Therapeutic Apheresis and Dialysis
8(5):358–382, Blackwell Publishing, Inc.

An Overview of Regular Dialysis Treatment in Japan (as of 31 December 2002)

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Abstract: The Japanese Society for Dialysis Therapy (JSDT) has annually conducted a nationwide statistical survey of all dialysis facilities in Japan. The Society conducted this survey of 3625 dialysis facilities at the end of 2002, and responses were received from 3612 facilities (99.61%). Based on the survey investigation results tabulated at the end of 2002, the population of dialysis patients in Japan was 229 538. The gross mortality rate was 9.2% for the year extending from the end of 2001 to the end of 2002. The mean age of patients beginning dialysis was 64.7 years. The mean age of the overall dialysis population in the study year was 62.2 years. In the patients who began dialysis in 2002, the number of patients with diabetic nephropathy as the primary disease increased to 39.1% of patients. 6.5% of 40–64-year-old dialysis patients had taken out long-term-care insurance, but 31% of 65-year-old or older dialysis patients had taken out this insurance. 65.7% of the three-times-weekly facility hemodialysis patients underwent daytime dialysis, while 11.9% of patients underwent evening dialysis. **Key words:** Dialysis, Long-term-care insurance, Mortality, Statistics.

Since 1968, the Japanese Society for Dialysis Therapy (JSDT) has annually conducted a nationwide statistical survey of all dialysis facilities in Japan. In particular, the Society conducted this survey of 3625 dialysis facilities at the end of 2002, and responses were received from 3612 facilities (99.61%). Based on the survey investigation results tabulated at the end of 2002, the population of dialysis patients in Japan was 229 538.

Here, we report the basic statistical results for chronic dialysis patients at the end of 2002 as well as the statistical results of a new survey related to long-term care (LTC) insurance and dialysis courses of treatment.

Received July 2004.
Published in *J Jpn Soc Dial Ther,* 2004: 37 : 1–114 (in Japanese). Reprinted with permission from the *Journal of the Japanese Society of Dialysis Therapy.*

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SUBJECTS AND METHODS

The annual survey was conducted by sending out questionnaire forms to each dialysis facility in Japan. A total of 3635 dialysis facilities were surveyed, including facilities belonging to the JSDT as of the end of December 2002, and non-member dialysis facilities treating chronic dialysis patients. This figure is 105 facilities more (2.98%) than that included in the 2001 survey. Most of the survey forms were sent and returned by mail, but some were faxed. Moreover, facilities requesting forms on a floppy disk were sent disks rather than paper questionnaire forms.

In the survey, two types of survey form were used. The form of the first type, called 'Sheet I', was employed in the survey to cover the various dialysis facility related items such as the number of patients at a given facility, the number of staff members, and the number of dialysis machines. Forms of the second type, called 'Sheet II, III, and IV', were used to obtain information regarding individual dialysis patients, such as baseline characteristics, treatment conditions, and outcomes.

The response rate for Sheet I was 99.61% (3612 facilities) in the survey conducted at the end of 2002, up slightly from 99% in the previous year. Facilities that failed to return Sheets II, II, and IV of the

patient survey numbered 111, less than the 123 of the previous year. As a result, the total response rate was 96.57%, slightly higher than that in 2001 (96.50%).

I. Basic Statistical Tabulation of Chronic Dialysis Patients (End of 2002)

Mainly on the basis of the results of the survey of dialysis facilities, the results for the 2002 dialysis population were tabulated according to the number of patients starting dialysis in 2002, the overall number of dialysis patients at the end of 2002, and gross mortality among others for 2002.

On the basis of the patient survey results, we also calculated the cumulative survival rate after the start of dialysis using the lifetime survival method (1).

II. New Survey Items

Items surveyed for the first time in this 2002 survey included patient LTC insurance enrollment status, daily dialysis treatment conditions, duration of dialysis on given days, and dialysis day when a blood test was done. These items were checked for each patient surveyed.

1. LTC insurance status and usage

The rapid aging of each population group (not just among dialysis patients but the Japanese population as a whole) is widely acknowledged. For this reason, bedridden persons requiring care (hereafter 'persons requiring care') are rapidly growing in number. On the other hand, the working population (i.e. 15–64 years) per elderly person, over 65 years old, is rapidly decreasing. This working population per elderly person 65 years old or older was 9.8 persons in 1970, 7.4 persons in 1980, 5.8 persons in 1990, and 3.9 persons in 2000. By the year 2020, this figure is predicted to decrease further to 2.2 persons. Society as a whole will soon be facing a grave problem because the burden of elderly persons requiring care is increasing.

In April, 2000, the LTC Insurance Law was enacted to address these various problems (Fig. 1). The new LTC system combined medical care and welfare services that had been treated separately under the previous Law for the Welfare of the Elderly and Elderly Health Care Law (including places for elderly entry into health care facilities, convalescent wards in general hospitals, home nursing and home rehabilitation.). With the new social insurance approach, there has been a clear understanding of the relationship between premiums, the burden to be borne by the user, and the availability of services themselves. Moreover, since the recipient selects the service provider, there is a cost-reducing advantage of competition among providers.

However, the principle is that the recipient must bear 10% of the cost under the LTC insurance program. The other 90% is supposed to be borne by a source other than the recipient. The more services provided, the greater the burden a patient must bear. For this reason, even though one may acquire this care insurance, the 10% cost borne by the user puts constraints on its usage.

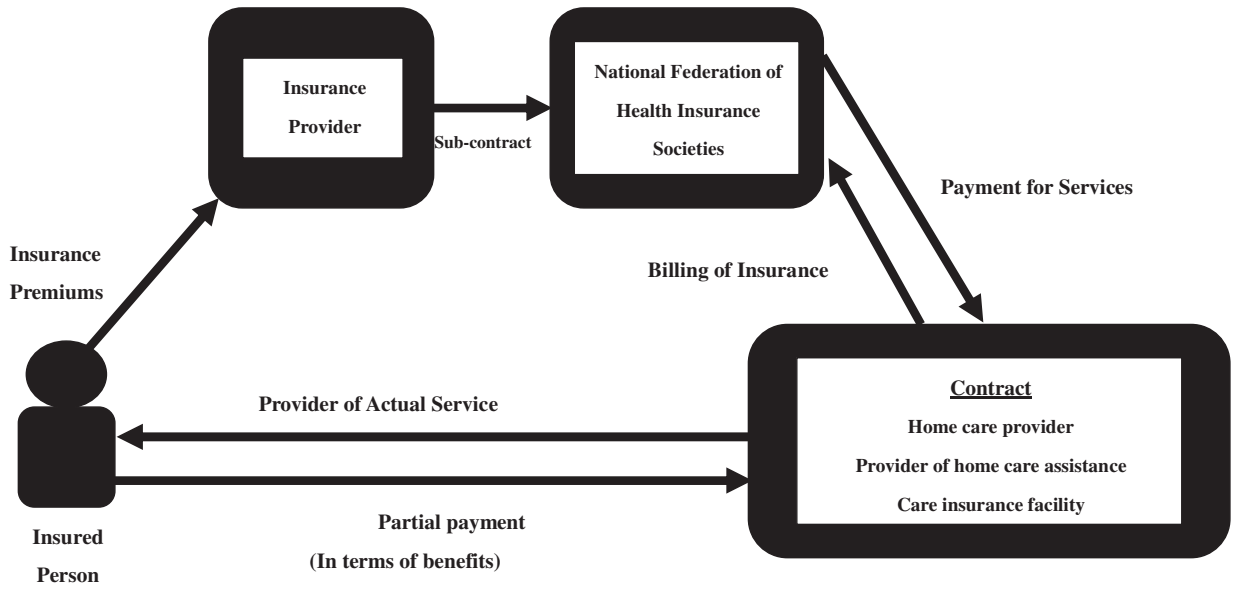


FIG. 1. Long Term Care insurance flowchart.

TABLE 1. *Insurance provider, insured person and person with right to receive assistance/care*

Insurer under program (Party providing insurance)
Municipalities (Incl. special districts)
Insured under program (Person paying premiums)
Type 1 insured persons: 65 years and over
Type 2 insured persons: Medically insured persons over 40 and less than 65
Right to be insured persons: (Person receving benefits)
Type 1 insured persons:Certified as requiring care or assistance
Type 2 insured persons: Persons certified as requiring care or assistance for specific diseases

Dialysis patients, on the other hand, have heretofore received various types of assistance in the form of reduced medical expenses and disability pension among others under the pretext of 'internal organ (kidney) physical disability.' Nevertheless, once applied, in principle, the LTC insurance program takes precedence as to which services are to be provided; even though a dialysis patient has been certified for a new physical disability, he or she may not be exempt from the LTC insurance system. The present survey covered the LTC insurance status of a dialysis patient in Japan, in this context, $2\,^1/_2$ years after the new care insurance system was introduced.

A person with LTC insurance is eligible to receive its benefits (via the municipality or special ward), and there are two types of insured person: (i) Type 1, insured persons 65 years old or older; and (ii) Type 2, insured persons with medical insurance who are over 40 and less than 65 years of age (Table 1).

Type 1 insured persons (65 years old and older), if certified as a person requiring care or assistance, may receive the LTC insurance irrespective of the cause of his or her disease. Type 2 insured persons, on the other hand, (40 years or older but less than 65 years old with medical insurance), are entitled to receive care or assistance when required for 15 specific diseases (see Table 2), including cerebrovascular disorders and Parkinson's disease.

TABLE 2. *Specified diseases under Long Term Care(LTC) insurance system*

Diseases under LTC insurance system	
Presenile dementia	Arteriosclerosis obliterans
Cerebrobascular accident	Chronic obstructive pulmonary disease
Amyotrophic lateral sclerosis	Chronic rheumatism
Parkinson's disease	Ossification of the posterior longitudinal ligament
Spinocerbellar tracts	Osteoporosis with fracture
Shy-Drager syndrome	Progeria
Osteoarthropathy with both side joints' remarkable deformation of knee or hip	
Diabetic nephropathy/Diabetic retinopathy/Diabetic neuropathy	

TABLE 3. *Services available under Long Term Care(LTC) insurance system*

Home Care Services	With entry into insurance care facility
Home nursing visits	Designated welfare facility for care of elderly (Special care home for the elderly)
Home care visits	(home helpers; elderly health care facility; elderly health facility)
Day care commuting	(day care: medical facility designated for health care)
Welfare-related equipment	(rentals, purchases)
Short stay	(facility for temporary stays)
Rehabilitation commuting	
Rehabilitation visits	
Etc.	

In the present tabulation, we use the age factor to subdivide patients into two groups: (i) Type 2 insured persons 40–64 years of age; and (ii) Type 1 insured persons 65 years old and over.

The two services available under the LTC insurance program are: the 'Home care service' for those under treatment at home; and the 'Facility care service', for those receiving assistance in institutions.

For reference, Table 3 lists the main services available under the LTC insurance system, while Table 4 shows the upper limits on costs when receiving services at home.

In the survey regarding the LTC insurance status of patients, we asked whether the patient had chosen to acquire or not acquire the insurance using the choices shown below:

- Care insurance chosen

a. Have it: care level is unknown
b. Have it: requiring assistance
1. Have it: require Care Level 1
2. Have it: require Care Level 2
3. Have it: require Care Level 3
4. Have it: require Care Level 4
5. Have it: require Care Level 5
x. Do not have care insurance

TABLE 4. *Usage limitations to home services*

Upper limits on costs when receiving services at home	
Requiring assistance	6 150 units
Care level 1	16 580 units
Care level 2	19 480 units
Care level 3	26 750 units
Care level 4	30 600 units
Care level 5	35 830 units

1 unit = 10 yen.

Even though a patient has acquired the insurance, he or she may not necessarily use it. Thus, the present survey inquires into the insurance usage. Four choices are indicated in the survey:

- Use of LTC insurance

a. Receive services through the LTC insurance program
b. Have insurance but not receiving any services
c. Do not have LTC insurance
z. Do not know/understand the LTC insurance/completely unfamiliar with it.

2. Three-times-weekly dialysis pattern

Considering that it is necessary to determine the weekly dialysis pattern of each patient, we again surveyed dialysis in terms of days. The options given in the survey were as follows:

- Options regarding actual dialysis availability

a. Daytime dialysis (Start between 6 am and 11 am)
b. Late morning/afternoon dialysis (Start between 11 am and 5 pm)
c. Evening dialysis (start after 5 pm; end before 2 am)
d. Nighttime dialysis (start after 5 pm; end after 2 am)
e. Continuous 24-h treatment (continuous arteriovenous hemofiltration, continuous venovenous hemofiltration, etc.)
f. Others: Undergoing dialysis, but none of the above a-d options apply.
z. No dialysis conducted (on this day)

In this report, we did not always give simple totals for the respective items. The number of dialysis treatments per week for each patient was counted on the basis of the actual day-to-day situation. Only patients with three hemodialysis treatments per week were surveyed, and various patterns were extracted for the actual thrice-weekly dialysis treatment. The three-times-weekly dialysis conditions were divided into the following 10 patterns:

- Three-times-weekly overall dialysis patterns:

3 daytime sessions
3 late morning/afternoon sessions
3 evening sessions
2 daytime sessions and 1 late morning/afternoon session
2 daytime sessions/1 evening session
2 late morning/afternoon and evening sessions
2 late morning/afternoon sessions and 1 evening session
Others

In the present survey, the counting of the number of dialysis treatments per week, or the decision as to the above mentioned dialysis patterns of the hereafter mentioned dialysis courses, was undertaken entirely on the basis of the survey results for the 'actual dialysis conditions.' Thus, in the case that in 7 days, only certain days were not entered, the actual dialysis conditions was considered to be 'unclear' or it was understood that 'dialysis was not conducted'.

Supposing that there are some days among the 'actual dialysis conditions' surveyed for which there is no entry, one must inevitably consider them as 'unknown' in terms of whether or not dialysis was performed. However, in such a case, the number of dialysis treatments per week, the dialysis pattern, and the dialysis course cannot be determined, since the actual dialysis conditions for all seven days of the week are unclear. In fact, when conducting the survey of the patients regarding their 'actual dialysis conditions' in the year under consideration, we found some patients with no entry for one or more days of the week. In dealing statistically with this situation in which we did not know the actual dialysis conditions for some days in the week, we considered the reply to be 'z. dialysis was not performed on this day'.

