south west transplant centre

Work up of a potential kidney transplant recipient

Why is it urgent?

TRANSPLANT TEAM AT THE SOUTH WEST TRANSPLANT CENTRE

Royal Cornwall Hospitals NHS Trust

University Hospitals Plymouth NHS Trust

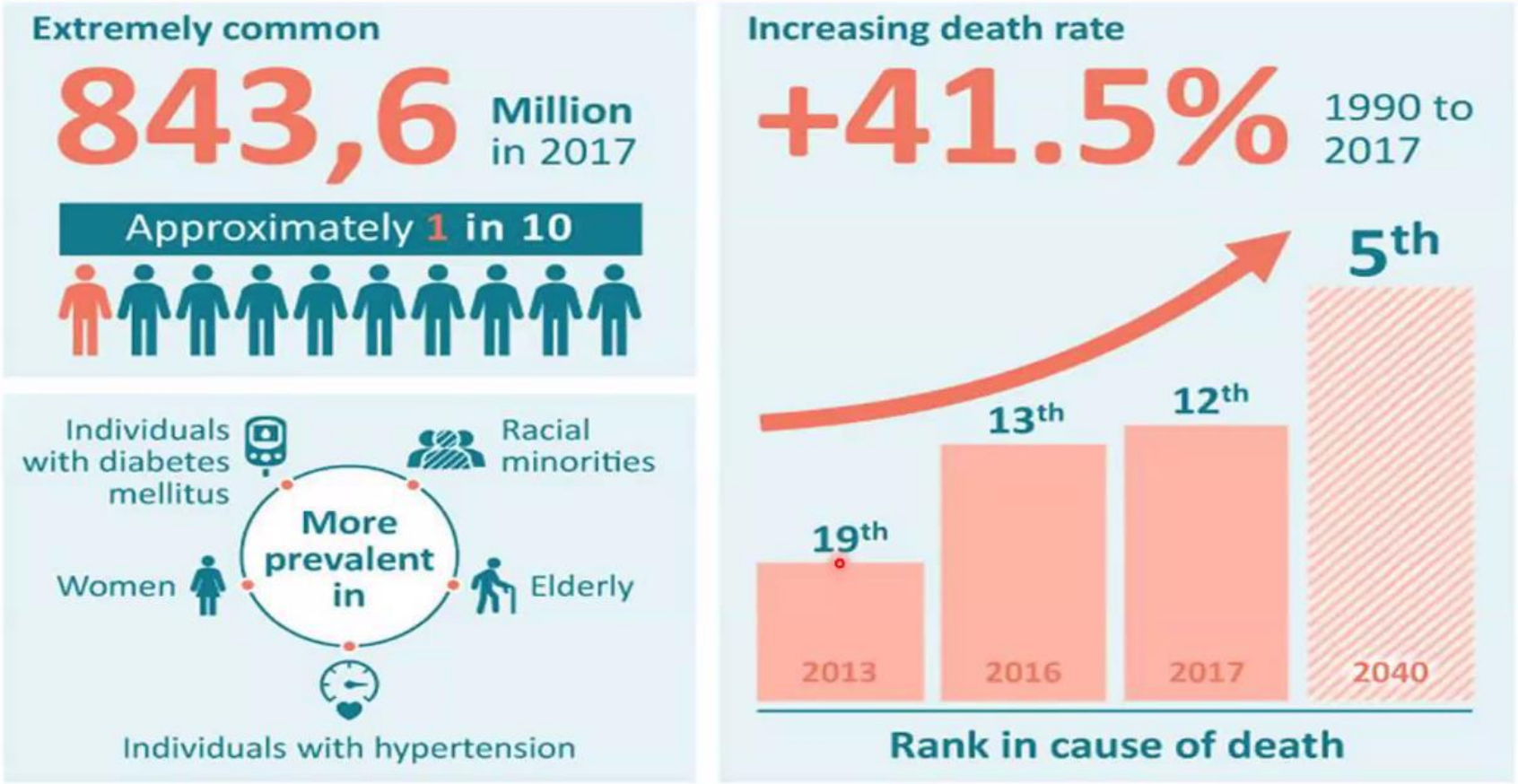
Royal Devon and Exeter NHS Foundation Trust

