DNT: TRANSPLANT SESSION

Current Challenges & Activity

John Kanellis
Chair, RTAC
Session Outline

Overview / RTAC Current Activity  
John Kanellis

Not all kidneys are the same  
(Rethinking Allocation / Eligibility)  
Scott Campbell / Phil Clayton

Rethinking Sensitisation  
Joshua Kausman

Non-directed Altruistic Donors  
Paolo Ferrari / Peter Hughes

Discussion
Rethinking Allocation

Large variety of kidneys available
- quality issues – “marginal organs”
- infection and malignancy risk

Oversupply is a reality in some blood groups

What could we do differently to:
- maximise benefit from a precious resource
- improve overall outcomes for ESKD patients
- create greater efficiency
Rethinking Eligibility

What is the benefit to the individual?

What is a reasonable risk to take?
  - for the individual
  - for the transplant service
  - for the transplant community

Should eligibility be limited by organ supply?
  (how real is the shortage?)
Rethinking Sensitisation

Technology has advanced greatly
- luminex, epitopes, typing, interpretation

Is national organ sharing achieving its aim?
(- to help sensitised patients)

What are the best strategies to help those that are immunologically difficult?
Preventing sensitisation in the young?
RTAC: Renal Transplant Advisory Committee - responsibilities include:

Providing advice!
“Peak Clinical Advisory Body” for kidney tx in Australia

Develop and review policies and SOP in areas such as:
- national kidney allocation, retrieval
- eligibility for transplantation

Audit of allocations; review of deviations

Review of interstate exchange;

Clinical oversight: paired kidney exchange program (AKX)
Transplant Governance

National Bodies
- ANZSN
- KHA
- TSANZ

Organ Specific
- DNT
  - Pancreas, Liver, Heart etc. AC

State Bodies
- NSW TAC
- VIC/TAS VTRTAC
- QLD
- SA
- WA WAKTS

OTA
  - Donate-Life

TLRG
  - ARCBS
  - NOMS
  - “GOVT”
RTAC-related recent activity

TSANZ Consensus Statement (Allocation and Eligibility) v.2
Consensus Statement on Eligibility Criteria and Allocation Protocols

Review and Rewrite

Deliver by 2016

Funding for the consensus statement on eligibility criteria and allocation protocols was made available by

Australian Government
Organ and Tissue Authority
NHMRC
Ethical guidelines for organ transplantation

Public consultation: Submissions by Mar 9th
RTAC-related recent activity

TSANZ Consensus Statement (Allocation and Eligibility) v.2

NOMS Strategic Governance Committee
“NOMS Modernisation Project”

AKX / Paired Exchange Program. Clinical Oversight Allocation Working Group – the future vision
Histocompatibility Working Group – NOMS links, future vision
Example RTAC discussions

Use of AB, B, A kidneys – “oversupply”
- pre-emptive transplants? What are the rules??
- ABOi transplantation of DD kidneys? Evidence??
  (eg. A2 to O - OK, B to O? AB to A?)

High risk donors – Hep / HIV risk – real or perceived
- eg. known IV drug user injects and dies
- eg. donor dies while with sex worker
Heart, lungs, liver etc. all used – kidneys not utilised
What transplant recipients want....

Live Long and Prosper
Improving allocation

“Survival matching”

Revise allocation algorithm based on both the donor and the recipient characteristics

Get the most benefit from a precious and highly valued community resource
Age groups of active patients awaiting kidney transplant

- NSW/ACT
- VIC/TAS
- QLD
- WA
- SA/NT

<table>
<thead>
<tr>
<th>Age Group</th>
<th>0-9</th>
<th>10-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50-59</th>
<th>60-69</th>
<th>70-79</th>
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<tbody>
<tr>
<td>NSW/ACT</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>8</td>
<td>12</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>QLD</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>6</td>
<td>17</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>WA</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SA/NT</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tbody>
</table>
Allocation example. DBD.
A blood group. 70 yo h/t, smoker

1. 27 yo waiting 2 yrs. “Good match”
2. 45 yo waiting 10 yrs. Sensitised. HLA DSAbs

