

A photograph of two women embracing outdoors at sunset. The woman on the left has long, straight, reddish-brown hair and is wearing a dark brown, textured sweater. The woman on the right has short, wavy, light-colored hair styled in a bun, is wearing a yellow ribbed sweater over a white collared shirt, and has a gold hoop earring. The background is a soft-focus landscape with trees and a bright sun low on the horizon, creating a warm, golden glow. The text 'Your treatment pathways' is overlaid in white on the left side of the image.

Your treatment pathways

for acute myeloid leukemia (AML)

Learning that you have acute myeloid leukemia (AML) can be emotional and scary.

AML is a type of blood cancer. When you are diagnosed with AML you need to learn about your disease and your treatment choices. You need to make decisions that are life-changing.

Learning more about your leukemia and your treatment choices can help you cope and get the best result.

How to use the pathways in this booklet

This booklet shows 3 different treatment pathways that you may follow.

The treatment pathways for AML are complex. To understand them best you should review them with your health care team.

Your health care team can tell you details about your own AML treatment options.

"Getting the diagnosis of a bone marrow cancer was very scary, but I was well supported along the way."

Patient and Family Advisor, *Cancer Care Ontario*



Your health care team is your best source of information about your stem cell transplant.

Common Word List

Here is a list of words and terms that you will hear after you are diagnosed with AML.
You will see many of them in this booklet.

Acute myeloid leukemia	A fast-growing cancer of the blood and bone marrow. It causes the bone marrow to make abnormal myeloblasts (a type of white blood cell) which build up and cause low red blood cells and platelets.
Allogeneic stem cell transplant	A transplant where blood stem cells are taken from either a related or unrelated donor and put into your blood.
Bone marrow	The soft, spongy tissue inside of bones that makes blood forming stem cells.
Bone marrow aspiration and biopsy	Procedures to collect and examine bone marrow from inside your bones.
Central venous catheter (central line)	A long, hollow plastic tube that is placed inside a vein and ends up near your heart. It is used to give you medicine, like chemotherapy, and to infuse stem cells during your transplant.
Chemotherapy	Medicines that destroy cancer cells or stop them from growing. It is usually given through your central line right into your vein.
Clinical trial	A type of research study that tests how well a treatment works on people and what the side effects might be.
Conditioning therapy	The chemotherapy and/or radiation therapy needed to prepare you for your stem cell transplant.
Cord blood transplant	A transplant using donor cells that are collected at birth from the umbilical cord of a baby.
Cytogenetics	A type of test that looks at the genetic or chromosome structure within cells.
Donor	A person who gives cells from their bone marrow or blood. A related donor is someone from your family. An unrelated donor is someone who is found through OneMatch.
Graft vs. host disease	A condition that happens when the immune system in your donor's cells attacks your body's normal cells. It can be acute or chronic.
Haploidentical transplant	A transplant using donor cells that are not a perfect match for you but are a half-match. Parents and their children are a half-match for each other.

Human leukocyte antigen (HLA)	A protein, or marker, found on most cells in your body. You get half of these markers from your mother and half from your father.
HLA typing	A blood test to see which HLA markers a person has.
Induction chemotherapy	The first treatment for leukemia. High doses of chemotherapy are used to put your leukemia into remission.
Neutrophils	A type of white blood cell that helps your body fight infections.
OneMatch	Part of the organization Canadian Blood Services that manages the unrelated stem cell donor registry.
Palliative care	Care given to improve your quality of life. It helps with managing the symptoms of disease, side-effects of treatment and any emotional problems you may have.
Re-induction chemotherapy	Treatment given after relapse, to try to put you back into remission.
Remission	Complete or partial disappearance of the signs of a disease after getting treatment.
Round of chemotherapy	Can also be called a cycle of chemotherapy. A round or cycle of chemotherapy is a series of treatments given over a period of time with a rest period after each treatment cycle.
Stem cell	A cell from which other types of cells are formed. For example blood cells are formed from blood-forming stem cells.



- For AML patients a stem cell transplant will always be allogeneic, which means the cells come from a donor.
- You may also hear the terms bone marrow transplant (BMT) or hematopoietic cell transplant (HCT).
- In this booklet the term stem cell transplant is used.

If you have questions about what any words mean, talk to your health care team.

What is an allogeneic stem cell transplant?

- Some patients with AML will need an allogeneic stem cell transplant.
- An allogeneic stem cell transplant is when healthy stem cells are taken from a donor to replace your unhealthy stem cells.
- Special blood tests (called HLA typing) are done to help find a donor who is the best match for you.

