



Heart Pre-Transplant Education Class

Updated: May 13, 2022

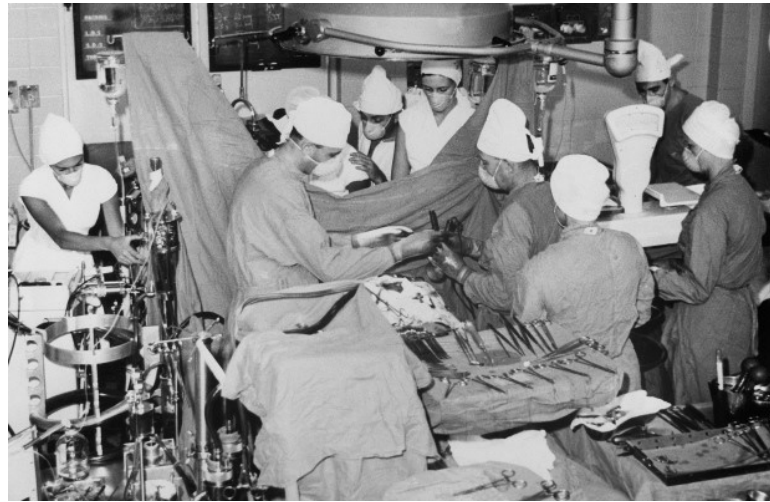
In this class we will:

- Review history of heart transplantation
- Discuss transplant:
 - Evaluation
 - Waitlist
 - Transplant surgery
 - Medication and considerations post transplant

Celebrating 60 years of transplant at OHSU!



History of heart transplantation



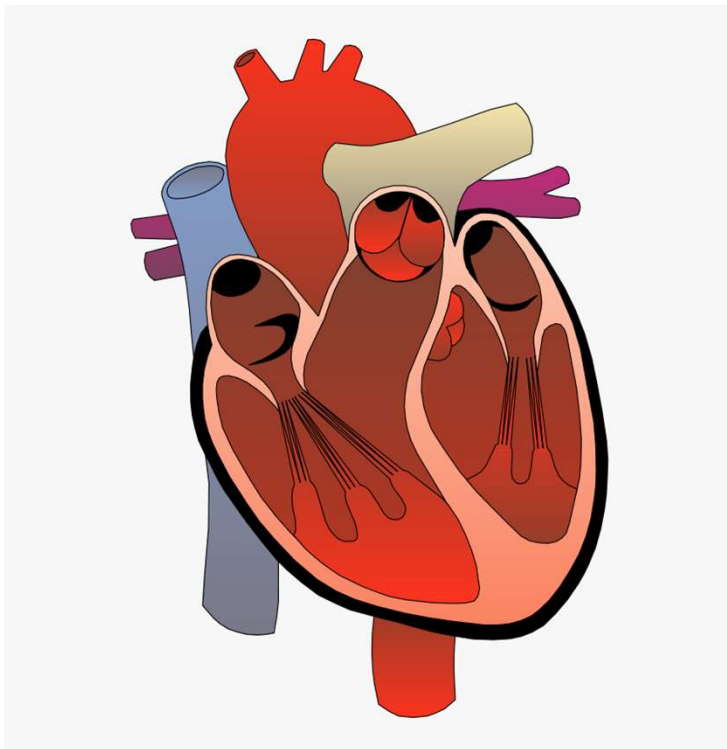
- First heart transplant in 1967, South Africa
- First successful adult heart transplant in United States-
January 6, 1968
- First heart transplant at OHSU -December 5, 1985

Benefits of heart transplantation

- Quality of life
- Quantity of life
- More freedom to travel
- Return to work or school
- Most durable long-term solution



Risks of heart transplantation



- Medications
 - Life-long, many side effects, expensive
- Infections
- Rejection of new organ
- Cancer
- Coronary Artery Disease
- Surgical complications
- Financial concerns

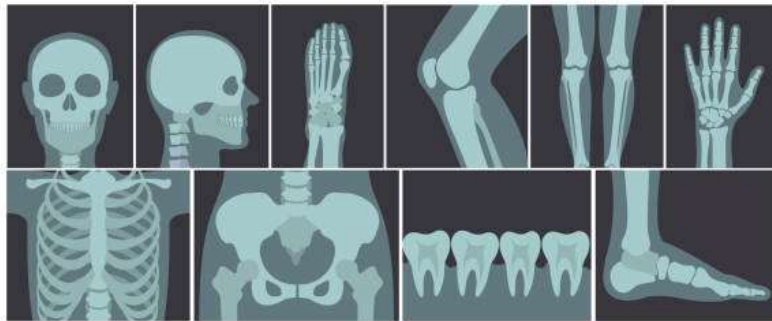
Heart transplant is not a cure

- Heart transplant is a treatment option
- Other treatment options:
 - Left Ventricular Assist Device (LVAD)
 - Mechanical pump that circulates blood throughout the body
 - Inotropes
 - Common drugs: Dobutamine, milrinone
 - Chemically improve the cardiac pump function
 - No treatment
- *You have the right to refuse transplantation at any time*

