



Safeguard Your Health from Complications after a Transplant Using Your Own Cells

Celebrating a Second Chance at Life
Survivorship Symposium

April 30 - May 6, 2022



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Autologous Transplant: Late Effects

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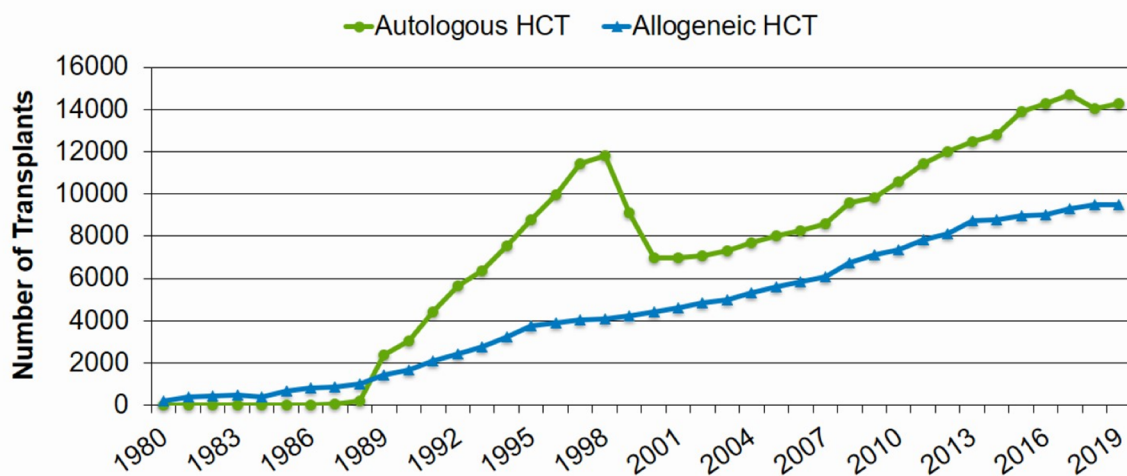


