Step Skills 9.1). It takes Nancy a couple of tries to stick her finger correctly. Her instinct is to pull her hand away as she triggers the lancet.

"Tough girl," Missy teases her. "You can do this."

"Four times a day," Nancy grumbles, milking a drop of blood from the middle finger of her left hand. "I hate this."

"It does get easier," Tanisha says. "Make sure not to use your fingertips. They'd hurt more because you use those more than the sides of your fingers."

"Fine," says Nancy. "I just need to do it. What about the insulin? I'll have to take another bunch of shots, right?"

"One," says Tanisha. "To start with."

"Why one?" asks Missy. "I'd think it would be after each meal."

"We generally start with two different kinds of insulin that are injected right before breakfast. One is rapid acting and kicks in within 15 minutes and peaks between about a half hour and an hour and a half. The other one, called NPH (neutral protamine Hagedorn), lasts 4 to 10 hours. We'll start you on 15 units of NPH and 5 units of the fast-acting type. And again, you'll take both of these before breakfast" (The Pharmacy 9.1).

Name: Phone:

Month:

Day of the month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Before breakfast finger stick															
Breakfast foods															
Before lunch finger stick															
Lunch foods															
Finger stick 1 hour after first bite of lunch															
Finger stick before dinner															
Dinner foods															
Finger stick 1 hour after first bite of dinner															
Notes section for snacks and exercises															

Day of the month	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Before breakfast finger stick																
Breakfast foods																
Before lunch finger stick																
Lunch foods																
Finger stick 1 hour after first bite of lunch																
Finger stick before dinner																
Dinner																
Finger stick 1 hour after first bite of dinner																
Notes section for snacks and exercises																

Figure 9.6. A sample page from a blood glucose monitoring log.

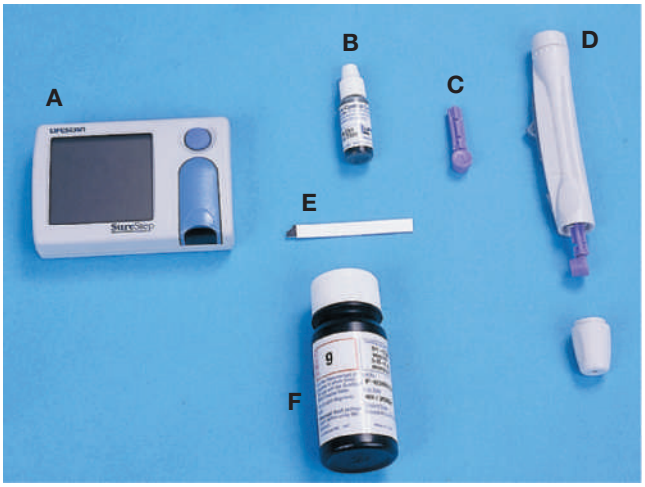

Figure 9.7. Equipment used to perform blood glucose testing. A glucometer **(A)**, control solution **(B)**, a lancet **(C)**, a lancet holder **(D)**, a test strip **(E)**, and a container of test strips **(F)**. The control solution contains a known amount of glucose and is used periodically to test the accuracy of the device. The lancet and lancet holders are used for the finger stick. (Photo by B. Proud.)

Step-by-Step Skills 9.1

Checking Blood Glucose Level

Target Glucose

- Fasting: <95 mg/dL
- One hour after eating: <140 mg/dL
- Two hours after eating: <120 mg/dL

How to Check Blood Glucose

1. Gather the monitor, test strips, lancet, and cotton.
2. Wash your hands (alcohol may be used if soap and water are unavailable).
3. Use the lancet on the side of the finger (note: some machines allow blood from other sites, such as the thigh or forearm; Nancy's does not).
4. Wipe the first drop of blood away with cotton.
5. Touch the test strip to the second drop of blood.
6. The result will appear on the readout of the machine.

Data from Draznin et al. (2022).

The Pharmacy 9.1 Selected Categories of Insulin

Time Course	Agent	Onset	Peak	Duration	Indications
Rapid acting	Lispro (Humalog)	10–15 min	1 h	2–4 h	Used for rapid reduction of glucose level, to treat postprandial hyperglycemia, and/or to prevent nocturnal hypoglycemia
	Aspart (NovoLog)	5–15 min	40–50 min	2–4 h	
	Glulisine (Apidra)	5–15 min	30–60 min	2 h	
Short acting	Regular (Humulin R, Novolin R, Iletin II Regular)	30–60 min	2–3 h	4–6 h	Usually given 20–30 min before a meal; may be taken alone or in combination with longer-acting insulin
Intermediate acting	NPH (neutral protamine Hagedorn)	2–4 h	4–12 h	16–20 h	Usually taken after food
	(Humulin N, Iletin II Lente, Iletin II NPH, Novolin N [NPH])	3–4 h	4–12 h	16–20 h	
Very long acting	Glargine (Lantus)	1 h	Continuous (no peak)	24 h	Used for basal dose
	Detemir (Levemir)	6 h		24–36 h	
	Glargine (Toujeo)				
Rapid-acting inhaled insulin	Afrezza	<15 min	~50 min	2–3 h	Used as rapid-acting insulin

