

## Overview of postpartum care

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**Literature review current through:** May 2017. | **This topic last updated:** May 26, 2017.

**INTRODUCTION** — The postpartum period, also known as the puerperium, begins with the delivery of the baby and placenta. The end of the postpartum period is less well-defined, but is often considered the six to eight weeks after delivery because the effects of pregnancy on many systems have resolved by this time and these systems have largely returned to their prepregnancy state. However, all organ systems do not return to baseline within this period and the return to baseline is not necessarily linear over time. In some studies, women are considered postpartum for as long as 12 months after delivery.

Health care providers should be aware of the medical and psychological needs of the postpartum mother and sensitive to cultural differences that surround childbirth, which may involve eating particular foods and restricting certain activities [1].

## NORMAL POSTPARTUM ANATOMIC AND PHYSIOLOGIC CHANGES

**Shivering** — Postpartum shivering (postpartum chills, rigors) are observed in 25 to 50 percent of women after normal deliveries [2,3]. Shivering usually starts 1 to 30 minutes post-delivery and lasts for 2 to 60 minutes. The pathogenesis of postpartum chills is not clear; several mechanisms have been proposed including fetal-maternal hemorrhage, micro-amniotic emboli, bacteremia, maternal thermogenic reaction to a sudden thermal imbalance due to the separation of the placenta, drop in body temperature following labor, use of [misoprostol](#), and an anesthesia-related etiology. No treatment is necessary other than supportive care (eg, warm blanket). Anesthesia-related shivering can be treated pharmacologically. (See "[Adverse effects of neuraxial analgesia and anesthesia for obstetrics](#)", section on 'Shivering'.)

**Uterine involution** — Immediately after delivery of the placenta, the uterus begins to involute (ie, contract). Myometrial retraction is a unique characteristic of the uterine muscle that enables it to maintain its shortened length following successive contractions. Contraction of the interlacing myometrial muscle bundles constricts the intramyometrial vessels and impedes blood flow, which is the major mechanism preventing hemorrhage. In addition, large vessels at the placental site thrombose, which is a secondary hemostatic mechanism for preventing blood loss at this site.

On examination, the fundus should be nontender, firm, and more globular than in its pregnant state. A soft, boggy uterus in the presence of heavy vaginal bleeding suggests inadequate contraction of the uterus (ie, atony). The diagnosis of heavy bleeding is based primarily on the judgment of care providers. Typically hemorrhage implies a degree of bleeding that threatens to cause, or is associated with, hemodynamic instability. (See "[Overview of postpartum hemorrhage](#)".)

The uterine fundus is located near the umbilicus within 24 hours after delivery, midway between the symphysis pubis and umbilicus within one week postpartum, is not palpable abdominally by two weeks postpartum, and reaches its normal nonpregnant size by six to eight weeks postpartum. This process is affected by parity and mode of delivery (the uterus is slightly larger in multiparous women and post cesarean delivery), and by breastfeeding (the uterus is slightly smaller in women who are breastfeeding) [4]. Although routinely performed, there is no evidence that assessment of uterine size in the early postnatal period is predictive of complications [5,6]. The weight of the uterus decreases from approximately 1000 grams immediately postpartum to 60 grams six to eight weeks later.

**Lochia** — The basal portion of the decidua remains after the placenta separates. This decidua divides into two layers: the superficial layer is shed and the deep layer regenerates new endometrium, which covers the entire endometrial cavity by the 16th postpartum day [7]. Normal shedding of blood and decidua is referred to as lochia rubra (red, red brown), and lasts for the first few days following delivery. Vaginal discharge then becomes increasingly watery, called lochia serosa (pinkish brown), which lasts for two to three weeks. Ultimately, the discharge turns yellowish-white, the lochia alba. Microscopically, lochia consists of serous exudate, erythrocytes, leukocytes, decidua, epithelial cells, and bacteria.

The total volume of postpartum lochial secretion is 200 to 500 mL, which passes over a mean duration of one month [8]. Interestingly, up to 15 percent of women continue to pass lochia for six to eight weeks, the time of the standard postpartum visit [9]. The duration of lochia does not appear to be related to lactation or to the use of either estrogen containing or [progesterone](#) only contraceptives, but women with bleeding diatheses may be prone to longer duration of passing lochia [10].

**Ultrasound of the involuting uterus** — Knowledge of the characteristics of the normal postpartum uterus is useful when the postpartum uterus is imaged during evaluation of postpartum complications.

A prospective, longitudinal study performed serial ultrasound examinations on 42 women with uncomplicated vaginal term deliveries on postpartum days 1, 3, 7, 14, 28, and 56 [11]. The uterus was most often empty in the early puerperium (days 1 and 3); fluid and debris were seen in the entire cavity in the middle part of the puerperium (day 14); and the late puerperium (days 28 and 56) was characterized by an empty cavity which appeared as a thin white line. Endometrial gas was occasionally visualized. Gas may also be visualized in the uterine cavity after cesarean delivery or after manual evacuation of the placenta [12].

Another study of 40 women undergoing ultrasound examination 48 hours after vaginal delivery noted 16 had echogenic material in the uterus and this finding was not associated with the amount or duration of bleeding [13]. This suggests that the presence of echogenic material need not change clinical management in patients who do not have heavy bleeding or signs of uterine infection. Others have made similar observations [13-15]. However, an echogenic mass could represent retained products of conception and be associated with an increased risk of postpartum hemorrhage (image 1) [16].

**Cervix** — After delivery, the cervix is soft and floppy and there are small lacerations at the margins of the external os, which remains dilated. The cervix contracts slowly, remaining two to three centimeters dilated for the first few postpartum days, and less than 1 centimeter dilated at one week. The external os never resumes its pregravid shape; the small, smooth, regular circular opening of the nulligravida becomes a large, transverse, stellate slit after childbirth (figure 1). Histologically, the cervix does not return to baseline for up to three to four months after delivery [17].

**Vagina and vulva** — The vagina is capacious and smooth immediately after delivery. It slowly contracts, but not to its nulligravid size; rugae are restored in the third week as edema and vascularity subside. The hymen is replaced by multiple tags of tissue called the carunculae hymenales (myrtiformes). Fascial stretching and trauma during childbirth result in pelvic muscle relaxation, which may not return to the pregravid state. (See "[Urinary incontinence and pelvic organ prolapse associated with pregnancy and childbirth](#)".)

**Abdominal wall** — The abdominal wall is lax postpartum but regains most, if not all, of its normal muscular tone over several weeks; however, separation (diastasis) of the rectus abdominus muscles may persist. Long-term sequelae may include abdominal discomfort, and cosmetic issues. (See "[Rectus abdominis diastasis](#)".)

**Reproductive hormones** — The disappearance of the beta-subunit of human chorionic gonadotropin (hCG) postpartum follows a biexponential curve [18,19]. In one study, the median time of elimination was 12 days in pregnant women who underwent peripartum hysterectomy [20]. HCG values typically return to normal nonpregnant levels two to four weeks after term delivery, but can take longer [18]. The most serious concern in women with rising hCG levels postpartum is gestational trophoblastic disease. (See "[Hydatidiform mole: Epidemiology, clinical features, and diagnosis](#)", section on 'hCG'.)

Gonadotropins and sex steroids are at low levels for the first two to three weeks postpartum. In studies using urinary pregnanediol levels to measure ovulation in nonlactating women, the mean return of menstruation following delivery ranged from 45 to 64 days postpartum and the mean time to ovulation ranged from 45 to 94 days, but occurred as early as 25 days postpartum [21]. Seventy percent of women will menstruate by the 12th postpartum week and 20 to 71 percent of first menstruations are preceded by ovulation, which is potentially fertile.

Women who breastfeed have a delay in resumption of ovulation postpartum. This is believed to be due to prolactin-induced inhibition of pulsatile gonadotropin-releasing hormone release from the hypothalamus.

Some women report hot flashes in the postpartum period, with resolution over time [22]. The cause is unknown, but in menopausal women they are thought to be due to thermoregulatory dysfunction, initiated at the level of the hypothalamus by estrogen withdrawal. Estrogen levels fall with delivery of the placenta. In addition, the initial hyperprolactinemic state associated with breastfeeding depresses estrogen production.

**Breasts** — Changes in the breasts of lactating and nonlactating women and issues pertaining to breastfeeding are discussed separately. (See "[Breast development and morphology](#)" and "[Physiology of lactation](#)" and "[Initiation of breastfeeding](#)".)

### **Skin and hair**

- Striae, if present, fade from red to silvery, but are permanent. (See "[The skin, hair, nails, and mucous membranes during pregnancy](#)", section on 'Striae gravidarum'.)
- The abdominal skin may remain lax if there was extensive rupture of elastic fibers.
- Chloasma resolves in the postpartum period, although the exact timing is not known.
- During pregnancy, there is an increase in the percentage of "growing" or anagen hair relative to the "resting" or telogen hair. This ratio is reversed in the puerperium. Telogen effluvium is the hair loss commonly noted one to five months after delivery. This is usually self-limited with restoration of normal hair patterns by 6 to 15 months after delivery. (See "[The skin, hair, nails, and mucous membranes during pregnancy](#)", section on 'Melasma' and "[The skin, hair, nails, and mucous membranes during pregnancy](#)", section on 'Hair'.)

**Weight loss** — The mean weight loss from delivery of the fetus, placenta, and amniotic fluid is 13 pounds. Contraction of the uterus and loss of lochial fluid and excess intra- and extra-cellular fluid leads to an additional loss of 5 to 15 pounds during the puerperium.

**Other organ systems** — Postpartum physiological changes of other organ systems are discussed separately:

- (See ["Respiratory tract changes during pregnancy"](#).)
- (See ["Renal and urinary tract physiology in normal pregnancy"](#).)
- (See ["Maternal gastrointestinal tract adaptation to pregnancy"](#).)
- (See ["Musculoskeletal changes and pain during pregnancy and postpartum"](#).)
- (See ["Maternal cardiovascular and hemodynamic adaptations to pregnancy"](#).)
- (See ["Hematologic changes in pregnancy"](#).)
- (See ["Maternal endocrine and metabolic adaptation to pregnancy"](#).)