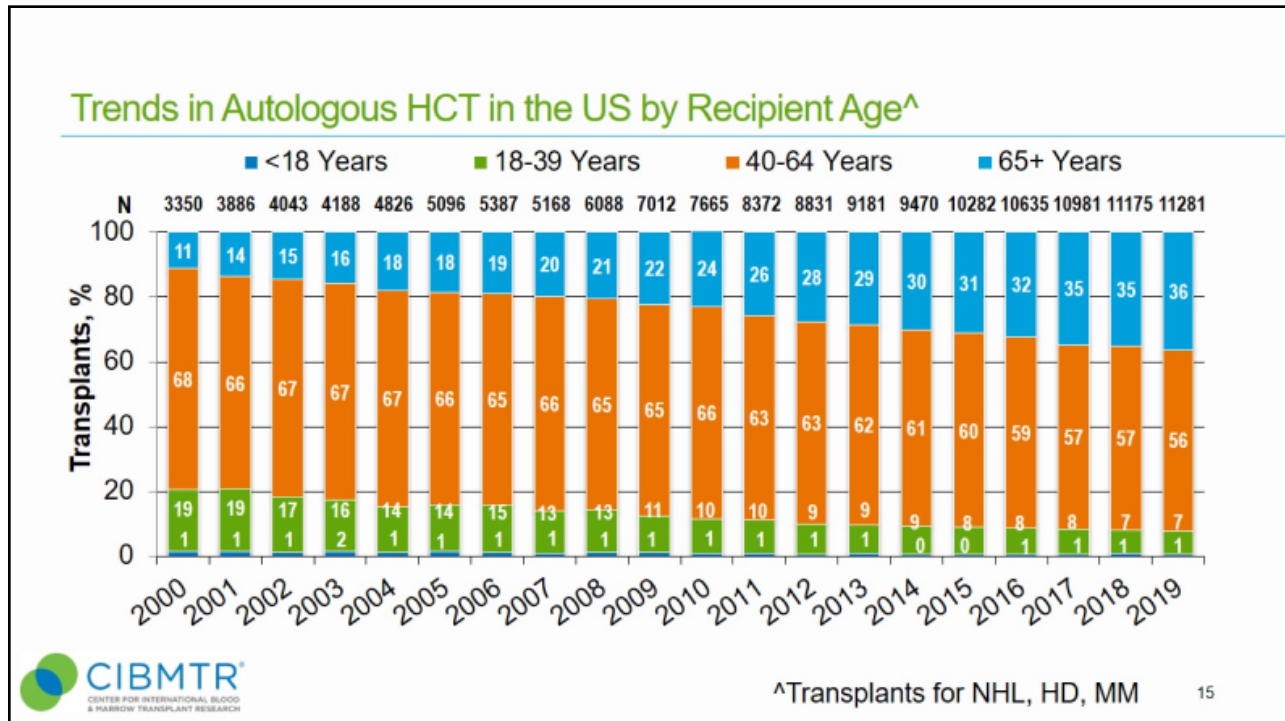
Objectives

- Provide an overview of autologous transplant
- Review late complications of autologous transplant
- Discuss steps you can take to protect your health

