

Medications Commonly used in Maternal Newborn

Medication	Mechanism of Action/Use	Nursing considerations
Methotrexate	<p>Mechanism of Action (MOA): May exert immunosuppressive effects by inhibiting replication and function of T and possibly B lymphocytes.</p> <p>Indications: Medical therapy for unruptured ectopic pregnancies and gestational trophoblastic disease. Methotrexate effectively kills the rapidly dividing ectopic trophoblast.</p>	<ul style="list-style-type: none"> • Monitor results of CBC, chest-x-ray, liver and renal function tests, and urinalysis before and during treatment • Increase patient's fluid intake to 2-3 L daily, unless contraindicated, to reduce the risk of adverse GU reactions.
Mifepristone	<p>MOA: Mifepristone blocks progesterone by competitively binding its intracellular receptors (Autry and Wadhwa).</p> <p>Indications: Medical therapy that induces abortion. (Autry and Wadhwa).</p>	<ul style="list-style-type: none"> • Bleeding is expected on average for 9-16 days post-pregnancy termination (Autry and Wadhwa). • Mifepristone is contraindicated in patients with an ectopic pregnancy, hypersensitivity to prostaglandins, undiagnosed renal masses, concurrent IUD use, hemorrhagic disorders, and severe anemia (Autry and Wadhwa).
Rhogam	<p>MOA: Suppresses the mother's immune response and antibody formation against the fetal Rh-positive blood cells.</p> <p>Indications: Rh-negative mother having an Rh-positive baby.</p>	<ul style="list-style-type: none"> • Administer at 26-28 weeks gestation or within 72 hours of delivery, abortion, miscarriage, or another obstetrical event such as invasive testing, placental abruption, or abdominal trauma. • Administer IM in the deltoid or anterolateral thigh
Promethazine	<p>MOA: Prevents motion sickness, nausea, and vertigo by acting centrally on medullary chemoreceptive trigger zone and by decreasing vestibular stimulation and labyrinthine function in the inner ear.</p> <p>Indications: To treat or prevent nausea and vomiting.</p>	<ul style="list-style-type: none"> • Monitor respiratory function because the drug may suppress the cough reflex and cause the thickening of bronchial secretions. • Monitor patient's hematologic status as ordered because promethazine may cause bone marrow depression.
Pyridoxine and Doxylamine	<p>MOA: Doxylamine works by blocking the action of certain</p>	<ul style="list-style-type: none"> • Taken on an empty stomach with a full glass of water.

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	<p>natural substances in the body that may contribute to nausea and vomiting. Pyridoxine is given because a lack of pyridoxine in the body may also be a factor in causing nausea and vomiting during pregnancy.</p> <p>Indication: Nausea and vomiting in pregnant women.</p>	<ul style="list-style-type: none"> Swallow the extended-release and delayed-release tablets whole; do not split, chew, or crush them.
Ondansetron	<p>MOA: Blocks serotonin receptors centrally in the chemoreceptor trigger zone and peripherally at vagal nerve terminals in the intestine.</p> <p>Indications: To prevent nausea and vomiting.</p>	<ul style="list-style-type: none"> Know that if hypokalemia or hypomagnesemia is present, these electrolyte imbalances should be corrected before ondansetron is administered because of increased risk for QT-interval prolongation. Monitor the patient closely for signs and symptoms of hypersensitivity to ondansetron because hypersensitivity reactions, including anaphylaxis and bronchospasm, may occur.
Betamethasone	<p>MOA: betamethasone binds to specific intracellular glucocorticoid receptors and subsequently binds to DNA to modify gene expression. The synthesis of certain anti-inflammatory proteins is induced, while the synthesis of certain inflammatory mediators is inhibited. As a result, there is an overall reduction in chronic inflammation and autoimmune reactions.</p> <p>Indications: recommended for pregnant women between 34 and 36 weeks of gestation at risk of preterm birth within seven days and who have not received a previous course of antenatal corticosteroids.</p>	<ul style="list-style-type: none"> Monitor for signs of thrombophlebitis and thromboembolism Monitor and report signs of peptic ulcer, including heartburn, nausea, vomiting blood, tarry stools, and loss of appetite.
Indomethacin	<p>MOA: Indomethacin can prevent the body from releasing prostaglandins and cytokines and, as a result, delay preterm</p>	<ul style="list-style-type: none"> Women over 32 weeks pregnant should avoid taking indomethacin, given the potential for heart

