



WITS
TRANSPLANT

Progressive medicine. exceptional care.

Outcomes of the Johannesburg Paediatric Kidney Transplant Programme from 2004-2015

Cleopatra Mshumpela, Jerome Loveland, Rene Botha, Russell Britz, Cecil Levy, Heather Maher, Aletha Withers, June Fabian,

Jean Botha

07/09/2019



Wits University
Donald Gordon
Medical Centre

Patient-centred. Independent. Academic.

MEDICLINIC 



UNIVERSITY OF THE
WITWATERSRAND
JOHANNESBURG



WITS
TRANSPLANT

Progressive medicine. exceptional care.

Background



NDC 0004-0260-43

CellCept®
(mycophenolate
mofetil tablets)

500 mg

Each tablet contains
500 mg mycophenolate mofetil.

Rx only

Attention Pharmacist: Dispense the
accompanying Medication Guide to each
patient. For additional Medication Guides call
1-800-617-6191 or visit www.genentech.com/genentech/products/information/cellcept.

500 tablets



Genentech

19077

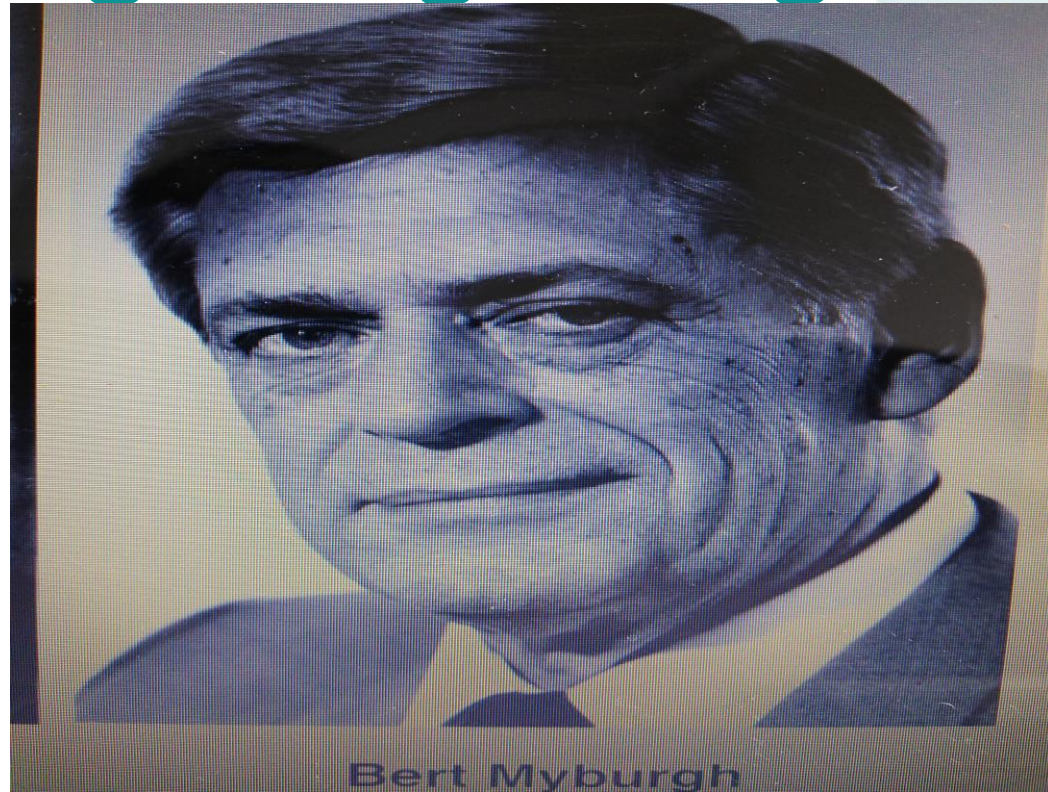


WITS
TRANSPLANT

Progressive medicine. exceptional care.

Johannesburg's beginning

- First paediatric kidney transplant – Prof Myburgh 1969
- 10/15 initial cases were RLDs
- Pitcher *et al.* study
 - Outcomes of patients transplanted at CMJAH between 1984 and 2003 and challenges faced by their programme.



Bert Myburgh



Wits University
Donald Gordon
Medical Centre

Patient-centred. Independent. Academic.

MEDICLINIC



UNIVERSITY OF THE
WITWATERSRAND
JOHANNESBURG



WITS
TRANSPLANT

Progressive medicine. exceptional care.

Our study:

Outcomes of the Johannesburg Paediatric Kidney Transplant Programme from 2004-2015



Wits University
Donald Gordon
Medical Centre

Patient-centred. Independent. Academic.

MEDICLINIC



UNIVERSITY OF THE
WITWATERSRAND
JOHANNESBURG

Aim:

To conduct a contemporary analysis of the outcomes of the paediatric kidney transplant programme in Johannesburg and compare these outcomes to previous outcomes published from our own programme, other published data from South Africa and the international paediatric transplant community.

Methods:

- A retrospective record review of all pediatric (<18 years) kidney transplants performed at Wits Donald Gordon Medical Centre and Charlotte Maxeke Johannesburg Academic Hospital between 2004 and 2015 was completed.
- Data included: sociodemographic details; etiology of end-stage kidney disease; transplant type; transplant number; donor type; recipient and graft survival.
- Results published by Pitcher et al will be referred to as era 1 (1984 - 2003) and results from this study as era 2 (2004 – 2015)



WITS
TRANSPLANT

Progressive medicine, exceptional care.

Results:

- 139 kidney transplants were performed
- Median recipient age of 12.0 years (IQR 8.4-15.1 years) at the time of transplant.
- 75/139 (54%) were DDs



Wits University
Donald Gordon
Medical Centre

Patient-centred. Independent. Academic.