Reprinted with permission from Hinkle, J. L., & Cheever, K. H. (2021). *Brunner and Suddarth's textbook of medical-surgical nursing* (15th ed.; Table 46.3). Wolters Kluwer. Originally adapted from Comerford, K. C., & Durkin, M. T. (2020). *Nursing 2020 drug handbook*. Wolters Kluwer; Keresztes, P., & Peacock-Johnson, A. (2019). Type 2 diabetes: A pharmacological update. *American Journal of Nursing, 119*(2), 32–40. https://doi.org/10.1097/01.NAJ.0000554008.77013.cf

Tanisha coaches both Missy and Nancy on how to draw up the prescribed dose of insulin. She teaches them to draw up the rapid-acting insulin before the NPH. She has them practice using normal saline instead of insulin, first drawing it up and then injecting it into an orange using an ultrafine needle, only 6 mm long.

"Clear before cloudy, clear before cloudy," she makes Nancy and Missy repeat several times, a reference to the rapid-acting insulin appearing clear in the bottle, whereas the NPH appears cloudy.

"Remember this injection is subcutaneous, so the tip of the needle should end up between the skin and the muscle. Most people, including pregnant persons, prefer to use the abdomen, but as this baby grows, you may find it easier to use a site along the sides of your belly instead of up front," says Tanisha.

Tanisha says that hypoglycemia, low blood glucose, is fairly unlikely with gestational diabetes, as long as no meals or snacks are skipped. If Nancy does feel like she's having a low glucose, Tanisha advises her to have a snack containing a mix of protein and carbohydrates.

"You don't want your blood glucose to drop below 70, as a general rule," says Tanisha.

"So how will we know she's having low blood sugar?" asks Missy.

"I'll know," says Nancy. "I'll feel hungry, weak, irritable, and shaky."

"That's pretty close," says Tanisha, sliding yet another form across the table (Patient Teaching 9.1). "This sheet lists symptoms of hypoglycemia. If you experience any of these, have a small snack if a meal is not imminent. Also, we'd prefer you verify your blood glucose first with a finger stick. Do your best."

"So I need to avoid ever being hungry but I need to restrict my diet as much as possible."

Tanisha nods sympathetically. "Try to hit the sweet spot."

Patient Teaching 9.1

Signs of Hypoglycemia

- Hunger, gurgling in the abdomen (borborygmus)
- Shakiness, nervousness, weakness, anxiety
- Impaired judgment
- Dysphoria
- Irritability
- Nausea, vomiting
- Tachycardia
- Diaphoresis, subjective feeling of being hot
- Subjective feeling of being cold
- Paleness (pallor)
- Headache
- Dilation of pupils, vision changes
- Slurring of speech and poor coordination of movement
- Coma and seizures

Third Trimester

The sweet spot turns out to be a moving target. By the end of the pregnancy, she is up from one dose in the morning to three doses throughout the day. Each dose contains part NPH and part rapid-acting insulin. Her dosing schedule requires her to inject just prior to breakfast, lunch, and dinner.

"I don't understand," Nancy says to Ron. "We've been so much better about my diet and we're really good about the insulin and the finger sticks. Why does my dose keep going up?"

"Well remember, Nancy," says Ron, "Your peak insulin need doesn't come until the third trimester. When we started your insulin, you were just a month past the halfway mark. Since then your insulin needs have continued to climb. You'll go back to your baseline insulin needs very quickly after the birth. Having said that, I advise that we do another 2-hour glucose tolerance test when you come back for your postpartum visit at 6 weeks to make sure this gestational diabetes hasn't become type 2 diabetes."

"That can happen?" asks Nancy.

"Oh yes. As many as 60% of people who develop gestational diabetes go on to develop type 2 diabetes during the course of their life" (Vounzoulaki et al., 2020). "However, should that occur, we likely would not keep you on insulin. Most people with type 2 diabetes are at least initially prescribed medications that are far easier to manage."

"Oh Ron, you're always a ray of sunshine," says Nancy.

"I try," says Ron. "Now look, I'd like to talk more about your care at this point."

"Please no more needles."

"No more needles. But you're in week 32 now and I'd like to start monitoring the baby more closely. There is an increased risk for stillbirth, and we want to make sure all is well."

"Increased risk from the diabetes?" asks Nancy.

"The gestational diabetes, yes, particularly as management with diet and exercise was unsuccessful," says Ron.

"What kind of monitoring? Ultrasound?"

"Part of it is ultrasound. We need to measure the pockets of amniotic fluid around the baby using an ultrasound machine and get a good look at the fetus, but we also will do something called a nonstress test, or NST."

"That's the one where you get hooked up with the thing on your belly to monitor the heart rate, right?" asks Nancy.

"That's correct. We use it twice a week to assess the variability in the fetal heart rate—the variation of the fetal heart rate within a discrete period of time—as well as heart rate accelerations" (see Box 3.6).

"Twice a week? That might be hard with my work schedule," says Nancy. "You do it here?"

"We do. We'd be happy to schedule you first thing in the morning, if that would be helpful. We open our doors at eight."

"What's the issue with the amniotic fluid?" asks Nancy.

"Sometimes with diabetes, not just gestational diabetes but also diabetes that predates the pregnancy, a condition called **polyhydramnios** can occur, which means extra amniotic fluid collects around the baby. It's associated with various complications, so if we suspect it's happening, we may elect to induce labor earlier" (Box 9.3).

