



Public Health
Maternal, Child, and Adolescent Health

What to Know About Infections in Pregnancy and Hyperemesis Gravidarum

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Objectives

- Understand common infections that can occur during pregnancy and how they may affect the health of the pregnant person and baby.
- Recognize common signs and symptoms of infections that may require medical attention.
- Identify ways to reduce the risk of infections during pregnancy, including the importance of prenatal care, routine screenings, and recommended vaccinations.
- Understand what hyperemesis gravidarum is and how it differs from typical nausea and vomiting during pregnancy.
- Recognize the signs and symptoms of hyperemesis gravidarum that may require medical attention.
- Identify basic treatment and management options for infections and hyperemesis gravidarum, including hydration, nutrition, medications, and when hospitalization may be necessary.



Why Are Infections More Common During Pregnancy?

During pregnancy, your body undergoes many changes to support your growing baby.

- A naturally altered immune system that helps your body accept the pregnancy
- Hormonal changes that affect the urinary and reproductive systems
- Slower emptying of the bladder, which can increase the risk of urinary infections
- Changes in the vaginal environment that may allow bacteria or yeast to grow more easily



([CDC, 2024](#))
([John Hopkind, n.d.](#))
([Stanford Medicine, n.d.](#))



Why Is Preventing Infections Important?

Most infections are mild, but some can affect both the pregnant person and the baby.

Possible effects on the pregnant person include:

- Fever
- Kidney infections
- Hospitalization
- Sepsis (a serious body-wide infection)

Possible effects on the baby include:

- Premature birth
- Low birth weight
- Congenital infections
- Breathing problems after birth
- Serious newborn infections



([ACOG, 2024](#))
([CDC, 2024](#))



The Most Common Infections During Pregnancy

Infection	How Common Is It?
Urinary tract infections (UTIs)	About 8% of pregnancies
Bacterial vaginosis (BV)	Up to 1 in 3 pregnant women
Yeast infections	Common, especially during pregnancy
Group B Streptococcus (GBS)	About 1 in 4 pregnant women carry it
Sexually transmitted infections (STIs)	Varies by infection and population
Hepatitis B & C	Less common, but screening is recommended during every pregnancy in the U.S.
Cytomegalovirus (CMV)	Common infection overall; routine screening is not recommended in the U.S.
Toxoplasmosis	Less common, but important because infection during pregnancy can affect the baby



Urinary Tract Infections (UTIs)

- An infection in any part of the urinary system, including the kidneys, bladder, and urethra.
- **Symptoms:**
 - Pain or burning while urinating,
 - Frequent urinating
 - Pressure in lower abdomen
 - Fever
 - Lower back pain
 - Nausea or vomiting
- Untreated UTIs may cause preterm delivery and low birth weight.
- Routine early urine culture recommended.
- Most UTIs are easily treated with pregnancy-safe antibiotics. Severe infections may require hospital care.



(ACOG, 2023)
(CDC, 2024)



Bacterial Vaginosis (BV)

- A vaginal condition that occurs when there is an imbalance of bacteria in the vagina. 10–30% of women will experience BV during pregnancy.
- It increases the risk of other sexually transmitted infections (STIs) and other complications during pregnancy.
- **Symptoms:**
 - Thin white or gray discharge
 - Pain, itching, or burning
 - Strong fish-like odor
 - Burning when peeing
 - Itching around the outside of vagina.
- It is common and treatable. For treatment, antibiotics are prescribed.



(APA, 2026)
(CDC, 2023)



Yeast infections

- A fungal infection that affects most women at some point in life.
- Caused by hormonal changes increasing Candida overgrowth.
- **Symptoms:**
 - Itching and irritation
 - Thick discharge that looks like cottage cheese
 - Redness and swelling of the vulva
 - Burning during intercourse or urinating
- Topical antifungal creams/ointments are used as treatment and are generally safe during pregnancy.

