

Developments in transplantation

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**‘Incomprehensible jargon is the
hallmark of a profession’**

Kingman Brewster, Jr

- Setting the scene
- What's new?
- What's on the horizon?

Setting the scene

Benefits of transplantation

- Minimise disruption to family, school and social life
- Facilitate physical and emotional growth and development
- Improved survival
- Cost-effective

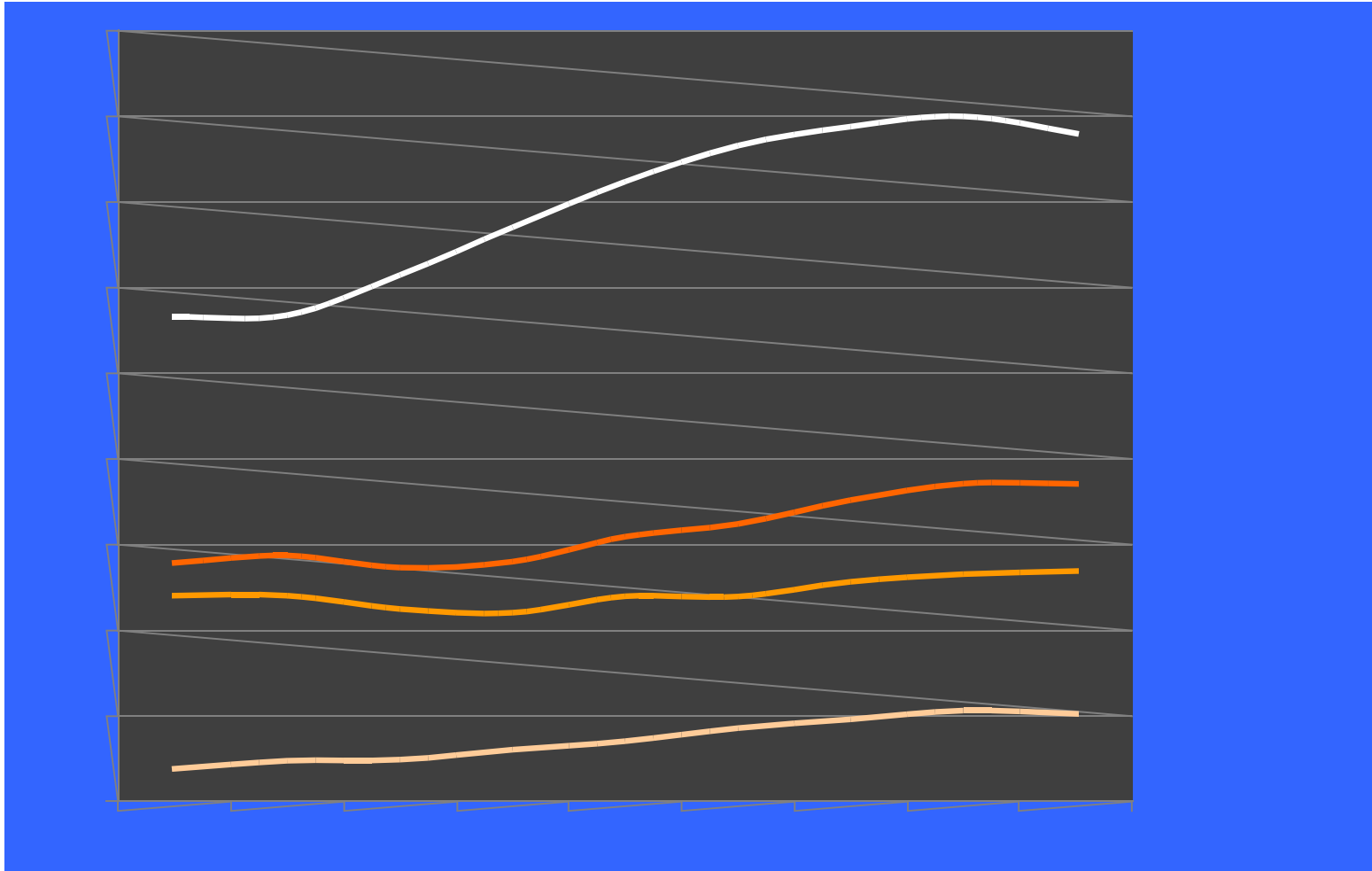
Source of Organs

Deceased donors

Donation after brain death (DBD) donors

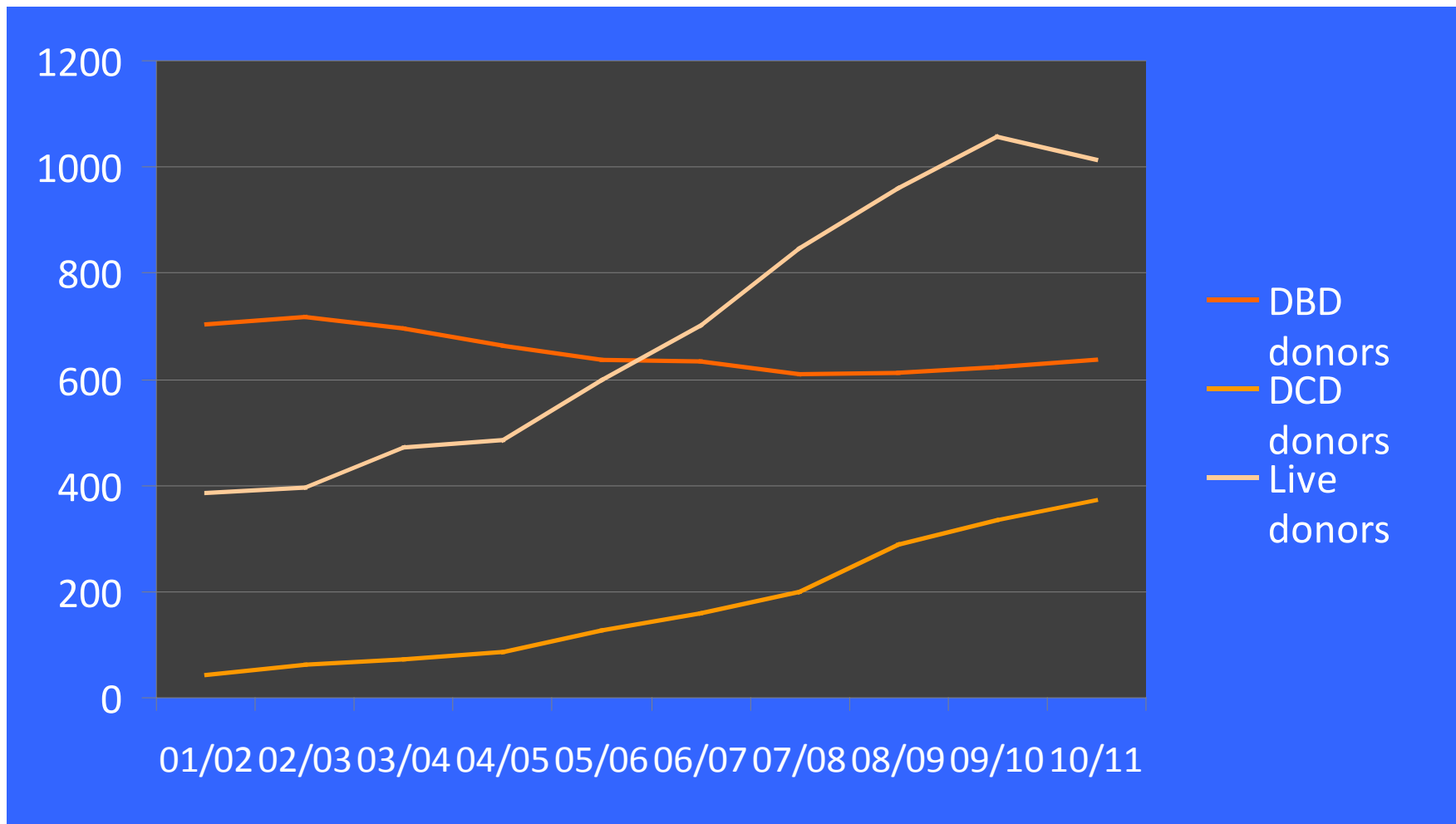
Donation after circulatory death (DCD)
donors

What is the demand for organs?



Data from NHSBT ODT

What is the supply of organs?