MEDICLINIC 



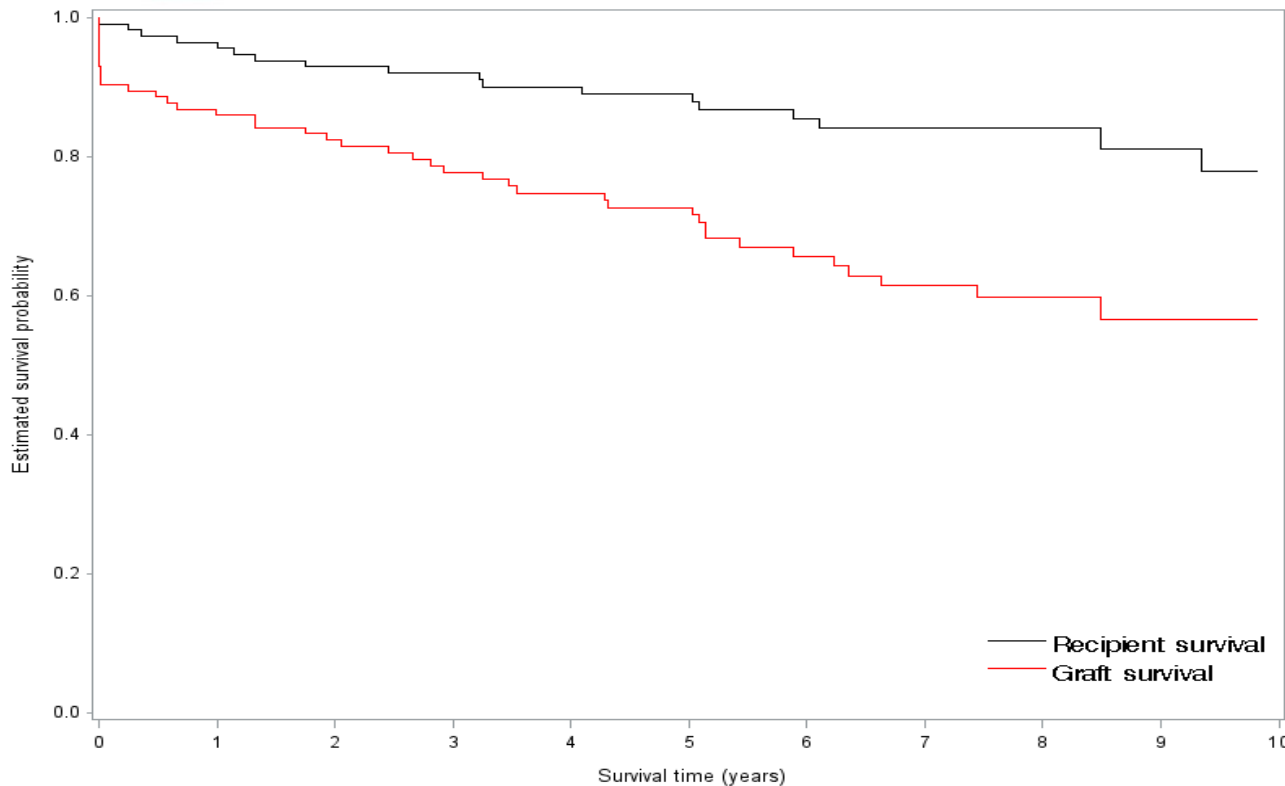
UNIVERSITY OF THE
WITWATERSRAND
JOHANNESBURG



WITS
TRANSPLANT

Progressive medicine. exceptional care.

Kaplan-Meier recipient and graft survival of kidney-alone, first transplants performed at WDGMC and CMJAH, 2004 – 2015



Time	Receipient Survival	Graft Survival
1y	96,4%	86,6%
5y	88,9%	75,9%
10y	81,4%	58,0%



Wits University
Donald Gordon
Medical Centre

Patient-centred. Independent. Academic.

MEDICLINIC



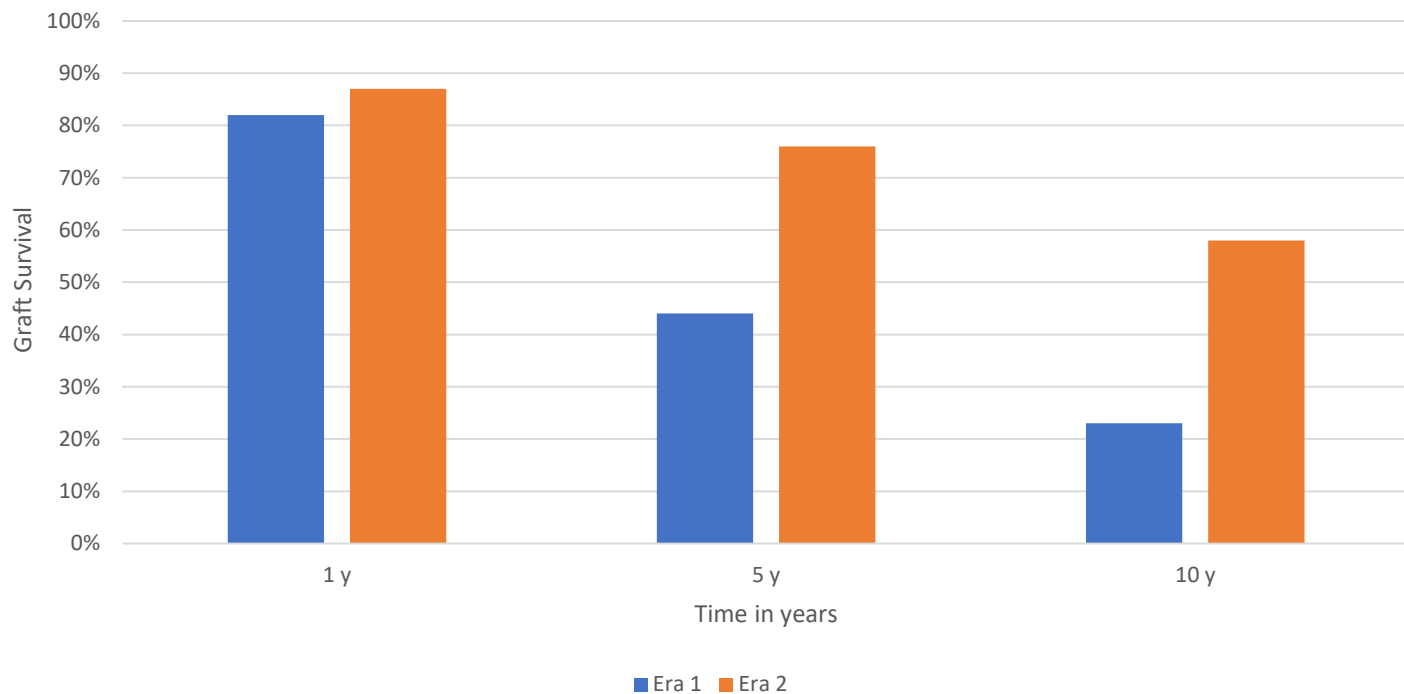
UNIVERSITY OF THE
WITWATERSRAND
JOHANNESBURG



WITS
TRANSPLANT

Progressive medicine. exceptional care.

