

Rapport Activités du Collège – 2019

Rapport national du GNFB et du NBVN pour le collège de médecins pour le centre de traitement de l'insuffisance rénale chronique Janvier 2010 – Janvier 2019

1. Prevalence of adults and children treated with renal replacement therapy in Belgium

On January 1, 2019, 15004 adults were treated in Belgium with renal replacement therapy, either with dialysis or living with a functioning renal transplant [Table 1]. This corresponds to a prevalence of about 1312 per million inhabitants (ppm). The number of patients with a functional renal transplant [44%] still stays below that of dialysis patients [56%].

There is a positive growth of the prevalent dialysis patients over the last years, but at a very undulating rate rather than a constant rate. In the transplant population, the annual growth percentage is rather constant : 2.0 à 3.0%. The number of adult dialysis patients per million inhabitants - 729 ppm – is comparable between the NBVN and GNFB registries.

It is important to mention that the Belgian nephrologists do not only dialyze patients, but also care for the transplanted patients. In all prevalent age-categories below 65 years, there are more patients living a functional transplant than treated with dialysis. Not surprisingly, the ratio is inverse above the age of 75 years, as patients older than 70 years are rarely being for a successful transplantation and transplants do not last forever [Figure 1]

With respect to peritoneal dialysis, the absolute number stays rather constant – about 620 patients, but, due to the rise of hemodialysis patients, the PD contribution progressively decreases. This trend is noticeable everywhere in Europe. Possible causes are an increasingly aging population with a corresponding lower medical fitness, reduced self-reliance or reduced interest; and / or the emergence of live donor kidney transplantation, prior to the start of dialysis [pre-emptive] or after the start of dialysis, particularly in the younger age groups.

So-called low cost dialysis therapies are on the rise, upon the request of the Ministry of Health. It is too early to give an estimate of (higher) survival and (better) quality of life.

The last available aggregated pediatric data with regard to renal replacement therapy in Belgium [age 0-18 years] date from 2018; no data were forwarded by the Hôpital Universitaire des Enfants Reine Fabiola.

During the last years, about 20 children are on chronic dialysis (10 in hemodialysis, 10 in peritoneal dialysis), while on average 90 children are living a functional renal transplant.

2. Inflow of adults in renal replacement therapy

Following a downward trend between 2009 and 2014, the annual number of new patients with end-stage renal failure who start with renal replacement therapy is rising again [Table 2].

The number of preemptive kidney transplants (ie transplantation without a prior dialysis period) in adults remains negligibly small.

3. Outflow of adults out of dialysis

3.1. Mortality of the dialysis population

The absolute number of adult dialysis patients that dies during a calendar year is nearly constant during the last years [Table 3]. The average number of deaths on dialysis per 100 patient years is 16,7, mainly due to cardiovascular diseases or sudden death.

In the NBVN region, dialysis treatment is stopped prematurely in 20% of dialysis patients: often there is "dialysis burnout" - often at the request of the patient for various reasons [e.g. loss of self-reliance, fatigue, ...] or it is a shared decision taken by both the nephrologist and his/her patient due to the very limited remaining life expectancy [e.g. in view of an end-stage carcinomatosis]. After stopping the dialysis treatment, a short palliative care process follows.

In the GNFB region, there is a steep rise of infectious pathology over the last years, as cause of death.

Difference between the NBVN and GNFB region might be due to the slightly different and simple coding lists, to assign one main cause of death.

3.2. Transplantation of the dialysis population

The annual kidney transplant activity with a kidney of a deceased donor varies around 470 transplants per year; this includes also the combined kidney transplants (kidney + pancreas, kidney + heart, kidney + liver, etc.) [Table 3; source: Eurotransplant International].

The majority of transplants takes place during the dialysis period of the patient.

Living donor kidney transplants and kidney transplants before the start of dialysis contribute very little to the overall transplant activity, in contrast to some neighboring European countries, such as the Netherlands, Germany and Norway.