**ROUTINE PROCEDURES** — Providing support and reassurance during the postpartum period helps to instill a sense of confidence in new mothers and also can help foster a healthy mother-infant relationship. Consistency of the information provided to the new mother by the hospital staff can assist with this confidence. The father should be encouraged to participate in the care of the neonate, not only to provide additional support for the mother, but also to foster his relationship with the new infant.

**Rooming in** — Current trends in maternity care facilities include encouraging rooming-in of the infant with the mother during her postpartum hospitalization; often the infant's father is able to stay in the room, as well. Both rooming-in and breastfeeding on demand have been associated with improved breastfeeding continuation rates [23-25]. This was illustrated in a meta-analysis including 18 studies that found rooming-in, breastfeeding guidance in the context of rooming-in, and infant feeding on demand had a positive effect on breastfeeding in primiparous women [24].

**Maternal monitoring** — Temperature, blood pressure, heart rate, and respiratory rate are recorded at frequent intervals. The mother is examined for evidence of uterine atony, excessive vaginal bleeding (see ["Uterine involution"](#) above), and signs of internal hemorrhage ([table 1](#)). After a vaginal birth, internal hemorrhage can be caused by a lacerated vessel with bleeding into a pelvic hematoma, or a ruptured uterus (see ["Management of hematomas incurred as a result of obstetrical delivery"](#)). After a cesarean delivery, internal hemorrhage can be due to bleeding from lacerations or surgical incisions. (See ["Management of postpartum hemorrhage at cesarean delivery"](#), section on ["Management of hemorrhage first recognized after the patient has left the operating room"](#) and ["Management of postpartum hemorrhage at vaginal delivery"](#).)

In addition, she should be monitored for signs of an over-distended bladder (a distended bladder is palpable abdominally) or dyspnea/pleuritic pain, which could be related to a pulmonary embolus. (See ["Voiding difficulty and urinary retention"](#) below and ["Prevention of venous thrombosis"](#) below.)

The perineum should be observed for signs of edema, pain, purulent discharge, or dehiscence. (See ["Breakdown of perineal repair"](#) below.)

**Perineal care** — There is a paucity of evidence-based information regarding care of the perineum after childbirth [26]. Stool softeners and laxatives, as needed, are probably useful until perineal healing is nearly complete, especially in women with a disrupted anal sphincter (see ["Repair of episiotomy and perineal lacerations associated with childbirth"](#)). Good perineal hygiene and elevation of the foot of the bed if there is perineal edema may also be useful. Pelvic muscle exercises may be helpful in strengthening the pelvic floor muscles, but have not been shown to prevent vaginal prolapse in short term follow-up [27]. (See ["Urinary incontinence and pelvic organ prolapse associated with pregnancy and childbirth"](#), section on ["Prophylactic pelvic floor muscle exercises"](#).)

**Breastfeeding** — Breastfeeding is discussed in detail separately. (See ["Infant benefits of breastfeeding"](#) and ["Maternal and economic benefits of breastfeeding"](#) and ["Breastfeeding: Parental education and support"](#) and ["Physiology of lactation"](#) and ["Initiation of breastfeeding"](#) and ["Maternal nutrition during lactation"](#) and ["The impact of breastfeeding on the development of allergic disease"](#).)

**Laboratory testing** — The routine evaluation of postdelivery hemoglobin is probably unwarranted in the uncomplicated, stable patient [28-31]. Determination of hemoglobin after delivery is prudent in situations such as predelivery anemia and hemorrhage. Likewise, determination of the white blood cell count is not predictive of impending infection since leukocytosis as high as 15,000 cells/microL occurs frequently in postpartum patients [32,33]. Laboratory assessment should be reserved for patients in whom there is a clinical suspicion of infection. (See ["Postpartum endometritis"](#) and ["Hematologic changes in pregnancy"](#), section on ["White blood cells"](#).)

**Prevention of venous thrombosis** — Venous thromboembolism is 21 to 84 times more common in postpartum women than in nonpregnant women [34]. It is more common in each postpartum day compared with each antepartum day, and more common after cesarean than after vaginal birth [35]. The highest risk is in the first few weeks postpartum, and then gradually

declines to baseline by 12 weeks postpartum [36]. Cesarean delivery, preeclampsia, hemorrhage, and infection increase the risk [34].

Thromboembolic events are the leading cause of direct maternal mortality in many developed countries. Prophylaxis is recommended for women at high risk of having a thromboembolic event, such as those with any type of thrombophilia. Indications for postpartum thromboprophylaxis and drug regimens are reviewed separately.

- (See "[Cesarean delivery: Preoperative planning and patient preparation](#)", section on '[Thromboembolism prophylaxis](#)'.)
- (See "[Deep vein thrombosis and pulmonary embolism in pregnancy: Prevention](#)".)
- (See "[Inherited thrombophilias in pregnancy](#)", section on '[Prevention of VTE](#)'.)
- (See "[Pregnancy in women with antiphospholipid syndrome](#)".)

## Immunization

**Routine** — Indications and procedures for vaccination of postpartum women are similar to those described for the general population. Both inactivated and live vaccines (except [smallpox vaccine](#)) may be administered to nursing mothers. Postpartum women should receive all recommended vaccines that could not be or were not administered during pregnancy (eg, measles/mumps/rubella [MMR]; varicella, Tetanus toxoids diphtheria acellular pertussis vaccine [Tdap]). Postpartum immunization is discussed in detail separately. (See "[Immunizations during pregnancy](#)", section on '[Postpartum immunization](#)'.)

Other household members in the newborn's home should also have up to date immunizations to create a protective 'cocoon' around the infant and thus minimize newborn exposure to infection; Tdap and influenza vaccines are particularly important in this respect. (See "[Approach to immunizations in healthy adults](#)" and "[Standard immunizations for children and adolescents](#)", section on '[Overview](#)'.)

**Anti-D immune globulin** — Rh(D)-negative mothers of Rh(D)-positive infants should be given anti-D [immune globulin](#). (See "[Prevention of Rhesus \(D\) alloimmunization in pregnancy](#)".)

## ELECTIVE PROCEDURES

**Tubal ligation** — Sterilization can be performed postpartum or as an interval procedure. Ideally, postpartum procedures are performed within 24 hours of delivery, but after the initial period of mother-infant breastfeeding and attachment. Postpartum sterilization may be done up to seven days after delivery; further delay increases the risk of infection and difficulty due to uterine involution [37-41]. General, regional, or local infiltrative anesthesia plus conscious sedation all provide adequate anesthesia. (See "[Postpartum contraception](#)", section on '[Sterilization](#)'.)

Placement of intrauterine contraception within 10 minutes of placental delivery is an effective, long-term, but reversible alternative to sterilization. (See "[Postpartum contraception](#)", section on '[Intrauterine contraception](#)'.)

**Circumcision of male infants** — This topic is discussed separately. (See "[Neonatal circumcision: Risks and benefits](#)" and "[Techniques for neonatal circumcision](#)".)

**MATERNAL ISSUES (EARLY)** — In the immediate postdelivery period, the mother should be monitored for the following problems/complications.

## Pain

**Afterpains** — Pain and fatigue are the two most common complaints after vaginal or cesarean delivery [42]. Afterpains may occur after uncomplicated vaginal delivery due to hypertonic uterine contractions. Pain due to these contractions tends to be more problematic in multiparous women and commonly occurs during nursing due to the release of oxytocin associated with suckling. Short acting nonsteroidal anti-inflammatory drugs (NSAIDs) (eg, [ibuprofen](#) 600 mg orally every six hours as needed) are as or more effective than opioids for relief of pain due to uterine involution [43]. The pain usually spontaneously resolves by the end of the first postpartum week.

**Perineal pain** — Oral nonnarcotic analgesics (NSAIDs, [aspirin](#), or [acetaminophen](#)/paracetamol 500 to 1000 mg, not to exceed 4000 mg/day) are effective for treatment of perineal pain [44,45]. In a meta-analysis comparing NSAID use with placebo or paracetamol, women who received a single NSAID dose were more likely to achieve adequate pain relief at four and six hours post-treatment (10 studies) and less likely to need additional analgesia (four studies) compared with women who received placebo [46]. In the analysis of three trials comparing NSAIDs with paracetamol, at four hours post-treatment, NSAID use was more effective for pain relief than paracetamol, but at six hours, there were no differences between the treatment groups. However, women receiving NSAIDs were less likely to require additional analgesia compared with women receiving paracetamol. As both NSAID and paracetamol use reduced pain, both are reasonable treatment options. (See "[NSAIDs: Therapeutic use and variability of response in adults](#)".)

Local cooling treatments are commonly used, but there is limited evidence to support efficacy. A systematic review of 10 randomized trials including 1825 women found that ice packs alleviated perineal pain for 24 to 72 hours compared with no treatment (RR 0.61; 95% CI 0.41-0.91; one trial, n = 208) [47]. Cold gel pads were the most comfortable means for perineal

cooling. However, there was sparse evidence that cooling improved the composite outcome of edema, bruising, and overall wound healing. (See ["Repair of episiotomy and perineal lacerations associated with childbirth", section on 'Postoperative care'.](#))

**Cesarean delivery** — Management of pain post cesarean delivery is discussed elsewhere. (See ["Anesthesia for cesarean delivery", section on 'Post-cesarean delivery analgesia'.](#))

**Management of pain in breastfeeding women** — Most analgesics are safe for breastfeeding women.

- [Acetaminophen](#) – Acetaminophen enters breast milk, but is considered compatible with breastfeeding [48].
- **Nonsteroidal anti-inflammatory drugs (NSAIDs)** – [Ibuprofen](#) and [diclofenac](#) suppositories have relative infant doses of less than 1 percent, and are considered compatible with breastfeeding [48].

