



Barriers to Transplantation



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Overview

- Transplant Basics
 - Living Donor vs Deceased Donor Transplant
 - Referral and assessment processes
- Barriers to Transplant
- Strategies to decrease the barriers

Transplant Referral & Assessment

- Primary Nephrologist completes baseline testing
 - Transplant referral not too early / too late
- Transplant Assessment when:
 - A living donor is in work up
 - Highly sensitized
 - Predicted to be within 2 years of DDTx

Types of Kidney Transplants

- **Deceased Donor Transplant** with allocation by:
 - Blood type, dialysis waiting time, age appropriate kidney
- **Living Donor Transplant**
 - Direct Donation (includes OOP and OOC)
 - Living Donor Paired Exchange Program (LDPE)
 - Non-directed Anonymous Donor (NDAD)

Blood Type Compatibility

A Recipient of blood type....	Is compatible with a Donor of blood type
A	A or O
B	B or O
AB	A, B, AB or O
O	O

The Rh Factor (+ or -) is **NOT** Important for Kidney Transplant

Immunology Testing

- Tissue Typing (blood sample)
 - Identifies genetic make up
 - Tells how genetically similar/dissimilar a recipient is to the donor
- Antibody identification
 - Identifies Recipient sensitivities
 - Commonly sensitized through blood transfusions, pregnancy, or previous transplant
- Crossmatch
 - Ensures no reaction between recipient and donor blood specimens
 - A predictor of kidney rejection

BC Transplant Stats

British Columbia Totals			
Year	Live donors	Deceased Donors	Total
2006	101	63	164
2007	106	66	172
2008	80	87	167
2009	89	56	145
2010	97	92	189
2011	98	93	191
2012 (to-date Oct 9, 2012)	58	92	150

Average Wait Times for First Deceased Donor Transplant

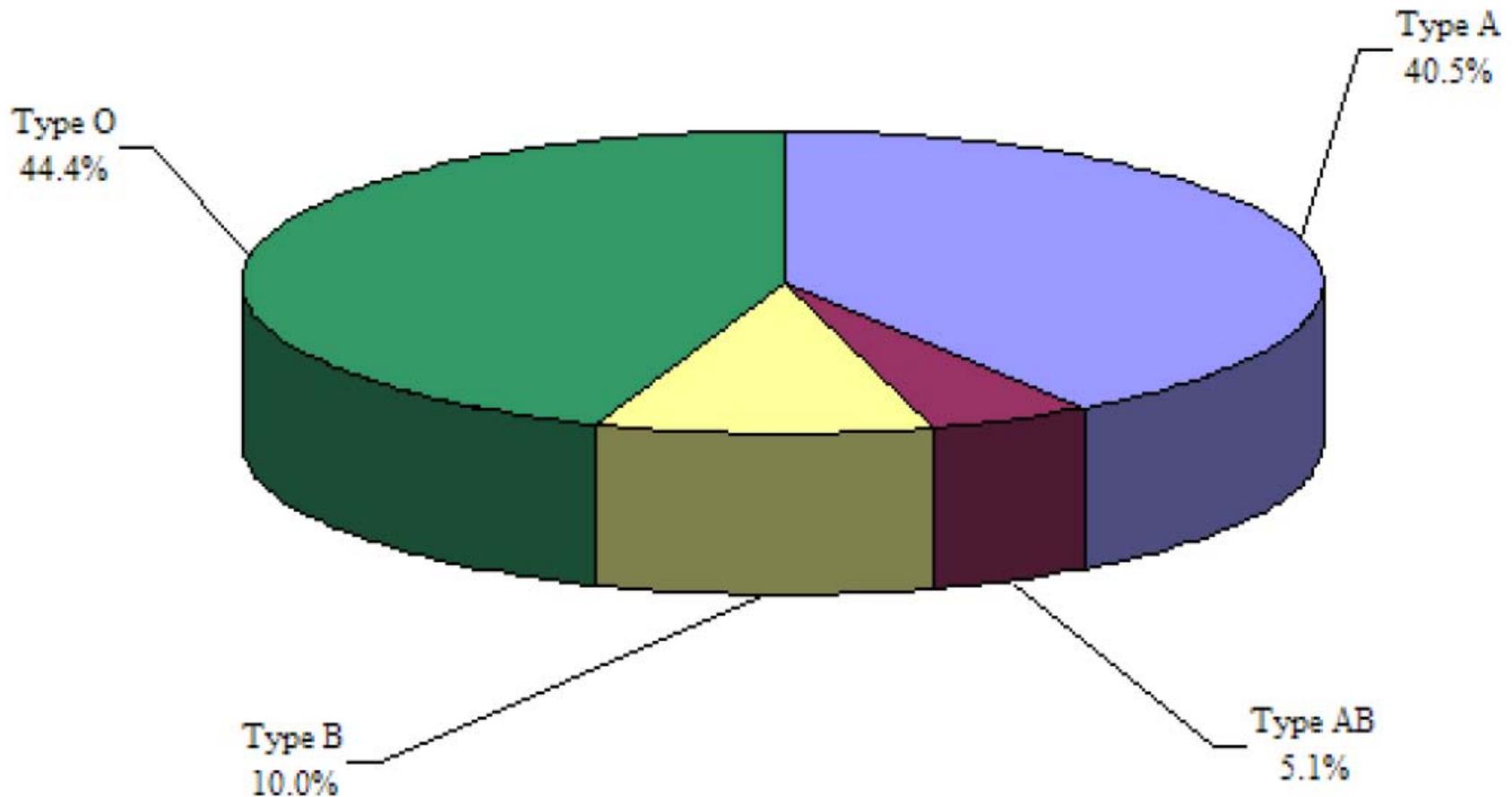
Year of Transplant	Years	Months
2011	5.2	62.2
2010	5.3	63.1
2008	5.7	68.4
2007	6.1	73.7
2006	6.7	80.9
2005	5.7	68.9

