

Kidneys perform multiple essential functions. When the kidneys fail to function adequately, a replacement therapy must be chosen to sustain life. With appropriate intervention, patients with complete failure of their kidneys can live full, productive lives. Life expectancy without appropriate therapy can be measured in days to weeks.

Choices in Renal Replacement Therapy

Hemodialysis (HD)—Blood is passed through an artificial kidney (dialyzer) in a dialysis machine, where the body's fluid balance and chemistry can be regulated.

- Treatments are typically for 3 to 4 hours, 3 days per week.
- Most hemodialysis is performed at outpatient centers, which have specially trained staff and complex water purification systems which remove potentially harmful chemicals and bacteria from public water supplies.
- Home hemodialysis is becoming a more available option.

Peritoneal Dialysis (PD)—A plastic catheter is placed into the abdominal space and fluid is exchanged several times per day to remove waste and regulate body chemistry.

- The peritoneum is the membrane which lines the abdominal wall and covers the intestines and other abdominal organs.
- Small pores (microscopic holes) in the peritoneal membrane allow water and chemicals to pass from the blood stream through the peritoneum and into the fluid used in this type of dialysis. After several hours of collecting waste and excess water, the fluid is drained out of the catheter and discarded.
- On average, 4 to 6 fluid exchanges are required each day.
- Fluid exchanges may be performed manually or by a cycler machine, which usually operates overnight, performing fluid exchanges while the patient sleeps.
- Peritoneal dialysis (PD) is the most popular home dialysis therapy.

Kidney transplantation—Receiving a functioning kidney from a living or cadaveric (deceased) donor.

- Specialized medications are taken daily to prevent rejection of the transplanted organ.
- Due to the suppression of the immune system to prevent rejection episodes, transplant patients are monitored closely for potential infections.
- With recent advances in transplantation therapy, kidney transplants are demonstrating increasingly longer functional life spans.