The number of transplants depends on the donor kidney allocation program - designed and executed by Eurotransplant International [operating in Belgium, Luxembourg, Netherlands, Germany, Austria, Slovenia, Croatia, Hungary]. This kidney allocation program is based on ABO blood type matching, tissue type matching (HLA-A,B,DR match), chance of a good HLA A, B, DR match, and the donation activity at local and international levels.

For any dialysis center, the annual number of transplants can fluctuate considerably, even in the presence of a "well-populated" kidney transplant waiting list. The number of patients on the active ET kidney transplant waiting list on January 1, 2019 was 824.

4. Patient survival of adult dialysis patients

The patient survival of the Belgian dialysis population is quite good – however with minor continuing improvement between the 3 cohorts studied (2006-2020, 2008-2012 & 2011-2015) [Figure 2A; source: ERA-EDTA registry]. The median survival [Kaplan Meier analysis] of the total population is about 4,0 years.

There is a slightly better survival during the last years, despite the fact that there is progressively a much older population, intrinsically with a lower life expectancy. A better result is also obtained in the more vulnerable category of dialysis patients with diabetic nephropathy [Figure 3A; source: ERA-EDTA registry].

5. Kidney graft survival of adult renal transplant patients

The survival of the kidney graft, being implanted in a Belgian transplant center, is excellent [Figure 2B; source: ERA-EDTA registry]. The graft survival of a kidney from a living donor is significantly better compared to that of a kidney from a deceased donor. The same favorable results are obtained in patients, having a diabetic nephropathy as cause of their end-stage renal disease [Figure 3B; source: ERA-EDTA registry]; it should be reminded that there has been a strict selection of such patients to ensure the better survival of kidney and patient.

6. Estimate of the remaining life time of prevalent adult dialysis and transplant patients

Some sound realism is necessary with every type of renal replacement therapy, especially looking at the (very) elderly patients¹. One does not get the eternal life.

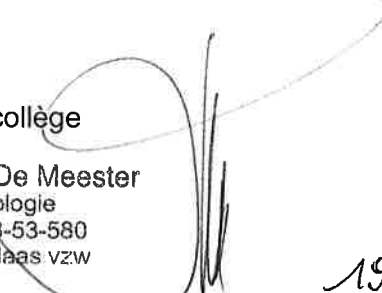
Figure 4 shows the average remaining life expectancy (in years) of prevalent dialysis patients and transplant patients, living in Belgium. For comparison, the same estimate is added of the Belgian general population.

The dialysis patient always has a lower life expectancy than the transplanted patient and certainly the general population; also the transplanted patient lives shorter than the general population. The poorer life expectancy of both techniques is very striking at the younger age groups. The difference with the general population decreases the older the dialysis patient gets. Today, attention is paid to avoid early mortality within 6 months after the start of dialysis.

On behalf of the college, Au nom du collège

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¹ Naylor KL, Kim SJ, McArthur E, Garg AX, McCallum MK, Knoll GA: Mortality in Incident Maintenance Dialysis Patients Versus Incident Solid Organ Cancer Patients: A Population-Based Cohort. Am J Kidney Dis. 2019; epub 28 January 2019.

Table 1: Prevalence Renal Replacement Therapy [RRT] – on reference date January 1, 2010 till January 1, 2019