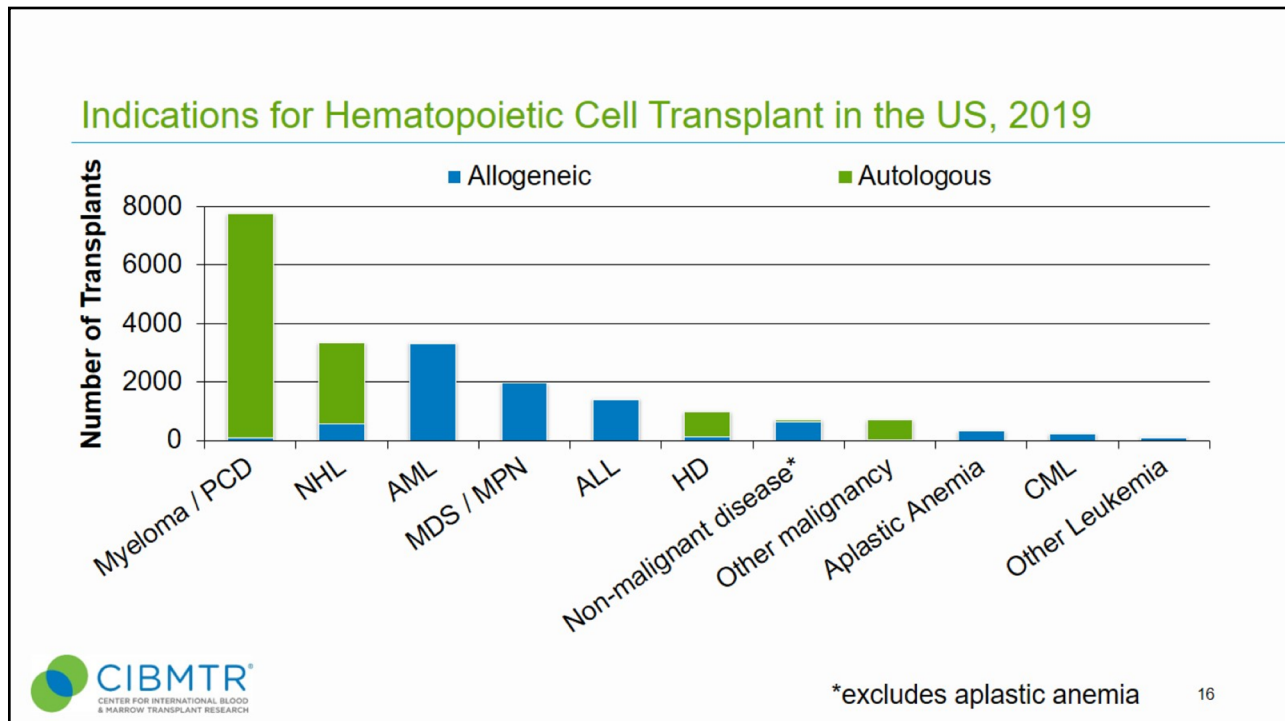


Estimated Annual Number of HCT Recipients in the US by Transplant Type



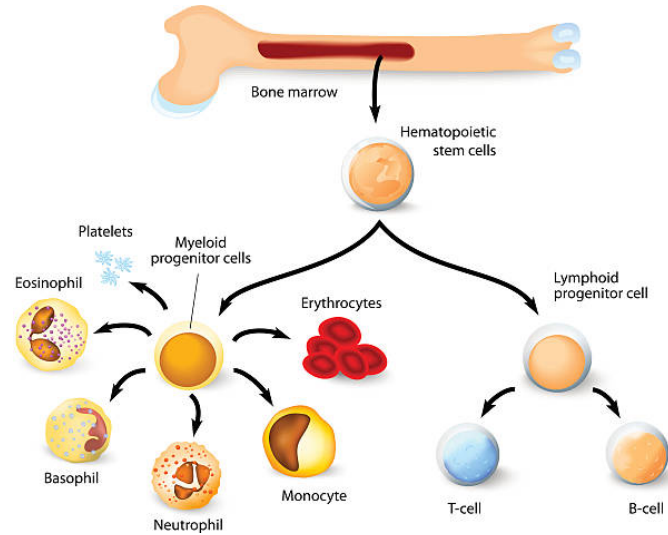


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Hematopoietic Stem Cells



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Purpose of autologous hematopoietic stem cell transplant

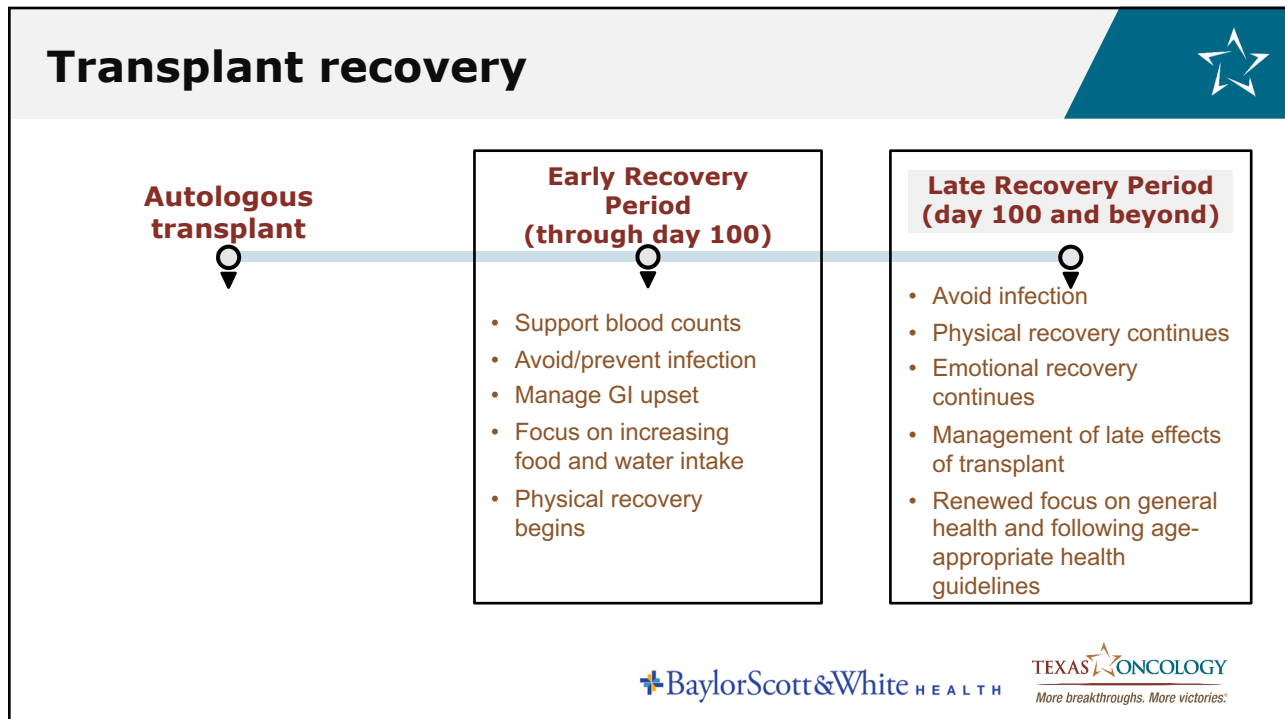
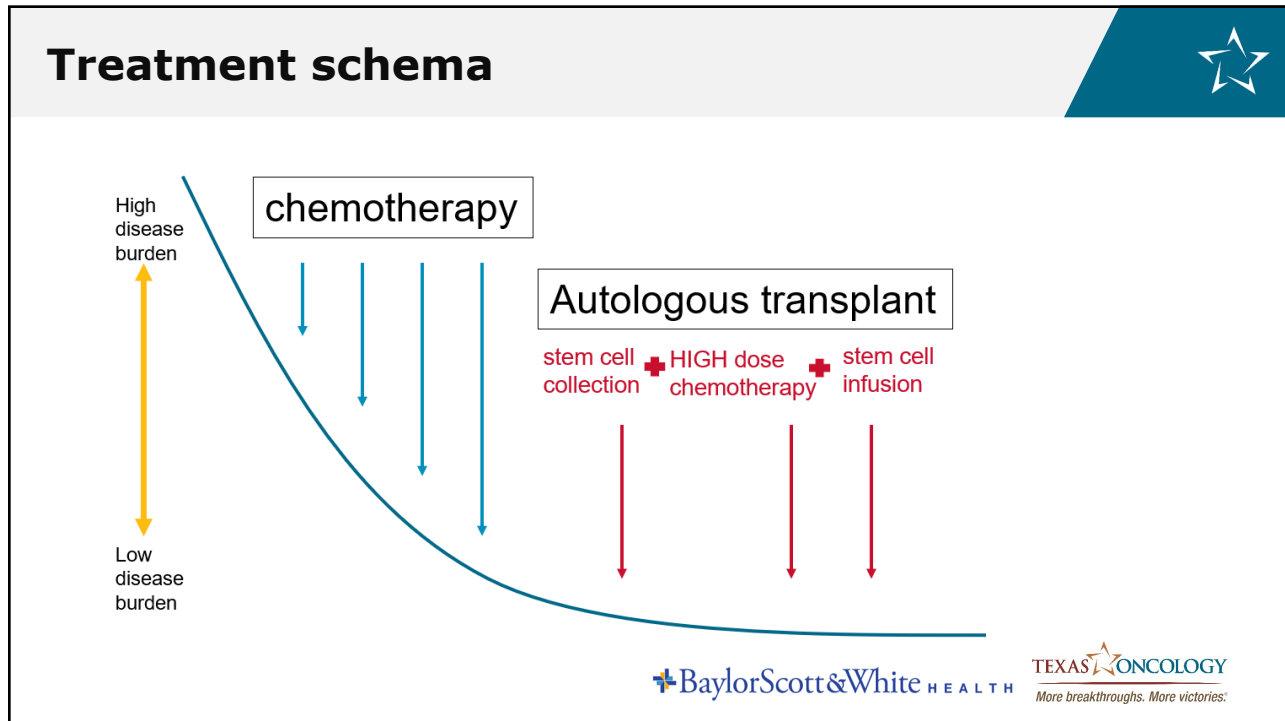