Data from NHSBT ODT

National trends

Donor types

- More living donors
- DBD donors are older with more co-existing conditions
- More DCD donors

Recommendations of Organ Donation Taskforce

Paediatric transplantation

- National allocation scheme for deceased donor organs favour those <18yrs old
- Median waiting time to transplant for paediatric patients registered on the kidney transplant list, 2005-2008
 - 357 days (n=352)
 - Compared with adults 1191 days (n=9091)

NHSBT data [2005-2008]

What's the ideal?

- Pre-emptive live donor kidney transplant from parent

What's the ideal?

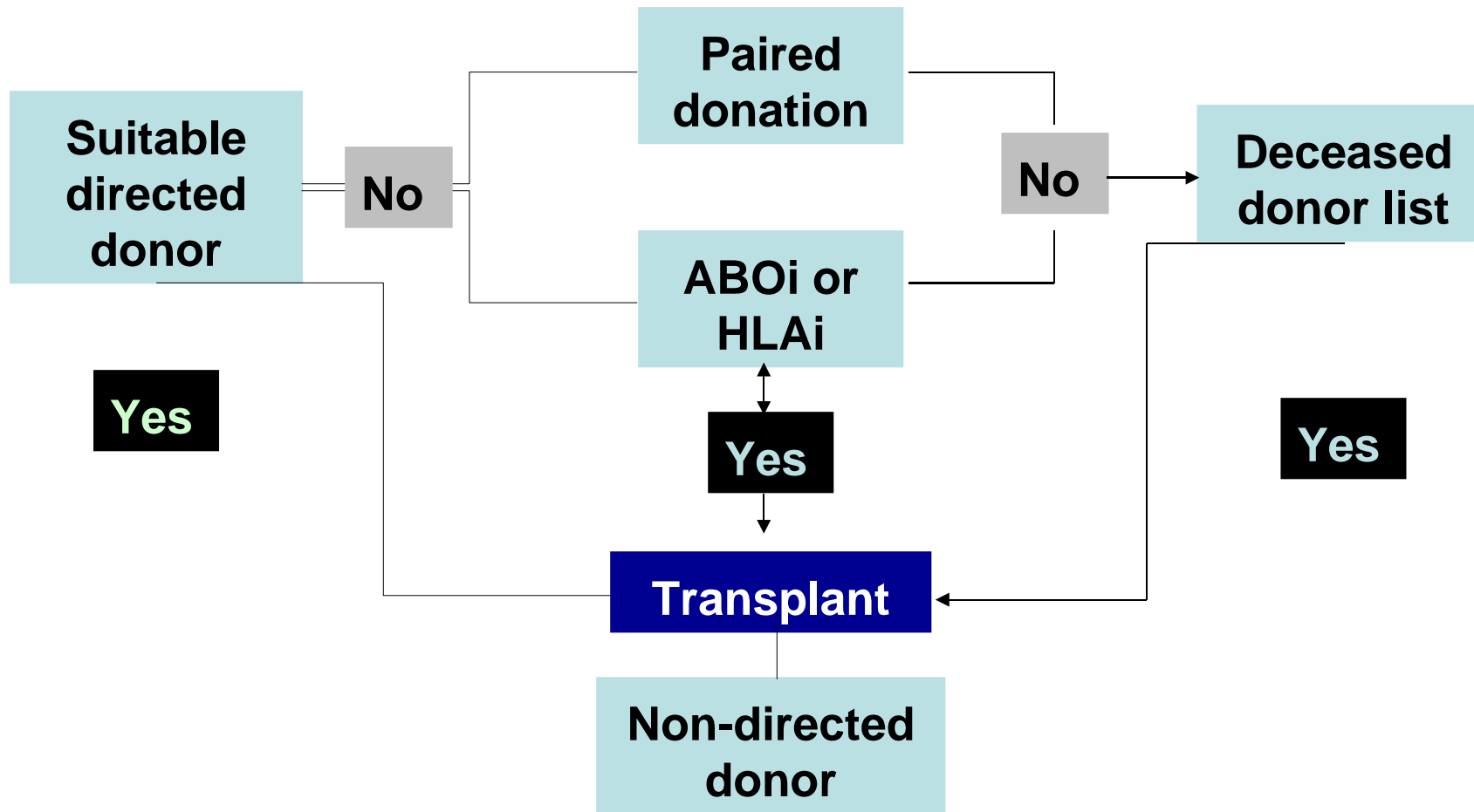
Pre-emptive live donor kidney transplant
from parent