Comparison of 1-, 5- and 10-year graft survival of kidney transplants performed in era 1 (1984-2003 at CMJAH) and era 2 (2004-2015 at WDGMC and CMJAH).



Patient-centred. Independent. Academic.

MEDICLINIC



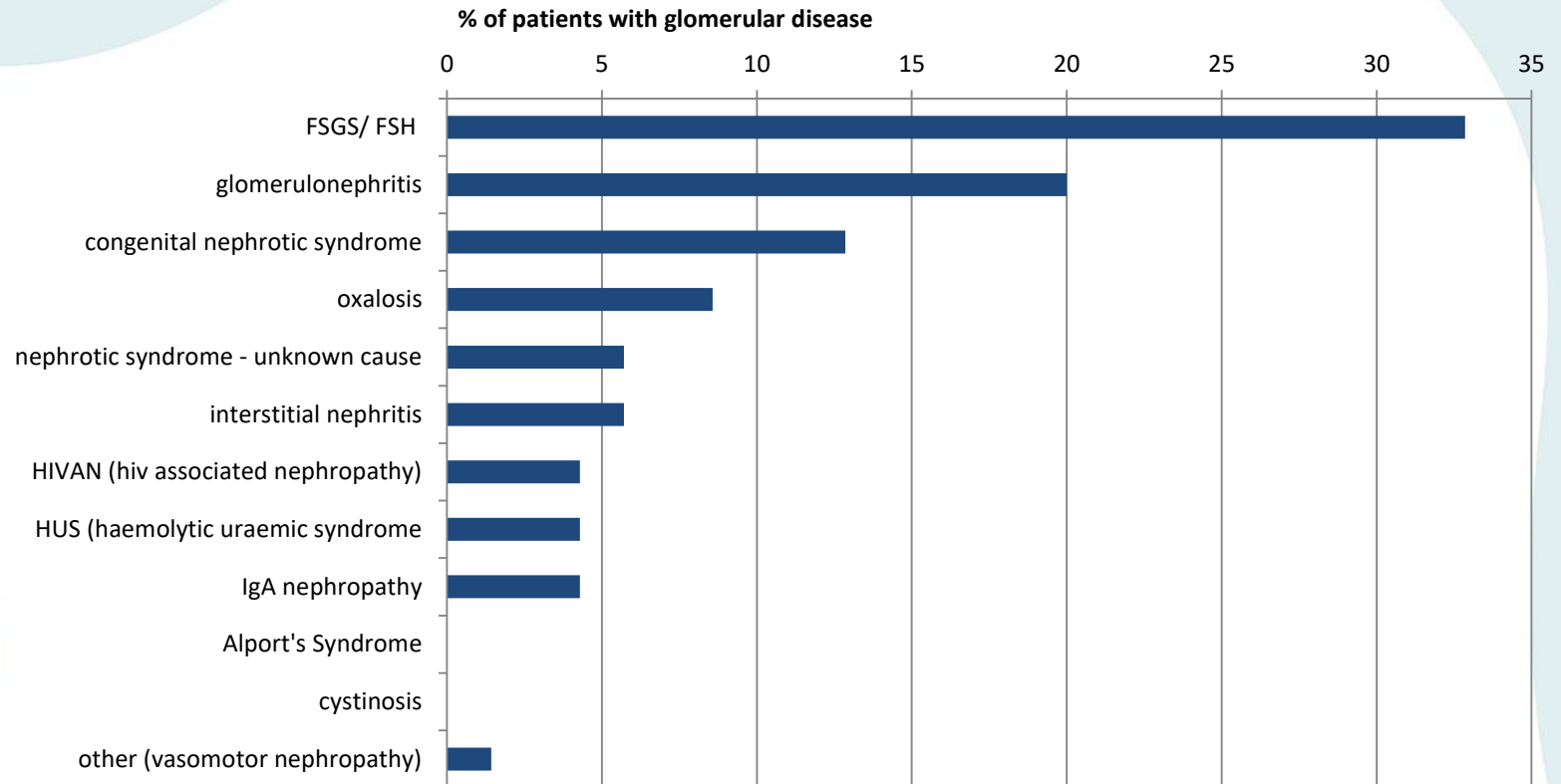
UNIVERSITY OF THE
WITWATERSRAND
JOHANNESBURG



WITS
TRANSPLANT

Progressive medicine, exceptional care.

