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Eye Research
Australia

Exporting and Importing Corneas

Heather Machin *RN MBA PhD*

heather.machin@unimelb.edu.au

Declarations

To be here today:

- Harold Mitchell Travel Grant

Fellowship:

- Lions Clubs of Victoria and New South Wales

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- National Health and Medical Research Council (Australia)
- Lions Eye Institute, Lions Eye Bank of Western Australia, Perth



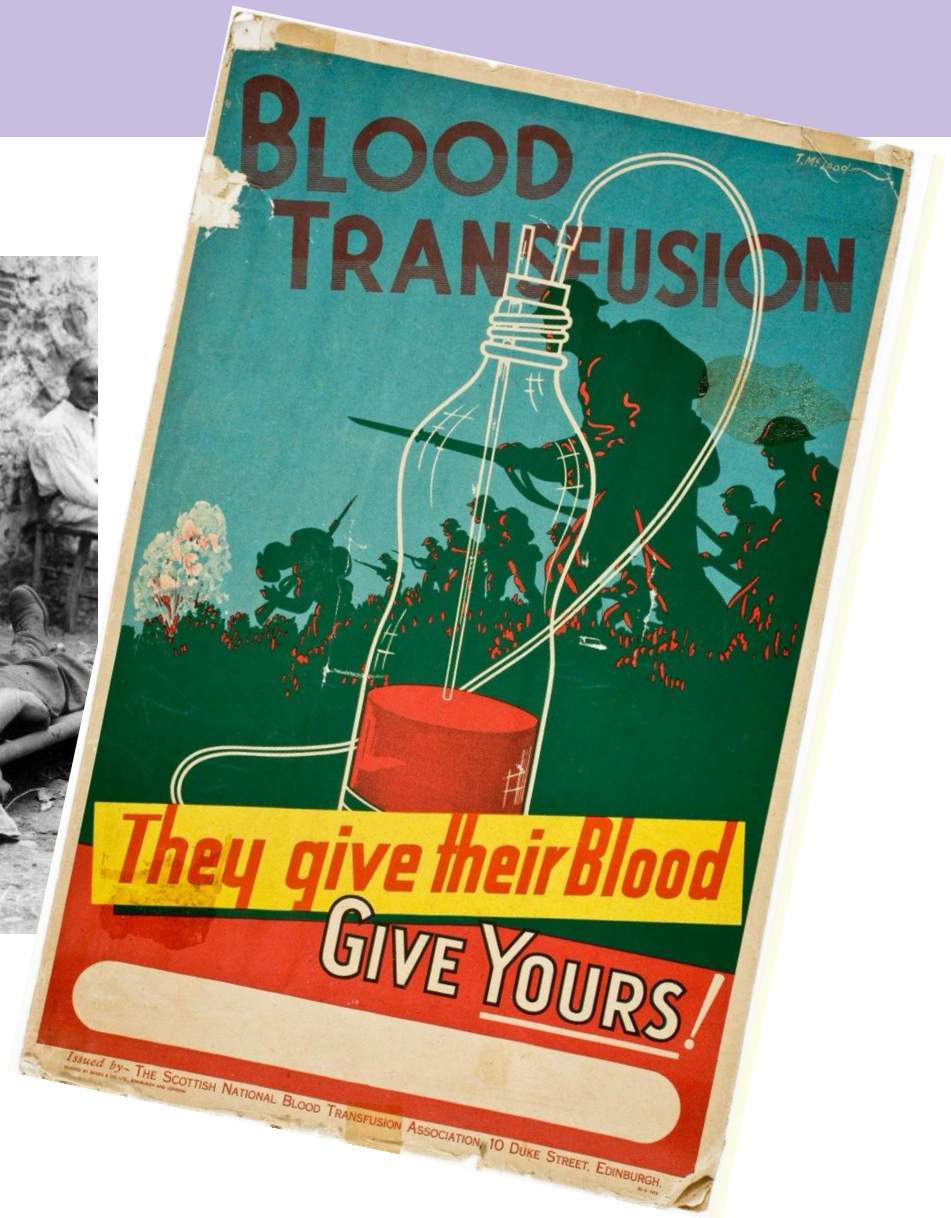


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Part 1:

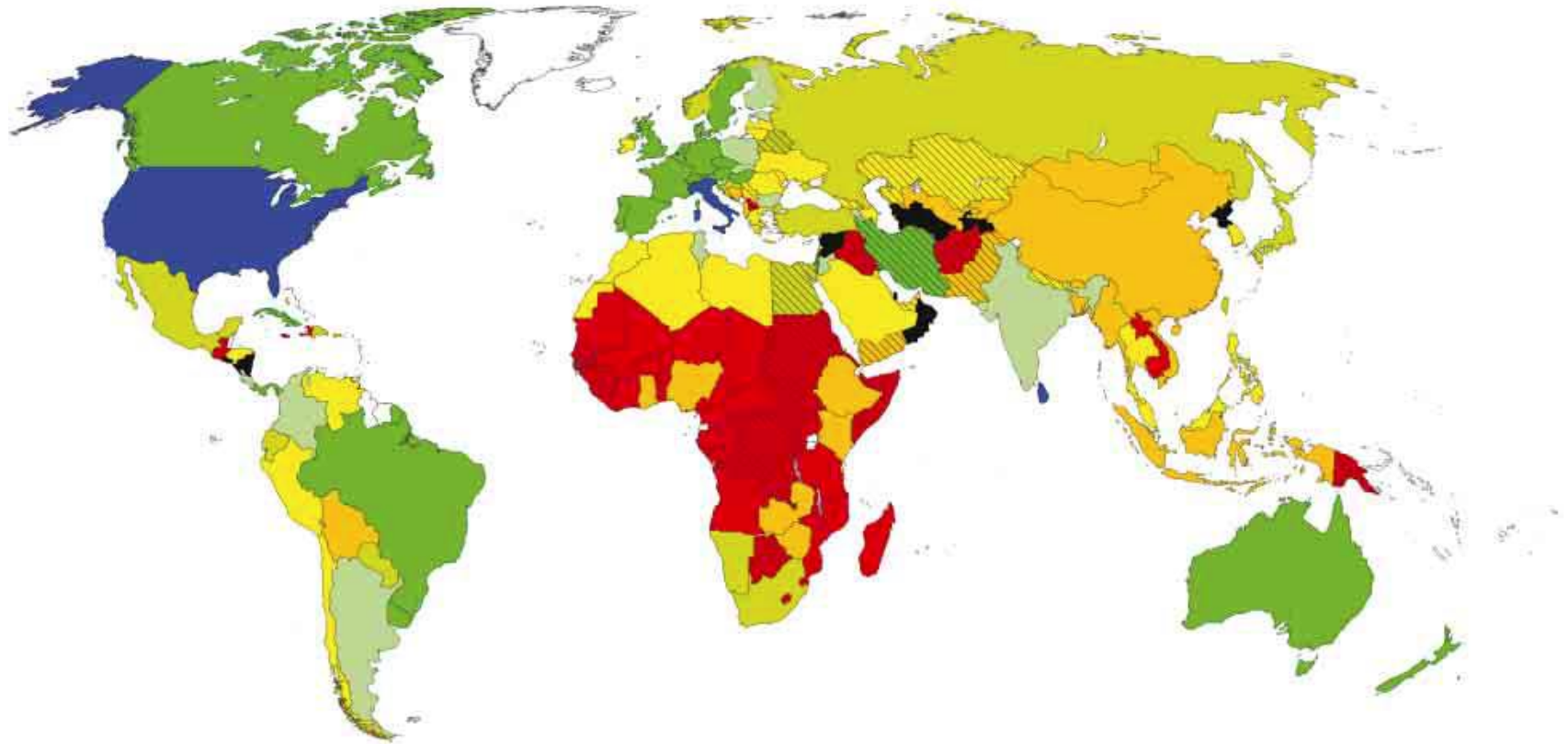
About, impact and change

Origin



The Need - est. 12.7 million globally

World Map Showing the Supply and Demand of Corneal Transplantation of 148 Countries