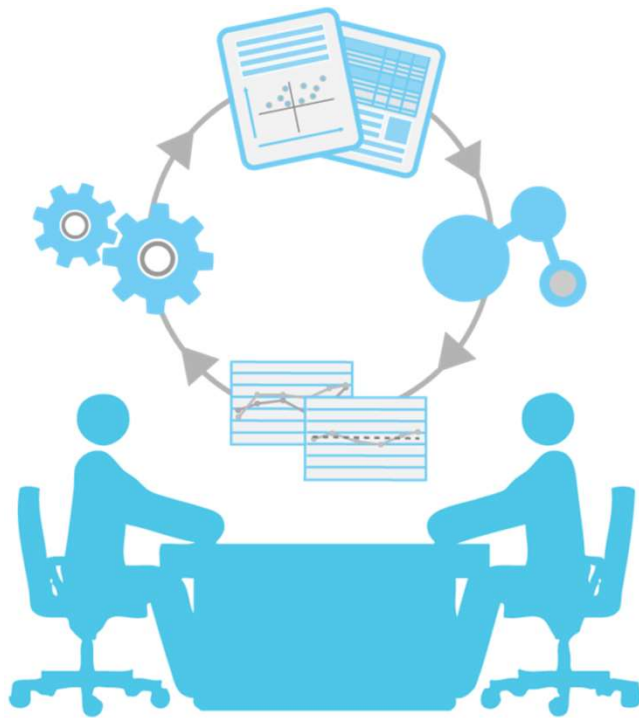


Transplant evaluation

- History and Physical
- Laboratory
- Cardiac testing
- Chest X-ray
- Pulmonary Testing
- Abdominal Ultrasound
- Dietary Evaluation
- Social Work Evaluation
- Pharmacy Evaluation
- Patient/Family Education
- Financial Evaluation
- Immunizations
- Dental Evaluation
- Pap/Pelvic/Mammogram (if appropriate)
- Colonoscopy (if appropriate)
- *Additional testing may be required*



Transplant evaluation: Crucial consults



- Nurse Coordinator
 - Provides pre-evaluation education, performs intake assessment, assists in coordinating necessary steps to committee presentation
- Dental
 - Provides dental assessments and therapies needed to obtain dental clearance
- Social Work
 - Assesses for and assists in navigating social elements of transplant
- Cardiac Surgery
 - Assesses for anatomical and physiological considerations in transplant

Transplant evaluation: Crucial consults

- Palliative Care
 - Reviews your goals of care/Understanding of what you have learned thus far
- Nutrition/Dietary
 - Evaluates for and recommends dietary changes that would help you have a better recovery from surgery
- Pharmacy
 - Reviews your medications, immunizations, and process for medication management



Post evaluation

Selection Conference

- Transplant team (physicians, coordinator, social worker, pharmacist, palliative care, and dietitian)
- Review results
- Determine your risks
- Determine if you are a transplant candidate
 - Declined
 - Deferred
 - Accepted



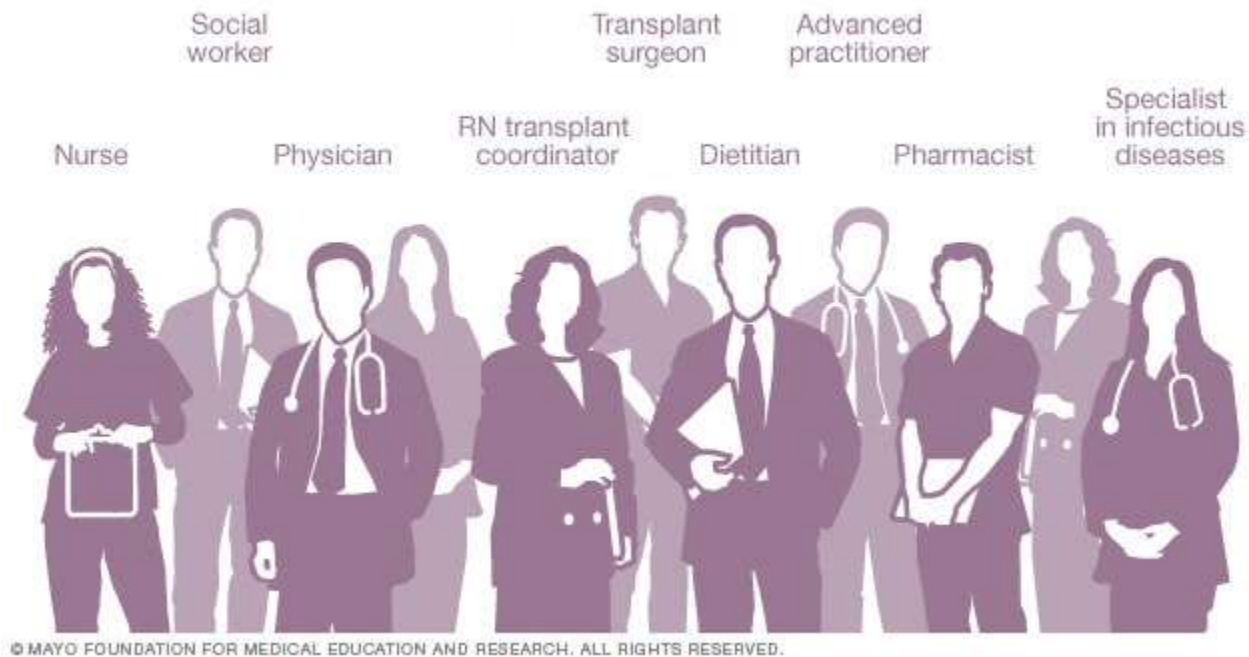
Declined or Deferred

- Infection
- Cancer
- BMI > 35
- Medical nonadherence
- Do not meet criteria
- Body structure (anatomy) problems
- Active abuse of drugs or alcohol
- Untreated or inadequately treated mental illness



Accepted for transplant

- You will be notified of your results, risks, and recommendations (your “to do” list)
- It is your responsibility to keep us informed of your progress



Planning ahead and finding support

- **Support**
 - Lifting restrictions
 - Driving restrictions/ transportation needs
 - Partner in care
 - 24/7 commitment for 3 months following discharge
 - Inpatient teaching
 - Outpatient appointments
- **Time off work**
- **Housing**
 - **Must remain within one hour distance from OHSU**
- **Equipment**
 - Home blood pressure monitor
 - Personal scale
 - Thermometer
 - Glucometer (blood sugar checks)
- **Finances**

When do I go on the list?

