OHSU Kidney Transplant Program

• First successful kidney transplant 1954
• First kidney transplant at OHSU 1959
• 60 years and counting!

• More than 5000 kidney transplants
• About 100 per year
• About 300 patients on our waiting list
Benefits of kidney transplant

• Quality of life
• Quantity of life
• More like your own kidney than dialysis
• Not as time consuming
• More freedom to travel
• Fewer dietary and fluid restrictions
• Return to work or school
• Growth in children
• Fertility
Risks of kidney transplant

- Medications: life-long, many side effects, expensive
- Infections
- Rejection
- Cancer
- Coronary artery disease
- Diabetes
- Surgical complications
- Financial concerns
- Loss of dialysis support system
Kidney transplant is not a cure

Kidney transplant is a treatment option

Other treatment options

• Hemodialysis
• Peritoneal dialysis
• No treatment

You have the right to refuse transplant at any time.
General recipient evaluation

- History and Physical
- Laboratory
- Cardiac testing
- Chest X-ray
- Abdominal Ultrasound
- Dietary Evaluation
- Social Work Evaluation
- Pharmacy Evaluation
- Patient/Family Education
- Financial Evaluation
- Immunizations
- Dental Evaluation
- Pap/Pelvic/Mammogram
- Colonoscopy

Additional testing may be required
Finding a donor

- Blood type
- Tissue typing (genetic markers)
  - Crossmatch
  - Panel Reactive Antibody (PRA)
Blood types

80-90% of all As are A1
## Blood type matching

<table>
<thead>
<tr>
<th>Recipient</th>
<th>Living Donors</th>
<th>Waiting List</th>
</tr>
</thead>
<tbody>
<tr>
<td>O (46%)</td>
<td>O,*</td>
<td>O</td>
</tr>
<tr>
<td>A (40%)</td>
<td>A, O</td>
<td>A</td>
</tr>
<tr>
<td>B (10%)</td>
<td>B, O,*</td>
<td>B,*</td>
</tr>
<tr>
<td>AB(4%)</td>
<td>AB, O, A, B</td>
<td>AB, A</td>
</tr>
</tbody>
</table>

* Or possibly non-A1 donors
Crossmatch

Donor + Recipient → Test tube
Crossmatch

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
  - Use white blood cell filter
  - No transfusions from potential donors
  - Call your coordinator

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

*Work with your kidney doctor to keep your hemoglobin level healthy*
Cytomegalovirus (CMV)

- A common virus in the human population
- The virus can be spread with the kidney
- May cause diarrhea, ulcers, infection, or rejection after transplant
- Medicine available to prevent/treat the virus
- We try to match donor and recipient CMV status
Post-evaluation

Selection Conference

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

- Infection
- Cancer
- High chance of dying with surgery
- Body structure (anatomy) problems
- BMI > 40
- Active abuse of drugs or alcohol
- Untreated or inadequately treated mental illness
- Medical noncompliance
Accepted for transplant

- Coordinator will call you with
  - Risks
  - Results
  - Recommendations (your “to do” list)

- It is your responsibility to keep us informed of your progress
Planning ahead & support

• Support
  – Lifting restrictions
  – Driving restrictions & transportation
  – Partner in care
    • 24/7 commitment for 1st month (3 months for SPK)
    • Inpatient teaching
    • Outpatient appointments

• Time off work
• Housing/Distance from OHSU (1 hour)
• Equipment: blood pressure cuff; scale; thermometer
• Finances
If the 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.
When do I go on the list?

- Complete “to do” list
- Current blood sample
- Insurance authorization
- UNOS registration

Data at the time of listing and after transplant is reported to UNOS for regulatory purposes
Average wait time can be 5.5 years depending on blood type and antibody level.
1-, 5-, and 10- year patient survival

[Diagram showing patient survival rates for 1 year, 5 years, and 10 years for Dialysis, Deceased Donor, and Living Donor.]
OHSU Kidney Transplants 2018

Total = 103

- Living related: 72
- Living unrelated: 11
- Deceased kidney: 13
- Deceased pancreas & kidney: 2
- Deceased liver & kidney: 7