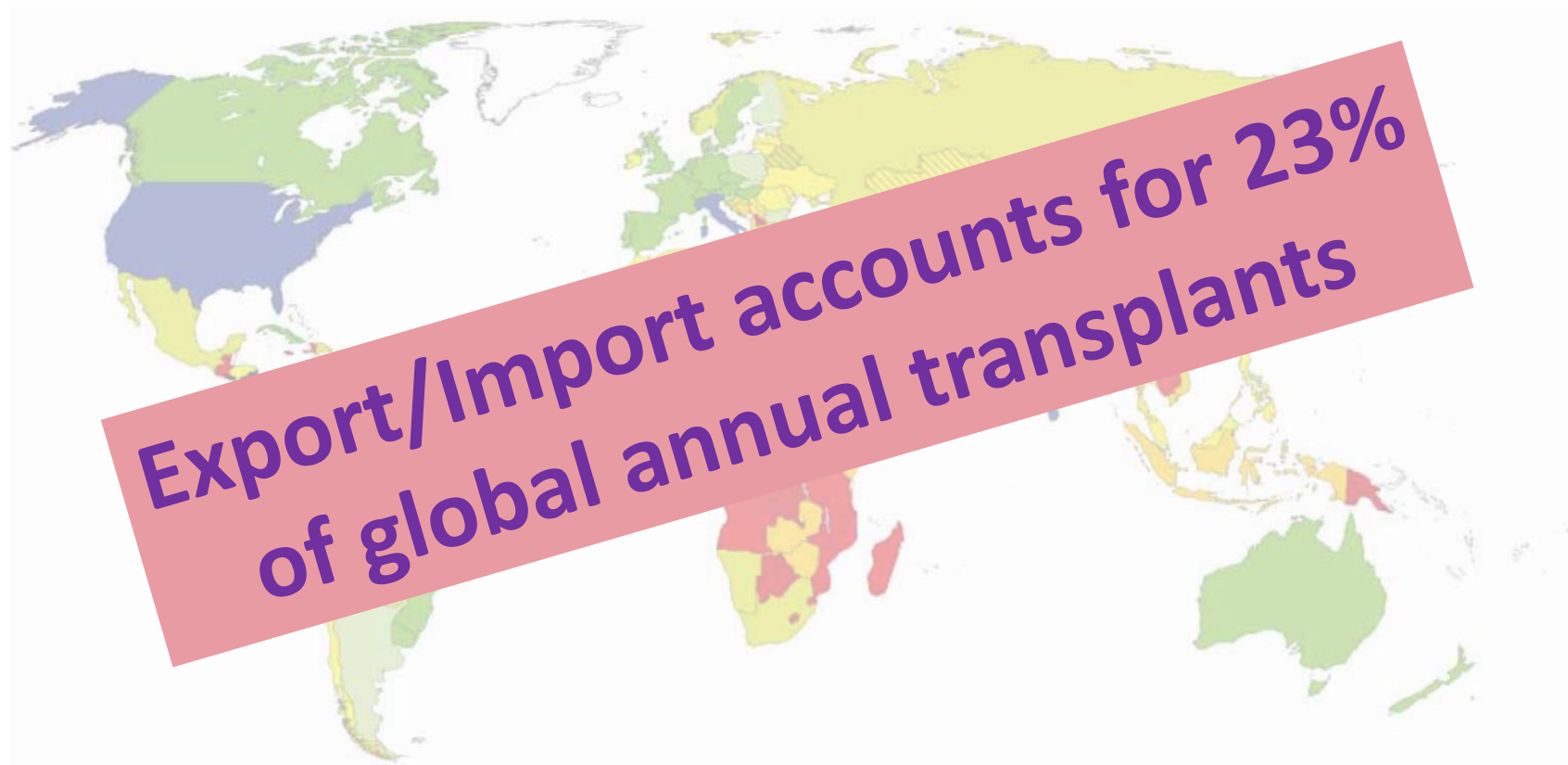


Gain P, Jullienne R, He Z, Aldossary, M, Acquart S, Cognasse F., & Thuret G. Global Survey of Corneal Transplantation and Eye Banking. *JAMA Ophthalmol.* 2015. December 3. E1-E8.

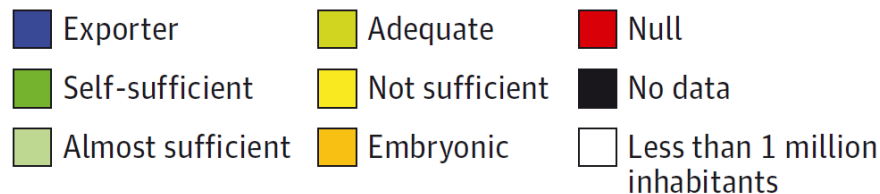
Exporter	Adequate	Null
Self-sufficient	Not sufficient	No data
Almost sufficient	Embryonic	Less than 1 million inhabitants

The Need - est. *12.7 million globally*

World Map Showing the Supply and Demand of Corneal Transplantation of 148 Countries



Gain P, Jullienne R, He Z, Aldossary, M, Acquart S, Cognasse F., & Thuret G. Global Survey of Corneal Transplantation and Eye Banking. *JAMA Ophthalmol.* 2015. December 3. E1-E8.



The movement - *situation*

Insufficient:

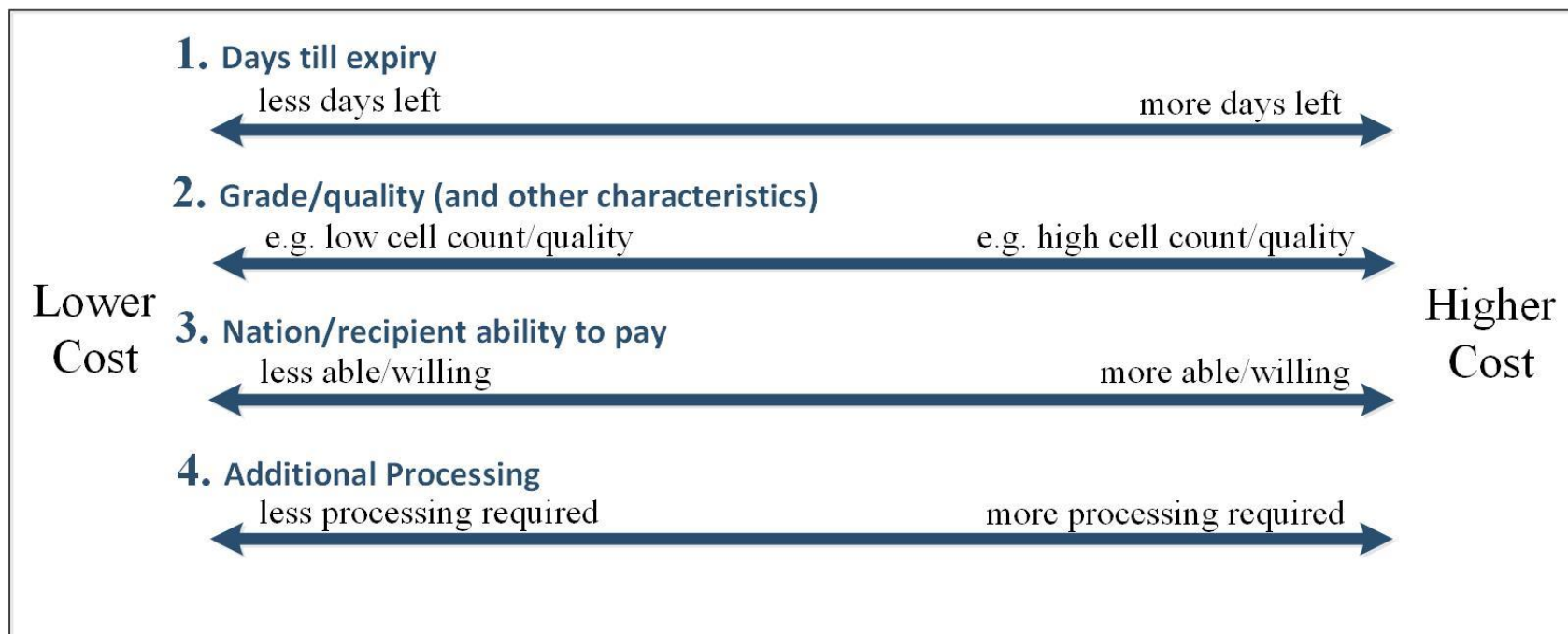
- Recognition
- Transparency
- Awareness of the 'actors' – e.g. distributors/brokers
- Humanitarian support to help eye banks
- Aid to help import nations
- Guidelines
- Planning

Result:

- Scattergun approach (off target)
- Adhoc. access/allocation
- Low quantities
- Sometimes low quality
- Unable to plan and prepare
- Not integrated into health system planning
- Gratis expectation/reliance
- Quasi-marketplace
- Export unsustainable
- Stop gap but made permanent – undermines sustainability development



Result – *Sliding Cost Scale*



Not universal

Pros

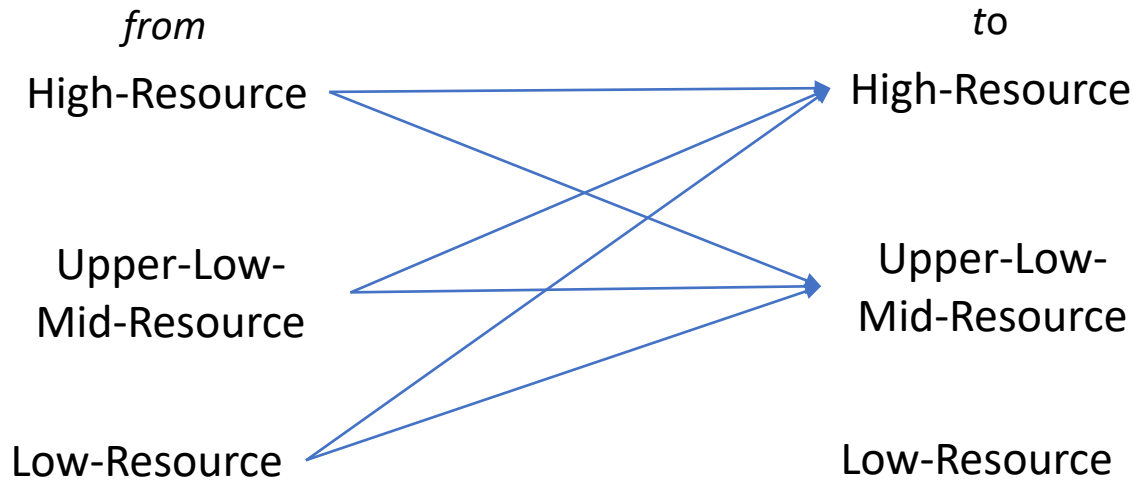
- Offers access to those otherwise without access
- Ensures exporter re-coups costs - sustainability