Current problems & solutions

1. Significant delay in performing pre-requisite investigations for potential kidney transplant recipients
2. Delay in allocating theatre space leading to prolonged cold ischaemia times (CIT)

We hope that data in this presentation will help non-renal specialties see that the survival of dialysis patients is worst than most cancers. This will facilitate urgent tests/ investigations/ clinic review appointments for these patients so as to expedite their entry on to the national transplant waiting list. The sooner they get a transplant, better it is for them and for our health system.

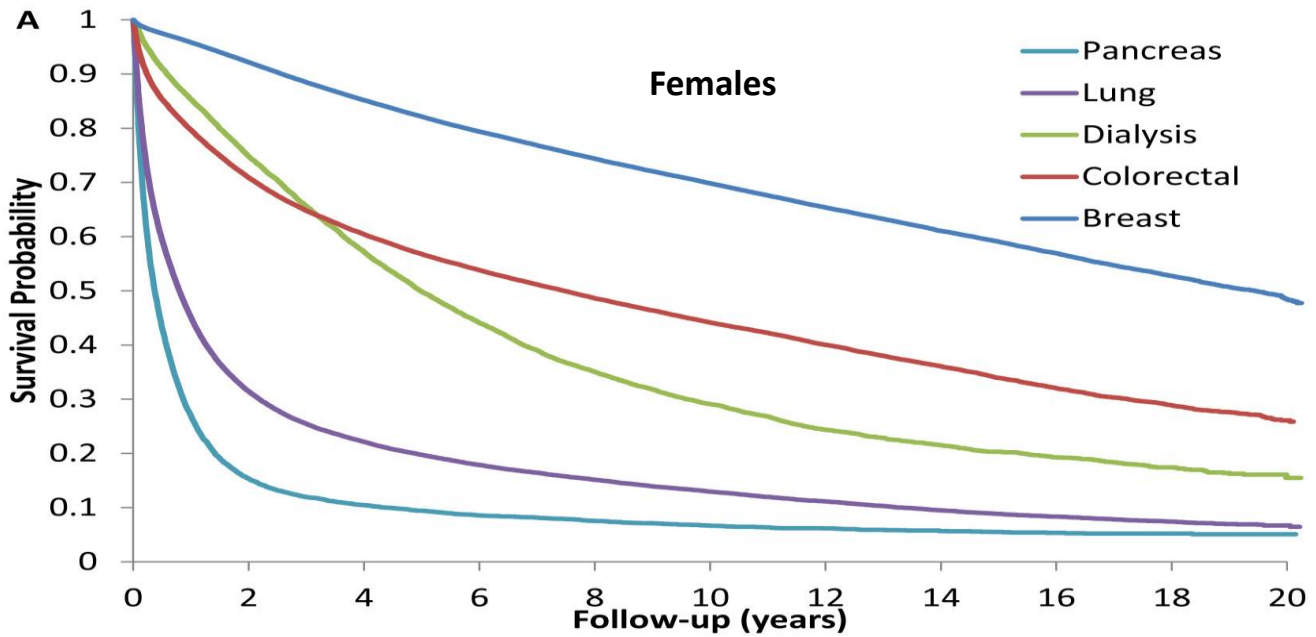
Epidemiology of chronic kidney disease



Kovesdy P. Kidney International Supplements (2022)

Survival on dialysis vs various cancers

Most cancers have better prognosis that dialysis patients. Only lung and pancreas cancer have worst survival.



