I observe the physician with the same diligence as he the disease.

John Donne,
Devotions upon Emergent Occasions
Information on provider characteristics and dialysis practices is compiled using the HCFA Facility Survey and reports from the CDC Annual Surveillance of Dialysis-Associated Disease. Because the CDC did not conduct a survey in 1998, data in some instances is reported only up to 1997.

The greatest increase in the number of units has occurred in dialysis facilities not based in hospitals (fig 10.1). In most ESRD networks, growth in the number of dialysis units from 1994 to 1998 has kept pace with or exceeded growth in the number of patients (fig 10.2). Freestanding, for-profit dialysis units are the most common type, and now dialyze over 70% of the patients in the country (fig 10.5).

The number of hemodialysis patients per station has remained relatively constant across most networks (fig 10.6), and is highest in Networks 2, 3, 10, and 17, at an average of more than five patients. A comparison of the data in this graph with the growth in patient and unit numbers (fig 10.2) shows that, while unit growth has been high in many areas of the country, the demand for treatment facilities is often still outpacing the supply.

The number of in-center treatments has increased in all networks since 1994 (fig 10.7). Patient to staff ratios have remained steady at approximately four to one (fig 10.9).

The number of units per 100,000 population is highest in Florida, Washington, and the Southwest. These unadjusted rates may be influenced by the large Hispanic, Asian, and elderly populations in these areas.

The proportion of for-profit units increased in all renal networks from 1994 to 1998, and is highest in Networks 6, 7, 14, and 18. The proportion of freestanding units has also increased within each network, with the highest distribution occurring in networks 6, 7, and 8 (fig 10.14).

The percentage of units practicing high efficiency or high flux dialysis increased from 1994 to 1998, reflecting the growing use of polysulfone (high-flux) and cellulose acetate (high-efficiency) dialyzers throughout the nation. Polysulfone use has risen dramatically since 1990, with over 70% of all dialysis units using polysulfone dialyzers on all or some of their patients (figs 10.20–28).

The percent of units practicing reuse grew 23% from 1988 to 1997 (fig 10.31). The use of peracetic acid as a reuse germicide has increased 36.7% since 1988, while formaldehyde use has decreased by approximately the same amount (fig 10.33). The incidence of Hepatitis B surface antigen has fallen among patients since 1994, but is still most prominent in patients whose units do not reuse dialyzers (fig 10.35). Incidence of Hepatitis B in staff members, however, has increased since 1994, and is highest in units which practice dialyzer reuse.

Due to limitations in the mapping software, Alaska and Hawaii are not included on the unit-specific maps.

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**Figure 10.1**

Number of dialysis & transplant units

Abbreviations on the x-axis: dialysis center (DC), non-hospital-based dialysis facility (NHBD), hospital-based dialysis facility (HBDF), transplant & dialysis center (T&D), transplant center (TC). These definitions are taken from the HCFA survey. Reference: Table J-2.
Figure 10.2  
Growth in number of units & patients, 1994 to 1998  
by network  
Patient numbers reflect the total number of patients receiving care at the end of the survey period. Data are obtained from the HCFA Facility Survey.  
Reference: Table J.4.

Figure 10.3  
Five-year growth (%) in number of units, 1994 to 1998  
by state  
Data are obtained from the HCFA Facility Survey.  
Reference: Table J.6.

Figure 10.4  
Five-year growth (%) in number of dialysis patients, 1994 to 1998  
by state  
Data are obtained from the HCFA Facility Survey.  
Reference: Table J.6.
Figure 10.5
Distribution of patients by unit type

Because transplant centers do not provide maintenance hemodialysis, they are not included on this graph. Data are obtained from the HCFA Facility Survey.

Figure 10.6
Hemodialysis patients per station by network

Data are obtained from the HCFA Facility Survey.

Figure 10.7
In-center hemodialysis treatments by network

Data are obtained from the HCFA Facility Survey.
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Figure 10.8
Units per 100,000 population
1998, by HSA
Data are obtained from the HCFA Facility Survey.

Figure 10.9
Patient-to-staff ratios
by network
While patient-to-staff ratios are relatively consistent across networks, the ratios in individual facilities may vary considerably. These variations should be assessed further, particularly in terms of dialysis therapy, hematocrit levels, and hospitalization and death rates.

Patient counts for 1997 were supplied through verbal communication with the CDC. Staff counts are obtained from the CDC Surveillance of Associated Diseases.

