

CART T Cell Therapy Myths Debunked

Your guide to what cell therapy is (and isn't)

Living with blood cancer can feel overwhelming, especially when it comes to making treatment decisions. There are different treatment options for blood cancer. Your or your loved one's healthcare team can help you understand what's available and find the right path for you.

CAR T cell therapy (short for chimeric antigen receptor T cell therapy) is a treatment approved by the FDA for some blood cancers. It uses your body's own immune cells — called T cells — to find and fight cancer. Because of how it works, it can be hard to understand at first — and there are some common misunderstandings about it.

 **Myth** — CAR T cell therapy is too new, and it has only been studied for a couple years.

 **Fact** — CAR T cell therapy has been researched for over 30 years.

CAR T cell therapy development timeline

 First generation of CARs engineered

 First used in a clinical trial to treat a specific blood cancer in humans

 First CAR T cell therapy received FDA approval

 Now, several CAR T cell therapies are approved in multiple blood cancer indications

1993

2010

2017

Present Day

Since 2017, CAR T cell therapies continue to demonstrate effectiveness and safety in clinical trial outcomes for people with certain blood cancers. Beyond clinical trials, similar results have been seen in the "real world," meaning results have been collected from patients who received CAR T cell therapy after the treatment received FDA approval.

Learn more about the history of CAR T cell therapy [here](#).

 **Myth** — CAR T cell therapy is only used as a last resort, after chemotherapy and autologous stem cell transplant.

 **Fact** — For certain blood cancers, CAR T cell therapies may be used as early as after relapse or failure of initial treatment, which may or may not include a stem cell transplant.

Your doctor may recommend CAR T cell therapy if your disease has:

 **returned after treatment** (relapsed)

or

 **not responded to previous therapy** (refractory)

 **Myth** — CAR T cell therapy is the same as an autologous stem cell transplant, chemotherapy or bispecifics.

 **Fact** — These are different types of cancer treatments. Each works in a different way.

CAR T cell therapy

Autologous stem cell transplant

Chemotherapy

Bispecific antibodies

What it is

A type of immunotherapy scientists create by adding lab-made genes to your cancer-fighting T cells

A procedure that replaces cancerous stem cells with your own healthy stem cells

A systemic medication that destroys cancer cells by keeping them from growing, dividing and making more cells

Lab-made proteins that help destroy immune system "invaders" such as cancer cells

How it works

- Adds chimeric antigen receptors (CARs) — or hooks — to your own specific disease-fighting white blood cells (in this case, your T cells) to help recognize and fight target cells containing a specific antigen on the surface of the cell, including normal and cancer cells
- Cells continue to multiply in your body to work to target and attack cancer cells long after the infusion occurs

- Uses your own stem cells (harvested from either your blood or bone marrow) to replace cells that have been destroyed by cancer therapy, potentially acting as a "rescue" to the bone marrow from the toxic side effects of high doses of chemotherapy and radiation used to treat the cancer
- Restores your body's ability to produce new blood cells after treatment (but does not target cancer directly)

- Uses powerful chemicals to either kill or slow the progression of fast-growing cells, including cancer cells, in the body
- Typically given intravenously (through a vein) as an infusion but sometimes given as a pill, capsule or in liquid form

- Brings together two different cells — a target cell and an immune cell — allowing the immune cell to come in contact with the unhealthy cell and become activated to fight it
- Typically given intravenously until the disease progresses or reaches an unacceptable level of toxicity

Learn more about the different types of treatments [here](#).

 **Myth** — Receiving CAR T cell therapy is a long, difficult infusion process compared to stem cell transplant.

 **Fact** — The CAR T cell therapy process* includes a one-time infusion that typically takes approximately 30–60 minutes, whereas an autologous stem cell transplant infusion can last 1–5 hours. Other key factors include:

CAR T cell therapy

Autologous stem cell transplant

Treatment process



- Typically spans 2–3 months
- *Includes: apheresis (removal of certain types of white blood cells from the blood), manufacturing, administration and adverse event monitoring
- Includes a short course of chemotherapy before CAR T infusion to prepare the body to receive modified cells

- Typically spans 2–7 months
- Includes apheresis (removal of stem cells from the blood) or bone marrow harvest, freezing cells until you're ready for transplant, infusion and adverse event monitoring
- Can only be done after the cancer has been treated with high-dose chemotherapy or radiation

*These may not be the only steps required in the process. Full infusion appointment includes additional steps and will vary in length.

