

# Nutrition Support of an Acute Myeloid Leukemia Patient

Sara Diedrich, MPH-Nutrition Student & Dietetic Intern, UW Nutritional Sciences Program  
Preceptor: Julia Marnadi, RD, CD; University of Washington Medical Center



## Case Study

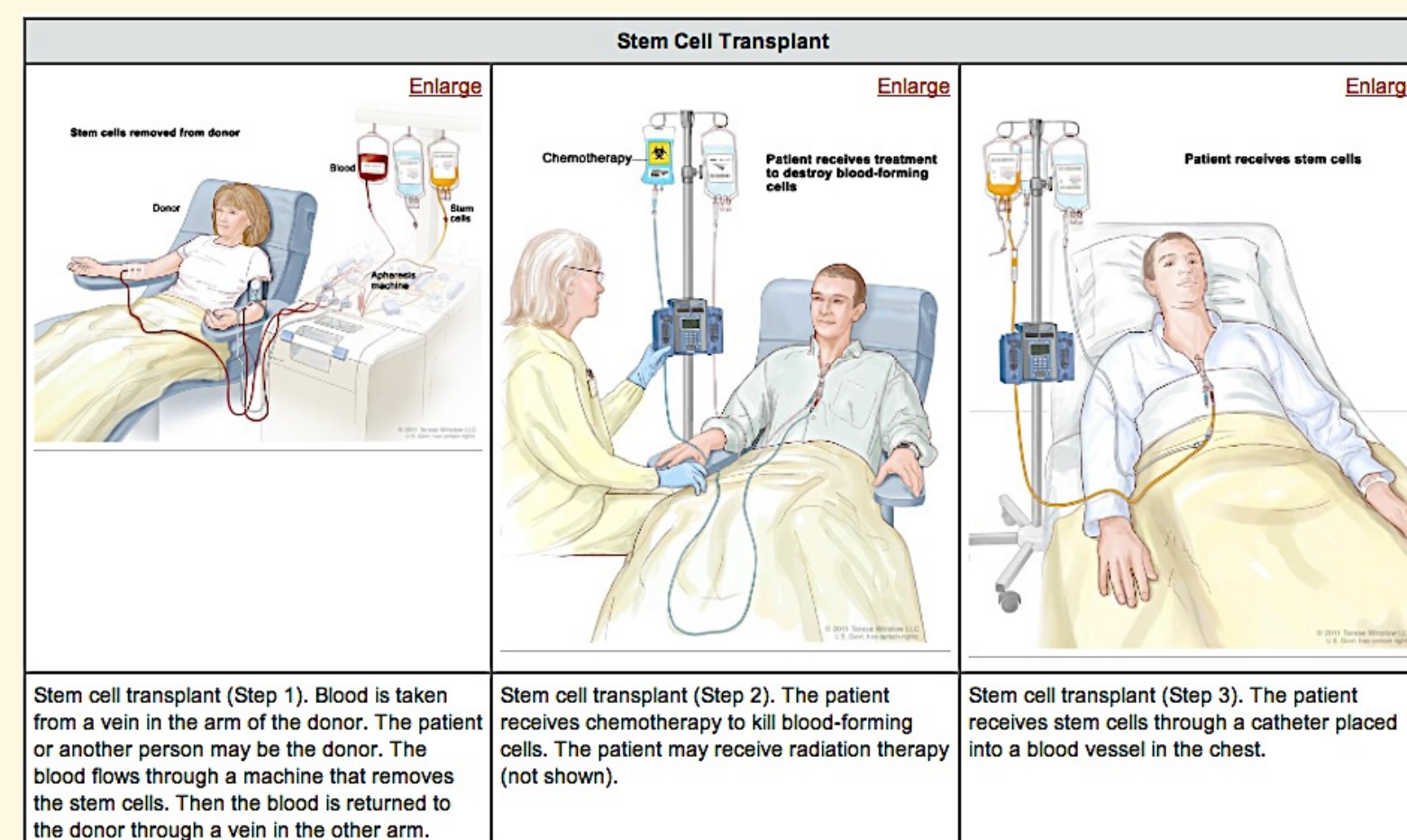
56 year old female with Acute Myeloid Leukemia. Admitted to UWMC for Unrelated Donor Hematopoietic Stem Cell Transplant

## Background

Acute Myeloid Leukemia: Rapidly progressing cancer of the blood and bone marrow (the spongy tissue inside bone where blood cells are made.)