	31/12/2009	31/12/2010	31/12/2011	31/12/2012	31/12/2013	31/12/2014	31/12/2015	31/12/2016	31/12/2017	31/12/2018
	1/01/2010	1/01/2011	1/01/2012	1/01/2013	1/01/2014	1/01/2015	1/01/2016	1/01/2017	1/01/2018	1/01/2019
Prevalence										
Adults										
Total in RRT	12.446	12.887	13.306	13.641	13850	14.133	14.240	14.487	14.795	15.004
Living with a transplant	5.142	5.349	5.605	5.782	5939	6.058	6.153	6.349	6.548	6.679
Living on dialysis	7.304	7.538	7.701	7.859	7911	8.075	8.087	8.138	8.247	8.333
Peritoneal dialysis	689	683	672	661	641	639	621	614	617	616
Hemodialysis	6.615	6.855	7.029	7.198	7270	7.436	7.466	7.524	7.630	7.717
low care/cost	1.878	1.896	1.919	1.959	1967	2.127	2.180	2.306	2.657	2.732
high care/cost	4.737	4.959	5.110	5.239	5303	5.309	5.286	5.218	4.973	4.985
ratio low care/high care	0,40	0,38	0,38	0,37	0,37	0,40	0,41	0,44	0,53	0,55
Annual evolution total RRT %		+3,54%	+3,25%	+2,52%	+1,53%	+2,04%	+0,76%	+1,73%	+2,14%	+1,41%
Annual evolution dialysis %		+3,20%	+2,16%	+2,05%	+0,66%	+2,07%	+0,15%	+0,63%	+1,34%	+1,04%
Annual evolution transplant %		+4,03%	+4,79%	+3,16%	+2,72%	+2,00%	+1,57%	+3,19%	+3,13%	+1,88%
Population Belgium	10.839.905	10.951.266	11.035.948	11.099.554	11.150.516	11.209.044	11.267.910	11.322.088	11.376.070	11.431.406
Total RRT per million inhabitants	1.148,2	1.176,8	1.205,7	1.229,0	1.242,1	1.260,9	1.263,8	1.279,5	1.300,5	1.312,5
Dialysis per million inhabitants	673,8	688,3	697,8	708,0	709,5	720,4	717,7	718,8	724,9	729,0

Table 2: Inflow on renal replacement therapy (dialysis or transplantation) per calendar year, 2009 – 2018

<i>Inflow RRT</i>	1/01/2009- 31/12/200	1/01/2010- 31/12/201	1/01/2011- 31/12/201	1/01/2012- 31/12/201	1/01/2013- 31/12/201	1/01/2014- 31/12/201	1/01/2015- 31/12/201	1/01/2016- 31/12/201	1/01/2017- 31/12/201	1/01/2018- 31/12/201
Adults	9	0	1	2	3	4	5	6	7	8
Inflow on dialysis										
de novo = first episode RRT	2.131	2.067	1.985	2.034	2.014	1.937	2.019	2.047	2.058	2.105
evolution de novo dialysis inflow %		-3,0%	-4,0%	+2,5%	-1,0%	-3,8%	+4,2%	+1,4%	+0,5%	+2,3%
Inflow transplantation - preemptive										
de novo = first episode RRT	22	30	44	45	42	45	33	40	56	21

Table 3: Outflow out of dialysis by renal transplantation and by death, per calendar year, 2009 – 2018

<i>Outflow dialysis</i>	1/01/2009- 31/12/200	1/01/2010- 31/12/201	1/01/2011- 31/12/201	1/01/2012- 31/12/201	1/01/2013- 31/12/201	1/01/2014- 31/12/201	1/01/2015- 31/12/201	1/01/2016- 31/12/201	1/01/2017- 31/12/201	1/01/2018- 31/12/201
Adults	9	0	1	2	3	4	5	6	7	8
Post-mortem donor Transplantation (Source: Eurotransplant)	455	424	468	492	458	436	495	480	485	473
Death while on dialysis	1.482	1.521	1.427	1.443	1.464	1.390	1.466	1.548	1.499	1.491
Mortality per 100 patient years	17,7	17,7	16,4	16,3	16,4	15,4	16,1	16,9	16,2	15,9

Figure 1: Proportion of transplantation and dialysis, as renal replacement therapy, per age-group