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Adult Average Wait Times (in Years) by Blood Type for First Deceased Donor Transplant				
Year	Type A	Type B	Type AB	Type O
2011	2.7	6.2	1.9	5.9
2010	3.4	5.6	3.7	6.5
2009	2.3	7.7	4.9	6.6
2008	4.0	n/a	3.2	6.9
2007	4.9	7.3	2.6	6.8
2006	4.7	7.2	n/a	7.1
2005	4.6	5.7	3.7	6.7

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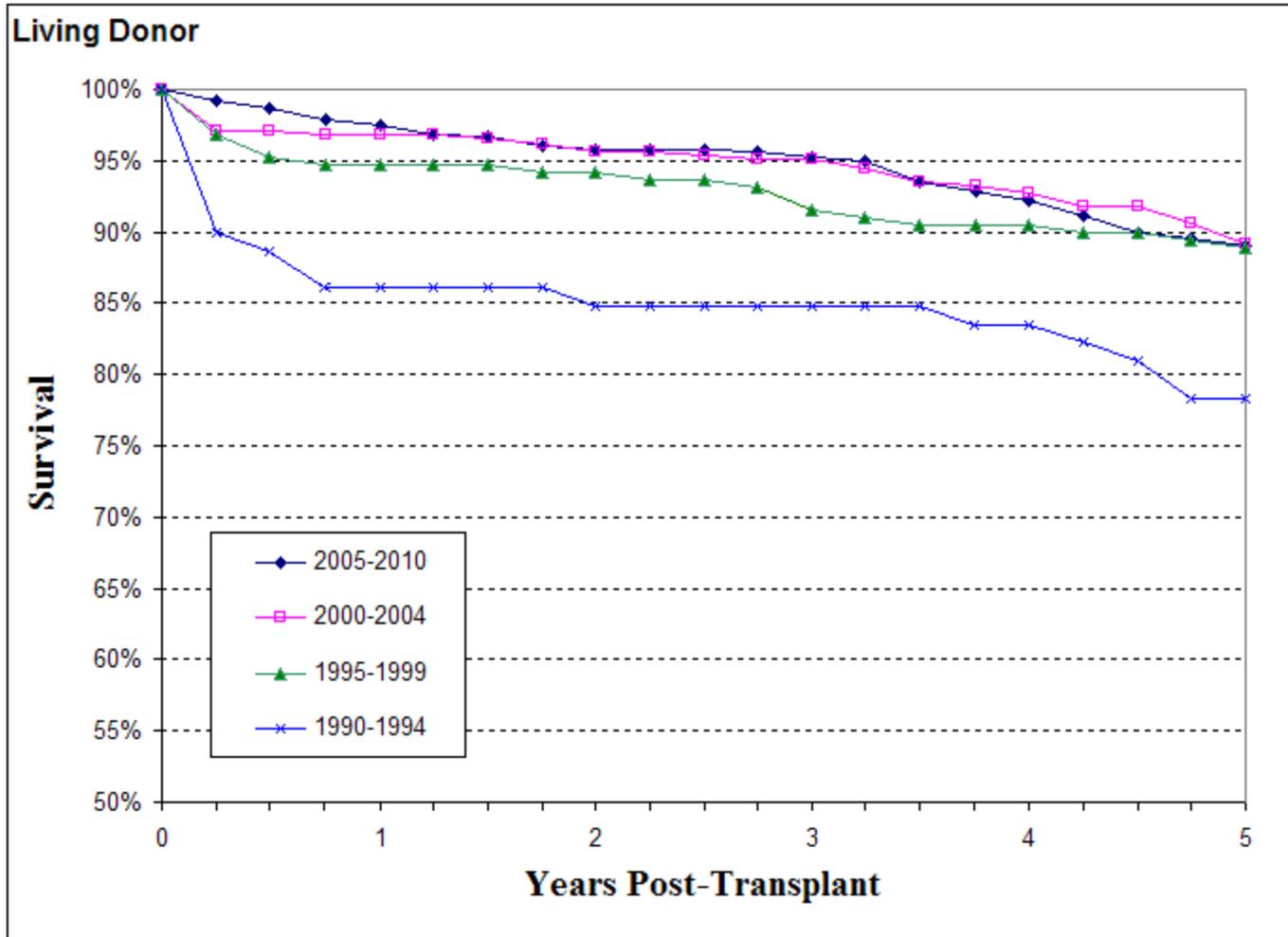
Deceased Donor Blood Group 2002-2011



