

# OUTPATIENT AUTOLOGOUS PRE-TRANSPLANT --- CLASS

Please sign in on clipboard.

Please silence cell phones and turn off  
recording equipment.

## Transition Nurses

Christine Alfonso, RN, BSN, BMTCN

Kristin Graff RN, MSN

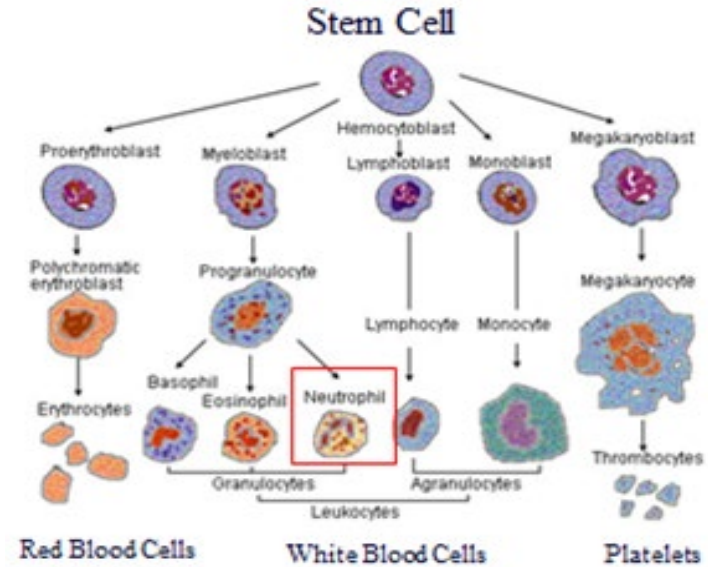
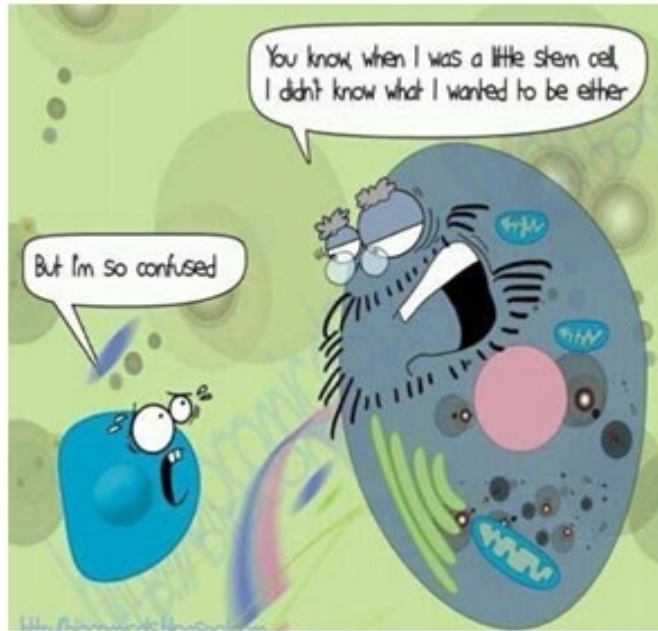
Melanie Sikes, RN, BSN