Total = 103
# Living & deceased donors

<table>
<thead>
<tr>
<th></th>
<th>Living</th>
<th>Deceased</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average kidney survival</strong></td>
<td>15 years</td>
<td>10 years</td>
</tr>
<tr>
<td><strong>Kidney function</strong></td>
<td>Usually immediate</td>
<td>Can be delayed</td>
</tr>
<tr>
<td><strong>Surgery date</strong></td>
<td>Scheduled</td>
<td>Unknown</td>
</tr>
<tr>
<td><strong>Wait time</strong></td>
<td>Typically shorter</td>
<td>Typically longer</td>
</tr>
<tr>
<td><strong>Medications</strong></td>
<td>Doses may be lower</td>
<td>Standard dosing</td>
</tr>
</tbody>
</table>
Living donor medical criteria

Excellent health

- Age 21-70
- No high blood pressure or blood pressure meds
- Low surgical risk
- No diabetes
- BMI less than 32
- No transmittable diseases
Risks of living kidney donation

<table>
<thead>
<tr>
<th>Surgical</th>
<th>Medical</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Pain</td>
<td>• Decrease in renal function</td>
</tr>
<tr>
<td>• Blood clots</td>
<td>• Slight increase in blood pressure</td>
</tr>
<tr>
<td>• Infection</td>
<td>• No “spare” kidney</td>
</tr>
<tr>
<td>• Wound complications</td>
<td>• Lifetime risk of renal disease less than 1%</td>
</tr>
<tr>
<td>• Constipation</td>
<td></td>
</tr>
<tr>
<td>• Anesthesia reaction</td>
<td></td>
</tr>
</tbody>
</table>
Living donor testing

• Starts after recipient accepted for transplant
  • Call your coordinator to discuss living donors
• Your donor will have a separate coordinator
  • We cannot share information about your donor with you.
• Takes 2-4 months to complete donor work-up
• Can be started locally but completed at OHSU
• Paid for by donor program

• We will not compromise donor safety!
Living donors

- Share your story!
- OHSU participates in national paired exchange programs
- Call us before using creative approaches to finding a donor
- It is a federal crime to buy or sell organs in the United States
Donor surgery

Laparoscopic Nephrectomy

- 4-6 hr OR time
- One 4-inch + two 1-inch incisions
- About 3 day hospital stay
- Return to work
  - Desk job: about 3 weeks
  - Manual job: 6 weeks
Deceased donors

- No known spreadable cancer
- No known infectious diseases
- Good kidney function

Thoroughly screened, but not risk free.
Estimated post transplant survival (EPTS)

- Results range from 0-100%
- Calculation based on your
  - Age
  - Time on dialysis
  - Prior organ transplant
  - Diabetes status
- Calculated for everyone ≥ age 18
- **Lower score is better**
Kidney donor profile index (KDPI)

- Results range from 0-100%
- Calculation based on donor:
  - Age
  - Ethnicity
  - Creatinine
  - Medical history
  - Cause of death
  - Donation type
- **Lower score is better**
- Scores > 85% require written consent
The U.S. Kidney Donor Gap

- Waitlist List
- Deceased Donor
- Living Donor
United Network for Organ Sharing (UNOS) Options

- Multiple listing
- Transfer of waiting time
- KDPI > 85%
- PHS Increased Risk Donor

Donor risk factors may affect the success of the transplant or recipient health
KDPI > 85% donor

- Optional UNOS donor category
  - If interested, a consent for consideration must be submitted
  - Those consented will be eligible for both standard and high KDPI (>85%) donors
- These kidneys are biopsied
- They may function for a shorter time period
- Wait times for these kidneys are expected to be shorter
Public Health Service (PHS) increased risk donor

- Optional UNOS donor category (20% of donors)
  - If interested, a consent for consideration must be submitted
  - Those consented will be eligible for both standard and PHS donors
- Some patients may have up to 10% better survival at 5 years
  - Shorter wait time
  - Average age of PHS donor = 31
- Disease transmission risk is extremely low (HIV, Hepatitis)
  - 46/100,000 chance of transmission (0.05%)
  - Newer testing methods have reduced risk further
What to expect on the waiting 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
  • No PRA needed
  • Continue to gain waiting time
• Update testing every 1-2 years
What to expect on the waiting list