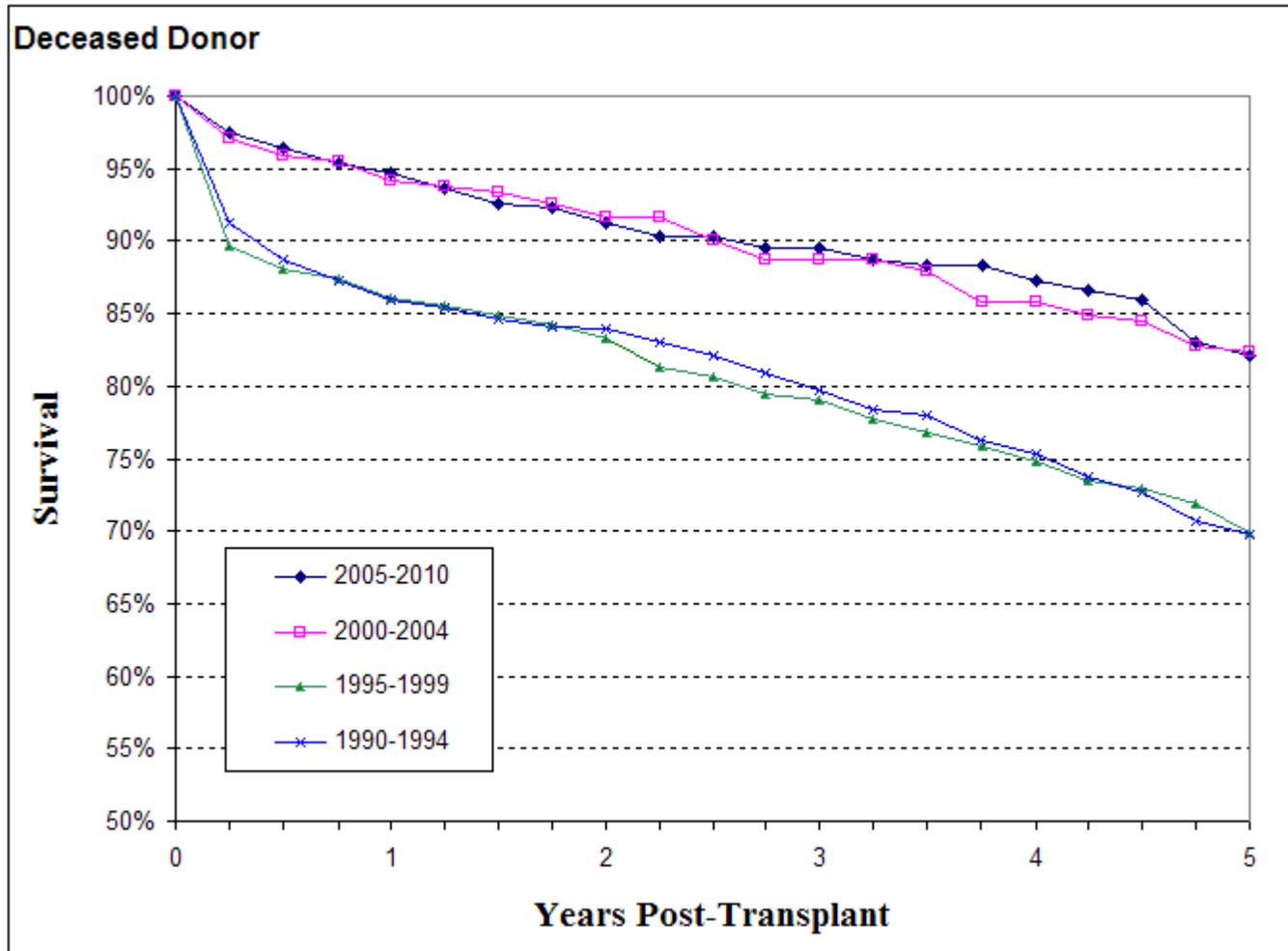
Why Living Donation

- Living donor kidney transplantation is an accepted and preferred treatment option for people with kidney disease
- Advantages include:
 - Better success rates
 - Recipient can avoid long wait times
 - Can be planned before starting dialysis (pre-emptive transplant)

Graft Survival and Year of Transplant



Graft Survival and Year of Transplant



Relationship of Living Donor to Recipient in BC

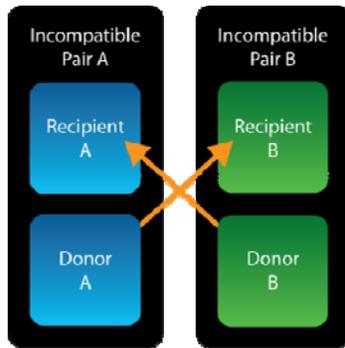
Relation	2007	2008	2009	2010	2011	2012 Oct 9/12	Total	Related vs Unrelated
