DANSK NEFROLOGISK SELSKAB

Landsregister for patienter i aktiv behandling for kronisk nyresvigt
Rapport for Danmark 1999

Danish National Registry Report on Dialysis and Transplantation in Denmark 1999

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Forord

Dansk Nefrologisk Selskabs Landsregister er skabt med det formål at præsentere væsentlige demografiske oplysninger om og analyser af patienter i aktiv behandling for kronisk nyresvigt – det vil sige dialyse- og nyretransplanterede patienter. I 1993 udsendtes den første rapport, som dækker perioden fra 1/1-90 til 1/1-93. Siden er rapporteringen foregået årligt.

Registret blev fra starten skabt som et privat register tilhørende Dansk Nefrologisk Selskab (DNS). De lovmæssige og organisatoriske forhold i forbindelse hermed er beskrevet grundigt i forordet til den første rapport.

Af flere grunde har det været nødvendigt at tænke på fornyelse af registrets database og organisation.

1. Den nuværende database er konstrueret for 15 år siden og alene derfor tjenlig til fornyelse. Yderligere er den ikke år 2000 sikret.
2. Registrets analyser har i tiltagende grad fundet anvendelse til at belyse kvaliteten i det lægelige arbejde. I forbindelse hermed har DNS i samarbejde med Sundhedsstyrelsen igennem de senere år arbejdet på at forny og udvide databasen med henblik på at skabe en klinisk database med et øget antal parametre og hermed øgede muligheder for at kvalitetssikre behandlingen på landets nefrologiske centre.

Samtidig har vi fundet det hensigtsmæssigt at ændre registrets status fra privat til offentlig register. Herigennem skabes mulighed for at det offentlige dækker udgifter til driften. Københavns amt har påtaget sig værtsskabet fra 010100. Registrets officielle navn er nu: Den landsdækkende kliniske database for patienter i aktiv behandling for kronisk nyresvigt. Registret ejes af og er hjemmehørende i Københavns Amt. Den registeransvarlige er derfor ansvarlig overfor Københavns Amt.

I praksis er de organisatoriske forhold uændret. DNS bevarer sin indflydelse på indholdet af den årlige rapport gennem registerudvalget, hvis formand er den til enhver tid siddende formand for DNS. Fast medlem af udvalget er den registeransvarlige, som formelt har ansvaret for data sikkerhed overfor såvel DNS som Københavns Amt. Udvalgets øvrige medlemmer har hidtil bestået af læger med speciel interesse for registrering og med en passende geografisk spredning. De nylige ændringer vil kræve, at den fremtidige organisation af arbejdet tages op til diskussion i selskabet.

Registerudvalget består for øjeblikket af:

Overlæge dr. med. Bo Feldt-Rasmussen (DNS formand, RH)
Overlæge dr. med. Hans Løkkegaard (registeransvarlig, Herlev)
Overlæge dr. med. Sven Arvid Birkeland (Odense)
Overlæge dr. med. Henrik Daugaard (Roskilde)
Overlæge dr. med. Steen Fugleberg (Herlev)
Overlæge dr. med. Søren Madsen (Skejby)
Overlæge dr. med. Melvin Madsen (Skejby).

For øjeblikket pågår arbejdet med at forny databasen. Dette sker som et samarbejde mellem Uni-C og DNS. Sidstnævnte er repræsenteret ved den registeransvarlige Hans Løkkegaard og Tom Buur. Den nye udgave er et Windows baseret program, som udbygges med ekstra muligheder for indtastning. I første omgang bevares den nuværende organisation med indtastning på de enkelte centre og årlig tilførsel af data centralt via diskette. Den tekniske udformning tillader anvendelse af Internet og det er planen at skifte til en sådan løsning, når teknikken tilader sikker transport og opbevaring af data i dette medium. Færdiggørelsen af det nye system sker i løbet af foråret 2000.

Registret indeholder nu data på 6468 patienter, som 1/1 – 90 enten var eller siden er påbegyndt behandling. Rapporteringen er som tidligere indledt med indtastning af data på de nefrologiske centre, og der er god grund til at takke de mange, som har været involveret i dette betydelige arbejde.

I 1997 lykkedes det at etablere samarbejde med Scandiatransplant og Cancerregistret. Der er siden udvekslet data mellem DNS Landsregister og nævnte registre 2 gange, sidst februar-marts 1999. I 1997 muliggjorde det en analyse af vævstypernes betydning for de sidste 8 års nyretransplantation. I 1998 tillod samarbejdet med Cancerregistret den første analyse om cancerudviklingen i Danmark indenfor denne patientgruppe. Samarbejdet med de 2 registre er planlagt at forsætte.

Aktuelle analyser af dødeligheden hos de forskellige patientgrupper er et vigtigt led i en klinisk databases funktion. De tjener til konstant overvågning og kvalitetssikring af de etablerede behandlingsformer. I år er kvaliteten af nyretransplantation vurderet gennem en række overlevelseskurver for patienter og nyregraft.

Prognostiske vurderinger til brug for den videre udbygning af behandlingsfaciliteter er et af registrets vigtigste opgaver. Det er nødvendigt konstant at overvåge ændringer i incidens og dødelighed. Dette har nødvendiggjort nye prognostiske analyser i dette års rapport.

Igen i år har de datatekniske problemer været lagt i hænderne på EDB-konsulent Troels Andersen. I forbindelse med ændringerne af registrets software ophører samarbejdet fra i år. Selskabet skylder ham megen tak for et omhyggeligt, effektivt og trofast samarbejde gennem mange år.

April 2000

Hans Løkkegaard

Preface

The Danish Registry on Regular Dialysis and Transplantation was founded in 1990, and since then all patients in active treatment for end stage renal disease (ESRD) have been registered – now including 6468 patients. Data input is made on identical software programs in all nephrological centres and once a year data are send to a central database for corrections before preparation of the national report and further distribution of data to the European Registry of Dialysis (EDTA), the Danish Cancer registry and Scandiatransplant. Data exchange with the Danish Cancer registry and Scandiatransplant was started in 1997. A result of this collaboration was a report in 1998 concerning the influence of tissue typing on graft survival in Denmark since 1990, and in 1999 the first report about development of cancer in Danish patients with terminal renal failure was published.

The registry was founded and is carried on of the Danish Society of Nephrology (DNS). Reports are made once a year and published in Aril-May in connection with the annual meeting of the society.

April 2000

Hans Løkkegaard

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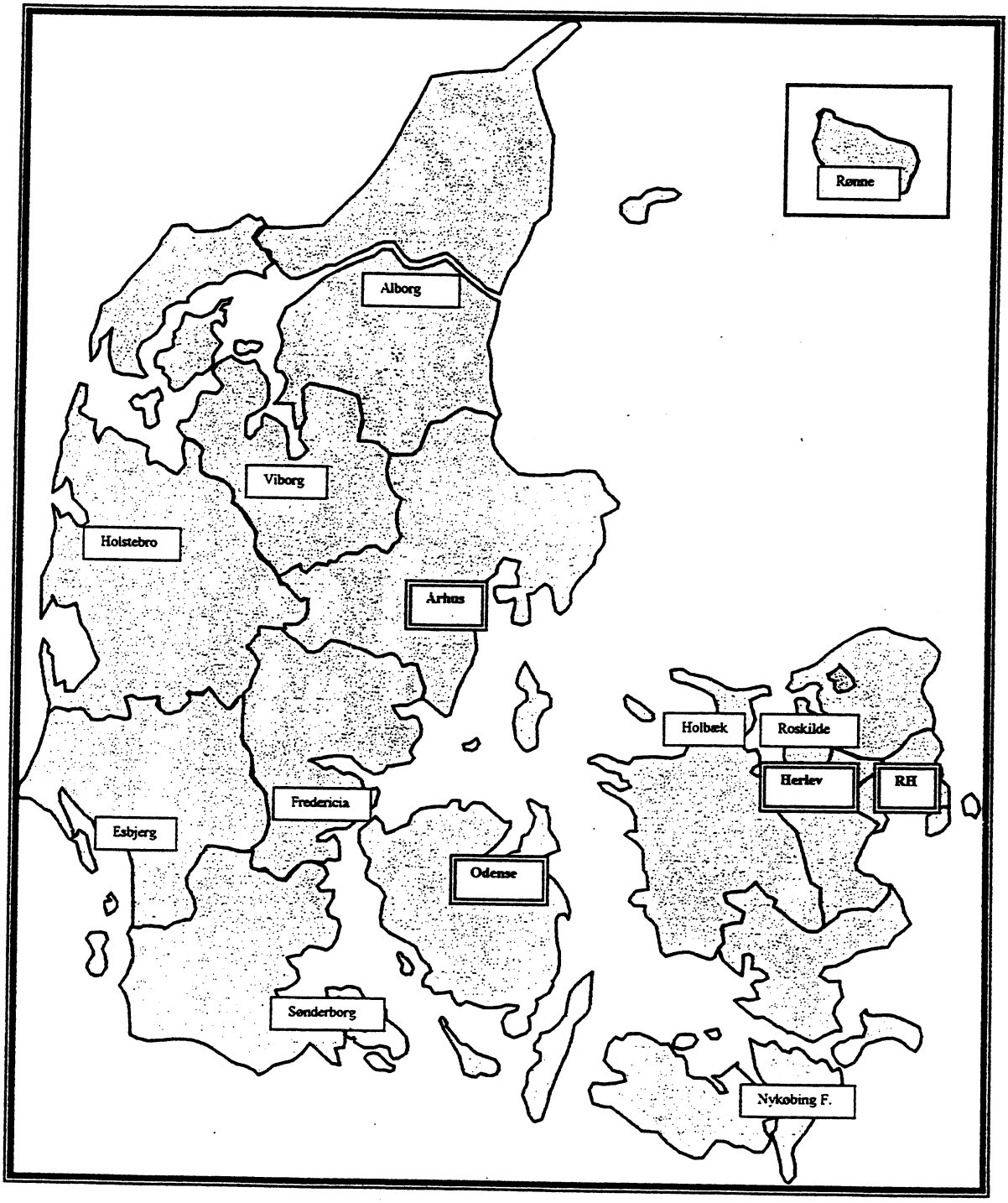
Peter Vestergaard: Dialysis and kidney transplant activity in Denamark between 1990 and 1999 and prognoses.

