

"Association between Dialysis Facility Ownership and Access to the Waiting List and Transplant in Pediatric Patients with ESKD in the US"

The IPNA Journal club October 2022 discussion

Hello #Pedneph #FOAMed

Is there a difference in the Transplant wait list for pediatric patients based on dialysis facilities?

Let's dig into the OCTOBER #IPNAJC article to find out more. Here is the article we have discussed:

"Association between Dialysis Facility Ownership and Access to the Waiting List and Transplant in Pediatric Patients with ESKD in the US" by [@Sandra Amaral](#)
<https://pubmed.ncbi.nlm.nih.gov/35916847/>

Let's look at differences in pediatric ESKD compared to adults-

- Pediatric ESKD is rare
- Most patients are wait-listed or receive Transplant within 2 yrs of incident ESKD
- Children who receive transplants (Tx) have better overall outcomes than those on dialysis

7724 dialysis facilities in the United States out of which 869 (11.3%) are non-profit facility and 6855 (88.7%) profit facility

Adult studies have shown receipt of chronic dialysis at profit facilities was associated with lower rates of Tx and worse survival among adults with ESKD
Such data for pediatric pt is lacking till now

Methods:

This was retrospective study (Data collected between 2000 to 2018)

Inclusion criteria

Patients less than 18 years old, starting dialysis between Jan 1, 2000-Dec 31, 2018 based on USRDS data were included

Exclusion criteria

- ✓ Did not have CMS-2728 (MEDEVID) filed
- ✓ Missing facility identification
- ✓ Preemptive Tx (included in secondary analyses)
- ✓ US territories
- ✓ Missing covariates

Outcome measures:

- All outcomes were determined through 30th June 2019
- Waiting-time
- Time to transplant

Outcomes of living and deceased-donor kidneys were examined together as well as separately. Patients who were lost to follow-up or recovered renal function for more than 90 days were censored.

Statistical analysis:

- Cox-proportional hazard model adjusted for age and other characteristics
- Living-related donors (LRD) and deceased-donor renal transplantation (DDRT) outcomes were examined separately
- Sensitivity analyses were performed if missing profit status or switching facility; pre-emptive Transplant
- Fine Gray model using death as a competing risk for wait-listing outcome and death or alternate donor source for Tx as a competing risk for living or deceased donor Tx outcome
- Several other associations were studied as highlighted in the results

Results:

Baseline Characteristics-

- 13333 patients
- Age 0-18 yr

60% treated at a nonprofit facility, 27% at a profit facility and there was 13% switched.

Table 1. Characteristics of Pediatric Patients by the Profit Status of the Dialysis Facility Where Patients Started Treatment

Characteristics ^a	No. (%)		
	Profit facility (n = 3618)	Nonprofit facility (n = 7907)	Switched profit status (n = 1748) ^{b,c}
Age at incident ESKD, y			
Mean (SD)	10.0 (6.7)	8.9 (6.0)	11.9 (5.8)
Median (IQR)	13.0 (2.0-16.0)	10.0 (2.0-14.0)	14.0 (10.0-16.0)
Age category at incident ESKD, y			
0-5	1112 (30.7)	2585 (32.7)	318 (18.2)
6-11	484 (13.4)	1813 (22.9)	216 (12.4)
12-17	2022 (55.9)	3509 (44.4)	1214 (69.5)
Sex			
Female	1642 (45.4)	3585 (45.3)	802 (45.9)
Male	1976 (54.6)	4322 (54.7)	946 (54.1)
Race and ethnicity			
Asian	102 (2.8)	277 (3.5)	39 (2.2)
Hispanic	958 (26.5)	2252 (28.5)	473 (27.1)
Non-Hispanic Black	910 (25.2)	1782 (22.5)	612 (35.0)
Non-Hispanic White	1530 (42.3)	3370 (42.6)	584 (33.4)
Other ^d	118 (3.3)	226 (2.9)	40 (2.3)

Median age at dialysis initiation:

- 13 yr in a profit facility vs 10 yr in non-profit

Overall 76% registered on the wait list at a median of **0.87 yrs** after dialysis initiation

69% received Tx at a median of 1.5 yr (24% Living related donors- LRD)

In this study,

A higher percentage of rural patients and those from the micropolitan areas received dialysis at profit facilities.