Biologically Unrelated	18	16	23	36	30	24	147	147
Sibling	28	23	19	19	25	7	121	380
Spouse	19	18	20	13	21	9	100	
Parent	21	13	13	10	10	5	72	
Offspring	12	8	12	11	6	10	59	
Other Biologically Related	8	2	2	8	6	2	28	

Living Donor Paired Exchange Program

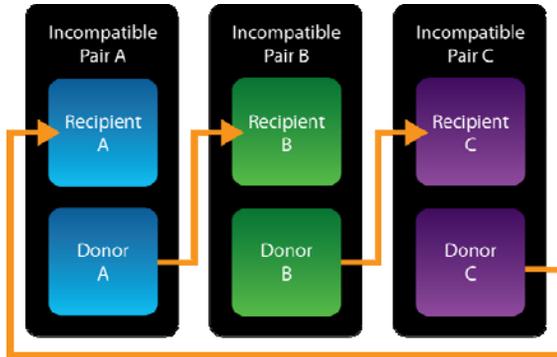
- For pairs where direct donation is not possible
 - Incompatible blood type
 - Positive cross match donor
- Started in January 2009
 - Managed by Canadian Blood Services
 - Now a Canada-wide program

Types of Exchanges

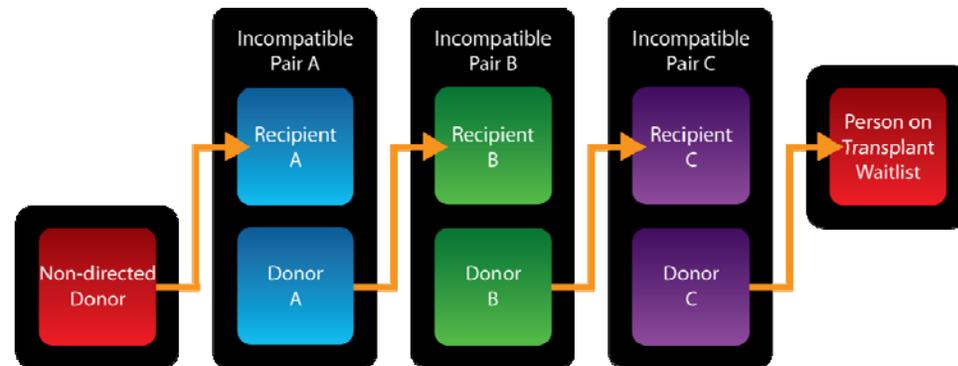
Closed Chain (Paired Exchange)