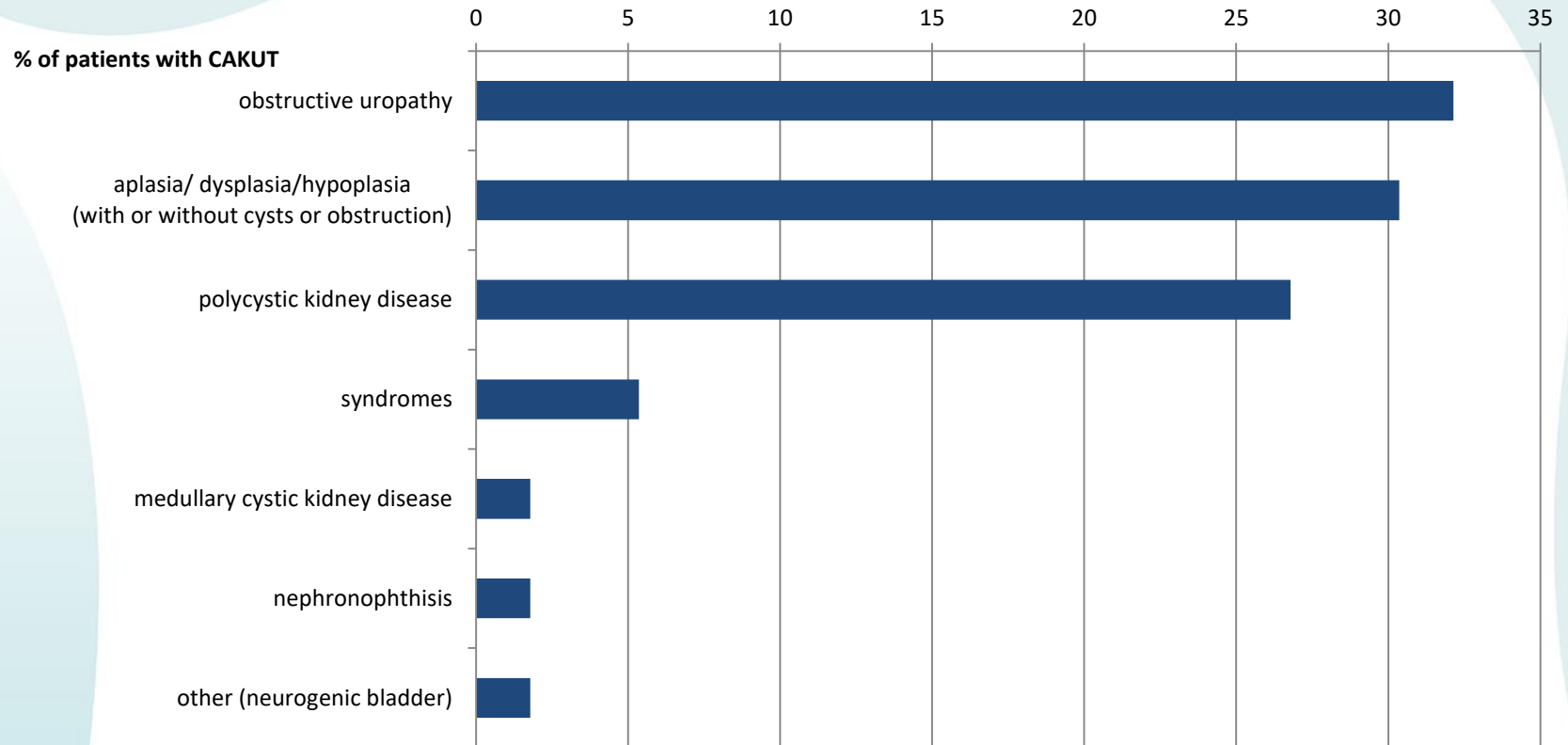
The most common indication for transplant was glomerular disease 55.6% (57/105).





WITS
TRANSPLANT

Progressive medicine, exceptional care.



Wits University
Donald Gordon
Medical Centre

Patient-centred. Independent. Academic.

MEDICLINIC



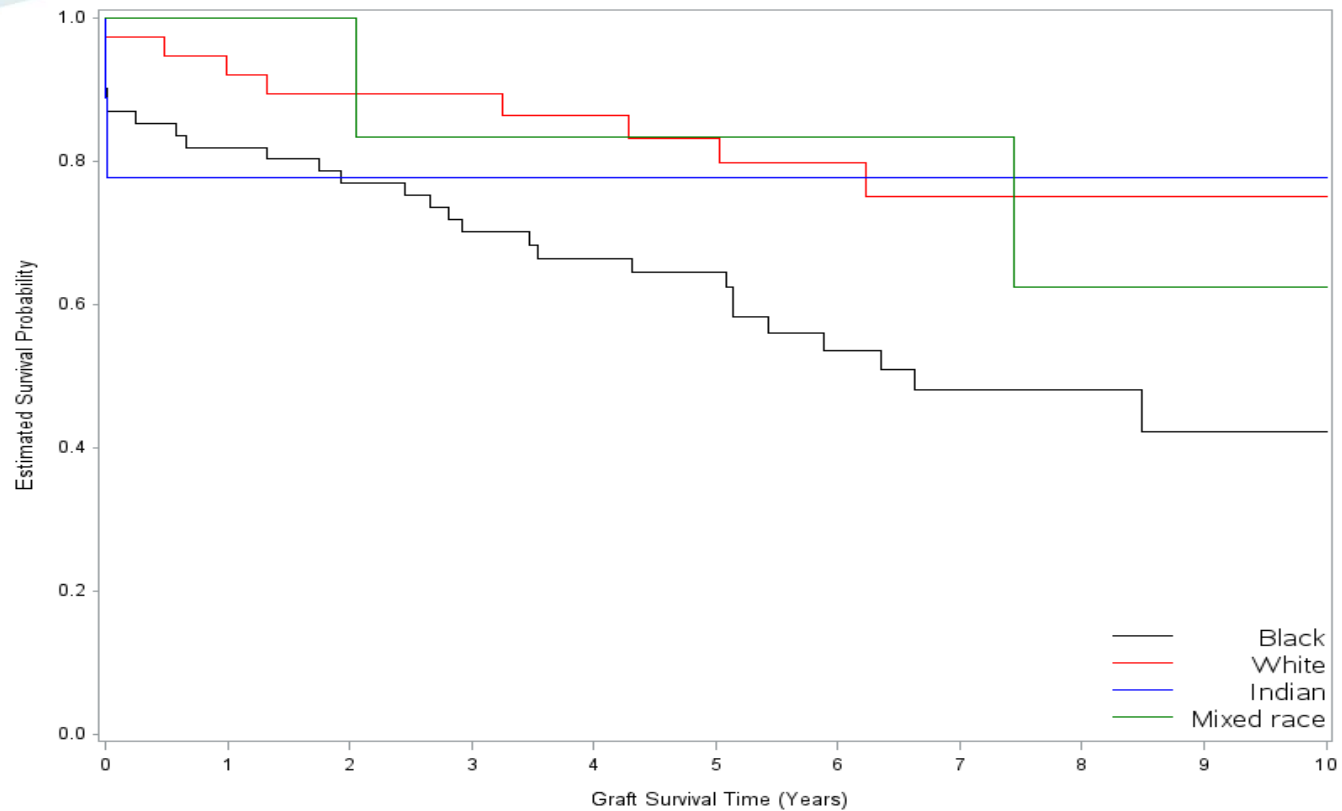
UNIVERSITY OF THE
WITWATERSRAND
JOHANNESBURG



WITS
TRANSPLANT

Progressive medicine. exceptional care.

