

K Living Kidney Sharing Scheme eakout Session

a Burnapp

LDC Induction, September-October 2021



m: Discussion





All about you and want you want to know



ossible Topics for discussion

- Background to the scheme
- Why do we share living kidneys?
- How does it work- matching runs and criteria; logistics; troubleshooting?
- What are the challenges and what can we improve?
- Who is and can be included in matching runs?
- Who benefits- outcomes for patients and transplants?
- Future Strategy and International perspective?
- Anything else?





UK Strategies



ne Ambition: 2010-2020

To match world class performance

eximise opportunities for donors and recipients to contribute o and benefit from the UK Living Kidney Sharing Scheme UKLKSS) by ensuring that it is clinically and cost effective

75% of matched donors proceed to donation and achieve maximum number of transplants

All donors and recipients proceed to surgery within 8 weeks of a suitable match being identified*

Blood and Transp

Living Donor Kidney Transplantation 2020: A UK Strategy



*revised timeframes in 2019 to before date of inclusion in next run to accommodate increased activity

r Greatest Opportunity

ne strategy

Living donation

Deceased donation

Organ Utilisation



https://www.odt.nhs.uk/odt-structures-and-standards/key-strategies/meeting-the-nee

iving Donation will become an expected art of care, where clinically appropriate, or all in society



Silver donor pin sent to every living organ donor in recognition of the gift of donation.

2030 Strategy: Meeting the Need

- Continue to innovate and maximise transplant opportunities
- -More compatible pairs; longer 'chains'; management of higher immune risk recipients within the scheme
- Enhance capacity to meet demand including timeliness of transplantation
- -Collaboration between centres; IT solutions
- **Digital transformation**
- –Donor-recipient registration and organ offering; theatre scheduling and coordination between centres; develop matching algorithm
- Explore options for collaboration with other European countries
- –Partner in COST European Network for Collaboration on Kidney Exchange Programmes (ENCKEP)
- -Identify possible EU partners for collaboration; set up MoUs





Who does the scheme benefit and how doe it work?

ving kidney donation otential Donor-Recipient pair



- Blood group incompatibility
- Positive crossmatch

Approx 20-30% of possible living donor transplants

Background

Blood and Tra



eptember 2006	Change in legal framework
	Development of national scheme including matching algorithm
oril 2007	First paired exchange matching run
	First non-directed altruistic donation
ngoing	Review and refinement of the sharing schemes

*Matching algorithm developed with University of Glasgow, Manlove et al

ne scheme today - matching runs identify....

Blood and Tra



The scheme today - matching runs identify....



Ientifying Optimal Combination of Transplants

- Over 200-300 pairs every matching run'
- This results in 2000-5000 arcs donor-recipient matches)
- Arcs are weighted to give preference to certain matches
- Seek to maximise number of ransplants according to criteria leveloped with transplant community



Acknowledgement: Tommy Muggleton

Matching software implemented by colleagues at University of Glass School of Computing Scie **Matching Principles**

Blood and Tra

Optimal Combination of Transplants¹

- Maximise 2-way exchanges (inc. embedded in 3-way)
 - Maximise number of transplants
- 3. Minimise 3-way exchanges
- 4. Maximise 3-way with embedded 2-way and long chains
- 5. Maximise 'score' of set of transplants

Score based on

- Previous matching runs for patient
- Sensitisation of patient
- HLA mismatch of identified transplant
- Donor-donor age difference

Key Characteristics

UK-wide scheme; centrally run by NHSBT

- All UK transplant centres participate (adults & children)
- All work up complete
- Recipients can be registered with >1 donor
- Incompatible and compatible pairs
- Can define individual age & HLA match requirements
- Permit simple HLA or ABO incompatible transplants through scheme
- Simultaneous surgery preferred; kidneys travel
- Anonymity prior to surgery
- Annual timetable; quarterly matching runs
- 'Pre-run' to confirm inclusion of potential donor matches
- All recipients suspended from UK deceased donor transplant list once match identified

s a Team Sport: Leadership and Support

- entral leadership and administration
- inical buy-in transplant and non-transplant centres
- &I collaboration- laboratories UK-wide
- inicians
- cientists
- atisticians
- formation/hub services staff
- gital and database teams







What are the challenges and what do we d about them?

nderestimated the Scope

- ompatible pairs
- on-directed altruistic donors
- nains v cycles
- ng waiting patients
- Tailoring to immunological complexity Ethnicity



nallenges

- Size and complexity of the scheme; managing success
- Non-proceeding transplants; delays and cancellations
- Timely surgery and simultaneous coordination
- Complex cases; exchange of information between centres
- Completeness of registration data
- Maximising potential of non-directed altruistic kidney pool
- Awareness and access; clinical decision-making
- Clinical governance and reporting



ow do we manage what we have created?