Closed Chain (Multiple Pairs)



Domino Chain



LDPE Current Stats

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Non-Directed Anonymous Donor (NDAD)

- Willing to give to an unknown recipient
- Testing is the same as other living donors
- In addition:
 - Must be at least 25 years old
 - Has a psychological assessment
- Not able to influence the Recipient selection
- Donates:
 - Directly to the waitlist – helps one person
 - Through LDPE Program – triggers multiple transplants

Barriers to Transplant

- Too early/too sick
- Blood Type
 - Longer wait times for some
- Highly sensititized - ↑ PRA
- No Living Donor

Case Study #1

T.M., 52 years, ABO: O, PRA: 0%

Dx: Focal, proliferative Glomerulonephritis –
Etiology unknown

Feb 2004: Registered in KFC

Mar 2008: Transplant Referral Cr: 501 eGFR:
11

Apr 2008: One donor registered

May 2008: Seen and approved for Tx

Case Study #1(cont)

Barrier: Blood type: O Current wait for DDTX: 6.9 years

May 2008: Attended Tx education session with 4 family members. 1 Donor previously registered , following TX education 4 more donors registered and started work up. When the first donor was declined another was able to quickly complete their assessment.

July 2008: Pre-emptive LDTx

Strategies: Early enough referral for pre-emptive Tx, Early Tx Education, Multiple Donors in work

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Case Study #2

M.J., 66 years, ABO: O, PRA: 0%

Dx: Nephropathy caused by drug toxicity

Mar 2000: Registered in KFC

Sept 2007: Referred to Tx Cr: 260 eGFR: 16

No Living Donors identified

Barriers: Blood type: O, No Living Donors

Current wait time for DDTx: 6.8 years

Case Study #2 (cont)

Oct 2009: Met with Tx Social Worker to discuss donor outreach, sample letters given and family was written to

Dec 2009: Living Donor registered and started work up

Jan 2010: Transplant assessment

Apr 2010: Approved for LDTx

Jun 2010: Pre-emptive LDTX

Strategies: LD outreach, tools included recipient education, coaching, donor sample letters

Case Study # 3

S.S., 40 years, ABO: B

DX: Lupus Erythematosus

PRA: 80 - 93% Sensitization history: Pregnancies, blood transfusions, autoimmune disorder

Oct 2006: Referred to KFC

Dec 2006: Dialysis start date & Referred to Tx – currently medically unsuitable

Dec 2008: Approved for Tx – Activated to DDTx
Wait list

Current wait time for “B” DDTX: 7.2

Wait time for S.S. unknown due to ↑ PRA

Case Study # 3 (cont)