"The day of the transplant was both exhilarating and scary - I was so happy that the day had finally come and that a cure might be at hand, but it was also scary to face the possible upcoming side-effects."

Patient and Family Advisor, Cancer Care Ontario

What are the steps in an allogeneic stem cell transplant?

There are 4 main steps to getting an allogeneic stem cell transplant. At each step you will have many tests and procedures.

1

Preparing your body

You will be treated with chemotherapy and in some cases radiation therapy. This gets your body ready to accept the donor cells and may kill some of the leukemia cells in your body. These treatments are called the conditioning regimen.

2

Infusing the cells

You will get the healthy stem cells from your donor right into your bloodstream through your central line. This is called the infusion. The healthy cells find their way to the bone marrow. Infusing the cells usually takes up to a few hours.

3

Engraftment

Your new bone marrow will take time to grow and make healthy blood cells. This is called engraftment. It usually takes up to 4 weeks.

4

Recovery

Your body will keep getting stronger during your recovery. It will keep growing new bone marrow and immune system cells. This may take several months.



This is a simple way of describing a complex medical treatment. To learn more about stem cell transplant you can go to the websites listed on the last page.

Risks to know about

- For many patients a stem cell transplant is the best hope for living longer.
- It can be a life-saving treatment but it does have risks.
- Your transplant team will help you manage these risks in every way that they can.

There are 3 main reasons why a stem cell transplant can cause harm:

1

Radiation and chemotherapy may harm your intestines, kidneys, liver, the lungs and heart. Usually this is short-term but it can be severe and life-threatening.

2

Your new immune system will not work very well during the first few months after your transplant. This can make you weak and more likely to get infections. An infection after a stem cell transplant can be dangerous and even cause death.

3

The immune system in your new stem cells knows that it is in a new body and can try to attack it. This is called graft-versus-host-disease or GVHD.

Other things to think about

There are many parts of your life that will be affected by your stem cell transplant.

Some things to consider and talk about with family, friends and your health care team are:

- Your fertility and if you would like children in the future
- Your support system to help you through the challenges of a stem cell transplant
- How you feel about getting a stem cell transplant
- How you will manage the side-effects of your treatment
- Practical concerns like money, child care and your job



Your health care team will talk to you about the risks and possible benefits of a stem cell transplant.

"Although the risks of getting a stem cell transplant were so significant, the risks of NOT doing the transplant seemed much more significant to me!"

Patient and Family Advisor, *Cancer Care Ontario*

Planning in case you need a stem cell transplant

Key points

- You will be tested for your human leukocyte antigen (HLA) type right away.
- A search will begin right away for a donor.
- Most patients will have a donor that will work.

Diagnosis

If you have been diagnosed with AML, there is a chance that you will need a stem cell transplant.

Finding your HLA type

Your health care team will do blood tests to find your HLA (human leukocyte antigen) type. HLA is a protein, or marker, on your cells.

You and your donor will need to have a similar HLA type.

There is not always a donor match for every patient.

If a good enough match is not found for you then you may:

- Wait for a match. New people are added to the donor registry every day. You may need more rounds of chemotherapy to keep your disease in remission while you wait.
- Complete your chemotherapy and be followed closely by your healthcare team to see if your leukemia comes back.
- Talk to your health care team about a clinical trial.

Testing your siblings for their HLA type

Brothers and sisters have the best chance of being a match for your HLA type.

If possible, your siblings may be tested to see if they are a match. Most of the time this will be done by a blood test.

Search for a volunteer unrelated donor or a cord blood donor

The search is done by OneMatch at Canadian Blood Services. It searches for possible donors all over the world.

Search for a haploidentical donor

This is also called a half-match donor. If you have no match through your siblings or through OneMatch then your health care team may talk to you about using a half-match donor.

Treatment pathways for AML

After your induction chemotherapy you will start on one of the pathways.

Which pathway you follow depends on how your AML responds to the chemotherapy.

Key points

- The 3 pathways are shown in more detail on the next pages.
- Follow the arrows to understand the pathway.
- Depending on your general health and other medical issues, induction chemotherapy may not be right for you.

Induction chemotherapy

This is the first chemotherapy you will get.