riorities



- *laximise transplants*
- ncrease flexibility in the scheme
- ackle non-proceeding transplants
- mprove access and awareness



creasing the Donor Pool

- clusion of non-directed donors as a 'default'
- clusion of compatible pairs
- esensitisation and low risk ABOi for highly sensitised recipients

n-directed Altruistic Donors (NDADs)

Blood and Tra

	Total NDADs	NDADs direct to transplant list	NDADs donating to UKLKSS	Total transplants from 'Chains'	Total transplants from NDADs
12	60	57	3	6	63
13	107	85	22	44	129
14	110	87	23	46	133
15	94	73	21	54	127
16	85	59	26	63	122
17	87	61	26	64	125
18	64	33	31	79	112
19	102	50	53	136	186

air Inclusion by Matching Run



Pairs included in matching runs, 1 April 2013 - 31 March 2019

Blood and Transplan

Source: Annual Report on Living Donor Kidney Transplantation 2018/19, NHS Blood and Transplant

ompatible Pairs

total, 206 patients have appeared in a matching run with a compatible donor

9 of these have received a transplant through the scheme

- 71% matched in one matching run
- 81 had a better HLA match
- 42 had a better age match
- 29 had better age and HLA match

those 87 not transplanted in the scheme, 63% appeared in 1 matching run only

mpatible Pairs

Blood and Tra

		Number of transplan	its
ansplant year	Compatible Pairs	Transplants completing	Total due to inclusion of
		the exchange	compatible pairs
2012	3	2	5
2013	2	2	4
2014	4	6	10
2015	10	19	29
2016	10	17	27
2017	17	24	41
2018	25	27	52
2019	41	50	91
Total	112	147	259

air Inclusion by Centre





Figure 4.3 Number of pairs included in matching runs, 1 April 2013 - 31 March 2019

Source: Annual Report on Living Donor Kidney Transplantation 2018/19, NHS Blood and Transplant

mpatible Pairs

Blood and Transplant



Figure 4.7 Patients transplanted by pair incompatibility in matching runs, 1 April 2015 - 31 March 2019

*Guy's team assess donors and perform transplants for GOSH recipients

Source: Annual Report on Living Donor Kidney Transplantation 2018/19, NHS Blood and Transplant

creasing Flexibility

- ecipient age and HLA preferences required at inclusion
- Reduces risk of late declines
- esignated timeframe for surgery of 'matched transplants' across all centres
- Reduces risk of non- participation & non-proceeding transplants due to dela
- on-simultaneous surgery
- Reduces delay for multiple matches; low-risk if reasons for staggering are non-clinical and/or front of chain proceeds before the end
- ioritisation for transplant for 'paired' recipients if they miss out on a transpla
- Increases confidence for donor-recipient pairs entering into the scheme

ducing non-proceeding transplants: n-simultaneous surgery

Blood and Tra

- roduced in 2015 to facilitate 'long chains' and logistically complex exchanges
- Most due to theatre availability/capacity in individual centres
- sk of transplants not proceeding associated with
- linical reasons for staggering
- xtended intervals between transplants
- w risk of non-proceeding transplants

ducing non-proceeding transplants: n-simultaneous surgery

Blood and Tra

roduced in 2015 to facilitate 'long chains' and logistically complex exchanges

Most due to theatre availability/capacity in individual centres

k of transplants not

64 non-simultaneous exchanges have facilitated 172 transplants to date

w risk of non-proceeding transplants

neliness of Transplantation





Source: Annual Report on Living Donor Kidney Transplantation 2018/19, NHS Blood and Transplant

n-proceeding Transplants



October 2017- July 2018 (46 reasons)



tre-Specific Data

Blood and Tra



y Mantra

'If in doubt, leave them out'



proving Access and Awareness

Blood and Tra

- blic and patient engagement
- ared learning
- ofessional decision-making

nallenges

- itical incidents
- October 2019 and January 2020 matching runs
- educed activity due to COVID-19
- Suspended matching runs April, July, 2020; January 2021
- Collapsed exchanges due to delay
- Developments 'on hold'
- gital platform to
- Replace manual and paper-based processes Maximise potential of UKLKSS



Blood and Tra







-building the Programme

Blood and Tra



Living donor ki

In 2020

transplants at compared to 2

2/4 UKLKSS mat runs perform

UK Living Kidney Sharing Schemes Performance Figures

Blood and Transplant



Non Proceeding Paired Donation Transplants



	Total May 2007- Apr 2021
Pairs Registered	2937
Patients Registered	2658
Altruistic Donors in Paired Donation Matching Runs	409
Compatible Pairs Registered	244
Transplants	1391