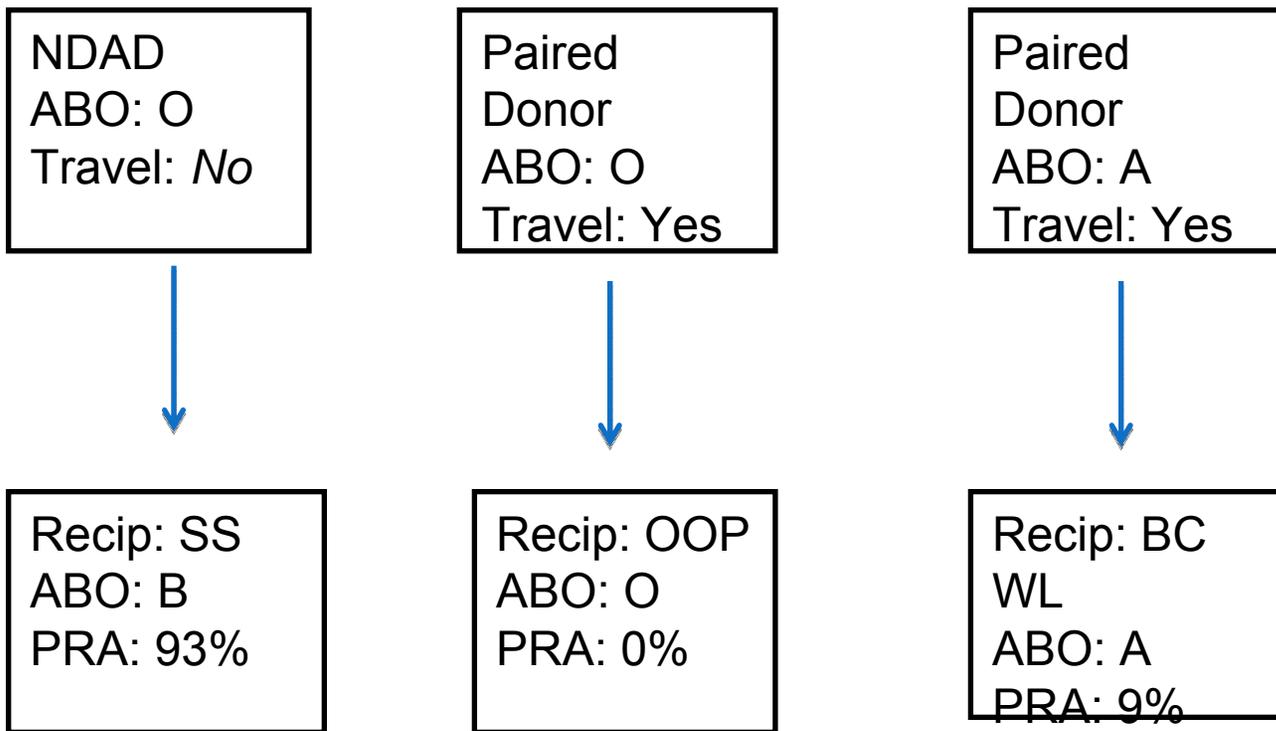
Feb 2007 – Apr 2009: 45 Donors registered – All declined – medical, wrong blood type, crossmatch positive

Barriers: Blood type: B, ↑ PRA

Strategies: Activation to highly sensitized WL,
Continue outreach to donors: family, friends, social/work groups

New initiative Jan 2009: LDPE Program started
S.S. Immediately registered with spouse (Blood type: O)
Initial LDPE enrollment numbers were small.
High PRA remained a challenge.
Sep 2010: Received LDPE proposal.
Nov 2010: LDPE LDTx, Donor travelled OOP for donation

LDPE Domino Proposal



Case Study #4

S.C., 51 years, ABO: O

Dx: Membranous glomerulonephropathy

PRA: 89% Sensitization history: 3 previous transplants

May 2011: Referred to Tx – failing graft Cr: 328
eGFR:18

Registered Blood Type “O”, crossmatch positive donor

Dec 2011: approved for LDTx

Case Study #4 (cont)