General information



Figur 1. Renal centres in Denmark 1999

Transplantation and dialysis: ▢

Dialysis only: ▢

Renal Centres and Population in Denmark

Transpl. Centre	County	Dialysis center	Population
Skejby	Århus	Skejby	631586
	Nordjylland	Ålborg	493114
	Ringkøbing	Holstebro	271978
	Viborg	Viborg	233143
	Total Skejby		**1629821**
Odense	Fyn	Odense	471873
	Ribe	Esbjerg	223818
	Sønderjylland	Sønderborg	253836
	Vejle	Fredericia	344507
	Total Odense		**1294054**
Herlev	Københavns amt	Herlev	
	Total Herlev		**610261**
Rigshospitalet RH	Bornholm	Rønne	44786
	Frederiksberg	RH	89507
	Frederiksborg	RH	359839
	Færørerne	RH	43754
	Grønland	RH	55971
	København	RH	487969
	Roskilde	Roskilde	228202
	Storstrøm	Nykøbing F	258295
	Vestsjælland	Holbæk	292146
	Total RH		**1860469**
Total population 01.01.98			**5394605**

Table 1. Population and renal centres in Denmark as of 010198.
Statistical Yearbook 1998

Prevalence of ESRD 1991 - 99

Patients in dialysis treatment or with a functioning graft

Treatment	1991	1992	1993	1994	1995	1996	1997	1998	1999
CAPD	341	342	380	384	389	379	406	410	471
CCPD	13	10	18	29	32	42	56	59	70
Center-IPD	29	26	23	21	21	18	13	11	11
Home-IPD	1	2	1	2	1	17	13	12	7
Center-HD	612	626	717	777	892	978	1058	1160	1297
Limited Care	37	38	42	43	52	62	56	65	62
Home-HD	21	17	16	17	15	13	9	7	9
In dialysis	1054	1061	1197	1273	1407	1509	1606	1724	1927
Home dialysis	376	371	415	432	442	451	484	488	557
PD	355	354	399	415	427	438	475	481	548
HD	21	17	16	17	15	13	9	7	9
Center dialysis	678	690	782	841	965	1058	1127	1236	1370
Transplated	925	1012	1084	1139	1172	1232	1255	1268	1331
[illegible]	1979	2073	2281	2412	2579	2741	2861	2992	3258

Table 2. Patients in therapy for ESRD 1991 - 99. The number of patients in dialysis treatment has increased steadily from 1991 through 1999. In 1999 the prevalence in Denmark of patients in dialysis treatment and with a functioning renal graft was 357 and 246 per million inhabitants, respectively.

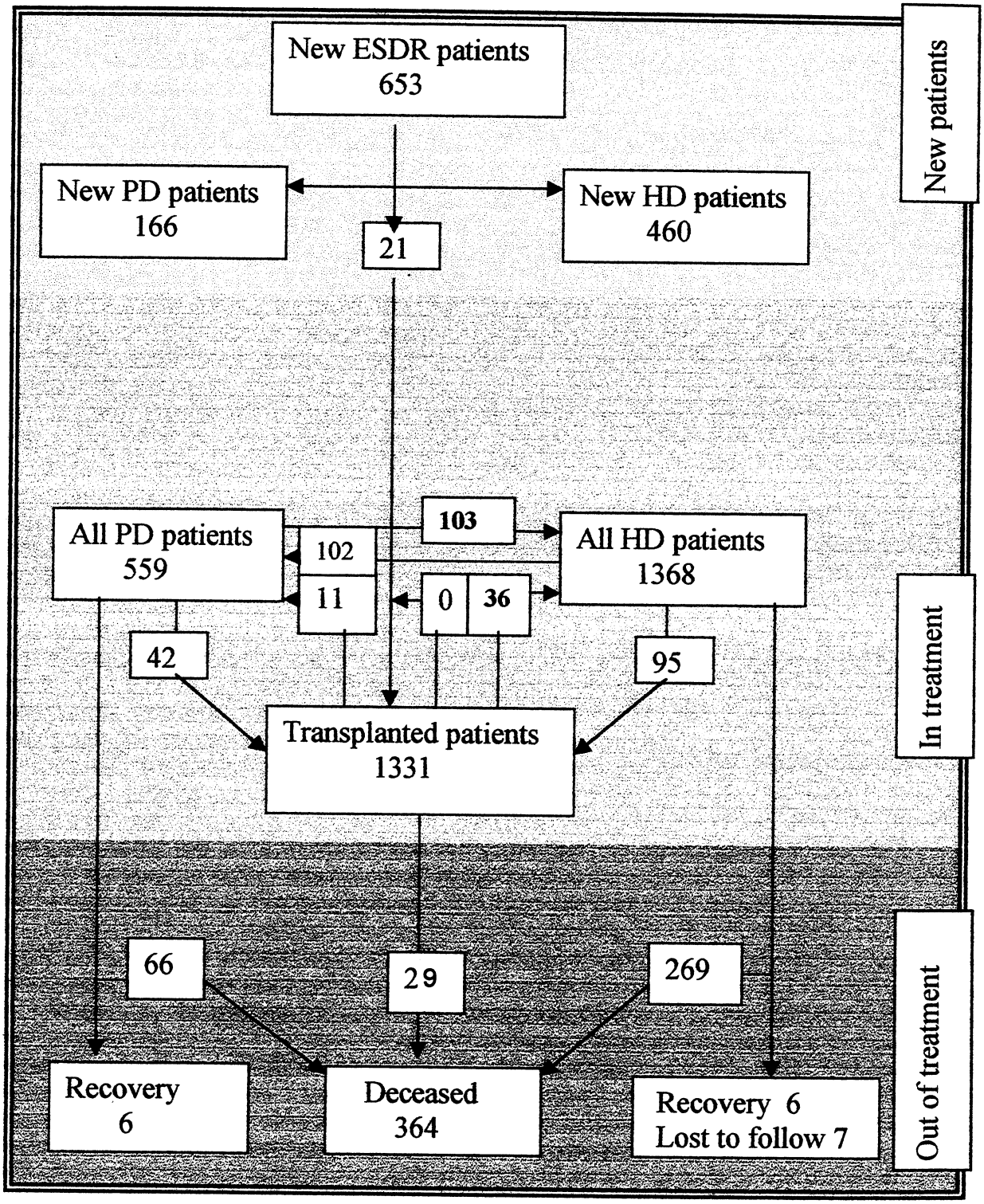


Table 3. Changes in the number of patients in therapy for ESRD during 1999 – status as of 31.12.99. Six hundred and fifty three patients started treatment (HD,PD,RAT) in 1999. At the end of the year 1927 patients were in dialysis treatment and 1331 had a functioning renal allograft.