- High dose chemotherapy treats the cancer.
- The stem cells are supportive, they keep you safe by helping you recover faster.

Live Longer (Quantity)
Live WELL (Quality)

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Disease management post transplant



- Maintenance therapy after transplant to prevent recurrence
 - Multiple Myeloma/Plasma Cell Disorders
 - *Revlimid and/or other*
 - Mantle Cell Lymphoma
 - *Rituximab*
 - Hodgkin lymphoma (some)
 - *Brentuximab*
- How will the disease be monitored?
 - A combination of labs and/or scans and/or bone marrow biopsies (depends on the disease treated)
 - frequency of assessment thereafter will be determined by your physician



Late effects post transplant - physical health



- **Immunologic**
- **Organ toxicity** (lung, heart, neuro)
- **Endocrine** (thyroid, bone, hormones)
 - **Secondary Cancers**
 - **Fatigue**



Risk of infection



- **0 to 30 days post transplant**
 - **Bacterial infections**
 - Highest risk when the white blood cells are low
- **30 to 365 days post transplant**
 - **Shingles** (herpes zoster) or **cold sores** (herpes simplex)
 - Prevent with acyclovir or valacyclovir
 - **Respiratory viruses**
 - Recovery may be slower and symptoms more severe
 - Prevent by masking, avoiding public spaces and sick contacts
 - **Late bacterial infections** are uncommon
 - If present, they may occur due to low immunoglobulins in the body

Re-vaccination post transplant



- **COVID-19 series**
 - Repeat series 3 months post transplant
- **Influenza (flu) vaccine**
 - 3-6 months post transplant
- **Childhood vaccination series**
 - Pneumococcal conjugate (PCV), Tdap (Tetanus, diphtheria, pertussis), Hemophilus influenza conjugate, Inactivated polio, Hepatitis B
 - 3 doses of each, as early as 6, 8, and 12 months
 - pneumovax (PPSV23) 6 months after series completion