In the United States, the US Food and Drug Administration (FDA) requires a "black box" warning against breastfeeding during maternal [ketorolac](#) use of the injection or tablets because of potential adverse effects of prostaglandin-inhibiting drugs on neonates. Ketorolac taken orally results in very low infant doses and is likely to be safe; however, milk levels have not been measured after higher injectable dosages. Longer acting NSAIDs (eg, [naproxen](#)) are best limited to short-term therapy since medications with long half-lives have greater potential to accumulate in the infant's plasma [49].

- **Opioids** – Opioid analgesia postpartum may affect infant alertness and suckling vigor; however, adequate treatment of maternal pain is an important factor for improving breastfeeding outcome [48]. Opiates are generally safe, although infants should be observed for sedation. The Committee on Drugs of the American Academy of Pediatrics (AAP) prefers use of [butorphanol](#), [morphine](#), or [hydromorphone](#) over other opiates [50]. Use of all opioid agents should be limited to the shortest time required to control acute pain and families instructed on risk of infant sedation. Patients requiring any opioid should be switched to a non-opioid alternative as soon as the level of pain permits.

[Morphine](#) has limited transport into milk and poor oral bioavailability in infants. Morphine is preferable to [meperidine](#) or pethidine for postpartum analgesia during lactation [48]. The weight-adjusted relative infant dose of [hydromorphone](#) is 0.67 percent, so hydromorphone is unlikely to reach the infant in clinically significant levels. However, high doses of this drug should be used cautiously and the infant monitored for sedation since the drug is a strong opioid.

A small amount of [oxycodone](#) transfers into human milk; prolonged and frequent administration may lead to neonatal sedation [48]. Nursing infants of women who carry the CYP2D6 ultra-rapid metabolism polymorphism are at higher risk for central nervous system depression. In a study of 533 mother-infant pairs, CNS depression was noted in 20 percent of infants in the oxycodone group compared with 0.5 percent of infants in the [acetaminophen](#) group [51].

Levels of [butorphanol](#) and [nalbuphine](#) are very low in milk and thus are not likely to affect nursing infants.

- **Agents warranting caution** – We suggest not using [codeine](#) and [tramadol](#) in children <12 years and avoiding their use in breastfeeding women because variability in metabolism can alter the level of active drug to which the child is exposed and result in fatal overdoses in extreme cases [52-55]. In 2017, the US FDA issued warnings and contraindications for the use of codeine and tramadol for pain management in all children <12 years old and in breastfeeding women [55]. Similar warnings regarding codeine have been issued by other agencies, including Health Canada [56] and European Medicines Agency (EMA) [57]. In addition, [meperidine](#) is also not recommended for nursing women because of consistent reports of dose-related neonatal sedation; its metabolites have a long half-life and may accumulate [25,58]. (See ["Evaluation and management of pain in children", section on 'Agents not recommended'.](#))

In response to the FDA warning, a joint statement was released by the American College of Obstetricians and Gynecologists, the Academy of Breastfeeding Medicine, and the Society for Maternal-Fetal Medicine. This statement suggests using opioids other than [codeine](#) or [tramadol](#) such as [morphine](#) or [hydromorphone](#). However, if a codeine-containing medication is chosen, the risks and benefits and the reasoning behind the FDA warning should be discussed with the breastfeeding family [59].

Of note, [aspirin](#) should also be used with caution in breastfeeding women because of the theoretical risk of Reye syndrome. There is a case report of metabolic acidosis in an infant whose mother was taking a high dose of aspirin [60]. (See ["Acute toxic-metabolic encephalopathy in children", section on 'Reye syndrome'.](#))

**Breast engorgement** — Breast engorgement refers to swelling of the breast and can occur early or late in the postpartum period. The breast becomes firm, enlarged, tender, and may be warm to the touch. Early engorgement is secondary to edema, tissue swelling, and accumulated milk, while late engorgement is due solely to accumulated milk. Early engorgement typically occurs between 24 and 72 hours postpartum, with a normal range of one to seven days. Peak symptomatology averages three to five days postpartum. Breast engorgement is uncomfortable and may give rise to a mild temperature elevation for a short period of time; however, any fever should prompt an investigation to rule out an infectious source (see ["Postpartum fever and infection"](#) below). The condition spontaneously resolves over a few days. (See ["Common problems of breastfeeding and weaning", section on 'Nipple and breast pain'.](#))

Some parturients may request lactation suppression. Drug therapy is not recommended for suppression of lactation because the risks associated with all of the currently available drugs outweigh any benefit. As an example, [bromocriptine](#), which was used in the past, has been associated with various complications such as stroke, myocardial infarction, seizures and psychiatric problems. The use of a tight brassiere and avoidance of stimulation suppresses lactation in 60 to 70 percent of women and is the recommended treatment; there are no high quality studies comparing use of nondrug approaches to no treatment [61]. Cool compresses or ice packs and mild analgesics, such as [acetaminophen](#) or [ibuprofen](#), may provide effective pain management.

**Nipple pain** — Despite the recommendation for exclusive breastfeeding for the first six months of infant life, many women discontinue breastfeeding earlier than desired because of difficulties including nipple pain and injury (ie, cracked nipples) [62]. In breastfeeding mothers with a complaint of nipple pain or trauma, initial evaluation should include observation of a feeding and optimization of latch by an experienced lactation consultant. If nipple trauma is present, correction of the latch to allow healing of nipples should resolve pain. Wound care principles can be employed to assist with healing. Nipple trauma appears to be a risk factor for development of mastitis.

Multiple therapies have been proposed to reduce nipple pain, but none have improved maternal perceptions of pain. In a 2014 systematic review and meta-analysis on interventions for treating painful nipples among breastfeeding women, maternal perceptions of pain were not improved with the use of [glycerin](#) gel dressings, breast shells with [lanolin](#), lanolin alone, or all-purpose nipple ointment [63]. Fortunately, most women in the included studies reported the reduction of nipple pain to mild levels by 7 to 10 days postpartum regardless of intervention. Management of the patient with persistent nipple pain depends on the etiology of the pain with latch concerns being the most common.

A more detailed discussion can be found separately. (See "[Common problems of breastfeeding and weaning](#)", section on '[Nipple pain](#)'.)

**Voiding difficulty and urinary retention** — Postpartum urinary retention (PUR) presenting in the puerperium has varied definitions and therefore widely reported rates [64-66]. Definitions of overt PUR and covert PUR have been proposed and studied [66,67]. Overt PUR is the absence of spontaneous micturition within six hours of vaginal delivery or within six hours of removal of an indwelling catheter after cesarean delivery [67]. Covert PUR is a post void residual bladder volume (PVRV) of at least 150 mL after spontaneous micturition, as verified by catheterization or ultrasound. The risk of postpartum urinary retention appears to rise with increasing duration of the second stage of labor, as demonstrated by a cohort study of over 72,000 women that reported the risk of postpartum urinary retention was lowest with <1 hour of pushing and greatest for >3 hours of pushing [68].

Postpartum urinary retention appears to be due to injury to the pudendal nerve during the birth process. Prolonged pudendal nerve terminal motor latency has been demonstrated after delivery and can last for two to three months postpartum [69-71]. Rarely, some women may have long-term dysfunction (see "[Urinary incontinence and pelvic organ prolapse associated with pregnancy and childbirth](#)"). However, urinary retention is typically a self-limited disorder that can be expected to resolve within one week in most patients [66,72]. In observational studies of patients with covert PUR, 96 to 100 percent of women had normalization of the PVRV within two to five days [66,67]. A 2014 systematic review of 24 observational studies noted the following factors were associated with an increased risk of overt postpartum urinary retention: epidural anesthesia, primiparity, instrument assisted delivery, and episiotomy [66].

Patients may be asymptomatic or exhibit small voided volumes, urinary frequency or urgency, a slow or intermittent stream, hesitancy, bladder pain or discomfort, urinary incontinence, straining to void, sense of incomplete emptying, or no sensation to void [73]. Bladder distension can be palpated or visualized by ultrasound; an automated bladder ultrasound machine is available that calculates residual volume and can be used by clinicians not trained in ultrasound.

Treatment of overt PUR is intermittent catheterization; routine use of antibiotics is not necessary [66]. Pharmacological therapies are not effective. Catheterization is indicated if the bladder can be palpated abdominally and the woman is unable to void or she voids only small amounts suggestive of overflow. There is no standard protocol for catheterization. In general, catheterization is performed every four to six hours or when the patient has an urge to void, but is unable. If the patient is able to void a small volume, then she is instructed to perform self-catheterization to determine the residual volume. It is reasonable to discontinue catheterization when the residual urine volume is <150 mL and the patient no longer has significant symptoms of voiding difficulty. These criteria are empiric; there is no evidence-based standard [66,74]. Routine use of antibiotics is unnecessary with intermittent self-catheterization [75]. (See "[Postoperative urinary retention in women](#)", section on '[Clean intermittent catheterization](#)'.)

**Hemorrhoids** — A prospective study of proctologic exams in 165 pregnant women found that 7.8 percent experienced thrombosed external hemorrhoids during late pregnancy [76]. Thirty-five percent experienced anal lesions in the postpartum period, with 20 percent having thrombosed external hemorrhoids and 15 percent having anal fissures. Of those women experiencing postpartum hemorrhoids, 91 percent were noted on the first day after delivery. Larger infants and traumatic delivery were suggested to be risk factors. Other studies have suggested the prevalence of self-reported hemorrhoids to be 30 percent at eight weeks postpartum and 13 to 25 percent at six months following delivery [77,78]. Hemorrhoids that become symptomatic should be treated ([table 2](#)). (See "[Treatment of hemorrhoids](#)".)

**Malodorous lochia** — The most common cause of malodorous lochia is a retained gauze sponge inadvertently left in situ after repair of an episiotomy or laceration. Removal of the foreign body will lead to resolution of the purulent discharge. Use of pre- and post-procedure sponge and instrument counts can minimize the occurrence of this complication.