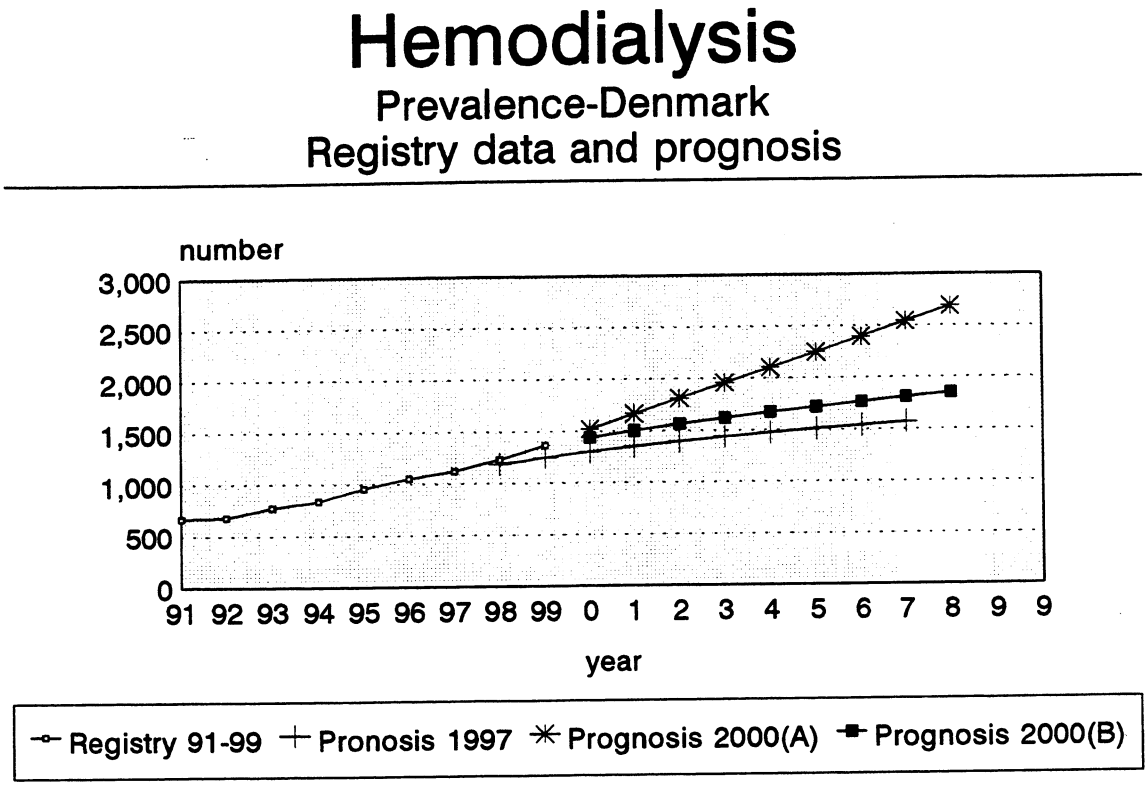


Figure 2

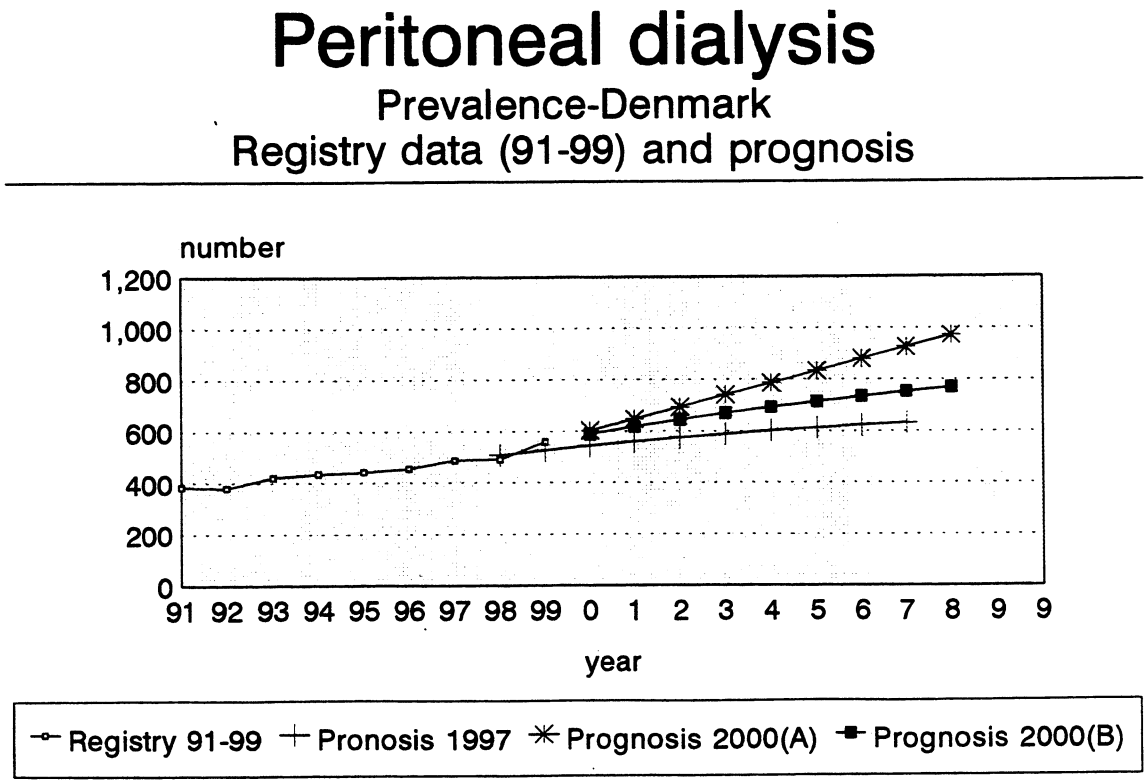


Figure 3

Renal transplantation

Prevalence-Denmark
Registry data (91-99) and prognosis

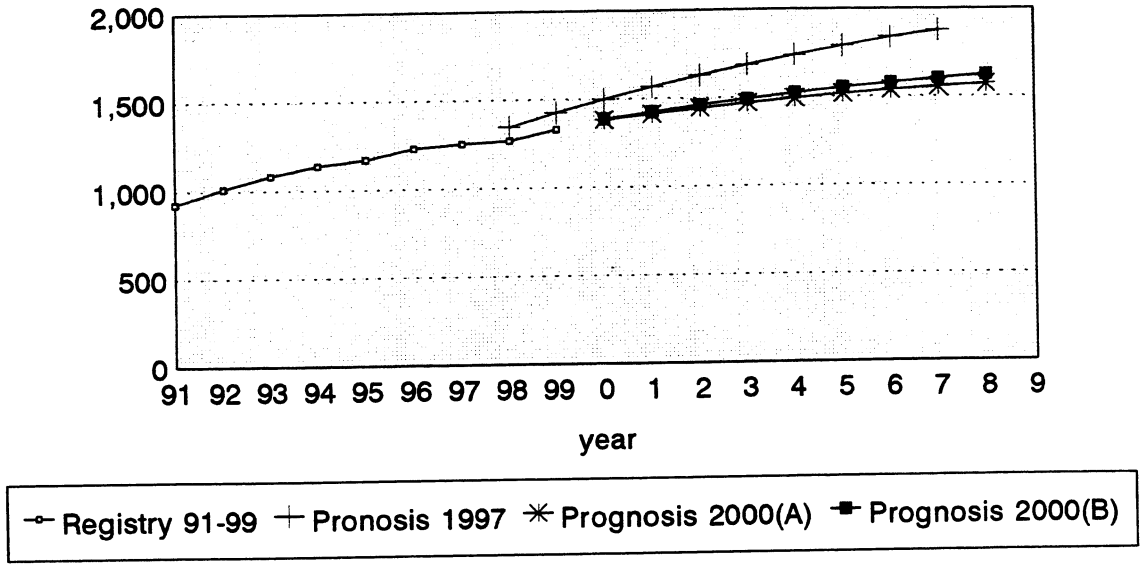


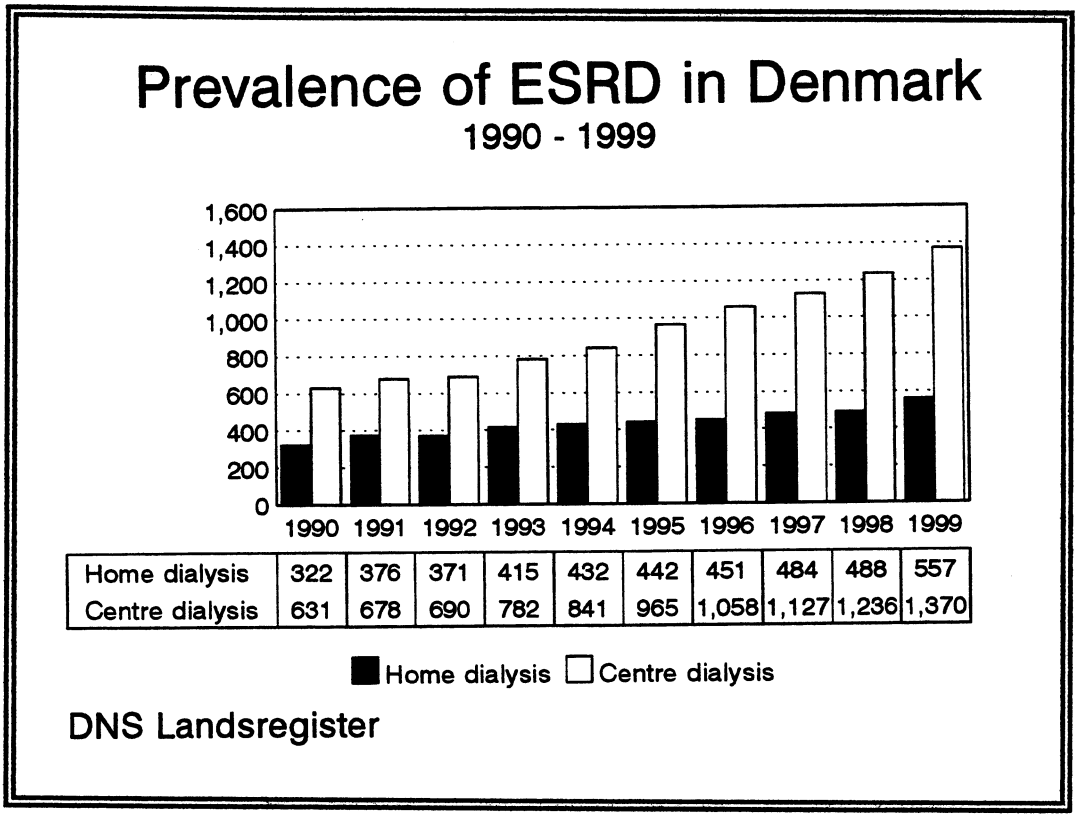
Figure 4.

Figure 2, 3 and 4. shows prognostic calculations concerning the number of hemodialysis- (HD) peritonealdialysis- PD) and transplanted (TX) patients. The calculations are based on data in the period from 1990 to 99 and made by Dr. Peter Vestergaard. (see scientific contribution)

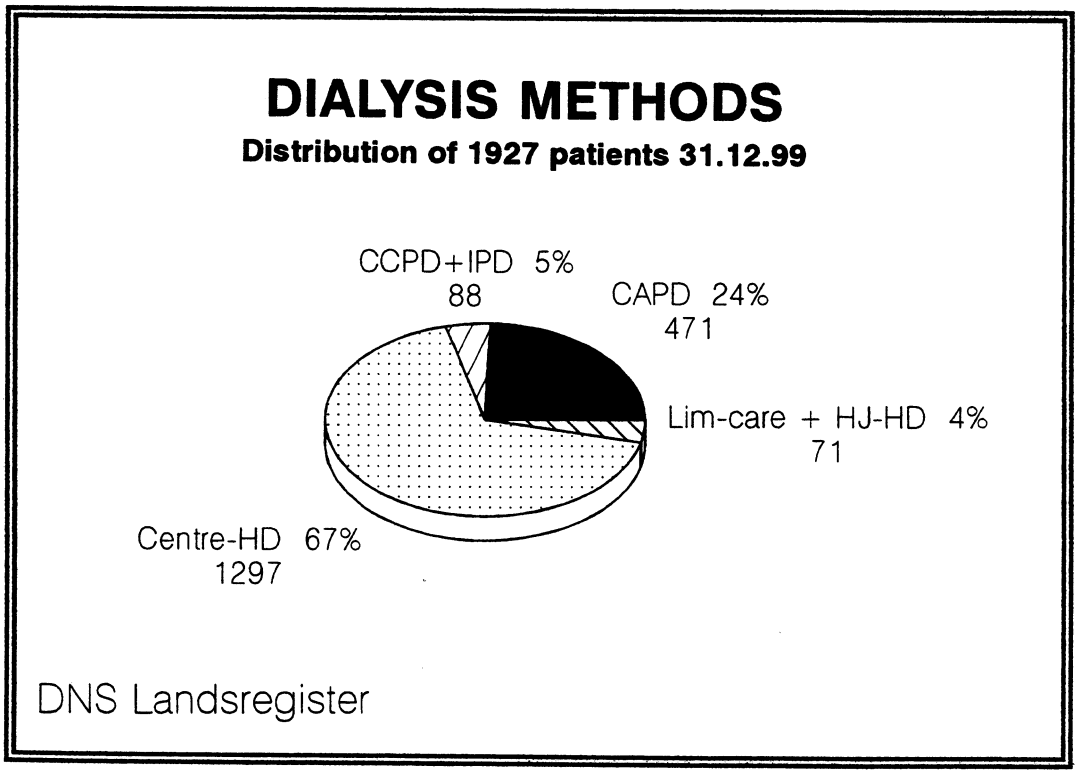
Three different prognosis are shown:

a. Prognosis based on the assumption, that the prognosis could be calculated from average values from earlier data (1990-97). The calculation was made in 1997 and shows the prognosis from 1998 to 2007. This assumption has been questioned during the last few years. Therefore two new models have been introduced this year.
b. Prognosis 2000A assumes an increasing incidence based on average values from the last three years and mortality from the same period.
c. Prognosis 2000B is based on average figures from the last three years without further increase in incidence and change in mortality.

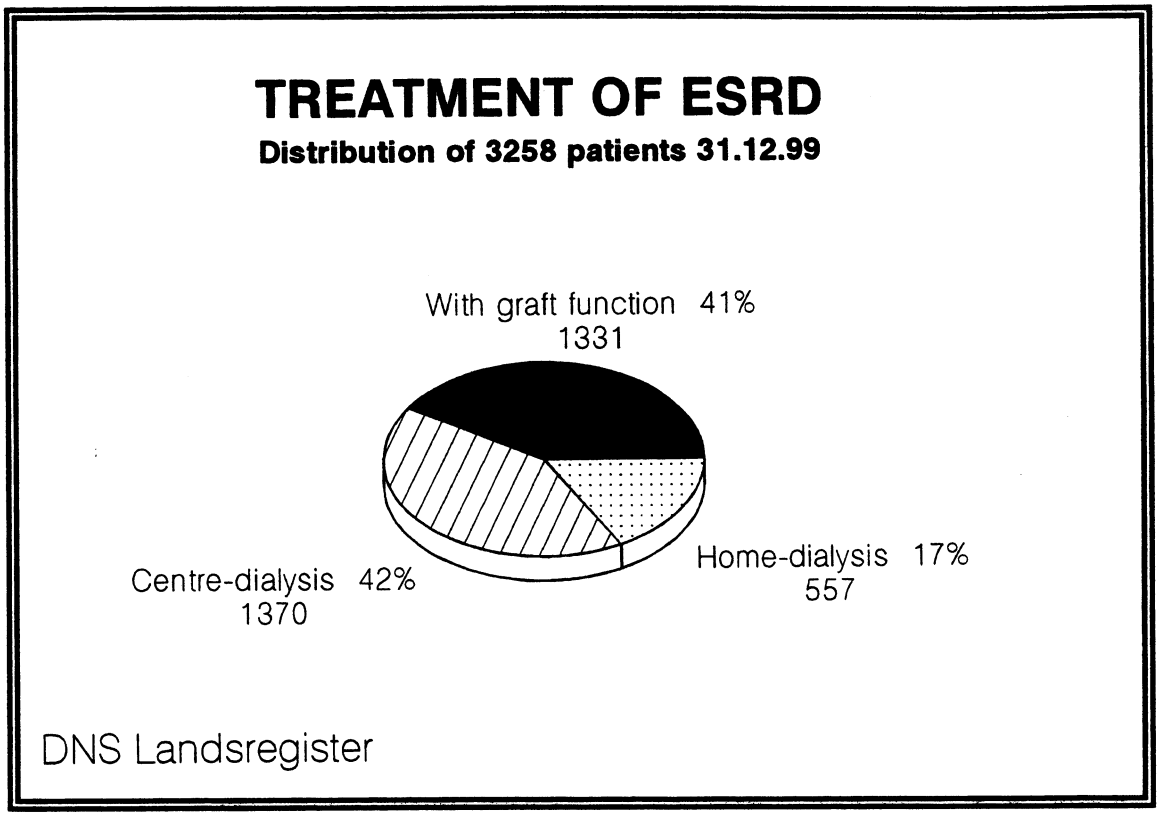
For further discussion see Peter Vestergaards report this year. The incidence and mortality rate is difficult to predict. Repeated calculations are necessary in the future.