Additional vaccinations



- **Human papilloma virus (HPV)**
 - age 26 and younger only
 - 3 doses as early as 6, 8 and 12 months post transplant
- **Meningococcal Conjugate**
 - consider in college attendees, ages 18-23, or those with prior splenectomy,
 - 1 dose as early as 6-12 months post transplant



Additional vaccinations



- **Shingles (Shingrix) vaccine**
 - Consider for age 50 and older, or younger adults who are immunocompromised
 - 2 doses as early at 6-12 months post-transplant
- **LIVE vaccinations should not be administered until at least 2 years after transplant or while on active chemotherapy**
 - Examples: MMR (measles, mumps, rubella) or Varicella (chicken pox)



Organ Toxicity: Lung



- Occurs during treatment or in the few months following
- Risk factors:
 - bleomycin
 - brentuximab
 - carmustine (BCNU)
 - radiation near the lung field (ie, mediastinal)
- Report new symptoms of shortness of breath or decreased exercise tolerance



Organ Toxicity: Lung



- Treatment:
 - discontinue causative agent
 - pulmonary evaluation
 - consider steroids if inflammatory pneumonitis
- What can I do?
 - Avoid other lung irritants
 - Don't smoke
 - Wear appropriate mask when around chemicals at home or in the workplace



Organ Toxicity: Heart



- Anthracyclines increase risk of heart failure (dose dependent)
- Radiation increases risk of heart disease
 - Only when used in high doses are directed toward the chest (ie. mediastinum)
 - Hodgkin Lymphoma patients that received mediastinal radiation (prior to 1995), the risk is 3-5% greater than that of the general population
 - Current risk likely significantly lower due to more precise radiation techniques

Organ Toxicity: Heart



- What can I do?
 - Live a healthy lifestyle
 - Get screened and treated when needed for other risk factors for heart disease:
 - High blood pressure
 - High cholesterol
 - Diabetes

Organ Toxicity: Neurologic



- Peripheral Neuropathy
 - Due to certain types of chemotherapy
 - Treat: supportive care, avoid other risk factors like uncontrolled diabetes
- Cognitive
 - “Chemo brain”
 - Impacts higher level function, memory, attention
 - Usually improves over time
 - Treat: neurocognitive rehabilitation, stimulants
 - Caution: depression and anxiety can worsen or cause similar symptoms



Oral and Ocular Toxicity



- Eyes
 - Cataracts or dry eyes
 - Risk factor: total body radiation or high dose steroids
- Mouth
 - Dry mouth, dental caries (cavities)
 - Risk factor: high dose radiation to the head or neck



Thyroid Health



- The thyroid gland controls your metabolism and tells your body how to use its energy
- Hypothyroidism (low thyroid function)
 - Risk:
 - Radiation to the neck
 - Symptoms:
 - fatigue, weight gain, constipation
 - Treatment:
 - check thyroid levels and replace with thyroid hormone

Bone Health



- Risks of bone thinning (osteopenia or osteoporosis)
 - Frequent steroid use
 - Low testicular or ovarian function
 - Older age, women > male
- Prevention of bone thinning
 - Exercise
 - Hormone replacement (if needed)
 - Adequate vitamin D and calcium intake
- Screen with periodic bone density testing (DEXA) if indicated
 - May require treatment with bone strengthening medication (bisphosphonate)

Men's Health: Fertility and Sexual Function



- Low testosterone
 - Risk: chemo or radiation
 - Symptoms: fatigue, difficulty getting an erection
 - Treatment: Check levels and replace testosterone if indicated
- Low testosterone is not the only cause of sexual dysfunction
 - seek help from an expert if needed
- Infertility
 - Risk: chemo and radiation; risk varies by regimen
 - A specialist can evaluate 6-12 months post transplant
 - **Transplant is not a form of contraception!!!!**



Women's Health: Fertility and Sexual Function



- Low estrogen or other hormone imbalance
 - Risk:
 - chemo or radiation
 - may be temporary or permanent
 - Symptoms:
 - hot flashes
 - vaginal dryness
 - pain with intercourse
 - Treatment:
 - Check hormone levels and replace with oral or topical hormones if indicated



Women's Health: Fertility and Sexual Function



- Infertility
 - Risk varies by treatment regimen and can be difficult to study
 - Lack of menses does not mean infertility
 - A specialist can evaluate as early as 12 months post transplant
- Pregnancy
 - there does not appear to be an increased risk to the health of the mother or baby after transplant