([Mayo Clinic, 2024](#))



Group B Streptococcus (GBS)

- A bacterial infection that can be found in a pregnant woman's vagina or rectum.
- GBS can be passed from you to your baby during labor.
 - **Early-onset disease**
 - Inflammation of the covering of the brain or spinal cord
 - Infection of the lungs
 - Infection in the blood
 - **Late-onset disease**
 - Lack of energy
 - Irritability
 - Poor feeding
 - High fever
- All women should be screened for GBS as part of routine prenatal care. It is done between 26 and 38 weeks of pregnancy.



(CDC, 2025)



Sexually Transmitted Infections (STIs)

- Includes chlamydia, gonorrhea, syphilis, HIV, and trichomoniasis.
- Many are asymptomatic.
- Can be spread from one person to another through oral, anal, and vaginal sex.
- Screening for and treatment of STIs is a key aspect of prenatal care.
- Talk to your healthcare provider for any questions and concerns about the medication.

(CDC, 2024)



Other Infections

Infection	How Is It Spread	Common Symptoms	How It Is Prevented
Hepatitis B (HBV)	Spreads through bodily fluids, things like blood, semen, and vaginal fluids.	Often mild or no symptoms	A safe and effective vaccine is available and can be given during pregnancy. Screening during pregnancy is recommended.
Hepatitis C (HCV)	Spreads primarily through direct contact with infected blood	Often mild or no symptoms	Universal screening recommended during each pregnancy.
Cytomegalovirus (CMV)	Spread through contact with body fluids	Mild flu-like illness or no symptoms	Reducing contact with saliva and urine from babies and young children.
Toxoplasmosis	Transmitted in multiple ways (Foodborne, animal to human, mother to child)	Mild flu-like illness or no symptoms	Simple food, hygiene, and environmental precautions

([ACOG, 2025](#))
([CDC, 2025](#))
([Mayo Clinic, 2026](#))



Prevention and Management

- Prevention is essential during pregnancy and includes good hygiene, avoiding known sources of infection, staying up to date on recommended vaccinations.
- Seek early diagnosis and treatment from a healthcare provider.
- Take all prescribed medications as directed (e.g., antibiotics, antifungals, or antivirals).
- Receive intravenous (IV) antibiotics during labor if diagnosed with Group B Streptococcus (GBS).
- Attend follow-up appointments to ensure the infection has resolved.
- Ensure sexual partners are evaluated and treated when appropriate to prevent reinfection.
- Complete the full course of treatment, even if symptoms improve.





Hyperemesis Gravidarum



What is Hyperemesis Gravidarum (HG)?

Hyperemesis gravidarum is **NOT** morning sickness.

Hyperemesis gravidarum is defined as a potentially life-threatening complication in pregnancy that may cause:

- Weight loss
- Malnutrition
- Dehydration
- Debility due to severe nausea and/or vomiting, and
- Long-term health issues for mother and baby/babies.



([Her Foundation](#), n.d.)



Difference Between Morning Sickness and Hyperemesis Gravidarum

Morning Sickness

- Nausea is sometimes accompanied by vomiting
- Nausea that subsides at 12 weeks or soon after
- Vomiting that does not cause severe dehydration
- Vomiting that allows you to keep some food down

Hyperemesis Gravidarum

- Nausea accompanied by severe vomiting
- Nausea that does not subside
- Vomiting that causes severe dehydration
- Vomiting that does not allow you to keep any food down

([American Pregnancy Association](#), 2026)



Hyperemesis Gravidarum Historical Background

Hyperemesis gravidarum has a history of being poorly understood and dismissed by the medical community. Before the 1950s, it was a major contributing factor to maternal death. In the 1900s, the root cause of HG was thought to be psychological.