Of those receiving care at profit facilities, $\frac{2}{3}$ were at large-chain facilities compared with only 1.6% in large-chain nonprofit facilities

Characteristics ^a	No. (%)		
	Profit facility (n = 3618)	Nonprofit facility (n = 7907)	Switched profit status (n = 1748) ^{b,c}
Age at incident ESKD, y			
Mean (SD)	10.0 (6.7)	8.9 (6.0)	11.9 (5.8)
Median (IQR)	13.0 (2.0-16.0)	10.0 (2.0-14.0)	14.0 (10.0-16.0)
Age category at incident ESKD, y			
0-5	1112 (30.7)	2585 (32.7)	318 (18.2)
6-11	484 (13.4)	1813 (22.9)	216 (12.4)
12-17	2022 (55.9)	3509 (44.4)	1214 (69.5)
Sex			
Female	1642 (45.4)	3585 (45.3)	802 (45.9)
Male	1976 (54.6)	4322 (54.7)	946 (54.1)
Race and ethnicity			
Asian	102 (2.8)	277 (3.5)	39 (2.2)
Hispanic	958 (26.5)	2252 (28.5)	473 (27.1)
Non-Hispanic Black	910 (25.2)	1782 (22.5)	612 (35.0)
Non-Hispanic White	1530 (42.3)	3370 (42.6)	584 (33.4)
Other ^d	118 (3.3)	226 (2.9)	40 (2.3)
Modality			
Hemodialysis	2166 (59.9)	3912 (49.5)	1045 (59.8)
Peritoneal dialysis	1452 (40.1)	3995 (50.5)	703 (40.2)
Region of the US			
South	1509 (41.7)	3274 (41.4)	791 (45.3)
West	995 (27.5)	1899 (24.0)	334 (19.1)
Midwest	763 (21.1)	1568 (19.8)	396 (22.7)
Northeast	351 (9.7)	1166 (14.7)	227 (13.0)
Primary cause of ESKD			
Glomerulonephritis	1265 (35.0)	2678 (33.9)	728 (41.6)
Other cause ^e	701 (19.4)	2304 (29.1)	434 (24.8)
Urologic	401 (11.1)	1232 (15.6)	211 (12.1)
Hypertension	399 (11.0)	136 (1.7)	71 (4.1)
Unknown cause	334 (9.2)	726 (9.2)	186 (10.6)
Diabetes	279 (7.7)	50 (0.6)	37 (2.1)
Cystic kidney	239 (6.6)	781 (9.9)	81 (4.6)
Calendar year of dialysis initiation			
2000-2004	999 (27.6)	2114 (26.7)	656 (37.5)
2005-2009	987 (27.3)	2298 (29.1)	522 (29.9)
2010-2014	900 (24.9)	2057 (26.0)	422 (24.1)
2015-2018	732 (20.2)	1438 (18.2)	148 (8.5)
Chain^h			
Small	699 (19.3)	608 (7.7)	402 (23.0)
Large	2343 (64.8)	123 (1.6)	983 (56.2)
Independent	576 (15.9)	7176 (90.8)	363 (20.8)
Insurance			
Medicare or Medicaid	1767 (48.8)	3542 (44.8)	888 (50.8)
Private	1630 (45.1)	3966 (50.2)	720 (41.2)
None	221 (6.1)	399 (5.0)	140 (8.0)
Rurality			
Metropolitan	2971 (82.1)	6748 (85.3)	1455 (83.2)
Micropolitan	369 (10.2)	629 (8.0)	177 (10.1)
Rural	278 (7.7)	530 (6.7)	116 (6.6)

Mortality

16.9% initially receiving dialysis at profit facilities died
 7.4% died in nonprofit and 12.5% died in those who switched

The incidence of wait-list was lower at profit facilities than at non-profit
 Fully adjusted HR 0.79(95% CI, 0.75-0.83) absolute difference, -13.6 wait-listing events per 100 person-years

Table 2. Absolute Incident Rate of Outcomes and Absolute Risk Difference by Status of Dialysis Facilities

Outcome	Profit facilities		Nonprofit facilities		Incident rate of events per 100 person-years		
	No. of events ^a	Total person-years of follow-up	No. of events	Total person-years of follow-up	Profit facility	Nonprofit facility	Absolute difference (95% CI)
Wait-listing	2697	7455	7417	14 898	36.2	49.8	-13.6 (-15.4 to -11.8)
Transplant ^a	2349	10 904	6812	21 769	21.5	31.3	-9.8 (-10.9 to -8.6)
Living donor transplant	829	10 904	2360	21 769	7.6	10.8	-3.2 (-3.9 to -2.6)
Deceased donor transplant	1520	10 904	4447	21 769	13.9	20.4	-6.5 (-7.4 to -5.6)

^a Sixty patients are not included in this table.