.... but, not possible for every child

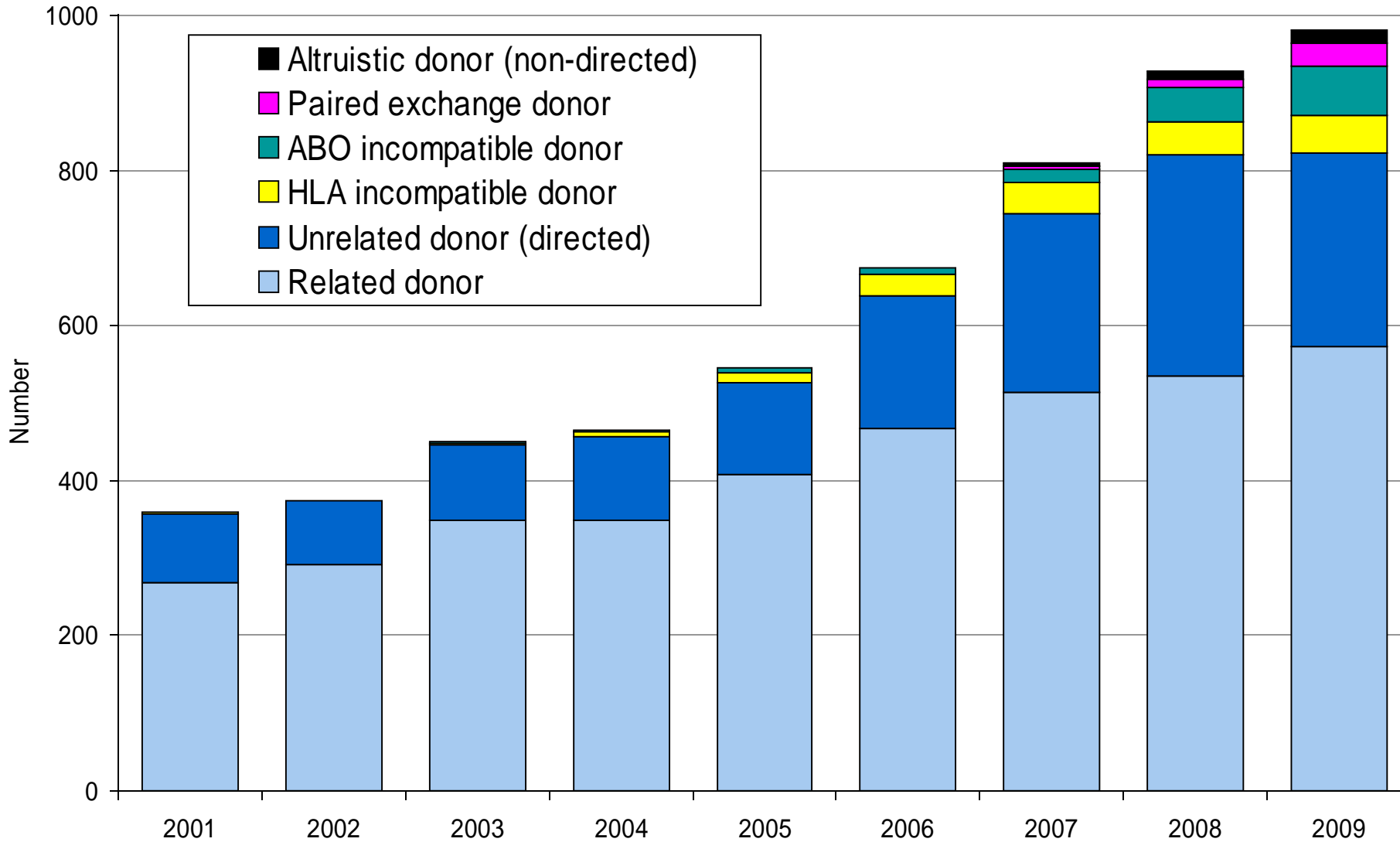
What's new?

Living kidney donation

**Transplant
tourism**



Development LD Activity - UK



Directed genetically/emotionally related

- Usually parent but may be grandparent or aunt/uncle
- What about a family friend?
- What if testing demonstrates misattributed paternity?

ABO incompatible transplantation

What is it?

