Virtual Crossmatch
Newsletter No. 6

VIRTUAL CROSSMATCH

The Virtual Crossmatch (VXM) Working Group is pleased to advise the next phase of the transition to VXM will commence from 3 October 2022.

The Australian organ donation and transplantation system currently uses complement-dependent cytotoxicity (CDC) crossmatches to determine compatibility between organ donor and transplant recipients. Internationally many transplant programs have moved to conducting virtual crossmatches (VXM) which can provide greater detail regarding the compatibility of the donor organ and recipient. There is currently a significant project underway to transition to a national virtual crossmatch program within the Australian organ donation for transplantation system.

Why are we transitioning to Virtual Crossmatch?

- The level of detail for donor HLA typing and recipient HLA antibody screening has increased substantially over time, which means that the chance of 'missing' a significant antibody is now extremely low.
- Internationally there has been a shift to virtual crossmatches which can provide a more rapid assessment of compatibility without compromising transplant outcomes.
- Because the utility of CDC has reduced substantially over time, it is no longer the test of choice in most transplant programmes worldwide. This has resulted in the equipment and reagents for CDC becoming increasingly difficult to source, and we are likely to run out within 3 months.

Further information on the transition to VXM project can be found here (What's new – OrganMatch | DonateLife)

What you need to know and when

Oct 2022	Feb 2023
Lung / Heart / Intestine – CDC for sensitised patients with DSA recipients	Aim to cease CDC XM
Cease CDC for Kidney / Pancreas	**Prospective Flow XM available for selected patients** e.g. Clinically urgent where VXM cannot be performed or antibody profile cannot be resolved
Retrospective FXM will be available for patients with DSA next business day	

Organ group implementation

Kidney / Pancreas

- Cease CDC entirely from October 2022
- A retrospective FXM will be performed if DSA was detected
- FXM should not be required if DSA was not detected
- If further histocompatibility advice is needed, contact and discuss with your local Tissue Typing Laboratory

Lung	▶ Algorithm finalised and in OM development ▶ Units should work with local labs to: — determine antigens for exclusion — categorise patient sensitisation level ▶ CDC ceased for "unsensitised" patients from July 2022 ▶ CDC on sensitised patients will be performed if DSA is detected	▶ Algorithm implementation proposed for December 2022 ▶ Aim to have no lung CDC trays from February 2023 ▶ A retrospective FXM will be performed if DSA was detected ▶ FXM should not be required if DSA was not detected ▶ If further histocompatibility advice is needed, contact and discuss with your local Tissue Typing Laboratory
Heart	▶ Algorithm in discussion with heart group ▶ Units should work with local labs to: — determine antigens for exclusion — categorise patient sensitisation level ▶ CDC on sensitised patients will be performed if DSA is detected	▶ Algorithm implementation date TBC – final quarter 2022 ▶ Aim to have no heart CDC trays from February 2023 ▶ A retrospective FXM will be performed if DSA was detected ▶ FXM should not be required if DSA was not detected ▶ If further histocompatibility advice is needed, contact and discuss with your local Tissue Typing Laboratory
Liver	▶ CDC not routinely performed — currently VXM / DSA assessment — Retrospective FXM by request only	
Intestine	▶ CDC on sensitised patients will be performed if DSA is detected	▶ A retrospective FXM will be performed if DSA was detected ▶ FXM should not be required if DSA was not detected ▶ If further histocompatibility advice is needed, contact and discuss with your local Tissue Typing Laboratory

For combined Organ Programs refer to primary organ

Managing sensitised patients as we phase out CDC XM

- Upon entry to waiting list: lab and clinical team review antibody profile
- Define exclusions:
  - Repeat mismatch with DSA – usually exclude at any MFI
  - MFI > threshold agreed with clinical team
  - MFI < threshold but shared epitope identified by lab
  - MFI < threshold currently but significantly higher in historic sera

Goal: not to leave antigens as acceptable if you would not accept them

Further information

Further resources on the transition to VXM project can be found on the OrganMatch website. This includes:

- Previous VXM project newsletters
- VXM glossary of terms and;
- VXM frequently asked questions

Virtual crossmatching elearning is also available through the Lifeblood transfusion online learning site.

Further information or questions please contact projects@tsanz.com.au.