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	<p>delivery when given at the onset of preterm labor.</p> <p>Indications: pregnant women presenting with preterm labor or shortened cervix.</p>	<p>problems in the baby.</p> <ul style="list-style-type: none"> • Women with a history of ulcers, bleeding disorders, or kidney or liver disease should also avoid taking indomethacin.
Magnesium Sulfate	<p>MOA: Magnesium depresses the CNS and blocks peripheral neuromuscular impulse transmission by decreasing available acetylcholine.</p> <p>Indications: To prevent and control seizures in preeclampsia or eclampsia.</p>	<ul style="list-style-type: none"> • Magnesium sulfate can cause fetal harm if administered continuously beyond 5 to 7 days to pregnant women, causing hypocalcemia and bone abnormalities in the developing fetus. • It is recommended that magnesium sulfate not be administered within 2 hours before delivery because of the risk of hypermagnesemia stimulated respiratory depression in the neonate.
Terbutaline Sulfate	<p>MOA: Prevent and slow contractions of the uterus. It may help delay birth for several hours or days.</p> <p>Indications: Preterm labor and uterine hyperstimulation</p>	<ul style="list-style-type: none"> • Give with fluid, and the tablet may be crushed • Give with food if GI upset occurs. • Monitor for symptoms of hypoglycemia in neonates born of a mother who used terbutaline during pregnancy.
Glyburide	<p>MOA: Stimulates insulin release from beta cells in the pancreas.</p> <p>Indications: Gestational diabetes</p>	<ul style="list-style-type: none"> • At birth, the neonate may experience birth injury, respiratory distress, and prolonged severe hypoglycemia, lasting 4 to 10 days if the mother receives the drug at time of delivery. • Drug should be discontinued at least two weeks before expected delivery.
Insulin	<p>MOA: Lowers blood sugar levels by stimulating peripheral glucose uptake by fat and skeletal muscle and by inhibiting hepatic glucose production.</p>	<ul style="list-style-type: none"> • Assess the patient for signs and symptoms of hypoglycemia. • Obtain blood glucose levels as ordered to monitor

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	<p>Indications: To help women keep their blood sugar under control during their pregnancy.</p>	<p>insulin response.</p>
Hydralazine hydrochloride	<p>MOA: Exerts a direct vasodilating effect on vascular smooth muscle.</p> <p>Indications: To manage hypertension and to help the pregnant woman dilate.</p>	<ul style="list-style-type: none"> • Drug is present in breast milk • Monitor ANA titer, CBC, and lupus erythematosus cell preparation before therapy and periodically as ordered during long-term treatment.
Labetalol	<p>MOA: Selectively blocks alpha1 and beta2 receptors in vascular smooth muscle and beta1 receptors in the heart to reduce blood pressure and peripheral vascular resistance.</p> <p>Indications: To manage hypertension during pregnancy.</p>	<ul style="list-style-type: none"> • Monitor blood glucose levels in diabetic patients because labetalol may conceal symptoms of hypoglycemia. • Be aware that stopping labetalol tablets abruptly after long-term therapy could result in angina, MI, or ventricular arrhythmias.
Nifedipine	<p>MOA: May slow movement of calcium into myocardial and vascular smooth muscle cells by deforming calcium channels in cell membranes, inhibiting ion-controlled gating mechanisms, and disrupting calcium release from the sarcoplasmic reticulum.</p> <p>Indications: To treat severe hypertension in pregnancy and preterm labor.</p>	<ul style="list-style-type: none"> • The capsule form of nifedipine should not be used to treat hypertension because its effects on blood pressure are unknown. • Monitor fluid intake and output and daily weight.
Calcium gluconate	<p>MOA: Increases levels of intracellular and extracellular calcium, which is needed to maintain homeostasis, especially in the nervous and musculoskeletal systems.</p> <p>Indications: To prevent or treat hypocalcemia due to rapid growth in pregnancy</p>	<ul style="list-style-type: none"> • Check intravenous sites regularly for infiltration because calcium causes necrosis. • Monitor serum calcium levels in all patients, as ordered, and evaluate therapeutic response by assessing for Chvostek's and Trousseau's signs, which shouldn't appear.
Misoprostol	<p>MOA: Uterotonic effects are caused by prostaglandin binding to smooth muscle cells in the uterine lining; this is responsible for its abortifacient properties,</p>	<ul style="list-style-type: none"> • Advise patient to avoid alcohol and foods that may cause an increase in GI irritation. • Inform the patient that