Kaplan-Meier graft survival by self-reported race, of kidney-alone, first transplants performed at WDGMC and CMJAH, 2004 – 2015



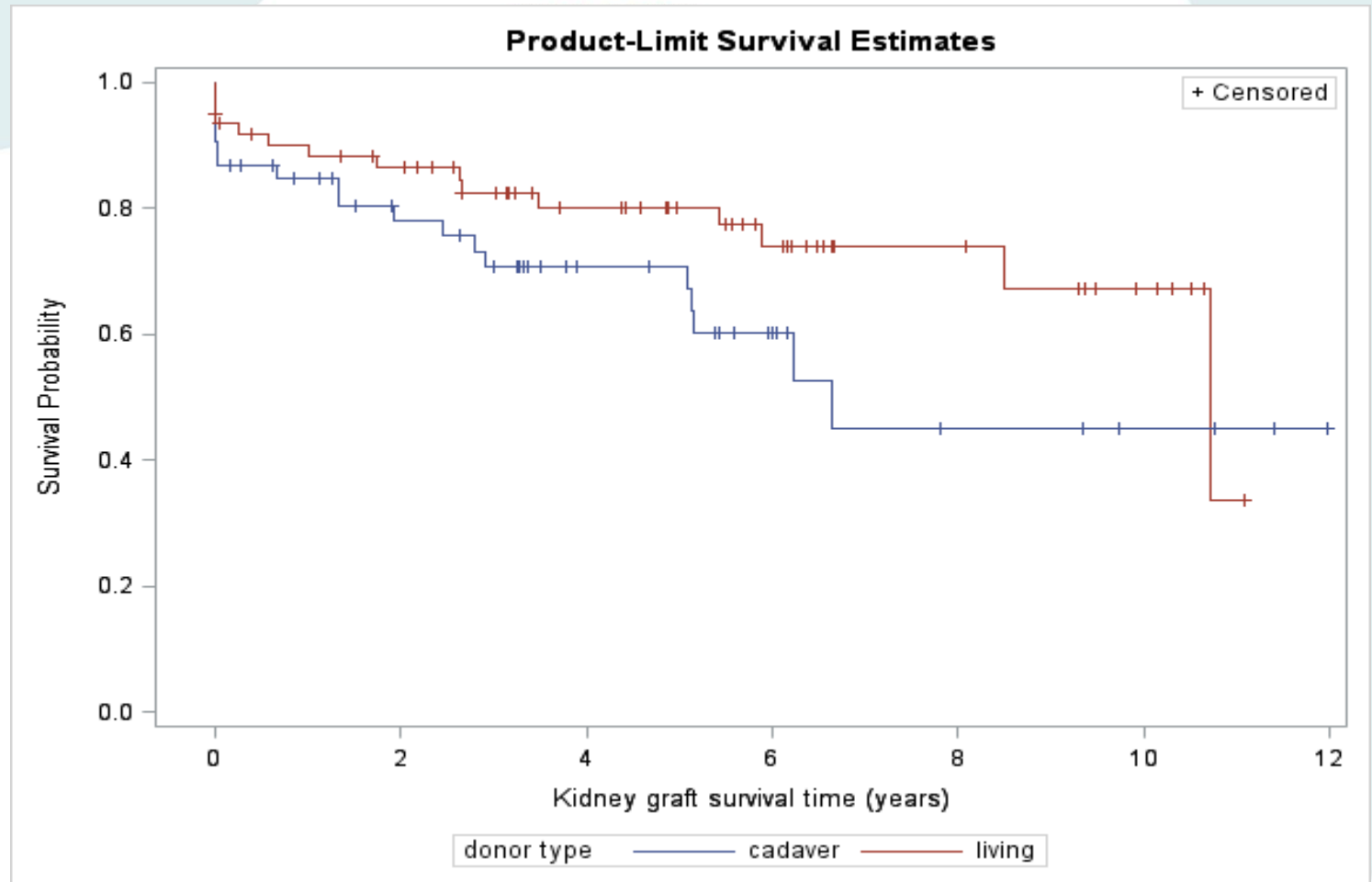
wits University
Donald Gordon
Medical Centre

Patient-centred. Independent. Academic.

MEDICLINIC



UNIVERSITY OF THE
WITWATERSRAND
JOHANNESBURG





WITS
TRANSPLANT

Progressive medicine, exceptional care.

Causes of early, and overall graft loss in the first 10 years for pediatric transplants at WDGMC and CMJAH, 2004 - 2015 (n=139)

		n (%)
Cause of early graft loss (n=11)	Primary non-function	4 (36.4)
	Vascular thrombosis	2 (18.2)
	†Technical errors	2 (18.2)
	Acute rejection	1 (9.1)
	Chronic rejection	1 (9.1)
	Death	1 (9.1)
Cause of graft loss in the first 10 years (n=33) (including early graft loss)	Death	8 (24.2)
	Chronic rejection	7 (21.2)
	Primary non-function	4 (12.1)
	Non-compliance	3 (9.1)
	Vascular thrombosis	2 (6.1)
	*Technical errors	2 (6.1)
	Acute rejection	1 (3.0)
	Unknown	6 (18.2)

†Technical errors: choice of abdominal incision, level of anastomoses, retroperitoneal vs intraperitoneal, level of vascular anastomosis and ureteral re-implantation.



WITS
TRANSPLANT

Progressive medicine. exceptional care.

Conclusions

- Contemporary outcomes of paediatric kidney transplantation in Johannesburg are better than previously reported.
- Compare favorably with published outcomes from:
 - Red Cross Children's Hospital in Cape Town
 - Other UMICs (Brazil, Iran and Pakistan), but inferior to those of high income settings.



Wits University
Donald Gordon
Medical Centre

Patient-centred. Independent. Academic.

MEDICLINIC 



UNIVERSITY OF THE
WITWATERSRAND
JOHANNESBURG

Future directions

- Improving access to dialysis and kidney transplantation – public and private
- Comparing outcomes between the public and private sector and addressing any disparities
- Improved multidisciplinary approach
- A National Paediatric Transplant Registry that is publicly available



WITS
TRANSPLANT

Progressive medicine, exceptional care.