**Urinary and anal incontinence** — Postpartum incontinence of urine, flatus, or feces are common in the immediate postpartum period and generally improve over the subsequent weeks. These issues are discussed at the post-partum visit to confirm resolution. Women with persistent symptoms may benefit from further intervention. (See ['Urinary and anal incontinence'](#) below.)

**Varicose veins** — Pregnancy is a risk factor for varicose veins, which may become symptomatic anytime during the antepartum or postpartum period. A study involving 611 consecutively delivered women found that 22 percent reported varicose veins prior to that pregnancy [79]. The risk was increased with increasing age, parity and family history. Twenty-eight percent of the 474 women who had no history of varicosities developed them during that pregnancy.

Another study evaluating the effectiveness of compression stockings during pregnancy noted that 50 percent of the 42 women enrolled developed emergent superficial varicose veins during the pregnancy [80]. Although compression stockings did not prevent varicose veins, more women in the treated group reported improvement in symptoms; thus, they can be useful for patient comfort. Evaluation and management are discussed in detail separately. (See ["Overview and management of lower extremity chronic venous disease"](#) and ["Vulvovaginal varicosities and pelvic congestion syndrome"](#).)

**Pruritus** — (See ["Adverse effects of neuraxial analgesia and anesthesia for obstetrics", section on 'Pruritus'](#).)

**Headache** — (See ["Headache in pregnant and postpartum women"](#).)

**POSTPARTUM COMPLICATIONS** — Data from the Nationwide Inpatient Sample of the Healthcare Cost and Utilization Project reported the prevalence of severe obstetric morbidity in over 8 million deliveries during 2004-2005 in the United States [81]. These complications and rates per 1000 deliveries were: blood transfusion (4.58), ventilation (0.57), adult respiratory distress syndrome (0.45), renal failure (0.28), shock (0.19), pulmonary embolism (0.18), and complications of anesthesia (0.11). All of these rates (except anesthesia complications) were higher in 2004-2005 than in 1998-1999; the authors attributed the increase to the higher rate of cesarean delivery in recent years. (See ["Overview of maternal mortality and morbidity"](#).)

**Excessive or prolonged postpartum bleeding** — Excessive postpartum bleeding usually occurs in the first 24 hours after delivery, but may occur later in the postpartum period (from 24 hours to 12 weeks after the delivery).

Vaginal bleeding that persists for more than about eight weeks after delivery is unusual and may be due to infection, retained products of conception, a bleeding diathesis, or, rarely, choriocarcinoma or a uterine vascular anomaly, as well as other causes. A temporary increase in bleeding at this time may represent menses; in such cases, bleeding should stop within a few days. New bleeding several weeks after delivery could also be related to a new pregnancy. The evaluation and management of excessive or prolonged postpartum bleeding are reviewed separately.

**Uterine inversion** — Uterine inversion is a rare complication of the involuting uterus, and an obstetrical emergency. If not promptly recognized and treated, uterine inversion can lead to severe hemorrhage and shock. (See ["Puerperal uterine inversion"](#).)

**Postpartum preeclampsia/eclampsia** — Preeclampsia/eclampsia can first manifest clinically in the postpartum period. Most, but not all, of these cases occur within 48 hours of the delivery. (See ["Preeclampsia: Clinical features and diagnosis"](#) and ["Eclampsia", section on 'Clinical presentation and findings'](#).)

**Postpartum fever and infection** — The United States Joint Commission on Maternal Welfare defines postpartum febrile morbidity as an oral temperature of 38.0 degrees Celsius ( $\geq 100.4$  degrees Fahrenheit) or more on any two of the first 10 days postpartum, exclusive of the first 24 hours. The first 24 hours are excluded because low grade fever during this period is common and often resolves spontaneously, especially after vaginal birth.

If fever is present, a physical examination should be performed to identify the source of infection and direct optimal therapy. Surgical site infections may occur at sites of episiotomy, lacerations, or cesarean delivery. Typical physical examination findings include cellulitis with redness and induration at the surgical site, which may or may not be accompanied by tenderness. Purulent incisional drainage may also be noted.

The following conditions should be considered in the differential diagnosis of postpartum fever:

- Urinary tract infection
- Wound infection (episiotomy or other surgical site infection)
- Mastitis or breast abscess
- Endometritis or deep surgical infection
- Septic pelvic thrombophlebitis
- Drug reaction
- Clostridium difficile-associated diarrhea

- Complications related to anesthesia

**Breakdown of perineal repair** — Perineal infections, and subsequent breakdown of previously repaired lacerations or episiotomies, are usually localized to the skin and subcutaneous tissue. On examination, the area appears swollen and erythematous with a purulent exudate. Treatment consists of opening the wound, drainage, irrigation, and debridement of foreign material and necrotic tissue. Antibiotics are not necessary unless there is accompanying cellulitis. The area will heal by granulation, but large defects may be resutured when the wound surface is free from exudate and covered by pink granulation tissue. Breakdown of perineal laceration repair has been associated with longer second stage of labor, operative vaginal delivery, mediolateral episiotomy, third and fourth degree lacerations and the presence of meconium stained amniotic fluid. (See "[Approach to episiotomy](#)", section on '[Complications](#)' and "[Delayed surgical management of the disrupted anal sphincter](#)".)

**Vulvar edema** — Vulvar edema has been associated with use of tocolytics for preterm labor [82], prolonged second stage of labor, and preeclampsia. It is not uncommon after delivery and, in most circumstances, can be managed with ice packs and other comfort measures to provide relief of symptoms. After resolution of bilateral labial edema, labial agglutination has been described, but is rare [83].

Rare cases of severe vulvar edema (both unilateral and bilateral) associated with maternal mortality have been reported [84,85]. In some of these cases, obstetrical procedures such as forceps delivery and proctoepisiotomy were performed and perineal trauma occurred. The combination of worsening vulvar edema, induration, perineal pain, and significant leukocytosis (>20,000/mm<sup>2</sup>) with a left shift characterized patients who had a fatal outcome; high fever and an immediately identifiable bacterial cause of infection were not always present. These patients should be monitored closely and given early empirical treatment with broad spectrum antibiotics that cover group A Streptococcus (GAS). Necrotizing fasciitis must be considered in the differential diagnosis of the postpartum patient with vulvar edema and severe vulvar pain, particularly when associated with fever, erythema, tachycardia, and hypotension. Surgical debridement is mandatory. (See "[Necrotizing soft tissue infections](#)".)

Rarely, vulvar edema can be a manifestation of hereditary angioedema. (See "[An overview of angioedema: Clinical features, diagnosis, and management](#)".)

**Surgical site infection** — Wound infection is diagnosed in 2.5 to 16 percent of patients after cesarean delivery [17], generally four to seven days after the procedure. (See "[Cesarean delivery: Postoperative issues](#)", section on '[Wound complications](#)'.)

**Endometritis** — Endometritis is more common following cesarean birth than following vaginal birth. The diagnosis of endometritis is largely based upon clinical criteria: fever; uterine tenderness; foul lochia; and leukocytosis, which develop within five days of delivery. A temperature  $\geq 100.4$  °F (38 °C) in the absence of other causes of fever, such as pneumonia, wound cellulitis, or urinary tract infection, is the most common sign. (See "[Postpartum endometritis](#)".)

**Mastitis or breast abscess** — Lactational mastitis is a localized, painful inflammation of the breast that occurs in breastfeeding women. Breast abscesses develop when mastitis or cellulitis is not treated or does not respond to antibiotic treatment. Diagnosis and management are discussed separately. (See "[Common problems of breastfeeding and weaning](#)" and "[Lactational mastitis](#)" and "[Primary breast abscess](#)".)

**Urinary tract infection** — Postpartum women are at increased risk of urinary tract infection. Several factors have been implicated, including catheterization, epidural anesthesia, and vaginal procedures [86,87]. A study using data from a Danish registry reported the prevalence of postpartum urinary tract infection was 2.8 percent after cesarean and 1.5 percent after vaginal birth [88]. Another study diagnosed bacteriuria on suprapubic sampling in 3.2 percent of postpartum women with bacteriuria on a voided midstream urine sample [87]. (See "[Acute complicated cystitis and pyelonephritis](#)".)

Urinary catheters should be removed as soon as they are no longer needed. (See "[Placement and management of urinary bladder catheters in adults](#)", section on '[Indications for catheterization](#)' and "[Placement and management of urinary bladder catheters in adults](#)", section on '[Catheter removal](#)'.)

**Septic pelvic thrombophlebitis** — The postpartum state is the major risk factor for development of septic pelvic thrombophlebitis, which occurs in the setting of pelvic vein endothelial damage and is usually associated with endomyometritis, venous stasis, and hypercoagulability. However, it is a rare postpartum complication. (See "[Septic pelvic thrombophlebitis](#)".)

**Complications of anesthesia** — Complications of general anesthesia, such as aspiration pneumonia, can cause postpartum fever. (See "[Aspiration pneumonia in adults](#)" and "[Anesthesia and anesthetic choices](#)".)

Postdural puncture headache (also called post-spinal headache) after neuraxial analgesia is due to leakage of CSF through a dural rent, traction on cranial structures, and cerebral vasodilation. The pathognomonic quality of this headache is its positional nature, worsened by sitting or standing and relieved by lying down. If the headache does not have this quality, other causes of headache should be sought. (See "[Adverse effects of neuraxial analgesia and anesthesia for obstetrics](#)", section on '[Postdural puncture headache](#)'.)

Epidural abscess or meningitis are uncommon complications of neuraxial block. (See "[Adverse effects of neuraxial analgesia and anesthesia for obstetrics](#)", section on '[Infection](#)'.)



**Clostridium difficile-associated diarrhea** — Clostridium difficile-associated diarrhea has been reported in pregnant and, more commonly, postpartum women [89,90]. Manifestations of the disease include watery diarrhea up to 10 or 15 times daily with lower abdominal pain cramping, low grade fever, and leukocytosis. These symptoms generally occur in the setting of recent antibiotic administration. Initial treatment generally involves cessation of the causative antibiotic and initiation of oral therapy with [metronidazole](#). Diagnosis and treatment are discussed in detail separately. (See "[Clostridium difficile infection in adults: Clinical manifestations and diagnosis](#)" and "[Clostridium difficile in adults: Epidemiology, microbiology, and pathophysiology](#)" and "[Clostridium difficile in adults: Treatment](#)".)