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	<p>as well as its ability to promote labor and cervical ripening. Indications: Elective medical abortion, cervical ripening before a surgical abortion, evacuation of the uterus in cases of embryonic or fetal death, and induction of labor</p>	<p>vaginal bleeding and uterine cramping will probably occur. Bleeding or spotting occurs for an average of 9–16 days but may continue for more than 30 days.</p>
Cervidil	<p>MOA: Produces contractions similar to those occurring during labor at term by stimulating the myometrium. Indications: Initiation or continuation of cervical ripening in patients at or near term in whom there is an obstetrical indication for the induction of labor.</p>	<ul style="list-style-type: none"> • Monitor signs of allergic reactions and anaphylaxis, including pulmonary symptoms or skin reactions. • Be alert for signs of uterine rupture. Signs include increased bleeding, sudden abdominal pain, and changes in fetal heart rate.
Penicillin G	<p>MOA: Inhibits the final stage of bacterial cell wall synthesis by competitively binding to penicillin-binding proteins inside the cell wall. Indications: To prevent or treat the growth of group B streptococcus.</p>	<ul style="list-style-type: none"> • Obtain body tissue and fluid samples for culture and sensitivity tests as ordered before giving the first dose. • Monitor patients for hypersensitivity reactions that may be severe.
Methylergonovine	<p>MOA: Acts directly on the smooth muscle of the uterus and induces a rapid and sustained tetanic uterotonic effect which shortens the third stage of labor and reduces blood loss. Indications: To assist with involution and decrease hemorrhage.</p>	<ul style="list-style-type: none"> • This drug should not be administered I.V. routinely because of the possibility of inducing sudden hypertensive and cerebrovascular accidents. • Caution should be exercised in the presence of impaired hepatic or renal function.
Nalbuphine (Nubain)	<p>MOA: Binds with and stimulates kappa and mu opiate receptors in the spinal cord and higher levels in the CNS. Indications: To treat mild to severe pain after childbirth</p>	<ul style="list-style-type: none"> • Be aware that excessive use of opioids may lead to abuse, addiction, misuse, overdose, and possibly death. • Know that chronic maternal use of nalbuphine during pregnancy can result in NOWS, which may be life-threatening if not recognized and treated appropriately.

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Naloxone--	<p>MOA: Briefly and competitively antagonizes mu, kappa, and sigma receptors in the CNS, thus reversing analgesia, hypotension, respiratory depression, and sedation caused by most opioids.</p> <p>Indications: To treat known or suspected opioid overdose</p>	<ul style="list-style-type: none"> • Anticipate that rapid reversal of opioid effects can cause diaphoresis, nausea, and vomiting in addition to serious adverse effects such as hypotension, pulmonary edema, seizures, and ventricular arrhythmias. • Watch for opioid withdrawal symptoms, especially when giving naloxone to opioid-dependent patients.
Fentanyl	<p>MOA: Binds to opioid receptor sites in the CNS, altering the perception of and emotional response to pain by inhibiting ascending pain pathways.</p> <p>Indications: To treat obstetrical pain in women about to give birth.</p>	<ul style="list-style-type: none"> • Know that the fentanyl transdermal system should be used only in patients already receiving opioid therapy and with demonstrated opioid tolerance and require at least a fentanyl dosage of 25 mcg/hour to manage their pain. • Be aware that fentanyl should not be given to pregnant women during pregnancy and labor and while breastfeeding as the newborn may experience neonatal opioid withdrawal syndrome.
Ibuprofen	<p>MOA: Blocks activity of cyclooxygenase, the enzyme needed to synthesize prostaglandins, which mediate inflammatory response and cause local pain, swelling, and vasodilation.</p> <p>Indications: To relieve pain and inflammation</p>	<ul style="list-style-type: none"> • Be aware that ibuprofen should not be used in pregnant women starting at 30 weeks gestation because premature closure of the ductus arteriosus may occur in the fetus. • Be aware that NSAIDs should be avoided in patients with a recent MI because of risk of reinfarction increases with NSAID therapy.
acetaminophen	<p>MOA: Inhibits the enzyme cyclooxygenase, blocking prostaglandin production and interfering with pain impulse</p>	<ul style="list-style-type: none"> • Use acetaminophen cautiously in patients with hepatic impairments or active hepatic disease,