References

- Starzl TE. The French heritage in clinical kidney transplantation. *Transplant Rev.* 1993; 7(2):65-71. [doi:10.1016/S0955-470X\(05\)80040-0](https://doi.org/10.1016/S0955-470X(05)80040-0).
- Van Sandwijk MS, Bemelman FJ, Ten Berge IJM. Immunosuppressive drugs after solid organ transplantation. *Neth J Med.* 2013;71(6):281-289.
- Silverstein AM. The curious case of the 1960 Nobel Prize to Burnet and Medawar. *Immunology.* 2016; 147 (3):269-274. [doi:10.1111/imm.12558](https://doi.org/10.1111/imm.12558).
- Murray J., Merrill JP, Harrison JH. Kidney transplantation between seven pairs of identical twins. *Ann Surg.* 1958;148(3):343-359. [doi:10.1097/0000658-195809000-00004](https://doi.org/10.1097/0000658-195809000-00004).
- Calne RY, Thiru S, McMaster P, et al. Cyclosporin A in patients receiving renal allografts from cadaver donors. *Lancet.* 1978. [doi:10.1016/S0140-6736\(78\)91970-0](https://doi.org/10.1016/S0140-6736(78)91970-0).
- Dharnidharka VR, Fiorina P, Harmon WE. Kidney Transplantation in Children. *N Engl J Med.* 2014; 371(6):549-558. [doi:10.1056/NEJMra1314376](https://doi.org/10.1056/NEJMra1314376).
- Murray JE, Hills W. The first successful organ transplants in man. *J Am Coll Surg.* 2005;200(1):5-9. [doi:10.1016/j.jamcollsurg.2004.09.033](https://doi.org/10.1016/j.jamcollsurg.2004.09.033).
- Ashuntantang G, Osafo C, Olowu W, et al. Outcomes in adults and children with end-stage kidney disease requiring dialysis in sub-Saharan Africa: a systematic review. *Lancet Glob Health* 2017;5: e408-417. [http://dx.doi.org/10.1016/S2214-109X\(17\)30057-8](http://dx.doi.org/10.1016/S2214-109X(17)30057-8). Accessed February 12, 2019.
- Fabian J, Maher H, Bentley A, et al. Favourable outcomes for the first 10 years of kidney and pancreas transplantation at wits Donald Gordon medical centre, Johannesburg, south Africa. *South African Med J.* 2016; 106(2):172-176. [doi:10.7196/SAMJ.2016.v106i2.10190](https://doi.org/10.7196/SAMJ.2016.v106i2.10190)
- Pitcher GJ, Beale PG, Bowley DM, et al. Pediatric renal transplantation in a South African teaching hospital: A 20-year perspective. *Pediatr Transplant.* 2006;10(4):441-8. [doi:10.1111/j.1399-3046.2006.00489.x](https://doi.org/10.1111/j.1399-3046.2006.00489.x). <http://www.sciencedirect.com/science/article/pii/S1532046408001226> Accessed February 12, 2019.
- McCulloch MI, Gajjar P, Spearman CW, et al. Overview of a paediatric renal transplant programme. *South African Med J.* 2006; 96(9):955-959.



Wits University
Donald Gordon
Medical Centre

Patient-centred. Independent. Academic.

MEDICLINIC



UNIVERSITY OF THE
WITWATERSRAND
JOHANNESBURG

References



- Medina-Pestana JO, Galante NZ, Tedesco-Silva H, et al. Kidney transplantation in Brazil and its geographic disparity. *J Bras Nefrol.* 2011;33(4):472-484.
- Nemati E, Einollahi B, Pezeshki et al. Does kidney transplantation with deceased or living donor affect graft survival? *Nephro Urol Mon.* 2014; 6(4): e12182. [doi:10.5812/numonthly.12182](https://doi.org/10.5812/numonthly.12182).
- Rizvi S, Naqvi S, Hussain Z, et al. Renal transplantation in developing countries. *Kidney International.* 2003;63: S96-S100. <http://linkinghub.elsevier.com/retrieve/pii/S0085253815491926> Accessed January 15, 2019.
- Van Arendonk KJ, Boyarsky BJ, Orandi BJ, et al. National Trends Over 25 Years in Pediatric Kidney Transplant Outcomes. *Pediatrics.* 2014;133(4):594-601. [doi:10.1542/peds.2013-2775](https://doi.org/10.1542/peds.2013-2775)
- Amaral S, Patzer R. Disparities, race/ethnicity and access to pediatric kidney transplantation. *Curr Opin Nephrol Hypertens.* 2013;22(3):336-343 [doi:10.1097/MNH.0b013e32835fe55b](https://doi.org/10.1097/MNH.0b013e32835fe55b).
- Asharam K, Bhimma R, David VA, et al. NPHS2 V260E Is a Frequent Cause of Steroid-Resistant Nephrotic Syndrome in Black South African Children. *Kidney International Reports.* 2018; 3(6), pp.1354-1362. [doi:10.1016/j.ekir.2018.07.017](https://doi.org/10.1016/j.ekir.2018.07.017).
- Govender MA, Fabian J, Gottlich E, et al. Common African-specific NPHS2 V260E mutation in steroid resistant nephrotic syndrome in black South African children with biopsy proven focal segmental glomerulosclerosis. (In press)
- Gander R, Asensio M, Royo GF, et al. Vascular thrombosis in pediatric kidney transplantation: Graft survival is possible with adequate management. *J Pediatr Urol.* 2018;14(3):222-230. [doi:10.1016/j.jpurol.2018.01.027](https://doi.org/10.1016/j.jpurol.2018.01.027).
- Thomson D. Organ donation in South Africa – a call to action. *S Afr J Crit Care* 2017;33(2):36-37. [doi:10.7196/SAJCC.2017.v33i2.352](https://doi.org/10.7196/SAJCC.2017.v33i2.352).
- Van Arendonk KJ, James NT, Orandi BJ, et al. Order of donor type in pediatric kidney transplant recipients requiring retransplantation. *Transplantation.* 2013; 96(5):487-93.
- Abdu A, Morolo N, Meyers A, et al. Living kidney donor transplants over a 16-year period in South Africa: A single center experience. *Ann Afr Med* 2011; 10:127-31. <http://www.annalsafrmed.org/text.asp?2011/10/2/127/82077> Accessed March 5, 2019.
- Kidney Beanz Trust. <https://www.kidneybeanz.co.za> Accessed February 20, 2019.
- Massie AB, Kucirka LM, Segev DL. Big data in organ transplantation: registries and administrative claims. *Am J Transplant.* 2014; 14(8):1723-30.
- Dauids MR, Marais N, Jacobs JC. South African Renal Registry Annual Report 2015. *African Journal of Nephrology.* 2017; 20(1):201-213.