Box 9.3 Complications Associated With Polyhydramnios

- Cord prolapse
- Preterm labor
- Premature rupture of membranes
- Fetal malpresentation
- Placental abruption with membrane rupture
- Prolonged second stage of labor
- Compromise of maternal respiration
- Uterine atony postpartum

Data from Vanda, R., Bazrafkan, M., Rouhani, M., & Bazarganipour, F. (2022). Comparing pregnancy, childbirth, and neonatal outcomes in women with idiopathic polyhydramnios: A prospective cohort study. *BMC Pregnancy Childbirth, 22*(1), 399. https://doi.org/10.1186/s12884-022-04625-y

"Okay, I'm worried. Is there anything else I need to know about?"

"I don't want you to worry. You have a good team, but we are taking your situation seriously. Now, as we've discussed before, babies of patients with gestational diabetes are more likely to be very large, which can lead to myriad problems, including birth injuries. Although estimating fetal size in utero is challenging, I would like to get an ultrasound in the final month specifically to measure the baby. If the baby is likely to be very large, we may need to do a cesarean section."

"What do you mean by 'very large'?"

"If the baby is estimated to be 4,500 g or larger, I recommend a cesarean."

"What's that in pounds?"

"That's about 9 lb, 9 oz."

"That's a big baby."

"A very big baby, yes," agrees Ron.

"I'm a pretty big lady myself," says Nancy.

"The size of the mother isn't always a good predictor of her ability to successfully give birth to a large newborn without interventions," says Ron. "Now, even if we don't think this baby is over 4,500 g, I recommend we induce your labor at 39 weeks, assuming labor hasn't started on its own."

"Why?"

"There is some indication that early induction can reduce the rate of complications and the risk for stillbirth (American College of Obstetricians and Gynecologists' Committee on Obstetric Practice, 2021)."

Nancy feels a shiver of fear pass through her.

Labor and Delivery

Clinical Judgment: The Nurse's Point of View

Grace:

Nancy has been admitted the night before she is scheduled to be induced to have her cervix ripened with 25 mcg of misoprostol vaginally every 4 h. The note in her chart says her Bishop score (Table 9.1) is 4, so her admission at this time makes sense. The induction is more likely to be successful this way.

The advantage of taking care of a patient who is being induced is that you have some time to review the chart before you meet her. For example, I know already that she has gestational diabetes that is being managed with insulin, which explains the induction at 39 wk. Her physician, Ron, is most likely concerned that this baby will be particularly large. She would also be at an increased risk for stillbirth if she were to carry the pregnancy through wk 40. Her chart indicates that she's obese, which may also put her at greater risk for having a newborn who is large for gestational age, even without the diabetes. So far the ultrasounds have looked good, though, and they don't think the baby looks too big. These ultrasounds for size are notoriously inaccurate, however.

One aspect of care we'll have to prioritize is blood glucose monitoring. Because she's on insulin, she'll need to have a finger stick every 2 h or so. This hospital's policy is to keep patients' blood glucose level below 110. Ron has a standing order in for intravenous (IV) insulin if blood glucose gets above 125.

Nancy's wife Missy arrives just after 7:30 a.m. the morning of the induction (see The Pharmacy 1.2). I start the oxytocin infusion at 1 mU/min and plan to titrate it up by 1 or 2 mU/min every 30 to 60 min until Nancy's contractions are coming once every 2 to 3 min and lasting for about a minute and a half each. I've placed sensors on Nancy's abdomen that communicate with a monitor to track her uterine contractions and the fetal heart rate. So far, so good. The fetal baseline heart rate is 150 beats/min, with moderate variability. Nancy looks pretty anxious, which is understandable. Missy holds her hand and talks about their son, Teddy, but she looks anxious, as well.

We consider four primary factors that affect the progress of labor, which are known as the "four Ps": passenger, passageway, powers, and position of the laboring patient. Because we're concerned this might be a big baby, the relationship between the passenger and the passageway is a major concern here. The powers are the uterine contractions, which we're stimulating with the oxytocin, and pushing, which will occur later. Again, if this does turn out to be a big baby, that third P is going to relate directly to the first two. The good news here about the fourth P, position, is that, for now at least, Nancy has opted not to get an epidural. This, along with the fact that she's on a wireless monitor, means that it will be much easier to get her on her feet and moving around the floor. By keeping her vertical and having her walk around, we're letting gravity assist in labor (Berta et al., 2019).

Table 9.1 Bishop Score

	Score				
Component	**0**	**1**	**2**	**3**	**Further Explanation**
Position	Posterior	Middle	Anterior	–	The cervix moves to "point" toward the patient's front at the very end of pregnancy.
Consistency	Firm	Medium	Soft	–	Prior to a birth, a cervix may feel firm, like a chin. People who have given birth previously will have softer-feeling cervixes.
Effacement	0%–30%	40%–50%	60%–70%	≥80%	The cervix starts out about 3–4 cm thick. With full effacement, the cervix shortens to become part of the lower uterus.
Dilation	Closed	1–2 cm	3–4 cm	≥5 cm	Dilation refers to how open the cervix is.
Fetal station	−3	−2	−1, 0	+1, +2	Fetal station refers to the position of the fetus' head in relation to the distance from the ischial spines. These spines are part of the pelvis and are about 4 cm inside the vagina. In assessment of fetal station, negative numbers mean the fetus is above the spines, and positive numbers mean the fetus is below the spines.