7. 52 yo waiting 4 yrs. Small, no DSAbs
8. 70 yo waiting 3 yrs. Small, no DSAbs
Allocation example. DBD. A blood group. 70 yo h/t, smoker

1. 27 yo waiting 2 yrs. “Good match”  ❌
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Allocation example. DCD. A blood group. 25 yo MVA

1. 27 yo waiting 2 yrs. "Good match" ✔

2. 45 yo waiting 10 yrs. Sensitised. HLA DSAbs

7. 52 yo waiting 5 yrs. Small, no DSAbs

8. 70 yo waiting 4 yrs. Small, no DSAbs

(same tissue typing as previous donor – allocation looks the same)
Allocation example. DCD.
A blood group. 25 yo MVA

(same tissue typing as previous donor – allocation looks the same)

70
1. 27 yo waiting 2 yrs. “Good match” OUCH!

2. 45 yo waiting 10 yrs. Sensitised. HLA DSAbs

7. 52 yo waiting 5 yrs. Small, no DSabs

8. 70 yo waiting 4 yrs. Small, no DSabs
Sensitisation

The main reason we would like to share kidneys between states

Different approaches to improving opportunities:
- epitopal approaches
- acceptable mismatch program
- PKE
- use of altruistic donors
### Luminex results: example

#### Class 1 HLA Abs

<table>
<thead>
<tr>
<th>Strong:</th>
<th>&gt;8000 MFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>B55 (19321), B82 (18653), A2 (18540), B67 (17452), B7 (17432), B42 (16928), B54 (16259), A69 (15953), B56 (15761), A68 (14963), B81 (14945), A34 (14509), A66 (13790), A33 (13643), A25 (13356), A74 (13111), A29 (13090), A26 (13010), B27 (12830), A31 (12692), A43 (12201), A32 (11927), B45 (10964), Cw17 (10686), B73 (9059), B44 (8315), Cw7 (8309)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Moderate:</th>
<th>2000-8000 MFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>B76 (7808), B58 (7109), B13 (6764), B57 (6722), B35 (6652), B59 (5742), B63 (5356), B63 (5344), B18 (5068), B39 (3948), B49 (3569), B8 (3203), B38 (3138), B50 (3090), B51 (2967), B52 (2831), B78 (2829), B37 (2224), A3 (2147)</td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Weak:</th>
<th>500-2000 MFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>B71 (1301), Cw1 (1124), A1 (860), Cw5 (843), B72 (725), B46 (705)</td>
<td></td>
</tr>
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</table>

#### Class 2 HLA Abs

<table>
<thead>
<tr>
<th>Strong:</th>
<th>&gt;8000 MFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>DR4 (19403)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Moderate:</th>
<th>2000-8000 MFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>DQ7 (7967), DP4 (6240), DR9 (5978), DP3 (5961), DP2 (5576), DP28 (5575), DP18 (5161), DR7 (4944), DQ9 (4603), DQ8 (4120), DP1 (3999), DP11 (3988), DP20 (3664), DP19 (3335), DP13 (3186), DP9 (2452), DQ2 (2332), DP14 (2210), DP17 (2172)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weak:</th>
<th>500-2000 MFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>DP6 (1918), DP10 (1703), DR11 (1696)</td>
<td></td>
</tr>
</tbody>
</table>
Luminex results: example

**Class 1 HLA Abs**

**Strong:**
B55 (19321), B82 (18653), A2 (18540), B67 (17452), B7 (17432), B42 (16928), B54 (16259), A69 (15953), B56 (15761), A68 (14963), B81 (14945), A34 (14509), A66 (13790), A33 (13643), A25 (13356), A74 (13111), A29 (13090), A26 (13010), B27 (12830), A31 (12692), A43 (12201), A32 (11927), B45 (10964), Cw17 (10686), B73 (9059), B44 (8315), Cw7 (8309)

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**Weak:**
DP6 (1918), DP10 (1703), DR11 (1696)

Direct by:
A B DR match and class 1 PRA??

OR

What are we prepared to take??

Appropriate mismatch
### Luminex results: example

#### Class 1 HLA Abs

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- **Strong:**
  - DR4 (19403)
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#### Direct by:
- A B DR match and class 1 PRA??