- Accepted by the selection committee for transplant
- Completed “to do” list
- Current blood sample
- Insurance authorization
- UNOS registration
- *A coordinator will call you once you are listed*



COVID-19

- *All transplant candidates must be vaccinated against COVID-19*
- We also strongly encourage all support persons to be vaccinated against COVID-19

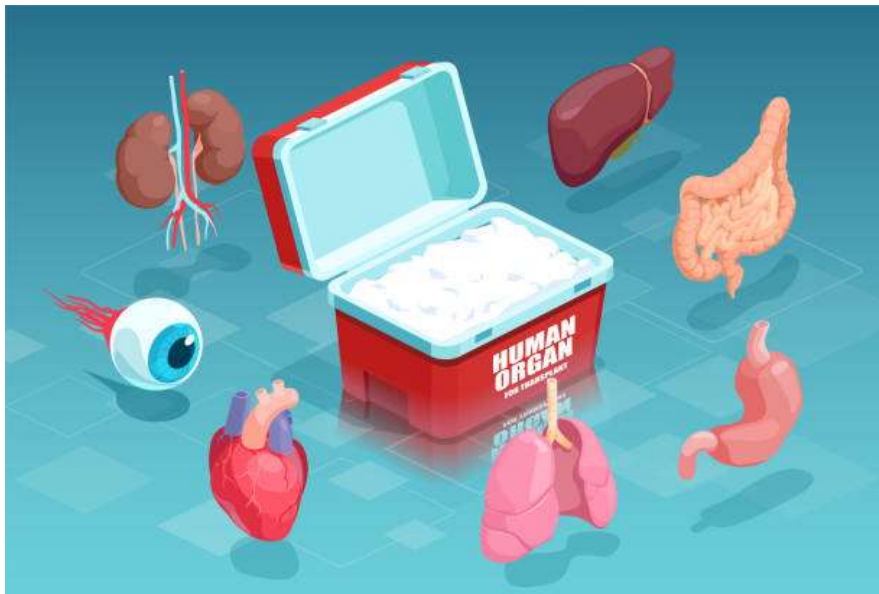


How long will I wait?



- Wait time depends on:
 - Blood type
 - Antibody level
 - Recipient height and weight
 - Time on waitlist
 - Waitlist status (urgency)

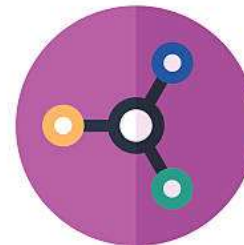
Potential deceased donor




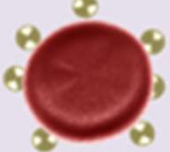





- Brain dead
- No known transmittable cancer
- No known communicable diseases
- Good heart function
- *Thoroughly screened, but not risk free*

Finding a donor

- Blood type
- Tissue typing (genetic markers)
 - Crossmatch
 - Panel Reactive Antibody (PRA)
 - Must be repeated every 28 days while listed



Blood types

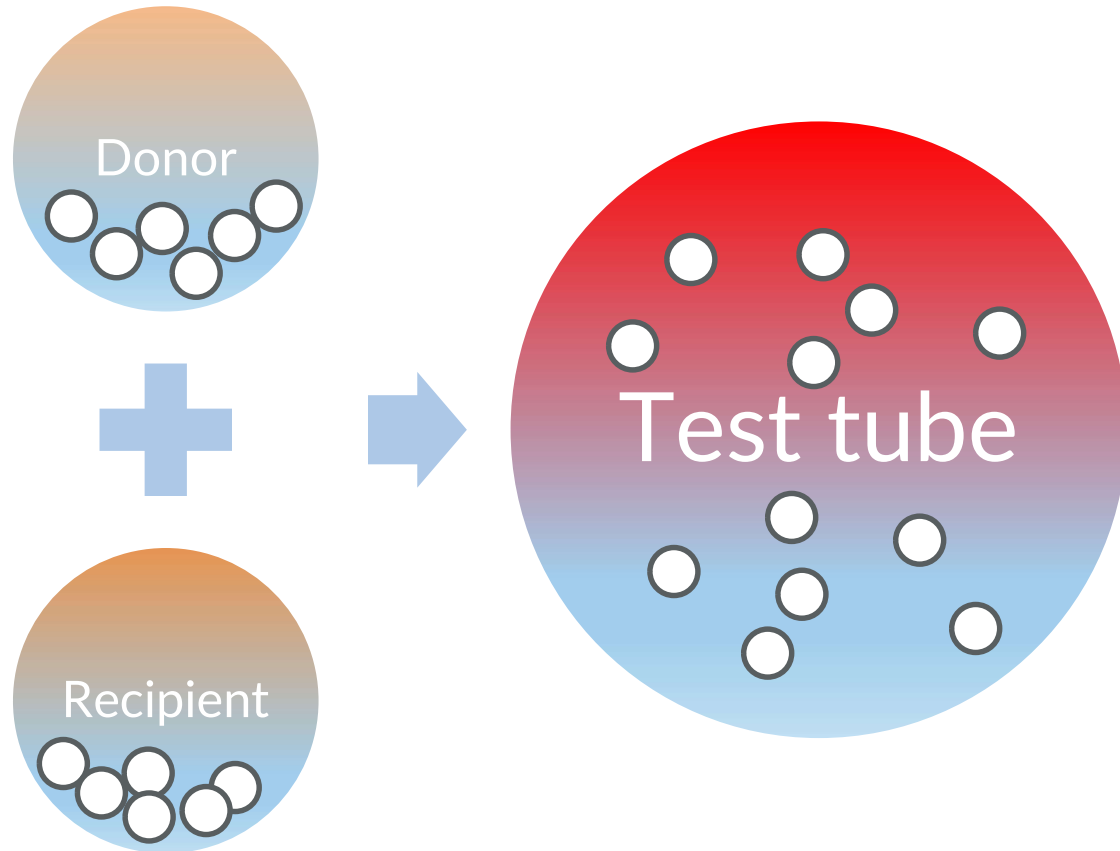
ABO Blood Groups				
Antigen (on RBC)	Antigen A 	Antigen B 	Antigens A+B 	Neither A or B 
Antibody (in plasma)	Anti-B Antibody 	Anti-A Antibody 	Neither Antibody -	Both Antibodies 
Blood Type	Type A Cannot have B or AB blood Can have A or O blood	Type B Cannot have A or AB blood Can have B or O blood	Type AB Can have any type of blood Is the universal recipient	Type O Can only have O blood Is the universal donor