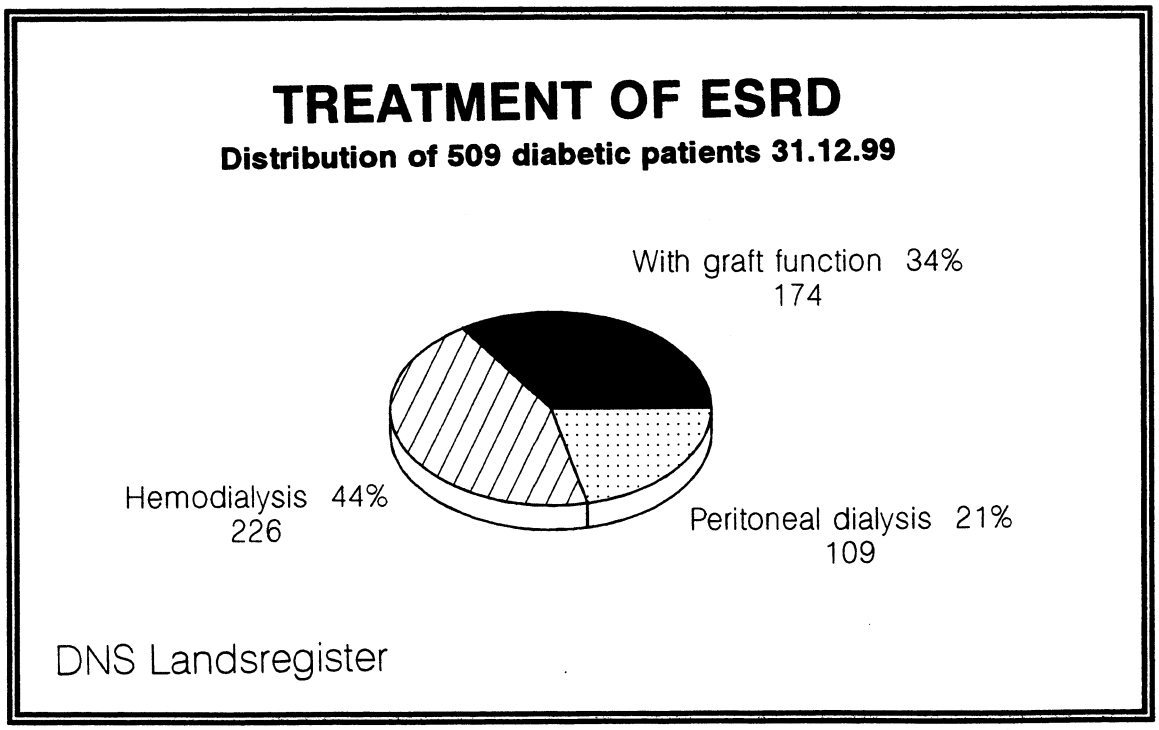
Figur 5.



Figur 6.



Figur 7.



Figur 8.

Incidence of ESRD

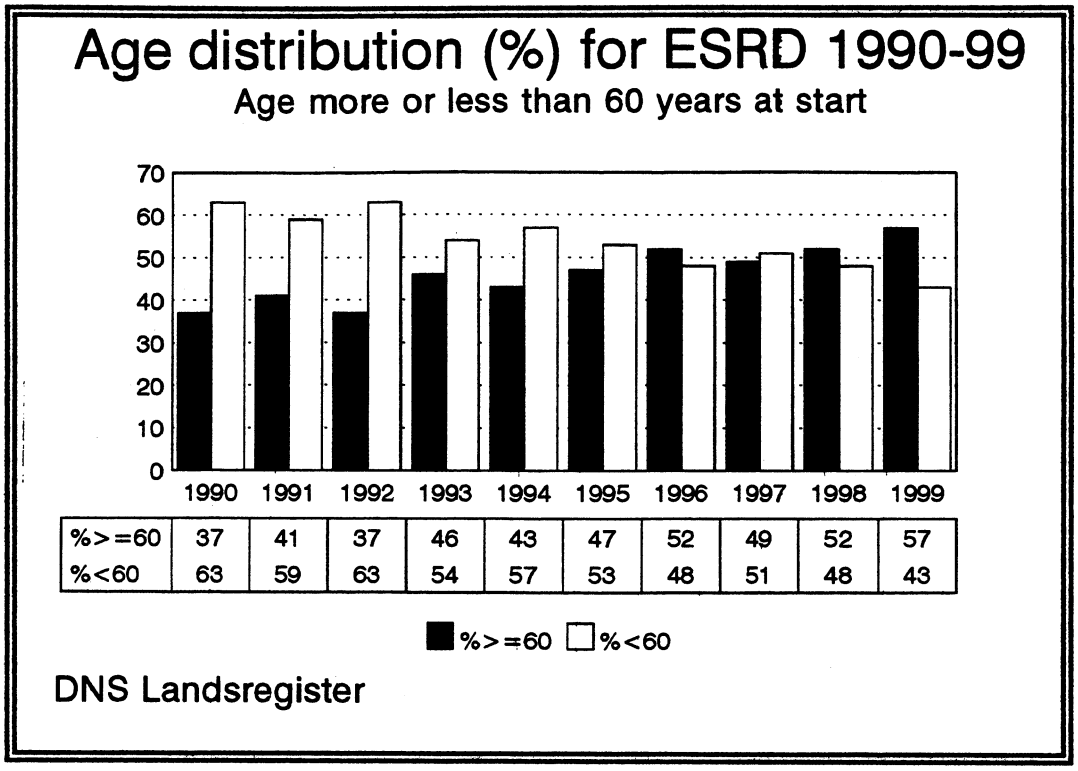
Centre	1990		1991		1992		1993		1994		1995		1996		1997		1998		1999	
	No.	Inc.	No.	Inc.	No.	Inc.	No.	Inc.	No.	Inc.	No.	Inc.	No.	Inc.	No.	Inc.	No.	Inc.	No.	Inc.
Esbjerg	10	46	6	27	15	68	25	114	13	59	13	57	17	77	19	85	17	76	32	143
Fredericia	14	42	21	63	17	51	26	79	25	75	29	86	26	77	31	91	33	96	42	122
Herlev	45	75	39	65	36	60	39	65	50	83	40	66	54	89	66	108	62	102	75	123
Holbæk					1	3			2	7	2	7	22	76	35	120	24	82	24	82
Holstebro	10	37	11	37	13	48	19	71	21	78	28	104	28	104	17	62	24	88	29	107
Hvidovre	33	60	48	87	39	71	59	107	43	78	49	88	68	121						
Odense	45	98	52	73	39	55	42	59	55	118	55	118	31	66	51	108	43	91	59	125
Rigshosp.	70	56	87	69	110	87	124	109	115	153	119	114	103	136	97	90	177	137	183	141
Roskilde							12	54	15	68	13	58	12	57	17	75	37	162	21	92
Rønne															1	22	6	136	5	111
Skejby	54	90	49	81	39	65	66	110	47	77	73	118	45	73	74	118	73	117	79	125
Sønderbg.											14	56	28	111	28	110	24	95	28	110
Viborg	19	83	18	78	13	56	26	113	26	113	25	109	19	85	25	107	19	82	22	94
Ålborg	30	62	34	69	38	77	54	111	32	66	48	98	56	114	41	85	48	98	54	110
Denmark	**330**	**63**	**365**	**70**	**360**	**69**	**492**	**94**	**445**	**86**	**508**	**97**	**510**	**98**	**539**	**100**	**587**	**104**	**653**	**121**

Table 4. New patients (number per million per year) 1990 – 1999 in the renal centres. The incidence in Denmark was rather stable from 1996 - 98 -about 100. In 1999 the incidence has increased to 121. Figure 9, 10 and 11 shows, that this is due to an increasing number of elderly patients .

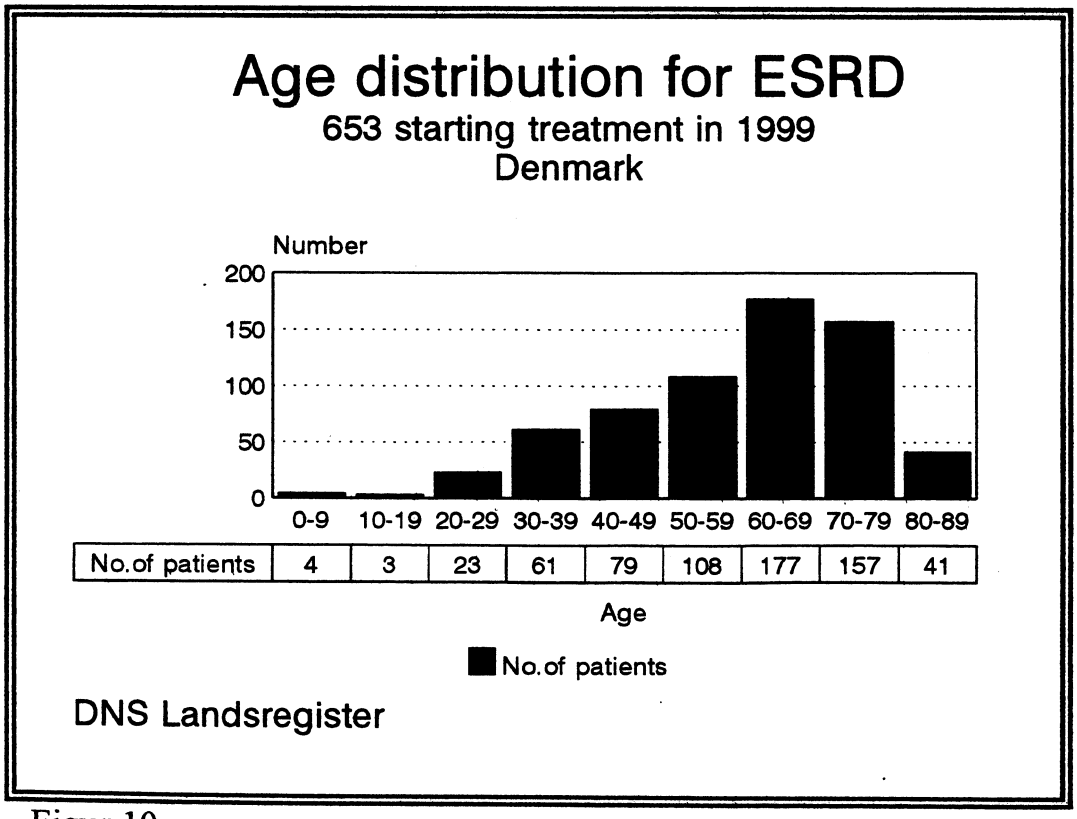
Age distribution 1990 - 99

1990	2	11	7	24	18	25	12	0	37
1991	3	7	9	17	23	25	16	0	41
1992	5	5	13	16	24	21	15	1	37
1993	3	5	9	17	21	26	19	1	46
1994	2	7	14	14	20	24	18	1	43
1995	3	8	9	16	17	26	20	1	47
1996	2	6	9	13	18	26	24	2	52
1997	2	5	10	12	22	24	23	2	49
1998	3	4	7	14	20	22	26	4	52
1999	1	4	9	12	17	27	24	6	57
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 5. Percentage age distribution of patients starting treatment for ESRD 1990-99. For comparison the age distribution of the Danish population is also indicated.