Treatment involves:

1. Chemotherapy: using drugs to stop the growth of cancer cells either by killing them or stopping them from dividing
2. Stem cell transplant: replacing blood forming cells that have been destroyed by cancer with healthy stem cells (immature blood cells) from a donor. These cells grow into and restore the cancer pt.'s blood cells.



National Cancer Institute

## Assessment

Height: 170cm    Weight: 55.7kg    BMI: 19.3

Pt. is at 87% of her UBW. She lost ~10kg over months with chemo. Pt. appears thin with loss of lean body mass. She reports a decreased PO intake d/t chemotherapy. Usually eats a good breakfast, moderate lunch and minimal dinner.

**Diagnosis:** Inadequate PO intake r/t chemotherapy treatment AEB decreased appetite and inability to meet nutritional needs with PO intake.

## Intervention

### 1. Encouraged pt. to eat small, frequent meals high in kcals & protein

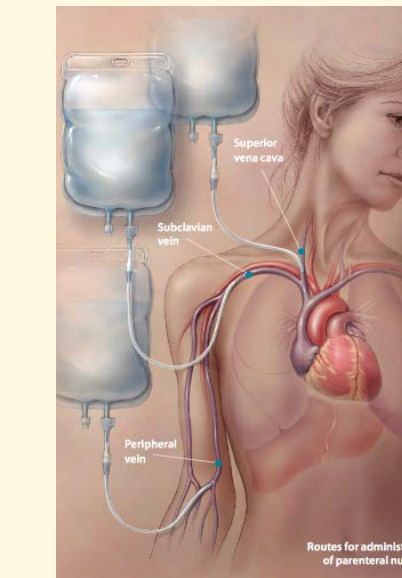
- Day 1-7: Pt. with nausea and decreased appetite

Calculated Energy Needs:

Calories: 1571 – 1813 (BEE x 1.3-1.5)

Protein: 82g (1.5g/kg)

Fluid: 2415mls (1500 x BSA)



### 2. Initiated TPN (total parenteral nutrition) d/t minimal PO intake 7days

[1.9L] 440 ml D50, 800ml AA10, 250 ml 20% lipids MWF

Add Mg sulfate and KCl for repletion of electrolytes

= 1284 kcal, 80g protein, 221g carb, 2.8 GIR

- Day 8: Pt receives stem cell transplant
- Day 9-11: Pt w/ nausea, vomiting, diarrhea and minimal PO intake.

### 3. Decreased TPN volume to 1.2L d/t fluid status (wt +3.8kg since admit)

- Day 12-17: Pt develops mucositis. Advances from grade I to III in four days. Pt unable to tolerate anything PO

### 4. Switched to concentrated TPN

[1.1L] 315 ml D70, 800ml AA10, 250ml 20% lipids

- Day 18-19: Pt.'s mucositis advances to grade IV.
- Day 20: Pt. engrafting - return of WBC and Neutrophils. See graph

### 5. Further decreased TPN volume to 0.85L (wt +4.5kg since admit)

- Day 21-30: Pt.'s mucositis resolves to grade III. Still experiencing vomiting, diarrhea.
- Day 31-32: Pt. undergoes endoscopy for possible GVHD d/t complaints of abdominal pain w/ ongoing diarrhea and vomiting. Results were negative.

### 6. Discontinued TPN. Provide pt. with "Starting to eat" handout

Day 33: Pt. tolerates milk and jello with mucositis continuing to resolve.