Cons

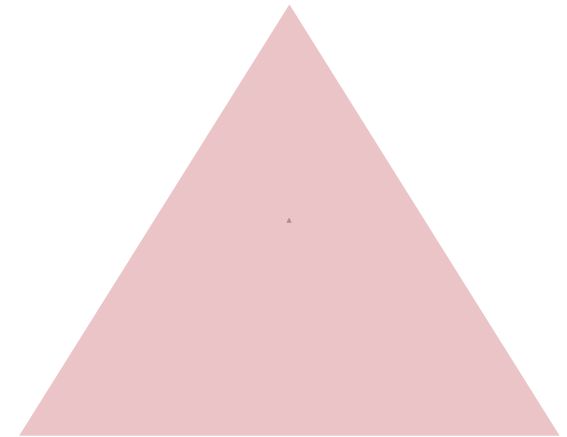
- Quasi-market place
- Commoditisation of the gift of donation
- Unequitable access to tissue quantity
- Unequitable access to tissue quality

Result - *allocation*

Tissue Allocation

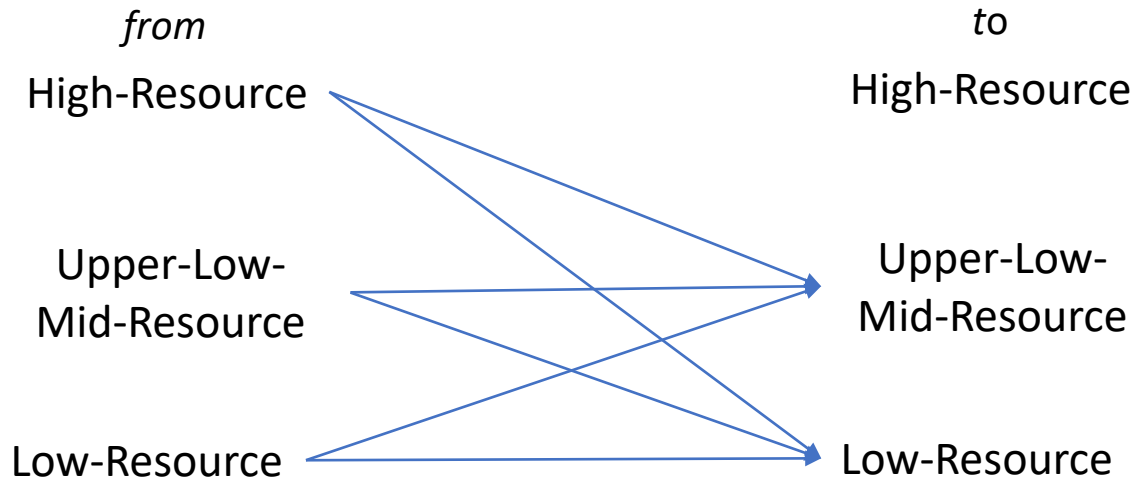


Tissue Need

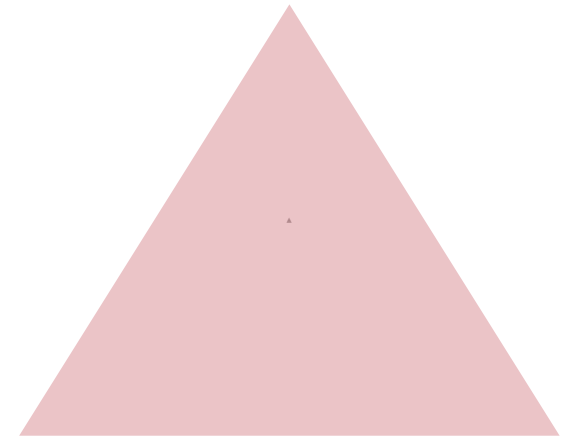


We need to fix this – *flip the targets*

Tissue Allocation



Tissue Need



Let's fix this – *checking on both sides*

- Plan: National Road Map (+/- imbed in National Eye Care Plans)
- Pool Resources: Export/Import nationally or regionally – track and monitor
- Use Guidelines/frameworks: The Barcelona Principles/Integrated Eye Care
- Transparency: Clear chain of custody
- Ensure: Prices and systems do not undermine systems/nations
- Consider: Capacity development option
- Partner: With like-minded organisations – seek a respectful win-win approach
- Evaluate: Third party broker/distribution need
- Work locally – act globally:
 - Work towards collective targets
 - share data
 - share tissues
 - Share resources
 - share knowledge



Let's fix this – *where to send to*

Develop a decision matrix



Regional
classification
system



World Bank
Country Lending
Group
Classification



Plan
Collaborate
Build
Sustainability

Key recommendations:

1. Low-middle income nations first
2. Neighbouring countries first
3. Closest region in need first

Let's fix this: *promote a new concept*

Tissue as a humanitarian aid resource



Resources – *frameworks*

Global health:

- The Paris Declaration on Aid
- The Accra Agenda for Action
- Sydney Statement of Global Health Security
- Universal Health Care 2030 Goals (UHC2030)
- Oviedo Convention 1997
- UN Sustainable Development Goals

Global eye tissue and eye care:

- WHA63.22 Guiding Principles on Human Cell, Tissue and Organ Transplantation
- The Barcelona Principles
- International Council of Ophthalmology Statement on Eye Tissue
- World Report on Vision 2019
- IAPB in-Sight 2030