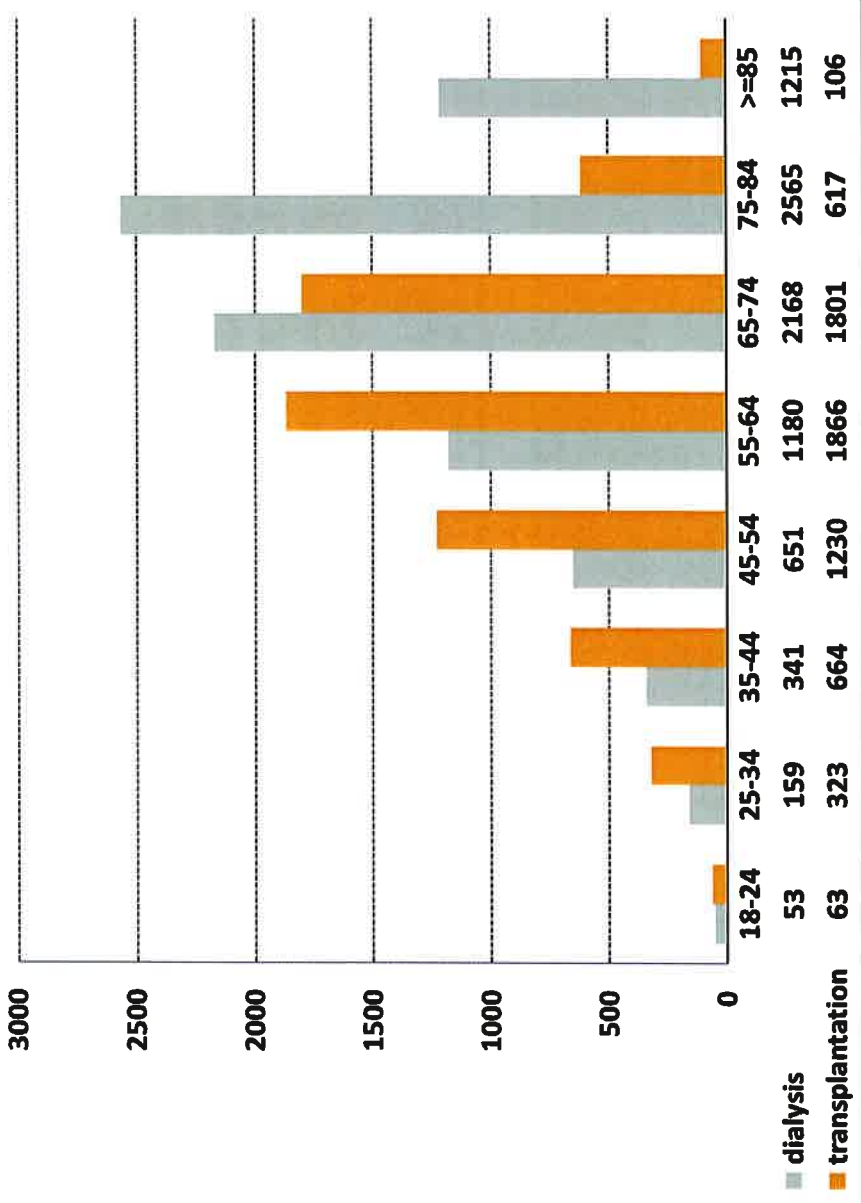


Figure 2: Kaplan Meier survival – comparing different incident cohorts

2A. Patient survival – adult dialysis population, Belgium - 2B. Kidney graft survival – adult renal transplant population, Belgium