- Hysteria: In the 19th century, “female hysteria” was treated as a real medical condition. At the time, many people believed that women were naturally more likely to develop emotional or behavioral problems, and this assumption shaped how the condition was diagnosed.
 - Believed to be the principle cause of HG; evidenced by the manifestation of physical symptoms.
- HG symptoms were attributed to an unwanted pregnancy or to women who were unhappy about their pregnancy.
- Treatment at the time for HG involved:
 - Abortion
 - Leeches
 - Cocaine
 - Mercury
 - Injection of the woman’s husband’s blood
 - Thalidomide (resulted in babies born with limb deformities)

(Rosen, 1955)



Hyperemesis Gravidarum

Historical Background . . .

In the 1950s, with the intervention of intravenous (IV) fluids to treat HG, the maternal death rates dropped. However, the medical community still believed:

- The condition was fabricated.
- It was common in women with a "compensated schizoid character formation."
- It was less likely in women who were "stable, happily married, and desirous of having a child."



([Rosen, 1955](#))



What Cause Hyperemesis Gravidarum?

- The exact cause of HG is not fully understood, but the Hyperemesis Education Research (HER) Foundation, proposes the most likely cause is the hormone, Growth and Differentiation Factor 15 (GDF15).
- GDF15 is produced by the placenta and rises very rapidly in early pregnancy.
- High levels of GDF15 causes taste aversion, nausea, and vomiting

(Her Foundation, n.d.)





Psychosocial Impact of Hyperemesis Gravidarum

The greater the severity and duration of the symptoms, the greater the effect on the patient. Hyperemesis gravidarum affects 1–3% of pregnancies in the United States.

- Socioeconomic changes: loss of jobs,
- Attitude changes: fear of future pregnancies
- Psychological stress: feelings of depression and anxiety



([Rosen, 1955](#)).



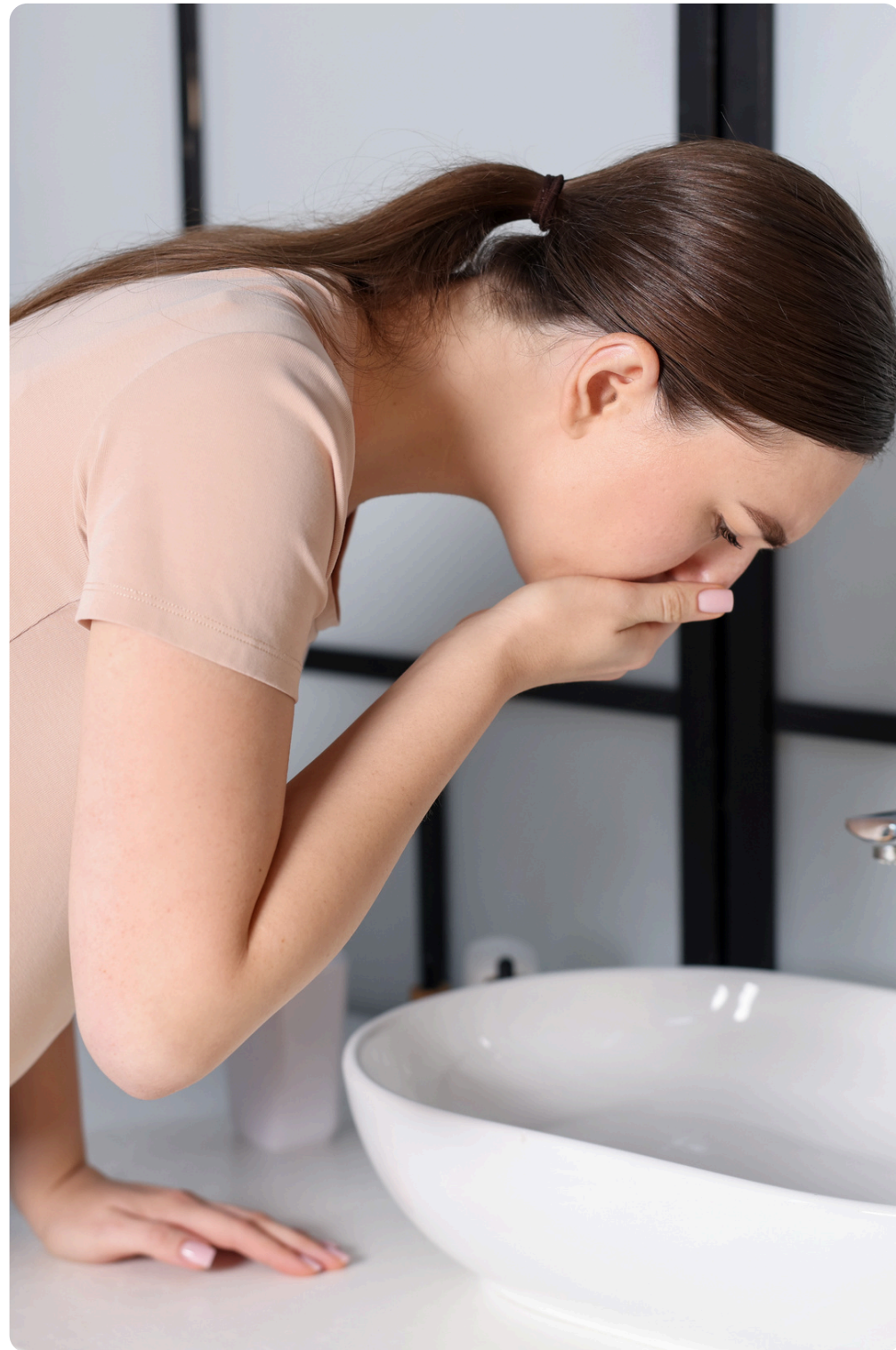
Common Symptoms of Hyperemesis Gravidarum