In the survey conducted at the end of 2001, the number of dialysis treatments per week was simply taken to be the number of sessions per week (2,3). Thus, to assess whether the above supposition might have statistically affected the results, we compared the 'number of dialysis treatments of facility hemodialysis patients per week' in the year-end survey in 2002 with that of the survey at the end of 2001.

The results are shown in Table 5. The number of dialysis treatments per week was virtually the same in both the survey at the year of 2002 and 2001. To point out a small difference, in the 2002 year-end survey, there were slightly fewer patients on twice-weekly dialysis and somewhat more patients on dialysis 4 times per week.

TABLE 5. *Comparison of distribution of number of dialyses per week at year-end 2001 and 2002*

Number of dialyses	2001	2002
Once	0.5	0.5
2 times	7.0	6.4
3 times	92.4	92.8
4 times	0.1	0.3
5 times	0.0	0.0
6 times	0.0	0.0
7 times	0.0	0.0
Total	100.0	100.0

Percentage for overall facility hemodialysis patients.

However, a bias would exist if the above-mentioned 'no entry' is treated statistically to mean 'no dialysis performed.' It would not seem logical for this to occur only for a specific number of dialyses, given the present survey method. Therefore, we consider that such a bias would not arise from taking 'no entry' to mean 'no dialysis performed'.

3. Dialysis Courses

On the basis of the statistical results for the above-mentioned 'Actual dialysis conditions on given days', we attempted to arrange various dialysis courses, for example, Mon-Wed-Fri, or Tue-Thurs-Sat. However, since some patients require dialysis not only 3 sessions per week, but two or less, or even 4 or more sessions per week, the dialysis courses were grouped into eight types.

- Various Dialysis Courses
  - Once a week (Patients undergoing dialysis only one day a week, irrespective of which day)
  - Two days a week (Patients undergoing dialysis two days a week, irrespective of which day)
  - Monday, Wednesday and Friday sessions
  - Tuesday, Thursday and Saturday sessions
  - Every other day (Respondents were asked to consider 'every other day' to mean 'Monday, Wednesday, Friday and Sunday' in the survey. Those patients who did so were designated as 'every other day' patients).
  - Six days a week
  - Every day
  - Others (These were patients who did not fall into the Mon-Wed-Fri or Tue-Thurs-Sat category, but had 3 sessions per week. It also referred to patients in a dialysis course other than those mentioned above.)

4. Day designated for blood tests

In the present survey, we inquired for the first time about the day for blood tests. In the present report, we presented the day for blood tests within the above-described types of dialysis courses.

RESULTS AND DISCUSSION

I. Basic Tabulation for Chronic Dialysis Patients at end of 2002

1. Number of patients

Table 6 presents an outline of the dialysis population in Japan at the end of 2002, based on data gathered from the present survey. In this table, the values indicated for dialysis history and for the longest dialysis history are based on the patient survey results, while the other values are entirely based on the results for other items in the survey of dialysis facilities.

Based on the facility survey results, the dialysis population of Japan was 229 538 at the end of 2002.

TABLE 6. *Current state of chronic dialysis treatment in Japan*

Number of facilities	3 612 facilities	+127 facilities, +3.6%			
Equipment	Capacity				
Patient stations	89 070 units	+5 156 units, +6.1%			
Simultaneous dialysis	88 471 pts	+5 114, +6.1%			
Maximum capacity	288 940 pts	+18 791 pts, +7.0%			
Chronic dialysis patients[a] (total)	229 538 pts	+10 355 pts			
Daytime	180 810 pts	78.8%			
Night-time	39 756 pts	17.3%			
Home hemodialysis	99 pts	0.0%			
CAPD	8 569 pts	3.7%			
IPD	296 pts	0.1%			
Number of patients starting[b]	33 710 pts	+467 pts, +1.4%			
Numer of deaths	20 614 pts	+764 pts, +3.7%			
Patients on dialysis less than 5 years	male 70 321	female 42 700	Gender not specified 54	total 113 075	(51.4%)
Patients on dialysis 5–9 years	male 32 030	female 21 727	Gender not specified 9	total 53 766	(24.4%)
Patients on dialysis 10–14 years	male 14 401	female 10 967	Gender not specified 8	total 25 376	(11.5%)
Patients on dialysis 15–19 years	male 7 839	female 6 367	Gender not specified 0	total 14 206	(6.5%)
Patients on dialysis 20–24 years	male 4 899	female 3 866	Gender not specified 0	total 8 765	(4.0%)
Patients on dialysis 25 years and longer	male 3 025	female 1 982	Gender not specified 1	total 5 008	(2.3%)
Rate per million population	1 801.2 pts	+79.3 pts			
Longest dialysis duration	36 years, 8 months				

a, The total number of chronic dialysis patients is the total given in the Sheet 1 column for the total number of patients. The total does not necessarily coincide with the total for the number of patients on various treatment modalities; b, Calculated from the entries in Sheets II-IV for the number of patients according to their dialysis history. pts, patients.

Since the number was 219 183 at the end of 2001, the dialysis population had grown by 4.7%.

Table 7 presents the results for the dialysis population by Japanese metropolitan areas and districts, including urban and rural prefectures, based on the survey results for the same facilities. The dialysis population per million population at the end of 2002 was 1801.2 persons. As indicated in Table 8, the dialysis population per million has been steadily increasing since 1983.

2. Mean age

According to the results of the patient survey, the mean age of patients introduced to dialysis in 2002 was 64.7 years. At the end of 2002, the mean age of the entire dialysis population was 62.2 years. Thus, the mean age of the dialysis population is increasing at a pace of 0.6–0.7 years each year (Table 9).

Table 10 shows the sex and age distribution of patients who started dialysis in 2002, while Table 11 shows these items for all dialysis patients at the end

TABLE 7. *Chronic dialysis patients, by geographic region (prefecture)*

Prefecture	Day time	Night time	Home hemodialysis	CAPD	IPD	Total
Hokkaido	9 305	1 414	2	386	23	11 131
Aomori	2 105	181	1	150	0	2 437
Iwate	1 814	360	0	144	2	2 320
Miyagi	2 773	696	0	109	0	3 578
Akita	1 446	148	0	112	0	1 706
Yamagata	1 356	255	0	138	8	1 757
Fukushima	2 866	437	0	212	38	3 553
Ibaragi	4 100	752	1	154	6	5 011
Tochigi	3 481	659	1	73	0	4 214
Gunma	3 163	636	0	92	23	3 914
Saitama	8 614	1 928	3	348	2	10 888
Chiba	7 551	1 650	1	197	21	9 421
Tokyo	17 635	4 599	3	788	13	23 046
Kanagawa	10 107	2 768	1	490	6	13 377
Niigata	2 887	982	1	104	0	3 974
Toyama	1 524	341	0	88	18	1 971
Ishikawa	1 686	300	0	106	3	2 095
Fukui	1 035	155	0	100	0	1 290
Yamanashi	1 434	178	0	45	1	1 658
Nagano	3 020	599	2	166	0	3 781
Gifu	2 644	572	0	169	2	3 387
Shizuoka	5 379	1 352	3	325	5	7 063
Aichi	8 490	3 089	40	389	17	12 025
Mie	2 383	613	0	99	4	3 101
Shiga	1 540	474	1	63	5	2 083
Kyoto	3 430	1 102	0	132	4	4 668
Osaka	13 681	2 774	34	535	12	17 033
Hyogo	7 717	1 478	1	312	19	9 527
Nara	1 925	240	0	70	0	2 235
Wakayama	1 942	241	0	38	0	2 229
Tottori	801	157	0	129	3	1 093
Shimane	859	158	0	139	26	1 175
Okayama	2 736	592	0	256	6	3 617
Hiroshima	4 565	573	0	323	8	5 468
Yamaguchi	2 158	318	0	190	11	2 677
Tokushima	1 549	289	0	194	0	2 032
Kagawa	1 745	201	1	143	0	2 090
Ehime	2 123	418	0	141	2	2 679
Kochi	1 389	316	0	59	2	1 766
Fukuoka	7 921	2 082	1	242	1	10 247
Saga	1 199	227	0	30	0	1 467
Nagasaki	2 401	468	1	106	0	2 976
Kumamoto	3 721	900	0	126	0	4 748
Oita	2 360	390	0	120	3	2 870
Miyazai	2 348	551	0	56	3	2 961
Kagoshima	3 400	483	1	106	2	3 995
Okinawa	2 475	660	0	75	0	3 204
Total	180 810	39 756	99	8 569	296	229 538

TABLE 8. *Trend in number of patients per million population*

Year	Patients per million population
1983	443.7
1984	497.5
1985	547.8
1986	604.4
1987	658.8
1988	721.1
1989	679.6
1989*	790.0
1990	835.7
1991	943.8
1992	995.8
1993	1076.4
1994	1149.4
1995	1229.7
1996	1328.4
1997	1394.9
1998	1465.2
1999	1556.7
2000	1624.1
2001	1721.9
2002	1801.2

*, Retrieval rate of 86%.

TABLE 9. *Trend in patient mean ages, by year of initial dialysis and year end*

Year	Patients at year end (mean ± SD)	New patients starting dialysis (mean ± SD)
1983	48.3 ± 13.8	51.9 ± 15.5
1984	49.2 ± 13.8	53.2 ± 15.3
1985	50.3 ± 13.7	54.4 ± 15.4
1986	51.1 ± 13.6	55.1 ± 15.2
1987	52.1 ± 13.7	55.9 ± 14.9
1988	53.0 ± 13.6	56.9 ± 14.9
1989	53.8 ± 13.5	57.4 ± 14.7
1990	54.5 ± 13.5	58.1 ± 14.6
1991	55.3 ± 13.5	58.2 ± 14.6
1992	56.0 ± 13.5	59.5 ± 14.5
1993	56.7 ± 13.5	59.8 ± 14.4
1994	57.3 ± 13.5	60.4 ± 14.3
1995	58.0 ± 13.4	61.0 ± 14.2
1996	58.6 ± 13.4	61.5 ± 14.2
1997	59.2 ± 13.4	62.2 ± 14.0
1998	59.9 ± 13.3	62.7 ± 13.9
1999	60.6 ± 13.3	63.4 ± 13.9
2000	61.2 ± 13.2	63.8 ± 13.9
2001	61.6 ± 13.1	64.2 ± 13.7
2002	62.2 ± 13.0	64.7 ± 13.6

SD, standard deviation.

of 2002. Tables 12 and 13 show the age breakdown according to the primary diseases of patients. All of these tables are based on data obtained from the patients' survey.

3. Primary diseases of patients who started dialysis in 2002

Table 12 presents the results regarding the primary diseases of patients who started dialysis in 2002,

TABLE 10. *Patients starting dialysis treatment in 2002, by age and gender. Number of patients (%)*

Age (years)	Male	Female	Total	Not specified	Grand total
4 and younger	11 (0.1)	11 (0.1)	22 (0.1)	–	22 (0.1)
5–9	3 (0.0)	2 (0.0)	5 (0.0)	–	5 (0.0)
10–14	14 (0.1)	9 (0.1)	23 (0.1)	–	23 (0.1)
15–19	40 (0.2)	18 (0.1)	58 (0.2)	–	58 (0.2)
20–24	90 (0.4)	49 (0.4)	139 (0.4)	–	139 (0.4)
25–29	166 (0.8)	108 (0.9)	274 (0.8)	–	274 (0.8)
30–34	276 (1.3)	162 (1.3)	438 (1.3)	–	438 (1.3)
35–39	444 (2.2)	212 (1.8)	656 (2.0)	–	656 (2.0)
40–44	631 (3.1)	308 (2.6)	939 (2.9)	–	939 (2.9)
45–49	1 017 (4.9)	533 (4.4)	1 550 (4.8)	1 (6.7)	1 551 (4.8)
50–54	2 067 (10.1)	987 (8.2)	3 054 (9.4)	–	3 054 (9.4)
55–59	2 193 (10.7)	1 037 (8.6)	3 230 (9.9)	2 (13.3)	3 232 (9.9)
60–64	2 731 (13.3)	1 351 (11.2)	4 082 (12.5)	–	4 082 (12.5)
65–69	3 300 (16.1)	1 683 (14)	4 983 (15.3)	1 (8.7)	4 984 (15.3)
70–74	3 126 (15.2)	1 818 (15.1)	4 944 (15.2)	3 (20.0)	4 947 (15.2)
75–79	2 358 (11.5)	1 790 (14.9)	4 148 (12.7)	6 (40.0)	4 154 (12.7)
80–84	1 377 (3.7)	1 240 (10.3)	2 617 (8.0)	1 (6.7)	2 618 (8.0)
85–89	577 (2.8)	559 (4.6)	1 136 (3.5)	1 (6.7)	1 137 (3.5)
90–94	114 (0.6)	132 (1.1)	246 (0.8)	–	246 (0.8)
95 and older	15 (0.1)	16 (0.1)	31 (0.1)	–	31 (0.1)
Subtotal	20 550 (100)	12 025 (100)	32 575 (100)	15 (100)	32 590 (100)
Not specified	25	20	45	2	47
Grand total	20 575	12 045	32 620	17	32 637
Average	63.82	66.12	64.67	71.73	64.68
Standard deviation	13.27	13.96	13.58	11.44	13.58

–, no case present.