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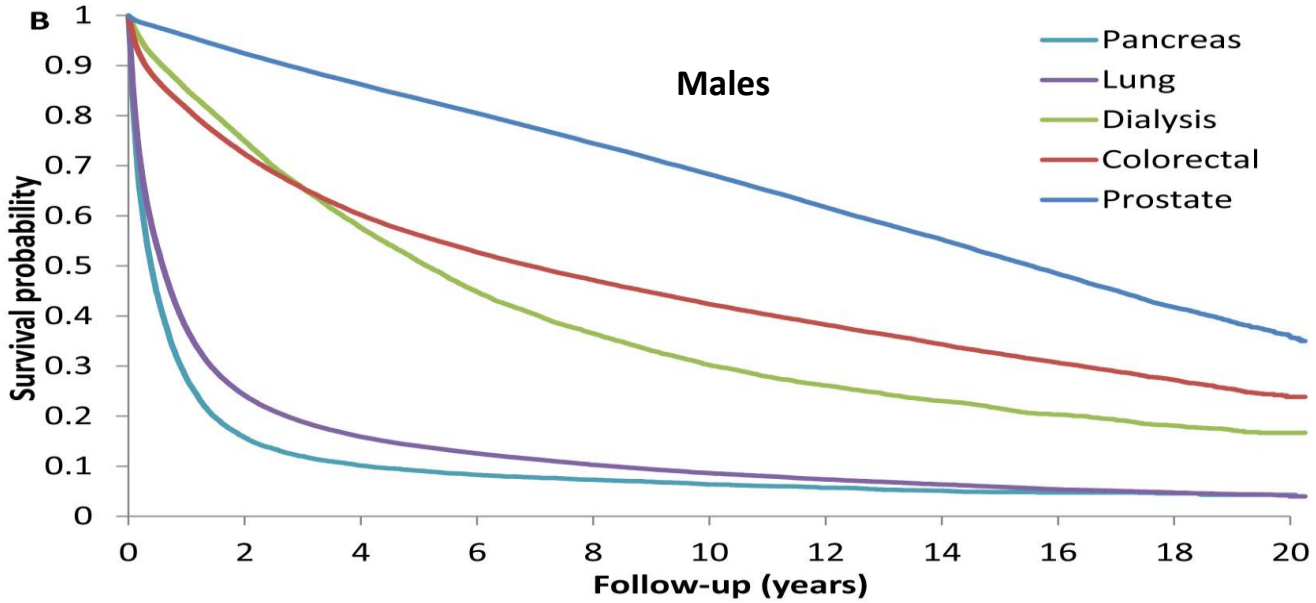