- Transplanting intentionally across the blood group barrier
- BUT, transplanting unintentionally across the blood group barrier is a DoH 'Never' event and results in hyperacute rejection of the organ

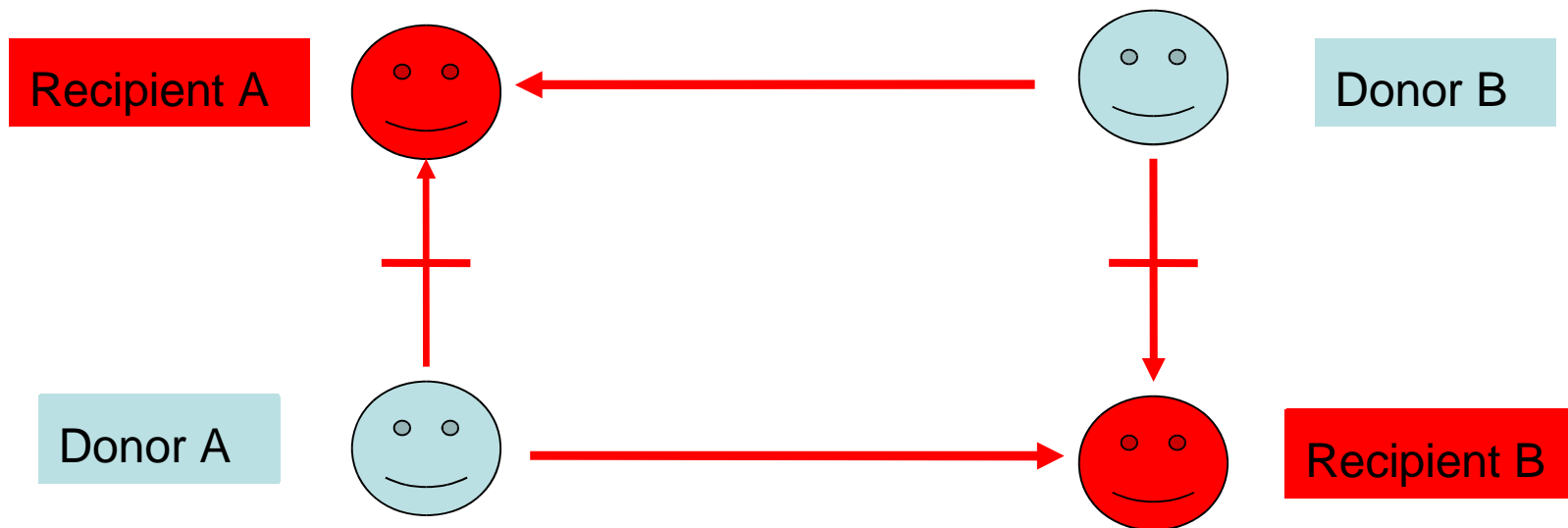
How does it work?

- Pre-treating the recipient before transplantation to remove the antibodies
- Determine level of antibodies
- Rituximab 2-4 weeks pre-op and plasmapheresis/immunoabsorption (x5 treatments)
- Monitoring levels of antibody post-transplant and further PP/IA as required

