

XVIVO Kidney Assist Transport documents
 June 2026
STANDARD OPERATING PROCEDURE



Documents for XVIVO Kidney Assist Transport (KAT) folder (stored in APOP office)

- SOP/ ETC XVIVO KAT perfusion record (at end of SOP)
- Checklist for procedure (XVIVO) (plus laminated Quickstep guides)
- Training log and certificate
- Perfusion log
- Ordering details for machine perfusion solution and disposables (APOPs)
- XVIVO KAT HOPE back-table grab bag (checklist for theatre)
- XVIVO KAT 215 signature sheet
- Cleaning/service log
- XVIVO Quick guide pdf
- XVIVO Checklist for set up pdf
- XVIVO How to remove kidney pdf

Indications for use of Hypothermic Oxygenated Perfusion (HOPE) with XVIVO KAT

XVIVO HOPE perfusion pilot has been introduced to try and limit long cold ischaemia times (CIT) due to logistics. It is well recognised that long CIT significantly impair short- and long-term graft function and survival but HOPE can safely and efficiently improve transplant outcomes by preventing ischaemia.

Long CIT is likely to be because of theatre logistics (other organs being transplanted), recipient concerns where daylight operating is indicated or donor pathology.

Inclusion	Exclusion
<ul style="list-style-type: none"> • Consider for kidneys with predicted CIT >12 hours 	<ul style="list-style-type: none"> • Horseshoe kidneys
<ul style="list-style-type: none"> • DCD and DBD donors (age 18-80 years old) 	<ul style="list-style-type: none"> • En-bloc kidneys
<ul style="list-style-type: none"> • 4-24 hours anticipated HOPE perfusion 	<ul style="list-style-type: none"> • >2 arteries

Considerations for KAT (for on-call surgeon)

- Check Surgeon trained in XVIVO KAT perfusion available
- Confirm preparations arrangements (KAT set-up has a standard kidney transplant back-table)
 - Phone transplant theatre coordinator on 07841 860609. If no answer, bleep 2118/ 07966 635815 (theatre corridor coordinator)
 - Confirm which theatre/ theatre 15 prep-room for set-up
 - Check theatre staff availability
 - **Green flow chart** for transplant theatre staff available to assist
 - **Red flow chart** for theatre staff committed to another operation or no transplant theatre staff in hospital
- Check KAT disposable circuit and perfusion fluid available and in-date
- Confirm where XVIVO KAT will be placed during perfusion (prep-room/ theatre/ ward 215)
- Confirm O2 source (portable KAT cylinder/ portable RIE cylinder/ wall O2)

When confirmed, book KAT back-table with theatre team and bring KAT from storage to theatre.

Once the kidney is on the XVIVO KAT, it is designed to run autonomously and, unlike a warm perfusion machine does not need supervision. The machine has an alarm which also notifies the surgical team through the XVIVO phone app. If there are machine issues (problems with flow or pressure), the machine will stop pumping and it will revert to static cold storage which is our current standard and safe for the kidney for many hours. However, when the alarm is heard, the on-call surgeon should be called either through switchboard or through the kidney/pancreas transplant coordinator.

A KAT with a kidney being perfused remains the responsibility of the supervising Consultant Surgeon, which is likely the on-call surgeon but not always. The on-call Consultant Surgeon will always know which Consultant Surgeon is responsible for KAT and they should be called if any concerns. The transplant theatre coordinator or 2118 coordinator should always be aware if the KAT machine is in use and where it is.

KAT use requires

- Standard kidney back-table set-up (including perfusion fluid and ice) with accountable item checks and temperature and donor sample handling to be logged accordingly
- Oxygen supply (either wall O2 or portable with standard regulator)
- TRAK booking (as kidney back-table with responsible KAT Consultant)
- Operation book completion
- Completion ETC KAT checklist, which is stored in perfusion office
- Safe storage during perfusion in either prep-room, theatre or ward 215
- Database completion by APOPs team
- Surgical team accountable items competency sign-off

Green flow chart for transplant theatre staff in hospital and available to assist

- Kidney signed for and logged as standard by theatre team
- Standard kidney back-table performed with accountable item checks with theatre team
- Perfusion fluid sample taken & labelled for MC+S. Temperature as standard by theatre team
- Donor samples processed as standard by theatre team
- TRAK entry created by theatre team as standard
- Operation book entry created by theatre team as standard
- Surgeons set up KAT machine as XVIVO Quick guide.pdf or XVIVO Checklist for set up.pdf
- Surgeons put kidney on KAT as per XVIVO Quick guide.pdf with O2 provided by theatre team
- Tidy away back-table
 - accountable item check as standard by theatre team
 - dispose of disposable items as standard by theatre team
 - send instruments for processing as standard by theatre team
 - area cleaned as standard
- Responsible Surgeon completes ETC XVIVO KAT perfusion record
- Responsible Surgeon takes KAT to designated storage and update theatre coordinator/2118 coordinator to book anaesthetic room time for implant
- All paperwork to be stored with the kidney in KAT door document pocket

Red flow chart for no transplant theatre staff in hospital or in another transplant

Back-table grab bag will be in theatre 15 prep-room with back-up available.