Nation specific (Australian example):

- Australian Council for International Development's Code of Conduct
- EBAANZ Bioethical framework
- Vision2020 Australia
- International development related policies published by the Royal Australian and New Zealand College of Ophthalmology and Royal Australian College of Surgeons

Resources - *References*

1. Gain P, Jullienne R, He Z, Aldossary, M, Acquart S, Cognasse F., & Thuret G. Global Survey of Corneal Transplantation and Eye Banking. *JAMA Ophthalmol.* 2015. December 3. E1-E8.
2. Machin HM. Should Australia Export Corneas? Eye banks, exports and Australian Opinion: Exploring national utility of human corneal tissue donation. University of Melbourne. 2021. Open Access.
<http://hdl.handle.net/11343/280527>
3. Machin H, Arslan J, Baird PN. Examining the impact of corneal tissue transnational activity, and transplantation, on import and export nations: a review of the literature. *Cornea.* 2020; 39:795-800.
4. Machin HM. Documenting the evolution of contemporary eye bank and corneal tissue services in Australia. *Int J Eye Bank.* 2019;2:7.
5. Machin H, Philippy B, Ross C, Sutton G, Baird PN. Part One: Understanding the impact of COVID-19 on corneal transplant need and demand through the example of Australia. *Int J Eye Bank.* 2020;8:2.
6. Machin H, Philippy B, Ross C, Sutton G, Baird PN. Part 2: Defining surplus and waste in the pre- and post-COVID-19 era via Australian and USA examples. *Int J Eye Bank.* 2020;8:3.
7. Machin H, Brown K, Sutton G, Baird P. Ocular tissue for research in Australia: Strategies for potential research utility of surplus and transplant-ineligible deceased donations. *TVST.* 2020, Vol.9, 4.
8. Machin H, Sutton G, Baird PN. Should nations with surplus donated corneal tissue, export to those without? A review of sector opinion via the example of one nation – Australia. *Cornea.* 2020. 39(10):1334-1340.
9. Machin H, Sutton G, Baird PN. Sector opinion, on how corneal tissue should be exported, and to whom – using the example of Australia as an export nation. *Int J Eye Bank.* 2021 9:2..
10. Machin H, Sutton G, Baird PN. Should donors' consent to export their corneas? Examination of eye tissue and eye care sector opinion. *Cornea.* 2021 Mar 1;40(3):398-403.
11. Machin H, Sutton G, Baird PN. Do eye bank models and competitive practice impact international cornea allocation? *Cornea.* 2021 Jul 1;40(7):936-941.



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Part 2:

3 projects on Donor Awareness

Why this is important

Remove Misconceptions

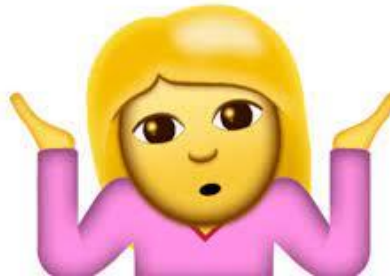
Improve Transparency

Retain Trust

Project 1: Sector Interviews

Method: n=92 Semi-Structured Interviews until saturation, then sentiment analysed.

Q: Degree of interviewee awareness of current donor consent for export practices



Project 1: Sector Interviews



Opinion on how it should be done in the future:

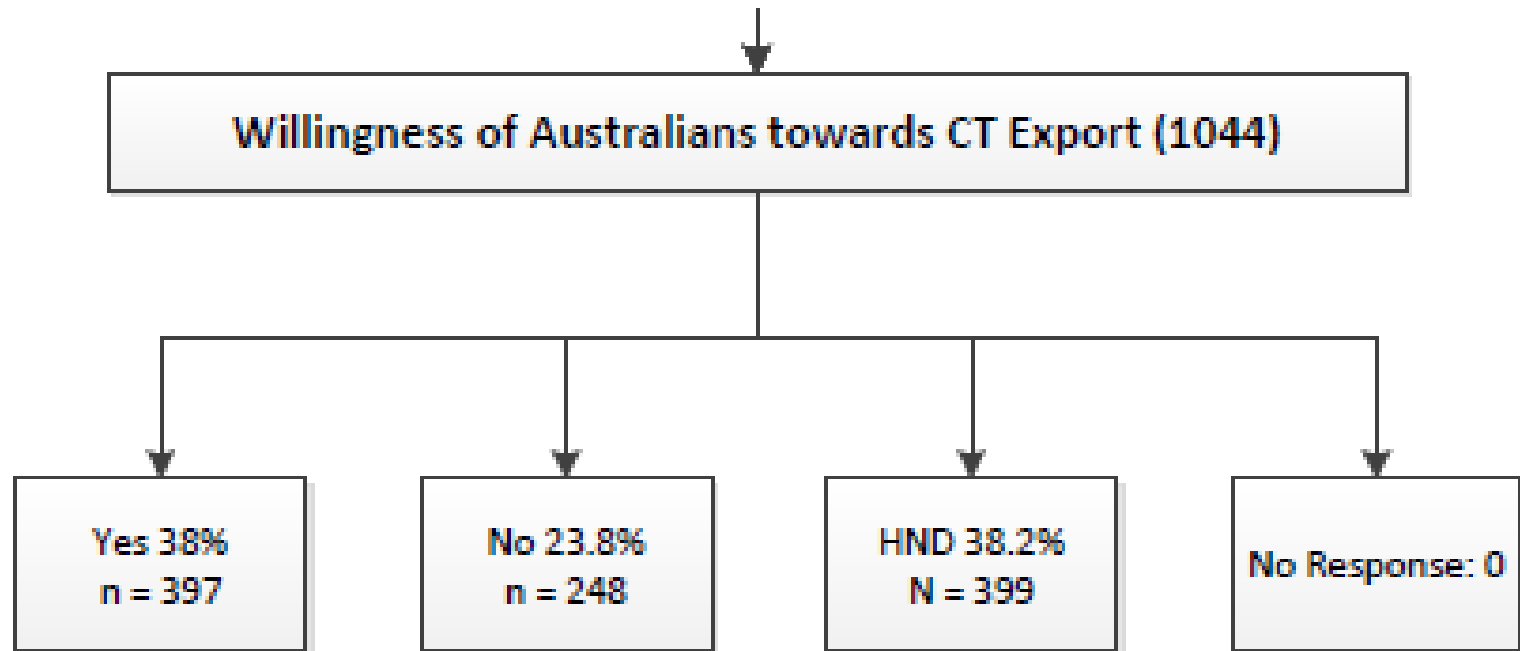
Q: Should donors be consented for export or at the least informed?

A: 41 of n=72 respondents (56.94%) said *yes*

Q: Should donors decide where it is exported to?

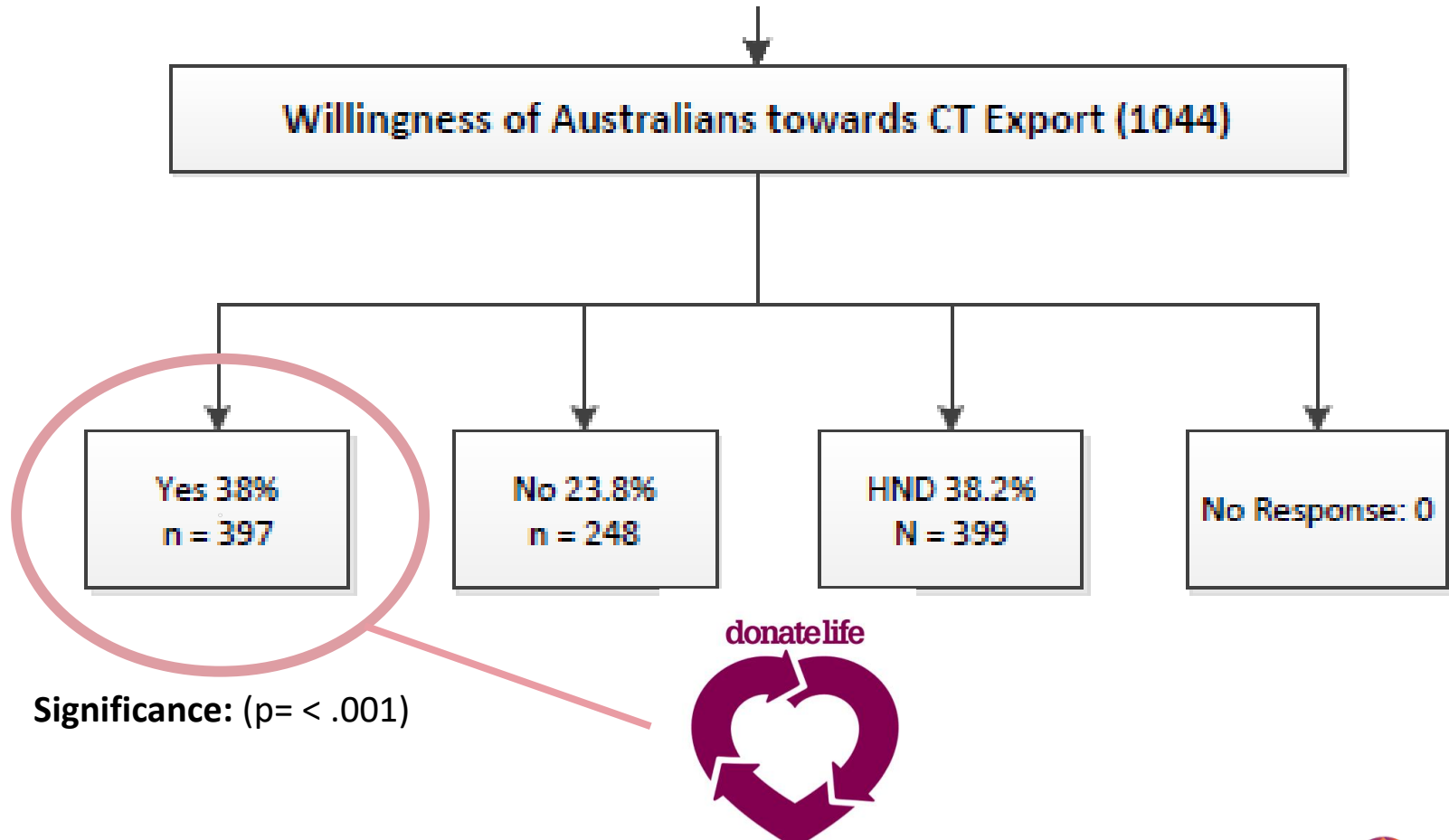
A: 45 of n=72 respondents (62.5%) said *no*

