

Organ Donation and Transplantation Safety Alert

Care of potential lung DCD donors

December 2015



Lung retrieval from potential DCD donors can make very important contributions to lung transplantation. However, it requires careful planning and close collaboration between everyone involved in organ donation and retrieval. Recent incidents suggest that not all staff are aware of these requirements.

Background

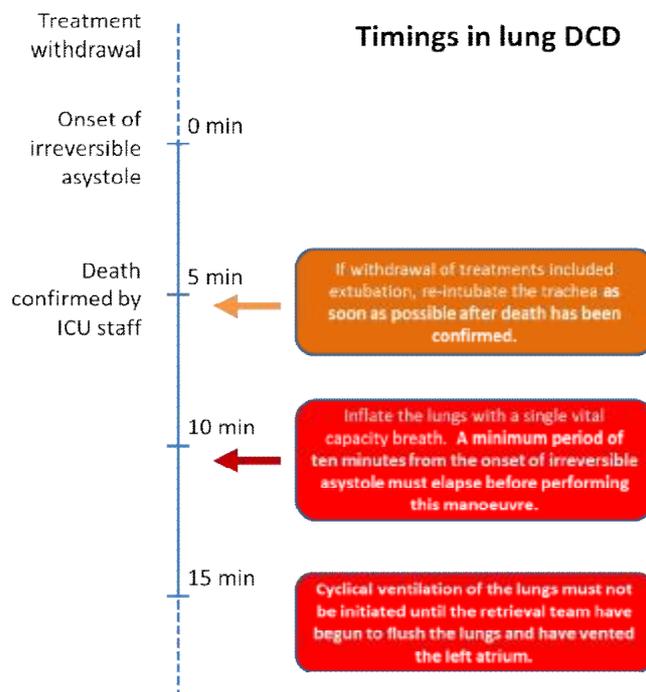
Successful lung retrieval from a DCD donor fulfils more completely a person's wish to be a donor and should be pursued wherever possible. There are challenges however, including soiling of the airways with gastric contents (if the patient has been extubated as part of treatment withdrawal), warm ischaemic injury to the lung parenchyma and atelectasis. Whilst national guidance on lung DCD has laid out how to address these challenges,¹ a series of incidents reported to NHSBT suggest that this is not always well understood. The purpose of this safety briefing is to clarify this guidance and remind clinical staff that lung DCD retrieval requires careful planning and close collaboration between all of those involved in the care of the patient, including the organ retrieval team (see note 1).

Protection against airway soiling

If the patient has been extubated as part of treatment withdrawal, the airway should be re-intubated as soon as possible after death has been confirmed (note 2).

Lung ischaemia The lungs should be inflated with a single vital capacity breath of oxygen-enriched air. **A minimum period of ten minutes from the onset of irreversible asystole must elapse before performing this manoeuvre** (notes 3 and 5).

Ventilation Cyclical ventilation of the lungs is not be allowed **until the retrieval team have started to flush the lungs and have vented the left atrium** (notes 4 and 5).



IT IS VITAL THAT ALL STAFF STRICTLY ADHERE TO THESE RULES

¹ Organ donation after circulatory death. Report of a consensus meeting. Available at <https://www.bts.org.uk/Documents/Guidelines/Active/DCD%20for%20BTS%20and%20ICS%20FINAL.pdf>

Notes

1. DCD lung retrieval is a time-critical process. Before treatments are withdrawn there should be effective communication between the ICU team, the Specialist Nurse-Organ Donation and the Retrieval Lead to explicitly agree
 - a. who will be the time-keeper (this will be the SN-OD)
 - b. who will intubate the airway, and when
 - c. who will re-inflate the lungs, and when
 - d. how cyclical re-ventilation will be initiated, and when
 - e. for how long a member of the anaesthetic / ICU team will be needed

The timings of these interventions must be agreed by all parties. Any uncertainty or dispute MUST be resolved before treatment withdrawal.

2. Ensure that the cuff of the endotracheal tube is firmly inflated to prevent airway soiling.
3. Re-inflation of the lungs
 - a. If performed by a member of the anaesthetic / ICU team, use an anaesthetic machine and circuit to re-inflate and recruit the lungs by delivering a single vital capacity breath of 50% oxygen to generate an airway pressure 30 – 40 cm H₂O for 30 seconds. Thereafter, maintain lung inflation by clamping the endotracheal tube or by adjusting gas flows and the APL valve to 5–10 cm H₂O CPAP.
 - b. If performed by a member of the retrieval team, use a manual device such as an Ambu Bag[®] to re-inflate the lungs with a single breath of oxygen-enriched air, thereafter clamping the endotracheal tube to maintain lung inflation.

This manoeuvre may need to be repeated in order to complete / maintain lung inflation.

4. Intermittent ventilation helps to distribute perfusate through the lungs. Although there is a very small risk that this may restore myocardial contractility, this is not possible once cold perfusion of the lungs has started and the left atrium has been vented.
 - a. If initiated by a member of the anaesthetic / ICU team, the lungs should be ventilated with 50% oxygen via the anaesthetic machine, using pressure control ventilation if possible.
 - b. If initiated by a member of the retrieval team, the lungs should be ventilated manually with oxygen-enriched air using an Ambu Bag[®] or similar device.
5. If the arch vessels are to be clamped, for instance to support normothermic regional perfusion, then lung re-inflation and ventilation can begin as soon as the cerebral circulation has been so isolated.

Actions

**Who: Clinical Leads for Organ Donation
Organ Donation Team Managers
National Organ Retrieval Service Team Leads**

What:

Please ensure that

- ⚠ all staff who care for DCD donors are aware of this safety alert and that it is available on ICUs and other areas where potential DCD donors are cared for.
- ⚠ all staff are aware of the professional guidance on DCD donation, particularly with regards to the diagnosis of death, post mortem interventions and DCD lung retrieval.
- ⚠ resident clinical staff who are likely to be involved in the care of potential DCD lung donors are adequately briefed and supported for their duties.
- ⚠ prior to treatment withdrawal there is effective communication between specialist nurses, critical care staff and the retrieval team members.