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Infusion or Immune Reactions

[What Are Infusion or Immune Reactions?](#)

Get information about infusion and immune reactions and how to talk about it with your health care team and others.

[Managing Infusion or Immune Reactions](#)

Learn what can be done to help avoid and manage infusion or immune reactions.

What are Infusion or Immune Reactions?

Infusion reactions can happen when your body has a strong immune response to a cancer treatment that's given intravenously (IV). The types of drugs used in these cancer treatments can be [chemotherapy](#)¹, [targeted therapy](#)², or [immunotherapy](#)³. The process of giving the treatment might be called an IV infusion, injection, or push.

Most treatments have a low risk for infusion reactions, but for some the risk is higher. And, sometimes the severity of a reaction depends on the dose of the drug and other factors that may be related to the treatment or to other health problems a patient may have. If an infusion reaction happens, it's because your body is reacting very strongly to the treatment which is a foreign substance. Your immune system responds because it's trying to fight off the foreign substance, causing the reaction.

You may hear your cancer care team call these **immune reactions** or **hypersensitivity reactions**. Infusion reactions are not true allergic reactions because of how they start in

the immune system. But, they can be severe in some people if not recognized and treated quickly. Infusion reactions can happen when the patient is getting that infusion for the first time or at any time during the treatment period, even if the patient has received the infusion once or more times before.

Infusion reactions can be immediate or delayed. Immediate reactions happen within minutes of beginning to receive your infusion. Delayed reactions can happen up to a few days or weeks after receiving your infusion. Infusion reactions can be mild, moderate, or severe.

If an infusion is in your treatment plan, talk to your cancer care team about what you'll be getting, your risk of having an infusion reaction, and what to expect if it happens.

What to watch for during any treatment infusion

- [Itching](#)⁴
- Rash or hives
- Swelling of the tongue, lips, or eyelids
- Redness on the face and neck area, also called flushing
- [Fever or chills](#)⁵
- Cough
- [Nausea](#)⁶
- Muscle or joint pain
- [Edema](#)⁷ (swelling of any part of your body, but more common in hands, legs, ankles, and feet)
- Feeling short of breath

If you have any of these symptoms during your infusion, let your infusion nurse know right away. If you have any of these symptoms at home after your infusion, call your cancer team right away.

Reactions or side effects specific to immunotherapy

When receiving [immunotherapy](#),⁸ you may have any of the reactions listed above. However, most reactions to immunotherapy don't usually occur during the infusion. Talk to your cancer care team about what to expect and call them or let them know if you have one or more of the following symptoms, as it could mean you are reacting to the immunotherapy drug.

- **Skin rash or blisters**, which could be mild or severe.
- **Colitis** (inflammation of the colon) that could cause pain, diarrhea, fever, joint pain, and loss of appetite.
- **Hepatitis** (inflammation of the liver). Let your doctor know if you notice your skin or the whites of your eyes are yellowish, or if you have nausea and vomiting, pain on the right side of the abdomen, feeling drowsy, urine that is dark (tea-colored), loss of appetite, and bruising or bleeding more easily than usual.
- **Pneumonitis** (inflammation of the lung). Let your doctor know if you have fever, shortness of breath or difficulty breathing, chest pain or cough.
- **Changes to how your endocrine (hormone) system works**. The endocrine system is responsible for making and produce hormones for different jobs in your body. Let your doctor know if you notice one or more of the following, as it could mean your endocrine system is not working as it should: Changes in your eyesightHeadaches that don't go awayWeakness or fatigue that is more than normalIncreased heart rate (your heart beats faster than normal)Muscle or joint aches or painDizziness or faintingFeeling more hungry than usualUrinating more than usualChanges in moodFeeling coldVoice getting deeperNausea or vomitingPain in your bellyConstipation
- Mouth problems such as **stomatitis** (inflammation of the mouth and lips) and **mucositis** (inflammation of the digestive lining). Let your doctor know if you notice soreness, [blisters](#)⁹,[or ulcers in your mouth](#)¹⁰ or lips. If you have [mouth sores](#)¹¹: Practice good oral hygiene; brush your teeth two or three times daily with a soft toothbrush, and floss; use alcohol-free toothpastes and rinses. Avoid spicy, hard, acidic, and hot foods. Avoid alcohol and tobacco products. Your doctor may be able to prescribe a mouth rinse to help with the pain and irritation.\
- **Arthritis** (inflammation of the joints, such as ankles, knees, or hands). Let your doctor know if you notice swelling in your joints, pain, rash around your joints, or feeling stiff after you've been inactive for a while such as in the morning.
- Muscle pain and/or weakness
- [Peripheral neuropathy](#)¹² (numbness and tingling in extremities).Let your doctor know if you have numbness or tingling in your hands or feet, numbness, weakness, less ability to feel hot and cold, or cramps in your feet.
- **Nephritis** (inflammation of the kidney). Your doctor is usually able to tell how well your kidney works by doing lab tests throughout your treatment time. Your doctor will eliminate all other causes (not drinking enough water or other health conditions) before confirming that you have nephritis.
- Frequent headaches, light sensitivity, neck stiffness, [confusion](#)¹³, or [short-term memory loss](#)¹⁴. Let your doctor know if you experience any of these symptoms

- Let your doctor know if you notice chest pain, irregular heartbeat, swelling of your hands and feet, difficulty breathing and feeling very tired.
- Changes in your hearing or eyesight. Changes in your eyesight may include blurred vision, light sensitivity, pain with eye movement, or swelling in your eyelids.