Blood type matching for heart transplant

		DONOR			
		O	A	B	AB
RECIPIENT	AB	✓	✓	✓	✓
	B	✓		✓	
	A	✓	✓		
	O	✓			

*Note: Because type "O" is the least common donor, type "O" donors are generally assigned to type "O" recipients before other types

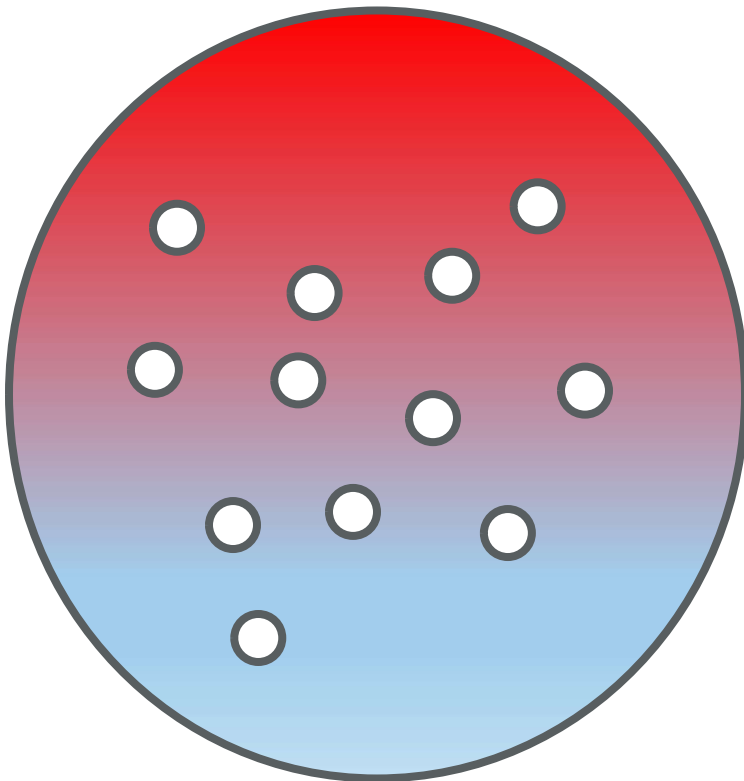
Crossmatching



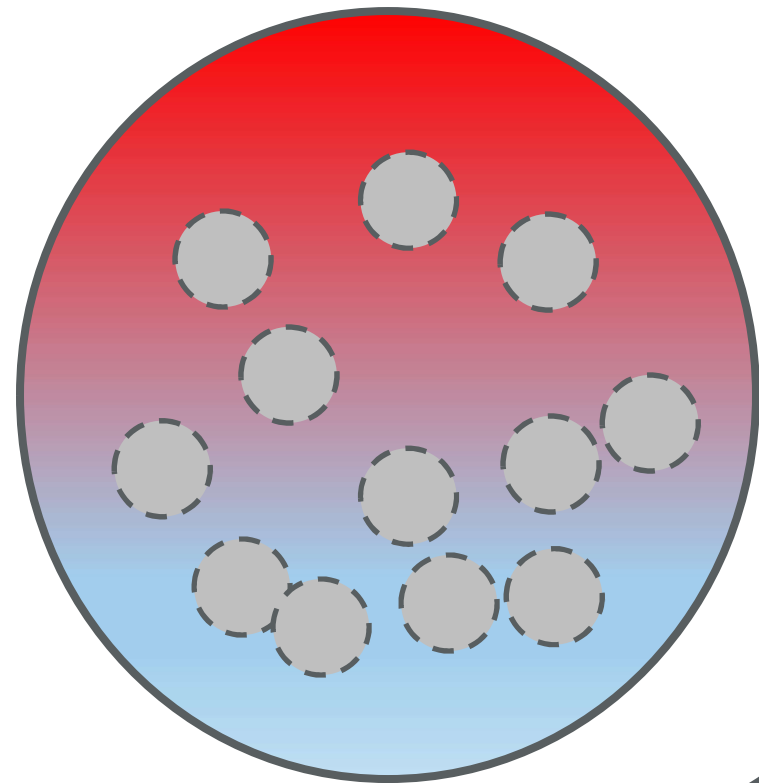
Crossmatching

Transplant in a test tube

Negative (Compatible)



Positive (Incompatible)



Why would a donor be incompatible?

Antibodies: your body's reaction to others' genetic markers

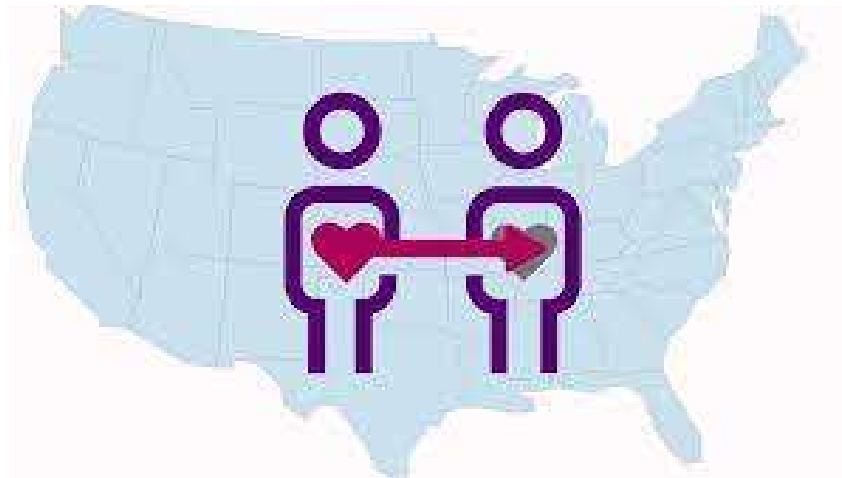
- Previous transplant
- Pregnancies
- Blood transfusions

PRA: a measure of this reaction (0-100%)