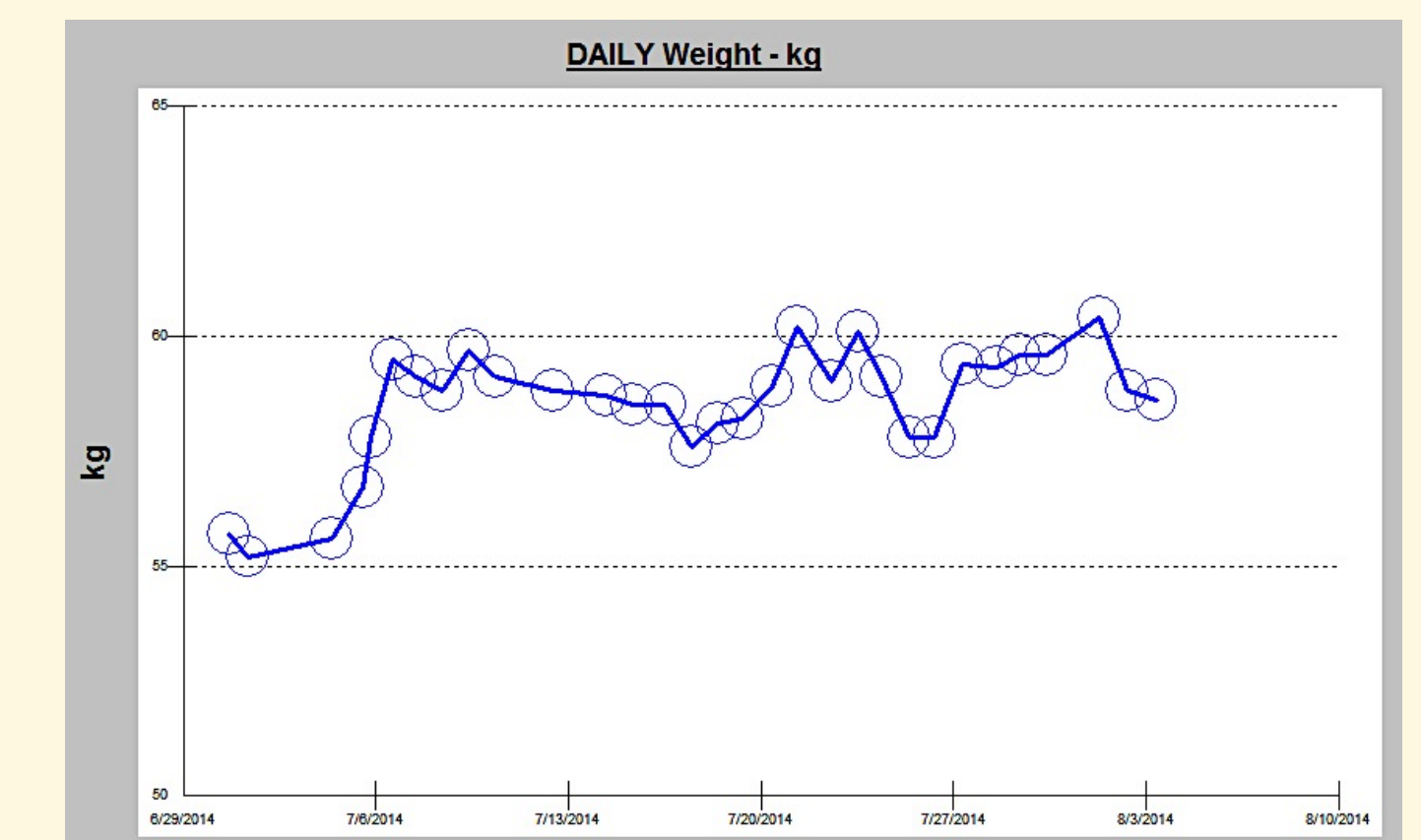
**Outcome:** Day 34, pt. discharged on an Immunosuppressed Diet. Will follow up with an outpatient dietitian at SCCA.