TABLE 11. *Number of patients at the end of 2002, by age and gender. Number of patients (%)*

Age (years)	Male	Female	Total	Not specified	Grand total
4 and younger	20 (0.0)	17 (0.0)	37 (0.0)	–	37 (0.0)
5–9	15 (0.0)	15 (0.0)	30 (0.0)	–	30 (0.0)
10–14	34 (0.0)	24 (0.0)	58 (0.0)	–	58 (0.0)
15–19	160 (0.1)	104 (0.1)	264 (0.1)	–	264 (0.1)
20–24	420 (0.3)	249 (0.3)	669 (0.3)	–	669 (0.3)
25–29	1 138 (0.9)	620 (0.7)	1 758 (0.8)	–	1 758 (0.8)
30–34	2 228 (1.7)	1 246 (1.4)	3 474 (1.6)	–	3 474 (1.6)
35–39	3 483 (2.6)	1 937 (2.2)	5 420 (2.5)	2 (3.3)	5 422 (2.5)
40–44	5 173 (3.9)	2 988 (3.4)	8 161 (3.7)	3 (4.9)	8 164 (3.7)
45–49	8 503 (6.4)	5 226 (6.0)	13 729 (6.2)	2 (3.3)	13 731 (6.2)
50–54	16 339 (12.3)	10 141 (11.6)	26 480 (12.0)	6 (9.8)	26 486 (12.0)
55–59	17 370 (13.1)	10 738 (12.3)	28 108 (12.8)	6 (9.8)	28 114 (2.8)
60–64	19 430 (14.7)	11 919 (13.6)	31 349 (14.3)	9 (14.8)	31 358 (14.3)
65–69	20 387 (15.4)	12 338 (14.1)	32 725 (14.9)	8 (13.1)	32 733 (14.9)
70–74	17 357 (13.1)	11 269 (12.9)	28 626 (13.0)	12 (19.7)	28 638 (13.0)
75–79	11 554 (8.7)	9 399 (10.7)	20 953 (9.5)	8 (13.1)	20 961 (9.5)
80–84	5 750 (4.3)	5 928 (6.8)	11 678 (5.3)	3 (4.9)	11 681 (5.3)
85–89	2 399 (1.8)	2 703 (3.1)	5 102 (2.3)	2 (3.3)	5 104 (2.3)
90–94	557 (0.4)	617 (0.7)	1 174 (0.5)	–	1 174 (0.5)
95 and older	53 (0.0)	57 (0.1)	110 (0.1)	–	110 (0.1)
Subtotal	132 370 (100.0)	87 535 (100)	219 905 (100.0)	61 (100)	219 966 (100.0)
Not specified	145	74	219	11	230
Grand total	132 515	87 609	220 124	72	220 196
Average	61.54	63.18	62.19	64.25	62.19
Standard deviation	12.8	13.29	13.02	12	13.02

–, no case present.

while Table 13 shows the primary diseases of the overall dialysis population as of the end of 2002. Tables 14 and 15 show the main trends in primary diseases from 1983 to 2002.

In the patients who began dialysis in 2002, the number of patients with diabetic nephropathy as the primary disease increased. The number of patients (not just the percentage) with chronic glomerulone-

TABLE 12. *Patients starting dialysis in 2002: number and mean age, by primary diagnosis*

Diagnosis (%)	Number of patients (%)	Age not specified (%)	Total (%)	Age (Average (SD))
Chronic glomerulonephritis	10 301 (31.9)	8 (25)	10 309 (31.9)	63.92 (14.75)
Chronic pyelonephritis	296 (0.9)	–	296 (0.9)	64.73 (15.03)
Rapidly progressive glomerulonephritis	369 (1.1)	–	369 (1.1)	67.63 (14.17)
Toxemia of pregnancy	70 (0.2)	–	70 (0.2)	53.70 (10.43)
Unclassified nephritis	129 (0.4)	–	129 (0.4)	58.16 (22.31)
Polycystic kidney	779 (2.4)	–	779 (2.4)	58.82 (12.24)
Renal sclerosis	2 534 (7.9)	2 (6.3)	2 536 (7.8)	72.63 (11.53)
Malignant hypertention	200 (0.6)	–	200 (0.6)	62.20 (15.47)
Diabetic nephropathy	12 627 (39.1)	3 (9.4)	12 630 (39.1)	63.95 (11.31)
SLE	299 (0.9)	–	299 (0.9)	58.61 (15.98)
Amyloid kidney	140 (0.4)	–	140 (0.4)	64.54 (10.54)
Gouty nephropathy	114 (0.4)	–	114 (0.4)	62.09 (12.26)
Dystolic renal failure	28 (0.1)	–	28 (0.1)	51.96 (21.83)
Tuberculosis	20 (0.1)	–	20 (0.1)	70.90 (9.51)
Nephrolithiasis	70 (0.2)	–	70 (0.2)	63.36 (12.83)
Malignant tumor of renal and urinary	138 (0.4)	–	138 (0.4)	68.96 (11.00)
Obstructive uropathy	117 (0.4)	–	117 (0.4)	66.03 (16.03)
Myelome	153 (0.5)	–	153 (0.5)	68.81 (10.37)
Renal hypoplasia	50 (0.2)	–	50 (0.2)	33.28 (24.27)
Etiology unknown	2 714 (8.4)	10 (31.3)	2 724 (8.4)	67.21 (14.08)
Rejection of kidney graft	108 (0.3)	–	108 (0.3)	49.60 (13.40)
Others	1 020 (3.2)	9 (28.1)	1 029 (3.2)	64.39 (16.18)
Subtotal	32 276 (100)	32 (100)	32 308 (100)	64.68 (13.58)
Not specified	314	15	329	64.61 (13.43)
Grand total	32 590	47	32 637	64.68 (13.58)

–, no case present; SD, standard deviation; SLE, systemic lupus erythematosus.

TABLE 13. *Patients at the end of 2002: number and mean age, by primary disease*

Diagnosis (%)	Number of patients (%)	Age not specified (%)	Total (%)	Age Average (SD)
Chronic glomerulonephritis	104 865 (48.3)	76 (43.9)	104 941 (48.2)	60.61 (13.09)
Chronic pyelonephritis	2 911 (1.3)	–	2 911 (1.3)	60.56 (14.57)
Rapidly progressive glomerulonephritis	1 279 (0.6)	1 (0.6)	1 280 (0.6)	62.00 (15.21)
Toxemia of pregnancy	1 765 (0.8)	2 (1.2)	1 767 (0.8)	56.07 (9.54)
Unclassified nephritis	1 028 (0.5)	–	1 028 (0.5)	53.90 (17.40)
Polycystic kidney	7 129 (3.3)	5 (2.9)	7 134 (3.3)	61.23 (10.89)
Renal sclerosis	11 157 (5.1)	14 (8.1)	11 171 (5.1)	71.69 (12.17)
Malignant hypertention	1 628 (0.7)	–	1 628 (0.7)	60.55 (13.29)
Diabetic nephropathy	61 141 (28.1)	53 (30.6)	61 194 (28.1)	64.14 (10.86)
SLE	2 112 (1.0)	2 (1.2)	2 114 (1.0)	53.15 (13.65)
Amyloid kidney	455 (0.2)	–	455 (0.2)	63.00 (11.40)
Gouty nephropathy	1 215 (0.6)	2 (1.2)	1 217 (0.6)	63.19 (11.80)
Dystolic renal failure	234 (0.1)	–	234 (0.1)	45.77 (16.49)
Tuberculosis	480 (0.2)	–	480 (0.2)	66.45 (10.63)
Nephrolithiasis	489 (0.2)	–	489 (0.2)	64.03 (11.56)
Malignant tumor of renal and urinary	479 (0.2)	–	479 (0.2)	67.26 (11.46)
Obstructive uropathy	636 (0.3)	–	636 (0.3)	57.66 (18.27)
Myelome	187 (0.1)	–	187 (0.1)	68.59 (11.49)
Renal hypoplasia	482 (0.2)	1 (0.6)	483 (0.2)	36.05 (18.71)
Etiology unknown	12 864 (5.9)	12 (6.9)	12 876 (5.9)	64.70 (13.84)
Rejection of kidney graft	1 299 (0.6)	2 (1.2)	1 301 (0.6)	47.46 (10.48)
Others	3 500 (1.6)	3 (1.7)	3 503 (1.6)	59.51 (16.95)
Subtotal	217 335 (100.0)	173 (100.0)	217 508 (100.0)	62.19 (13.02)
Not specified	2 631	57	2 688	62.72 (13.00)
Grand total	219 966	230	220 196	62.19 (13.02)

–, no case present; SD, standard deviation; SLE, systemic lupus erythematosus.

phritis as the primary disease decreased. The primary disease was 'unknown' in 8.4% of the patients. Next to chronic glomerulonephritis, this unknown disease was the third most prevalent primary disease. Although the numbers of patients with nephrosclerosis are few, they have been growing steadily. Patients with polycystic kidney as their primary disease showed a fairly fixed proportion, ranging from 2.5 to 2.9% over the past 10 years.

In the dialysis population at the end of 2002, the number of patients with diabetic nephropathy as the primary disease was steadily growing. Although those with chronic glomerulonephritis as the primary disease were increasing, their percentage among the

TABLE 14. *Trends in primary disease by year of initial dialysis. Number of patients (%)*

Year	Total	Diabetic nephropathy	Chronic glomerulonephritis	Unknown	Renal sclerosis	Polycystic kidney	Rapidly progressive glomerulonephritis	SLE	Chronic pyelonephritis
1983	9 858	1 538 (15.6)	5 750 (60.5)	432 (4.4)	297 (3.0)	274 (2.8)	90 (0.9)	112 (1.1)	239 (2.4)
1984	10 832	1 885 (17.4)	6 099 (58.7)	438 (4.0)	355 (3.3)	307 (2.8)	73 (0.7)	124 (1.1)	233 (2.2)
1985	11 776	2 306 (19.6)	6 357 (56.0)	570 (4.8)	418 (3.5)	361 (3.1)	111 (0.9)	125 (1.1)	246 (2.1)
1986	12 565	2 677 (21.3)	6 881 (54.8)	533 (4.2)	466 (3.7)	366 (2.9)	122 (1.0)	151 (1.2)	257 (2.0)
1987	14 784	3 266 (22.2)	8 017 (54.6)	609 (4.1)	580 (3.9)	466 (3.2)	115 (0.8)	128 (0.9)	267 (1.8)
1988	15 512	3 770 (25.3)	7 734 (51.9)	582 (3.9)	602 (4.0)	479 (3.2)	140 (0.9)	134 (0.9)	272 (1.8)
1989	14 374	3 808 (27.8)	6 812 (49.6)	576 (4.2)	591 (4.3)	445 (3.2)	114 (0.8)	141 (1.0)	216 (1.6)
1990	16 543	4 326 (28.1)	7 261 (49.5)	548 (3.6)	900 (5.8)	483 (3.1)	111 (0.7)	188 (1.2)	243 (1.6)
1991	23 005	6 406 (30.0)	10 148 (47.2)	826 (4.0)	1285 (5.9)	687 (3.2)	137 (0.7)	302 (1.4)	406 (1.8)
1992	21 563	6 132 (31.1)	9 092 (46.1)	792 (4.0)	1262 (6.4)	581 (2.9)	158 (0.8)	283 (1.4)	337 (1.7)
1993	23 440	7 010 (32.7)	9 711 (45.3)	781 (3.6)	1453 (6.8)	615 (2.9)	184 (0.9)	277 (1.3)	266 (1.2)
1994	24 059	7 376 (33.4)	9 745 (44.2)	938 (4.3)	1474 (6.7)	601 (2.7)	184 (0.8)	284 (1.3)	327 (1.5)
1995	25 858	8 236 (34.5)	10 195 (42.7)	1152 (4.8)	1630 (6.8)	613 (2.6)	211 (0.9)	296 (1.2)	312 (1.3)
1996	28 234	9 351 (35.4)	10 995 (41.6)	1423 (5.4)	1810 (6.9)	708 (2.7)	228 (0.9)	353 (1.3)	310 (1.2)
1997	29 283	9 939 (36.6)	10 703 (39.4)	1619 (6.0)	2004 (7.4)	693 (2.5)	308 (1.1)	291 (1.1)	353 (1.3)
1998	30 051	10 729 (38.7)	10 506 (37.9)	1687 (6.1)	2002 (7.2)	721 (2.6)	258 (0.9)	334 (1.2)	345 (1.2)
1999	30 438	11 009 (39.2)	10 215 (36.3)	1860 (6.6)	2117 (7.5)	679 (2.4)	285 (1.0)	357 (1.3)	346 (1.2)
2000	31 925	11 685 (39.0)	10 381 (34.7)	2414 (8.1)	2428 (8.1)	761 (2.5)	329 (1.1)	288 (1.0)	312 (1.0)
2001	32 017	12 186 (38.1)	10 364 (32.4)	2879 (9.0)	2426 (7.6)	729 (2.3)	328 (1.0)	317 (1.0)	348 (1.1)
2002	32 637	12 630 (39.1)	10 309 (31.9)	2724 (8.4)	2536 (7.8)	779 (2.4)	369 (1.1)	299 (0.9)	296 (0.9)

SLE, systemic lupus erythematosus.