Treatment location



- CAR T cell therapy center
 - Option for outpatient setting (no hospitalization needed), if determined by your doctor
 - Inpatient (requires hospital stay) infusion requires you to be in the hospital before, during and right after your treatment, as determined by your doctor

- Autologous stem cell transplant center
 - Option for outpatient setting or inpatient setting, as determined by your doctor and treatment center
 - Inpatient transplant typically requires a hospital stay before, during and right after treatment

Adverse event monitoring



- Monitored for at least 2 weeks following the infusion for potential serious side effects including cytokine release syndrome (CRS), neurotoxicities and other adverse events
 - Side effects may require treatment in the hospital
- Must stay within close proximity of a treatment center for at least 1–2 weeks* following treatment
- Must not drive for at least 1–2 weeks* post infusion
- Long-term monitoring for side effects, disease status and other cancers

- Short-term monitoring for about 2–3 weeks following the transplant to ensure your blood counts recover, and once they return to normal, the immune system takes several months to recover
 - Side effects may require treatment in the hospital
- Must stay within close proximity of treatment center, as defined by your treating physician, during the 100 days following treatment

*Varies by product. Talk to your doctor.

To learn more about monitoring and life after CAR T, please see [here](#).

 **Myth** — The steps of CAR T cell therapy are complicated and hard to understand.

 **Fact** — CAR T cell therapy does include multiple steps, but they can be easily broken down and understood.

**Step 1: T cell collection (apheresis)**

- Blood is withdrawn from your arm and put through a special machine
- Key cells in the immune system, called T cells, are separated from other blood components by the machine
- The remaining blood is then infused back into your body

**Step 2: "Programming" CAR T cells**

T cells are sent to a specialized facility where they:

- Are "programmed" to become CAR T cells
- Are multiplied to millions
- Undergo strict testing and quality control
- And, finally, are shipped back to your doctor for your treatment

Take an inside look at the CAR T manufacturing process [here](#).

**Step 3: Preparing for treatment (lymphodepleting chemotherapy)**

- A few days before receiving CAR T cell therapy, you will receive a short course of chemotherapy, known as lymphodepleting chemotherapy, to help prepare the body to receive the CAR T cells

**Step 4: CAR T cell therapy infusion**

- At the treatment center, you will usually receive your personalized CAR T cells as a one-time infusion, which usually takes approximately 30–60 minutes*
- From there, the CAR T cells may continue to multiply and travel throughout your body to attack the target cancer cells

*These may not be the only steps required in the process. Full infusion appointment includes additional steps and will vary in length.

**Step 5: Monitoring**

- Short term: Following infusion, you are monitored closely by your care team for possible side effects, which may be severe, life-threatening or fatal
- Continued follow-up: Your care team will continue to follow up with you via phone calls and in-person appointments to assess whether the CAR T cell therapy is working and to watch for side effects

Please see more information about side effects in the myth/fact below.

Read more on the [CAR T cell therapy treatment experience](#).



Myth — The side effects of CAR T cell therapy outweigh the benefits this therapy can provide.



Fact — Research demonstrates that, with a single infusion, CAR T cell therapy has been effective at producing improved outcomes in patients where another treatment option(s) has stopped working.

Side effects can vary from person to person. Your care team is trained to watch for and manage side effects. Talk with your doctor about what to expect and when to seek medical help.