**Peripartum cardiomyopathy** — Peripartum cardiomyopathy (PPCM) is a rare, potentially lethal disorder of unknown etiology. It is defined by the development of a reduced left ventricular ejection fraction in the last month of pregnancy or within five months of delivery, in the absence of an identifiable cause for the cardiac failure or recognizable heart disease. Inflammatory and autoimmune factors are thought to be involved. Risk factors include older age, multiparity, and African descent. (See "[Peripartum cardiomyopathy: Etiology, clinical manifestations, and diagnosis](#)".)

**Chest pain** — Postpartum chest pain can be due to cardiovascular, pulmonary, gastrointestinal, or musculoskeletal disease or a presenting symptom of panic disorder or depression (see "[Outpatient evaluation of the adult with chest pain](#)", section on 'Etiologies'). Although the absolute prevalence is small, there is an increased risk of pulmonary embolism, acute myocardial infarction, and possibly aortic dissection in pregnant/postpartum women compared to aged-matched nonpregnant women.

**Postpartum neuropathy** — Postpartum neuropathy complicates approximately 1 percent of deliveries [91]. Postpartum nerve deficits are usually mononeuropathies that result from compression, stretch, transection, or vascular injury. The most commonly injured nerve is the lateral femoral cutaneous nerve, but injuries may also involve the femoral nerve, peroneal nerve, lumbosacral plexus, sciatic nerve, and obturator nerve [91]. Rarely, neuropathic symptoms can reflect complications that directly result from neuraxial anesthesia, such as epidural hematoma and epidural abscess [92].

Risk factors for postpartum neuropathy include fetal macrosomia or malpresentation, sensory blockade (can impair recognition of discomfort), prolonged lithotomy position, prolonged second stage of labor, extremes of maternal weight, and improper use of leg stirrups or retractors [93]. However, many of these factors are interdependent (eg, prolonged lithotomy position and prolonged second stage).

Affected women present with pain, weakness, and/or sensory abnormalities in the lower extremities. The precise presentation depends on the nerve affected:

- Patients with significant femoral neuropathy develop weakness involving the quadriceps muscle group with sparing of adduction. In addition to muscle weakness, sensory loss over the anterior thigh and most of the medial thigh is typical.
- The lateral femoral cutaneous nerve does not contain motor fibers; thus neurologic symptoms are restricted to sensory changes. Lateral hip pain accompanied by paresthesias (burning pain) or hypesthesias (numbness and tingling) over the upper outer thigh is the classic presentation of compression of this nerve. (See "[Neurologic disorders complicating pregnancy](#)", section on 'Meralgia paresthetica'.)
- Peroneal nerve compression results in foot drop. It can be caused by prolonged squatting, sustained knee flexion, or pressure on the fibular head from stirrups or palmar pressure during pushing.
- Obturator neuropathies are an uncommon complication of delivery and present with medial thigh pain and adductor weakness.

Evaluation generally includes a detailed physical exam of the lower extremities with a focus on musculoskeletal, vascular, and neurologic function [92]. A back exam includes range of motion, palpation, and maneuvers that aggravate radicular pain. A focused neurologic examination can define the pattern of motor and sensory impairment. We suggest spinal imaging in women with significant back pain with unexplained fever, worsening neurologic symptoms, coagulopathy, and immunosuppression, or in women whose motor/sensory symptoms localize to the spinal cord. Imaging can identify women with epidural hematoma, abscess, demyelination, and disc herniation.

Treatment depends on the woman's symptoms. For pain, antiinflammatory drugs are the first line of treatment [92]. Additional pain treatment can include neuropathic pain medications (must assess for compatibility with breast feeding), topical patches, or peripheral nerve block (for intractable pain). Muscle weakness is assessed by a physical therapist, who can assess patient safety (eg, need for support braces, information on moving) and provide muscle strengthening. Most women will have spontaneous resolution of their symptoms over days to weeks; the median time for recovery is eight weeks [91,94]. A detailed discussion on the management of peripheral neuropathy in general is found elsewhere. (See "[Overview of polyneuropathy](#)".)

**Pelvic girdle pain and other musculoskeletal pain** — Pain from increased mobility of the pubic symphysis, as well as from pelvic girdle syndrome (pain in all three pelvic joints) or unilateral/bilateral sacroiliac joint pain, may occur before or after delivery. Several other musculoskeletal disorders may develop or flare during pregnancy or the postpartum period (eg, rheumatoid arthritis). Diagnosis and treatment are discussed separately. (See "[Musculoskeletal changes and pain during pregnancy and postpartum](#)".)

## DISCHARGE PLANNING

**Length of stay** — There is sparse, low-quality evidence on the optimal length of stay after delivery. Although atypical, discharge as early as one day after scheduled cesarean delivery has been reported to be safe for mothers and infants and satisfactory to mothers in some populations [95].

An expert panel of the World Health Organization agreed with most published guidelines that state a mother and healthy, term baby of an uncomplicated delivery should be observed by a skilled attendant for 24 to 48 hours after birth [96]. If the mother and baby are discharged from the birth facility before 48 hours, then assessment by a qualified professional or skilled attendant within 24 to 48 hours after discharge should be encouraged. Based on epidemiological data, the first 24 to 48 hours are the most critical time for the woman and the baby; therefore, individualized skilled care during the immediate postnatal period can be life-saving.

The American College of Obstetricians and Gynecologists (ACOG) recommends that, in cases of postpartum discharge prior to 48 hours after a vaginal delivery or 96 hours after a cesarean delivery (excluding the day of delivery), certain criteria should be met [97]. These include: normal maternal vital signs, adequate voiding, ability to tolerate diet, normal amount of lochia, adequate pain control, no evidence of infection, ability to ambulate and care for the newborn, and emotional stability. In addition, all laboratory results should have been addressed, including need for anti-D [immune globulin](#) if appropriate, instruction should be given for normal postpartum activities/exercise, and support resources for the new mother should be identified prior to discharge. Warning signs of serious maternal and infant postdelivery complications, including how to contact their healthcare provider, should be reviewed.

The American Academy of Pediatrics (AAP) recommends that all breastfeeding newborns be evaluated by an experienced health care provider at 3 to 5 days of age [98].

**Patient education** — Prior to the patient's discharge, she should be instructed on expected normal postpartum changes and care of herself (breasts, perineum, etc) and newborn. (See "[Overview of the routine management of the healthy newborn infant](#)".)

All patients should be told they can call their provider if they have questions or concerns. Patients should also be instructed about signs of possible complications that should prompt them to seek further medical advice; these include, but are not limited to:

- Postpartum hemorrhage (eg, bleeding that saturates a peripad within an hour)
- Fever
- New or worsening perineal or uterine pain
- Dysuria
- Breast problems (see "[Common problems of breastfeeding and weaning](#)")
- Leg pain or swelling (see "[Clinical presentation and diagnosis of the nonpregnant adult with suspected deep vein thrombosis of the lower extremity](#)")
- Significant mood disturbance (eg, affecting relationships or normal activity) (see "[Postpartum unipolar major depression: Epidemiology, clinical features, assessment, and diagnosis](#)")

Severe pain in any location (eg, headache, chest pain, abdominal pain) is a cause for concern, as in any individual.

Some hospitals offer new mother classes to provide this information in a group setting. Written information reinforcing these topics is often given to take home for future reference. Referral information for local support services, such as La Leche League, can also be provided.

The patient should be instructed on the timing of expected follow-up visits for both herself and her infant (see '[Postpartum follow-up visit](#)' below). Healthy full term breastfeeding infants that are sent home within the first 48 hours of life should be seen within 96 hours after discharge by a trained health care provider [99]. A routine pediatric preventative care visit is typically scheduled two weeks after discharge.

**Activity** — There are no data on which to base recommendations regarding postpartum activity. In particular, there are no strong data on which to base restrictions on lifting, climbing stairs, bathing, swimming, driving, or resuming vaginal intercourse, exercise, or work after delivery [100]. A reasonable approach is to tell the mother to resume activities such as housework, driving, exercise, and sexual intercourse when she is comfortable performing these activities and she should limit or avoid activities that cause pain or excessive fatigue. She should not engage in activities that require mental alertness (eg, driving or operating potentially dangerous equipment) until she has stopped using narcotic analgesics, which can affect alertness and performance.

Vaginal intercourse can probably be resumed safely in most women as early as two weeks postpartum, as long as the perineum is healed, contraception is available, and the patient is ready. However, most women will not be ready to resume coitus this soon after delivery because of fatigue, low sexual desire, pain, vaginal dryness or discharge, religious/cultural practices, psychological factors, or possibly postpartum blues or depression.

The abdominal wall regains most, if not all, of its normal muscular tone over several weeks. Exercise may prevent abdominal muscle separation (rectus abdominus diastasis) but the extent to which exercise or other measures resolve or hasten resolution of diastasis is not known for certain. (See ["Rectus abdominis diastasis", section on 'Spontaneous resolution'](#).)

An abdominal exercise program can be started, if desired, any time after vaginal birth or after healing of an abdominal incision from cesarean delivery. Some evidence suggests that lifting 20 pounds, climbing stairs, and abdominal crunches generate no more intraabdominal force than rising from a chair [101]. There are also data that unsutured fascial wounds achieve 30 to 50 percent of unwounded tissue strength after four to six weeks [102]; the recovery of sutured wounds may be faster.

As discussed above, pelvic muscle exercises may be useful in strengthening the pelvic floor. (See ["Urinary incontinence and pelvic organ prolapse associated with pregnancy and childbirth", section on 'Prophylactic pelvic floor muscle exercises'](#).)