Incidence of kidney Tx(living or deceased) was lower at profit facilities than at non-profit

Fully adjusted sensitivity analyses were consistent with the primary analysis

Notable interactions with age

Access to Tx differed by age at initiation

HR of Tx was lowest between 12-17 yr of age

This significance persisted for living donor Tx but not for DDRT

Table 4. Hazard of Transplant, Comparing Status of Dialysis Facilities by Age at Dialysis Initiation

Age at dialysis initiation, y	No.	Incident rate (per 100 person-years)			Profit vs nonprofit, HR (95% CI)	
		Profit facility	Nonprofit facility	Absolute difference (95% CI)	Unadjusted	Adjusted ^a
Transplant						
0-5	4036	17.5	32.4	-14.9 (-17.0 to -12.8)	0.53 (0.48 to 0.58)	0.84 (0.75 to 0.94)
6-11	2526	29.9	38.0	-8.1 (-11.7 to -4.5)	0.75 (0.67 to 0.85)	0.82 (0.73 to 0.93)
12-17	6771	21.7	28.4	-6.7 (-8.2 to -5.3)	0.71 (0.67 to 0.76)	0.73 (0.68 to 0.78)
Living donor						
0-5	4036	8.7	13.8	-5.0 (-6.5 to -3.6)	0.68 (0.59 to 0.79)	1.08 (0.92 to 1.27)
6-11	2526	9.3	12.3	-3.0 (-5.0 to -1.0)	0.78 (0.64 to 0.96)	0.89 (0.72 to 1.10)
12-17	6771	6.8	8.9	-2.1 (-2.9 to -1.3)	0.77 (0.69 to 0.86)	0.79 (0.70 to 0.88)
Deceased donor						
0-5	4036	8.7	18.6	-9.8 (-11.4 to -8.3)	0.42 (0.36 to 0.49)	0.67 (0.57 to 0.79)
6-11	2526	20.6	25.6	-5.0 (-8.0 to -2.1)	0.74 (0.64 to 0.85)	0.79 (0.68 to 0.92)
12-17	6771	14.9	19.5	-4.6 (-5.8 to -3.4)	0.69 (0.64 to 0.74)	0.70 (0.64 to 0.75)

Abbreviations: ESKD, end-stage kidney disease; HR, hazard ratio. peritoneal dialysis), cause of ESKD, ESKD network, rurality, and incident ESKD year.

^a Adjusted for age at ESKD onset, sex, race and ethnicity, insurance status, region of the US, time-updated treatment modality (hemodialysis vs

In summary,











The children those started their dialysis in the profit facility have longer transplant wait-listing time and time to get renal transplantation.

Statistics for this chat:

The number: 424 tweets, 18 participants, 663.158K impressions. October 5, 2022.











The #IPNAJC Influencers

Top 10 Influential

-  @ipnajc 100
-  @drM_sudha 83
-  @nefron1310 74
-  @BobWoronecki 71
-  @eric_weinhandl 71
-  @FranLoachamin 63
-  @suprita86087893 63
-  @dr_missyhanna 62
-  @SwastiThinks 61
-  @NephJC 59











 Tweet

Prolific Tweeters

-  @ipnajc 128
-  @drM_sudha 108
-  @FranLoachamin 50
-  @SwastiThinks 40
-  @md_abdulqader83 26
-  @nefrologiaecu 15
-  @nefron1310 14
-  @asouth_neph 10
-  @eric_weinhandl 9
-  @dr_missyhanna 6

 Tweet

Highest Impressions

-  @FranLoachamin 194.7K
-  @drM_sudha 182.7K
-  @ipnajc 102.4K
-  @SwastiThinks 55.7K
-  @md_abdulqader83 28.5K
-  @asouth_neph 27.7K
-  @hswapnil 18.3K
-  @eric_weinhandl 14.9K
-  @nefron1310 13.2K
-  @ASPNEph 7.9K

 Tweet

The Numbers

663.158K 

424 

18 

283 

24 

 Tweet

Twitter data from the #IPNAJC hashtag from Wed, October 5th 2022, 8:30PM to Wed, October 5th 2022, 10:00PM (America/New_York) - Symplur.



If you would like to go through the whole #IPNAJC materials

<https://theipna.org/wp-content/uploads/2022/10/summary-Oct-JC-profit-vs-nonprofit.docx.pdf>

See y'all in December 2022 with a new #PedNeph article.

This is brought to you by @md_abdulqader83