CAR T cell therapy side effect information

The most common side effects, which can be severe or life-threatening, include:



Cytokine release syndrome - condition that develops when your immune system responds too aggressively to a treatment or infection, which can include shortness of breath and fever



Neurologic toxicities - side effects that affect the body's nervous system, which can include difficulty speaking and headaches

- These are not all the possible side effects, which can also include fever and chills; trouble breathing; severe nausea, vomiting and/or diarrhea; dizziness or lightheadedness; headaches; fast heartbeat; extreme tiredness; and/or muscle and/or joint pain
- Side effects typically occur within 2 weeks after CAR T cell therapy and peak within 1–2 weeks after infusion but can occur later in some cases
- Your CAR T treatment team is trained to manage the side effects
- If you or your care partner notice any symptoms, make sure to notify your CAR T treatment team as soon as possible so they can manage any side effects



CAR T cell therapy may increase your risk of getting secondary cancers, including certain types of blood cancers. T cell malignancies have occurred following CAR T cell therapy. The FDA has concluded that the overall benefits of CAR T cell therapy continue to outweigh potential risks.

To learn more about monitoring and life after CAR T, please see [here](#).



Myth — Not that many people receive CAR T cell therapy, so it's hard to understand what patients actually experience.



Fact — It is estimated that over 50,000 people have received CAR T cell therapy. Here are some of their perspectives.



“If you'll be getting treatment in a hospital or facility, bring something to make you comfortable like a blanket, a good book, soft pajamas, etc.”



“Know what side effects to look for and how to manage them. The quicker you can recognize the symptoms, the quicker the medical team can act.”



“Recovery takes time. Don't expect to feel better right away.”



“Emotional support matters, too — simple things like watching TV with friends or chatting with family can bring comfort.”



“Knowing what was involved in each step and why each was needed was empowering. Don't be afraid to ask your patient navigator and healthcare team questions.”



Myth — CAR T cell therapy for blood cancers can only be made from your own cells being modified outside the body.



Fact — Right now, most approved CAR T cell therapies for blood cancers use your own cells, which are changed outside your body. Researchers are also studying other approaches that may offer more options in the future.

Uses your own cells (autologous)

- T cells are collected and modified outside the body (*ex vivo*) in a lab
- Currently approved for certain types of blood cancers
- Manufacturing process can take several weeks, but treatment is inherently compatible with your body

Uses a donor's cells (allogeneic)

- Donor's T cells are collected and modified outside the body (*ex vivo*) in a lab
- Currently in clinical trials, with only one option FDA-approved so far
- Could be immediately available to use without waiting (“off-the-shelf”) to patients whose cells may not be suitable for collection

Uses your own cells without removing them from the body (*in vivo*)

- T cells are modified directly inside the body (*in vivo*) without the need for apheresis or lymphodepletion chemotherapy
- New approach currently being researched that could fundamentally change how CAR T cells are modified and delivered with the body serving as the manufacturer
- Since the *in vivo* approach eliminates the need for blood-filtering and immune-clearing steps, this process could allow the use of CAR T cell therapy in additional patient populations and additional conditions of varying severity

Note: Most currently approved and available CAR T cell therapies are autologous, with one approved allogeneic option. For the most part, platforms like allogeneic and *in vivo* remain investigational and have not been evaluated by regulatory bodies.

Read letters from patients and caregivers sharing their diverse and often challenging experiences from diagnosis, through treatment, and into recovery:

Dear Hopeful Heart,

When my doctor first discussed CAR T cell therapy with me, my mind was a whirlwind of both fear and incredible hope. The complex process and potential side effects felt like a lot to grasp. Nobody truly prepares you for the sheer mental load leading up to it: the waiting for results, wrestling with tough decisions, and trying to quiet those “what-ifs.”

I tried to stay grounded by focusing on things I could control, like ensuring I ate nourishing meals to build strength, and practicing simple breathing exercises. Acknowledge those overwhelming feelings but then look for small ways to stay present and keep one eye on that beacon of hope.

Sincerely,
The Anxious Awaiter

Dear Confident Caregiver,

Preparing for my loved one's CAR T cell therapy felt like planning for a marathon I knew nothing about. The hospital stay was a huge focus: I meticulously packed essentials, organized notes for doctors and nurses, and steeled myself for the emotional toll. Juggling my own responsibilities, trying to maintain some normalcy at home, and being a constant source of strength for my loved one felt truly immense at times.