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	<p>generation in the peripheral nervous system. Indications: To relieve pain and fever.</p>	<p>alcoholism, chronic malnutrition, severe hypovolemia, or severe renal impairment.</p> <ul style="list-style-type: none"> • Monitor AST, ALT, bilirubin, and creatinine levels as ordered because acetaminophen can be hepatotoxic.
<p>oxycodone</p>	<p>MOA: Alters perception of and emotional response to pain in the spinal cord to higher levels of CNS by blocking the release of inhibitory neurotransmitters, such as acetylcholine and gamma-aminobutyric acid. Indications: To treat moderate to severe pain.</p>	<ul style="list-style-type: none"> • Be aware that excessive use of opioids may lead to abuse, addiction, misuse, overdose, and possibly death. • Know that chronic maternal use of oxycodone during pregnancy can result in NOWS, which may be life-threatening if not recognized and treated appropriately.
<p>hydrocodone</p>	<p>MOA: Binds to and activates opioid receptors at sites in the periaqueductal and periventricular gray matter, the ventromedial medulla, and the spinal cord to produce pain relief. Indications: To manage severe pain.</p>	<ul style="list-style-type: none"> • Be aware that hydrocodone increases the risk of abuse, addiction, and misuse. • Know that hydrocodone should not be given to a patient with impaired consciousness, nor should the drug be administered on an as-needed basis.
<p>ketorolac</p>	<p>MOA: Ketorolac blocks cyclooxygenases (COX), which are enzymes that convert arachidonic acid into prostaglandins, prostacyclin, and thromboxane. The inhibition of these substances decreases pain, fever, and inflammation. Indications: Decreases postpartum pain, especially in women who have undergone a cesarean section.</p>	<ul style="list-style-type: none"> • NSAIDs have the potential for causing fetal cardiovascular adverse reactions using ketorolac during pregnancy should be avoided. • Ketorolac administration is contraindicated in labor because it may adversely impact fetal blood circulation and prevent uterine contractions, increasing the risk of uterine hemorrhage.
<p>Hepatitis B vaccine</p>	<p>MOA: The vaccine works by causing your body to produce its own antibodies against the</p>	<ul style="list-style-type: none"> • Vaccination consists of a course of three injections over a three-month period.

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	<p>disease. Indications: Recommended for pregnant people who are at risk for acquiring hepatitis B during pregnancy.</p>	<ul style="list-style-type: none"> • The deltoid muscle is the preferred injection site for adults.
Erythromycin eye ointment	<p>MOA: Binds to and blocks the 50S subunit of bacterial ribosomes to inhibit protein synthesis, thereby stopping bacterial growth and replication. Indications: To kill or weaken bacteria in the eye, particularly gonorrhea, to protect the infant from getting pink eye.</p>	<ul style="list-style-type: none"> • Administer within one hour after delivery. • Assess eyes for drainage or crusting.
Phytonadione	<p>MOA: Functions as a cofactor required for the activity of vitamin K-dependent proteins, which include factors II, VII, IX, and X, in addition to protein C and protein S. Indications: To treat vitamin K deficiency and prevent hemorrhage.</p>	<ul style="list-style-type: none"> • Monitor for hypersensitivity reactions, especially when administered IV. • Monitor INR to assess the effectiveness and the need to administer another dose.
Prenatal vitamins	<p>MOA: Prenatal multivitamins provide the additional vitamins and minerals needed during pregnancy. Indications: To prevent neural tube defects._</p>	<ul style="list-style-type: none"> • Take prenatal vitamins on an empty stomach with a full glass of water. • If taking the delayed-release form or extended-release capsules, swallow them whole. Do not crush or chew delayed-release or extended-release products.
MMR vaccine	<p>MOA: The MMR vaccine stimulates the immune system to protect against measles, mumps, and rubella. This vaccine is live attenuated and thus is a harmless, less virulent version of the infectious agents from which it provides protection. Indications: To reduce the risk of being infected with rubella which can be passed down to the unborn child resulting in Congenital Rubella Syndrome.</p>	<ul style="list-style-type: none"> • Monitor for seizures and anaphylaxis following administration. • The administration of the first dose should be between 12 to 15 months of age, and the second dose between 18 months of age and school entry. Note that the interval between doses should not be shorter than 28 days
Tetanus & reduced	<p>MOA: The vaccine produces an</p>	<ul style="list-style-type: none"> • Before administration,

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diphtheria toxoids/acellular pertussis vaccine	active immune response by developing antibodies and antitoxins against the toxoids and acellular pertussis antigens. Indications: Protect the unborn child from whooping cough and pass antibodies to the child.	visually inspect the vaccine for particulate matter and/or discoloration. <ul style="list-style-type: none"> • Just before use, shake the vial or manufacturer-filled syringe well. Do not use the vaccine if you cannot resuspend it after thorough agitation.
Lidocaine mucosal gel	MOA: Lidocaine stabilizes the neuronal membrane by inhibiting the ionic fluxes required for the initiation and conduction of impulses, thereby affecting local anesthetic action. Indications: Used to prevent and relieve pain during certain medical procedures.	<ul style="list-style-type: none"> • Excessive dosage, or short intervals between doses, can result in high plasma levels and serious adverse effects. • Lidocaine should be used with extreme caution in the presence of sepsis or severely traumatized mucosa in application since, under such conditions, there is the potential for rapid systemic absorption.

References

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