Celebrating over 28 years
First successful adult heart transplant in United States - January 6, 1968

First heart transplant at OHSU - December 5, 1985
Heart transplantation is not a cure

Heart transplant is a treatment option

Other treatment options

► Left Ventricular Assistant Device (LVAD-Heart pump)- mechanical devices that circulates blood throughout the body.

► IV medication to support the heart (Inotropes-dobutamine, milrinone)

► No Treatment-supportive care
Benefits of Heart Transplantation

► Quality of life
► Quantity of life
► More freedom to travel
► Return to work or school
Risks of Heart Transplantation

► Medications: life-long, many side effects, expensive
► Infections
► Rejection
► Cancer
► Surgical complications
► Financial concerns
### Do Transplants Work?

<table>
<thead>
<tr>
<th></th>
<th>OHSU % patient survival at one year</th>
<th>National % patient survival at one year</th>
<th>OHSU % patient survival at 3 years</th>
<th>National % patient survival at 3 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart</td>
<td>95.56%</td>
<td>90.21%</td>
<td>88.10%</td>
<td>81.79%</td>
</tr>
</tbody>
</table>

Why Do They Fail?

► Return of original disease
► Noncompliance with medical treatment
► Chronic rejection/changes over time
► Surgical complications
Transplant Recipient Evaluation

- History and Physical
- Laboratory
- Cardiac testing
- Pulmonary testing
- Chest X-ray
- Dental Evaluation
- Dietary Evaluation
- Patient/Family Education
- Financial Evaluation
- Social Service Evaluation
- Immunizations/PPD
- Pap/Pelvic/Mammogram
- Colonoscopy
- Other testing as needed
Compatibility Testing

- Blood type
- Crossmatch
- Panel Reactive Antibody (PRA)
ABO Blood Types

A

B

AB

O
## ABO UNOS waitlist Compatibility for Heart Transplant

<table>
<thead>
<tr>
<th>Donors</th>
<th>Recipient</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>O or B</td>
</tr>
<tr>
<td>A</td>
<td>A or AB</td>
</tr>
<tr>
<td>B</td>
<td>B or AB</td>
</tr>
<tr>
<td>AB</td>
<td>AB</td>
</tr>
</tbody>
</table>
Crossmatch

View of Cells through Microscope

Negative

Positive
What Can Cause Positive Crossmatches or PRA (panel reactive antibody) sensitization?

- Previous transplant
- Previous pregnancies
- Blood transfusions
Selection Conference

- Transplant team (cardiologists, surgeons, coordinators, social worker, dietitian, pharmacist and financial coordinator)
- Review transplant evaluation results
- Determine if you are a transplant candidate
- Determine your risks with transplant
- Create a “to do” list/recommendations
- Coordinator and/or Transplant MD communicates plan you, your doctor, and insurance company
Planning Ahead

► Support
  ► Lifting restrictions
  ► Partner in care-support person
► Driving restrictions/Transportation
► Housing/Distance from OHSU- must live within 2 hours from OHSU after transplant for a minimum of 8 weeks (may be longer if medically necessary).
► Equipment needed-blood pressure cuff, thermometer, scale
► Finances

Everyone must have a plan before transplant!
When is Transplant Not Possible?

- Active infection
- Active or recent malignancy
- Highly sensitization
- High chance of dying with surgery
- Anatomy that makes transplant technically impossible
- Active drug use, alcoholism, or psychosis
- Medical noncompliance
Deceased Donors
Potential Deceased Donor

- Brain dead
- No known transmittable cancer
- No known communicable diseases
- Good heart function

Thoroughly screened, but not risk free.
Centers for Disease Control (CDC) /Public Health Service (PHS) High Risk Donor

- Donors who are at higher risk for hepatitis and HIV.
- About 10% of all deceased donors
- Disease transmission risk
  - 46/100,000 high risk
  - 2.4/100,000 standard donor
- Newer testing methods have reduced risk further
- Requires written consent
When Do I Go on the List?

► Complete “to do” list
► Current blood sample-PRA
► Insurance authorization
► Consent for listing signed
► UNOS paperwork completed and letter mailed to you.
► Call from coordinator stating you are on the list.
UNOS Regional Map

[Map of the United States with regions marked by numbers 1 to 11]
UNOS Options

► Multiple listing

► Transfer of waiting time
UNOS Heart Transplant listing status

1A status:

1B status:

2 status:
Life on the Waiting List

► “PRA” Blood draw every 28 days—we use this to crossmatch you with possible donors
► Frequent clinic appointments
► Must live within 5 hours of OHSU as a status 1B and Status 2
► Must live within 2 hours of OHSU as a status 1A (and after transplant as well)
► At any time a potential recipient may be put on temporary hold on the list (ie active infection, BMI too high, positive nicotine or drug screens)
### 2012 OHSU HEART-ONLY WAIT TIMES

<table>
<thead>
<tr>
<th>STATUS AT TRANSPLANT</th>
<th>[ALL]</th>
<th>1A</th>
<th>1B</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Wait Time</td>
<td>176</td>
<td>86</td>
<td>282</td>
<td>141</td>
</tr>
<tr>
<td>Median Wait Time</td>
<td>53</td>
<td>28</td>
<td>222</td>
<td>141</td>
</tr>
<tr>
<td>Minimum Wait Time</td>
<td>2</td>
<td>5</td>
<td>130</td>
<td>29</td>
</tr>
<tr>
<td>Maximum Wait Time</td>
<td>1,324</td>
<td>341</td>
<td>556</td>
<td>253</td>
</tr>
</tbody>
</table>
Inform Coordinator for any of the following:

