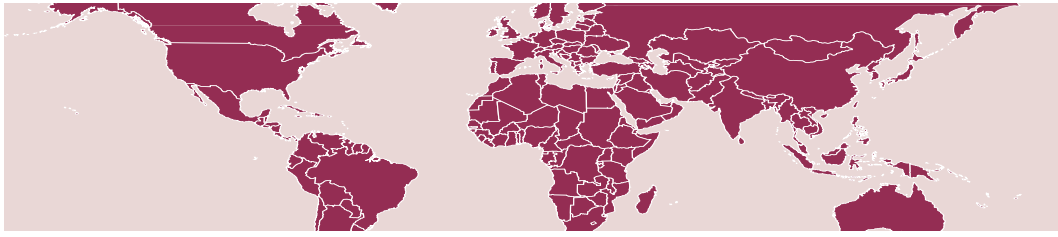
Fresenius Medical Care AG is the world's leading provider of dialysis products and medical care for patients with chronic renal failure.



ESRD Patients in 2003

A Global Perspective

Fresenius Medical Care

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Contents

Preface

At the end of the year 2003, the number of people undergoing dialysis approached 1.3 million – a number certainly unimaginable in the early days of dialysis. Just thirty years ago, only approximately 35,000 patients had access to this life-saving therapy.

Today, the global end-stage renal disease (ESRD) patient population continues to grow at an annual rate of around 6% – a growth driven by an aging population, increased incidence of diseases involving renal failure, improved technology and better access to treatment.

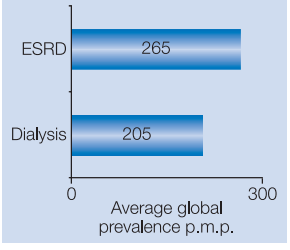
In numerous countries, renal registries and other official bodies are valuable sources of extensive information on various aspects of ESRD demographics, treatment practices and outcomes. Such information provides a base for international comparisons and aids understanding of treatment policies and their implications for the well-being of patients. Conclusions drawn from such data provide knowledge of value to both medical communities and policy makers throughout the world. However, data collection and analysis on such a large scale requires extensive resources, and a time lapse between data collection and publication is inevitable.

122 countries now contribute to the annual Fresenius Medical Care survey. This brochure provides a comprehensive overview of ESRD epidemiology at the end of the year 2003 and, as such, offers a unique insight into this patient population, its global distribution and the treatment modalities employed.

Global View of ESRD Patients

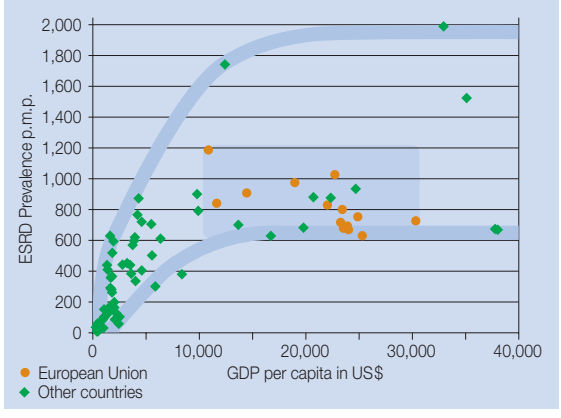
ESRD Patients	1,681,000
thereof HD	1,158,000
thereof PD	141,000
thereof Tx	382,000
World Population	**6.3 billion**