Barriers: Eligibility for 4th DDTx, ↑ PRA,
Incompatible living donor

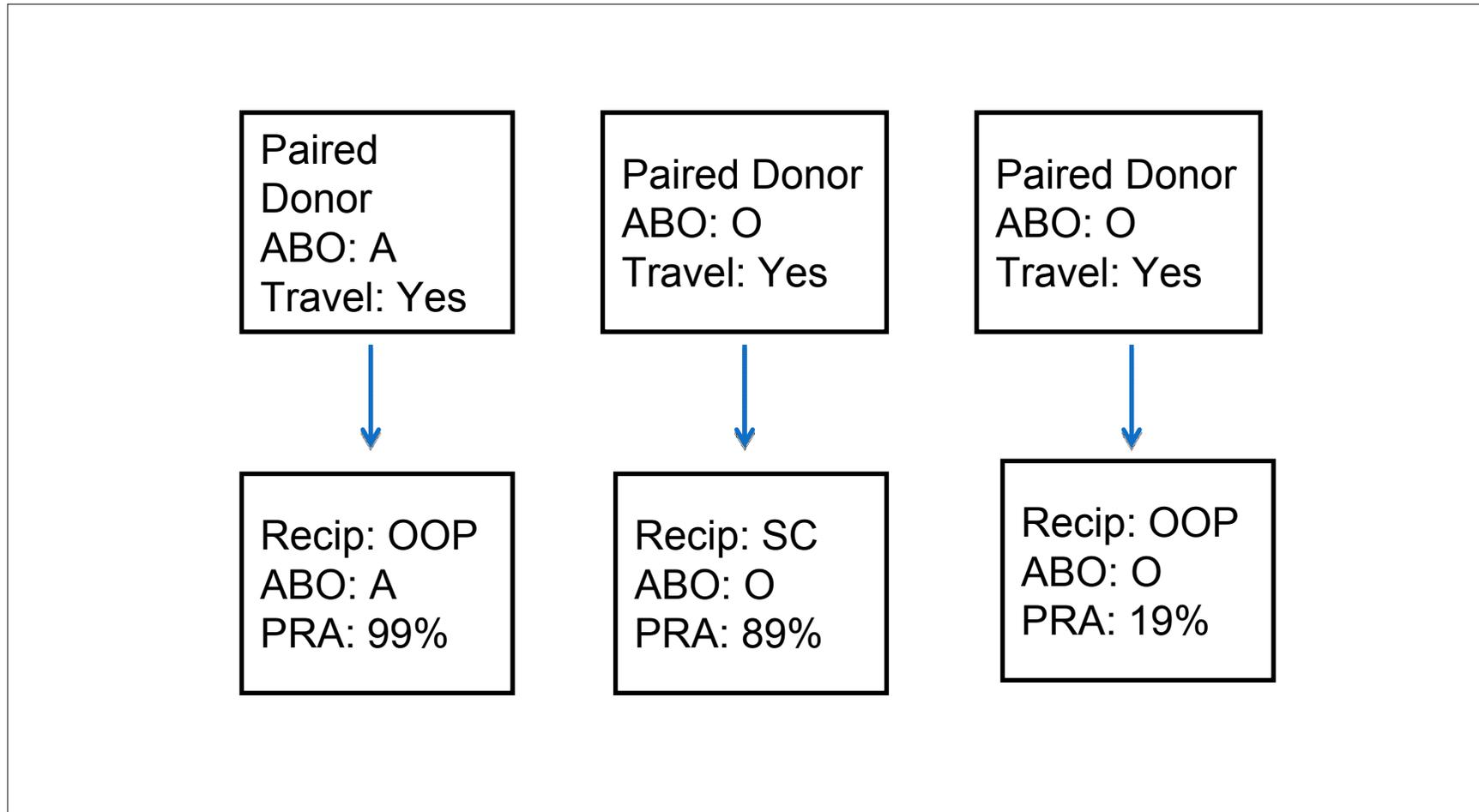
Strategy:

Jan 2012: Registered in LDPE Program with
incompatible donor

Feb 2012: LDPE proposal

August 2012: Pre-emptive 4th Tx

Case Study #4 LDPE Chain



Case Study #5

D.C., 67 years, ABO: A

Dx: Type II Diabetes, HTN

PRA: 89% Sensitization: 5 Pregnancies

Dialysis start date: Aug 2006

Initially did well on PD. Developed increasing complications. Geographically not near HD unit

Referred to Tx: Oct 2010

Oct 2010: Living donor (spouse) registered
ABO "O" but crossmatch positive

Dec 2010: TX assessment

Required cardiac and respiratory work up

Case Study #5 (cont)