TABLE 15. *Trends in primary disease for patients at end of given year. Number of patients (%)*

Year	Total	Diabetic nephropathy	Chronic glomerulonephritis	Unknown	Renal sclerosis	Polycystic kidney	Rapidly progressive glomerulonephritis	SLE	Chronic pyelonephritis
1983	48 489	3 592 (7.4)	35 125 (74.7)	1 091 (2.3)	721 (1.5)	1308 (2.7)	227 (0.5)	383 (0.8)	1493 (3.1)
1984	54 576	4 559 (8.4)	38 166 (72.7)	1 231 (2.3)	923 (1.7)	1574 (2.9)	233 (0.4)	430 (0.8)	1878 (3.4)
1985	61 616	5 812 (9.4)	43 218 (72.3)	1 409 (2.3)	1 159 (1.9)	1820 (3.0)	302 (0.5)	544 (0.9)	1605 (2.6)
1986	66 751	7 024 (10.5)	47 149 (70.7)	1 700 (2.5)	1 324 (2.0)	2055 (3.1)	330 (0.5)	607 (0.9)	1601 (2.4)
1987	80 075	9 335 (11.7)	55 563 (69.5)	2 056 (2.6)	1 660 (2.1)	2510 (3.1)	391 (0.5)	718 (0.9)	1929 (2.4)
1988	83 762	10 692 (12.9)	56 880 (68.5)	2 128 (2.6)	1 782 (2.1)	2714 (3.3)	414 (0.5)	765 (0.9)	1891 (2.3)
1989	84 720	11 823 (14.2)	55 826 (67.0)	2 219 (2.7)	1 971 (2.4)	2739 (3.4)	412 (0.5)	763 (0.9)	1904 (2.3)
1990	95 834	14 273 (15.3)	61 430 (65.7)	2 524 (2.7)	2 508 (2.7)	3183 (3.4)	444 (0.5)	924 (1.0)	2069 (2.2)
1991	114 253	18 737 (16.9)	70 301 (63.6)	3 163 (3.0)	3 372 (3.0)	3816 (3.4)	505 (0.5)	1198 (1.1)	2410 (3.2)
1992	121 655	20 820 (17.8)	73 526 (62.8)	3 568 (3.0)	3 756 (3.2)	4000 (3.3)	574 (0.5)	1315 (1.1)	2451 (2.1)
1993	131 492	23 983 (19.1)	77 326 (61.5)	3 823 (3.0)	4 430 (3.5)	4304 (3.4)	617 (0.5)	1431 (1.1)	2450 (1.9)
1994	142 626	27 438 (20.1)	82 242 (60.3)	4 352 (3.2)	5 117 (3.8)	4594 (3.4)	654 (0.5)	1601 (1.2)	2595 (1.9)
1995	152 373	31 080 (21.3)	86 222 (59.1)	4 928 (3.4)	5 740 (3.9)	4862 (3.3)	752 (0.5)	1659 (1.1)	2658 (1.8)
1996	163 960	35 468 (22.5)	90 874 (57.7)	5 855 (3.7)	6 549 (4.2)	5250 (3.3)	842 (0.5)	1797 (1.1)	2696 (1.7)
1997	173 162	39 350 (23.6)	93 622 (56.2)	6 803 (4.1)	7 266 (4.4)	5521 (3.3)	971 (0.6)	1867 (1.1)	2711 (1.6)
1998	181 484	43 590 (25.0)	95 201 (54.6)	7 622 (4.4)	7 937 (4.6)	5793 (3.3)	1020 (0.6)	1929 (1.1)	2766 (1.6)
1999	185 688	46 670 (26.1)	94 965 (53.2)	8 214 (4.6)	8 361 (4.7)	5899 (3.3)	1081 (0.6)	1994 (1.1)	2722 (1.5)
2000	201 914	52 575 (27.0)	100 370 (51.6)	10 139 (5.2)	9 724 (5.0)	6404 (3.3)	1235 (0.6)	2050 (1.1)	2814 (1.4)
2001	209 036	56 051 (27.2)	102 313 (49.6)	11 598 (5.6)	10 214 (5.0)	6766 (3.3)	1152 (0.6)	2039 (1.0)	2933 (1.4)
2002	220 196	61 194 (28.1)	104 941 (48.2)	12 876 (5.6)	11 171 (5.1)	7134 (3.3)	–	2114 (1.0)	2911 (1.3)

–, no case present; SLE, systemic lupus erythematosus.

2002 year-end patients as a whole was steadily decreasing.

In the past few years, there are increasingly more patients whose primary disease is 'unknown.' Patients with nephrosclerosis as their primary disease are also gradually increasing.

4. Causes of death

Based on the patient survey results, Table 16 lists the causes of death for patients who started dialysis in 2002. Table 17 lists them for all 2002 year-end patients. Table 18, on the other hand, shows the proportional trend in all causes of death from 1983 through to 2002. There were no significant differences in the causes from those in the previous year (2001).

5. Gross annual mortality rate

On the basis of the results of the facility survey, the gross annual mortality rate was calculated. The year-

TABLE 16. *Cause of death in patients starting dialysis in 2002. Number of patients (%)*

	Male	Female	Subtotal	Not specified	Grand total
Heart failure	393 (23.1)	306 (26.9)	699 (24.6)	1 (50.0)	700 (24.6)
Cerebrovascular disorder	141 (8.3)	70 (6.2)	211 (7.4)	–	211 (7.4)
Infectious disease	370 (21.8)	230 (20.2)	600 (21.1)	–	600 (21.1)
Bleeding	33 (1.9)	30 (2.6)	63 (2.2)	–	63 (2.2)
Malignant tumor	164 (9.6)	100 (8.8)	264 (9.3)	–	264 (9.3)
Cachexia/Uremia	68 (4.0)	64 (5.6)	132 (4.7)	–	132 (4.6)
Myocardial infarction	104 (6.1)	47 (4.1)	151 (5.3)	–	151 (5.3)
Potassium intoxication/sudden death	58 (3.4)	27 (2.4)	85 (3.0)	–	85 (3.0)
Chronic hepatitis/Cirrhosis	54 (3.2)	22 (1.9)	76 (2.7)	–	76 (2.7)
Encephalopathy	–	–	–	–	–
Suicide/rejection	19 (1.1)	7 (0.6)	26 (0.9)	–	26 (0.9)
Ileus	6 (0.4)	7 (0.6)	13 (0.5)	–	13 (0.5)
Pulmonary thromboembolism	9 (0.5)	8 (0.7)	17 (0.6)	–	17 (0.6)
Accidental death	4 (0.2)	3 (0.3)	7 (0.2)	–	7 (0.2)
Other	165 (9.7)	137 (12.0)	302 (10.6)	–	302 (10.6)
Cause unknown	112 (6.6)	80 (7.0)	192 (6.8)	1 (50.0)	193 (6.8)
Subtotal	1700 (100.0)	1138 (100.0)	2838 (100.0)	2 (100.0)	2840 (100.0)
Not specified	27	26	53		53
Grand total	1727	1164	2891	2	2893

–, no case present.

TABLE 17. *Cause of death for mortality cases in 2002. Number of patients (%)*

	Male	Female	Subtotal	Not specified	Grand total
Heart failure	2 650 (23.1)	2032 (28.3)	4 682 (25.1)	1 (10.0)	4 683 (25.1)
Cerebrovascular disorder	1 241 (10.8)	841 (11.7)	2 082 (11.2)	1 (10.0)	2 083 (11.2)
Infectious disease	1 901 (16.5)	1075 (15.0)	2 976 (15.9)	1 (10.0)	2 977 (15.9)
Bleeding	229 (2.0)	160 (2.2)	389 (2.1)	–	389 (2.1)
Malignant tumor	1 114 (9.7)	469 (6.5)	1 583 (8.5)	1 (10.0)	1 584 (8.5)
Cachexia/Uremia	495 (4.3)	377 (5.3)	872 (4.7)	2 (20.0)	874 (4.7)
Myocardial infarction	914 (8.0)	458 (6.4)	1 372 (7.3)	2 (20.0)	1 374 (7.4)
Potassium intoxication/sudden death	528 (4.6)	289 (4.0)	817 (4.4)	–	817 (4.4)
Chronic hepatitis/Cirrhosis	277 (2.4)	114 (1.6)	391 (2.1)	–	391 (2.1)
Encephalopathy	5 (0.0)	1 (0.0)	6 (0.0)	–	6 (0.0)
Suicide/rejection	119 (1.0)	41 (0.6)	160 (0.9)	–	160 (0.9)
Ileus	103 (0.9)	77 (1.1)	180 (1.0)	–	180 (1.0)
Pulmonary thromboembolism	58 (0.5)	58 (0.8)	116 (0.6)	–	116 (0.6)
Accidental death	87 (0.8)	34 (0.5)	121 (0.6)	–	121 (0.6)
Other	988 (8.6)	701 (9.8)	1 689 (9.0)	1 (10.0)	1 690 (9.0)
Cause unknown	782 (6.8)	449 (6.3)	1 231 (6.6)	1 (10.0)	1 232 (6.6)
Subtotal	11 491 (100.0)	7176 (100.0)	18 667 (100.0)	10 (100.0)	18 677 (100.0)
Not specified	236	163	399	1	400
Grand total	11 727	7339	19 066	11	19 077

–, no case present.

end gross mortality rate was determined to be 9.2% by comparing the numbers of patients at the end of 2001 and 2002.

Table 19 shows the trend in the yearly gross mortality rate over a period of 10 years. During these 10 years, the annual gross mortality rate changed from 9.2 to 9.7%, reflecting no particular trend of steady increase or decrease.

When one considers both the poor prognosis for diabetes patients and the gradual increase in the age of the elderly, the prognosis for Japan's dialysis patients appears to be qualitatively improving.

6. Survival rates for patients after dialysis treatment for 1, 5, 10, and 15 years

Beginning in 1983, this survey compared the survival of new dialysis patients after 1, 5, 10, and, for the first time, 15 years of treatment (Table 20).

In 2001, the annual survey indicated the one-year survival rate was 0.874 for patients coming for dialysis for the first time. The rate in 2002 was virtually the same.

The 5-year survival rate following the introduction to dialysis has tended to increase since 1993. The present survey clearly showed that the 5-year sur-

TABLE 18. *Trend in year-to-year change in primary cause of death. Number of patients (%)*

Year	All causes	Heart failure	Infectious disease	Cerebrovascular disorder	Other causes	Malignant tumor	Myocardial infarction
1983	4 097	1240 (30.6)	451 (11.1)	580 (14.3)	210 (5.2)	316 (7.8)	216 (5.3)
1984	4 179	1273 (30.7)	480 (11.6)	643 (15.5)	206 (5.0)	289 (7.0)	199 (4.8)
1985	5 460	1709 (31.5)	630 (11.6)	773 (14.2)	309 (5.7)	351 (6.5)	289 (5.3)
1986	5 688	1890 (33.4)	682 (12.0)	794 (14.0)	265 (4.7)	393 (6.9)	349 (6.2)
1987	6 098	1995 (33.2)	733 (12.2)	865 (14.4)	317 (5.3)	353 (5.9)	363 (6.0)
1988	6 925	2525 (37.0)	848 (12.4)	894 (13.1)	329 (4.8)	478 (7.0)	377 (5.5)
1989	6 669	2229 (34.7)	781 (12.2)	881 (13.7)	292 (4.5)	505 (7.9)	355 (5.5)
1990	8 409	2558 (31.9)	976 (12.2)	1168 (14.6)	390 (4.9)	689 (8.6)	490 (6.1)
1991	9 407	2885 (32.2)	1134 (12.6)	1292 (14.4)	412 (4.6)	712 (7.9)	543 (6.1)
1992	10 966	3406 (33.1)	1244 (12.1)	1486 (14.4)	494 (4.8)	774 (7.5)	631 (6.1)
1993	11 492	3438 (31.6)	1397 (12.8)	1555 (14.3)	468 (4.3)	852 (7.8)	658 (6.0)
1994	12 256	3462 (29.6)	1548 (13.2)	1729 (14.8)	547 (4.7)	899 (7.7)	869 (7.4)
1995	13 442	3415 (26.8)	1856 (14.5)	1809 (14.2)	777 (6.1)	973 (7.6)	1002 (7.9)
1996	14 200	3429 (25.5)	2076 (15.5)	1837 (13.7)	901 (6.7)	1096 (8.2)	1050 (7.8)
1997	14 962	3577 (25.0)	2230 (15.6)	1880 (13.2)	996 (7.0)	1208 (8.5)	1253 (8.8)
1998	15 172	3662 (25.5)	2274 (15.8)	1830 (12.7)	1063 (7.4)	1168 (8.1)	1194 (8.3)
1999	15 999	3894 (25.8)	2611 (17.3)	1804 (11.9)	1225 (8.1)	1212 (8.0)	1191 (7.9)
2000	16 601	3859 (23.7)	2764 (17.0)	1882 (11.6)	1314 (8.1)	1382 (8.5)	1165 (7.2)
2001	18 281	4626 (25.5)	2963 (16.3)	2101 (11.6)	1654 (9.1)	1534 (8.5)	1339 (7.4)
2002	19 077	4683 (25.1)	2977 (15.9)	2083 (11.2)	1690 (9.0)	1584 (8.5)	1374 (7.4)

TABLE 19. *Trend in year-to-year change in crude mortality*

Year	Crude mortality rate (%)
1991	8.9
1992	9.7
1993	9.4
1994	9.5
1995	9.7
1996	9.4
1997	9.4
1998	9.2
1999	9.7
2000	9.4
2001	9.3
2002	9.2

vival rate of patients who started dialysis in 1997 was 0.609%. This rate is the best in these 19 years.

The 10-year survival rate after the introduction to dialysis decreased from 1983 to 1989, but then leveled off. The 10-year survival rate of 0.391% revealed by the present study for 1992 was lower than the 0.397% for 1991, which was only slightly lower than the peak 10-year survival rate of 1989.

Some 19 years have passed since the patient survey began in 1983, so we decided to compare the 15-year survival rate for those who started dialysis on an annual basis. Fifteen years before 2002, in 1987, the 15-year survival rate was 0.305%. The 15-year survival rate, for patients who started dialysis in 1987 and after, continues to decrease yearly.

TABLE 20. *Trend in change in survival at 1, 5, 10, and 15 years after initial dialysis treatment*

Year initiated	1-year survival	5-year survival	10-year survival	15-year survival
1983	0.837	0.629	0.474	0.359
1984	0.837	0.621	0.459	0.340
1985	0.816	0.606	0.435	0.321
1986	0.821	0.609	0.430	0.319
1987	0.836	0.602	0.418	0.305
1988	0.845	0.591	0.406	–
1989	0.868	0.604	0.410	–
1990	0.857	0.597	0.404	–
1991	0.848	0.583	0.397	–
1992	0.843	0.577	0.391	–
1993	0.854	0.590	–	–
1994	0.851	0.591	–	–
1995	0.861	0.600	–	–
1996	0.854	0.602	–	–
1997	0.860	0.609	–	–
1998	0.866	–	–	–
1999	0.872	–	–	–
2000	0.875	–	–	–
2001	0.874	–	–	–

–, no case present.

The cumulative rate shown here was obtained without any adjustment for changes in age bracket or variation in primary diseases. Therefore, despite the increase in the number of elderly or the patients suffering from diabetes, the fact that the 5-year survival rate was not necessarily declining after 1 year dialysis suggests that dialysis treatment modalities are improving.

II. New Survey Items

1. LTC Insurance status

a) All dialysis patients. Only 6.5% of dialysis patients, who correspond to the 40–64-year-old Type 2 patients in the LTC insurance system, had taken out this insurance (Table 21). This is presumably because there are few 40–64-year-old patients classified as requiring assistance or care, and such insured assistance and care were limited to 15 specific diseases.

On the other hand, the number of dialysis patients belonging to the insurance program has now increased to 31% among patients who were 65 years old or older. They correspond to Type 1 patients in the LTC insurance system (Table 22).