Recommended Management
- Score of 5 or less: Labor is likely not imminent without induction.
- Score of 9 or higher: Spontaneous labor is likely.
- Score of 8 or higher: Induction is more likely to be successful.
- Score less than 8: Induction is less likely to be successful.

A successful induction is an uncomplicated vaginal delivery.

Data from Bishop (1964).

She's now been in the latent phase of the first stage of labor for nearly 9 h (see Table 1.3), and her cervix is only 3 cm dilated. Contractions during this phase are further apart and less intense than in other phases and stages of labor, but that's still a long time to go with making so little progress, particularly with IV oxytocin.

Once she enters the active phase of her first stage, she progresses more quickly. Eight hours to go from 3 to 7 cm. Seven hours into the active phase, Ron checks her cervix and decides to perform an amniotomy, or artificial rupture of the membranes. Sometimes this helps speed things along, but it can be done safely only if the fetus is head down and engaged in the pelvis to avoid the risk of cord prolapse (see Chapter 5). Of course, the cervix also has to be dilated sufficiently for the procedure to be performed.

"This isn't going to hurt," I tell Nancy and Missy, who look worried when they see the amniohook (Fig. 9.8). "Your amniotic sac doesn't have any nerve endings. You'll feel Ron's hands, but you won't feel the hook itself."

With the next contraction, Ron inserts two gloved fingers into Nancy's vagina along with the amniohook. Using his fingers as a guide, he nicks the amniotic sac overlying the baby's head. He keeps his fingers in place for a few moments to verify that the cord doesn't move down with the fluid and then removes his hand. The fluid now flowing out her vagina is clear with no evidence of fetal meconium, which would turn it greenish or brown. That's always a relief. If there had been meconium, we'd be concerned that the baby had

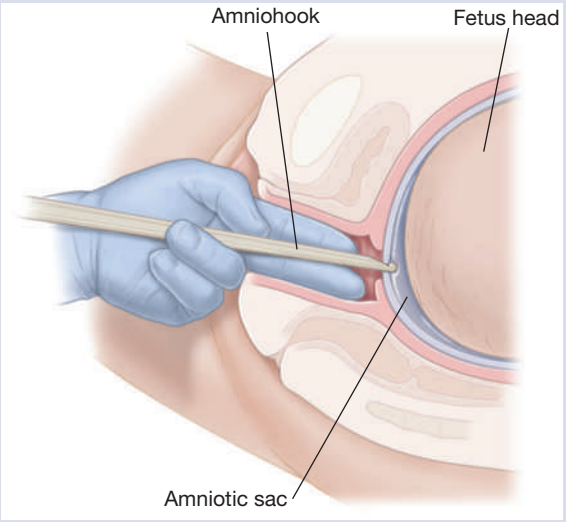

Figure 9.8. Amniohook.

hypoxia, although this finding can also be normal for some babies, particularly if they're past their due dates.

Labor progresses much more quickly after the amniotomy, and now, after 17 h of labor, she becomes really intense and focused. She's vocalizing much more and rests with her eyes closed between contractions. I'm pretty sure by her behavior that she's close to the end of the first stage, and her cervix is probably dilated about 7 to 10 cm. Another clue is that her contractions are closer together, every 2 min, and they're lasting a full minute and a half. She doesn't get much rest between them.

She's entered the pushing stage, the second stage, and it's lasting a long time. The monitors indicate that the baby is doing fine, but Nancy is starting to get tired. I'm tired. I'm working a double, so I'm still here, but I'm just as eager for this little one to be born as anyone else is. Well, it's possible other people are more eager!

It's been almost 2½ h of pushing. I have Nancy empty her bladder into a bedpan. Hopefully it won't be too long. After 3 h, an arrest of labor can be diagnosed, and an operative delivery considered (American College of Obstetricians and Gynecologists, 2014). Maybe having her empty her bladder has given her a little more space, or maybe it's just the distraction she needs to get through. I have Nancy adjust her position so she's more upright. She's pretty tired and the temptation after pushing so long is to lie down, but we know an upright position can move the second stage of labor along faster (Gupta et al., 2017).

About 15 min later and after more contractions, the baby's head emerges. There's a minute or so of further concern. Babies of biological mothers with diabetes tend to have larger shoulders and greater fat distribution in the upper part of the body, so there's a risk that the shoulders will get stuck even though the head is out, a condition called shoulder dystocia.

Ron tells Missy and me to help Nancy move her legs back toward her shoulders as much as she can, something called **McRoberts maneuver** (Fig. 9.9). This is supposed to change the configuration of the pelvis so the anterior shoulder of the baby can move out from under the pubic symphysis. It works, or maybe there wasn't a problem after all, because the little one slips out and Ron catches him. Missy cuts the cord. Sometimes Ron delays cutting the cord for a few minutes because there's evidence that it will increase the number of circulating red blood cells in the baby. Babies born to biological mothers with diabetes, however, are more likely to already have polycythemia, or too many blood cells, so delaying cord clamping could worsen that situation. Babies with polycythemia are more likely to have problems such as severe jaundice, so we don't delay clamping the cord this time.

