

312 Dialysis in the Treatment of Kidney Failure

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Dialysis may be required for the treatment of either acute or chronic kidney disease (CKD). The use of continuous renal replacement therapies (CRRTs) and prolonged intermittent renal replacement therapy (PIRRT)/slow low-efficiency dialysis (SLED) is specific to the management of acute renal failure and is discussed in [Chap. 310](#). These modalities are performed continuously (CRRT) or over 6–12 h per session (PIRRT/SLED), in contrast to the 3–4 h of an intermittent hemodialysis session. Advantages and disadvantages of CRRT and PIRRT/SLED are discussed in [Chap. 310](#).

Peritoneal dialysis is rarely used in developed countries for the treatment of acute renal failure because of the increased risk of infection and (as will be discussed in more detail below) less efficient clearance per unit of time. The focus of this chapter will be on the use of peritoneal and hemodialysis for end-stage kidney disease (ESKD).

With the widespread availability of dialysis, the lives of hundreds of thousands of patients with ESKD have been prolonged. In the United States alone, there are now ~750,000 patients with treated ESKD (kidney failure requiring dialysis or transplantation), the vast majority of whom require dialysis. Since 2000, the prevalence of treated ESKD has increased 65%, which reflects both a small increase in the incidence rate and marginally enhanced survival of patients receiving dialysis. The crude incidence rate for treated ESKD in the United States is 370 cases per million population per year; ESKD is disproportionately higher in African Americans as compared with white Americans. In the United States, the leading cause of ESKD is diabetes mellitus, currently accounting for approximately 45% of newly diagnosed cases of ESKD. Approximately 30% of patients have ESKD that has been attributed to hypertension, although it is unclear whether in these cases