As for the distribution of those requiring care in the system, that is, whether in the 40–64 age group or the 65-and-older age group, from Care Level 1 to Care Level 5, the higher the care level the fewer the insured persons there are, reflecting the relatively few persons requiring assistance.

b) Therapeutic modalities. The results of survey for the LTC insurance status for various therapeutic modalities of dialysis patients are shown in Tables 21 and 22. The distributions of hemodialysis patients at facilities and hemodiafiltration patients show an almost equal proportion of dialysis patients as a whole. However, compared with hemodialysis patients at facilities, patients on CAPD ranking lower in the LTC insurance scale are few, while many of them rank relatively high on the LTC insurance scale. These high-ranking CAPD patients may have chosen CAPD treatment on the basis of so-called negative selection.

c) Social rehabilitation conditions. Table 23 shows the relationship between the social rehabilitation situation of the group of patients corresponding to the 65 years and older Type 1 insured persons and their LTC insurance status. Table 24 presents the options used in the survey of social rehabilitation conditions. Figure 2 depicts the insurance status for the following

TABLE 21. *Distribution of patients by current care insurance registration status and treatment modalities: All dialysis patients, aged 40–64 years. Number of patients (%)*

	Hemodialysis	Hemodiafiltration	Hemofiltration	Hemodiabsorption	Home hemodialysis	CAPD	IPD	Total
Have care insurance								
Care level unknown	2 035 (3.1)	95 (1.9)	–	6 (2.3)	–	69 (3.1)	4 (6.9)	2 209 (3.0)
Requiring assistance	241 (0.4)	19 (0.4)	1 (3.7)	–	–	6 (0.3)	–	267 (0.4)
Care level 1	727 (1.1)	59 (1.2)	1 (3.7)	–	–	9 (0.4)	–	796 (1.1)
Care level 2	635 (1.0)	46 (0.9)	–	1 (0.4)	–	11 (0.5)	–	693 (0.9)
Care level 3	385 (0.6)	24 (0.5)	–	1 (0.4)	–	14 (0.6)	–	424 (0.6)
Care level 4	189 (0.3)	14 (0.3)	–	–	–	10 (0.4)	–	213 (0.3)
Care level 5	152 (0.2)	21 (0.4)	–	–	1 (6.7)	6 (0.3)	–	180 (0.2)
No care insurance	61 948 (93.4)	4682 (94.4)	25 (92.6)	257 (97.0)	14 (93.3)	2115 (94.4)	54 (93.1)	69 095 (93.5)
Subtotal	66 312 (100.0)	4960 (100.0)	27 (100.0)	265 (100.0)	15 (100.0)	2240 (100.0)	58 (100.0)	73 877 (100.0)
Unknown	5 719	378	9	12	3	225	11	6 357
Not specified	23 792	1459	10	61	32	2210	55	27 619
Grand total	95 823	6797	46	338	50	4675	124	107 853

–, no case present.

TABLE 22. *Distribution of patients by current care insurance registration status and treatment modalities: all dialysis patients, aged 65 years and older. Number of patients (%)*

	Hemodialysis	Hemodiafiltration	Hemofiltration	Hemodiabsorption	Home hemodialysis	CAPD	IPD	Total
Have care insurance								
Care level unknown	8 040 (12.7)	323 (11.8)	10 (20.4)	16 (18.0)	–	130 (12.1)	8 (17.0)	8 527 (12.7)
Requiring assistance	1 215 (1.9)	43 (1.6)	–	1 (1.1)	–	16 (1.5)	–	1 275 (1.9)
Care level 1	4 330 (6.8)	222 (8.1)	5 (10.2)	10 (11.2)	–	49 (4.6)	3 (6.4)	4 619 (6.9)
Care level 2	2 895 (4.6)	111 (4.0)	1 (2.0)	3 (3.4)	–	53 (4.9)	2 (4.3)	3 065 (4.6)
Care level 3	1 598 (2.5)	77 (2.8)	3 (6.1)	3 (3.4)	–	35 (3.3)	1 (2.1)	1 717 (2.5)
Care level 4	977 (1.5)	44 (1.6)	3 (6.1)	1 (1.1)	1 (100.0)	24 (2.2)	–	1 050 (1.6)
Care level 5	741 (1.2)	37 (1.3)	2 (4.1)		–	19 (1.8)	3 (6.4)	802 (1.2)
No care insurance	43 538 (68.7)	1887 (68.8)	25 (51.0)	55 (61.8)	–	746 (69.6)	30 (63.8)	46 281 (68.7)
Subtotal	63 334 (100.0)	2744 (100.0)	49 (100.0)	89 (100.0)	1 (100.0)	1072 (100.0)	47 (100.0)	67 336 (100.0)
Unknown	6 999	257	11	6	–	111	11	7 395
Not specified	23 511	1022	13	26	7	1038	53	25 670
Grand total	93 844	4023	73	121	8	2221	111	100 401

–, no case present.

TABLE 23. *Distribution of patients by current care insurance registration status and social life: all dialysis patients, aged 65 and older*

Long-term Care Insurance Registration Status	S FTW S	NS	Hos	NS PTW FTW	NW	Hos	HW FTW	NW	Hos	No HW HW	THW	Hos	UL	IL	Hos	Sub-total	Unkn	Not specified	Grand Total
Have care insurance																			
Care level unknown	3	3	1	147	30	48	81	41	18	957	446	138	2 167	3 113	1031	8 224	87	216	8 527
(%)	(0.0)	(0.0)	(0.0)	(1.8)	(0.4)	(0.6)	(1.0)	(0.5)	(0.2)	(11.6)	(5.4)	(1.7)	(26.3)	(37.9)	(12.5)	(100.0)			
Requiring assistance	1	–	–	11	8	2	12	5	1	224	119	17	345	414	84	1 243	4	28	1 275
(%)	(0.1)	–	–	(0.9)	(0.6)	(0.2)	(1.0)	(0.4)	(0.1)	(18.0)	(9.6)	(1.4)	(27.8)	(33.3)	(6.8)	(100.0)			
Care level 1	–	–	–	39	20	9	27	7	8	721	421	58	1 153	1 690	339	4 492	42	85	4 619
(%)				(0.9)	(0.4)	(0.2)	(0.6)	(0.2)	(0.2)	(16.1)	(9.4)	(1.3)	(25.7)	(37.6)	(7.5)	(100.0)			
Care level 2	–	–	3	8	11	10	9	7	4	159	206	36	521	1 632	356	2 962	31	72	3 065
(%)			(0.1)	(0.3)	(0.4)	(0.3)	(0.3)	(0.2)	(0.1)	(5.4)	(7.0)	(1.2)	(17.6)	(55.1)	(12.0)	(100.0)			
Care level 3	–	–	2	4	2	9	2	6	4	31	68	18	180	1 049	281	1 656	13	48	1 717
(%)			(0.1)	(0.2)	(0.1)	(0.5)	(0.1)	(0.4)	(0.2)	(1.9)	(4.1)	(1.1)	(10.9)	(63.3)	(17.0)	(100.0)			
Care level 4	–	–	3	1	3	6	1	1	3	9	21	10	58	677	215	1 008	8	34	1 050
(%)			(0.3)	(0.1)	(0.3)	(0.6)	(0.1)	(0.1)	(0.3)	(0.9)	(2.1)	(1.0)	(5.8)	(67.2)	(21.3)	(100.0)			
Care level 5	–	1	–	2	5	7	2	3	1	4	9	9	20	456	258	777	9	16	802
(%)		(0.1)		(0.3)	(0.6)	(0.9)	(0.3)	(0.4)	(0.1)	(0.5)	(1.2)	(1.2)	(2.6)	(58.7)	(33.2)	(100.0)			
No care insurance	4	6	15	3039	201	222	1231	216	79	9 672	1320	533	17 579	6 143	4538	44 798	530	953	46 281
(%)	(0.0)	(0.0)	(0.0)	(6.8)	(0.4)	(0.5)	(2.7)	(0.5)	(0.2)	(12.6)	(2.9)	(1.2)	(39.2)	(13.7)	(10.1)	(100.0)			
Subtotal	8	10	24	3251	280	313	1365	288	118	11 777	2610	819	22 023	15 174	7102	65 160	724	1 452	67 336
(%)	(0.0)	(0.0)	(0.0)	(5.0)	(0.4)	(0.5)	(2.1)	(0.4)	(0.2)	(18.1)	(4.0)	(1.3)	(33.8)	(23.3)	(10.9)	(100.0)			
Unknown	–	–	1	228	16	47	80	27	12	851	190	218	1 757	1 144	1637	6 008	1056	131	7 395
(%)			(0.0)	(3.7)	(0.3)	(0.6)	(1.3)	(0.4)	(0.2)	(13.7)	(3.1)	(3.5)	(28.3)	(18.4)	(26.4)	(100.0)			
Not specified	1	–	–	247	61	28	104	24	10	934	244	123	1 731	1 061	874	5 442	50	20 178	25 670
(%)	(0.0)			(4.5)	(1.1)	(0.5)	(1.9)	(0.4)	(0.2)	(17.2)	(4.5)	(2.3)	(31.8)	(19.5)	(16.1)	(100.0)			
Grand total	9	10	25	3726	357	388	1549	337	140	13 562	3044	1160	25 511	17 379	9613	76 810	1830	21 761	100 401
(%)	(0.0)	(0.0)	(0.0)	(4.9)	(0.5)	(0.5)	(2.0)	(0.4)	(0.2)	(17.7)	(4.0)	(1.5)	(33.2)	(22.6)	(12.5)	(100.0)			

–, no case present; FTW, full-time work; Hos, hospitalized; HW, housework; IL, impaired living; NS, not student; NW, no work; PTW, part time work; S, student; THW, Temporary housework; UL, unimpaired living; Unkn, unknown.

TABLE 24. *Selection options in survey of special rehabilitation conditions*

Student
1 Now attending school.
2 Not attending school for health reasons, but nothing requiring hospitalization.
3 Hospitalized.
Not student
Full-time work
A Presently employed.
B Not employed for health reasons, but nothing requiring hospitalization.
C Hospitalized.
Part-time work
D Presently employed.
E Not employed for health reasons, but nothing requiring hospitalization.
F Hospitalized.
Housework
G Now doing housework.
H For health reasons, now having someone else do the housework temporarily, but not sick enough to need hospitalization.
J Hospitalized.
No housework
K Daily life activities possible with almost no probrems.
L For health reasons, daily life activities not entirely possible, but hospitalization not needed.
M Hospitalized.
Unknown
Z Not checked out/unknown.

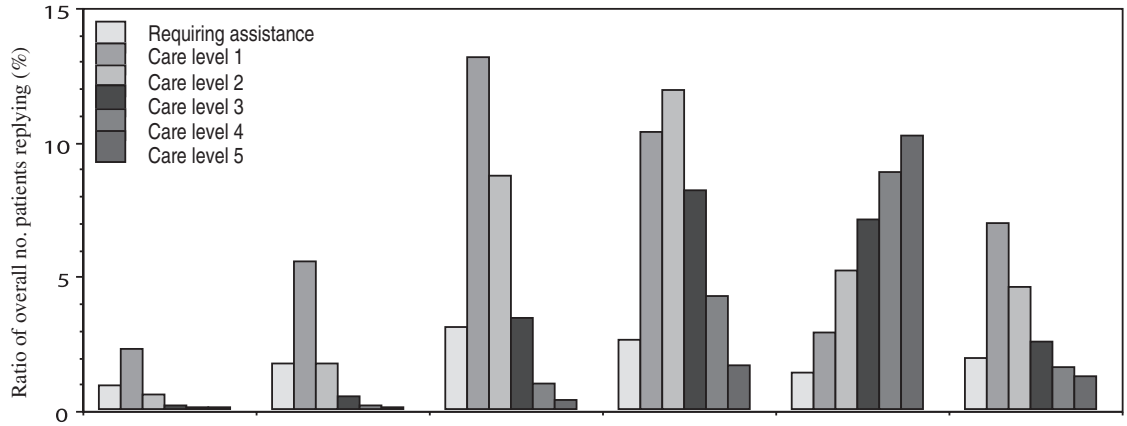
five items: full-time work, part-time work, housework, work at home and no work at home.

Even among the elderly 65 years of age and older, there were very few patients with LTC insurance who had full- or part-time work. Among patients claiming to work at home, some were certified to require assistance and care under Care Level 1, or require care under Care Level 2. However, those requiring care, and who were certified under Care Level 3 or higher were extremely few. Yet quite a few patients with neither employment nor 'work at home' were qualified to receive care assistance at Care Level 3 or higher in the insurance system.

d) Physical activity level. The physical activity level of the group of patients corresponding to the 65 years and older Type 1 insured persons and their LTC insurance status are presented in Table 25 and Fig. 3. The choices used for the level of physical activity of patients are shown in Table 26.

Comparatively few patients had insurance where their level of physical activity allowed them to undertake daily activities, work or sedentary work, and even if they had the insurance, they belonged to a low care level. From their survey replies, over 50% of them were in fact bedridden, or bedridden at least during the day. A high percentage of them had insurance. In particular, patients who replied they were bedridden during the day tended to have a higher usage of LTC insurance the higher their care level, in contrast to the trend among dialysis patients as a whole.

e) Use of LTC insurance. Tables 27 and 28 indicate the use of LTC insurance for each care requirement level in the system. In Care Level 1 for those requir-



Social rehabilitation	Sympton-free and functional in society	Able to walk and do light work	Up and about 50% of the day	Over 50% bedridden	Bedridden at least during day	Total
Have care insurance (care level unknown) %	6.5	8.7	17.2	21.2	19.2	12.6
Do not have care insurance %	89.5	81.8	53.2	40.1	45.3	68.8

FIG. 2. Overall dialysis patient insurance status (age 65 years and over) according to social rehabilitation. Graphic depiction of all patients requiring assistance/care.