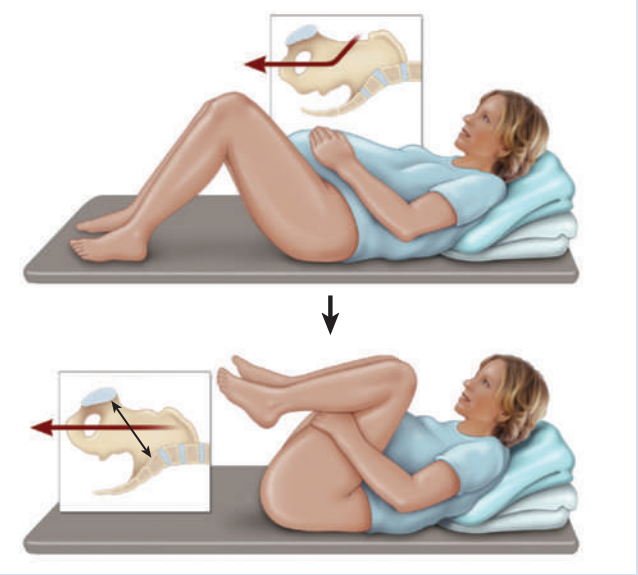

Figure 9.9. McRoberts maneuver. Hyperflexion and abduction of the hips cause cephalad rotation of the symphysis pubis and flattening of the lumbar lordosis that frees the impacted shoulder. (Reprinted with permission from Beckmann, C. R., Herbert, W., Laube, D., Ling, F., & Smith, R. [2013]. *Obstetrics and gynecology* [7th ed., Fig. 9.9A]. Wolters Kluwer.)

Spotlight on Essential Nursing Competencies

Informatics

- Discuss how having an electronic health record that was shared between the OB office and the hospital led to better patient outcomes?

Interprofessional Collaboration

- Who are the members that could be part of Nancy's care team? What were their roles?
- How did the teamwork and collaboration lead to a better experience for Nancy?

Evidence-Based Practice (EBP)

- Provide examples of how Grace and Ron used evidence-based practices to ensure Nancy received the highest quality of care.
- How did these evidence-based practices affect Nancy and her baby's outcomes?

The Newborn

After rubbing down baby boy Ng with warmed blankets, clearing his airways with a bulb syringe, and taking his first Apgar score at 1 minute (which is 8), Grace weighs the baby.

"Four thousand four hundred grams," she says to the room at large, and then turns to Nancy and Missy and says, "that's about 9 lb, 7 oz."

She wraps the baby loosely in a blanket, places him on Nancy's chest, and then spreads a warm blanket over the pair. At 5 minutes she takes the second Apgar, and his score is 9. Another nurse comes in to relieve Grace, and Missy gives the original nurse a big, tired hug on her way out. The new nurse, Helena, admires the baby.

"He's huge," she says.

"He got a little stuck," says Nancy.

"Nancy," says Ron, "the good news is you're already anesthetized. The bad news is you have a fairly serious laceration of your vulva. I'm going to be making some repairs as well as delivering the placenta."

"How serious are they?" asks Missy.

"Well, she has what we refer to as a third-degree laceration, which is a tear into but not through the anal sphincter and that does not involve the rectal mucosa" (see Fig. 7.2).

"My God," says Nancy. "That sounds awful."

"No, no," says Ron cheerfully. "I'll put in some sutures, and all will be well."

A few minutes later there's a sudden gush of blood from Nancy's vagina and an elongation of the umbilical cord that still protrudes from her vagina. There's a small shift as her uterus becomes more round and rises with the release of the placenta. Ron applies slight traction to the cord, and the placenta slides into a stainless steel bowl. Helena examines it to ensure it is intact, with no pieces left behind in Nancy's uterus that may cause atony or subinvolution and thus bleeding (see Fig. 1.2). Ron continues his repair work.

"This is a great time to get him started with breastfeeding," says Helena to Nancy. Helena has removed her gloves and washed her hands. "Big babies like this sometimes have a hard time keeping their blood glucose up for the first few days. One of the best things you can do is feed him."

"I'm not sure how," Nancy says. She watched Missy feed Teddy, of course, but doing it herself is something different. She feels like her arms are in the wrong place, or maybe she just doesn't have enough of them. The baby's little rosebud of a mouth suddenly seems like an impossible target. He has his own ideas of how to go about it, however, and makes his way to the nipple and mouths it. Nancy doubts that he actually manages to drink anything.

Within an hour of the birth, small drops of blood are obtained from the baby's heel to assess for polycythemia and for hypoglycemia, both of which are more common in babies who are large for gestational age (Boxes 9.4 and 9.5; see Fig. 1.16). Helena explains that his blood glucose level will be checked every 6 hours for the next 48 hours to make sure he doesn't become hypoglycemic.

"These blood checks are because of my gestational diabetes, right?" asks Nancy.