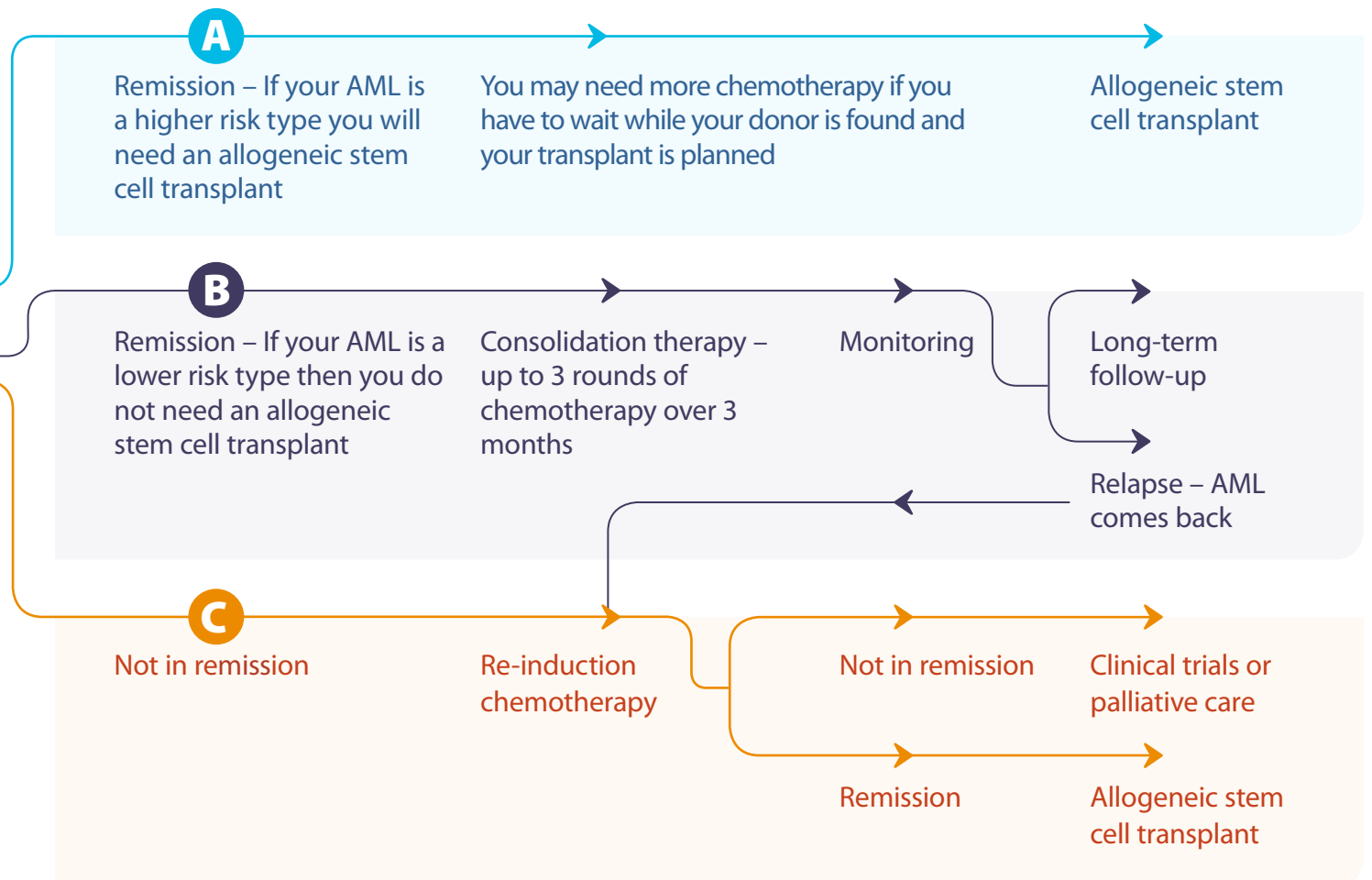
You will likely stay in the hospital during your induction chemotherapy.

For more information about

Treatment Pathway **A**
go to page 9

Treatment Pathway **B**
go to page 10

Treatment Pathway **C**
go to page 11



Treatment Pathway **A**

This pathway explains what may happen if you need a stem cell transplant after your induction chemotherapy.

Key points

- If your leukemia is high-risk you will need a stem cell transplant as part of your first treatment plan. Your health care team will tell you what kind of leukemia you have.
- It is possible for your leukemia to come back after a stem cell transplant. Talk to your health care team to learn more about this risk.

1

Induction chemotherapy

The first phase of your treatment is called induction chemotherapy.

You will be given chemotherapy to try to put your leukemia into remission.

For most patients, your leukemia will go into remission with induction chemotherapy.

2

Stem Cell Transplant

Tests may show that your leukemia is at high-risk of coming back quickly.

You need a stem cell transplant to keep your leukemia in remission.