Project 2: Public Survey - *willingness*



CT – corneal tissue / HND: have not decided

Project 2: Public Survey - *willingness*



CT – corneal tissue / HND: have not decided

Project 2: Public Survey - *overall*

What they indicated/wanted:

1. Ensure Australians are not disadvantaged
2. To be presented with information
3. Put a tick box for 'export' on the Donatelife Register
4. To be consented, or at the least informed
5. Prioritise low-middle income nations and neighbours first
6. Let the professionals decide on where and how, as long as a transparent system was in place and it was non-profit.

Project 3: Sector Website Audit

Method: Audit of n=79 publicly available websites Identified from n=9 nations

Audit Outcome	Total n(79)%(100)
1. Export mentioned	
Explicit	16 (20.5)
Implied	17 (21.5)
Not mentioned	46 (58)
2. Export license mentioned	
No	67 (84.81)
Yes	12 (15.19)
3. Export decision making indicated?	
No	79 (100)
4. Mentioned who they engage with/export to (e.g. third party)	
No	77 (97.5)
Yes	2 (2.5)
5. Consent for export indicated	
No	79 (100)

Audit Questions and Results

Recommendations

- Donors must be consented or at the least informed that their donation will be moved
- Information about the practice must be publicly available
- The collective sector and individual eye/tissue banks must be transparent about their tissue movement activities and third party engagement
- Steps to implement must be encouraged at the national level as well as the eye/tissue bank level

Practice change - *publicly*



Occasionally, EBAANZ Eye Bank Members are approached by other nations who are in need of tissue. This is for humanitarian aid purposes. If tissue is allocated, the eye bank checks to ensure the international allocation does not undermine access for Australian and New Zealand recipients, and they validate the request by vetting the surgeon and hospital in the other nation. This ensures Australian and New Zealand donations are respectfully managed, used and monitored when shared internationally.

<https://ebaanz.org/faq/>



Lions Eye
Donation Service
MELBOURNE

Corneas that pass these tests are offered to corneal surgeons who have patients listed with the Lions Eye Donation Service. Corneas are sometimes sent outside of Victoria or to New Zealand for urgent cases or to relieve waiting lists.

<https://www.cera.org.au/lions-eye-donation-service/frequently-asked-questions/>

Practice change - *consent*



Lions Eye
Donation Service
MELBOURNE

Transplant Consent Form:

"Should you choose to consent to donation, the eye tissue of your loved one will be able to help recipients in both Australia and New Zealand."

Research Consent Form:

"These tissues may be involved in research being carried out interstate and internationally."

Acknowledgements

Acknowledgements

Project 1:

Co-authors: Gerard Sutton, Paul Baird

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Project 2:

Co-authors: Lisa Buckland, Christine Critchley, Gerard Sutton, Steve Wiffen, Paul Baird

Funding: NHMRC, Lions Eye Institute – Perth

Project 3:

Co-authors: Brian Philippy, Graeme Pollock

Implementation:

Eye Bank Association of Australia and New Zealand

Lions Eye Donation Service, Centre for Eye Research Australia – Melbourne

Publications

Project 1:

1. Machin HM. Should Australia Export Corneas? Eye banks, exports and Australian Opinion: Exploring national utility of human corneal tissue donation. University of Melbourne. 2021. Open Access. <http://hdl.handle.net/11343/280527>
2. Machin H, Sutton G, Baird PN. Should donors' consent to export their corneas? Examination of eye tissue and eye care sector opinion. Cornea. 2021 Mar 1;40(3):398-403.

Project 2:

1. Machin HM, Buckland L, Critchley C, Sutton G, Wiffen S, Baird PN. Determining the Willingness of Australians to export their corneas on death. PlosOne. 2021.

Project 3:

1. Machin H, Philippy B, Pollock GA. Do Corneal Tissue Providers Inform Their Community That They Export Corneas? An Audit of Publicly Available Sector Websites. Clin Ophthalmol. 2021;15:4029-4034.



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Thank you

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