Arlene Zawatski, RN, BMTCN

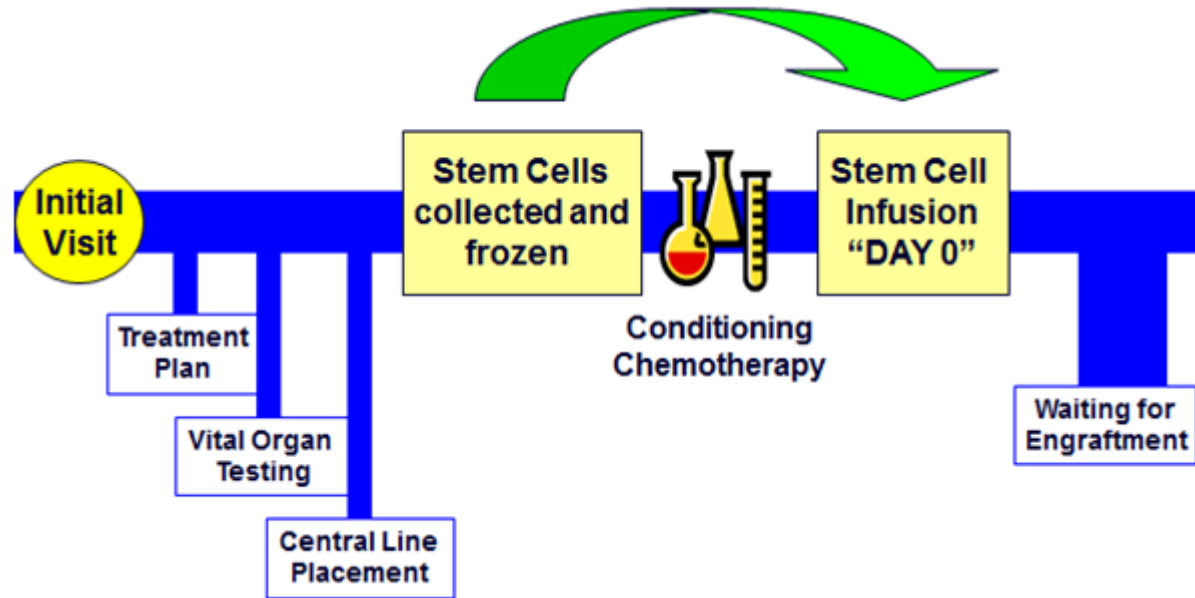
# AUTOLOGOUS STEM CELL TRANSPLANT

- ❑ Bone marrow and cancer cells are destroyed with high dose or “conditioning” chemotherapy
- ❑ Stem cell transplant occurs after completion of conditioning chemotherapy
- ❑ Cells begin to grow or “engraft” and create new bone marrow in approximately 10 – 12 days

# What is a Stem Cell?

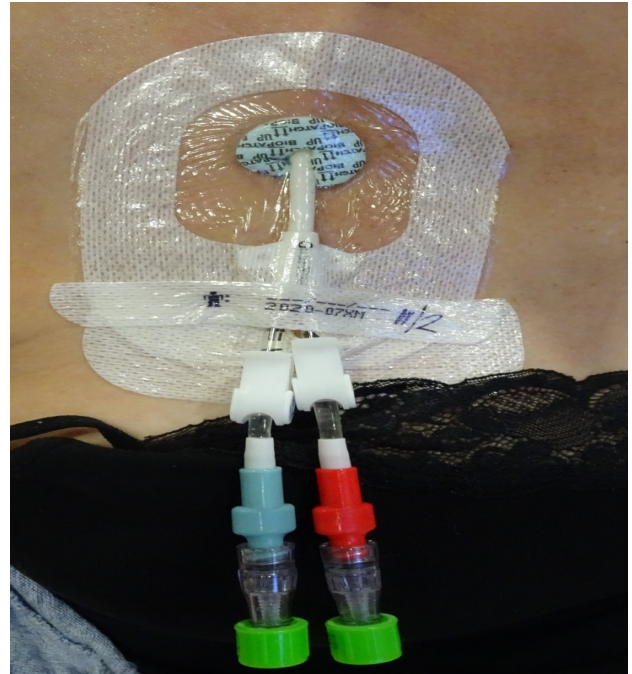


# AUTO TRANSPLANT TIMELINE



# CENTRAL LINE

- A hollow, plastic tube placed in the chest and tunneled under the skin
  - Inserted before collection
  - Removed before returning home
- Used for:
  - Collection and infusion of stem cells
  - Chemotherapy
  - Most blood samples
  - IV fluids and IV medications