**Contraception** — Most women resume sexual relations by six weeks postpartum, which is the most common time for a postpartum office visit; therefore, contraceptive plans should be discussed before the woman leaves the hospital. Postpartum contraception counseling improves use and leads to fewer unplanned pregnancies [103]. In women not exclusively breastfeeding, ovulation can occur as early as 25 days after delivery so contraception should be initiated no later than the third postpartum week. In exclusively breastfeeding women, return of ovulation occurs later and is less predictable; timing of initiation of contraceptive depends on the contraceptive method, as hormonal methods may affect lactation. (See ["Postpartum contraception"](#).)

**MATERNAL ISSUES (LATE)** — Additional issues may arise after discharge.

**Readmission** — Review of a database including over 200,000 postpartum women observed from delivery through 180 postpartum days (6½ months) found that 1.2 percent were readmitted within six weeks (0.83 percent after vaginal delivery and 1.8 percent after cesarean delivery;  $P < 0.001$ ) [104]. The most common reasons for readmission were hypertension and uterine and wound complications, particularly infection and hemorrhage. Gallbladder disease, urinary tract infection, mastitis, and specific medical/surgical conditions were the next most common reasons for readmission. After cesarean delivery, deep venous thrombosis, cardiomyopathy, and pneumonia were relatively common. Appendicitis was significantly more common in the first six weeks postpartum than in the next 20 weeks.

**Urinary and anal incontinence** — Postpartum incontinence of urine, flatus, or feces is common in the first year after childbirth yet is often not addressed by healthcare providers. In a prospective cohort study of over 1500 nulliparous women, 47 percent of women reported urinary incontinence and 17 percent reported anal incontinence in the first 12 months after delivery [105]. However, of the 86 percent of women who saw a healthcare provider during the first three months postpartum, only 23 to 24 percent of women were asked about urinary incontinence symptoms and 17 percent were asked about anal incontinence symptoms. This study highlights the need for healthcare providers to discuss postpartum incontinence symptoms with women.

In addition, the presence of postpartum urinary incontinence is a risk factor for long term urinary incontinence. A 12-year longitudinal cohort study reported that 38 percent of overall respondents had persistent urinary incontinence [106]. Of those with urinary incontinence at three months postpartum, 76 percent still reported symptoms at 12 years. Those women with only vaginal deliveries were more likely to report urinary incontinence when compared with those who had only cesarean deliveries. Older age at first birth, overweight/obesity, and greater parity were also risk factors for persistent urinary incontinence.

Details of urinary and anal incontinence are discussed separately. (See ["Treatment of urinary incontinence in women"](#) and ["Urinary incontinence and pelvic organ prolapse associated with pregnancy and childbirth"](#) and ["Effect of pregnancy and childbirth on anal sphincter function and fecal incontinence"](#).)

**Sexual dysfunction** — Postpartum sexual dysfunction is common. In a study of over 1400 primiparous Australian women who returned a postpartum questionnaire, 89 percent reported sexual health issues in the first three months postpartum and about one-half reported three or more sexual health concerns [107]. Factors beyond delivery that can contribute to postpartum sexual dysfunction include perineal trauma [108]; emergency cesarean delivery or vacuum assisted vaginal delivery [109]; low estrogen and lubrication levels, particularly in breastfeeding women [110]; and postpartum mood changes, fatigue, and time constraints [111].

Although this study reported that problems such as lack of lubrication and pain returned to pre-pregnancy levels by 12 months postpartum, the rate of low libido remained higher compared with pre-pregnancy values (51 and 42 percent, respectively) [107]. Despite low desire for sexual activity, 78 percent of women had resumed vaginal sex by 3 months postpartum and 97 percent by 12 months postpartum. Since postpartum issues, particularly low libido, may not resolve with time, clinicians should continue to question women about their sexual function at follow-up visits, even if sexual function is not the indication for the visit. In the Australian study, only one-quarter of women who visited a general practitioner remembered being asked about sexual function during the first three months postpartum. (See ["Sexual dysfunction in women: Epidemiology, risk factors, and evaluation", section on 'Childbirth'](#) and ["Differential diagnosis of sexual pain in women", section on 'Postpartum'](#).)

**Mental health issues** — We screen all women for postpartum depression, as recommended by the American College of Obstetricians and Gynecologists (ACOG), the American Academy of Pediatrics (AAP), and the United States Preventive Service Task Force Recommendation Statement [112-115]. The validated questionnaire most commonly used for screening

pregnant and postpartum women is the Edinburgh Postnatal Depression Scale (EPDS) ([figure 2](#) and [figure 3](#)), but other validated tools can be used [\[112\]](#). The rationales for screening include that postpartum depression is common, the combination of screening and adequate support improves clinical outcomes, and treatment (particularly with cognitive behavioral therapy) is associated with symptom remission [\[113\]](#). Direct and indirect evidence support a net benefit from screening and an absence of harm. Depression screening is performed at the routine postpartum visit, but consideration should be given to additional earlier screening and follow-up in patients at high risk for depression. Screening is appropriate whether or not the patient has a prior history of depression or depressive disorder. (See "[Postpartum unipolar major depression: Epidemiology, clinical features, assessment, and diagnosis](#)", section on 'Assessment'.)

In addition to postpartum depression, post-traumatic stress disorder (PTSD) and postpartum psychoses have been reported in women after childbirth. The prevalence varies depending on the definition used and time of assessment after delivery [\[116\]](#). Possible risk factors for PTSD include pre-pregnancy stress (eg, sexual trauma, high anxiety), pregnancy-related issues (eg, fear of childbirth, low support, perceived lack of control, maternal morbidity), and delivery issues (emergency cesarean, instrumental vaginal), but available data are not robust or consistent [\[117,118\]](#). Postpartum psychoses are less common, but serious and potentially life-threatening disorders.

- (See "[Postpartum psychosis: Epidemiology, pathogenesis, clinical manifestations, course, assessment, and diagnosis](#)".)
- (See "[Posttraumatic stress disorder in adults: Epidemiology, pathophysiology, clinical manifestations, course, assessment, and diagnosis](#)".)
- (See "[Bipolar disorder in postpartum women: Epidemiology, clinical features, assessment, and diagnosis](#)".)

**Thyroid disease** — Abnormal thyroid function is a frequent complication in the puerperium. A systematic review reported the prevalence of postpartum thyroid dysfunction was about 8 percent for the general population [\[119\]](#). The risk was increased more than two-fold in women with type 1 diabetes and more than five-fold in women with antithyroid peroxidase antibodies. Approximately 20 to 30 percent of women with postpartum thyroiditis have the characteristic sequence of hyperthyroidism, which usually begins one to four months after delivery and lasts two to eight weeks, followed by hypothyroidism, which also lasts from two to eight weeks, and then recovery. However, 20 to 40 percent have only hyperthyroidism, and the remaining 40 to 50 percent have only hypothyroidism, which begins two to six months after delivery. Symptomatic women should undergo laboratory evaluation. (See "[Postpartum thyroiditis](#)".)

**Postpartum weight retention** — Weight retained after pregnancy is defined as the difference between postpartum and prepregnancy weight. The Institute of Medicine (IOM) estimated that at six months postpartum or later, mean postpartum weight retention was 5.4 kg (11.8 pounds), approximately half of women retained more than 4.5 kg (10 pounds) and one-quarter retained more than 9.1 (20 pounds) [\[120\]](#). This weight gain exceeds that observed in comparable nulliparous women over the same period of time [\[121\]](#).

Approximately one-half of gestational weight gain is lost in the first six weeks after delivery, with a slower rate of loss through the first six months postpartum [\[122\]](#).

Risk factors for weight retention include:

- Excessive weight gain during pregnancy – Women who gain more than the IOM guideline are twice as likely to retain  $\geq 9$  kgs postpartum [\[123,124\]](#).
- Black race – Black women retain more weight than white women, despite comparable prepregnancy BMI or weight gain during pregnancy [\[123,125\]](#).
- Obesity – An increasing BMI correlates with an increased tendency to postpartum weight retention [\[123\]](#).
- Quitting cigarette smoking – Women who quit smoking during pregnancy and do not resume postpartum are at high risk of retaining weight [\[126\]](#).

Other factors that appear to be associated with postpartum weight retention are maternal age (adolescents are at high risk), parity, ethnicity, marital status, pregnancy interval, and return to work [\[123\]](#).

Excessive weight gain during pregnancy and failure to lose weight postpartum appear to predict higher body mass index long after delivery [\[127-130\]](#). A study with long-term follow-up reported women who attained their prepregnancy weight by six months postpartum had less increase in long-term weight gain than those who did not (2.4 versus 8.3 kg) [\[128\]](#). In another series, women who had large weight gains during the first pregnancy and/or retained weight after delivery were at higher risk of doing so in subsequent pregnancies, thereby increasing their long-term risk for obesity with each pregnancy [\[129\]](#).

The best strategy for achieving postpartum weight reduction has not been determined. In a 2013 systematic review of the effect of diet and/or exercise for postpartum weight reduction, diet or diet and exercise facilitated postpartum weight loss, and appeared to be safe for both breastfeeding and non-breastfeeding women and their infants [\[131\]](#). The use of exercise has advantages such as improvement of maternal cardiorespiratory fitness and preservation of fat-free mass, while use of diet alone reduces fat-free mass. The appropriate rate of return to prepregnancy weight is unclear; some experts suggest an interval of six months to one year, or 0.5 kg/week [\[130,132,133\]](#). (See "[Obesity in adults: Overview of management](#)".)

Breastfeeding may help women avoid long-term postpartum weight retention. Data from the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) showed a slight benefit: women breastfeeding for 20 weeks or more began their second pregnancy with 0.39 kg less retained weight than their non-breastfeeding counterparts [134]. A more clinically significant effect was observed in a prospective cohort study that found 0.5 kg postpartum weight retention at three years for women exclusively breastfeeding for six months versus 4.8 kg for those who never exclusively breastfed [135].