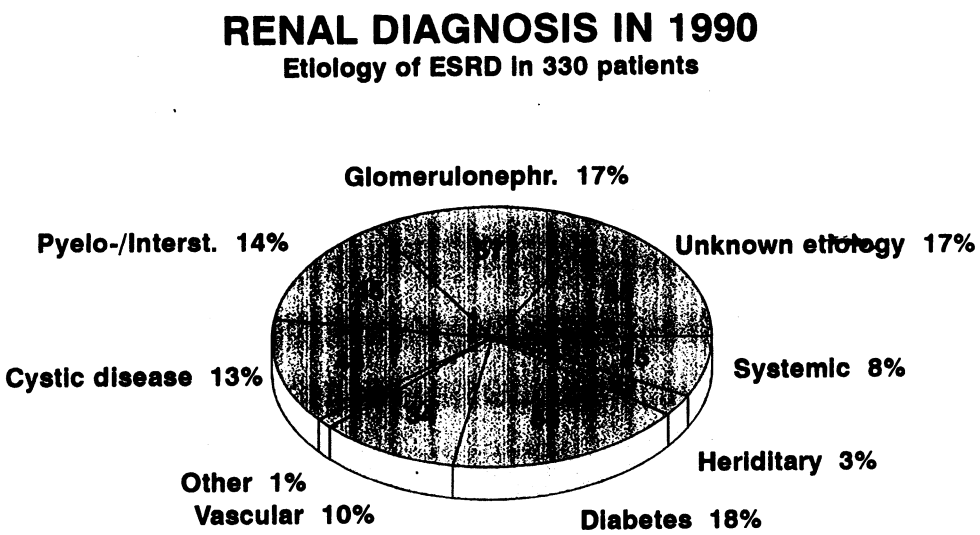
Figur 9.



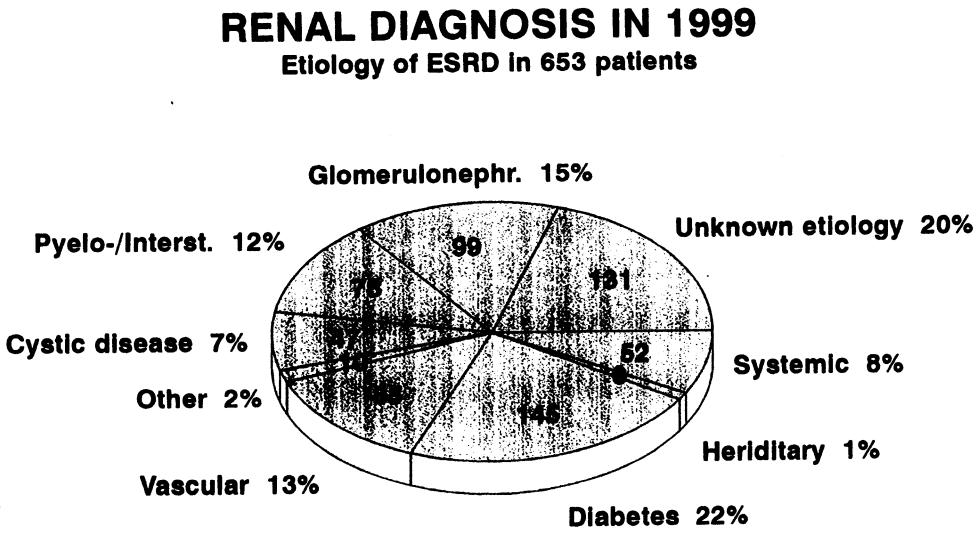
Figur 10.

Renal diagnosis in 1990 and 1999

Etiology of ESRD



DNS Landsregister



DNS Landsregister

Figur 11

Renal Diagnosis 1999

year / Renal diagnosis	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	All
ESRD,unknown causes	1	0	1	6	12	19	32	45	15	131
Glomerulonephritis	0	0	7	18	16	18	19	17	4	99
Pyelo/interst. nephritis	1	3	4	3	7	11	21	22	6	78
Cystic renal disease	0	0	0	3	10	13	11	7	3	47
Alport disease	0	0	0	0	0	0	0	0	0	0
Other heriditary disease	1	0	1	1	0	0	0	0	0	3
Renal hypoplasia	1	0	0	1	1	0	0	0	0	3
Renal vascular disease	0	0	1	3	4	7	37	28	5	85
Renal vasculitis	0	0	0	0	3	3	4	5	1	16
Diabetes (IDDM)	0	0	4	22	18	23	18	8	2	95
Diabetes (NIDDM)	0	0	0	2	2	8	23	12	3	50
Systemic disease	0	0	6	1	3	6	9	10	1	36
Other renal diseases	0	0	0	1	2	0	3	3	1	10
Sum	4	3	24	61	78	108	177	157	41	653

Table 6. Renal diagnosis in 653 patients starting treatment for ESRD in 1999. The patients are stratified according to age.

Renal diagnosis 1990 - 1999

Year / Renal diagnosis	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	SUM
ESRD,unknown causes	55	61	62	81	76	82	103	110	105	131	866
Glomerulonephritis	57	68	67	81	69	82	74	72	85	99	754
Pyelo/interst. Nephritis	45	59	57	76	59	67	58	72	81	78	652
Cystic renal disease	43	33	30	47	34	43	37	40	45	47	399
Alport disease	4	3	2	2	2	1	4	2	1	0	21
Other heriditary disease	4	3	2	4	1	6	2	4	4	3	33
Renal hypoplasia	1	6	1	6	4	4	1	3	6	3	35
Renal vascular disease	34	44	36	57	60	68	58	58	79	85	579
Renal vasculitis	5	3	0	6	10	13	17	15	12	16	97
Diabetes (IDDM)	52	53	63	76	69	73	73	65	79	95	698
Diabetes (NIDDM)	6	13	9	23	24	40	41	43	37	50	286
Systemic disease	20	13	26	18	24	22	33	34	32	36	258
Other renal diseases	4	6	5	15	13	7	9	21	21	10	111
Sum	330	365	360	492	445	508	510	539	587	653	4789

Table 7. Renal diagnosis in patients starting treatment 1990 - 1999.

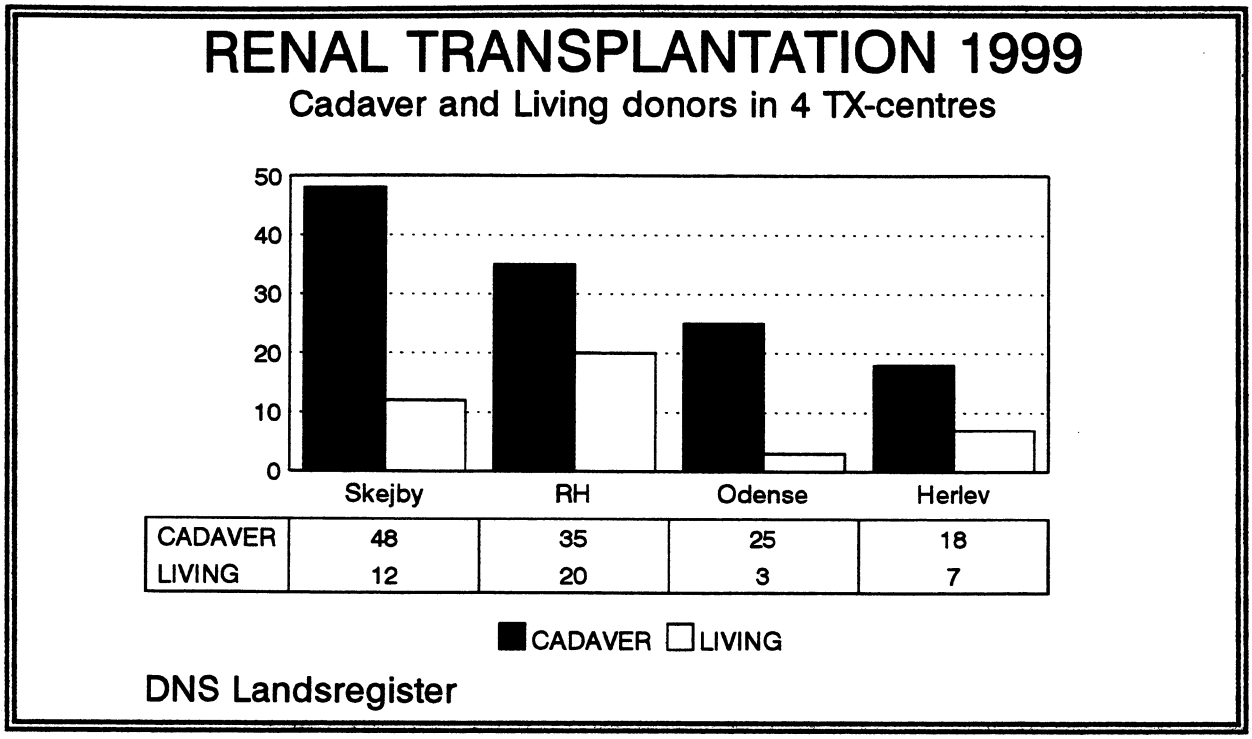
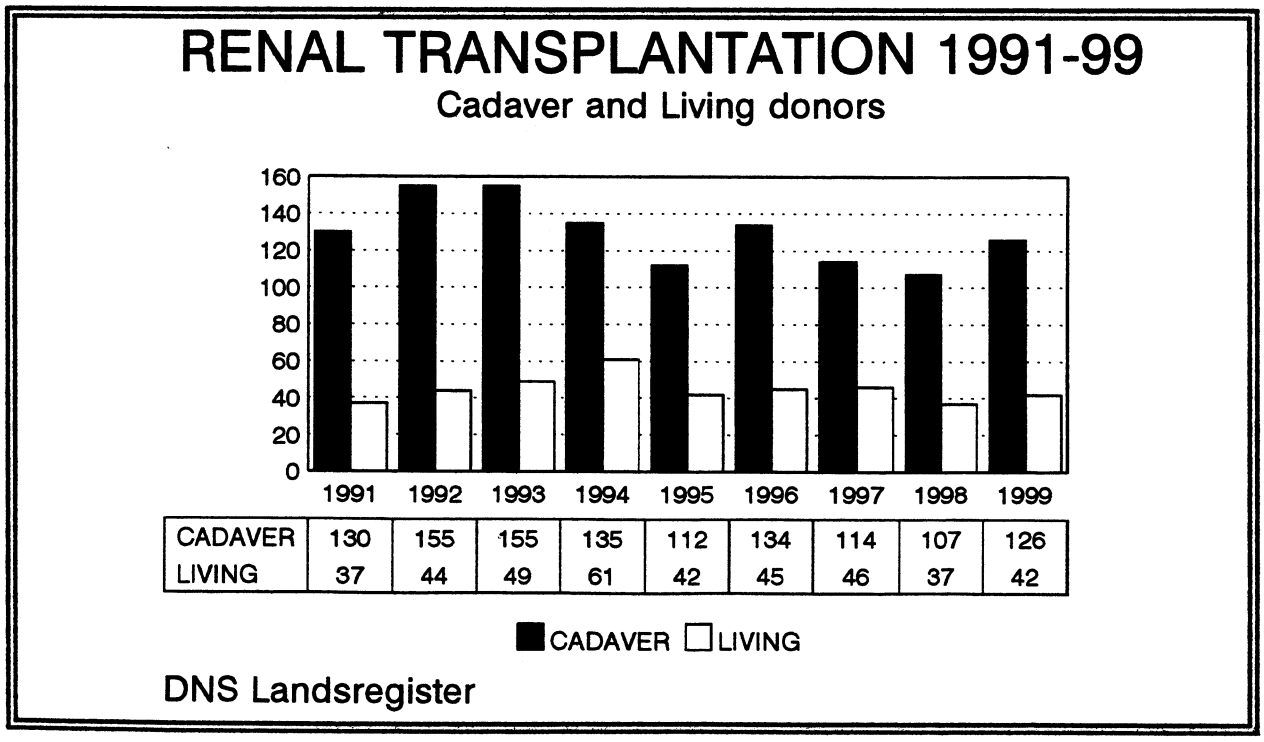
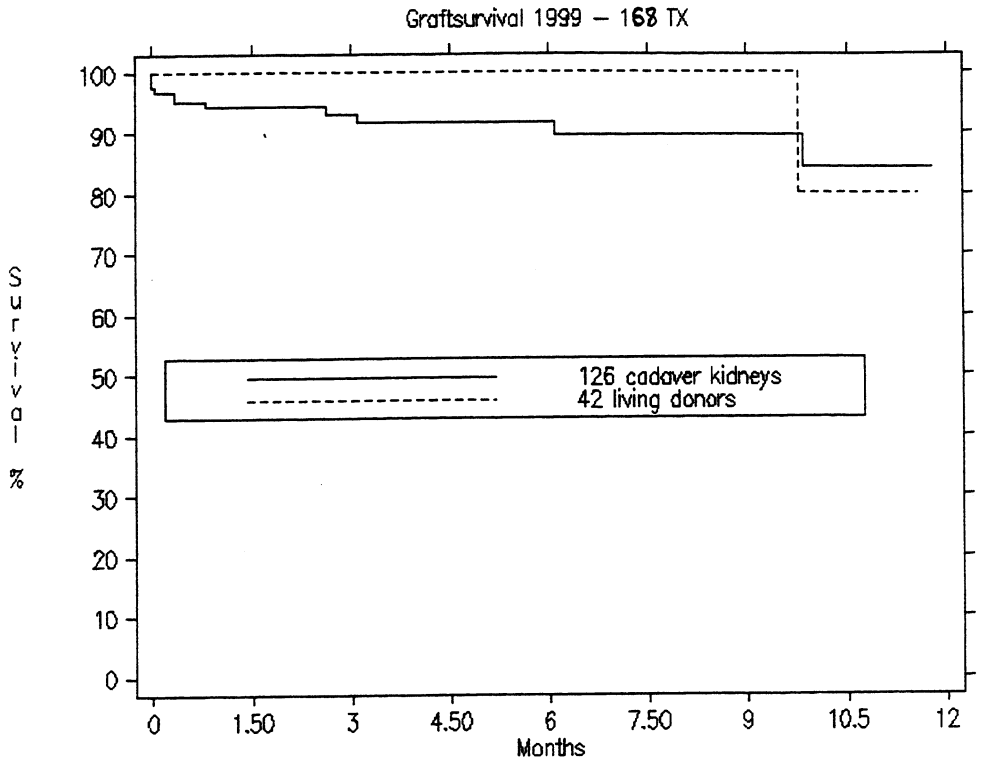