# STEM CELL COLLECTION (Apheresis)

- ❑ Growth factor injections (Neupogen/Zarxio/Mozobil) given once daily for 4-5 days
  
- ❑ 4<sup>th</sup> day: labs drawn to check stem cell count
  
- ❑ 5<sup>th</sup> day: collection begins
  - ❑ in outpatient apheresis center
  - ❑ can last up to 10 hours per day
  - ❑ can range from 1-3 days
  - ❑ Staff will notify you with instructions if more than 1 day of collection and additional growth factor injections are needed
  
- ❑ Cells are processed, divided into bags, frozen & stored



# CONDITIONING THERAPY

- Conditioning therapy (chemotherapy) is given over 1 to 6 days depending on treatment plan
  
- Scheduled nausea medications given
  - Additional nausea medications available as needed
  
- Ice chips with Melphalan chemotherapy
  - Decreases severity of mouth sores
  - Hold ice chips in mouth and allow to melt
  - Use 5 minutes before start of infusion, during infusion, and for 15 minutes after the end of infusion

# HOME CHEMOTHERAPY PRECAUTIONS

- Take precautions with all body fluids (vomit, urine, stool) until **48 hours after the end of chemotherapy**
- For caregivers:
  - Avoid contact with patient's body fluids by wearing gloves when handling dirty linen or clothing
  - If linen or clothing becomes dirty, wash items separately once before washing with other laundry
  - Wash hands thoroughly with soap and water after providing any care
- For patients:
  - Make sure toilet seat is clean and dry and that you sit when urinating
  - Close toilet lid before flushing to avoid splashing: Flush Twice
  - Wash hands thoroughly with soap and water after using the bathroom



# TRANSPLANT DAY

- Stem Cell infusion on Day “0”
  - Pre-medications given to prevent reactions
  - May receive IV fluids before/after transplant
  - Stem cells are infused at bedside by nurse
  - Length of time depends on # of bags
  - Nurses monitor for possible reactions (itching, hives, cough, vital sign changes, etc.)
  - Report any new symptoms to nurse right away

# ENGRAFTMENT

- Red blood cells, white blood cells, and platelet counts will drop after conditioning therapy, which is expected.
- These counts will rise as new blood cells start to grow from your stem cells following your transplant. This is called “engraftment”.
- Usually, the first cells to return are white blood cells, then red blood cells, and finally platelets
- Neupogen is given daily starting on Day + 7 until Absolute Neutrophil Count (ANC) > 1500
- As you wait for engraftment, you experience the side effects of conditioning therapy and can experience complications of transplantation

# COMMON SIDE EFFECTS OF CONDITIONING THERAPY

- Nausea and vomiting
- Diarrhea
- Decreased appetite
- Mouth sores (mucositis)
- Hair loss
- Pain
- Fatigue, changes in memory & concentration
- Decreased blood cell counts
- Infection

# DECREASED BLOOD CELL COUNTS

- ❑ **White Blood Cells (WBCs)**
  - ❑ Neutrophils are a type of WBC that can respond to infection
  - ❑ Absolute Neutrophil Count (ANC) < 500 means you are neutropenic and at high risk for infection
- ❑ **Red Blood Cells (RBCs)**
  - ❑ Carry oxygen to the body
  - ❑ Measured in the blood by Hemoglobin (Hgb)
  - ❑ Hgb < 7.0 requires blood transfusion unless specified by BMT doctor
- ❑ **Platelets**
  - ❑ Help to prevent bleeding by helping the blood to clot
  - ❑ Bleeding risk increases when platelet count is < 50
    - ❑ Please report any signs of bleeding
  - ❑ Platelet count < 10 requires platelet transfusion

# INFECTION

- Can occur anywhere in the body
- You will take medications to prevent infections:
  - Bacteria (Antibiotics)
  - Viruses (Antivirals)
  - Fungus (Antifungals)
- Check your temperature twice daily (AM & PM)
- Fever is **100.4** degrees F or higher
- Call BMT immediately!
  - You will be admitted to the hospital
  - Tests are done to rule out infection