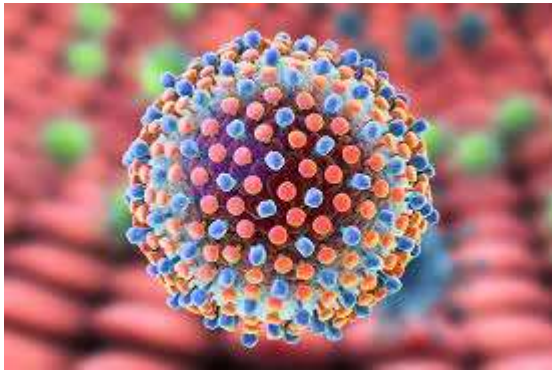


United Network for Organ Sharing (UNOS) Options

- Multiple listing
 - OHSU does not participate in multiple listing at this time
- Transfer of waiting time
 - May be utilized in relocation



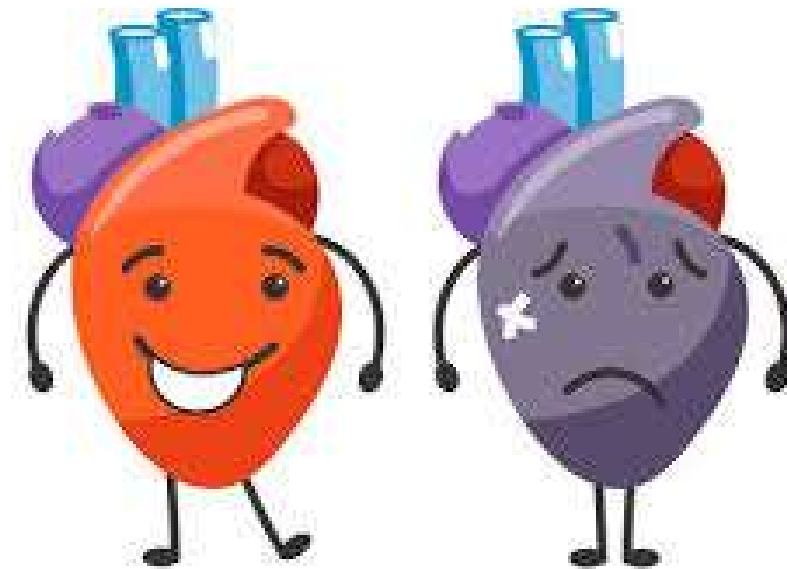
Hepatitis C + Donors



- Patients in evaluation/on the waitlist may consent to reception of a heart from a hepatitis C+ donor
- Hepatitis C status would be disclosed with offer
- If a hepatitis C + transplant is performed, treatment would begin within 24 hours of surgery and close follow-up would occur
 - Blood would be drawn 3 days after transplant and at post transplant lab draws
 - Standard treatment lasts 4 weeks but treatment can be extended if needed
 - If there are any concerns, a specialist can be consulted

UNOS heart transplant listing status

- 1- Most critically ill, hospital bound
- 2- Very ill, hospital bound
- 3
- 4
- 5
- 6- Minimal limits to activities
- 7- Inactive status



What to expect on the wait list



- You WAIT and it can be a difficult time
- *Active status*
 - You are on the waiting list and available for donor offers
 - PRA blood draw every 28 days; you must track this
- *Inactive status*
 - You are still on the waiting list, but unable to receive donor offers
 - No PRA needed
- Some testing may need to be repeated during time on waitlist

What to expect on the wait list

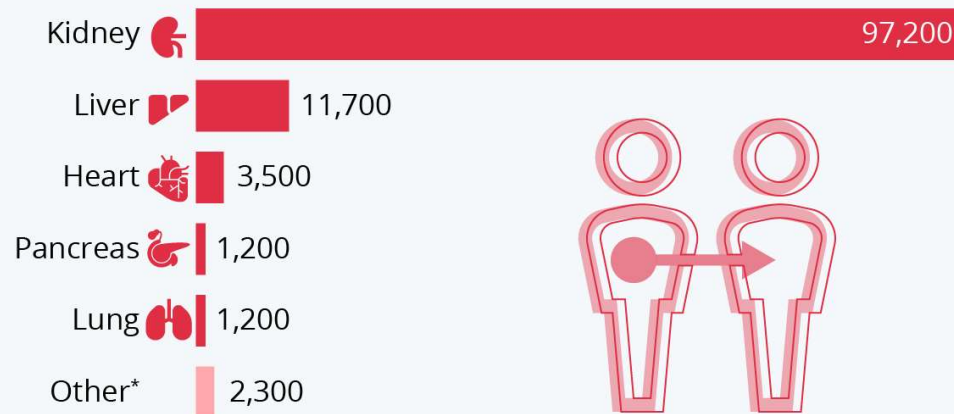
- Promptly inform your healthcare team of any of the following:
 - Insurance changes
 - Phone number & address changes
 - Changes in your health
 - Antibiotics
 - Hospital admissions
 - Travel



National donor gap

Organ Transplant Waiting Lists in the U.S.

Number of people in the U.S. waiting for an organ transplant, by type (September 2021)



* E.g. face, hands, abdominal wall.
Figures rounded to the nearest hundred.
Source: organdonor.gov