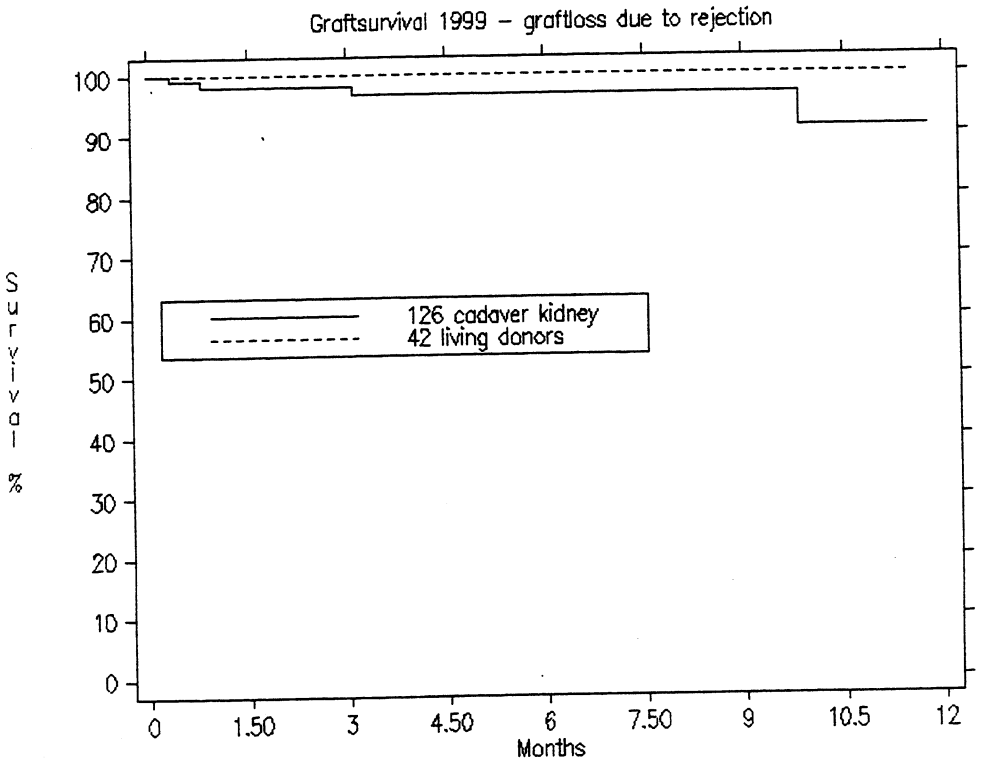
Figure 12.



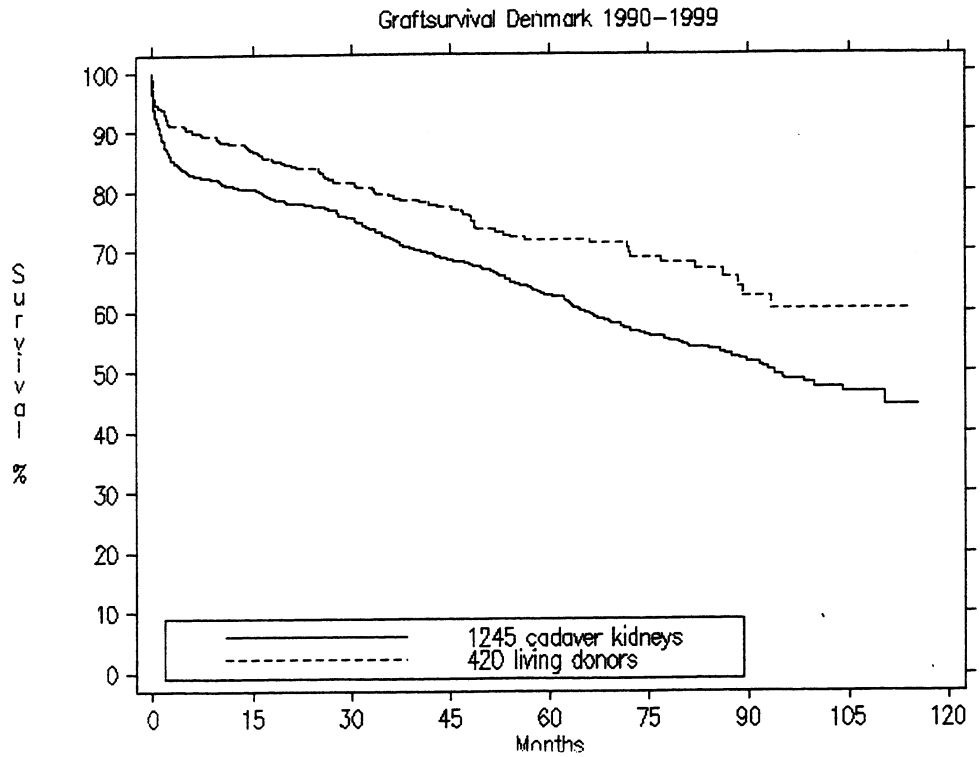
Figur 13.