- Inform Coordinator for any of the following:
  - Insurance changes
  - Phone number & address changes
  - Changes in your health
  - Dialysis changes
  - Antibiotics
  - Hospital admissions
  - Travel
Organ distribution

Points system managed by UNOS
  - Length of time you have been waiting
  - Length of time you have been on dialysis
  - Antibody levels (cPRA%)
  - Prior organ donation
  - Age (pediatrics)
  - Degree of match with donor
When you get the call

• We have 20 minutes to reach you by phone
• Be prepared to get on the road within 1 hour
• We will:
  – Screen you for health concerns
  – Explain the donor type & timeline
  – Review your post transplant care plan
• We will not:
  – Discuss any personal donor information
• There is always the possibility that an offer will not result in transplant
The surgery
The surgery
Recipient hospital course

- 2-4 hours in OR
- Incision about 6 inches
- ICU stay rare
- Usual post-op activity
- Bladder catheter, wound drains, central line, arm IV
- Dialysis, if needed
- Plan for a 3-4 day stay
- Education, education, education
Potential surgical risks

All surgeries have risks

- Anesthesia reaction
- Urine leak
- Urine blockage
- Fluid collection
- Bleeding
- Blood clot formation
- Infection, including wound infection and pneumonia
- Organ failure (may require re-transplant)

Less than 5% reoperation rate in the first month
Other potential risks

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

- **Rare Risks**
  - Heart issues
    - Abnormal rhythms
    - Sudden drop in blood pressure that impacts your circulation
  - Multiple organ failure
  - Death
Potential outcomes

😊 = Kidney works immediately
   70-80%

😊 = Slow or delayed kidney function
   You may need dialysis after transplant
   20-30%

😢 = Fail immediately
   less than 1%
Why do transplants stop working?

- Noncompliance with medical treatment
- Need to decrease or stop antirejection medications because of other health issues
- Chronic rejection/changes over time
- Return of original disease
- Rarely, surgical complications
Transplant outcomes

See handout in class packet

Handout includes current data for kidney and pancreas on:

Patient survival: OHSU 1 year actual patient survival;
                   OHSU 1 year expected patient survival;
                   National 1 year patient survival.

Graft survival:  OHSU 1 year actual graft survival;
                   OHSU 1 year expected graft survival;
                   National 1 year graft survival.
Post-transplant commitments

- Daily self monitoring
  - BP
  - Weight
  - Temperature
  - Blood sugar
- Medications
  - Take exactly as prescribed
- Clinic visits
  - For life
- Lab draws
  - For life
  - At OHSU for 1st month
- Biopsies
  - At 3 & 12 months
  - As needed
- Communication
  - Share your concerns
  - Be part of our team
Rejection

• Can be seen at any time
  • Often no symptoms
  • Self monitoring essential (labs, weight, blood pressure, temperature)
• Treatment available
  • May require admission to hospital, biopsy, and IV meds
  • May change immunosuppression medications
• May lead to loss of transplanted kidney
Medication guarantees

- You may need to take these medications for the rest of your life.
- Doses are higher the first three months.
- You will have some medication side effects.
- Some side effects decrease as doses decrease.
- Medications need to be taken as directed.
- Adjusting your own medications can lead to loss of the kidney.
All transplant medications increase your risk of:

- Cancer
- Infection
- Coronary artery disease
Tacrolimus

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

CONSIDERATIONS
- Timed drug level blood tests
- Take consistently with or without food
- Cost
- Drug-drug interactions
Mycophenolate / Myfortic

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
SIDES EFFECTS

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

CONSIDERATIONS

• Take with food
• Cost (cheap)
• May be stopped at one year if no rejection
• Large doses used to treat acute rejection
Lifestyle after transplant

- Heart healthy
- Diet, healthy weight
- Exercise
- Blood pressure & cholesterol control
- No smoking
- Health maintenance exams
- Infection prevention
- Immunizations
Quiz

• Attending this class means you are on the kidney transplant waiting list
  – True/False
• When can my donors start the process?
• Kidney transplant cures end-stage renal disease (ESRD)
  – True/False
• Once I am on the waiting list, I won’t need to do anymore testing
  – True/False
• After transplant, how long will you need to take transplant medications?
Before you leave, turn in your paperwork

- Health Questionnaire
- Informed Consent
- LIT Consent