Box 9.4 Risks to Neonates of Large for Gestational Age

- Birth injury
- Respiratory distress
- Hypoglycemia
- Polycythemia
- Perinatal asphyxia (oxygen restriction)
- Congenital anomalies

Data from King et al. (2012)

Concept Mastery Alert

A patient with gestational diabetes gives birth at 36 wk gestation to an 8 lb, 6 oz (3820 g) baby boy. Based on maternal history, the nurse monitors the newborn for respiratory distress syndrome, a potential complication because pulmonary maturation is delayed in pregnancies with gestational diabetes, and this infant was born late preterm.

Helena nods. "Elevations in your blood glucose cause the baby to produce more insulin when he's inside you. After he's born, it may take his pancreas a little while to adapt to producing less insulin. Until that happens, his blood glucose level will likely stay low. Usually we can fix it with feeding. Rarely, we need to provide dextrose through an IV. That's a kind of sugar."

"Besides the heel sticks, is there any way we can know whether his blood sugar is low?" asks Missy. "Is there something we should look for?"

"Some babies get kind of jittery," says Helena. "They may not feed so well, and their cry may seem off" (see Box 3.10). "We do extra blood checks as needed. In this hospital we ideally like to keep their blood glucose level above 50 for the first 48 hours and above 60 after that. If they're doing okay and are not having symptoms, we just encourage feeding. If they develop symptoms, we feed them more aggressively and possibly give them dextrose. It doesn't happen often" (Lab Values 9.1).

"What was the other test you did?" asks Missy.

"That was for polycythemia," says Helena. "That means an overabundance of red blood cells. The test results show that he is fine. If his hematocrit had been over 65, though, we would have taken blood from somewhere other than his heel to make sure that the first reading was accurate. Even when polycythemia is

Box 9.5 Assessment of Infant Size

- Small for gestational age (SGA): below 10th percentile
- Appropriate for gestational age (AGA): between 10th and 90th percentiles
- Large for gestational age (LGA): above 90th percentile

Lab Values 9.1

Blood Glucose Parameters for Asymptomatic Neonates

- Within first 4 h of life, maintain plasma glucose levels >25 mg/dL (1.4 mmol/L).
- Between 4 and 24 h of life, maintain plasma glucose levels >35 mg/dL (1.9 mmol/L).
- Between 24 and 48 h of life, maintain plasma glucose levels >50 mg/dL (2.8 mmol/L).
- Greater than 48 h of life, maintain plasma glucose levels >60 mg/dL (3.3 mmol/L).

Data from Adamkin and Newborn (2011).

verified in babies, we usually just observe them, feed them, and keep them hydrated, and they are fine."

"Speaking of which," says Nancy, "not to complain, but I haven't eaten in about 10 years. How do I get a turkey sandwich, in this place?"

A few days later, Nancy asks Missy, "Does his head look funny to you?" Nancy is lying on her bed with her knees up and the baby propped up against them, sleeping. She's carefully unwrapped him for inspection. She's removed his hat and is peering at his head. "Doesn't his head seem lopsided?"

Missy runs her hand over the baby's head. "I see what you mean. The left side of his scalp seems higher than the other."

A nurse who has been caring for the family, Rae, enters for her hourly check. Missy calls her over for another opinion.

"It looks like he has a **cephalohematoma**," says Rae (Fig. 9.10). "That's not uncommon. You had a long pushing stage."

"Is it dangerous?" asks Nancy.

"Not usually," says Rae. She gently runs her hand over the top of the baby's head. "It's a little collection of blood between the skull and the **periosteum**. That's a layer of connective tissue that covers the bone. See how the swelling stops right in the middle? That's where this bone of his skull stops and another one joins it, so we know that's where the swelling is. If this swelling didn't stop midway at the suture line, we'd likely think it was something called **caput succedaneum**, which is just swelling under the skin of the scalp. That usually is obvious when the baby's born but resolves within a few days" (Fig. 9.11). "Or we might suspect a **subgaleal hemorrhage**, which is more rare. That can be much more serious, but because the swelling doesn't cross the suture line in this case, I'm reassured" (Fig. 9.12).

Missy and Nancy are silent for a moment. "Wait, are you sure?" Nancy asks. "It's the first thing and not the last thing?"

"I'm sure," says Rae, again indicating the lopsided nature of the swelling and the hard stop at the center of the scalp. "We'll monitor him for jaundice, which can occur with any kind of bleed, but we do that routinely, anyway. You lose enough sleep with a new baby. This isn't a reason to."

Nancy considers. "How do you monitor for jaundice?"

Rae lightly depresses the baby's right cheek with her finger. "The first thing is a visual inspection. When I press my finger down, the skin should be white when I take my finger away.

