



The high-permeability, high-flux artificial kidney pictured here represents the latest in technology. A glass of water is also shown because water is such an important component of the dialysis process. Water used in dialysis at Bronson is purified using the most sophisticated type of system available: reverse osmosis.

Bronson Nephrology

Every Patient Has Different Needs

Treating kidney problems is a complex task. Every patient has different needs, and addressing those needs when kidney problems are involved makes that task even more difficult. Fortunately, advancements in dialysis, transplantation, and other kidney treatments have made it possible for Bronson to offer many options to

patients and physicians that meet the needs of each individual's situation.

What these options mean is more effective treatment and increased comfort and convenience for the kidney patient. They also mean that referring physicians can have confidence that their patients will have available to them the latest and most effective methods and equipment.



When Kidneys Fail

While some kidney problems can be alleviated through proper therapy or surgery, many others result in renal failure, for which dialysis and transplantation are the only treatments. Bronson has a strong dialysis program that offers a variety of options to those needing dialysis. Bronson's close association with the University of Michigan Hospital Renal Transplant Program gives patients access to one of the most distinguished programs in the country.

Prescription Dialysis

Prescription dialysis means that the type of dialysis and the variables that are part of each type are adjusted to meet the individual needs of the patient. In fact, no two patients receive dialysis treatment exactly the same way. Individualized dialysis means that the dialysis is more effective in treating the patient. It also means that the patient has the amount of freedom and flexibility desired and is more comfortable during and after the treatment.

Patients can choose from two basic kinds of dialysis: hemodialysis and peritoneal dialysis. Within these two types, many adjustments are available, depending on the patient's needs. And whatever method is chosen, the patient, in consultation with the physician, always has the option to change the method and the individual variables.

Hemodialysis to Fit Each Patient

Bronson uses a system called urea-kinetic modeling to help customize hemodialysis treatment for each patient. The patient's age, weight, height, weight changes during dialysis, blood urea nitrogen levels, rate of blood flow during dialysis, and type of artificial kidney are all analyzed by computer to help calculate optimal treatment. Information concerning the patient's diet is also included in the process. The needed data are updated regularly and re-analyzed to adjust treatment as the patient's situation changes.

An Individually-Prepared Dialysate

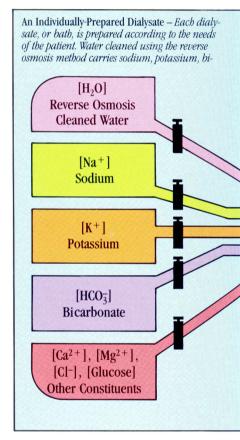
A dialysate, or bath used to clean a patient's blood, is prepared fresh for each patient according to the patient's needs. Three ingredients are particularly important for effective treatment and patient comfort: sodium, potassium, and bicarbonate.

During dialysis at Bronson, sodium levels are kept relatively high during most of the hemodialysis run to lessen blood pressure problems and muscle cramping. But because of our machinery, this level can be reduced near the end of the run, so as not to raise the serum sodium concentration of the patient. This approach reduces the desire to drink fluids, which helps control weight gain between treatments.

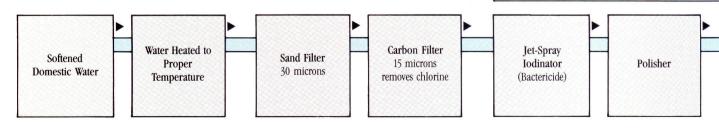
Potassium can be adjusted in the same way that sodium can be. The patient's need for potassium, or need to reduce potassium levels, can be taken into account individually.

Bicarbonate neutralizes acids in the blood. Many hemodialysis units use acetate instead of bicarbonate. Acetate is converted into bicarbonate by the liver and so provides the same effect indirectly. But with today's faster machines, this conversion process is too slow for some patients. This can result in acidosis and high acetate concentrations in the blood. Nausea, fatigue, and low blood pressure often accompany this condition.

Bicarbonate, although more difficult and expensive to use, prevents these prob-



A Special Water Supply – Because clean water is such an important component of hemodialysis, we purify water using the most sophisticated process available: reverse osmosis. We start with softened domestic water, which is then heated to the appropriate temperature. The water passes through a sand filter that traps particles larger than 30 microns. A carbon filter traps particles larger than 15 microns and removes chlorine from the water. A jet-spray iodinator then puts iodine into the water to kill bacteria. Following



lems altogether, and results in a more satisfactory dialysis for the patient. So, we use it for all of our hemodialysis patients in amounts appropriate to individual needs.

A Special Artificial Kidney

Some patients may benefit from treatment with a special high-permeability, high-flux

carbonate, and other constituents into the artificial kidney. Key constituents can be individually controlled for maximum effectiveness and patient comfort.

Semi-Permeable Membrane

Dialysate

Blood

Artificial Kidney

that, a polisher further refines the water before a 5-micron filter cleans it again. All of this purification is done before the water enters the reverse osmosis unit. In the unit, 98 percent of all the remaining solutes are eliminated. A carbon filter then removes any remaining iodine before the water goes to the bemodialysis unit. Water is drawn off a continuous loop for use at 11 dialysis patient stations. The loop recirculates the clean water constantly to keep bacteria to a minimum. artificial kidney and a special dialysis machine. This is especially important for those who develop aluminum toxicity, which is sometimes associated with long-term dialysis. With a high-permeability, high-flux artificial kidney, such problems can be avoided and even reversed.

Reusing Artificial Kidneys for Patient Comfort

Bronson reuses the same artificial kidney several times on the same patient. This is not only safe, but actually beneficial. Many patients have a reaction to a new artificial kidney that is similar in some ways to tissue rejection. After the first use (probably because the patient's own proteins are deposited on the artificial kidney), hemodialysis is more comfortable.