TABLE 25. *Distribution of patients by current care insurance registration status and physical activity: all dialysis patients, age 65 years and older. Number of patients (%).*

	Symptom free and functional in society	Able to walk and do light work	Up and about 50% of the day	Over 50% in fact bedridden	Bedridden at least during the day	Subtotal	Unknown	Not Specified	Grand total
Have care insurance									
Care level unknown	828 (6.5)	2 136 (8.7)	2 456 (17.2)	1658 (21.2)	1083 (19.2)	8 161 (12.6)	98 (15.5)	268 (15.6)	8 527 (12.7)
Requiring assistance	111 (0.9)	419 (1.7)	439 (3.1)	200 (2.6)	77 (1.4)	1 246 (1.9)	5 (0.8)	24 (1.4)	1 275 (1.9)
Care level 1	281 (2.2)	1 356 (5.5)	1 872 (13.1)	808 (10.3)	161 (2.9)	4 478 (6.9)	36 (5.7)	105 (6.1)	4 619 (6.9)
Care level 2	72 (0.6)	419 (1.7)	1 240 (8.7)	928 (11.8)	292 (5.2)	2 951 (4.5)	34 (5.4)	80 (4.7)	3 085 (4.6)
Care level 3	18 (0.1)	110 (0.4)	488 (3.4)	640 (8.2)	396 (7.0)	1 652 (2.5)	15 (2.4)	50 (2.9)	1 717 (2.5)
Care level 4	10 (0.1)	31 (0.1)	137 (1.0)	330 (4.2)	497 (8.8)	1 005 (1.5)	12 (1.9)	33 (1.9)	1 050 (1.6)
Care level 5	7 (0.1)	14 (0.1)	53 (0.4)	128 (1.6)	575 (10.2)	775 (1.2)	8 (1.3)	19 (1.1)	802 (1.2)
No care insurance	11 338 (89.5)	20 097 (81.8)	7 597 (53.2)	3143 (40.1)	2549 (45.3)	4 472 (68.8)	423 (67.0)	1 134 (66.2)	46 281 (68.7)
Subtotal	12 665 (100.0)	24 582 (100.0)	14 282 (100.0)	7833 (100.0)	5630 (100.0)	64 992 (100.0)	631 (100.0)	1 713 (100.0)	67 336 (100.0)
Unknown	1 062	2 009	1 396	914	1024	6 405	875	115	7 395
Not specified	997	1 967	1 152	673	588	5 377	46	20 247	25 670
Grand total	14 724	28 558	16 830	9420	7242	76 774	1552	22 075	100 401

ing assistance and care, the usage rate tended to be rather low, but in Care Level 2 and above the usage rate was about the same.

Among the 40–64-year-old Type 2 insured persons, the overall LTC insurance usage rate was much higher than that in the 65 years-and-over Type 1 insured persons.

As mentioned earlier, there were greater restrictions on acquiring and using the insurance for 40–64-year-old patients than for those 65 years of age and older. Thus, there was a genuine need for patients 40–64 years old to obtain LTC insurance. Hence, it seemed more possible for them to be insured than for patients 65 years of age or older. This supposition may well be supported by the high usage rate of patients in the 40–65 age bracket.

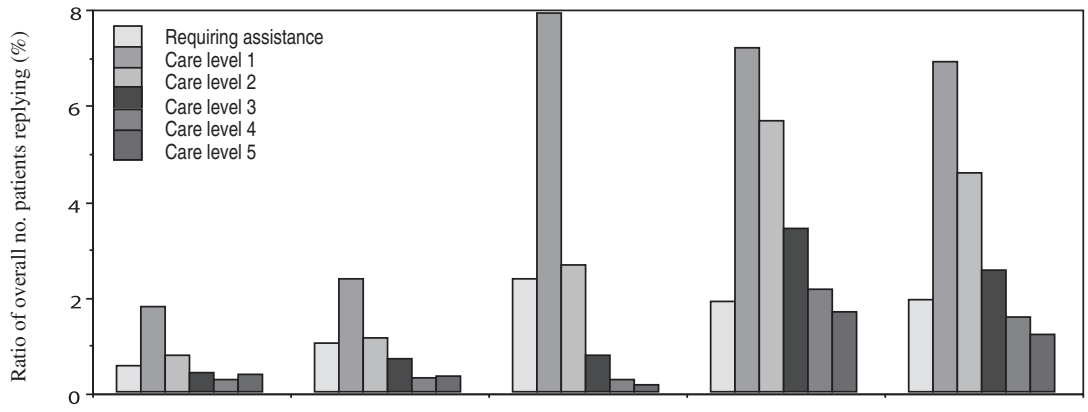
2. Thrice-weekly dialysis pattern

a) Treatment modalities. In the earlier facility surveys using Sheet I, the actual dialysis conditions were largely divided into 'daytime dialysis' and 'evening dialysis.' The number of patients in each category was surveyed. The survey results indicate that patients in the evening dialysis category are gradually decreasing each year (2,3; Fig. 4).

In the patient survey presently conducted using Sheets II, III and IV, the actual dialysis conditions were surveyed for the first time. The results are shown in Table 29. More three-times-weekly dialysis patients underwent daytime dialysis rather than evening dialysis (e.g. 65.7% of the facility hemodialysis patients), while far fewer patients underwent

TABLE 26. *Selection options in survey of physical activity levels*

Code	All options	Title
A	Symptom-free, functional in society, unrestricted, able to move as before onset.	Symptom-free and functional in society
B	Mild symptoms, restricted as to physical work, can walk and do light housework sedentary work e.g., light housework or office work.	Able to walk and do light work
C	Can walk and get around, but need some help at times. Unable to do light work but up and about over 50% of the time.	Up and about 50% of the day
D	Can deal with most things but often need help. Bedridden more than half the day.	Over 50% in fact bedridden
E	Cannot deal with things around him/her. Need consistent help, in bed all day.	Bedridden during the day
Z	Not clarified/unknown	Unknown



Physical activity level	Full-time work	Part-time work	Housework	No housework	Total
Have care insurance (care level unknown) %	5.9	7.9	10.1	14.2	12.6
Do not have care insurance %	90.1	86.3	75.8	63.8	68.8

FIG. 3. Overall dialysis patients insurance status (age 65 years and over) according to physical activity level. Graph of all patients replying they required assistance/care.

evening dialysis (11.9% of facility hemodialysis patients). This result is virtually the same as the Sheet I survey result to date.

At this time, increasingly more facilities are providing dialysis for so-called 'late morning/afternoon' sessions compared with evening sessions (20.1% of facility hemodialysis patients go for thrice-weekly late morning/afternoon sessions). Presumed factors behind this may be the attempt to more efficiently use dialysis beds in conjunction with the recent decrease in insurance points, or to accommodate the growing number of daytime dialysis patients.

b) Physical activity levels. Table 30 presents the relationship between the physical activity level and the dialysis patterns for facility hemodialysis patients.

The evening dialysis patients were limited to those whose physical activity level was characterized as 'symptom-free and functional in society', or 'able to walk and do light work.' Thus, their physical activity level was considered relatively good. Patients on daytime dialysis characterized as 'symptom-less and socially functional' were fewest, followed by those who could 'walk and do light work.' Approximately 80% of the group whose social activity was lower than that in the group who are 'up and about 50% of the day' underwent daytime dialysis.

Moreover, no matter what the physical activity level, the late morning/afternoon dialysis patients composed 16–20% of the overall.

From the aforementioned findings, although the presumed tendency was for patients with a high phys-

TABLE 27. *Distribution of patients by current care insurance registration status: All dialysis patients, aged 40–64 years. Number of patients (%)*

	Do not have LTC insurance	Have services through LTC insurance program	Have insurance but not receiving any services	Subtotal	Unknown	Not Specified	Grand total
Care level unknown	–	768 (27.7)	549 (56.1)	1 317 (1.9)	479 (85.8)	413 (16.6)	2 209 (3.0)
Requiring assistance	–	185 (6.7)	52 (5.3)	237 (0.3)	12 (2.2)	18 (0.7)	267 (0.4)
Care level 1	–	625 (22.5)	147 (15.0)	772 (1.1)	14 (2.5)	10 (0.4)	796 (1.1)
Care level 2	–	530 (19.1)	112 (11.5)	642 (0.9)	30 (5.4)	21 (0.8)	693 (0.9)
Care level 3	–	360 (13.0)	50 (5.1)	410 (0.6)	9 (1.6)	5 (0.2)	424 (0.6)
Care level 4	–	166 (6.0)	40 (4.1)	206 (0.3)	4 (0.7)	3 (0.1)	213 (0.3)
Care level 5	–	140 (5.0)	28 (2.9)	168 (0.2)	10 (1.8)	2 (0.1)	180 (0.2)
No care insurance	67 073 (100.0)	–	–	67 073 (94.7)	–	2 022 (81.1)	69 095 (93.5)
Subtotal	67 073 (100.0)	2774 (100.0)	978 (100.0)	70 825 (100.0)	558 (100.0)	2 494 (100.0)	5 387 (100.0)
Unknown	–	–	–	–	6215	142	6 357
Not specified	390	38	7	435	5	27 179	27 619
Grand total	67 463	2812	985	71 260	6778	29 815	107 853

–, no case present.

TABLE 28. *Distribution of patients by current care insurance registration status: all dialysis patients, aged 65 years and older. Number of patients (%)*

	Do not have LTC insurance	Have services through LTC insurance program	Have insurance but not receiving any services	Subtotal	Unknown	Not Specified	Grand total
Care level unknown	–	3 822 (28.6)	2738 (53.6)	6 560 (10.4)	1478 (77.7)	491 (22.2)	8 527 (12.7)
Requiring assistance	–	860 (6.4)	331 (6.5)	1 191 (1.9)	50 (2.6)	34 (1.5)	1 275 (1.9)
Care level 1	–	3 541 (26.5)	908 (17.8)	4 449 (7.0)	117 (6.2)	53 (2.4)	4 619 (6.9)
Care level 2	–	2 362 (17.7)	501 (9.8)	2 863 (4.5)	147 (7.7)	55 (2.5)	3 065 (4.6)
Care level 3	–	1 354 (10.1)	276 (5.4)	1 630 (2.6)	62 (3.3)	25 (1.1)	1 717 (2.5)
Care level 4	–	826 (6.2)	184 (3.6)	1 010 (1.6)	23 (1.2)	17 (0.8)	1 050 (1.6)
Care level 5	–	593 (4.4)	171 (3.3)	764 (1.2)	24 (1.3)	14 (0.6)	802 (1.2)
No care insurance	44 762 (100.0)	–	–	44 762 (70.8)	–	1 519 (68.8)	46 281 (68.7)
Subtotal	44 762 (100.0)	13 358 (100.0)	5109 (100.0)	63 228 (100.0)	1899 (100.0)	2 208 (100.0)	67 336 (100.0)
Unknown	–	–	–	–	7231	164	7 395
Not specified	228	161	23	412	14	25 244	25 670
Grand total	44 990	13 519	5132	63 641	9144	27 616	100 401

–, no case present.

ical activity to undergo evening sessions, and for those with a low physical activity to undergo daytime dialysis sessions, the late morning/afternoon sessions did not seem to have an ostensible association with physical activity level.

c) Social rehabilitation. The survey results for facility hemodialysis patients in terms of their dialysis patterns and social rehabilitation are shown in Table 31. Based on this table, Fig. 5 graphically depicts the social rehabilitation situation of five groups: student, full-time work, part-time work, housework, and no work/no housework.

The proportion of patients with full-time employment going for evening dialysis was high, followed by patients who were students or had part-time work. Conversely, hardly any patients who replied 'housework' or 'no work/no housework' underwent evening dialysis.

In contrast, the proportion of those replying 'full-time work', 'student', etc. who went to daytime dialysis sessions was low, whereas that replying 'housework' was highest in the daytime dialysis session category, followed by a high proportion of those replying 'work at home/no work at home.The late/morning/afternoon dialysis session category displayed a trend close to that for the evening dialysis category. The rate was relatively high for patients replying 'student' and 'full-time work', but low for those indicating 'housework' and 'no work/no housework.

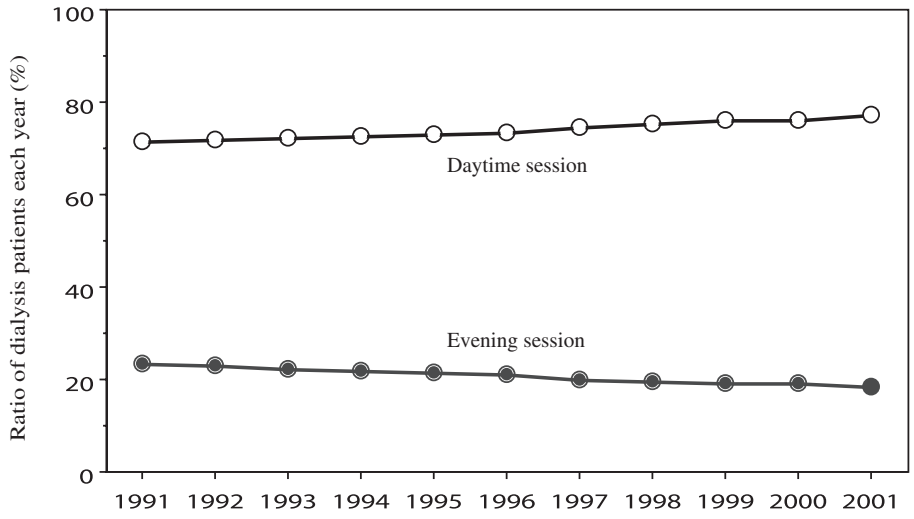


FIG. 4. Trend in proportion of patients on 'daytime dialysis' and 'evening dialysis' based on facility survey (Sheet I).

TABLE 29. *Distribution of patients by hemodialysis schedule based on day of the week and time of the day(3 times per week) and treatment modalities (extracorporeal hemopurification)/Monday-Wednesday-Friday or Tuesday-Thursday-Saturday only). Number of patients (%)*

	Hemodialysis	Hemodiafiltration	Hemofiltration	Hemodiabsorption	Home Hemodialysis	Total
3 daytime sessions	107 744 (65.7)	6 435 (63.4)	79 (74.5)	236 (56.9)	2 (22.2)	114 496 (65.6)
3 late morning/afternoon sessions	32 940 (20.1)	1 893 (18.6)	14 (13.2)	86 (20.7)	2 (22.2)	34 935 (20.0)
3 evening sessions	19 489 (11.9)	1 600 (15.8)	12 (11.3)	82 (19.8)	3 (33.3)	21 186 (12.1)
2 daytime & 1 late morning/afternoon session	459 (0.3)	28 (0.3)	1 (0.9)	–	–	488 (0.3)
2 daytime/1 evening session	110 (0.1)	6 (0.1)	–	–	–	116 (0.1)
2 late morning/afternoon & 1 daytime session	582 (0.4)	31 (0.3)	–	–	1 (11.1)	614 (0.4)
2 late morning/afternoon & 1 evening session	163 (0.1)	17 (0.2)	–	2 (0.5)	–	182 (0.1)
2 evening & 1 daytime session	141 (0.1)	–	–	3 (0.7)	–	144 (0.1)
2 evening & 1 late morning/afternoon session	480 (0.3)	43 (0.4)	–	5 (1.2)	–	528 (0.3)
Other	1 821 (1.1)	104 (1.0)	–	1 (0.2)	1 (11.1)	1 927 (1.1)
Total	163 929	10 157	106	415	9	174 616

–, no case present.