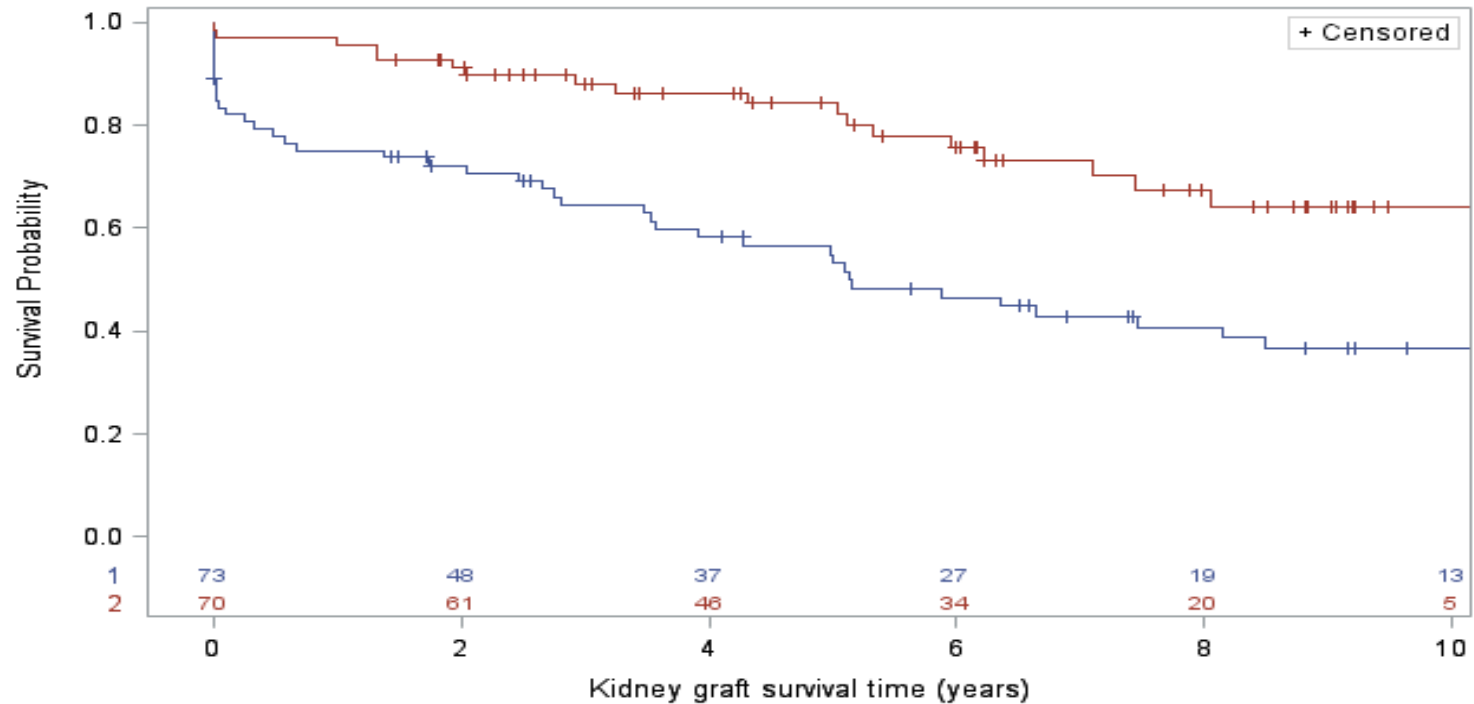


WITS
TRANSPLANT

Progressive medicine, exceptional care.

Product-Limit Survival Estimates

With Number of Subjects at Risk



Wits University
Donald Gordon
Medical Centre

Patient-centred. Independent. Academic.