The artificial kidney is carefully washed after each use, using the latest reuse machines. All cleansing solvents are thoroughly rinsed from the artificial kidneys. The kidneys are then tested by computer for any residue and for efficiency before being accepted for reuse. Eventually, however, all artificial kidneys have a decrease in efficiency below a useful range and are replaced.

A Convenient Location

Hemodialysis for outpatients is performed at Bronson's freestanding outpatient facility, Bronson Crosstown Center. The center provides generous, free, doorstep parking to patients and their families. The decor offers a pleasant atmosphere for all who use the center. Various areas are easy to find because the center has only two floors and provides clear directions to each location.

Home Hemodialysis

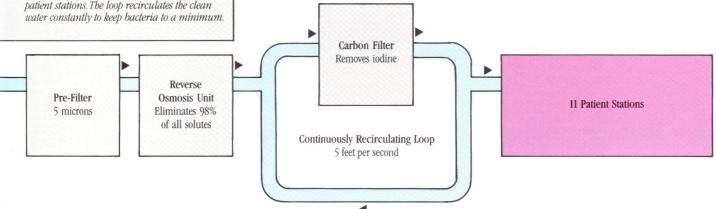
Patients with a high degree of functioning may qualify for placement of a hemo-dialysis unit in their homes. Although the training period is long, the resulting flexibility and independence are great. In addition, we have found that home hemodialysis is as cost-effective as providing hemodialysis in our outpatient facility.

A Special Water Supply

The water used in conjunction with both our home and outpatient hemodialysis is carefully and thoroughly purified by a reverse osmosis cleaning system, the most effective type of system for cleaning water. Salts, trace minerals, and other solids that can interfere with effective dialysis are virtually eliminated. Bacteria is kept to a minimum because the water is iodized. At our outpatient unit, water is kept running through a closed system 24 hours a day, even when no treatment is taking place, to ensure that bacteria counts stay low.

Home Peritoneal Dialysis

The most popular form of home dialysis for Bronson patients is continuous



ambulatory peritoneal dialysis (CAPD). Bronson CAPD offers more freedom to those needing dialysis. The dialysis is accomplished by infusing the peritoneal membrane with a dialysate solution, letting it remain for a few hours and then draining it. These exchanges are repeated four times a day. CAPD gives the patient more mobility, and generally, more leeway in diet.

Bronson also offers a new type of peritoneal dialysis called automated peritoneal dialysis. It works on the same principle as CAPD, but the dialysate solution is pumped in and out of the membrane by a machine while the patient sleeps. Daytime exchanges are usually eliminated.

Individualized Dietary Consultation

Because diet is such an important part of dialysis treatment, and the treatment of kidney-related problems, Bronson has a full-time dietitian devoted to kidney patients. The dietitian reviews each patient's diet when the patient arrives. The dietitian makes recommendations and even helps plan sample menus. The goal is to create a diet for each patient that is satisfying and meets individual preferences, yet remains within the necessary guidelines.

The dietitian gives patients extensive instruction in any dietary restrictions or supplements, and explains the rationale to them. Visual and tape-recorded materials are used to supplement written materials, when necessary. The dietitian follows up frequently with clients to check compliance and to answer questions.

A Team Approach to Dialysis

Treating dialysis patients requires the coordination of several facets of the Bronson staff. That's why a team which includes the medical directors, hemodialysis and

peritoneal dialysis directors, dialysis nurses, transplant coordinator, dietitian, medical social worker, and chaplain meet regularly to review the treatment and needs of each patient.

Patients are an active part of the process because many choose to join the team in planning their treatment. Before an initial plan is implemented, or changes are made in an existing plan, the patient must read and sign the plan.

Kidney Transplantation

Bronson provides access to kidney transplantation through the University of Michigan Hospital Renal Transplant Program. The Bronson transplant coordinator counsels patients who are seeking transplants. When a patient decides to seek a transplant, a screening is set up with the University of Michigan program. If the patient is accepted, that patient goes onto the Kidney Transplant Waiting List of the Organ Procurement Agency of Michigan.

Those accepted from the Bronson program are constantly updated concerning their positions on the list by the Bronson coordinator.

A Special Inpatient Area

For those with kidney conditions requiring inpatient hospital treatment including surgery, Bronson has designated part of one floor for the care of kidney patients. In this area, patients receive expert attention from nurses and other medical personnel trained in dealing with the special needs of kidney patients.

Emergency Dialysis for Inpatients

Bronson offers emergency dialysis to hospital inpatients. Portable dialysis equipment can be brought to the patient along

with a portable reverse osmosis water cleaning unit.

Emergency Treatment for Poisoning and Overdose

Bronson provides emergency treatment 24 hours a day for poisoning and overdose through charcoal hemoperfusion treatment. Hemoperfusion differs from hemodialysis in that it uses activated charcoal to remove the poison or drug when it cannot be removed through normal dialysis. Hemoperfusion quickly reduces the level of the poison or drug which might otherwise cause coma, seizure, cardiac arrest, or damage to internal organs. Hemoperfusion is often used in cases where kidney function is normal.

Coverage for Kidney Treatment and Dialysis

For short-term treatment, Medicare, Medicaid, Blue Cross, and most private health plans cover the cost of hospitalization, including emergency dialysis. Once patients go into chronic renal failure, they are virtually always eligible for Medicare, regardless of age.

Referring to Our Program

If you would like to refer a patient to our program, call Bronson Nephrology at (616) 383-7883. This number may be called 24 hours a day for referrals. This is a direct number to the subspecialty practice which oversees the hospital nephrology program.