Hyperlinks

1. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/chemotherapy.html
2. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/targeted-therapy.html
3. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/immunotherapy.html
4. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/skin-problems/itching.html
5. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/low-blood-counts/fever.html
6. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/nausea-and-vomiting.html
7. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/swelling.html
8. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/immunotherapy.html
9. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/mouth-problems.html
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12. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/peripheral-neuropathy.html
13. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/changes-in-mood-or-thinking/confusion.html
14. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/changes-in-mood-or-thinking/chemo-brain.html

References

Brahmer JR, Lacchetti C, Schneider BJ, et al. Management of immune-related adverse events in patients treated with immune checkpoint inhibitor therapy: American Society of Clinical Oncology clinical practice guideline. *Journal of Clinical Oncology*. 2018; 36(17):1714-1768.

Bonamichi-Santos R, Castells M. Diagnoses and management of drug hypersensitivity and anaphylaxis in cancer and chronic inflammatory diseases: Reactions to taxanes and monoclonal antibodies. *Clinic Rev Allerg Immunol*. 2018; 54:375-385.

Kroschinsky F, Stölzel F, Bonin S, et al. New drugs, new toxicities: severe side effects of modern targeted and immunotherapy of cancer and their management. *Critical Care*. 2017; 21: 89.

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Vigarios E, Epstein JB, Sibaud V. Oral mucosal changes induced by anticancer targeted therapies and immune checkpoint inhibitors. *Support Care Cancer*. 2017; 25:1713-1739

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Managing Infusion or Immune Reactions

Not everyone will have an [infusion reaction](#), but some treatments put you at a higher risk for them, including certain [chemotherapy](#)¹ and [targeted therapy](#)² drugs, and many [immunotherapy](#)³ drugs. There are, however, things that your cancer care team can do to help reduce your risk of having an infusion reaction.

It's important to remember that an infusion reaction is your body's immune response to a treatment. Because of this, a reaction can happen even when steps were taken to prevent it.

How the cancer care team helps prevent or manage reactions

Before the infusion

Before starting your treatment, your cancer care team will tell you if there is a chance for a reaction and what signs to look for. Your nurse and the rest of the cancer care team will closely monitor you during the infusion. If the infusion drug you are receiving has a known risk for causing reactions, your doctor may prescribe drugs for you to take before your infusion (pre-medications). Pre-medications, sometimes referred to as pre-meds, help reduce the chance that you will react to the infusion drug. Sometimes a pre-medication is taken at home before you come to the treatment center. If you get a pre-medication prescription, take it as instructed. But sometimes the pre-meds are given at the treatment center just before your infusion.

During the infusion

Your nurse will monitor you during the infusion. If there are any signs of a reaction, the nurse and doctor will likely stop the infusion to assess you, your vital signs, and your symptoms.

If you have a reaction

A treatment infusion is usually stopped, at least for a short time, if there is any sign of a reaction. While the treatment is stopped, plain IV fluids might be given while the cancer care team checks you and decides on the best action. Medications can often help stop a reaction. They might be given right into the IV line or as a pill by mouth. Depending on how severe a reaction is, your doctor may decide to restart the infusion at a slower rate, delay the infusion until a later time, or permanently stop the drug.

Desensitization

In certain cases and with certain drugs, your doctor may try to desensitize a patient who has had a reaction in the past. **Desensitization** means the drug is re-introduced to your body slowly until your body can handle the drug without reacting to it. The drug is given to you in small doses to begin with, and the dose is slowly increased until the dosage goal is reached. This way you still will be able to receive the treatment you need.

Managing reactions specific to immunotherapy

Your cancer care team will tell you about the immunotherapy you will be receiving and

possible reactions or side effects you might have. Report all side effects you are experiencing to your cancer care team so treatment can begin immediately. If you are having any side effects, your doctor may:

- Prescribe medications to help with your symptoms.
- Order lab tests or [imaging tests](#)⁴ such as x-rays or CT scan. Your doctor will probably continue to monitor your lab test results throughout your treatment.
- Change your treatment dose.
- Hold your treatment until the symptoms are better.
- Permanently stop the drug if your symptoms are severe and could be life-threatening.

What you can do

Let your doctor or cancer care team know if you have any [symptoms of reactions](#) or side effects of immunotherapy so that treatment for the symptoms can start immediately if needed.

Call your cancer care team right away if you notice any of the following symptoms

- Yellowing of the skin and whites of your eyes, pain on the right side of the abdomen, feeling drowsy, urine that is dark (tea-colored), loss of appetite, and bruising or bleeding that is happening more easily than normal
- [Fever](#)⁵, shortness of breath or difficulty breathing, chest pain or cough. If you have difficulty breathing or chest pain, you may need to go to the nearest emergency center.
- [Nausea, vomiting](#)⁶, or [diarrhea](#)⁷. Try to drink fluids to stay hydrated.
- New pain

Let your cancer care team know if any of your side effects get worse or do not respond to the prescribed treatment.

Hyperlinks

1. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/chemotherapy.html
2. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/targeted-

- [therapy.html](#)
3. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/immunotherapy.html
 4. www.cancer.org/treatment/understanding-your-diagnosis/tests/imaging-radiology-tests-for-cancer.html
 5. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/low-blood-counts/fever.html
 6. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/nausea-and-vomiting.html
 7. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/stool-or-urine-changes/diarrhea.html

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Brahmer JR, Lacchetti C, Schneider BJ, et al. Management of immune-related adverse events in patients treated with immune checkpoint inhibitor therapy: American Society of Clinical Oncology clinical practice guideline. *Journal of Clinical Oncology*. 2018; 36(17):1714-1768.

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