In unlikely event that no grab bag is available, on-call theatre team to be contacted.

- Kidney signed for & logged as standard by theatre team member/ surgeon if team not available
- Surgeon to set up kidney back-table from grab bag prepared and set aside by theatre team
(location of additional items recorded on HOPE Grab Bag instruction sheet)
- Surgeon to get machine perfusion fluid (record fluid batch number & expiry) and ice
- Surgeon to confirm/bring O2 supply to back-table
- Accountable item checks by surgeons. Responsibility remains with them as per governance discussion
- Perfusion fluid sample taken and labelled for MC+S and left in ice box with donor samples.
Organ temperature as standard by surgeons.
- Operation book entry completed by surgeons by completion of back-table
- Surgeons set up KAT machine and perfuse kidney as per XVIVO Checklist for set up.pdf
- Tidy away back-table and responsibility with surgeons for governance
 - accountable item check as standard by surgeons
 - dispose of disposable items as standard by surgeons
 - send instruments for cleaning as standard by theatre team when in for implant/ next day
- Responsible Surgeon complete ETC XVIVO KAT perfusion record
- Responsible Surgeon take KAT to designated storage and update theatre coordinators/2118 to set anaesthetic room time and request prep-room/ theatre clean including at weekend
- Theatre team to process donor samples when in for implant/ next day
- TRAK entry to be created by theatre team when arrive for implant/ next day but surgeons need to record the back-table details on the ETC XVIVO KAT device perfusion record
- All paperwork to be stored with the kidney in KAT door document pocket

At end of HOPE perfusion/ Start of kidney implant

To remove kidney and transplant organ (ice removed from freezer ideally 2hrs before transplant)

- Surgeon to bring KAT machine to theatre
- Ensure pink, disposable pancreas back-table tray, ice and supplementary mallet available.
 - A second back table instrument tray should not be needed
- Ensure that standard cold perfusion fluid is available
- Surgeon confirms with scrub nurse/theatre staff that ready to stop perfusion and ice bath ready
- Remove kidney as per XVIVO How to remove kidney.pdf
- Flush kidney with standard perfusion fluid to remove machine perfusion fluid prior to implant
- If kidney not for implant, surgeon to confirm disposal plan with theatre team or re-bag in ice box with topped up ice and organ receipt folder completed
- Theatre team to replenish back-table grab bag

Once implant operation finished (or during if 2nd team)

- Surgeon to ensure KAT is clean and ready for next use as per XVIVO How to remove kidney.pdf
- Surgeon to ensure ETC XVIVO KAT device perfusion record including timings is complete and stored in correct place in APOP office
- Responsible surgeon to check that TRAK entry and operation book entry are completed with accurate timings and records for back-table and perfusion
- Surgeon to ensure that transplant coordinator has perfusion data to complete HTA-B form
- Surgeon to ensure that KAT returned to store and APOPs team aware of perfusion so they can reorder fluid and update database
- Download perfusion data to secure database (administered by perfusion team)
- Theatre team to replenish back-table grab bag



Edinburgh Transplant Centre XVIVO Kidney Assist Transport device perfusion record

ODT number kidney RED or GREEN* pathway	LEFT/RIGHT * DCD/DBD* *delete as required	Donor DoB	
Surgeon(s)			
Supervising Consultant			
Indication for perfusion			
Would this kidney have been accepted without perfusion?	Yes/ No* If no, why not?		
Organ X-clamp date and time			
Organ arrival date and time		Organ temperature	°C
Back-table start date and time		Perfusion fluid MC+S taken	Yes/No*
Back-table finish date and time			
Organ suitable for perfusion	Yes/ No* If no, why not?		
Perfusion set lot number			
Perfusion fluid lot number & exp date			
Number of arteries		Cannula type	
Retrieval injury	Yes/ No* If yes, what?		
Date and time on machine			
Date and time off machine			
Quality of perfusion post KAT (appearance)	Good	Patchy	Poor
Resistance, pressure, flow @ 30mins			
Date and time KAT leaves theatre			
Biopsy taken	Yes/No* If yes, how and where?		
Any issues			
Data downloaded and USB stored	Yes/ No* If no, plan for download		
Signature of completing surgeon			

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