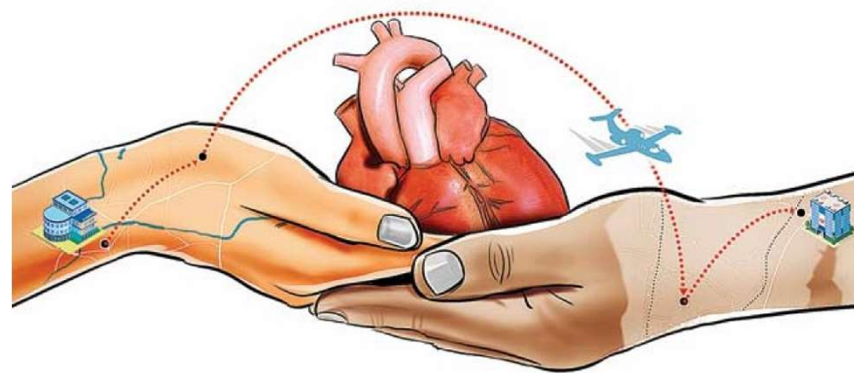


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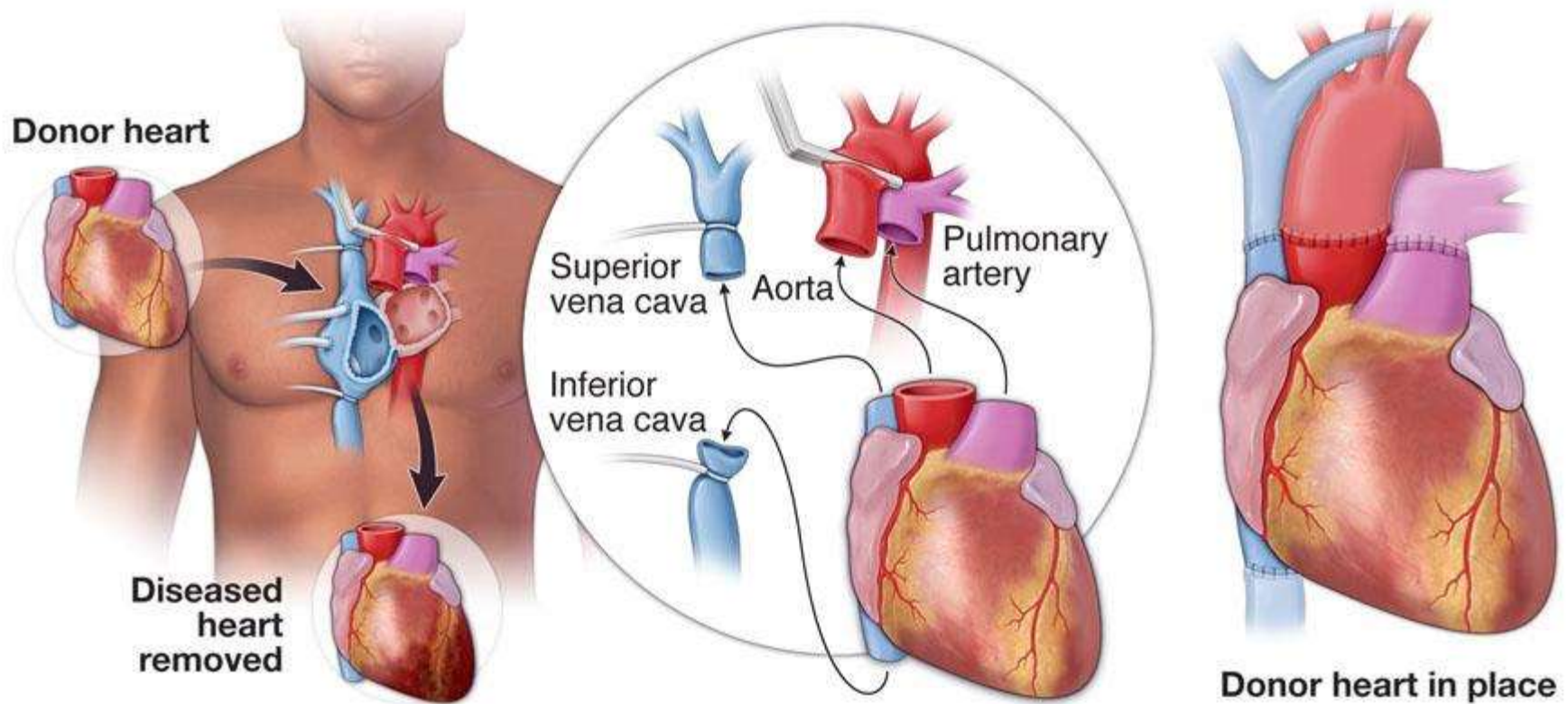