Hyperemesis gravidarum usually occurs during the first trimester of pregnancy (beginning around six weeks of pregnancy). Symptoms can last weeks, months or up until delivery. They can be debilitating, preventing the performance of normal daily activities.

The common symptoms include:

- Vomiting more than three times per day
- Losing more than 5% of your pre-pregnancy weight
- Not being able to keep food and fluids down
- Feeling dizzy or lightheaded
- Peeing less than normal
- Extreme tiredness
- Fainting

(Cleveland Clinic, 2023)

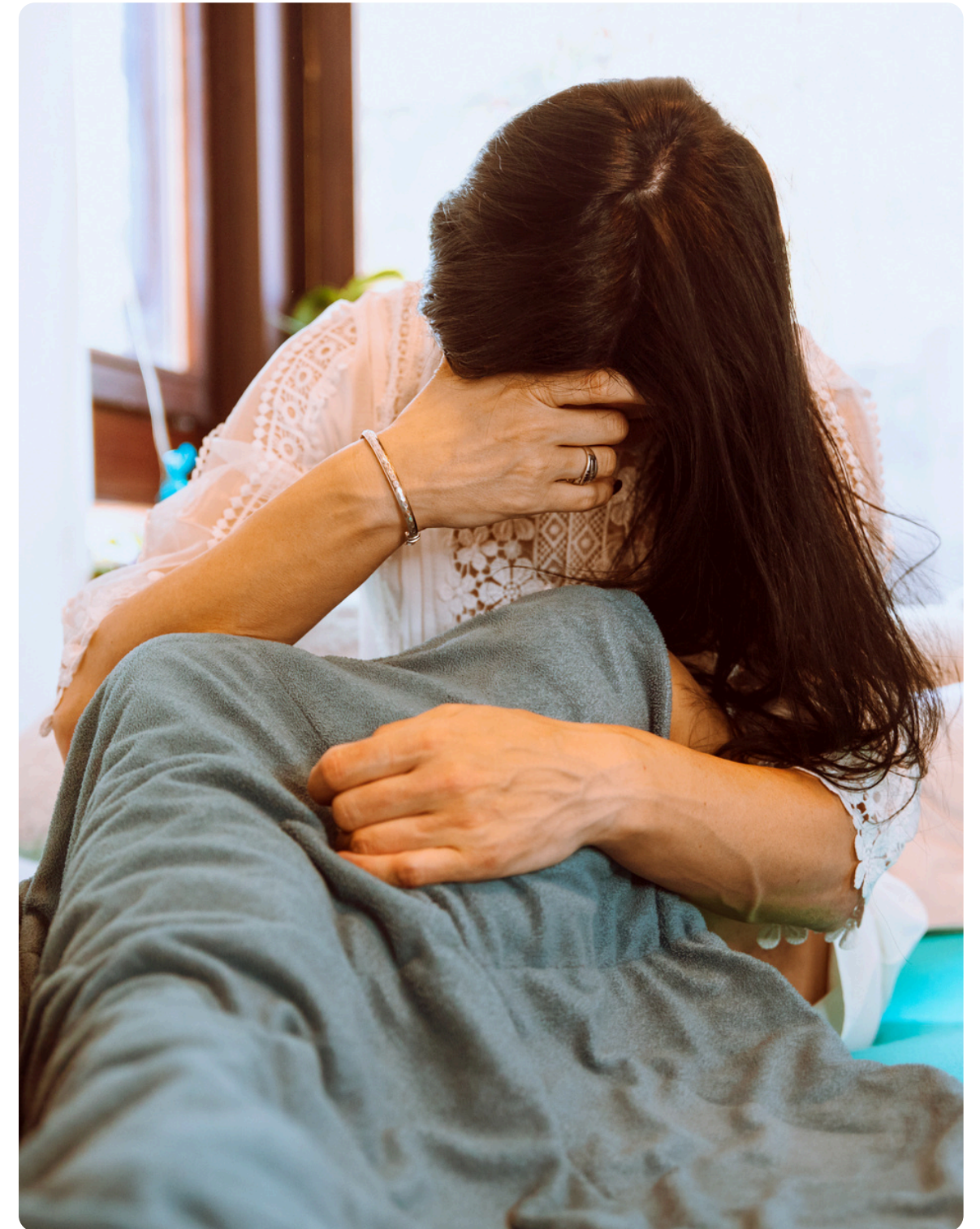




Who is at Risk for Hyperemesis Gravidarum?

Some people have a higher risk of developing HG:

- Diagnosis of HG in a previous pregnancy
- Pregnant for the first time
- History of motion sickness
- Family history of severe morning sickness or HG
- Pregnant with multiples (twins, triplets)



(Cleveland Clinic, 2023)



Maternal Complications Due to Hyperemesis Gravidarum

Malnutrition	When the body doesn't get the right balance of nutrients, either too little or too much, which can lead to health problems.
Wernicke's Encephalopathy	A serious brain condition caused by very low levels of vitamin B1. It can lead to confusion, trouble walking, and problems with eye movement.
Sepsis	The infection of tissues where the body starts harming itself instead of just fighting the infection, usually accompanied by a fever.
Thiamine deficiency	Not having enough vitamin B1, which your body needs for energy and nerve function. Severe cases can affect the heart, nerves, and brain.
Preeclampsia	A pregnancy complication that usually happens after 20 weeks. It involves high blood pressure and can be dangerous for both mom and baby.
Hemorrhage	Vaginal bleeding or spotting, may be light with clots and cramping The most common is subchorionic hematoma – a pocket of blood between the uterine wall and the chorion membrane.
Preterm Labor	Labor that begins before 37 weeks of pregnancy, meaning the baby may be born too early.

([Harvard Health Publishing, n.d.](#))
([March of Dimes, n.d.](#))



Maternal Complications Due to Hyperemesis Gravidarum (cont.)