TABLE 30. *Distribution of patients by hemodialysis schedule based on day of the week and time of the day(3 times per week) and physical activity (facility hemodialysis)/ Monday-Wednesday-Friday or Tuesday-Thursday-Saturday only). Number of patients (%)*

	Symptom free and functional in society	Able to walk and do light work	Up and about 50% of the day	Over 50% in fact bedridden	Bedridden at least during the day	Subtotal	Unknown	Not Specified	Grand total
3 daytime sessions	23 824 (51.6)	37 997 (67.5)	16 524 (80.4)	8 484 (80.3)	5980 (80.0)	92 809 (65.8)	1546 (61.5)	13 389 (65.8)	107 744
3 late morning/afternoon sessions	10 658 (23.1)	10 984 (19.5)	3 261 (15.9)	1 765 (16.7)	1269 (17.0)	27 937 (19.8)	582 (23.2)	4 421 (21.7)	32 940
3 evening sessions	10 326 (22.4)	6 086 (10.8)	372 (1.8)	120 (1.1)	57 (0.8)	16 961 (12.0)	349 (13.9)	2 179 (10.7)	19 489
2 daytime & 1 late morning/afternoon session	113 (0.2)	144 (0.3)	55 (0.3)	38 (0.4)	35 (0.5)	385 (0.3)	10 (0.4)	64 (0.3)	459
2 daytime/1 evening session	42 (0.1)	27 (0.0)	1 (0.0)	–	–	70 (0.0)	–	40 (0.2)	110
2 late morning/afternoon & 1 daytime session	190 (0.4)	193 (0.3)	51 (0.2)	49 (0.5)	31 (0.4)	514 (0.4)	20 (0.8)	48 (0.2)	582
2 late morning/afternoon & 1 evening session	70 (0.2)	67 (0.1)	6 (0.0)	2 (0.0)	–	145 (0.1)	–	18 (0.1)	163
2 evening & 1 daytime session	79 (0.2)	37 (0.1)	2 (0.0)	2 (0.0)	1 (0.0)	121 (0.1)	–	20 (0.1)	141
2 evening & 1 late morning/afternoon session	286 (0.6)	162 (0.3)	6 (0.0)	2 (0.0)	1 (0.0)	457 (0.3)	1 (0.0)	22 (0.1)	480
Other	554 (1.2)	625 (1.1)	266 (1.3)	108 (1.0)	102 (1.4)	1 655 (1.2)	6 (0.2)	160 (0.8)	1 821
Total	46 142	56 322	20 544	10 570	7476	141 054	2514	20 361	163 929

–, no case present.

TABLE 31. *Distribution of patients by hemodialysis schedule based on day of the week and time of the day(3 times per week) and social life (facility hemodialysis)/ Monday-Wednesday-Friday or Tuesday-Thursday-Saturday only).*

				NS														
	S			FTW			PTW			HW			NO HW			Sub-total	Unkn	Not specified	Grand Total
	S	NS	Hos	FTW	NW	Hos	FTW	NW	Hos	HW	THW	Hos	UL	IL	Hos				
3 daytime sessions																			
number of patients	48	16	38	6 399	630	503	2754	510	173	25 750	3387	1146	26 442	16 779	8 338	92 913	1882	12 949	107 744
(%)	(0.1)	(0.0)	(0.0)	(6.9)	(0.7)	(0.5)	(3.0)	(0.5)	(0.2)	(27.7)	(3.6)	(1.2)	(28.5)	(18.1)	(9.0)	(100.0)			
3 late morning/afternoon sessions																			
number of patients	76	8	5	7 144	269	108	1590	212	42	4 578	516	247	7 668	3 287	2 122	27 872	808	4 260	32 940
(%)	(0.3)	(0.0)	(0.0)	(25.6)	(1.0)	(0.4)	(5.7)	(0.8)	(0.2)	(16.4)	(1.9)	(0.9)	(27.5)	(11.8)	(7.6)	(100.0)			
3 evening sessions																			
number of patients	97	4	–	11 586	154	22	1105	88	2	1 082	65	18	2 238	392	90	16 943	404	2 142	19 489
(%)	(0.6)	(0.0)		(68.4)	(0.9)	(0.1)	(6.5)	(0.5)	(0.0)	(6.4)	(0.4)	(0.1)	(13.2)	(2.3)	(0.5)	(100.0)			
2 daytime & 1 late morning/afternoon session																			
number of patients	–	–	–	61	8	1	19		1	95	9	8	73	39	67	380	14	65	459
(%)				(16.1)	(2.1)	(0.3)	(5.0)		(0.3)	(25.0)	(2.4)	(2.1)	(19.2)	(10.0)	(17.6)	(100.0)			
2 daytime/1 evening session																			
number of patients	–	–	–	39	1	–	14	2	–	13	–	–	21	10	–	100	–	10	110
(%)				(39.0)	(1.0)		(14.0)	(2.0)		(13.0)			(21.0)	(10.0)		(100.0)			
2 late morning/afternoon & 1 daytime session																			
number of patients	–	–	1	151	5	3	35	2	–	86	10	8	101	47	61	510	23	49	582
(%)			(0.2)	(29.6)	(1.0)	(0.6)	(6.9)	(0.4)		(16.9)	(2.0)	(1.6)	(19.8)	(9.2)	(12.0)	(100.0)			
2 late morning/afternoon & 1 evening session																			
number of patients	–	–	–	104	–	–	10	–	–	9	–	–	21	2	–	146	1	16	163
(%)				(71.2)			(6.8)			(6.2)			(14.4)	(1.4)		(100.0)			
2 evening & 1 daytime session																			
number of patients	2	–	–	83	2	–	8	–	–	6	–	–	15	5	–	121	–	20	141
(%)	(1.7)			(68.6)	(1.7)		(6.6)			(5.0)			(12.4)	(4.1)		(100.0)			
2 evening & 1 late morning/afternoon session																			
number of patients	3	–	–	369	3	2	23	1	–	14	–	–	43	3	2	463	5	12	480
(%)	(0.6)			(79.7)	(0.6)	(0.4)	(5.0)	(0.2)		(3.0)			(9.3)	(0.6)	(0.4)	(100.0)			
Other																			
number of patients	4	2	–	403	13	21	87	14	7	243	39	21	336	237	171	1 598	23	200	1 821
(%)	(0.3)	(0.1)		(25.2)	(0.8)	(1.3)	(5.4)	(0.9)	(0.4)	(15.2)	(2.4)	(1.3)	(21.0)	(14.8)	(10.7)	(100.0)			
Total																			
number of patients	230	30	44	26 339	1085	660	5645	829	225	31 876	4026	1448	36 958	20 800	10 851	141 046	3160	19 723	163 929
(%)	(0.2)	(0.0)	(0.0)	(18.7)	(0.8)	(0.5)	(4.0)	(0.6)	(0.2)	(22.6)	(2.9)	(1.0)	(26.2)	(14.7)	(7.7)	(100.0)			

–, no case present; FTW, full-time work; Hos, hospitalized; HW, housework; IL, impaired living; NS, not student; NW, no work; PTW, part time work; S, student; THW, Temporary housework; UL, unimpaired living; Unkn, unknown.

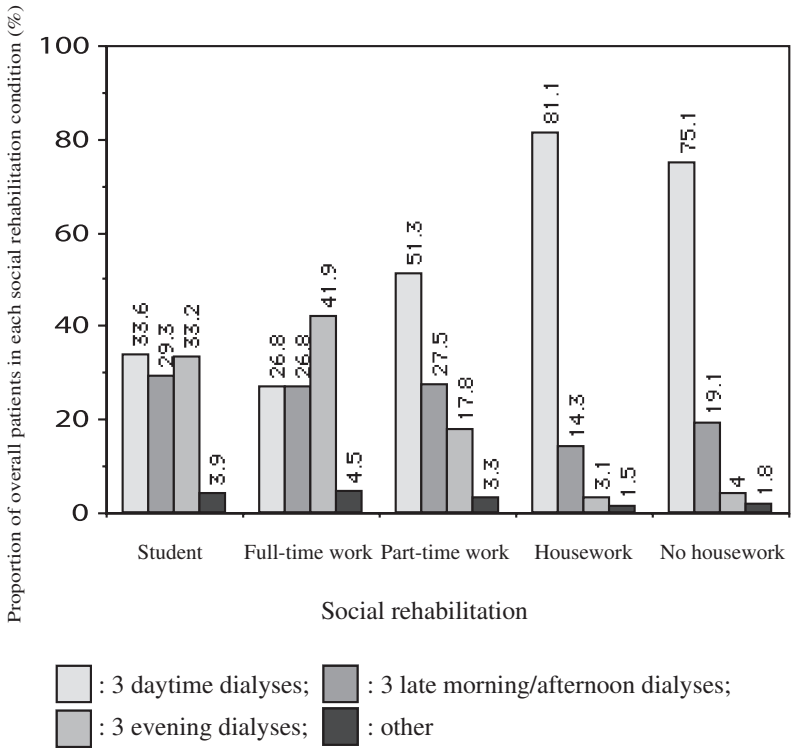


FIG. 5. Dialysis pattern of facility dialysis patients and social rehabilitation. Overall graph of patterns other than ''thrice-weekly/daytime, thrice-weekly late morning/afternoon and thrice-weekly evening dialysis.

3. Dialysis courses

a) Type of institution. Table 32 presents the relationship between the type of courses for patients belonging to a facility and their dialysis courses but only for patients in which the modality used was facility hemodialysis.

Once-weekly dialysis was noted in a sizable number of national universities, private universities and national hospitals, while twice-weekly dialysis was noted in a relatively large number of public hospitals (excluding national universities and special insurance hospitals).

The three-times-weekly dialysis was more commonly carried out on a Mon-Wed-Fri course than on a Tue-Thurs-Sat course. National universities most often carried out the Mon-Wed-Fri course, followed by national hospitals. Other than for these differences in the course in terms of the institution, there was no marked difference in the dialysis course distribution related to the type of institution.

b) Therapeutic modalities. Table 33 shows the relationship between the modalities and dialysis courses. Patients on every-other-day dialysis, 6-times-per-week dialysis, and every-day dialysis were very few no matter what dialysis modality was used. However, the proportion of patients only on home hemodialysis and classified into 'Others' was quite large.

Home hemodialysis patients, whether they availed of the Mon-Wed-Fri or Tue-Thurs-Sat course, were fewer than those using other therapeutic modalities. Patients on every-other-day dialysis were more numerous than those using other forms of therapy.

c) Social rehabilitation. Table 34 presents dialysis courses and the social rehabilitation situation for facility hemodialysis patients, while Fig. 6 is based on this same table for five groups: student, full-time work, part-time work, housework, no work/no housework.

No marked difference was found in social rehabilitation level between patients on once- or twice-weekly dialysis. However, there was a rather clear relationship between social rehabilitation in the Mon-Wed-Fri and Tue-Thurs-Sat courses. Those in the Mon-Wed-Fri course were more often in the order of student, full-time work, part-time work, housework, and work at home/no work at home, whereas this was less true of those in the Tue-Thurs-Sat course. Given this result, it may be assumed that patients with a high level of social activity prefer the Mon-Wed-Fri course.

4. Day for blood test

Table 35 presents the results for each dialysis course regarding the day(s) on which blood tests were conducted. The first day in the week on which

TABLE 32. *Distribution of patients by hemodialysis schedule based on day of the week and kind of facility (facility hemodialysis)*

	Once a week	Twice a week	Mon, Wed & Fri sessions	Tues, Thurs & Sat sessions	Every other day	Six days a week	Every day	Other	Subtotal	Not specified	Grand total
National Universities	1	19	149	33	1	–	–	–	203	178	381
(%)	(0.5)	(9.4)	(73.4)	(16.3)	(0.5)				(100.0)		
Private Universities	25	79	682	468	5	1	–	16	1 276	401	1 677
(%)	(2.0)	(6.2)	(53.4)	(36.7)	(0.4)	(0.1)		(1.3)	(100.0)		
National Hospitals	13	31	178	76	–	–	–	4	302	153	455
(%)	(4.3)	(10.3)	(58.9)	(25.2)				(1.3)	(100.0)		
Public Hospitals	149	1523	6 778	4 681	11	2	–	134	13 278	2 182	15 460
(%)	(1.1)	(11.5)	(51.0)	(35.3)	(0.1)	(0.0)		(1.0)	(100.0)		
Social Insurance Hospitals	18	198	1 501	1 135	–	–	–	29	2 881	283	3 164
(%)	(0.6)	(6.9)	(52.1)	(39.4)				(1.0)	(100.0)		
Welfare Generation Hospitals	41	553	2 927	2 039	2	–	–	51	5 613	1 491	7 104
(%)	(0.7)	(9.9)	(52.1)	(36.3)	(0.0)			(0.9)	(100.0)		
Other Public Hospitals	94	834	3 926	2 581	25	–	–	91	7 551	1 114	8 665
(%)	(1.2)	(11.0)	(52.0)	(34.2)	(0.3)			(1.2)	(100.0)		
Private General Hospitals	36	467	2 747	1 926	51	–	–	102	5 329	540	5 869
(%)	(0.7)	(8.8)	(51.5)	(36.1)	(1.0)			(1.9)	(100.0)		
Private Hospitals	235	3725	30 009	22 249	62	2	2	742	57 026	7 022	64 048
(%)	(0.4)	(6.5)	(52.6)	(39.0)	(0.1)	(0.0)	(0.0)	(1.3)	(100.0)		
Private Clinics	220	8958	47 985	31 859	130	4	1	1282	85 439	7 629	93 068
(%)	(0.3)	(4.6)	(56.2)	(37.3)	(0.2)	(0.0)	(0.0)	(1.5)	(100.0)		
Total	832	11387	96 882	67 047	287	9	3	2451	178 898	20 993	199 891
(%)	(0.5)	(6.4)	(54.2)	(37.5)	(0.2)	(0.0)	(0.0)	(1.4)	(100.0)		

–, no case present.