When you get the call

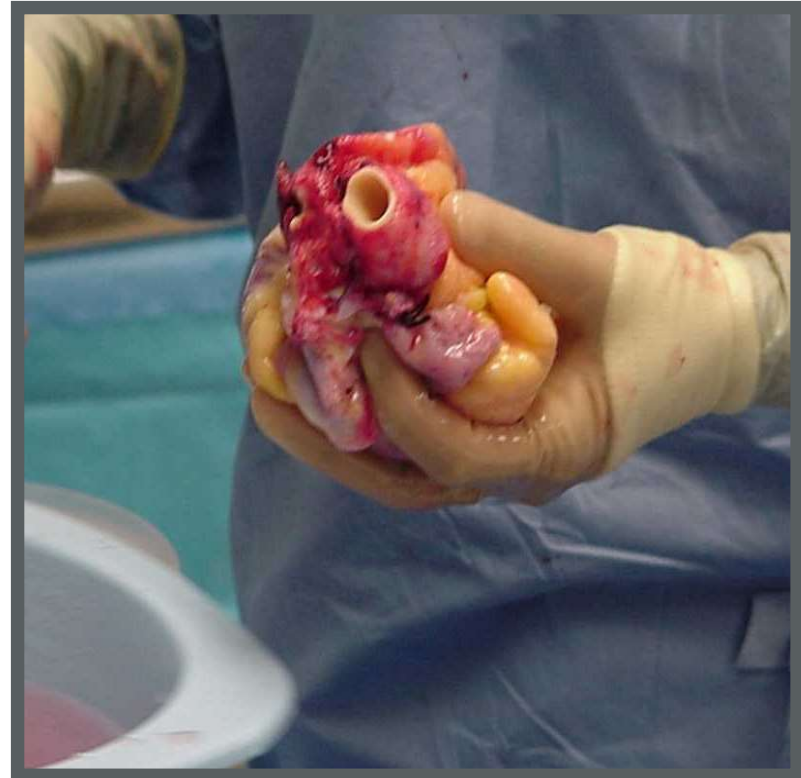
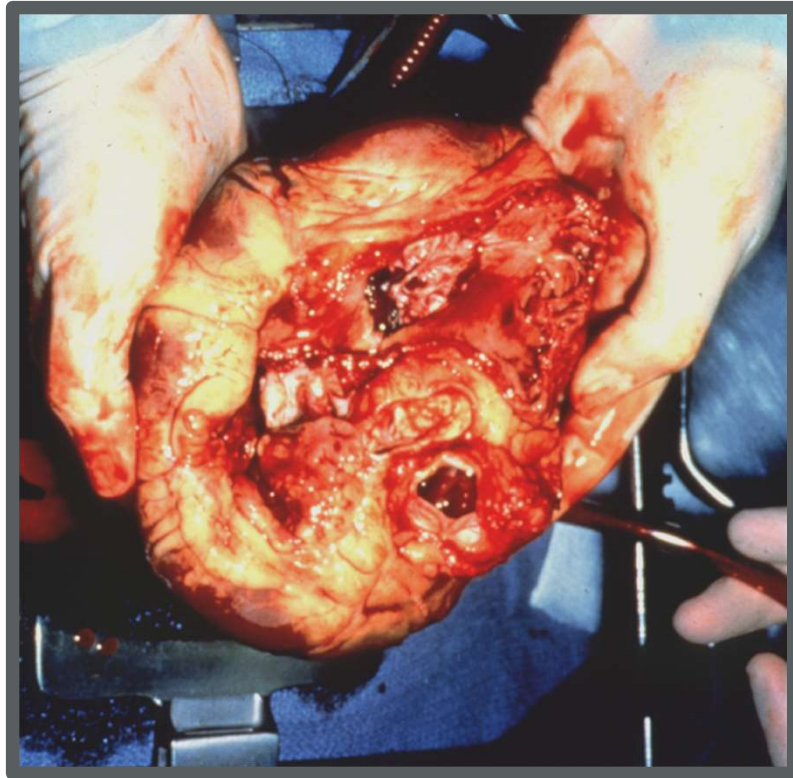
- Be prepared to get on the road within 1 hour
- We will screen you for health concerns
 - Symptoms of illness, covid exposure, etc
- We will not discuss any personal donor information
- There is always the possibility that an offer will *not* result in transplant
 - “Dry run”
 - Additional testing of the donor organ may result in the organ being declined by your healthcare team



Heart transplant surgery



“Old” vs “New”



Hospital course



- 6 to 8 hours in the OR
- Incision about 10 inches along chest
- Intensive care unit stay 7 to 10 days
- Usual post-op activity
- Bladder catheter, wound drains, heart pacing wires, chest tubes, central line, IV line
- Total hospital stay 12 to 18 days
- ***Education, education, education!***

Potential surgical risks

All surgeries have risks

- Anesthesia reaction
- Fluid collection/swelling
- Bleeding
- Blood clot formation
- Infection, including wound infection and pneumonia
 - Early mobilization/out of bed with assist
- Organ failure (may require re-transplant)
- Death



Other potential risks



Psychosocial Risk

- Depression
- Post-Traumatic Stress Disorder (PTSD)
- Generalized anxiety, issues of dependence, & feelings of guilt

Why do transplants stop working?

- Return of original disease
- Need to decrease antirejection medications because of other health issues or side effects related to prescribed medications
- Nonadherence with medical treatment
 - ***ALWAYS TAKE MEDICATIONS AS PRESCRIBED***
- Chronic rejection/changes over time
- Surgical complications



Transplant outcomes

- Please see handout included in educational packet which describes current patient outcome data



Acute rejection



- **Usually seen within the first six months**
 - Often no symptoms
 - Frequent heart biopsies in first year
 - Self monitoring essential (labs, weight, BP, temp)
 - Medication adherence a must
- **Treatment available**
 - May require admission to hospital, biopsy, and IV meds
 - *Most of the time reversible*

Chronic rejection

- Usually seen *after* one year
- Treatment available to stall process
- *Not reversible*
- There are different stages of chronic rejection
 - Treatment may require increased visits, changes in medications, etc

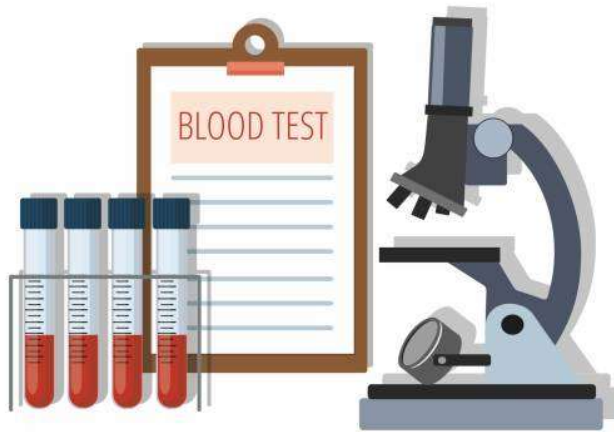


Post-transplant commitments

- Daily self monitoring
 - Blood pressure
 - Weight
 - Temperature
 - Blood sugar
- Medications
 - **Must be taken exactly as prescribed**
- Clinic visits
 - Weekly for one month
 - Monthly for one year
 - Annual exams for life



Post-transplant commitments



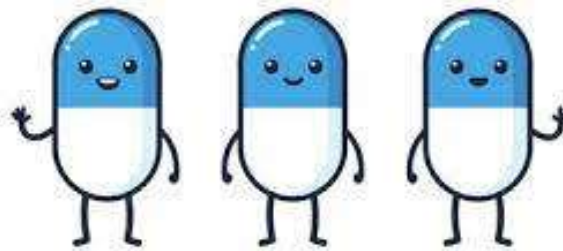
- Lab draws
 - Weekly for one month
 - Monthly for one year
 - Every three months for life
- Biopsies
 - May vary by patient
 - Frequency will decrease over time
- Communication
 - Share your concerns
 - Be an active part of your team!