Feb 2011: Approved for Tx

Incompatible LD also approved

Current Wait time for DDTX unknown due to ↑
PRA

Barriers: ↑ PRA, Crossmatch positive LD,

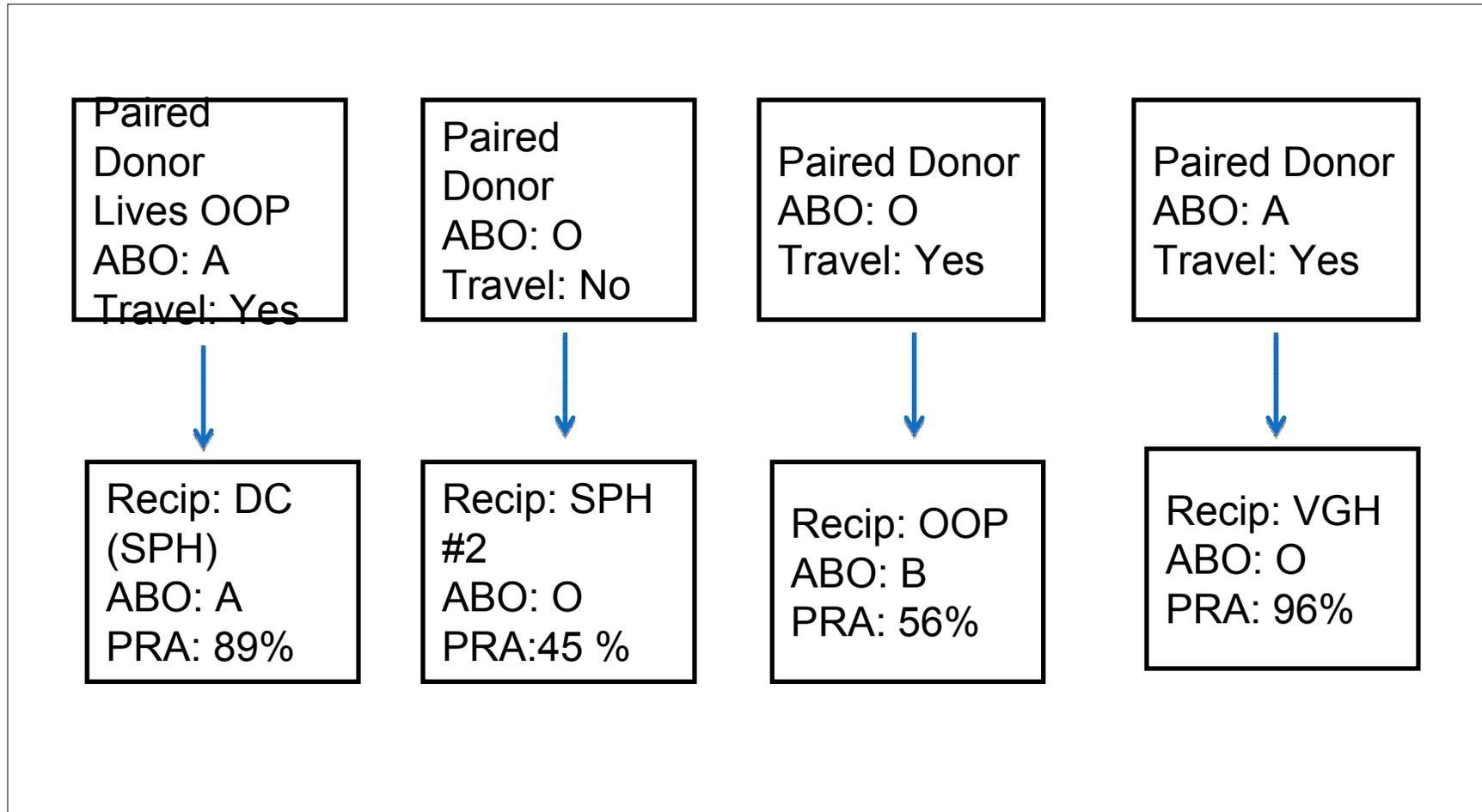
Medical testing to be completed

Strategy: List in LDPE Program

Mar 2011: LDPE proposal

Jul 2011: LDPE LDTx

Case Study #5 LDPE Chain



Case Study # 6

S.W., Age: 38 years, ABO: O, PRA: 0%

Dx: Polycystic Kidney Disease

Aug 2006: Referred to Tx Cr 259 eGFR: 24 (early)

May 2009: Suitable for LD Tx

May 2009: 1 Donor ABO: A2 - Incompatible

May 2009: Registered in LDPE Program

Case Study #6 (cont)

Barrier: ABO incompatible donor, No immediate match in LDPE Program

Strategy: Investigate Anti-a titre and if low consider ABO incompatible Tx

Low Anti- A titre: Desensitization with plasma exchange and Rituximab pre- LDTx

Jul 2009: ABO incompatible LDTX

Keep Options Open

- LD Direct Donation
 - Will consider OOP/OOC
 - OOC donor work ups will be slower and can be more costly
 - Multiple donors can come forward at once
- LDPE Paired Exchange
 - If approved incompatible donor
- Deceased Donor Wait List
 - Wait times longer for some blood types
- ABO Incompatible donation
 - Suitable for small number

Successful Strategies

- Bring family and friends to education sessions
- Provide Donor outreach tools
 - Sample letters
- Importance of LDPE
 - A large donor pool
 - Register more than one donor if different characteristics
 - Consider for multiple repeat transplant
- Revisit Transplant option if dialysis no longer optimal

Transplant Education Tools coming soon

- Recipient and Living Donor brochures
- Online videos

Lets talk about Kidney transplant



Questions ?????

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