#### OR

#### What are we prepared to take??

#### Appropriate mismatch

---

**"IF IT’S A GOOD KIDNEY"**
## Current kidney matching national algorithm

<table>
<thead>
<tr>
<th>Algorithm</th>
<th>Match Level</th>
<th>Criteria</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Algorithm</td>
<td>1</td>
<td>Base Score if (HLA A + B + DR mismatches = 0) and (Class 1 authorised Panel Reactive Antibodies not &lt; 50%)</td>
<td>60 000 000</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Base Score if (HLA A + B + DR mismatches = 1) and (Class 1 authorised Panel Reactive Antibodies &gt; 80%)</td>
<td>59 000 000</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Base Score if (HLA A + B + DR mismatches = 2) and (Class 1 authorised Panel Reactive Antibodies &gt; 80%)</td>
<td>58 000 000</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Base Score if (HLA A + B + DR mismatches = 0) and (Class 1 authorised Panel Reactive Antibodies &lt; 50%)</td>
<td>57 000 000</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Base Score if (HLA DR mismatches = 0) and (HLA A+B mismatches = 1) and (Class 1 authorised Panel Reactive Antibodies not &gt; 80%) and centre credit difference (donor centre credit – patient centre credit ) &lt;= -3</td>
<td>56 000 000</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Base Score if (HLA DR mismatches = 0) and (HLA A+B mismatches = 2) and (Class 1 authorised Panel Reactive Antibodies not &gt; 80%) and centre credit difference (donor centre credit – patient centre credit ) &lt;= -6</td>
<td>55 000 000</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Base Score if score is null and centre credit difference (donor centre credit – patient centre credit ) &lt; -20</td>
<td>54 000 000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Paediatric</td>
<td>+30 000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If donor centre = patient centre</td>
<td>+50 000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Centre credit balance</td>
<td>+(1000 + patient centre credit)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Each month Waiting on dialysis</td>
<td>+1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lower Threshold for National Algorithm</td>
<td>54 000 000</td>
</tr>
<tr>
<td>Australian National Override</td>
<td></td>
<td>Base Score</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Paediatric</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Antibody (for each % of authorised antibody &gt; threshold of 50%)</td>
<td>+30 000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Each month waiting on dialysis</td>
<td>+1 000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>+100</td>
</tr>
</tbody>
</table>
Number of kidneys kept and shipped by centre in 2013

- **NSW/ACT**: 155 kidneys kept, 25 shipped
- **VIC/TAS**: 166 kidneys kept, 16 shipped
- **QLD**: 114 kidneys kept, 14 shipped
- **SA/NT**: 60 kidneys kept, 9 shipped
- **WA**: 74 kidneys kept, 14 shipped

National Organ Matching Service May 2014
Level of matching of exchanged kidneys transplanted in 2013

Approx 630 kidneys
78 “shared”

<table>
<thead>
<tr>
<th>Level</th>
<th>Percentage</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>4%</td>
<td>3</td>
</tr>
<tr>
<td>Level 2</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Level 3</td>
<td>6%</td>
<td>5</td>
</tr>
<tr>
<td>Level 4</td>
<td>13%</td>
<td>10</td>
</tr>
<tr>
<td>Level 5</td>
<td>19%</td>
<td>15</td>
</tr>
<tr>
<td>Level 6</td>
<td>8%</td>
<td>6</td>
</tr>
<tr>
<td>Level 7 (Less than National Threshold 50%)</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>ALL</td>
<td></td>
<td>39</td>
</tr>
</tbody>
</table>

630 kidneys
78 “shared”

National Organ Matching Service May 2014
Current Challenges

To refine our system of kidney allocation

To reconsider our views on eligibility

Improve our approach to sensitised patients
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Not all kidneys are the same  
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Non-directed Altruistic Donors  
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Discussion
Discussion Points

Longevity / survival matching in allocation

Eligibility issues

Utilisation of some of the organs currently being discarded?
- marginal quality organs
- “infection risk” history (but tests negative)
- more well-defined infection risk (eg. Hep C ab pos, NAT neg)

Sensitisation

Altruistic donors