$P < 0.001$

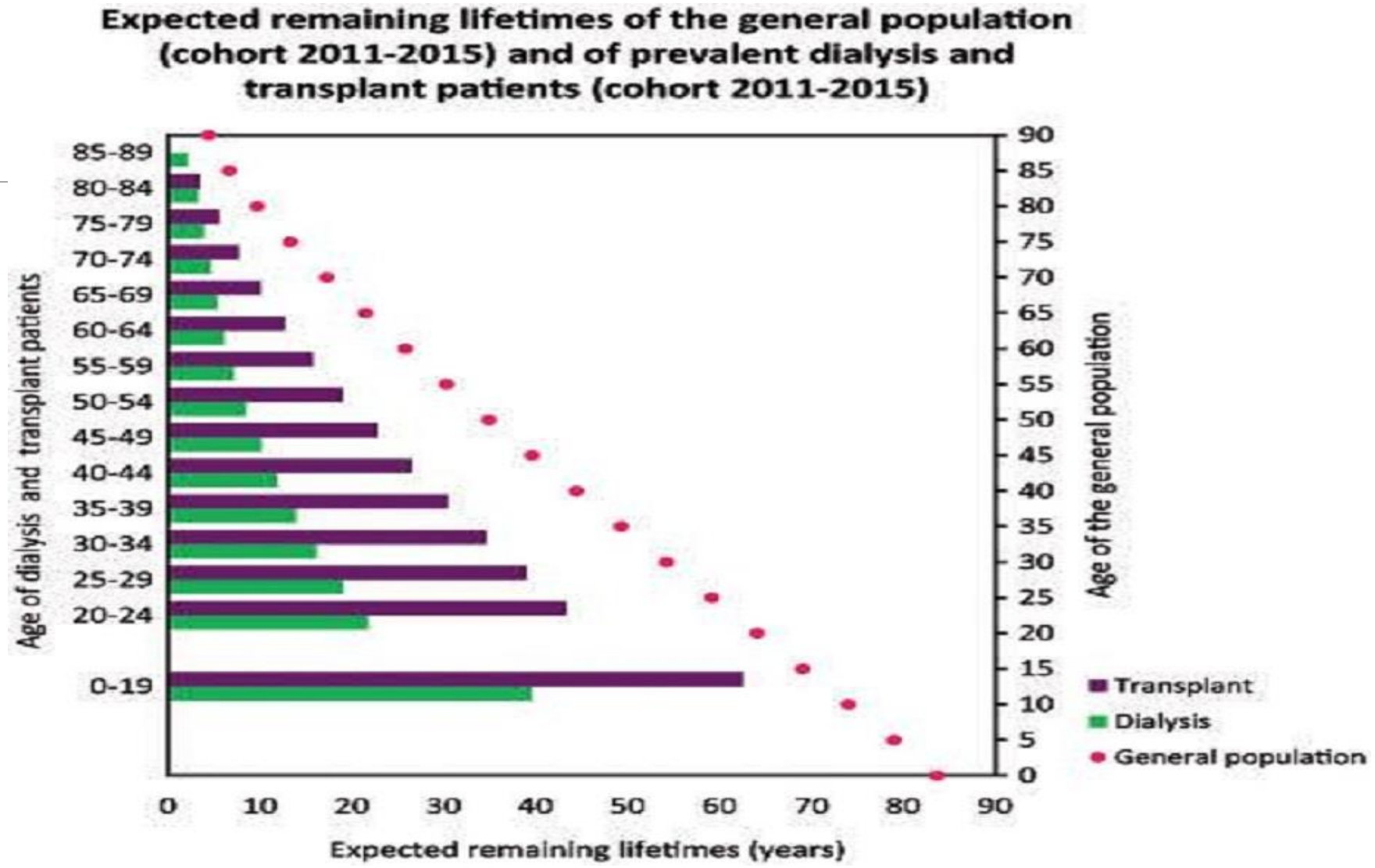
American Journal of Kidney Diseases 2019 73765-776DOI: (10.1053/j.ajkd.2018.12.011)

Survival comparison pre- and post-Tx

Life expectancy of a 30-year-old on dialysis is 20 years as compared to 50 years for general population.

In other words, a 30-y-o dialysis patient has the life expectancy of a healthy 70-y-o person.

A timely transplant adds 20 more years to the life expectancy.



Kramer, A. , Pippias, M., Noordzij, M., Stel, V. S., Afentakis, N., Ambühl, P. M., Andrusev, A. M., Fuster, E. A., Arribas Monzón, F. E., Asberg, A., Barbullushi, M., Bonthuis, M., Caskey, F. J., De la Nuez, P. C., Cernevskis, H., Des Grottes, J. M., Garneata, L., Golan, E., Hemmelder, M. H., ... Jager, K. J. (2018). The European Renal Association – European Dialysis and Transplant Association (ERAEDTA) Registry Annual Report 2015: A summary. Clinical Kidney Journal, 11(1), 108-122. https://doi.org/10.1093/ckj/sfx149

Benefits of a pre-emptive kidney transplant

* 40,000 kidney Tx recipients

- **25 and 27% reductions in the relative risk for graft loss for deceased- and live-donor transplants, respectively**
- Corresponding risks for patient death were reduced by 16 and 31%

** 7948 patients from the Dutch National Organ Transplant Registry

- **10-year survival was 73% with pre-emptive Vs 45% with 3 years on dialysis**
- Survival benefit to 40-y-o = 8-10 yrs; for 70-y-o, 4-6 years

* Preemptive kidney transplantation: the advantage and the advantaged. Kasiske BL, Snyder JJ, Matas AJ, Ellison MD, Gill JS, Kausz AT. J Am Soc Nephrol. 2002;13(5):1358.