Transplant medications



Medication guarantees

- *Alter your medications and you can damage your heart*
- All medications can have drug-drug interactions
- You will have some medication side effects
- Some side effects decrease as doses decrease
- Doses are higher the first three months



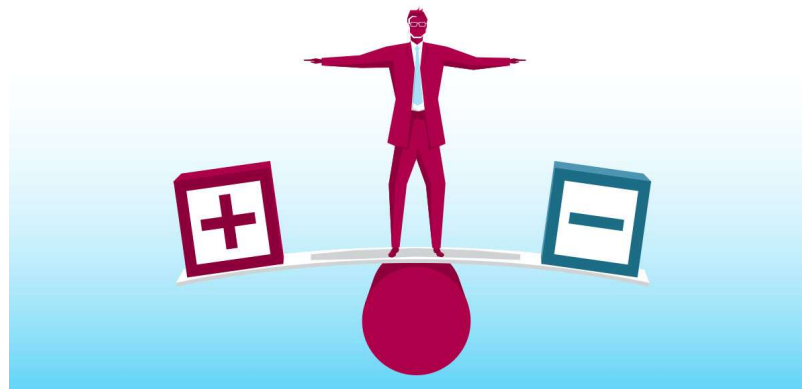
Medications



Side effects

All transplant medications increase your risk of:

- Cancer
- Infection
- Coronary artery disease
- *Your healthcare team will work with you to balance rejection risk and side effects*



Cancer prevention

Routine screening

- Pap/Mammogram
- Colonoscopy
- PSA

Skin care

- Sunscreen
- Regular checks
- Limit sun exposure



Tacrolimus/“Tacro”



- *Potential side effects*
 - Tremors
 - Headache
 - Increased blood sugar/Diabetes
 - High blood pressure
 - GI problems
 - Kidney damage
- *Considerations*
 - Timed drug level blood tests
 - Take consistently with or without food
 - Either is fine, consistency is more important
 - Cost
 - Drug-drug interactions

Mycophenolate/Myfortic



- *Potential side effects*
 - Stomach upset
 - Diarrhea
 - Anemia
 - Low white blood cell count
- *Considerations*
 - Take with food
 - Cost
 - Women only: Use two forms of birth control
 - Call us if considering pregnancy or if you become pregnant (not recommended following transplant)

Prednisone

- *Potential side effects*

- Body image changes: weight gain, edema, hair growth
- Increased blood sugar/diabetes
- Weak bones & muscles
- Delayed wound healing/thin skin
- Increased cholesterol
- Visual changes
- Mood swings
- Ulcers

- *Considerations*

- Take with food
- Cost (inexpensive)
- May be stopped at 6 months if no rejection
- Large doses used to treat acute rejection



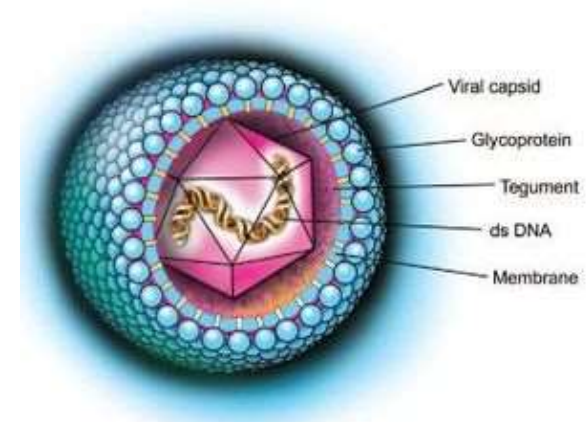
Medicare and heart transplant

- If your transplant is not done in a Medicare-approved transplant center, it could affect your ability to have your immunosuppressive (anti-rejection) medications paid for under Medicare Part B
- *OHSU is a Medicare-approved transplant center*



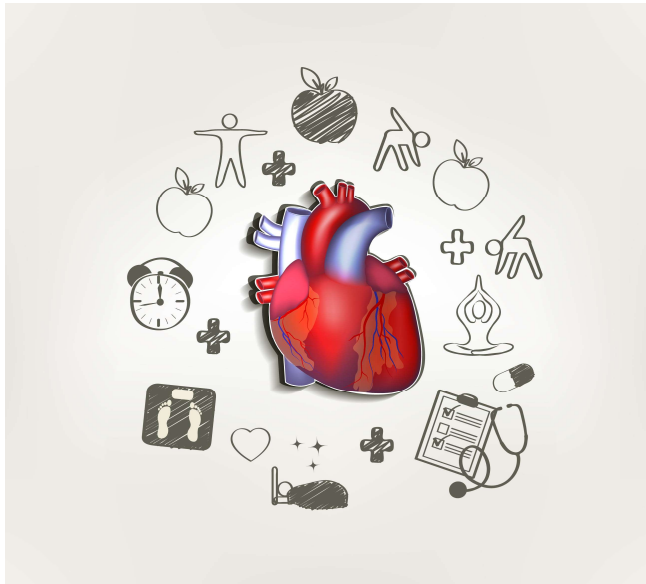
Cytomegalovirus (CMV)

- Most common infection post transplant
- A common virus in the human population
- The virus can be spread with the heart
- >50% have had the virus in the past (CMV +)
- May cause diarrhea, ulcers, infection, or rejection after transplant
- *Medicine is available to prevent/treat the virus*



HCMV Human Cytomegalovirus

Lifestyle after transplant



- Heart healthy lifestyle
 - Heart healthy diet
 - Healthy weight
 - Exercise
 - Blood pressure monitoring
 - Cholesterol monitoring
 - Absence of use of unprescribed drugs or nicotine products
- Routine health maintenance exams
- Diligent infection prevention
 - Frequent handwashing
- Regular recommended immunizations

Questions

1. Attending this class means you are on the heart transplant waiting list
 - True/False
2. I can adjust my transplant medications if a side effect is bothering me
 - True/False
3. Heart Transplant is a cure for heart failure
 - True/False
4. Once I am on the waiting list, I won't need to do anymore testing
 - True/False
5. After transplant, how long will you need to take transplant medications?

The end!