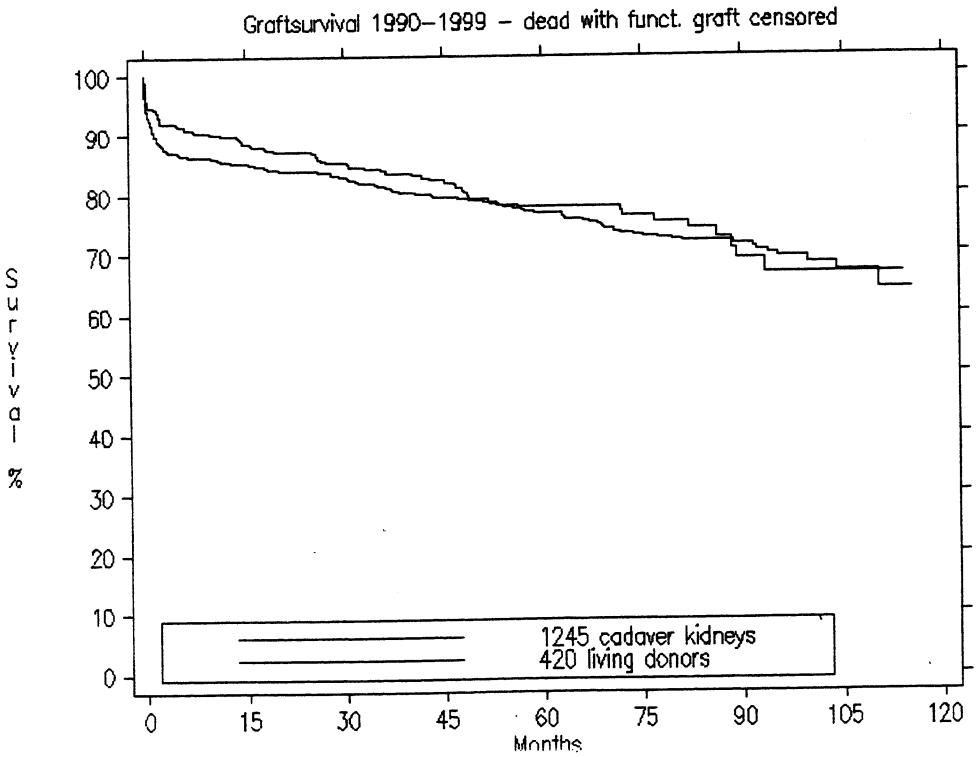
Figur 14



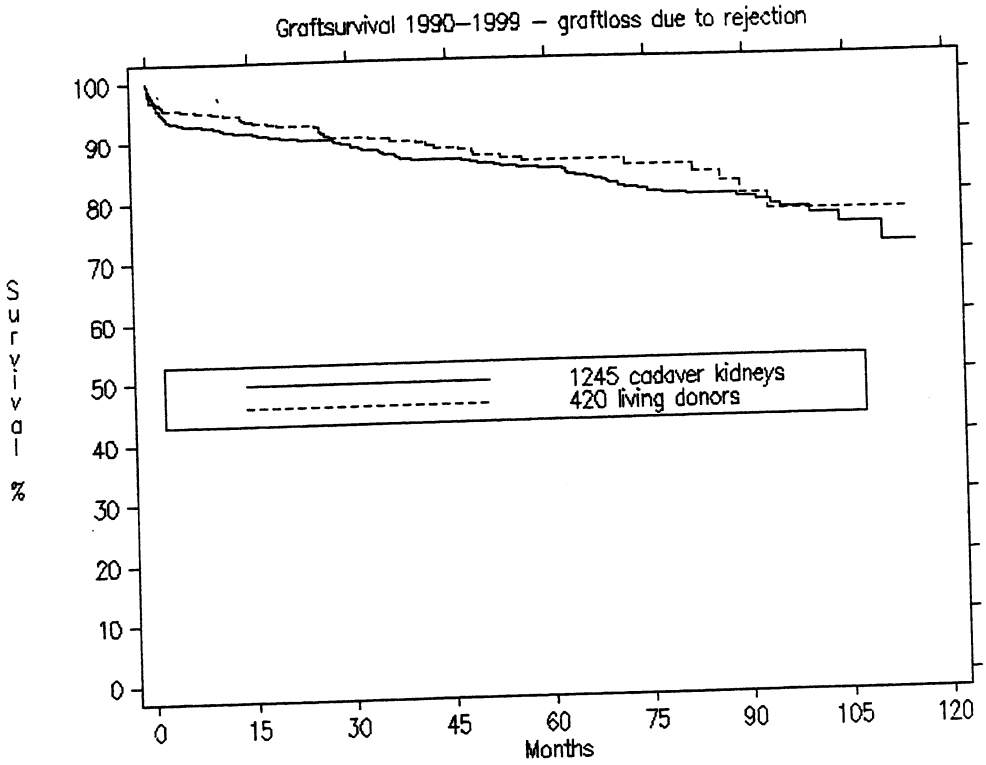
Figur 15



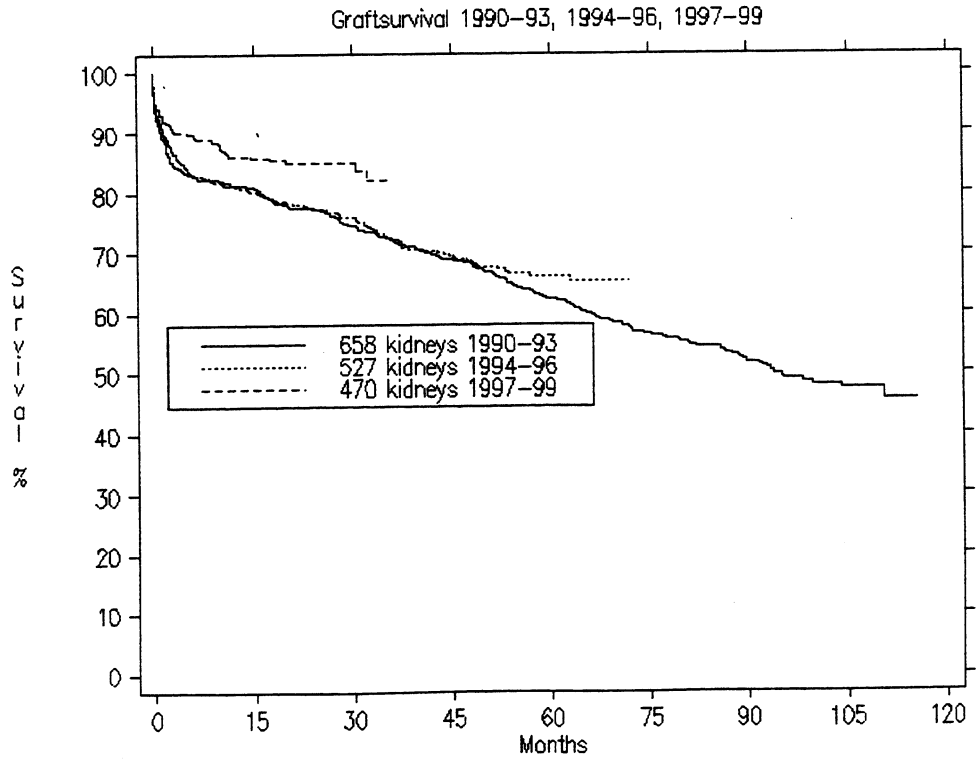
Figur 16



Figur 17



Figur 18



Figur 19

Renal transplantation 1991 - 1999

Renal transplantation 1991 - 1999									
	Cadaver kidney				Living donor kidney				
Year	1	2	3	4	1	2	3	4	Sum
1991	98	25	7	0	25	9	1	2	167
1992	115	32	7	1	33	8	3	0	199
1993	121	25	9	0	39	7	3	0	204
1994	98	26	7	4	53	6	1	1	196
1995	94	10	8	0	35	6	1	0	154
1996	105	22	7	0	44	1	0	0	179
1997	89	19	5	1	42	3	0	1	160
1998	78	22	4	2	36	1	0	0	143
1999	96	19	10	1	37	5	0	0	168

Table 8. Renal transplantations 1991 – 1999, stratified according to source of donor organ, transplantation number (1-4) and year of transplantation.

Renal transplantation 1999									
	Cadaver kidney				Living donor kidney				
Center	1	2	3	4	1	2	3	4	Sum
Skejby	32	12	3	1	9	3	0	0	60
RH	31	0	4	0	19	1	0	0	55
Odense	16	6	3	0	2	1	0	0	28
Herlev	17	1	0	0	7	0	0	0	25
Total	96	19	10	1	37	5	0	0	168

Table 9. Renal transplantations 1997, stratified according to source of organ donor organ, transplantation number (1-4) and transplantation center.

Living donor – relation between donor and recipient

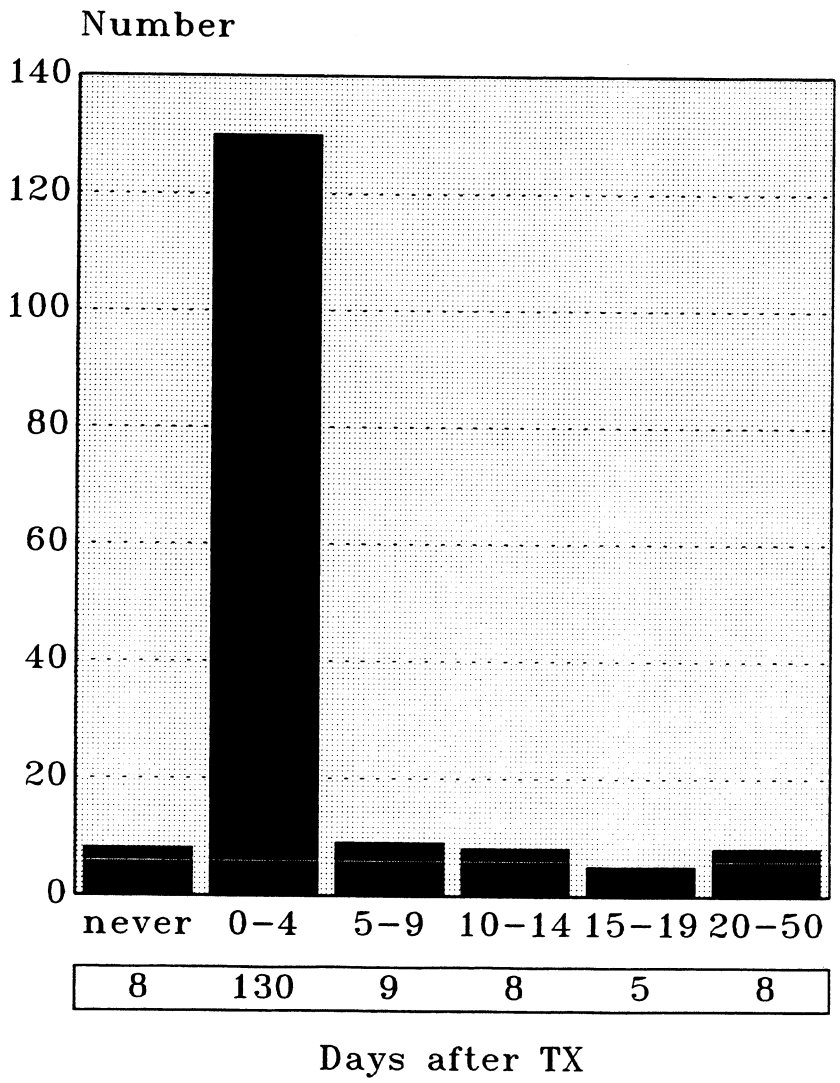
Year	Parents	Siblings				Other related	Unre-lated	Sum
		Shared haplotypes			Ident. twins			
		2	1	0				
1991	16	12	8	0	0	1	0	37
1992	27	6	4	1	0	4	2	44
1993	20	10	7	1	1	7	3	49
1994	31	10	12	2	1	3	2	61
1995	26	4	4	0	0	5	3	42
1996	29	3	6	2	1	1	3	45
1997	26	12	6	0	1	0	1	46
1998	17	8	10	0	0	0	2	37
1999	26	2	4	2	0	5	3	42

Table 10. Transplantation with living donor kidneys 1991 – 1999. Stratified according to donor – recipient relationship and year of transplantation.

TX follow up centres

Center	No	Center	No.
Esbjerg	7	Rigshosp.	405
Fredericia	2	Roskilde	22
Herlev	231	Rønne	0
Holbæk	23	Sønderb.	1
Holstebro	34	Viborg	54
Nykøbing F	0	Aalborg	106
Odense	200	Aarhus	246

Table 11. The distribution of ambulant control of 1331 renal transplanted patients in 14 nephrological centres. It can be seen, that most neprological centres are involved in controlling stable renal transplant patients. The four transplantation centres are marked.



Renal Transplantation 1999 - Never functioning grafts		
Thrombosis/infection	Rejection	No funct. 311299
5	2	1

Figur 20 Onset of function in 168 renal transplantation in 1999. The reason for non-functioning kidneys is given.

	Hemodialysis	P-dialysis	Renal-Tx
Cardiac	120	34	17
Vascular	45	11	4
Infection	47	11	1
Malignancy	16	0	4
Other causes	41	10	3

Table 12. Causes of death in 364 patients, who died in 1999. Cardiac includes acute myocardial infarction, hyper- and hypokalaemia, hypertensive heart failure, fluid overload and cardiac arrest of unknown causes. Vascular causes includes mainly cerebrovascular disease. Infection includes all bacterial and viral diseases.