** Early living-donor kidney transplantation: a review of the associated survival benefit. Liem YS, Weimar W. Transplantation. 2009;87(3):317.

Benefits of a pre-emptive kidney transplant

2

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TI Effect of the use or nonuse of long-term dialysis on the subsequent survival of renal transplants from living donors.

AU Mange KC, Joffe MM, Feldman HI

SO N Engl J Med. 2001;344(10):726.

BACKGROUND: The effect on allograft survival of the transplantation of kidneys from living donors without the previous initiation of long-term dialysis is controversial.

METHODS: Using data from the U.S. Renal Data System, we performed a retrospective cohort study of 8481 patients who were or who were not treated by long-term dialysis before receiving a kidney transplant from a living donor. The relative rate of allograft failure for patients who received a transplant without previously undergoing long-term dialysis, as compared with those who underwent long-term dialysis before transplantation, was assessed by proportional-hazards analysis, with adjustment for potential confounding variables, including the transplantation center and median household income. The association between the receipt of a kidney transplant from a living donor without previous dialysis ("preemptive transplantation") and the risk of biopsy-confirmed acute rejection within six months after transplantation was evaluated by conditional logistic-regression analysis, with adjustment for the transplantation center.

RESULTS: Transplantation of a kidney from a living donor without previous long-term dialysis was associated with a 52 percent reduction in the risk of allograft failure during the first year after transplantation (rate ratio, 0.48; P=0.002), an 82 percent reduction during the second year (rate ratio, 0.18; P=0.001), and an 86 percent reduction during subsequent years (rate ratio, 0.14; P=0.001), as compared with transplantation after dialysis. The reduction in the rate of allograft failure during the first year was not significant when adjustment was made for the timing of acute rejection within the first year (rate ratio, 0.69; 95 percent confidence interval, 0.44 to 1.10; P=0.10). Increasing duration of dialysis was associated with increasing odds of rejection within six months after transplantation (P=0.001).

CONCLUSIONS: Preemptive transplantation of kidneys from living donors without the previous initiation of dialysis is associated with longer allograft survival than transplantation performed after the initiation of dialysis.

AD Center for Clinical Epidemiology and Biostatistics and the Department of Biostatistics and Epidemiology, University of Pennsylvania, Philadelphia, USA. kmange@cceb.med.upenn.edu

PMID 11236776

Living donor kidney Tx before starting dialysis reduces risk of graft failure by 52%

Increased mortality with delayed transplantation

Medline ® Abstracts for References 1-3 of 'Kidney transplantation in adults: Dialysis issues prior to and after kidney transplantation'

1

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TI Effect of waiting time on renal transplant outcome.

AU Meier-Kriesche HU, Port FK, Ojo AO, Rudich SM, Hanson JA, Cibrik DM, Leichtman AB, Kaplan B

SO Kidney Int. 2000;58(3):1311.

BACKGROUND: Numerous factors are known to impact on patient survival after renal transplantation. Recent studies have confirmed a survival advantage for renal transplant patients over those waiting on dialysis. We aimed to investigate the hypothesis that longer waiting times are more deleterious than shorter waiting times, that is, to detect a "dose effect" for waiting time.

METHODS: We analyzed 73,103 primary adult renal transplants registered at the United States Renal Data System Registry from 1988 to 1997 for the primary endpoints of death with functioning graft and death-censored graft failure by Cox proportional hazard models. All models were corrected for donor and recipient demographics and other factors known to affect outcome after kidney transplantation.