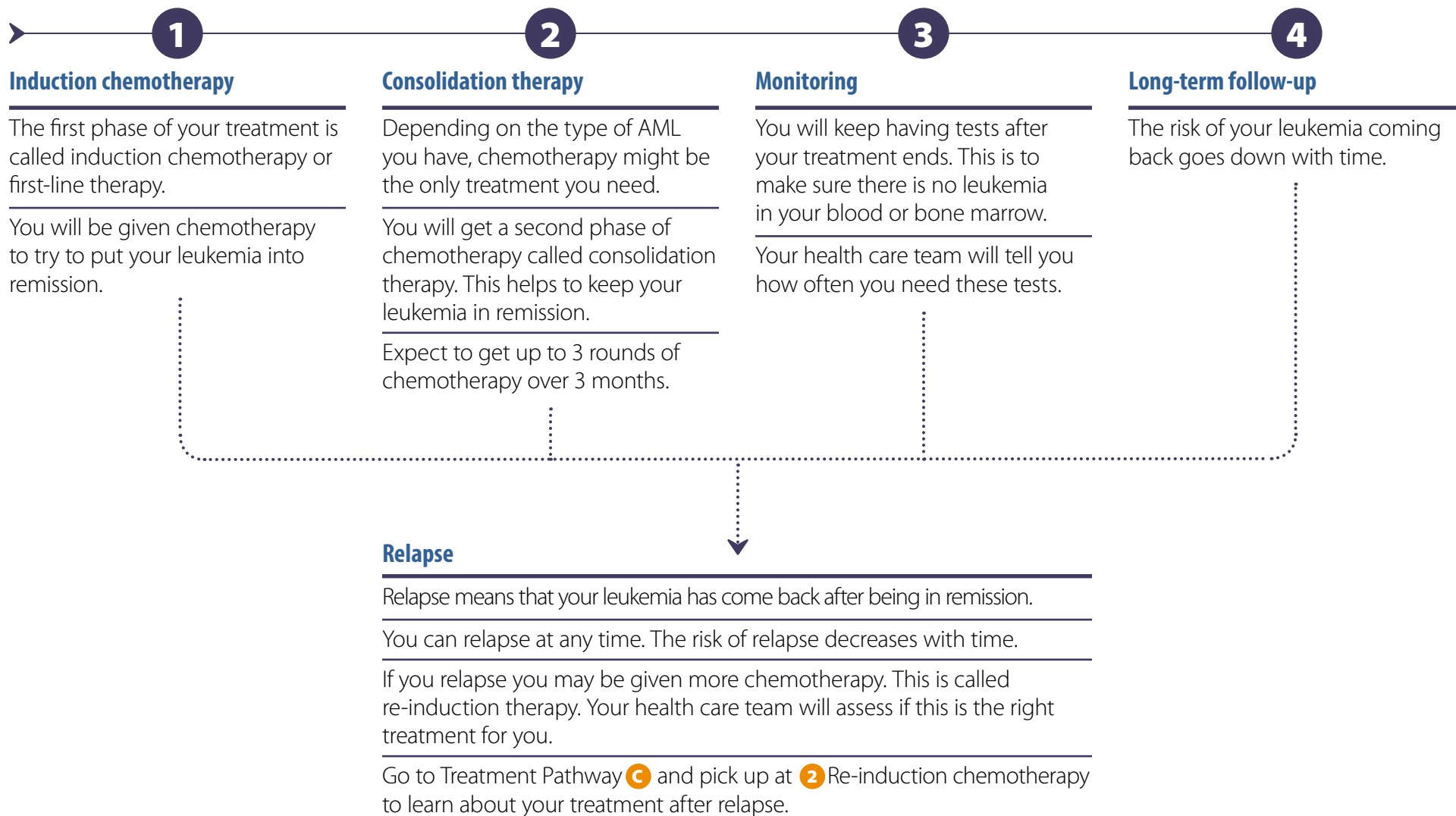


Treatment Pathway **B**

Key points

- If your leukemia is lower-risk you may not need a stem cell transplant right away.
- The hope is that your leukemia stays in remission long-term or forever.
- If your leukemia does come back at any time you will get more treatment and you may need a stem cell transplant.

This pathway explains what may happen if you do not need a stem cell transplant right away.

