Chronic renal failure is an uncommon problem in children. The data available on incidence show considerable variation because of differing definitions and sources of information. The total incidence in Great Britain has been estimated at 3.5 cases per million total population per year (Meadow et al., 1970); in Germany at 3.0 (Schärer, 1971); and in the United States at 4.8 (Zilleruelo et al., 1980). Studies from dialysis and transplantation centers indicate that 1–1.6 children per million population present for treatment annually (Cameron, 1973; Potter et al., 1980). Thus about one of three children with chronic renal failure survive to be considered for treatment by the current selection criteria. The feasibility of dialysis and transplantation as techniques for prolongation of life in children with renal failure has been well demonstrated. The results of several large published series suggest that children fare as well as or better than adults. The availability of partial funding for the enormous costs of end-stage renal disease (ESRD) treatment through federal programs and the wider application of this new technology require increased attention to a growing list of new problems, some of which are considered in this section.

The data cited indicated that many young children with chronic renal failure are not considered suitable candidates for dialysis or transplantation. Some are severely mentally retarded or have other congenital malformations which are believed to preclude their selection for these modalities of treatment. Others are very young and are not judged to be salvageable by present criteria. Presumably their parents are told that nothing can or should
be done—a self-fulfilling prophecy. Such decisions are not made lightly by either the physicians or the parents, for very difficult moral, ethical, social, and financial considerations are involved—and there are few guidelines. The parents are usually young, often have other children for whom they are responsible, and nearly always have serious financial problems prior to the time that the question of management of renal failure arises. The issue of a living related (parental) donor may have been raised to further complicate their lives. What are the obligations and appropriate priorities of the parents to the affected child, to their other children, and to each other?

The remaining technical problems of transplantation largely limit the application of this method to children of greater than 7–10 kg body weight. Hemo- or peritoneal dialysis is feasible in very small children, but survival and growth to an age and size that will permit successful transplantation have rarely been described. More often the practical problem is how to handle the young child with moderate renal failure and an irreversible kidney lesion. The physician must make a "best guess" of the probability that the child, with extraordinary medical care, might survive and grow to a size sufficient to receive an adult donor kidney. The physician team may present to the parents a plan for care necessary to achieve that goal. On the other hand, they may, for perfectly rational reasons (as we now understand the issues), decide to discourage extraordinary measures, in which case the natural history of the disease process will continue. The parents of the child have several choices in either case. In my experience and that of others (Matthews et al., 1981), parents offered the opportunity to participate in a plan for survival of the child almost always agree to proceed. Parents may either accept the natural history concept and agree that nothing extraordinary should be done, or they may seek another opinion. I believe that the latter attitude is growing among well-educated parents who are increasingly aware of the potential of high-technology medicine, and who will increasingly demand consideration for their very young children. We must develop improved understanding of the moral and ethical issues involved and guidelines which are acceptable to society.

The causes of chronic renal failure in children differ greatly from those commonly reported by centers treating adults. Renal dysplasia, obstructive uropathy, vesicoureteral reflux, and chronic atrophic pyelonephritis account for 20–40% of several series and surveys (Schärer, 1971; Cameron, 1973; Potter et al., 1980; Zilleruelo et al., 1980). This unique distribution of diagnoses and the contrast with reports in adults are especially striking among younger children. In our renal transplantation experience at the University of Minnesota involving 89 children less than 10 years of age, 24% had obstructive uropathy dysplasia and 22% had congenital nephrosis (Lum et al., 1981). These unique medical problems of childhood offer special research opportunities to the scientist–physician caring for these children and ultimately may be shown to be partially preventable diseases. In this subparts, Dr. Winberg reviews the problem of chronic atrophic pyelonephritis and the