Patients in Each Matching Run



UKLKSS Records	In a Matching Run
Pairs Included	313 (Apr 2019)
Patients Included	287 (Apr 2019)
Altruistic Donors Included	29 (Feb 2020)
Transplants Identified	97 (Apr 2019)
Transplants Proceeded	72 (Apr 2019)



Altruistic Donor Transplants



Adult living donor kidney transplants







tibody Incompatible Transplantation

Adult

NHS Blood and Transplant



Paediatric

Blood and Tr



Source: Annual Report on Living Donor Kidney Transplantation 2018/19, NHS Blood and Transplant

Source: Annual Report on Living Donor Kidney Transplantation 2018/19, NHS Blood and Transplant

cipient CRF by Transplant Type

Blood and Tra

Adult

NHS Blood and Transplant



Paediatric

Blood and 1



Source: Annual Report on Living Donor Kidney Transplantation 2018/19, NHS Blood and Transplant

irce: Annual Report on Living Donor Kidney Transplantation 2018/19, NHS Blood and Transplant

ance of transplant by blood group

2012 - 2017

Recipient ABO

		0	А	В	AB
		95/307	81/144	21/43	6/12
	0	(31%)	(56%)	(49%)	(50%)
Donor	Δ	106/429	56/192	27/57	2/14
ABO	A	(25%)	(29%)	(47%)	(14%)
	Р	32/107	21/54	13/44	1/6
	В	(30%)	(39%)	(30%)	(17%)
		4/17	8/16	3/14	0/5
	AB	(24%)	(50%)	(21%)	(0%)

nance of transplant by blood group

2012 - 2017

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cipient Ethnicity

Blood and Tra

dult





NHS

Paediatric

Blood and



ual Report on Living Donor Kidney Transplantation 2018/19, NHS Blood and Transplant

Source: Annual Report on Living Donor Kidney Transplantation 2018/19, NHS Blood and Transplan

UK scheme - largest in Europe

Blood and Tra



European Network for Collaboration on Kidney Exchange Programmes (ENCKEP)

anced programmes ler programmes es in development with no programme





Transplantation

Building kidney exchange programmes in Europe - An overview of exchange practice and activities

Biró, P. et al. (2018) Building kidney exchange programmes in Europe - An overview of exchange practice and activities. *Transplantation*, (doi:10.1097/TP.00000000002432) (PMID:30247314) (Early Online Publication)



Resources



ormation to support decision making

Blood and Tra

Blood and



JUAL REPORT ON LIVING DONOR KIDNEY TRANSPLANTATION

REPORT FOR 2017/2018 (1 APRIL 2003 - 31 MARCH 2018)

PUBLISHED SEPTEMBER 2018





Incompatible Pairs Living Donor Information Application

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	E	stimated Chance Deceased Donor	of Transplant	
	E	stimated Chance Deceased Donor	of Transplant	
t *	C .	Deceased Donor	MIDKCC	
t 💌	CONTRACTOR OF CARD		INLUK33	ABOi
-	6 Months	-	•	
Reset	1 Year	-	100	•
	5 rears			-
	Т	ransplant Surviva	l Rates	
		Deceased Donor	NLDKSS	ABOi
	6 Months			•
	4 W			
	1 Year		•	
	Reset	Reset 1 Year 3 Years 6 Months	I Year - 3 Years - 3 Years - 3 Transplant Surviva Deceased Donor 6 Months -	Reset 1 Year

UK Living Kidney Sharing Schemes Performance Figures



ansplant

HLAI .

	Transplant Survival Rates			
	Deceased Donor	NLDKSS	ABOI	HLAI
6 Months			•	
1 Year	•	-		•
3 Years	-	-		•
only d be increased by co	nsidering and antibo	dy incompatible	transplant wit	nin the scheme

http://www.odt.nhs.uk/living-dona

esources

- ps://www.odt.nhs.uk/living-donation/uk-livingdney-sharing-scheme
- <u>ps://www.organdonation.nhs.uk/become-a-</u> ing-donor/
- ps://bts.org.uk/guidelines-standards/
- p://www.giveakidney.org.uk/





ne next revolution?



ooking Ahead



ne next revolution?



r Greatest Opportunity

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Summary

- ne UKLKSS has revolutionised the approach to living donor kidney ansplantation and antibody incompatible transplantation in the UK
- is the largest national scheme in Europe and has an international reputatio
- ontinued evolution makes the most of every transplant opportunity to benef atients waiting for a kidney transplant
- ontinuous improvement is essential there is always more to do
- s a team sport
- ne devil is in the detail



knowledgements

5 Blood and Transplant colleagues Information Services Scientific Support Team Statistics and Clinical Studies

versity of Glasgow (matching algorithms) David Manlove, Peter Biro, Gregg O'Malley, James Trimble

nsplant centres and referring (non-transplant) renal units

SBT Kidney Advisory Group

tegy Development and Implementation Groups





scussion