Annual Growth Rates	
World population	1.2%
ESRD	~6%
HD	~6%
PD	~6%
Tx	~5%



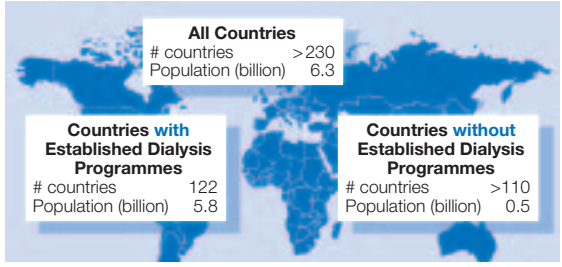
The global ESRD patient population is estimated to have reached almost 1.7 million at the end of 2003, and continues to grow at a significantly higher rate than the world population. Of the 1.7 million ESRD patients, 1.3 million were undergoing dialysis treatment (haemodialysis (HD) or peritoneal dialysis (PD)) and over 380,000 people were living with kidney transplants (Tx). The prevalence of treated ESRD patients in the general population shows a high global variation, ranging from under 100 to over 1,500 patients per million population (p.m.p.). ESRD prevalence approaches 2,000 p.m.p. in Japan, exceeds 1,500 p.m.p. in the USA, and is over 850 p.m.p. in the European Union. The much lower global average of 265 p.m.p. for ESRD suggests that, from the global perspective, access to treatment is still limited and a number of patients with terminal renal failure do not receive treatment.

A comparison of national economic strength (expressed as gross domestic product (GDP)) with prevalence of ESRD suggests that economic factors may impose restrictions on treatment. A restriction is indicated in countries where the GDP per capita is below a limiting value. Further analysis shows that there is no correlation between economic strength and ESRD prevalence in the countries of the European Union.



ESRD prevalence and economic welfare in 75 countries representing 99% of the global ESRD patient population

Countries Reporting Data on Dialysis Patients



Number of countries with and without an established dialysis programme

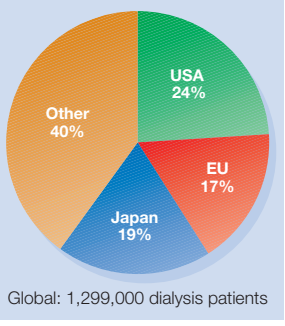
Of the more than 230 countries (or areas of special sovereignty) worldwide, 122 countries report that they provide dialysis care to patients with renal failure. Thus, approximately 90% of the world population has access to dialysis treatment, at least theoretically.

56% of the global dialysis patient population is treated in just five countries – USA, Japan, Germany, Brazil and Italy. Together these account for less than 12% of the world population. The different values for the prevalence of dialysis in these five countries, ranging from 350 p.m.p. in Brazil to 1,890 p.m.p. in Japan, are an indication of the widely varying situation regarding dialysis treatment practices and outcomes. The next 10 countries ranked by the size of their dialysis patient population (i.e. countries 6–15 in the table below) account for 22% of the global dialysis patient population and 29% of the world population. The remaining 22% of global dialysis patients are treated in more than 100 different countries representing more than 50% of the world population (i.e. countries 16–122).

Regional distribution of dialysis patients compared to total population

Countries ranked by dialysis population	Population (million)	% of world population	Dialysis patients (thousand)	% of total dialysis patients	Prevalence of dialysis (p.m.p.)
USA	292	4.6%	310	24%	1,060
Japan	128	2.0%	242	19%	1,890
Germany	82	1.3%	65	5%	790
Brazil	183	2.9%	64	5%	350
Italy	58	0.9%	45	3%	770
Countries 6 to 15	1,811	28.6%	290	22%	160
Countries 16 to 122	3,306	52.2%	284	22%	85
Countries 123 to 232	476	7.5%	0	0%	0
Total	**6,336**		**1,299**		**205**

Global View of Dialysis Patients



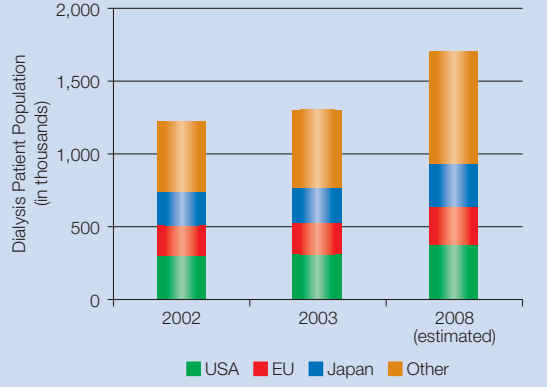
Global: 1,299,000 dialysis patients

From a global view, most dialysis patients can be allocated to three major geographical regions: the USA, the European Union (EU) and Japan. 60% of all dialysis patients are treated in these 17 countries. The remaining 40% of dialysis patients are distributed throughout different geographical regions (designated "Other" in the figures).