**Postpartum weight gain** — A large interpregnancy weight gain has adverse effects on a subsequent pregnancy, even in women with low prepregnancy BMI [136,137]. In a cohort study of over 200,000 women who had two consecutive singleton pregnancies within 10 years (mean interval two years), the difference in maternal prepregnancy BMI between first and second pregnancies was determined and compared with pregnancy outcomes [136]. Compared to women whose BMI changed -1.0 to +0.9 units, a three unit increase in BMI (about 9 kg for a woman of average height) between pregnancies was associated with significantly increased risks of preeclampsia, gestational hypertension, gestational diabetes, cesarean delivery, large-for-gestational age infant, and stillbirth in the second pregnancy. The increase in risk was related linearly to the amount of weight gained in the interpregnancy interval, and was also noted in women who gained weight but whose BMI remained in the normal range. The effect of a modest to large weight loss (more than -1 BMI units or at least 3 kg) between pregnancies could not be evaluated because there were too few women in this subgroup.

**POSTPARTUM FOLLOW-UP VISIT** — There are no strong data to guide the optimum frequency, content, or sites (home versus office versus telephone contact) for postpartum follow-up [138,139]. An early postpartum visit at one to two weeks postpartum should be considered for women with cesarean delivery, medical issues that require close follow-up and women at risk for postpartum depression (eg, past episodes of depression, family history of mood disorder, concurrent stressful life events). (See "[Postpartum unipolar major depression: Epidemiology, clinical features, assessment, and diagnosis](#)".)

The routine postpartum visit should occur four to six weeks after delivery [97]. The Pregnancy Risk Assessment Monitoring System (PRAMS) reported 89 percent of US women had a postpartum care visit, although the rate was significantly lower in some subgroups (71 percent for women with <8 years of education, 66 percent for women who had not received prenatal care) [140].

At this visit, the provider should assess the patient's adjustment to life with the new infant and update her history. Any problems that the patient perceives should be addressed. Routine topics that are readdressed at the follow-up visit include: the health of the infant, patient's mood, contraceptive plan, return to sexual activity, and any difficulties with breastfeeding. As noted above, we screen women for postpartum depression at the postpartum visit. (See "[Mental health issues](#)" above.)

For the patient who is continuing to breastfeed at the postpartum visit, encouragement from the health care provider and discussion aimed at resolving breastfeeding challenges at this time has been correlated with improved breastfeeding continuation rates at four months postpartum [141] (see "[Common problems of breastfeeding and weaning](#)"). Women planning to return to work outside the home can be instructed on techniques for breast milk expression and storage while away from the child [142] (see "[Patient education: Pumping breast milk \(Beyond the Basics\)](#)"). The mother who has decided not to breast pump during work hours should be encouraged that partial breastfeeding continues to provide the infant with health benefits.

While reviewing contraception at the postpartum visit, it is ideal to discuss plans for future pregnancy. Both short (less than 6 months) and long (greater than 60 months) interpregnancy intervals are associated with increased risks of adverse outcome. The optimal interpregnancy interval is approximately 18 to 59 months. However, prolonging the interpregnancy interval may not be the best option for women over age 35 or those with a strong family history of early menopause. (See "[Interpregnancy interval and obstetrical complications](#)".)

Complications that occurred during the pregnancy or postpartum should be reviewed in terms of the cause, risk of recurrence, and prevention, if possible (see individual topic reviews on pregnancy complications). Any underlying medical conditions that were present prior to or during the pregnancy should be addressed at the postpartum visit. Timing of appropriate follow-up examinations should be reviewed. As an example, approximately six to eight weeks after delivery, women with gestational diabetes should undergo an oral glucose tolerance test [143] (see "[Gestational diabetes mellitus: Glycemic control and maternal prognosis](#)", section on 'Follow-up and prevention of type 2 diabetes'). Screening mammography should also be discussed in women age 40 and older. (See "[Screening for breast cancer: Strategies and recommendations](#)".)

Physical examination at the postpartum visit includes assessment of vital signs, thyroid, breasts (fissures, tenderness, lumps, skin changes), abdomen (diastasis, hernias), external genitalia/perineum (wound healing, fistulas), vagina (pelvic support), cervix, uterus/adnexa (size, tenderness, masses), and extremities. Screening for cervical cancer should follow standard guidelines for cervical cancer screening, unless compliance with follow-up is an issue. (See "[Screening for cervical cancer](#)" and "[Cervical cancer screening tests: Techniques for cervical cytology and human papillomavirus testing](#)".)

Consideration of vaccination against HPV should be given to women who are candidates. (See "[Recommendations for the use of human papillomavirus vaccines](#)".)

**INFORMATION FOR PATIENTS** — UpToDate offers two types of patient education materials, "The Basics" and "Beyond the Basics." The Basics patient education pieces are written in plain language, at the 5<sup>th</sup> to 6<sup>th</sup> grade reading level, and they answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a

general overview and who prefer short, easy-to-read materials. Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are written at the 10<sup>th</sup> to 12<sup>th</sup> grade reading level and are best for patients who want in-depth information and are comfortable with some medical jargon.

Here are the patient education articles that are relevant to this topic. We encourage you to print or e-mail these topics to your patients. (You can also locate patient education articles on a variety of subjects by searching on "patient info" and the keyword (s) of interest.)

- Basics topic (see "[Patient education: Labor and delivery \(childbirth\) \(The Basics\)](#)")
- Beyond the Basics topics (see "[Patient education: Deciding to breastfeed \(Beyond the Basics\)](#)" and "[Patient education: Common breastfeeding problems \(Beyond the Basics\)](#)" and "[Patient education: Maternal health and nutrition during breastfeeding \(Beyond the Basics\)](#)" and "[Patient education: Pumping breast milk \(Beyond the Basics\)](#)")

## SUMMARY AND RECOMMENDATIONS

- Optimal post-delivery hospital routines include: rooming-in, on demand newborn feeding schedules, and providing for the educational needs of the new parents. (See '[Routine procedures](#)' above.)
- Postpartum laboratory testing should be based on specific indications, not routine. Pertinent laboratory testing should be reviewed prior to discharge and appropriate immunizations should be offered. (See '[Laboratory testing](#)' above and '[Immunization](#)' above.)
- Postpartum care should focus on identifying women at risk for significant short term morbidity. (See '[Maternal monitoring](#)' above and '[Postpartum complications](#)' above.)
- In accordance with guidelines from multiple organizations, we screen all women for postpartum depression. Programs that combine screening and adequate support systems improve clinical outcomes in pregnant and postpartum women. (See '[Mental health issues](#)' above.)
- The contraceptive desires of the couple should be addressed prior to hospital discharge and appropriate prescriptions given. (See '[Contraception](#)' above.)
- Outpatient follow-up care should address: patient mood, sexual activity, contraception, preexisting medical conditions, infant feeding method, and the timing of future visits for health care screening. (See '[Postpartum follow-up visit](#)' above.)

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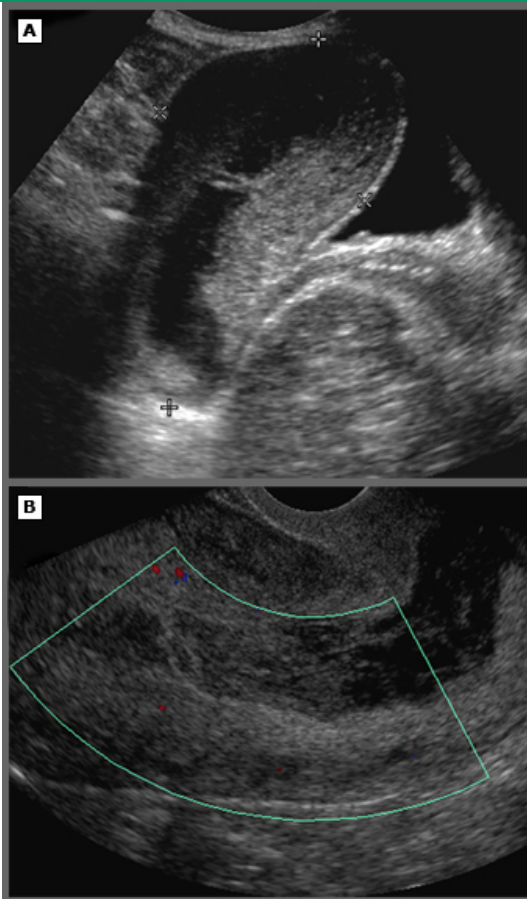
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## GRAPHICS

### Fluid and debris in postpartum uterus

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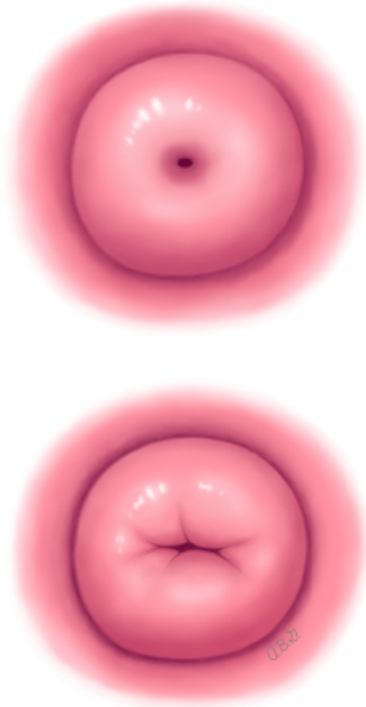
(A) Transabdominal sagittal greyscale image and (B) transvaginal color Doppler image from a 35-year-old woman two weeks postpartum with vaginal bleeding. Note the fluid and debris in the uterus. The color Doppler image shows no flow within the debris.

*Courtesy of Deborah Levine, MD.*

Graphic 73717 Version 4.0

## Parous and nonparous cervix

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(top) Normal nulligravid cervix: The external os is a small, smooth circular opening. (bottom) Normal parous cervix: The external os is a large, transverse, stellate slit.