My best advice? Build your support team early. Don't do it alone. And remember to care for your own mental health, too. You can't pour from an empty cup, and your well-being is just as vital as theirs.

Sincerely,
The Prepared (But Stressed) Partner

Dear Resilient Warrior,

Walking out of the hospital after CAR T cell therapy was incredible, yet also the start of a whole new chapter of recovery. The fatigue was unlike anything I'd experienced, making simple tasks feel monumental. My mental health also needed attention; even after good news, that anxiety of regular checkups and fear of recurrence can linger.

I've found immense benefit in prioritizing rest and slowly reintroducing gentle movement into my day. And I often didn't have an appetite, but think of food as your fuel for healing. Recovery is a journey, not a destination, and it's absolutely vital to communicate your evolving needs to your care team and loved ones.

Sincerely,
The Rebuilding Fighter



Myth — Care partners don't need to know or prepare much for CAR T cell therapy.



Fact — Care partners play a vital role in supporting patients through CAR T cell therapy and can do several things to help prepare in advance.

Care partners:

- Can be a loved one, friend or hired helper
- Provide day-to-day, emotional and physical support
- Help monitor for side effects, communicate with the healthcare team and manage practical needs (appointments, transport, home hygiene)
- While care needs are not always constant, care partners need to be available 24/7 during recovery

It's normal to get overwhelmed, so it's important for care partners to **take breaks, ask for help and practice self-care**.

You are not alone. Healthcare teams offer guidance and resources to prepare and support care partners in this essential role.



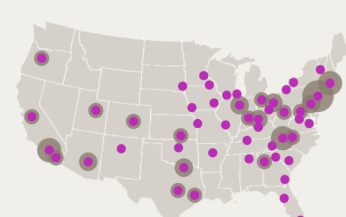
Myth — My treatment center doesn't offer CAR T, so I probably can't get it.



Fact — If you are eligible to receive CAR T cell therapy, your doctor can refer you to a CAR T cell therapy center.

Specialized treatment centers provide CAR T cell therapy. Their teams are trained to give treatment and support you through the process. After treatment, you can return to your referring doctor for follow-up care.

The number of treatment centers continues to grow, with sites available around the U.S.



Use the U.S. [CAR T cell therapy treatment center locator](#) to find a center near you.

[Cell Therapy 360®](#) also provides solutions-oriented programs for eligible patients* who have been prescribed a BMS CAR T cell therapy, as well as their care partners. These programs offer support throughout the treatment journey, including assistance with transportation, lodging and meals.

Visit [CellTherapy360.com](#); or call 1-888-805-4555 and select option 1.

*Eligibility requirements apply.



Myth — CAR T cell therapy is too expensive, and insurance doesn't cover the cost.



Fact — Cost is an important part of cancer care. The majority of commercial insurance plans and most government payers cover CAR T cell therapies.



- For Medicare patients, CAR T cell therapies are covered for all FDA-approved indications under the National Coverage Determination.
- The price most patients pay for CAR T cell therapies varies according to their insurance coverage and patient cost-sharing benefit design.



Additional assistance and support programs may be available from authorized treatment centers, product manufacturers, charitable foundations, patient financial support programs and other sources. Eligibility requirements may apply and vary by program.

When discussing CAR T cell therapy with your doctor, clarify who on your healthcare team can assist with insurance coverage. To determine your insurance coverage for CAR T cell therapy, contact your provider and ask:

- Is the treatment location covered by my plan?
- Does my plan cover CAR T cell therapy? If not, what is the review process?

[Cell Therapy 360®](#) can investigate patient-specific coverage, coverage requirements and out-of-pocket (OOP) costs for BMS CAR T cell therapies.

Visit [ExploreCellTherapy.com](#), consult your care team to see if this treatment is right for you or your loved one, or find a [CAR T cell therapy treatment center](#) near you.