# INFECTION PREVENTION

- Precautions begin with the start of chemotherapy
- Patients must wear a yellow duck-billed mask when outside local lodging, even when taking a walk or coming to BMT clinic.
- Once patients begin chemotherapy, they should avoid public places until engraftment (ex. Grocery store, movie theater, etc).
- Everyone MUST wash their hands (patients, visitors, staff)
- Absolutely NO sick visitors
- Follow immunosuppressed diet guidelines
- No fresh or dried flowers allowed
- Remove **gel, artificial nails**, and all piercings except earrings
- Wear glasses instead of contact lenses

# CHG (Hibiclens)

- CHG (Hibiclens) is a medication for your skin that helps prevent infection.
  - CHG soap or wipes must be used daily.
  - CHG soap is applied directly to skin and rinsed in the shower.
  - CHG wipes can be used in place of showering and do not require rinsing
  - Do not use CHG on face - use liquid soap/body wash instead.

# MOUTH CARE

- Rinse mouth with saline 4 times daily
  - Provided by BMT Treatment Center
  - Avoid mouth rinses that contain alcohol
- Toothbrush should be changed 48 hours after chemotherapy completed and every 7 days while neutropenic
  - Provided by BMT Treatment Center
- Keep toothbrush open to air to dry
- No dental flossing, toothpicks or water picks until platelet count is greater than 50,000



# BLEEDING PREVENTION

- Precautions begin with the start of chemotherapy
- Soft toothbrushes are to be used. Avoid dental flossing
- Avoid “blood thinners” (ex. Aspirin, Coumadin, Lovenox, Fragmin, Eliquis, etc.) as directed by BMT doctor
- Avoid forceful nose blowing
- Electric razors only
- Avoid trimming fingernails or toenails
- No vaginal tampons, rectal temps or suppositories

# PAIN MANAGEMENT

- Pain is common during transplant.
  - Examples: mucositis, abdominal pain, body aches, bone pain, continued chronic pain
- It is OK to use pain medication to control your pain!
- You will not become addicted if using pain meds for pain management
- Dosing can be adjusted to reduce side effects while still controlling your pain.
- Our goal is to keep your pain at a comfortable level.
- We continuously ask about your pain to make sure we are meeting this goal. Please let us know your expectations.

# DAILY VISITS AND ROUTINE

- Check into BMT Treatment Center every morning at designated time
  - Bring completed patient diary, all medication bottles, and medication list
  
- Labs drawn
  - Medications, IV fluids, and transfusions will be given.
  
- Doctor and Advanced Practice Provider (PA or ARNP) sees patient each day
  - Caregiver may leave after doctor rounds, but must return to review instructions before patient leaves for the day

# PATIENT DIARY

## BMT-CI Outpatient Diary

DATE: \_\_\_\_\_

NOTE: You do not have to wake up during the night to record your temperature, but should check it before going to sleep and when you wake up

| Time               | Food Intake | Fluid Intake | Urine (# of times) | Bowel Movement (# of times) | Temp. | Pain (location, rating 0-10) | Nausea (N) / Vomiting(V) (# of times) | Notes |
|--------------------|-------------|--------------|--------------------|-----------------------------|-------|------------------------------|---------------------------------------|-------|
| 12 AM<br>-<br>4 AM |             |              |                    |                             |       |                              |                                       |       |
| 4 AM<br>-<br>8 AM  |             |              |                    |                             |       |                              |                                       |       |
| 8 AM<br>-<br>12 PM |             |              |                    |                             |       |                              |                                       |       |
| 12 PM<br>-<br>4 PM |             |              |                    |                             |       |                              |                                       |       |
| 4 PM<br>-<br>8 PM  |             |              |                    |                             |       |                              |                                       |       |
| 8 PM<br>-<br>12 AM |             |              |                    |                             |       |                              |                                       |       |

