All patients should be considered for transplantation when it is determined that renal replacement therapy will someday be required. In some cases, the evaluation can be completed and the patient can receive transplantation before initiating chronic maintenance dialysis. Prospective candidates for transplantation must be carefully screened for potentially fatal cancers and infections that are made worse by immunosuppression. Hepatic, pulmonary, cardiovascular, and gastrointestinal disorders all may increase the risks of surgery and chronic immunosuppression. Patients must be carefully screened for these disorders. In many cases, intervention before transplantation may help reduce the recipient’s risks of transplantation. Detailed guidelines have been established to evaluate prospective candidates for transplantation [1].

Living donors offer the recipient optimal graft survival, reduced waiting time, and an opportunity for preemptive transplantation (ie, before initiating dialysis). The evaluation of prospective living donors must ensure that the donation is safe for both donor and recipient. However, the primary focus of this evaluation must always be on protecting the well-being of the prospective donor. Both the short-term surgical risks and the long-term risks of having a single kidney must be carefully defined. The evaluation also must ensure the donor has no disease that could be transmitted with the kidney. Guidelines have been developed for the evaluation of living prospective donors [2].

When no suitable living donors are available, the prospective recipient can be placed on the waiting list for a cadaveric kidney. Unfortunately, because the number of patients needing cadaveric kidneys has grown much faster than the number of available kidneys, the median waiting time is now over 2 years. This shortage has led many transplantation centers to use cadaveric kidneys, which are associated with reduced graft survival. In particular, graft survival is affected by the age of the kidney donor. Many centers are expanding the age limits of acceptability to reduce waiting times. A detailed discussion of the selection, retrieval, preservation, and allocation of cadaveric kidneys is beyond the scope of this review.
Initiating the evaluation. Before transplantation it must be clearly established that renal failure in the patient is irreversible. When the prospective recipient is not already on chronic maintenance dialysis, however, preemptive transplantation (ie, transplantation before initiating dialysis) should be considered. Because the waiting time for a cadaveric kidney is generally long, preemptive transplantation usually is possible only when a prospective living donor is available. In any case, the rate of decline in the glomerular filtration rate (GFR) must be monitored closely in patients with progressive renal disease. The evaluation process should begin when it is anticipated that transplantation may be required within 6 months. (From Kasiske and coworkers. [1]; with permission.)

Screening for cancer. An active malignancy is an absolute contraindication to transplantation. Effective screening measures for patients at risk include chest radiograph, mammogram, PAP test, stool Hemoccult, digital rectal examination, and flexible sigmoidoscopy examination. Patients who have had a life-threatening malignancy but are potentially cured may be candidates for transplantation when there has been an appropriate disease-free interval. This interval generally is at least 2 years, and longer in the case of some malignancies. (From Kasiske and coworkers [1].)
Screening for infection in recipients

- Active infection? Yes → Appropriate treatment and disease-free interval
- HIV positive? Yes → Discourage transplantation
- History of TB or positive PPD without adequate therapy? Yes → Consider prophylactic treatment
- History of TB or positive PPD without adequate therapy? No → Assess risk for other infections

FIGURE 12-3
Screening for infection. An active potentially life-threatening infection is a contraindication to transplantation. Patients with human immunodeficiency virus (HIV) are usually not candidates for transplantation. Patients with a history of tuberculosis (TB) or a positive purified protein derivative (PPD) skin test who have not been adequately treated should generally receive prophylactic therapy. (From Kasiske and coworkers [1].)

Assessing the risks of cytomegalovirus (CMV) infection after transplantation. CMV is a major cause of morbidity and mortality after transplantation. The incidence and severity of CMV are associated with the serologic status of the donor (d) and recipient (r), the risks generally being the following: recipient negative–donor negative less than recipient positive–donor negative less than recipient negative–donor positive less than recipient positive–donor positive. As shown in these data from the United Network for Organ Sharing Scientific Registry, the rate of graft survival tends to be less in recipients of kidneys from donors who test positive for CMV infection. The serologic status of both the donor and recipient is often used to determine which patients are candidates for prophylactic or preemptive anti-CMV therapy after transplantation. (From Cecka [3]; with permission.)

Assessing the risk of renal disease recurrence. Although the risk for recurrence of the underlying renal disease is rarely great enough to preclude transplantation, patients and physicians must be aware of this risk. In some cases it may be prudent to delay transplantation until the underlying disease is quiescent. (From Kasiske and coworkers [1].)