Growth rates from 2002 to 2003 are similar in the USA, Japan and the European Union. In contrast, the prevalence of dialysis in the general population varies significantly in these regions: values for Japan, the USA and the European Union are 1,890, 1,060 and 570 p.m.p., respectively.

Furthermore, growth rates in these three major geographical regions are significantly lower than those in regions such as Asia, Latin America, Middle East and Africa. This variation in growth rates may be partially explained by differences in demographics and the maturity of dialysis programmes, i.e. an increasing access to dialysis programs in developing countries.

Annual Regional Dialysis Population Growth Rates	
USA	~ 4%
European Union	~ 4%
Japan	~ 4%
Other	~ 10%
Total	**~ 6%**

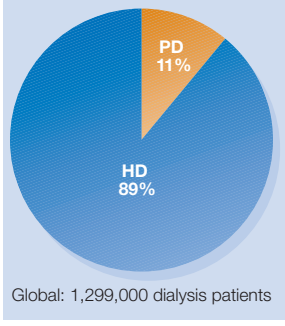


Development of dialysis patient population split by geographic region

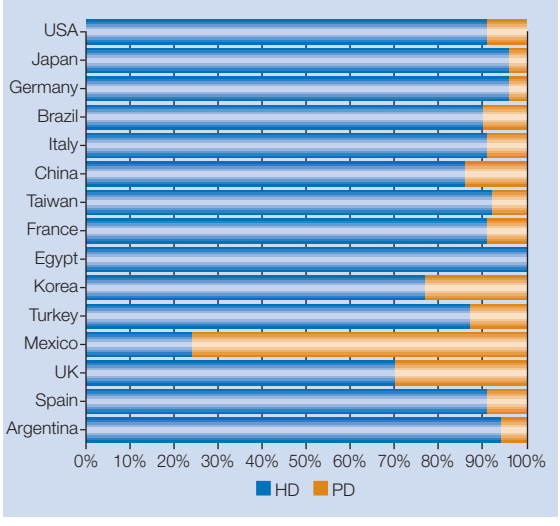
Extrapolation of patient populations based on current growth rates suggests a change in the regional distribution of patients over the next 5 years: a significantly higher proportion of patients may possibly undergo dialysis treatment in Asia, Latin America, Eastern Europe, Middle East and Africa.

At the end of year 2003, HD remained the most common treatment modality, with around 1,158,000 patients undergoing haemodialysis (89% of all dialysis patients) and around 141,000 patients undergoing peritoneal dialysis (11% of all dialysis patients).

Analysis of the 15 countries with the largest dialysis patient populations indicates that the global HD:PD distribution ratio is not reflected in all countries. Countries such as the Republic of Korea, Mexico and UK have a significantly higher proportion of PD patients, while Japan, Germany, Egypt and Argentina have less PD patients compared to the global average. With the exception of Mexico, HD is the predominant treatment modality in these 15 countries.

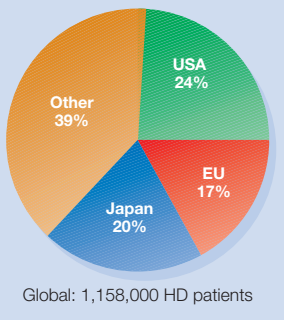


Global: 1,299,000 dialysis patients



HD-PD patient split in the 15 largest countries ranked by dialysis patient population

Global View of Haemodialysis Patients



Global: 1,158,000 HD patients

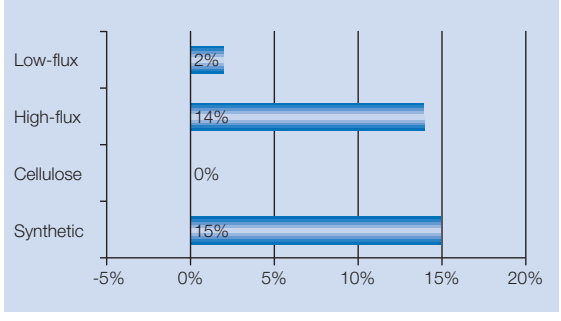
Annual Regional HD Population Growth Rates	
USA	~4%
European Union	~4%
Japan	~4%
Other	~10%
Total	**~6%**

Global Patient and Centre Numbers	
HD patients	1,158,000
HD centres	21,800
Average number of patients per centre	**53**

The global distribution and growth rate of haemodialysis patients strongly reflect the global distribution and growth rate of dialysis patients in general.