Patient Name: \_\_\_\_\_  
 Date of Birth: \_\_\_\_\_  
 MR #: \_\_\_\_\_



BMT Patient Questionnaire 03/19

Completed by: [ ] Patient [ ] Other Relationship to patient if not patient \_\_\_\_\_

B=Boost W=water



# CLINIC AND TREATMENT CENTER

**NO SICK VISITORS ALLOWED!!!**

- Hand gel is located next to the entry doors and MUST be used by everyone before entering
- Children under the age of 12 are not permitted on the inpatient units or in the outpatient treatment areas
- No more than 2 visitors allowed in room at any one time
- Anyone who has had a vaccination within the past 2 weeks should check with their doctor before visiting
- You may bring small crafts, cards, books, laptop computer, games, or any small form of entertainment
- Snacks and drinks are available and you may also bring your own, but nothing that needs to be refrigerated.

# ONCE ENGRAFTMENT OCCURS

- Less frequent visits to BMT Treatment Center
- You will visit your primary BMT Doctor in their clinic
- You will still have to stay locally for approximately 30 days after date of transplant with caregiver
- Readmission to the hospital may be necessary during this time
- Central line will be removed before returning home
- Decision to return home is made by your primary BMT doctor

# CAREGIVER ROLES & RESPONSIBILITIES:

Must be available 24 hours a day/7 days a week

- Monitor for symptoms
- Monitor temperature
- Manage medications
- Help prevent infections
- Do housekeeping and prepare meals
- Drive & accompany to appointments
- Be a supportive voice & emotional support
- Take care of yourself

# CAREGIVER ILLNESS

BMT-CI Clinic: (813)745-7208

- If the caregiver has a fever, productive cough, runny nose, sore throat, nausea, vomiting, and/or diarrhea—please contact the back-up caregiver immediately and notify the BMT clinic, the patient may require additional testing.
- If a caregiver is sick, he or she cannot continue to act as a caregiver until symptoms resolve or cleared by their doctor.



# BMT-CI Clinic/Treatment Center Contact Information

**Don't hesitate to call!!**

Emergency call **911**

For questions or to report symptoms

Call BMT-CI Clinic at **(813)745-7208**

Ask for Triage

Available 24 Hours a day/7 days a week

At night, if you are unable to reach your clinical team by calling the above number,

Call Moffitt operator at **(813)745-4673**

Identify yourself as a BMT patient

Ask to speak to the Clinical Leader on 3 West

# LODGING

- Patients are required to stay within 30 minutes of Moffitt, further distances need to be approved by the BMT doctor
- If needed, local lodging is available nearby
- BMT social workers assist with these arrangements

# MEDICATIONS

- Use current medication list/prescription bottles
- Bring medication list and all medications to your appointments
- If medications are changed, obtain a new medication list prior to leaving for the day
- Get permission to take medications not on list

# INFECTION PREVENTION

- Avoid crowds and handshaking
- All patients are required to wear ‘duck-bill’ masks until told otherwise. Masks are needed when coming to appointments and in public places
- Do not allow sick visitors or those exposed to contagious diseases to visit. Notify your doctor if you have been around anyone with flu-like symptoms.
- Follow the food safety tips provided by the dietician.

# HANDWASHING

The best way to prevent infection is hand washing!!

**When in doubt, wash your hands!!**

- Before, during, and after preparing food
- Before eating food
- Before or after treating a cut or wound
- After using the toilet
- After blowing your nose, coughing, or sneezing
- After touching or feeding an animal
- After handling pet food or pet treats
- After touching garbage

# HANDWASHING: SOAP AND WATER

- Wet your hands with clean, running water (warm or cold), and apply soap.
- Lather your hands by rubbing them together with the soap. Be sure to lather the back of your hands, between your fingers, and under your nails
- Scrub your hands for at least 20 seconds. Need a timer? Sing “Happy Birthday” twice from beginning to end.
- Rinse your hands well under clean, running water
- Dry your hands using paper towels.