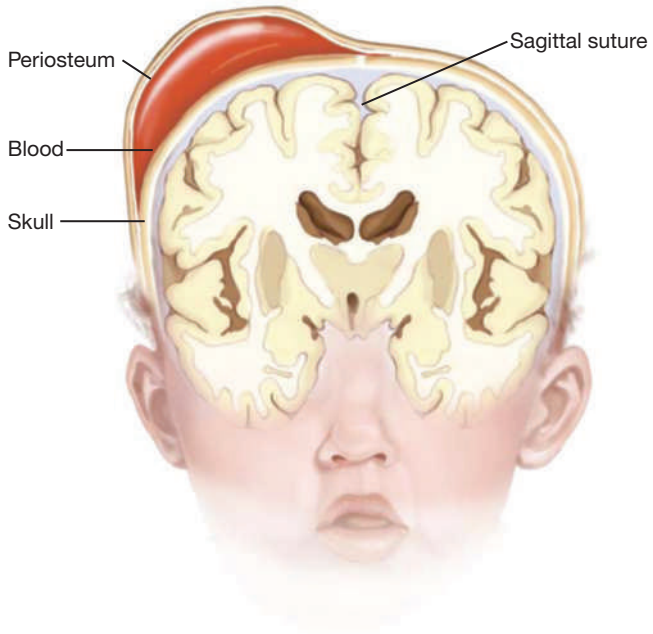

Figure 9.10. Cephalohematoma. With this condition, bleeding appears within the first 2 to 3 days after birth and does not cross the suture line. It may take weeks or even months to resolve completely, but typically does so without complications. (Reprinted with permission from Kyle, T., & Carman, S. [2016]. *Essentials of pediatric nursing* [3rd ed., Fig. 16.15B]. Wolters Kluwer.)

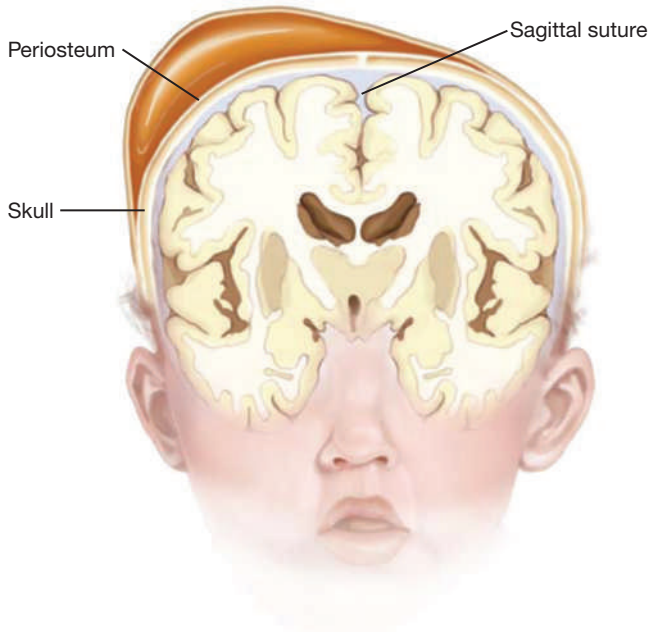

Figure 9.11. Caput succedaneum. With this condition, edema is noted at birth and crosses the suture line. It typically starts to resolve within a few days after birth. (Reprinted with permission from Kyle, T., & Carman, S. [2016]. *Essentials of pediatric nursing* [3rd ed., Fig. 16.15A]. Wolters Kluwer.)

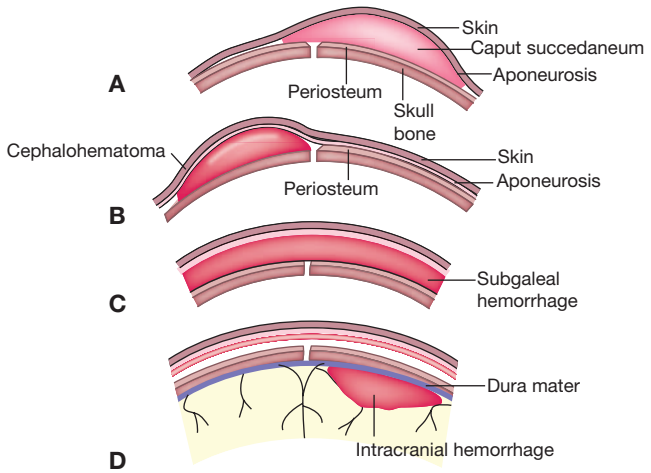

Figure 9.12. Neonatal scalp defects. (A) Caput succedaneum. **(B)** Cephalohematoma. **(C)** Subgaleal hemorrhage. **(D)** Intracranial hemorrhage. (Reprinted with permission from Bachur, R. G., & Shaw, K. N. [2016]. *Fleisher & Ludwig's textbook of pediatric emergency medicine* [7th ed., Fig. 14.24]. Wolters Kluwer.)

Yellow would suggest there's extra bilirubin. It's ordinary for babies' faces to be a little yellow. We're more concerned when that color moves further down, onto the chest and belly. We also have a monitor that can estimate bilirubin levels through the skin" (see Fig. 5.9). "If we're concerned, we can use that or go straight to a blood test. We'll also check his bilirubin using the transcutaneous monitor before you're both discharged."

"So how does he look now?" asks Nancy.

"He looks beautiful," says Rae.

After Delivery

"It's going to hurt," says Nancy. She hasn't had a bowel movement in 2 days and the pressure is building. "I think I can wait until tomorrow."

She's talking to a nurse named Robin. Missy is at home with Teddy and plans to bring him with her when she comes to pick up Nancy and the baby and bring them home.

Box 9.6 Ways to Stimulate Urination Postpartum

- Place your hand in warm water.
- Blow bubbles through a straw.
- Run warm water over the perineum.
- Listen to the sound of running water.
- Take a warm shower.
- Drink fluids.
- Ensure privacy while urinating.
- Void into a bedpan containing drops of peppermint oil.
- Place ice packs on the perineum prior to voiding.