Women's Health: Breast Health



- High dose radiation directed towards the breast (ie. mediastinal radiation or high dose TBI) can increase risk of breast cancer
- Begin screening mammograms at 8 years post-radiation
 - (no earlier than age 25) and no later than 40 years



Secondary cancers after autologous transplant



- Risk factors: smoking, younger age?, chemo, radiation
- MDS/AML (bone marrow disorders)
 - Due to certain chemotherapies (alkylating agents, Revlimid) and radiation
 - May occur in up to 3-5% of transplant patients
- Solid tumors (skin, oral, etc..)
 - Risk: radiation and allogeneic (donor) transplants due to immunosuppression and immune complications
 - Lifestyle likely matters more than prior auto transplant

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Fatigue




- Normal after transplant
- Improves over time; try not to get discouraged
- Be active when you can, rest when you need it
- Beware of other treatable causes of fatigue!
 - Depression
 - Anxiety
 - Stress
 - Hormonal changes- sex hormones, adrenal glands, thyroid
 - Exacerbation of other medical problems

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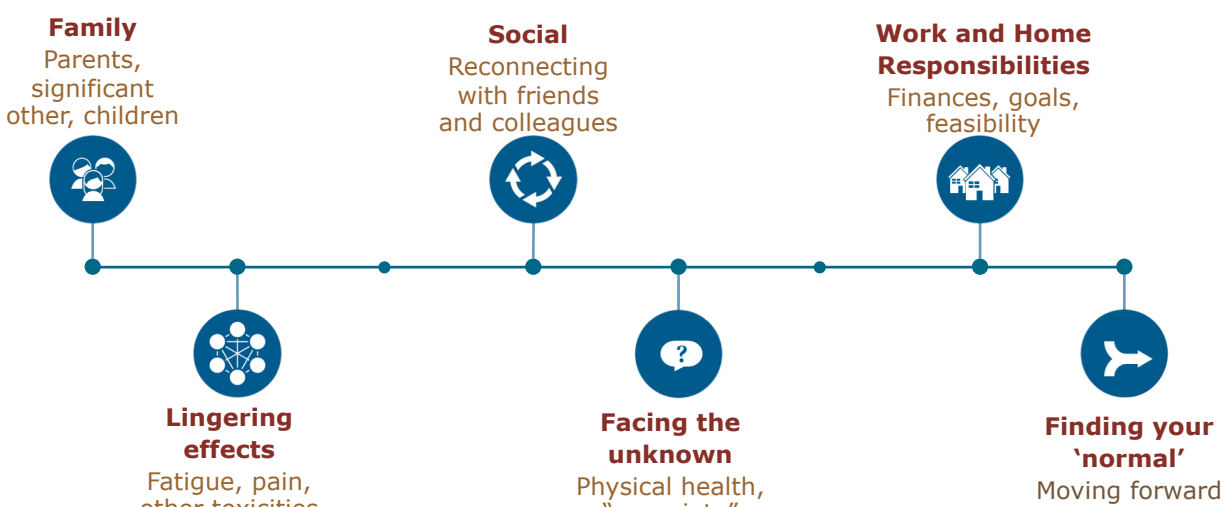
Late effects post transplant- mental health



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Reintegrating into life can be challenging



- Family**
Parents, significant other, children
- Social**
Reconnecting with friends and colleagues
- Work and Home Responsibilities**
Finances, goals, feasibility

Lingering effects
Fatigue, pain, other toxicities

Facing the unknown
Physical health, "scanxiety"

Finding your 'normal'
Moving forward

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Depression and Anxiety



- Common in cancer patients
- Caregivers may be impacted too!
- Risk factors after transplant:
 - Treatment prior to cancer diagnosis, young, male, low income
- Risk declines over time
- Treat: counseling, medications
- Ask for help if needed!



Good news



- You are not alone
- Most autologous transplant patients can return to their similar level of function (work, activity, etc..)
- Acceptance of any changes in your path can help you move forward
- You can improve your health by taking an active role in your post transplant care and routine health maintenance



Don't miss the forest for the trees!



- Remember to prioritize your general health in addition to your cancer follow ups.
 - Ask “what else can I do for my health?”
- Continue age-appropriate health screenings
 - Blood pressure, diabetes, and cholesterol screening
 - Screening colonoscopies, mammograms, pap smears, prostate evaluation
 - Dental exams
- Don't smoke
- Exercise
- Wear sunscreen and protective clothing
- Eat healthy
- Maintain a healthy weight

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Questions?



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