TABLE 33. *Distribution of patients by hemodialysis schedule based on day of the week and kind of facility (extracorporeal hemopurification)*

	Once a week	Twice a week	Mon, Wed & Fri sessions	Tues, Thurs & Sat sessions	Every other day	Six days a week	Every day	Other	Subtotal	Not specified	Grand total
Hemodialysis	832	11 387	96 882	67 047	287	9	3	2451	178 898	20 993	199 891
	(0.5)	(6.4)	(54.2)	(37.5)	(0.2)	(0.0)	(0.0)	(1.4)	(100.0)		
Hemodiafiltration	16	211	6 374	3 783	44	1	1	187	10 617	892	11 509
	(0.2)	(2.0)	(80.0)	(35.6)	(0.4)	(0.0)	(0.0)	(1.8)	(100.0)		
Hemofiltration	3	2	65	41	–	–	1	2	114	7	121
	(2.6)	(1.8)	(57.0)	(36.0)			(0.9)	(1.8)	(100.0)		
Hemodiabsorption	3	2	288	127	–	–	–	12	432	37	469
	(0.7)	(0.5)	(66.7)	(29.4)				(2.8)	(100.0)		
Home hemodialysis	–	–	7	2	4	–	1	6	20	47	67
			(35.0)	(10.0)	(20.0)		(5.0)	(30.0)	(100.0)		
Total	854	11 602	103 616	71 000	335	10	6	2658	190 081	21 976	212 057
	(0.4)	(6.1)	(54.5)	(37.4)	(0.2)	(0.0)	(0.0)	(1.4)	(100.0)		

–, no case present.

TABLE 34. *Distribution of patients by hemodialysis schedule based on day of the week and social life (facility hemodialysis)*

	S			NS															
				FTW			PTW			HW			NO HW			Sub-total	Unkn	Not specified	Grand Total
	S	NS	Hos	FTW	NW	Hos	FTW	NW	Hos	HW	THW	Hos	UL	IL	Hos				
Once a week	2	–	–	97	10	8	18	5	3	85	19	10	175	121	93	646	21	165	832
	(0.3)			(15.0)	(1.5)	(1.2)	(2.8)	(0.8)	(0.5)	(13.2)	(2.9)	(1.5)	(27.1)	(18.7)	(14.4)	(100.0)			
Twice a week	12	1	–	1 498	90	60	350	66	11	1 754	293	129	2 620	1 760	1 102	9 746	211	1 430	11 387
	(0.1)	(0.0)		(15.4)	(0.9)	(0.6)	(3.6)	(0.7)	(0.1)	(18.0)	(3.0)	(1.3)	(26.9)	(18.1)	(11.3)	(100.0)			
Mon, Wed & Fri sessions	171	21	30	19 393	652	363	3844	503	129	18 550	2113	780	20 648	10 787	5 502	83 486	1802	11 594	96 882
	(0.2)	(0.0)	(0.0)	(23.2)	(0.8)	(0.4)	(4.6)	(0.6)	(0.2)	(22.2)	(2.5)	(0.9)	(24.7)	(12.9)	(6.6)	(100.0)			
Tues, Thurs & Sat sessions	59	9	14	6 946	433	297	1801	326	96	13 326	1913	668	16 310	10 013	5 349	57 560	1358	8 129	67 047
	(0.1)	(0.0)	(0.0)	(12.1)	(0.8)	(0.5)	(3.1)	(0.6)	(0.2)	(23.2)	(3.3)	(1.2)	(28.3)	(17.4)	(9.3)	(100.0)			
Every other day	–	–	–	56	1	2	13	2	–	49	–	4	54	33	27	241	6	40	287
				(23.2)	(0.4)	(0.8)	(5.4)	(0.8)		(20.3)		(1.7)	(22.4)	(13.7)	(11.2)	(100.0)			
Six days a week	–	–	–	3	–	–	–	–	1	–	–	1	2	–	1	8	–	1	9
				(37.5)					(12.5)			(12.5)	(25.0)		(12.5)	(100.0)			
Every day	–	–	–	1	–	–	–	–	–	1	–	–	–	–	1	3	–	–	3
				(33.3)						(33.3)					(33.3)	(100.0)			
Other	8	–	–	917	12	13	105	9	3	271	30	28	354	197	155	2 102	42	307	2 451
	(0.4)			(43.8)	(0.6)	(0.6)	(5.0)	(0.4)	(0.1)	(12.9)	(1.4)	(1.3)	(16.8)	(9.4)	(7.4)	(100.0)			
Sub-total	252	31	44	28 911	1198	1198	6131	911	243	34 036	4368	1620	40 163	22 911	12 230	153 792	3440	21 666	178 898
	(0.2)	(0.0)	(0.0)	(18.8)	(0.8)	(0.8)	(4.0)	(0.6)	(0.2)	(22.1)	(2.8)	(1.1)	(25.1)	(14.9)	(8.0)	(100.0)			
Not specified	1	–	–	136	4	1	19	2	–	141	19	22	281	139	49	814	23	20 156	20 993
	(0.1)			(16.7)	(0.5)	(0.1)	(2.3)	(0.2)		(17.3)	(2.3)	(2.7)	(34.5)	(17.1)	(6.0)	(100.0)			
Grand total	253	31	44	29 047	1202	744	6150	913	243	34 177	4387	1642	40 444	23 050	12 279	154 606	3463	41 822	199 891
	(0.2)	(0.0)	(0.0)	(18.8)	(0.8)	(0.5)	(4.0)	(0.6)	(0.2)	(22.1)	(2.8)	(1.1)	(26.2)	(14.9)	(7.9)	(100.0)			

–, no case present; FTW, full-time work; Hos, hospitalized; HW, housework; IL, impaired living; NS, not student; NW, no work; PTW, part time work; S, student; THW, Temporary housework; UL, unimpaired living; Unkn, unknown.

TABLE 35. *Distribution of patients by hemodialysis schedule based on day of the week and blood sampling day of the week (facility hemodialysis)*

	Once a week	Twice a week	Mon, Wed & Fri sessions	Tues, Thurs & Sat sessions	Every other day	Six days a week	Every day	Other	Subtotal	Not specified	Grand total
Monday	73	4 082	88 367	178	263	8	1	1349	94 319	215	94 534
(%)	(0.1)	(4.3)	(93.7)	(0.2)	(0.3)	(0.0)	(0.0)	(1.4)	(100.0)		
Tuesday	167	4 250	97	62 556	–	1	–	191	67 262	181	67 443
(%)	(0.2)	(6.3)	(0.1)	(93.0)		(0.0)		(0.3)	(100.0)		
Wednesday	217	719	4 325	8	8	–	–	73	5 350	16	5 366
(%)	(4.1)	(13.4)	(80.8)	(0.1)	(0.1)			(1.4)	(100.0)		
Thursday	212	158	17	2 016	–	–	–	171	2 574	21	2 595
(%)	(8.2)	(6.1)	(0.7)	(78.3)				(6.6)	(100.0)		
Friday	73	1 085	1 041	3	10	–	–	74	2 286	20	2 306
(%)	(3.2)	(47.5)	(45.5)	(0.1)	(0.4)			(3.2)	(100.0)		
Saturday	52	729	1	237	–	–	1	524	1 544	3	1 547
(%)	(3.4)	(47.2)	(0.1)	(15.3)			(0.0)	(33.9)	(100.0)		
Sunday	–	3	–	–	–	–	–	1	4	–	4
(%)		(75.0)						(25.0)	(100.0)		
Subtotal	794	11 026	93 848	64 996	281	9	2	2383	173 339	456	173 795
(%)	(0.5)	(6.4)	(54.1)	(33.5)	(0.2)	(0.0)	(0.0)	(1.4)	(100.0)		
Not specified	38	361	3 034	2 051	6	–	1	68	5 559	20 537	26 096
(%)	(0.7)	(6.5)	(54.6)	(36.9)	(0.1)		(0.0)	(1.2)	(100.0)		
Grand total	832	11 387	96 882	67 047	287	9	3	2451	178 898	20 993	199 891
(%)	(0.5)	(6.4)	(54.2)	(33.5)	(0.2)	(0.0)	(0.0)	(1.4)	(100.0)		

–, no case present.

dialysis is conducted is often the day for blood tests, but some patients had the tests on their midweek dialysis day.

ACKNOWLEDGMENTS

We wish to express our deep appreciation to those key persons in each area (listed below) and to the many people whose cooperation in the survey and assistance in making entries made this annual survey possible.

Principal investigators by prefecture (Key men)

Tadamasa Kon (Hokkaido), Tomihisa Funyuh (Aomori), Tsutomu Ohmori (Iwate), Hiroshi Awkino (Miyagi), Shgeru Sato (Akita), Mikio Saito (Yamagata), Yasuo Shiroiwa (Fukushima), Akio Koyama (Ibaragi), Eiji Kusano (Tochigi), Akihito Shimoda (Gunma), Hiromichi Suzuki (Saitama), Noriyoshi Murotani (Chiba), Hiroshi Nihei (Tokyo), Yasuhiko Iino (Tokyo), Tetsuzou Sugisaki (Tokyo), Masayuki Nkamura (Tokyo), Kiyoshi Kitamoto (Tokyo), Tsutomu Kuno (Tokyo), Hikaru Koide (Tokyo), Masami Kozaki (Tokyo), Toshio Shinoda (Tokyo), Matsuhiko Suenaga (Tokyo), Hitoshi Tagawa (Tokyo), Toshiyuki Nkao (Tokkyo), Kazumichi Nakamura (Tokyo), Akira Hasegawa (Tokyo), Kazuo Hara (Tokyo), Tsutomu Sanaka (Tokyo), Renjiroh Kuriyama (Tokyo), Waichi Kitajima (Tokyo), Mitsuo Ogura (Tokyo), Eriko Kinyugasa (Kanagawa), Yoshihei Hirasawa (Niigata), Hiroyuki Iida (Toyama), Isao Ishikawa (Ishikawa), Chikashi Kitoh (Fukui), Haruo Ymashita (Ymanashi), Takashi Tsuchiya (Naganano), Shigeki Sawada (Gifu), Hiroya Sugano (Shizuoka), Kenji Maeda (Aichi), Toshiaki Takeuchi (Mie), Toshiji Nishio (Shiga), Toshihiko Ono (Kyoto), Yoshiharu Tsubakihara (Osaka), Taketoshi Kishimoto (Osaka), Yoshihiro Takamitsu (Hyogo), Katsunori Yoshida (Nara), Tomiya Abe (Wakayama), Yasuyuki Yoshino (Tottori), Yuhiji Higashibori (Shimane), Hiroyuki Ohmori (Okayama), Noriaki Yorioka (Hiroshima), Katsusuke Naitoh (Yamaguchi), Hirofumi Hashimoto (Tokushima), Akira Numata (Kagawa), Atsumi Harada (Ehime), Naotami Terao (Kohchi), Masahiko Nakamoto (Fukuoka), Takanobu Sakemi (Saga), Takashi Harada (Nagasaki), Hidehisa Soejima (Kumamoto), Yoshio Nomura (Ohita), Yoshitaka Yamamoto (Miyazaki), Yoshihito Otsuji (Kagoshima), Shigeki Tohma (Okinawa).

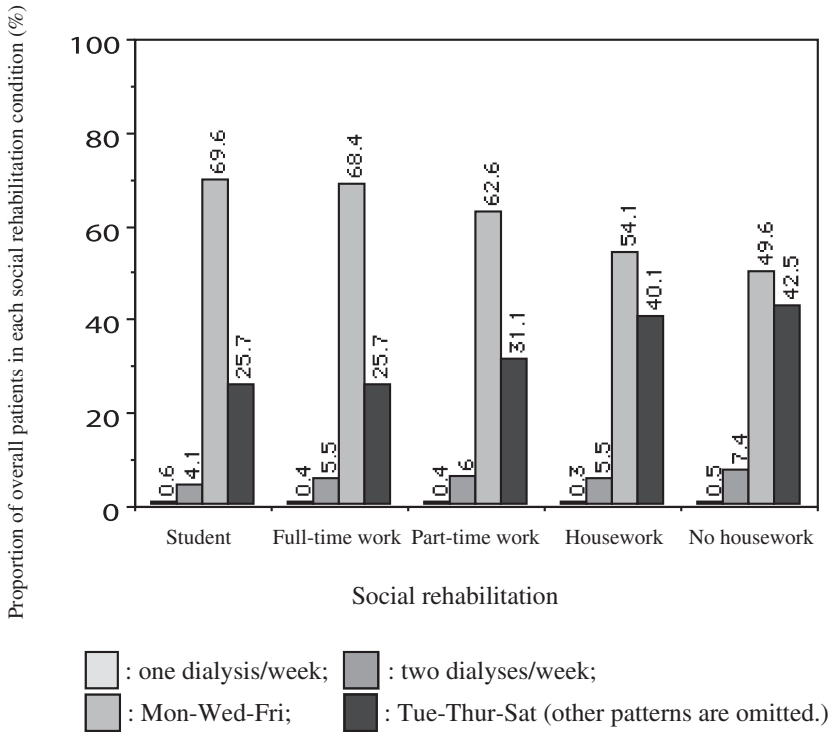


FIG. 6. Dialysis courses and social rehabilitation conditions.

REFERENCES

1. Cutler SJ, Ederer F. Maximum utilization of the life table method in analyzing survival. *J Chron Dis* 1958;8: 699–712.
2. Nakai S, Shinzato T, Nagura Y et al. An overview of regular dialysis treatment in Japan (as of 31 December 2001). *J Jpn Soc Dial Ther* 2003;36:1–31.
3. Nakai S, Shinzato T, Sanaka T, et al. The Current State of Chronic Dialysis Treatment in Japan (as of 31 December 2000). *J Jpn Soc Dial Ther* 2002;35:1–28.