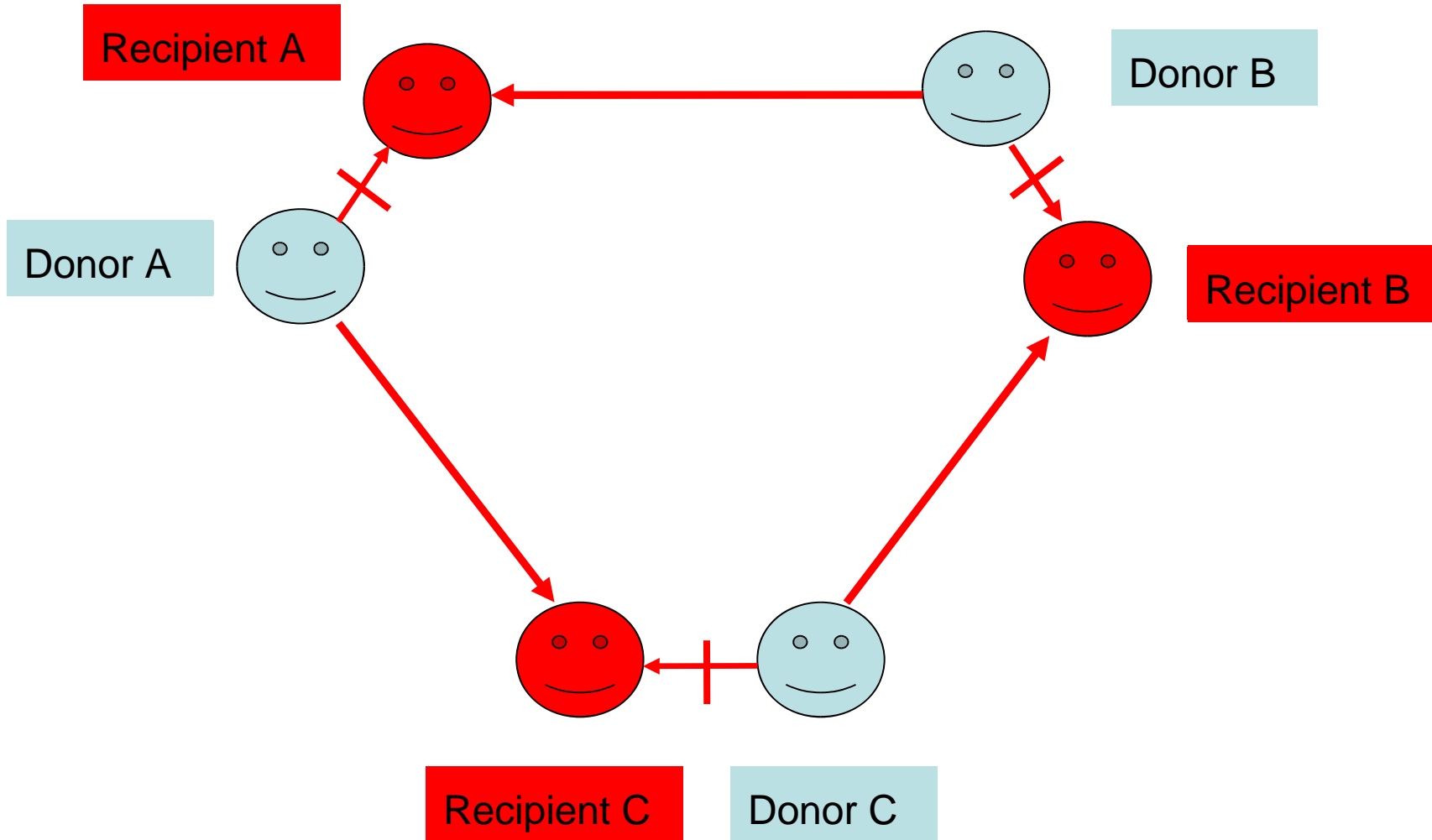
Implications

- Pre-treatment requires vascular access
- Pre-treatment can be longer than anticipated, thus delaying date of surgery
- Some extra risks for the recipient
- Extra monitoring of recipient
- Long term results slightly inferior to conventional LD transplantation (equivalent to deceased donor)

Paired donation – two-way exchange



Pooled donation – three way exchange



Implications

- Matching run done every 3 months and suitable match only found on 20% of occasions
- Anonymity required – therefore donating to and receiving from a stranger
- Increased storage time for kidney

Non-directed altruistic donation

Individual donates a kidney after medical/psychological testing

Allocated according to national allocation guidelines – those <18yrs will get preference

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Number of 'altruistic' kidney donors is on the rise

More and more Britons are choosing to risk long and arduous surgery to give strangers a new lease of life

Denis Campbell, health correspondent
The Observer, Sunday 3 April 2011
[Article history](#)

Deceased donor

DBD donor

- Fewer standard donors
- Extended criteria donor – higher risk donor (increased risk to organ and/or recipient)
- Use of both kidneys: En-bloc (suitable for donors 18m-5yrs); or dual (suitable for elderly donors)

DCD donor

- Long term outcomes for kidney equivalent to standard DBD donor, but 50% incidence of kidney initially slow to function

Implications

- Recognise that all transplants come with some risks – as does dialysis
- Paediatric recipients get priority in national allocation scheme and don't give offered kidneys from donors >50yrs
- Kidneys from DCD donors may be slow to function initially and may prolong hospital stay

What's on the horizon?

Near and far horizons

- HLA incompatible transplantation
- 'Domino' paired donation
- Directed non-genetically/emotionally live donor transplantation

- Xenotransplantation
- Stem cell technology



Any questions?