RESULTS: A longer waiting time on dialysis is a significant risk factor for death-censored graft survival and patient death with functioning graft after renal transplantation (P<0.001 each). Relative to preemptive transplants, waiting times of 6 to 12 months, 12 to 24 months, 24 to 36, 36 to 48, and over 48 months were associated with 21, 28, 41, 53, and 72% increase in mortalityrisk after transplantation, respectively. Relative to preemptive transplants, waiting times of 0 to 6 months, 6 to 12 months, 12 to 24 months, and over 24 months were associated with 27, 37, 55, and 68% increase in risk for death-censored graft loss after transplantation, respectively.

CONCLUSIONS: Longer waiting times on dialysis negatively impact on post-transplant graft and patient survival. These data strongly support the hypothesis that patients who reach end-stage renal disease should receive a renal transplant as early as possible in order to enhance their chances of long-term survival.

AD Departments of Medicine, Epidemiology and Surgery, The University of Michigan, Ann Arbor, USA.

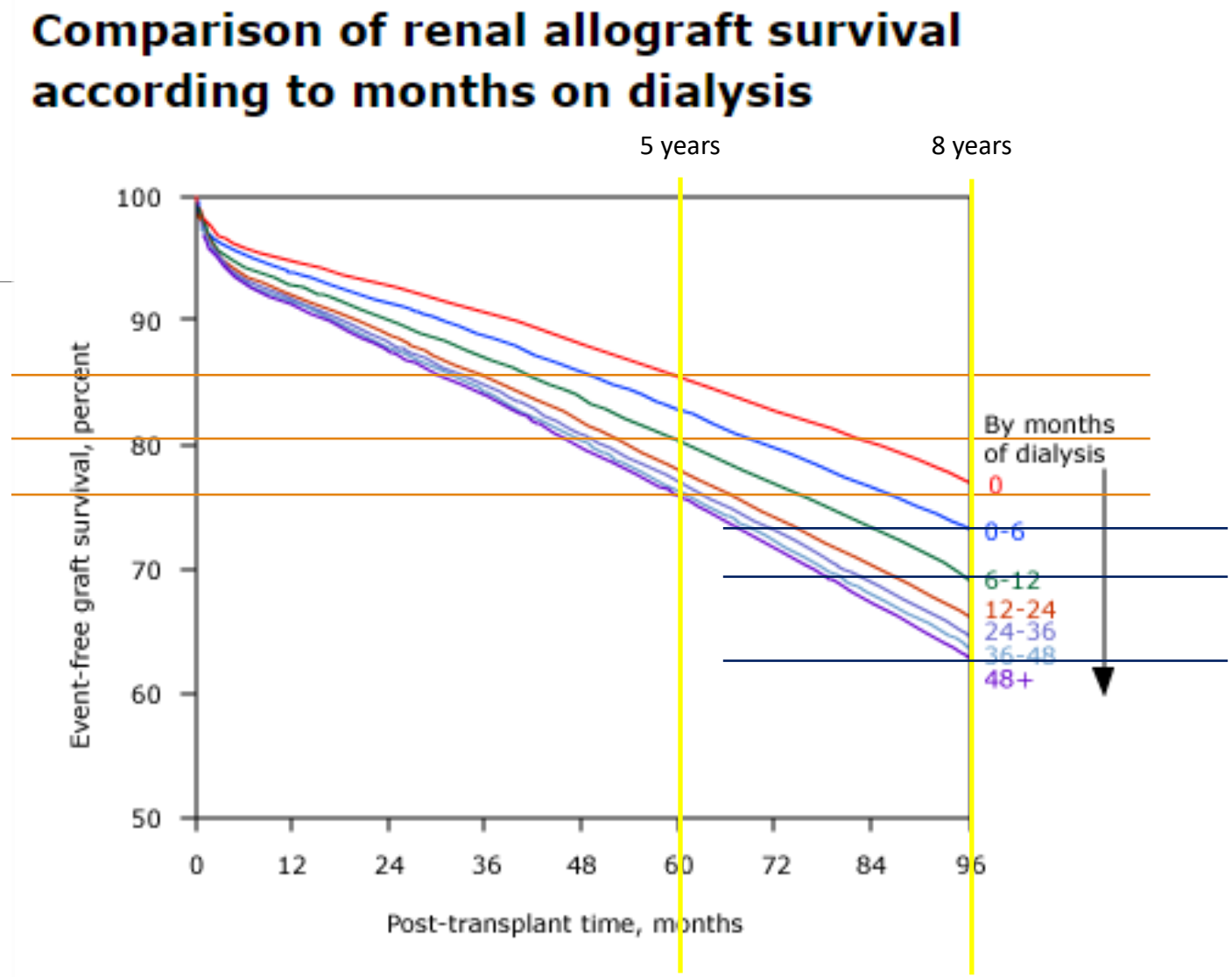
PMID 10972695

Compared to pre-emptive Tx, waiting time on dialysis of 1, 2, 3, 4 & 4+ years increases mortality risk by 21%, 28%, 41%, 53% & 72% respectively

Graft survival is reduced significantly the longer a patient stays on dialysis

5-year graft survival is reduced from 86% to 77% with a patient getting a kidney Tx before starting dialysis, compared to a Tx after having been on dialysis for 4 years.

Similarly, 8-year graft survival is reduced from 73% to 63%



Data from: Meier-Kriesche HU, Kaplan B. Waiting time on dialysis as the strongest modifiable risk factor for renal transplant outcomes: A paired donor kidney analysis. Transplantation 2002; 74:1377.

UpToDate®

Theatre prioritisation for kidney transplantation

Priority 1a - Emergency procedures to be performed in <24 hours