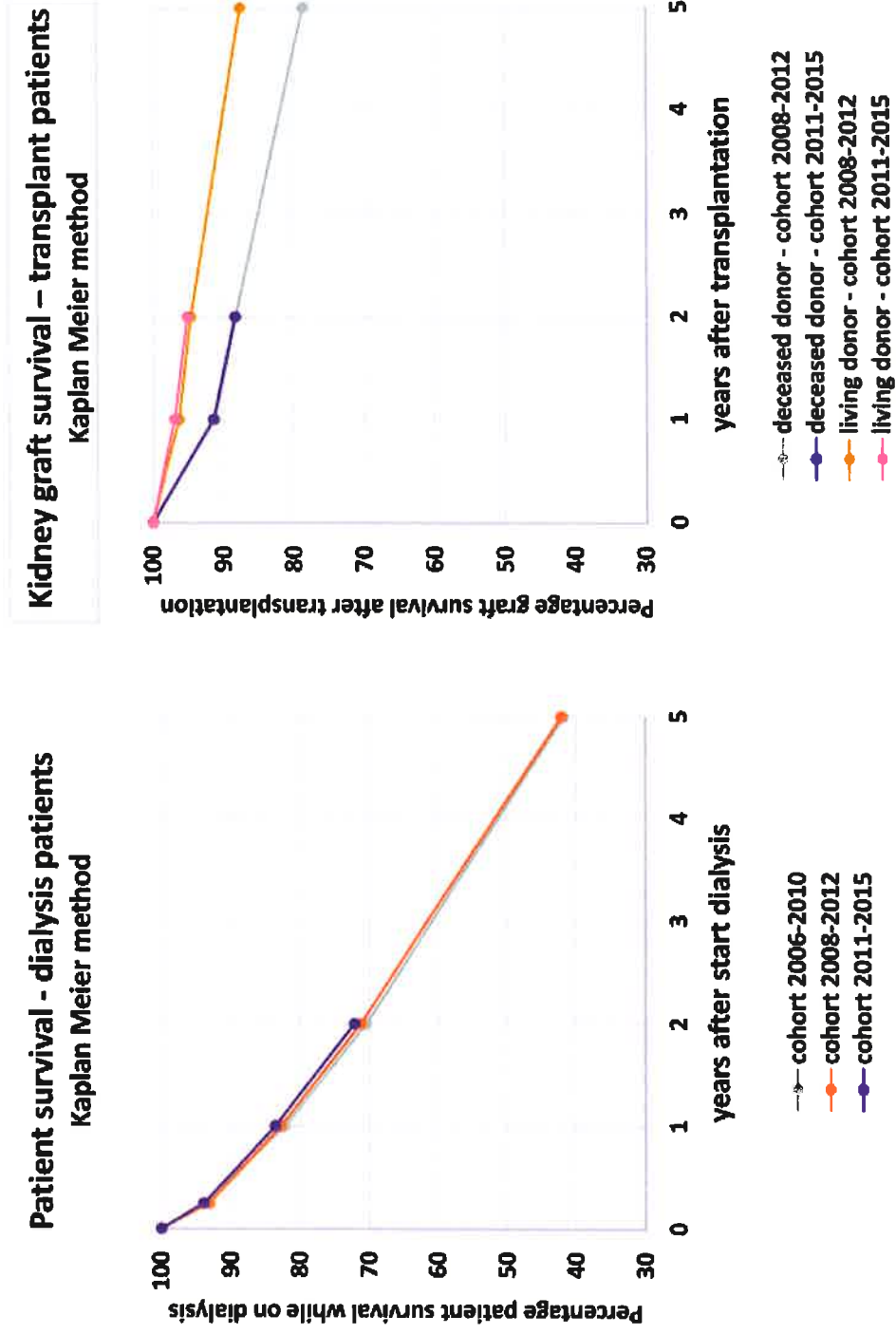


Figure 3: Kaplan Meier survival – comparing different incident cohorts – of patients with diabetic nephropathy

3A. Patient survival – adult dialysis population, Belgium - 3B. Kidney graft survival – adult renal transplant population, Belgium