MEDICLINIC

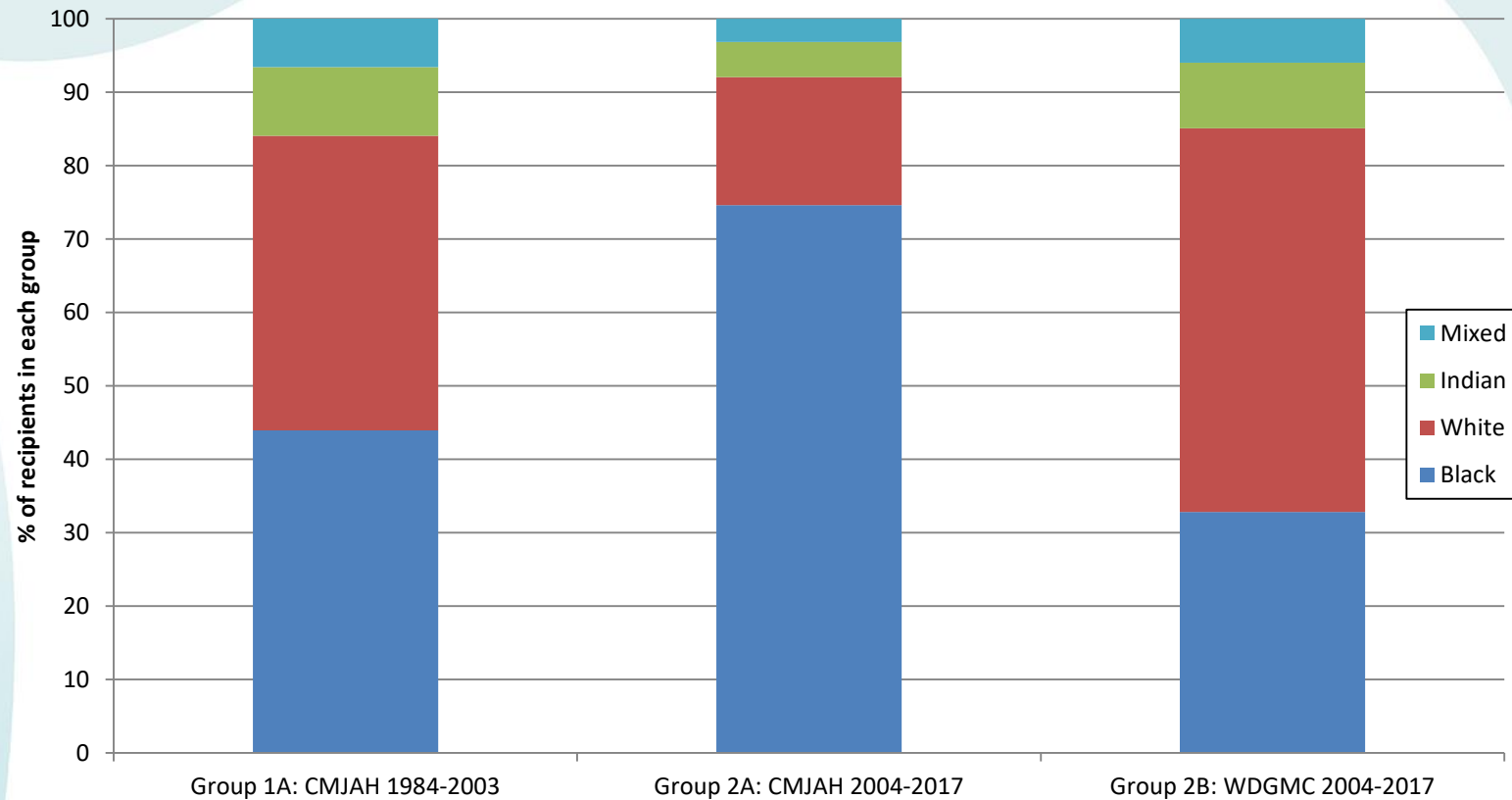


UNIVERSITY OF THE
WITWATERSRAND
JOHANNESBURG



WITS
TRANSPLANT

Progressive medicine. exceptional care.



Wits University
Donald Gordon
Medical Centre

Patient-centred. Independent. Academic.

MEDICLINIC

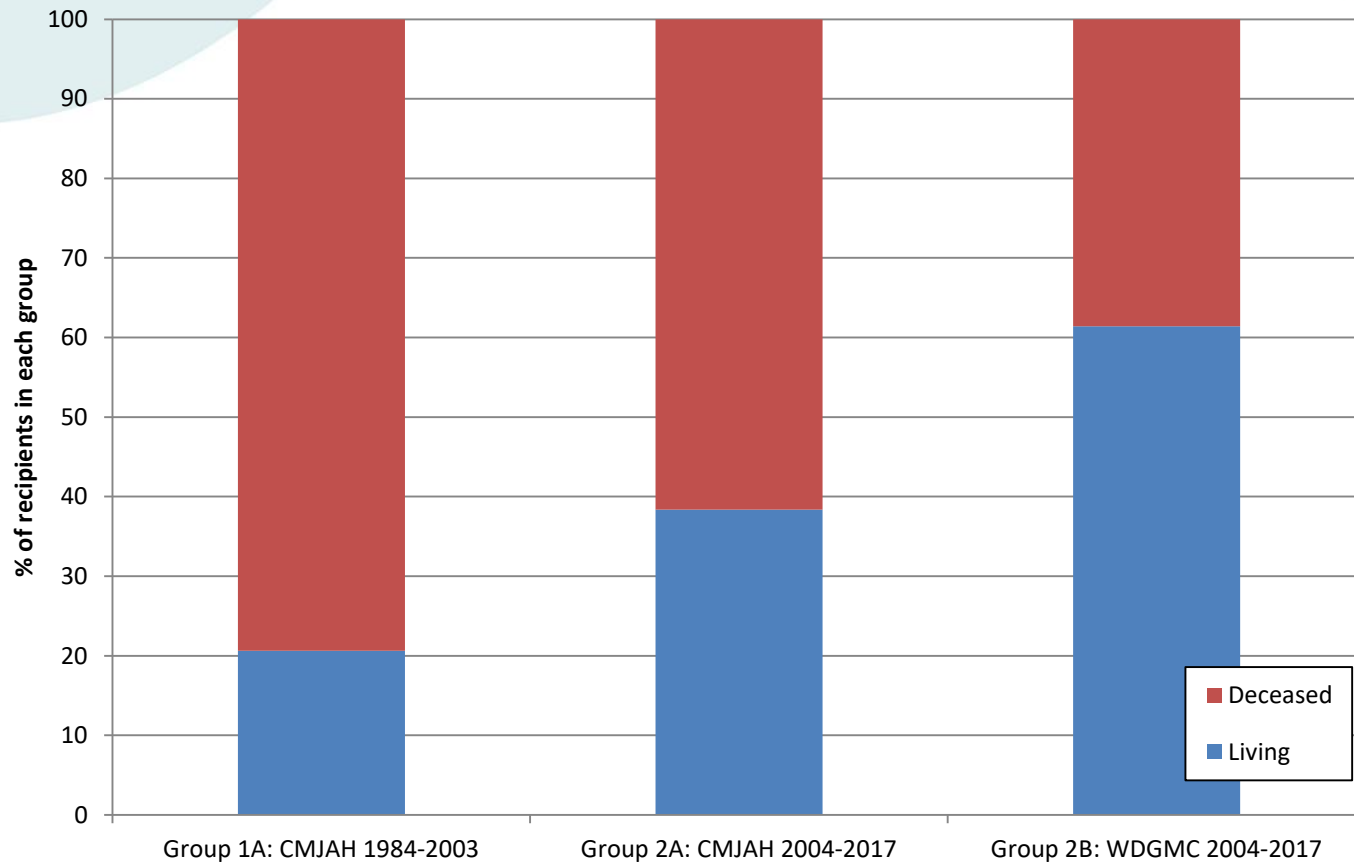


UNIVERSITY OF THE
WITWATERSRAND
JOHANNESBURG



WITS
TRANSPLANT

Progressive medicine. exceptional care.



Wits University
Donald Gordon
Medical Centre

Patient-centred. Independent. Academic.

MEDICLINIC



UNIVERSITY OF THE
WITWATERSRAND
JOHANNESBURG