- Insurance changes
- Contact phone number changes
- Antibiotics, illness or infection
- Hospital admissions
- Other medical issues
Heart Transplant
Hospital Course

- 6 to 8 hours in OR
- Incision about 10 inches along chest
- ICU stay 7 to 10 days
- Usual post-op activity
- Foley catheter, wound drains, heart pacing wires, chest tubes, central line, arm IV
- Total stay 12 to 18 days
- Discharge education-pharmacy, dietician, and transplant coordinator
All surgeries have risks

- Anesthesia reaction
- Fluid collection
- Bleeding
- Blood clot
- Infection
- Death
Acute Rejection

► Usually seen within the first six months
► Often no symptoms
► Frequent Heart Biopsies in 1\textsuperscript{st} year
► Self monitoring essential (labs, wt, 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
Cytomegalovirus (CMV)

- 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.
- Expensive medicine available to prevent/treat the virus.
- We do not match donor and recipient CMV status.
Immunosuppressive Drugs

BALANCING ACT

Rejection          Drugs          Infection

Side effects of drugs are dose-dependent
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.
► Some side effects are life-long, even if the drug is stopped.
► Doses are higher the first three months.
All immunosuppression increases your risk of:

- Cancer
- Infection
- Coronary artery disease
Tacrolimus/Prograf /FK

SIDE EFFECTS
► Kidney damage
► High blood pressure
► Diabetes
► GI problems
► Tremors
► Headache

CONSIDERATIONS
► Timed drug level blood tests
► Take with food
► Cost
► Drug-drug interactions
Mycophenolate (MMF)/CellCept or Myfortic

SIDE EFFECTS
► Stomach Upset/diarrhea
► Anemia
► Low white blood cell count

CONSIDERATIONS
► Take with food
► Twice a day
► Cost
► Women only: Use two forms of birth control
► Call us if you are considering pregnancy (we do not recommend pregnancy after heart transplant) or become pregnant.
SIDE EFFECTS
► Body image changes: weight gain, acne, moonface, edema, hair growth
► Diabetes
► Weak bones & muscles
► Delayed wound healing/thin skin
► Increased cholesterol
► Visual changes
► Mood swings
► Stomach Ulcers

CONSIDERATIONS
► Take with food
► Cost (cheap)
► May be stopped at six months if no rejection.
► Dose is based on weight.
► Large doses used to treat acute rejection.
Your Responsibilities

► Follow lab/clinic/biopsy schedules
► Monitor own labs
► Monitor temp/BP/weight
► Take medications exactly as prescribed
► Be a proactive participant
► Stay within 2 hours of OHSU for first 30 days post heart transplant discharge.
<table>
<thead>
<tr>
<th>Month</th>
<th>Schedule</th>
<th>OHSU lab</th>
<th>OHSU or Local lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Weekly</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>2 and 3</td>
<td>Every other week</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>4-12</td>
<td>At least monthly</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>12 and beyond</td>
<td>Every 3 months for life</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>After Transplant</td>
<td>Transplant Clinic</td>
<td>Heart Biopsy and Right Heart Cath (RHC)</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------</td>
<td>----------------------------------------</td>
<td></td>
</tr>
<tr>
<td>1st month</td>
<td>Weekly</td>
<td>Weekly</td>
<td></td>
</tr>
<tr>
<td>2\textsuperscript{nd} month</td>
<td>Every other week</td>
<td>Every other week</td>
<td></td>
</tr>
<tr>
<td>3\textsuperscript{rd} thru 12 month</td>
<td>Monthly</td>
<td>Monthly</td>
<td></td>
</tr>
<tr>
<td>2\textsuperscript{nd} year</td>
<td>Every 3 months</td>
<td>Every 3 months</td>
<td></td>
</tr>
<tr>
<td>3\textsuperscript{rd} year</td>
<td>Every 4 months</td>
<td>Every 4 months</td>
<td></td>
</tr>
<tr>
<td>4\textsuperscript{th} year</td>
<td>Every 6 months</td>
<td>Every 6 months</td>
<td></td>
</tr>
<tr>
<td>5\textsuperscript{th} year</td>
<td>Annually</td>
<td>Annually</td>
<td></td>
</tr>
</tbody>
</table>
Lifestyle after Transplant -Cardiac-

- Heart healthy diet
- Exercise
- Blood pressure & cholesterol control
- No smoking
- Healthy weight
- Testing as indicated
### Routine screening:
- Pap/Mammogram/BSE
- Colonoscopy
- PSA

### Skin care:
- Sunscreen
- Regular checks
- Stay out of the sun
Lifestyle after Transplant -Infection-

USE COMMON SENSE!

- Wash your hands
- Take food precautions
- Don’t share food/utensils
- Use gloves when gardening
- Avoid people with contagious diseases
- Wear masks while in hospital/lab for 3 months after transplant
- Pet considerations
- Dental follow up
Additional Resources

OHSU website links for housing and what to bring to the hospital for your reference

Direct link to housing information
http://www.ohsu.edu/xd/health/for-patients-visitors/preparing-for-your-stay/lodging.cfm

Overall information about admissions, including what to bring and what to leave at home
http://www.ohsu.edu/xd/health/for-patients-visitors/preparing-for-your-stay/index.cfm