*Modified from: Pritchard, JA, MacDonald, PC. Williams obstetrics. 16th ed, Appleton-Century-Crofts, Prentice Hall, New York 1981. p. 23.*

Graphic 72718 Version 3.0

### Symptoms related to blood loss with postpartum hemorrhage

<b>Blood loss, percent (mL)</b>	<b>Blood pressure, mm Hg</b>	<b>Signs and symptoms</b>
10 to 15 (500 to 1000)	Normal	Palpitations, lightheadedness, mild increase in heart rate
15 to 25 (1000 to 1500)	Slightly low	Weakness, sweating, tachycardia (100 to 120 beats/minute)
25 to 35 (1500 to 2000)	70 to 80	Restlessness, confusion, pallor, oliguria, tachycardia (120 to 140 beats/minute)
35 to 45 (2000 to 3000)	50 to 70	Lethargy, air hunger, anuria, collapse, tachycardia (>140 beats/minute)

*Adapted from: Bonnar J. Baillieres Best Pract Res Clin Obstet Gynaecol 2000; 14:1.*

Graphic 56885 Version 3.0

## Medications for treatment of symptomatic hemorrhoids in adults\*

Drug	Dose	Role and precautions
<b>Anesthetics, local</b>		
Benzocaine 5 to 20% rectal ointment (eg, Americaine)	Sparingly up to six times per day	<ul style="list-style-type: none"> <li>Temporary relief of acute pain and pruritus.</li> <li>Intended for short-term, intermittent use.</li> <li>Local burning is common.</li> <li>Systemic absorption is variable.</li> <li>Rare methemoglobinemia described with use of benzocaine, particularly if excessive.</li> </ul>
Dibucaine 1% rectal ointment (eg, Nupercainal)	As needed (no more than 30 grams of 1% ointment per day)	
Pramoxine 1% rectal foam, ointment, wipes (eg, Proctofoam, Pramox)	As needed up to five times daily	
<b>Astringent and protectants, topical</b>		
Witch hazel (eg, Tucks, Preparation H pads)	As needed up to six times per day or after each bowel movement	<ul style="list-style-type: none"> <li>May dry secretions and tighten tissues.</li> <li>Well tolerated; rare allergy.</li> <li>Zinc oxide has protectant, astringent, and antiseptic properties.</li> </ul>
Zinc oxide topical paste (eg, Boudreaux's Butt Paste, Desitin)	As needed	
<b>Bulk-forming laxatives, oral*</b>		
Methylcellulose (eg, Citrucel)	Initially 1 tablespoon ( $\approx$ 2 grams fiber) or 4 caplets (500 mg fiber per caplet) once per day; may increase to 1 tablespoon or 4 caplets three times per day	<ul style="list-style-type: none"> <li>Reduces bleeding and possibly symptoms in nonprolapsing hemorrhoids; gradual onset of effect over six weeks or more.</li> <li>Useful in patients with inadequate dietary fiber intake who may be at risk for constipation or diarrhea.</li> <li>Adequate oral fluid intake required.</li> <li>Gradually increase dose as needed to minimize gas and bloating.</li> <li>Administer with 180 to 360 mL (6 to 12 ounces) water or fruit juice.</li> <li>Do not administer within one hour of other medications.</li> <li>Avoid in patients with or at risk for stricture.</li> </ul>
Polycarbophil (eg, FiberCon, Konsyl)	Initially 1 to 2 tablets (500 mg fiber per tablet) per day; may increase to 2 to 4 tabs per day	
Psyllium (eg, Metamucil)	Initially 1 tablespoon ( $\approx$ 3.5 grams fiber) once per day; may increase to 1 tablespoon three times per day	
Wheat dextrin (eg, Benefiber)	Initially 1 caplet (1 gram fiber) or 1 teaspoonsful (1.5 gram fiber) per day; may increase to 1 to 3 caplets or 2 teaspoonsful three times per day	
<b>Corticosteroids, topical</b>		
Hydrocortisone rectal creams 1 to 2.5% (eg, Anusol-HC, Preparation H, Proctosol); Hydrocortisone rectal suppository 25 to 30 mg (eg, Anusol-HC)	Rectal cream: Apply sparingly up to two times daily Suppository: 1 suppository twice daily	<ul style="list-style-type: none"> <li>Provides local antiinflammatory and analgesic effect.</li> <li>For intermittent short-term use (ie, no more than seven days) due to risk of mucosal thinning; refer to text</li> <li>Avoid in persons with local infection.</li> <li>Variable systemic absorption; caution in pregnancy.</li> </ul>
<b>Stool softeners, oral</b>		
Docusate sodium	100 to 200 mg orally two times per day	<ul style="list-style-type: none"> <li>Decreases straining.</li> <li>Well tolerated. Use lower dose if administered with another laxative. Contact dermatitis reported.</li> </ul>
<b>Vasoactive agents, topical</b>		
Nitroglycerin (glyceryl trinitrate) 0.2 to 0.5% ointment <sup>1</sup>	Pea-sized amount applied twice per day	<ul style="list-style-type: none"> <li>Potential option for managing pain associated with anal sphincter spasm or thrombosed external hemorrhoids.</li> <li>Systemic adverse effects (eg, headache) are common.</li> <li>Frequent choice for temporary relief of acute symptoms (ie, bleeding or pain on defecation).</li> <li>Well tolerated; rare systemic effects.</li> </ul>
Phenylephrine 0.25% (Preparation-H, Rectacaine)	Ointment: Apply up to four times per day Suppository: 1 suppository per rectum up to four times per day	

- Medical therapy for internal hemorrhoids may be useful for controlling symptoms in lower grade disease and acute bleeding in higher grade hemorrhoids pending definitive therapy (eg, banding, sclerotherapy, cryotherapy, or surgery).
- Before applying topical preparations, the affected area should be gently cleansed and allowed to dry.
- A large number of topical preparations are available in addition to those listed in this table; evidence of efficacy for most is lacking.

- Trade names shown in parentheses are for products available without a prescription in US and some other countries. Most preparations are also available as generic products and marketed under multiple other brand names.

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\* A high-fiber diet and increased fluid intake is recommended in most patients with hemorrhoidal disease to soften stools and prevent the need for straining. Patients should also be counseled to avoid prolonged sitting or straining on toilet, on improving anal hygiene, and avoiding triggers of constipation or diarrhea. Recommendations on dietary fiber intake are provided in accompanying text and a separate table within UpToDate.

¶ 0.4% nitroglycerin rectal ointment is available as a prescription product in US and other countries and has been studied for anal fissure. Other strengths of nitroglycerin ointment shown in table are **not** commercially available products in US.

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*Prepared with data from:*

1. Hall JF. *Modern management of hemorrhoidal disease. Gastroenterol Clin N Am* 42 (2013) 759.
2. Lorsirawat V. *Hemorrhoids: From basic pathophysiology to clinical management World J Gastroenterol* (2012) 18:2009.
3. Madoff RD, Fleshman JW. *American Gastroenterological Association technical review on the diagnosis and treatment of hemorrhoids. Gastroenterology* (2004) 126:1463.

Graphic 103146 Version 4.0



## Appendix A: Edinburgh postnatal depression scale (EPDS)

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Name \_\_\_\_\_

Date: \_\_\_\_\_

Number of Months Postpartum: \_\_\_\_\_

As you have recently had a baby, we would like to know how you are feeling. Please mark the answer which comes closest to how you have felt in the past **7 days**, not just how you feel today.

Here is an example, already completed:

I have felt happy:

- Yes, all the time
- Yes, most of the time
- No, not very often
- No, not at all

This would mean "I have felt happy most of the time during the past week". Please complete the following questions in the same way.

**In the past 7 days:**

1. I have been able to laugh and see the funny side of things
  - As much as I always could 0
  - Not quite so much now 1
  - Definitely not so much now 2
  - Not at all 3
  
2. I have looked forward with enjoyment to things
  - As much as I ever did 0
  - Rather less than I used to 1
  - Definitely less than I used to 2
  - Hardly at all 3
  
3. I have blamed myself unnecessarily when things went wrong
  - Yes, most of the time 3
  - Yes, some of the time 2
  - Not very often 1
  - No, never 0

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## Appendix A: Edinburgh postnatal depression scale (EPDS) (con't)

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In the past 7 days:

4. I have been anxious or worried for no good reason	
— No, not at all	0
— Hardly ever	1
— Yes, sometimes	2
— Yes, very often	3
5. I have felt scared or panicky for no very good reason	
— Yes, quite a lot	3
— Yes, sometimes	2
— No, not much	1
— No, not at all	0
6. Things have been getting on top of me	
— Yes, most of the time I haven't been able to cope	3
— Yes, sometimes I haven't been coping as well as usual	2
— No, most of the time I have coped quite well	1
— No, I have been coping as well as ever	0
7. I have been so unhappy that I have had difficulty sleeping	
— Yes, most of the time	3
— Yes, sometimes	2
— Not very often	1
— No, not at all	0
8. I have felt sad or miserable	
— Yes, most of the time	3
— Yes, quite often	2
— Not very often	1
— No, not at all	0
9. I have been so unhappy that I have been crying	
— Yes, most of the time	3
— Yes, quite often	2
— Only occasionally	1
— No, never	0
10. The thought of harming myself has occurred to me	
— Yes, quite often	3
— Sometimes	2
— Hardly ever	1
— Never	0

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A score of 12 or more identifies most women with postpartum depression. Women who report depressive symptoms without suicidal ideation or major functional impairment (or score between 5 and 9 on the EPDS) should be reevaluated within one month.

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### Contributor Disclosures

**Pamela Berens, MD** Nothing to disclose **Charles J Lockwood, MD, MHCM** Consultant/Advisory Boards: Celula [Aneuploidy screening (No current products or drugs in the US)]. **Kristen Eckler, MD, FACOG** Nothing to disclose

Contributor disclosures are reviewed for conflicts of interest by the editorial group. When found, these are addressed by vetting through a multi-level review process, and through requirements for references to be provided to support the content. Appropriately referenced content is required of all authors and must conform to UpToDate standards of evidence.

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