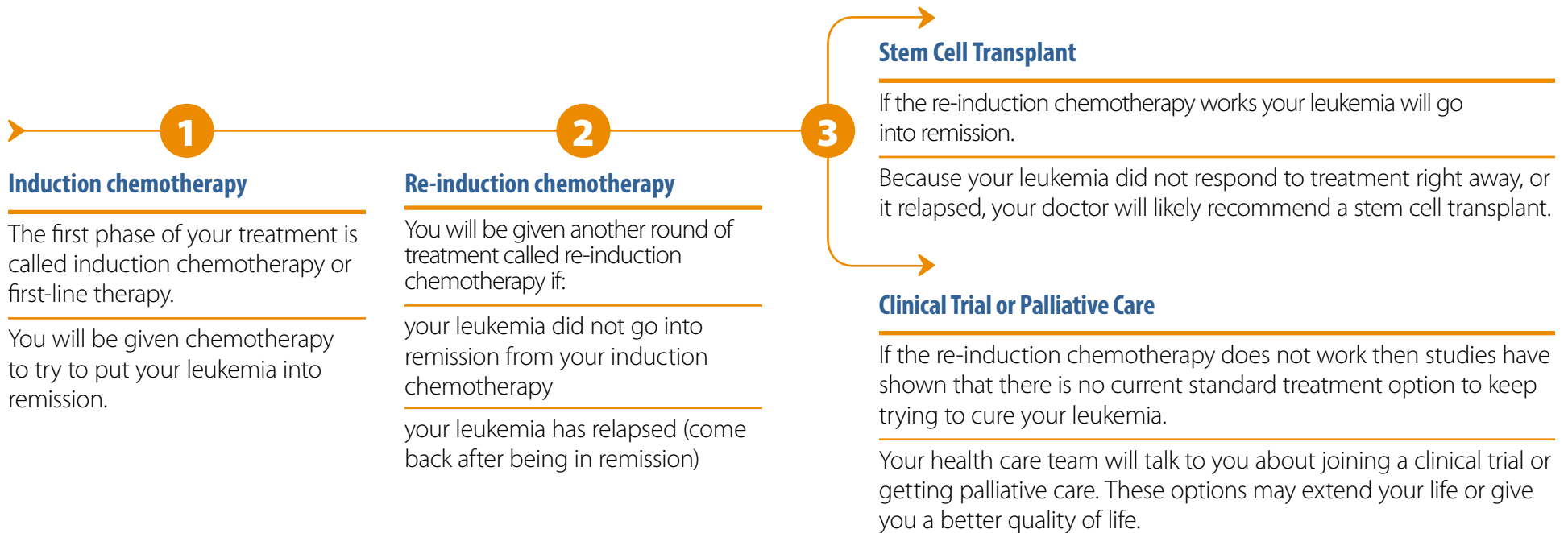


Treatment Pathway

This pathway explains what may happen if you need a stem cell transplant if your leukemia did not go into remission after your induction chemotherapy, or if it has relapsed.

Key points

- You will likely need a stem cell transplant if:
 - You needed two rounds of chemotherapy (induction and re-induction) to go into remission.
 - Your AML has relapsed.



In some cases your health care team may recommend a stem cell transplant when you are not in complete remission. Talk to your health care team if you want to know more about this option.

You may not follow the pathways in this booklet.

Not every patient's treatment will follow these pathways.

Your doctor **may recommend** a stem cell transplant when it is not shown on the pathway because:

- Newer evidence may show that a stem cell transplant may help you
- You are almost in remission and your doctor thinks a stem cell transplant will still work

Your doctor **may not recommend** a stem cell transplant when it is shown on the pathway because:

- Your body is weak from leukemia and/or the treatments and your doctor does not think a stem cell transplant would be safe enough
- Newer evidence may show that there is a different treatment option that is better for you





Where to get more information

This booklet has given you information about the different ways you might get to an allogeneic stem cell transplant.

Here are some good sources of information for you to learn more about your allogeneic stem cell transplant.

- **Be the Match:**
www.bethematch.org
- **OneMatch and Canadian Blood Services:**
www.blood.ca
- **Canadian Cancer Society:**
www.cancer.ca
- **Canadian Cancer Trials:**
www.canadiancancertrials.ca
- **The Leukemia & Lymphoma Society of Canada:**
www.llscanada.org/



This patient guide was created by Cancer Care Ontario to provide patients with information about Acute Myeloid Leukemia (AML) treatment pathways. It should be used for information only and does not replace medical advice. This guide does not include all information available about AML treatment pathways. Always ask your health care team if you have questions or concerns.

The information in this guide does not create a physician-patient relationship between Cancer Care Ontario and you.

Need this information in an accessible format?

1-855-460-2647, TTY (416)217-1815,
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