Postpartum Depression (PTSD)	A deeper, longer-lasting sadness or anxiety that can happen after having a baby. Some moms may also experience PTSD if the childbirth was traumatic.
Perinatal Mood and Anxiety Disorder (PMAD)	Emotional and mental health challenges that can happen during pregnancy or within the first year after birth, including depression, anxiety, and other mood changes.
Embolism	Pulmonary embolism is a clot that stops blood flow to the lungs. Deep Vein Thrombosis (DVT) is a blood clot that forms in the deep veins, usually the legs.
Peripartum Cardiomyopathy	A rare type of heart failure that can occur late in pregnancy or shortly after delivery.
Placenta abruption	When the placenta separates from the uterus too early, which can cause bleeding and reduce oxygen to the baby.

([American Pregnancy Association, 2026](#))
([Harvard Health Publishing, n.d.](#))



Fetal Complications Due to Hyperemesis Gravidarum

- Intrauterine Growth Restriction (IUGR)/Small for Gestational Age (SGA): due to malnutrition
- Prematurity: 15% of HG pregnancies result in premature birth

Based on research, these complications have been found to be more common in children exposed to HG in utero, particularly when the condition is severe or prolonged. Although these associations have been observed, they do not show that HG directly causes these outcomes. Studies have explored potential links such as:

- Neurodevelopmental and behavioral concerns, including attention difficulties, ADHD, and anxiety.
- Autism spectrum disorder (ASD), with researchers examining whether factors related to severe HG may play a role.
- Language and developmental delays in children exposed to HG during pregnancy.
- Possible longer-term health effects, including mental health and cardiovascular issues later in life, though evidence in these areas is still emerging.

(Her Foundation, n.d.)



How Does Your Doctor Diagnose Hyperemesis Gravidarum?

Fairweather Criteria 1968

- More than 3 episodes of vomiting a day
- Weight loss
- Ketonemia: high levels of ketone bodies in the blood; a condition known as ketosis
- Electrolyte imbalance
- Volume depletion
- Onset usually at 4–8 weeks of pregnancy

Windsor definition (2021)

Mandatory Features

- Nausea and vomiting, at least 1 of which is severe
- Inability to drink or eat normally
- Strongly affects daily living activities
- Beginning of symptoms in early pregnancy
- Contributory Features
- Signs of dehydration



(Jansen, et.al, 2024)



Management and Treatment of Hyperemesis Gravidarum

Mild Cases

- Lifestyle changes : wear a pressure–point wrist band, eating ginger chews or drinking ginger teas for nausea
- Dietary changes: every 2 hours, eat small, frequent meals of bland, dry foods (crackers, toast). Avoid greasy, spicy foods.
- Anti-nausea medications: consult provider for medication usage. Over the counter meds:
 - Pyridoxine (vitamin B6)
 - Doxylamine (Unisom)
 - Diphenhydramine (Benadryl)
- Avoid triggers: specific smells or riding in a car

Moderate to Severe Hyperemesis Gravidarum

- Prescription meds to relieve nausea and vomiting
 - Promethazine (Phenergan)
 - Metoclopramide (Reglan)
 - Ondansetron (Zofran)
- Intravenous fluids
- Tube feeding
- Total parenteral intravenous nutrition (TPN)

(Cleveland Clinic, 2023)



Key Takeaways

- Infections can occur during pregnancy and may affect both the pregnant person and developing baby, making early recognition and treatment important.
- Recognizing signs and symptoms of infection, such as fever, unusual discharge, pain, or other concerning changes, can help identify when medical attention is needed.
- Prevention is essential during pregnancy and includes good hygiene, avoiding known sources of infection, staying up to date on recommended vaccinations, and following prenatal care guidelines.
- Prenatal care and routine screenings help identify infections and other health concerns early, allowing for appropriate treatment and monitoring.
- Hyperemesis gravidarum (HG) is a severe form of nausea and vomiting during pregnancy that can lead to dehydration, weight loss, and nutritional deficiencies.
- Treatment for infections and HG depends on the condition and may include medications, hydration, nutritional support, monitoring, and, in severe cases, hospitalization.
- Seeking medical care promptly when symptoms are severe, persistent, or worsening.



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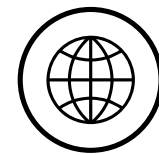
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