(n.b. This prioritisation is about 'when and not by whom' during the Covid19 Crisis - see notes below).

General surgery (including oesophago-gastric, HPB, coloproctology, breast, endocrine, bariatric)	Emergency laparotomy - *Peritonitis* *Perforation* *Ischaemia* *Necrotising fasciitis* *Small and large bowel obstruction with concerning features of incipient ischaemia/ perforation* *Post-operative complications* (e.g. anastomotic leaks) *Bleeding* - not suitable for/ responding to endoscopic/control/ interventional radiology	Appendicectomy - complicated/ unresponsive to conservative Rx	Intra-abdominal trauma - unsuitable for/not responding to conservative Rx	Drainage of localised sepsis/necrosis - not responding to conservative Rx (antibiotics/ Interventional radiology)	Benign Perforated oesophagus/ stomach - with survivable mediastinitis/ peritonitis	Acute airway obstruction - thyroid	All solid organ transplants

In 2020-21, FSSA acknowledged the urgency of kidney transplants and placed it in amongst the Priority 1a category

Theatre prioritisation; why Tx first *cf* other urgent surgeries?

NHS England

A07/S/a

NHS STANDARD CONTRACT

FOR ADULT KIDNEY TRANSPLANT SERVICE

SCHEDULE 2 – THE SERVICES A. SERVICE SPECIFICATIONS

Minimise time in hospital (domain 3 and 5)

Timely operating theatre availability to ensure optimal cold ischemia times and it is expected that there will be 24/7 availability of an emergency theatre. Patients having a deceased donor transplant will be given priority in the emergency operating theatre. Once a clinical decision has been made to proceed induction of anaesthesia will normally start within 2 hours, or if theatre is occupied they will be allocated the next theatre slot after the current operation is finished. There will be a recording of exceptions.

NHS England/A07/S/a
Gateway Reference 01371


Thank You
WELCOME TO
PLYMOUTH