Most haemodialysis patients undergo treatment in dialysis centres. At the end of year 2003, it was estimated that the great majority of the 1,158,000 HD patients were treated in 21,800 centres worldwide with an average of 53 patients per centre. Further analysis reveals that 47% of dialysis centres lie within the public sector or belong to healthcare organisations, while the remaining 53% are private. However, large geographical variations are evident; for example, more than 98% of centres are private in the USA (private nephrologists and company providers) while only around 42% are so in the European Union.

An analysis of the different dialyser types selected for the treatment of haemodialysis patients in 2003 showed a prevailing trend towards high-flux dialysers and synthetic dialysis membranes. Whereas the low-flux dialyser segment increased only slightly (by 2%) in 2003, the high-flux dialyser segment grew by 14%. The total number of cellulose or modified cellulose dialyser membranes remained unchanged, while the number of synthetic dialyser membranes increased by 15%.

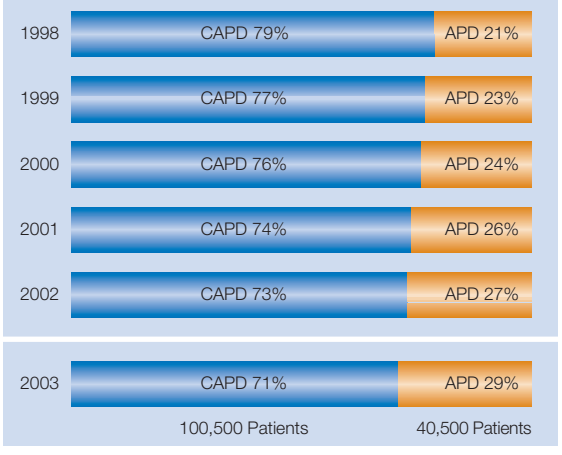


Annual growth rates for dialysers split by type

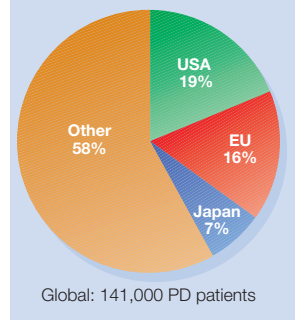
Global View of Peritoneal Dialysis Patients

The regional distribution of peritoneal dialysis patients differs from that of both HD patients and dialysis patients in general in that Japan has fewer patients and the "Other" countries have more patients – less than 5% of patients are treated by peritoneal dialysis in Japan, while this treatment modality is relatively popular in some countries in Latin America and Asia. As already mentioned, large PD patient populations, relative to HD, are to be found in Mexico, the UK and the Republic of Korea.

With an average of 6%, peritoneal dialysis growth rates in 2003 were similar to those of haemodialysis. As in the case of HD, significantly higher growth rates were observed in Asia, Latin America, Middle East and Africa (region "Other") than in the three major single geographical regions (USA, EU and Japan). Growth in peritoneal dialysis was again driven by automated peritoneal dialysis (APD). Use of this modality increased by 13–14% in 2003 compared to a 3–4% increase for continuous ambulatory peritoneal dialysis (CAPD). Since 1998, utilisation of APD has increased from 21% of the total PD population to 29% today. Again, strong regional variations in the allocation of patients to either CAPD or APD are evident, with over 50% of patients undergoing APD in some countries.



PD patient population split by treatment modality



Global: 141,000 PD patients

Annual Regional PD Population Growth Rates	
USA	~0%
European Union	1–2%
Japan	~0%
Other	10–11%
Total	**~6%**

Annual PD System Growth Rates	
CAPD	3–4%
APD	13–14%
Total	**~6%**

The data presented here is derived from information consolidated from 122 countries worldwide.

All data referring to ESRD patients, unless labelled otherwise, refer to the end of year 2003.

Growth rates displayed are the 2002 to 2003 annual growth rates.

All data referring to the European Union (EU) refer to the status as in 2003 (i.e. 15 countries).