"The stool will be very soft," says Robin. "You've been taking docusate, and it really does help the stool stay soft and your bowel movement more comfortable" (The Pharmacy 9.2).

Nancy has also had issues with urinating. It took her almost 12 hours to empty her bladder without the aid of a catheter. Her **perineum** (the area between her pubic symphysis and coccyx) was swollen from the duration of pushing and her anxiety about the pain was such that she had a hard time allowing her body to release. Her nurse at the time tried running water and putting her hand in water. Eventually, the nurse had to catheterize her—twice. She explained that it was important to keep her bladder empty because a full bladder could push against the uterus in such a way that it might stay soft and bleed. Nancy secretly thought this all sounded suspicious—after all, she didn't feel like she had to pee. Of course, the nurse said that was normal, as well, just before she catheterized her (Box 9.6).

"Have you been walking?"

"Yes," says Nancy. "I've been walking up and down these halls pushing that bassinet. The baby likes the movement, and I like getting out of bed."

"That should help stimulate the movement of your bowels," says Robin. "Have you had any fiber or hot liquids?"

"Yes and yes. I even drank warm prune juice," says Nancy. "It tastes about as good as you would think."

The Pharmacy 9.2 Docusate (Colace)

Overview	A stool softener
Route and dosing	Oral: • Docusate calcium: 240 mg once daily • Docusate sodium: 50–360 mg once daily or in divided doses Rectal: • 283 mg/5 mL: 283 mg (1 enema) one to three times daily
Care considerations	• When self-medicating, do not use for more than 7 d. • Use with caution when abdominal pain, vomiting, or nausea is present. • Do not use at the same time as mineral oil.
Warning signs	• The liquid form may cause throat irritation. • High doses of certain formulations with benzyl alcohol may cause toxicity, particularly in newborns.

"Have you tried peppermint tea?"

"Gallons," says Nancy. "Still, I'm worried this is going to hurt. I'm worried I'm going to tear through my stitches."

"It might hurt," says Robin. "But you won't rip through your stitches. Take your time. Think about relaxing instead of pushing. Think about how much better your belly will feel afterward."

"Relaxing instead of pushing," Nancy repeats.

"You could try a laxative, if you like," says Robin." You have an order for one in your chart."

"I hate that stuff," says Nancy.

"Look, why don't you just go in there and sit on the toilet. I'll take the baby with me to the nursery. Run some water, bring a book, try to relax. If it doesn't work, you can try a laxative."

Later that afternoon, Missy returns with Teddy and the baby's car seat. Teddy is 3, now, with perfectly straight dark hair that always sticks out from his head as though by static electricity. He's watching the baby sleep in his clear plastic cot. He is on his best behavior with his hands jammed deep in his pockets, but he's bouncing lightly on his heels.

"He looks like a snap pea," he says. "And he smells weird."

"I guess he does look a little like a pea all wrapped up like that," says Nancy. "Do you want to touch him?"

Teddy considers. "No."

"The baby bought you a present, Teddy," says Missy. She brings out a flat, brightly wrapped package from her purse.

"It looks like a book," says Teddy. He turns away from Missy without taking the book and sits on the bed with Nancy, his shoulder against hers. Clearly the baby is lousy at choosing gifts. "Is he going to sleep in the bed with you now?"

"He's going to sleep in a little bed next to ours," says Nancy. "Babies wake up a lot in the night. They don't sleep all the way through like big boys."

"Like I do," says Teddy, who made a habit during Nancy's pregnancy of sleeping through the night not in his own bed but in his mothers'.

"Like you do."

"What's his name, anyway?"

"We thought you might like to name him," says Nancy.

"We thought you might like to *help* name him," says Missy. "Mommy and Mama have veto rights."

"Hmm," says Teddy. He makes a show of tapping his mouth with his finger and scrunching up his eyes. He sits up with one finger in the air. "Backhoe!"

"No," says Missy.

"Why not?"

"Because he's a baby, not a machine."

"John Deere?"

"Also a machine, but warmer," says Nancy.

"Bob?"

"Well," says Missy diplomatically. "Bob is a very fine name, but are you sure that it's *his* very fine name?"

Teddy considers this carefully. He looks at the baby again and pulls back his cap a little so that his hair, dark and straight like Teddy's, shows. Teddy is satisfied. "His name is Jonathan. Can I hold him?"

Think Critically

1. Using the resources you can find at www.diabetes.org, plan a day of eating for Nancy. Make sure to reference her particular dietary requirements (Box 9.1).
2. How do insulin needs change for people throughout pregnancy?
3. Consider the two screening protocols for the diagnosis of gestational diabetes, the 1-hour followed by 3-hour test and the 2-hour test. What do you see as the benefits and drawbacks of each method?
4. You suspect an infant in your care has cephalohematoma. Write a brief description of how you would explain to a patient the difference between this, a subgaleal hemorrhage, and caput succedaneum.
5. Your patient is suffering from urinary retention postpartum. How would you prioritize your intervention attempts?
6. Nancy and Missy would like more information about why baby Jonathan is more predisposed to jaundice than another baby might be. How would you explain it to them?
7. In your own words, explain why infants born to biological mothers with gestational diabetes have a higher risk for hypoglycemia after birth.

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Suggested Readings

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