## Helpful Definitions

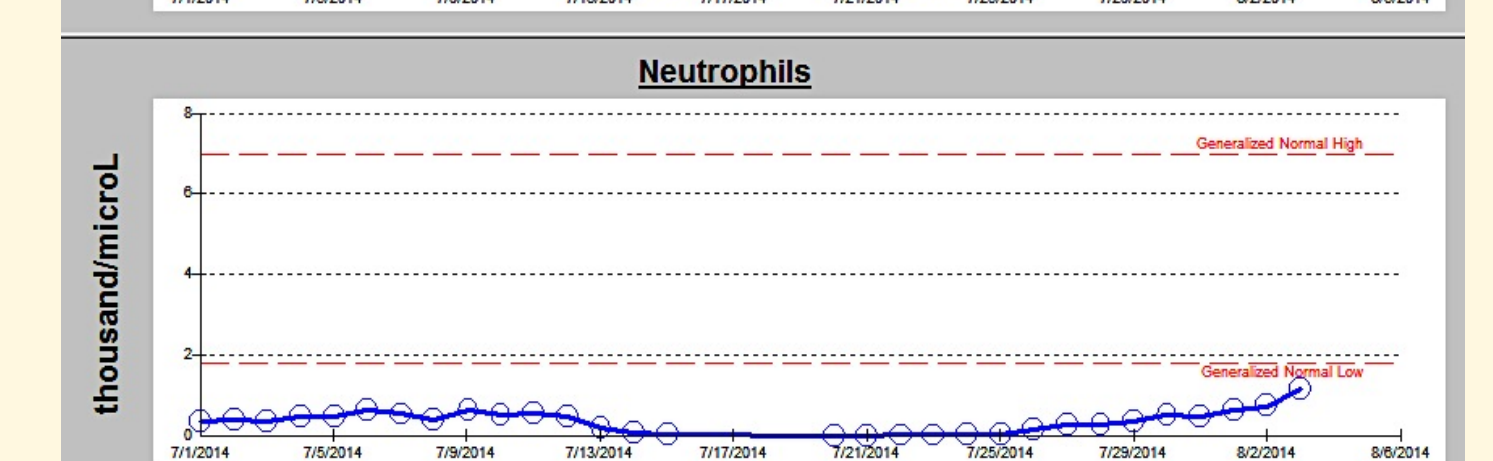
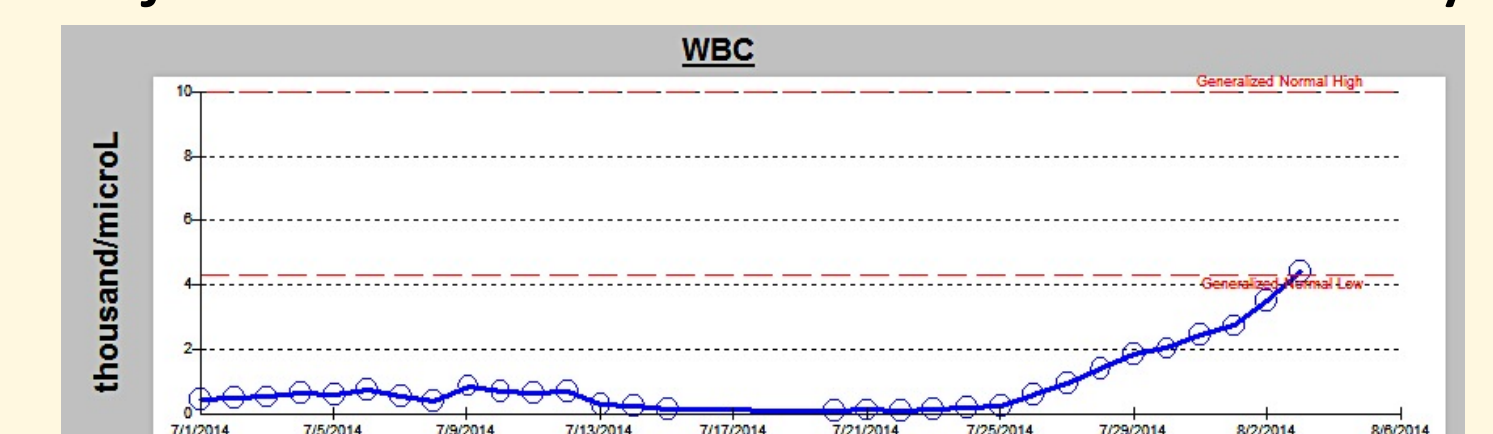
**Mucositis:** occurs when cancer treatments breakdown the epithelial cells in the GI tract  
Signs and Sx include: sores and blood in mouth; red, swollen or shiny gums; difficulty swallowing or talking; increased mucous in mouth

**Graft-versus-host disease (GVHD):** occurs when immune cells transplanted from a non-identical donor recognize the transplant recipient (the host) as foreign, thereby initiating an immune reaction that causes disease in the transplant recipient. Can occur anytime after engraftment.

## Monitoring & Evaluation



Monitored weight to evaluate fluid status and adjusted TPN concentration as necessary.



Monitored WBC and Neutrophil count to evaluate engraftment progression