# HANDWASHING: HAND SANITIZER

- Use an alcohol-based hand sanitizer that contains at least 60% alcohol
- Apply the product to the palm of one hand
- Rub your hands together
- Rub over all surfaces of your hands and fingers until your hands are dry
- Do not rinse
- Do not use hand sanitizer if hands are visibly dirty, greasy, or after using the restroom. Use soap and water instead.

# CLEANING

- Patient should avoid being in the room while it is being cleaned
- Minimize exposure to dust & fumes from cleaning products
- Dust with a damp cloth
- Clean eating area and bathroom daily
- Vacuum and mop floors week
- Change sheets/pillow cases weekly



# Patients should AVOID:

Refer to page 49 in the Transplant Guide

- Contact with human or animal feces (no cleaning litter boxes, fish tanks, bird droppings, or changing baby's diapers)
- Contact with animals like birds, reptiles, or rodents
- Zoos, petting zoos, farms, and barns
- Contact with soil, lawn waste, grass, compost, and gardening
- Outdoor activities such as: golfing, hunting, horseback riding, or fishing
- Swimming (no lakes, oceans, pools, or hot tubs)

# Patients should AVOID:

Refer to page 49 in the Transplant Guide

- No construction sites (home renovations, etc.)
- No carpentry or woodworking
- No second-hand smoke (cigarettes, fireplaces, BBQ grills, etc.)
- No handling of chemicals (pesticides, fertilizers, pool chemicals, etc.)
- No illicit drugs or herbals (no marijuana, herbal supplements, vitamins, etc.) unless approved by the doctor

# Patients should USE CAUTION:

## With Pets:

- Patients should not clean up after pets
- Avoid exposure to the face
- Pets should not sleep in the patient's bed
- Wash hands after feeding pets, handling pet treats, and/or petting
- For any pet related injury (scratch/bites), wash area with soap & water, and notify medical team

# Patients NEED PERMISSION from their DOCTOR :

Refer to page 49 in the Transplant Guide

- To resume driving
- To do housekeeping
- To take over-the-counter medication
- To drink alcohol
- To go back to work or school
- To stop wearing the mask
- To travel

# PATIENT EXPECTATIONS:

- Check temperature twice daily (AM & PM)
- Wear SPF 30 or greater sunscreen every day
- Report skin changes or rashes to the transplant nurse or doctor
- Shower and change clothing daily
- Protect the central line while showering
- Change the towel and wash cloth daily
- Continue good oral hygiene

# SAFETY AND FALL PREVENTION

- Patients should wear closed toed shoes and avoid slippery foot coverings
- Patients should use recommended assistive devices (cane, walker, etc.)
- Provide help and assistance to patient as needed

# CALL BMT-CI CLINIC FOR:

BMT-CI Clinic (813)745-7208

- Fever of **100.4** or higher
- Cold symptoms: such as sore throat, runny nose, cough
- Wheezing or cough with bloody, yellow, or green mucous
- Fainting, becoming lightheaded, or dizziness upon standing
- Any fall with or without visible injury
- New or worsening diarrhea
- Bright red, dark, red, or black stools
- New or worsening blood in the urine

# CALL BMT-CI CLINIC FOR:

BMT-CI Clinic (813)745-7208

- Shortness of breath when moving or when lying flat
- Unstoppable nosebleeds
- New or frequent nausea or vomiting
- Bright red, dark red, or black vomit
- Swelling, tenderness, or redness of an arm or leg
- New or worsening pain, including headaches
- Anything that causes you concern- Please call!**



# SUMMARY:

- As a caregiver, you play a vital role in your loved one's care and recovery
- Education is one part of your preparation as caregiver
- BMT Team is available 24 hours for you!!

# QUESTIONS????

