

**HEALTH TECHNOLOGY APPRAISAL: NICE Health Technology
Appraisal - Assessment Report**

**On machine perfusion systems and solutions for cold (static) storage of
donated kidneys**

TO: NICE

**FROM: NHS Quality
Improvement Scotland**

The PTA report is a very detailed, comprehensive review of the published data in the literature about preservation solutions and machine perfusion for kidney allografts. I appreciate that this was commissioned by NICE specifically for England & Wales.

Kidney allografts from heart beating deceased organ donors are shared throughout the UK as dictated by the Kidney Allocation Scheme of the UKT. This scheme does not cover non-heart beating donor (NHBD) kidneys. The UK wide kidney sharing scheme makes it desirable, if not essential, that all such allografts are treated similarly throughout the UK as far as organ preservation is concerned. I feel therefore that this is an area where assessment of any new technology and implementation of new developments requires coordination between NICE & QIS.

As the PTA report makes clear, there are only two prospective randomized trials which have compared machine perfusion versus cold storage for kidney allografts. The UK trial found no evidence to support superiority of machine perfusion. The other study conducted in Europe did demonstrate a small benefit in favour of machine perfusion.

The UK trial was restricted to NHBD kidneys only. This was chosen firstly because NHBD kidneys potentially suffer from greater ischaemia/re-perfusion injury than other deceased donor kidneys, hence more to gain from an improved method of preservation. Secondly the organ allocation system in the UK excludes NHBD kidneys and logistically makes a study easier to design and conduct. The European trial recruited all deceased donor kidneys and was methodologically less robust than the UK trial.

My personal interpretation of these and the other information in the literature is that there isn't enough data to support the routine use of machine preservation instead of simple cold storage for kidney allografts. There may be scope for another UK (or international) study designed carefully with lessons learnt from the designs of the two conflicting trials in order to resolve the issue. In the

meantime, the lack of firm data supporting machine perfusion and the logistical difficulties + expense of transporting perfusion machines throughout the UK suggests to me that cold storage ought to remain as the preferred method of organ storage. We need to be also mindful that a uniform policy across the UK is required.

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4 August 2008