Figure 10.10
Patient-to-staff ratios
1997, by HSA
Because a greater disease burden in the patient population and high placement rates for central catheters may each place increased stress on units with high patient-to-staff ratios, future analyses should compare these ratios throughout the country to hospitalization rates, the number of hospital days per patient year, and insertion rates for vascular accesses.

Data are obtained from the CDC Surveillance of Associated Diseases. Patient counts for 1997 were supplied through verbal communication with the CDC. Gray areas indicate HSAs in which there are either no dialysis units or the units have not completed the survey form.
Figure 10.11
Distribution of for-profit & non-profit units
by network
Data are obtained from the HCFA Facility Survey.

Figure 10.12
Location of for-profit & non-profit dialysis units
1994
Data are obtained from the HCFA Facility Survey.

Figure 10.13
Location of for-profit & non-profit dialysis units
1998
Data are obtained from the HCFA Facility Survey.
Figure 10.14
Distribution of freestanding & hospital-based units by network
Data are obtained from the HCFA Facility Survey.

Figure 10.15
Location of freestanding & hospital-based dialysis units 1994
Data are obtained from the HCFA Facility Survey.

Figure 10.16
Location of freestanding & hospital-based dialysis units 1998
Data are obtained from the HCFA Facility Survey.
Figure 10.17
Distribution of chain-affiliated & independent units
by network
Data are obtained from HCFA regional offices through the Freedom of Information Act (FOIA).
For the analyses on this page, a chain-affiliated unit is defined by the USRDS as one of a group of 20 or more freestanding dialysis units that are owned by a common party and that are located in more than one state.

Figure 10.18
Location of chain-affiliated & independent units
1994
Data are obtained from HCFA regional offices through the Freedom of Information Act (FOIA).

Figure 10.19
Location of chain-affiliated & independent units
1997
Data are obtained from HCFA regional offices through the Freedom of Information Act (FOIA).
Figure 10.20
Distribution of conventional & high-efficiency/high-flux units by network
Conventional units are defined as those in which high-efficiency and high-flux dialysis are used for fewer than 25% of the patients. Data obtained from the HCFA and CDC surveys.

Figure 10.21
Location of conventional & high-efficiency/high-flux units 1994
Conventional units are defined as those in which high-efficiency and high-flux dialysis are used for fewer than 25% of the patients. Data obtained from the CDC Surveillance of Dialysis-Associated Diseases.

Figure 10.22
Location of conventional & high-efficiency/high-flux units 1997
Conventional units are defined as those in which high-efficiency and high-flux dialysis are used for fewer than 25% of the patients. Data obtained from the CDC Surveillance of Dialysis-Associated Diseases.
Figure 10.23
Units using polysulfone
1997
Data are obtained from the CDC Surveillance of Dialysis-Associated Diseases.

Figure 10.24
Units using cellulose acetate
1997
Data are obtained from the CDC Surveillance of Dialysis-Associated Diseases.

Figure 10.25
Units using cuprophane
1997
Data are obtained from the CDC Surveillance of Dialysis-Associated Diseases.
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Figure 10.26
Units using regenerated cellulose
1997
Data are obtained from the CDC Surveillance of Dialysis-Associated Diseases.

Figure 10.27
Membrane type by network
1997
Data are obtained from the HCFA and CDC surveys.

Figure 10.28
Membrane use nationwide
1990–1997
Units can report more than one membrane type.
Data are obtained from the CDC Surveillance of Dialysis-Associated Diseases.
Figure 10.29
Pyrogen reactions
by membrane type

Data are obtained from the CDC Surveillance of Dialysis-Associated Diseases.

Figure 10.30
Pyrogen reactions
by germicide & reuse practice

Data are obtained from the CDC Surveillance of Dialysis-Associated Diseases.

Figure 10.31
Units practicing dialyzer reuse

The percent of units in 1988, and the percent change from 1988 to 1997, are shown in the legend.

Data are obtained from the CDC Surveillance of Dialysis-Associated Diseases.
Figure 10.32
Location of units by reuse practice
1997
Data are obtained from the CDC Surveillance of Dialysis-Associated Diseases.

Figure 10.33
Reuse germicide use
The percent of units in 1988, and the percent change from 1988 to 1997, are shown in the legend.
Data are obtained from the CDC Surveillance of Dialysis-Associated Diseases.

Figure 10.34
Location of units by germicide use
1997
Data are obtained from the CDC Surveillance of Dialysis-Associated Diseases.
The higher conversion rates for both patients and staff in units which do not reuse dialyzers need further evaluation in terms of vaccination rates, reuse practices, membrane types, and patient-to-staff ratios. Data are obtained from the CDC Surveillance of Dialysis-Associated Diseases.