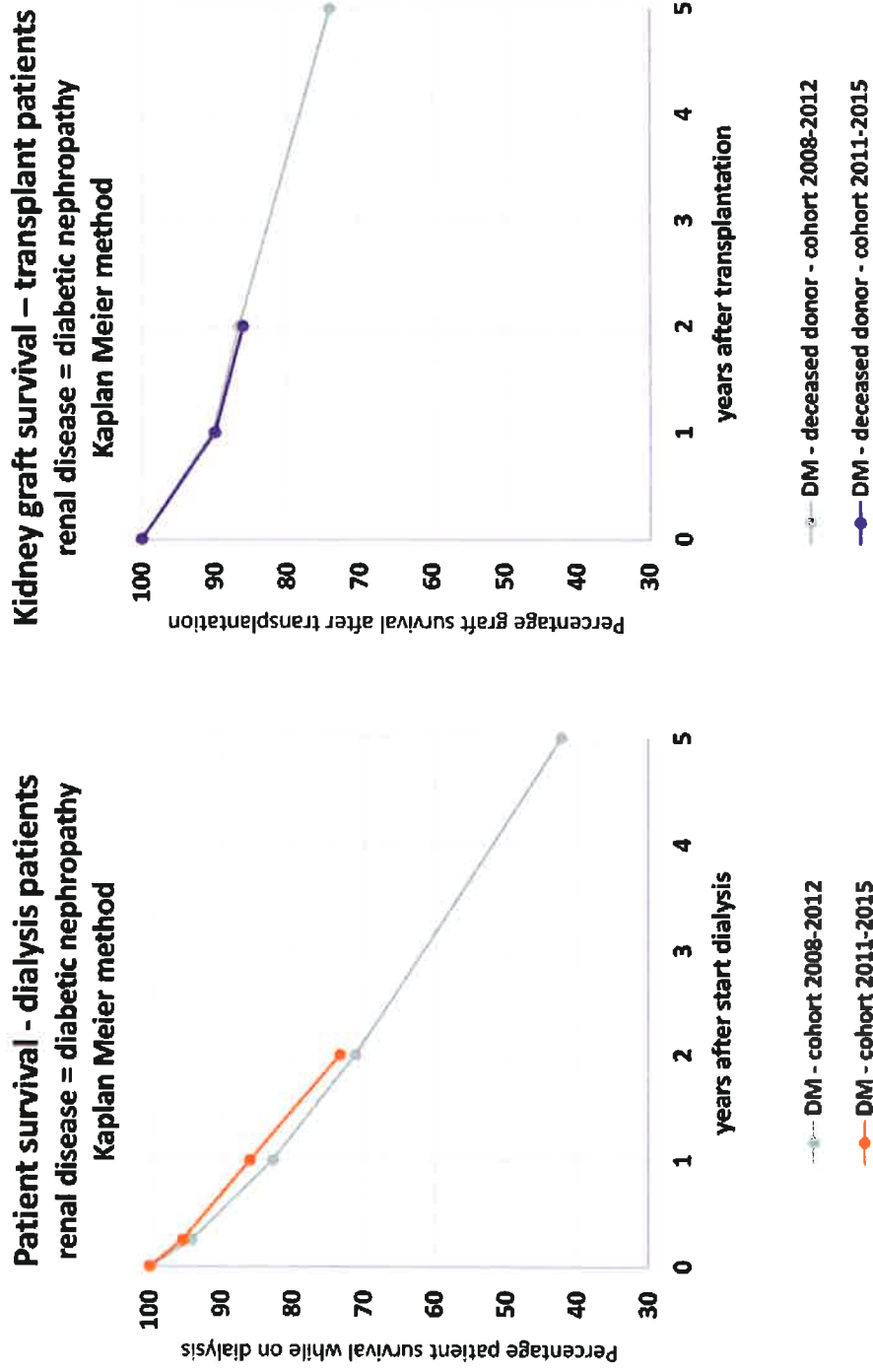


Figure 4: Expected remaining lifetime (years) of the Belgian general population, dialysis patients and patients living with a renal transplant, per age category – ERA-EDTA registry