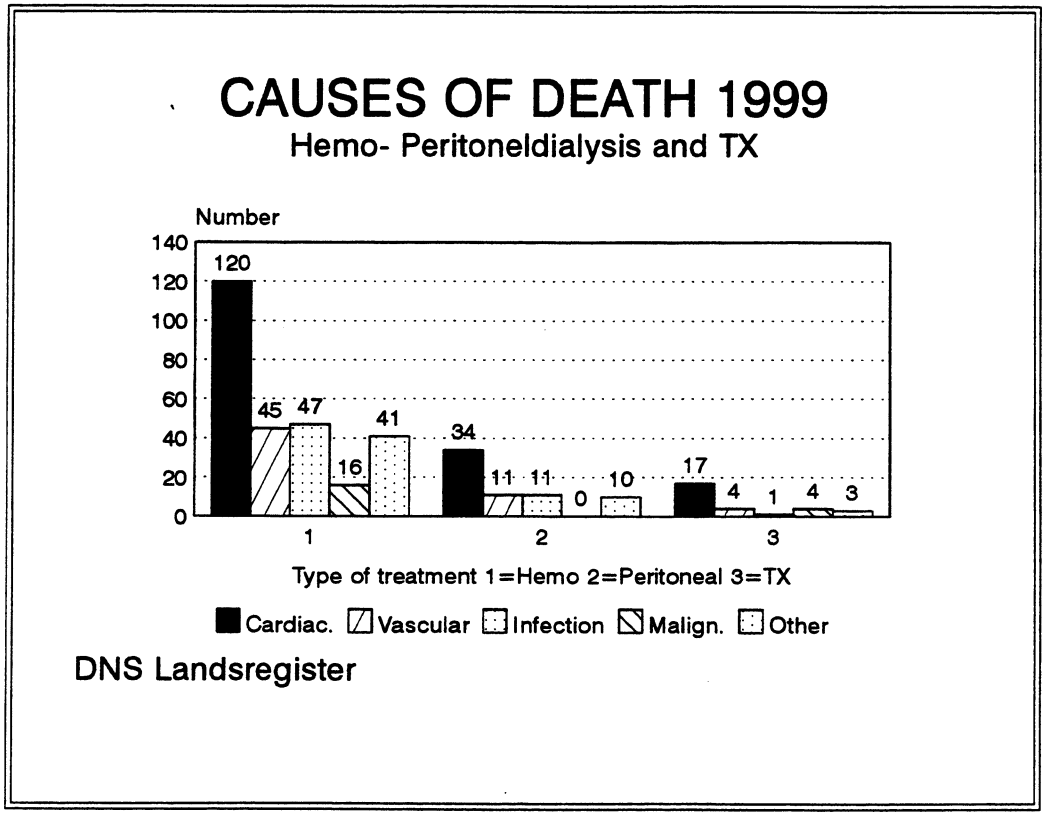
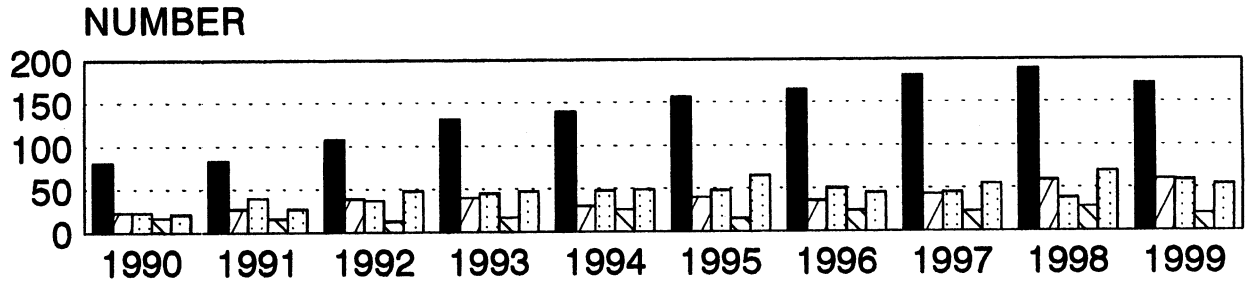


Figure 21 Causes of death in 364 patients died in 1999.

CAUSES OF DEATH

1990-1999
Denmark



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Cardiac.	81	83	108	131	139	156	164	181	188	171
Vascular	23	27	39	40	30	40	36	43	59	60
Infection	23	40	37	45	48	48	50	45	38	59
Malign.	17	16	13	17	26	15	24	23	28	20
Other	21	27	48	47	49	65	45	55	69	54

Cardiac. Vascular Infection Malign. Other

DNS Landsregister

Figur 22

Death rate 1999

Hemodialysis:

New patients starting HD in 1999	=	460
Patients continuing HD from 1999	=	1232
Dead	=	269
Number of patients alive 311299	=	1368
Total HD patients for calculation	=	1637

Death rate = 17%

Peritoneal dialysis:

New patients starting PD in 1999	=	166
Patients continuing PD from 1998	=	492
Dead	=	66
Number of patients alive 311299	=	599
Total PD - patients for calculation	=	665

Death rate = 11%

Renal transplantation:

New patients transplanted in 1999	=	168
TX-patients continuing from 1998	=	1268
Dead	=	29
Patients alive 311299	=	1331
Total TX-patients for calculations	=	1360

Death rate = 2%

Comments: In contrast to the corresponding figures in the 1998 report, the above calculations consider the migration between the different treatment modalities. For further discussion about the method, read Peter Vestergaards scientific contribution.

References:

1. Vestergaard P and Løkkegaard H : Future trends in Danish renal replacement population. In: Løkkegaard H and Fugleberg S : Danish National Registry. Report on Dialysis and Transplantation in Denmark 1995.
2. Vestergaard P. Løkkegaard H: Predicting future trends in the number of patients on renal replacement therapy in Denmark. Nephrol Dial Transplant 1997; 12: 2117-23.
3. Vestergaard P : A prognosis for the number of patients on hemodialysis, peritoneal dialysis and renal transplantation in Denmark. Danish National Registry. Report on Dialysis and Transplantation in Denmark 1997.

Dialysis and kidney transplant activity in Denmark between 1990 and 1999, and prognoses

Peter Vestergaard

Background:
The present work is based on two previous prognoses. The first prognosis used the figures for incidence and migrations between treatment modalities for the period 1990 to 1995 (Danish Society for Nephrology, Report for 1995). It used assumptions concerning the number of patients entering and leaving hemodialysis (HD) and peritoneal dialysis (PD). The calculations were made separately for HD and PD. This prognosis predicted an increase in the number of patients in active treatment with renal replacement therapy (RRT) even with an unchanged incidence of new patients.

The second prognosis was based on the period 1990 to 1997 and did - in contrast to the first prognosis - consider the migrations between the different treatment modalities (HD, PD and patients with renal grafts). The predictions made using this prognosis were rather close to the actual figures for 1998 while a larger number of HD patients than expected were seen in 1999.

This deviation was the basis for a more detailed analysis of the recent changes in the incidence of new patients on RRT and the migrations between the different treatment modalities.

Prognoses:
The prognostic model uses the assumption that the number of patients in treatment in a given year is the sum of new patients minus the number of patients leaving therapy plus the number in therapy in the previous year. Assuming that 100 patients were on RRT in a given year and that 10 new patients entered therapy during the following year while 5 patients left therapy, the number of patients in therapy the following year must be: 100 + 10 - 5 = 105.
It is assumed that the number leaving therapy can be described as a constant fraction of those in therapy. E.g. assuming that 5% of patients die each year, 0.05 * 100 = 5 will die out of the 100 in treatment.

Analysis of the incidence and migrations between 1990 and 1999:
1) Incidence of new patients:
Previous analyses pointed at an increase in the number of new patients starting therapy, in particular in the group of patients aged 60 years or more. This resulted in a larger fraction of new patients being 60 years or more.
From 1990 to 1999, the incidence rate of new patients per million inhabitants increased almost linearly in the age group 60 years or more (fig. 1). In the age group less than 60 years, the increase was less pronounced but still approximately linear (fig. 1).
In the age group 60 years or more, the incidence rate increased by approximately 25 per million per year for each year (from 120 per million per year in 1990 to approximately 360 per million per year in 1999). The squared Pearson correlation coefficient for a linear association was 0.93, i.e. a high degree of explanation.
In the age group less than 60 years, the incidence rate increased by 1.5 per million per year for each year (from approximately 50 in 1990 to approximately 65 in 1999). The squared Pearson correlation coefficient was 0.67 for this linear relationship.

Prognoses:
The prior prognoses were based on an assumption that the future incidence and migrations would be close to the average of the past incidence and migrations. As these assumptions were not met - especially in the last three years - new considerations were needed concerning the direction of the future incidence and migrations.
These considerations gave rise to two suggestions for prognostic models:
1) The incidence of new patients will continue to increase linearly both for patients less than 60 years and for patients 60 years or more as demonstrated in fig. 1. The mortality in patients 60 years or more in HD will continue as the average of the last three years.
The result of these considerations is the prognosis shown in table 1. With these assumptions the incidence rate of new patients would increase from approximately 133 per million inhabitants in the year 2000 to approximately 193 per million inhabitants in 2008.
2) The average of the last three years concerning incidence and mortality can be used to describe the future development. This will result in the prognosis shown in table 2.

Discussion:
The predicted number of patients in therapy is considerably larger in table 1 than in table 2. Even over a short period of time a marked increase in the number of patients in therapy can be expected. It should be noted that the increase in the number of new patients in scenario 1 would only lead to incidence rates close to those seen in other countries in Europe.
With the detailed registration of patients on RRT and the long follow-up period, the National Registry yields a good possibility to describe the changes in incidence and model the expected future development in the number of patients on RRT.

Fig. 1: Incidence rate of new patients expressed as number of patients per million inhabitants in actual age group in each year.

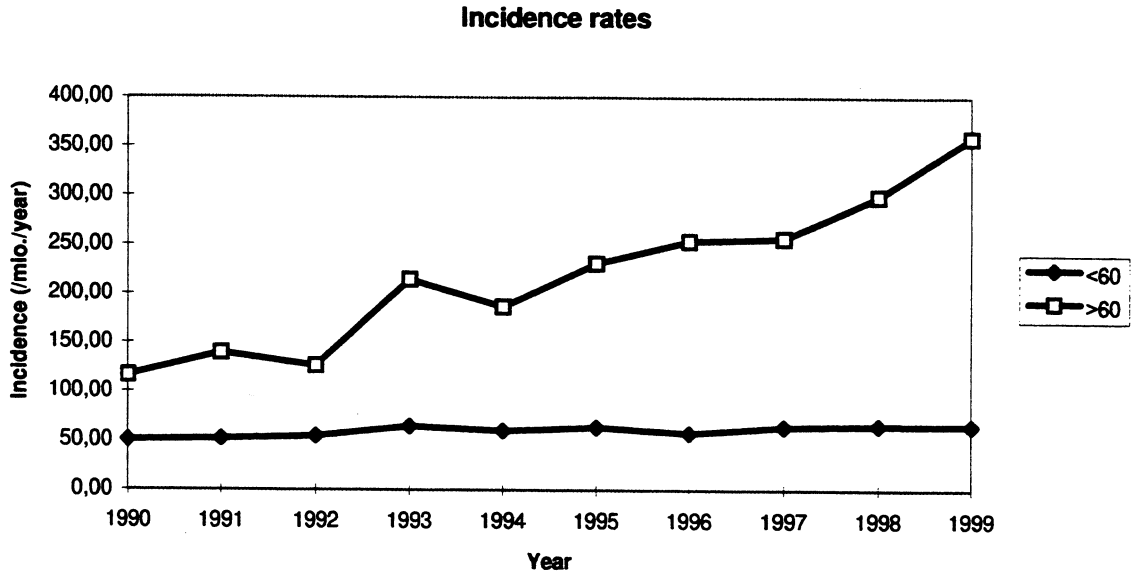


Table 1: Expected total number of patients in treatment per January 1 in each year. This prognosis was based on the assumption that the incidence of new patients would increase linearly while the mortality in HD patients 60 years or more would be the average of the last three years. HD: hemodialysis, PD: peritoneal dialysis, T: patients alive with a functioning renal graft.

Year	HD	PD	T	Total
2001	1519	602	1382	3503
2002	1664	647	1413	3725
2003	1810	693	1443	3946
2004	1957	740	1469	4165
2005	2103	786	1494	4383
2006	2250	833	1516	4599
2007	2397	880	1537	4813
2008	2543	926	1555	5025
2009	2689	972	1572	5234

Table 2: Expected total number of patients in treatment per January 1 in each year. The assumptions were that the incidence and mortality would be the average of the last three years. HD: hemodialysis, PD: peritoneal dialysis, T: patients alive with a functioning renal graft.

Year	HD	PD	T	Total
2001	1440	589	1387	3416
2002	1502	617	1424	3544
2003	1562	644	1460	3665
2004	1618	669	1492	3778
2005	1670	692	1523	3885
2006	1719	714	1551	3984
2007	1765	734	1578	4077
2008	1808	753	1602	4163
2009	1848	770	1625	4244

Landsregister for patienter
i aktiv behandling for
kronisk nyresvigt
Rapport for Danmark 1999
ISBN NR 87-7774-110-2
Tryk: Paritas Grafik A/S