

# The Role of Emergency Medicine in Organ Donation

Report of a Workshop, October 4<sup>th</sup> 2010

  
*Blood and Transplant*



Prepared by a Steering Group, on behalf of the College of Emergency Medicine and the British Transplantation Society.

Published: October 2011

Review Date: October 2014

Neither the College of Emergency Medicine, British Transplantation Society nor the authors accept any responsibility for any loss or damage arising from actions or decisions based on the information contained within this publication. Ultimate responsibility for the treatment of patients and interpretation of the published material lies with the medical practitioner. The opinions expressed are those of the authors and the inclusion in this publication of material relating to a particular product or method does not amount to an endorsement of its value, quality, or the claims made by its manufacturer.

## Executive Summary

1. This document reports on a Workshop held on October 4<sup>th</sup> 2010 between representatives of Emergency Medicine, critical care, Specialist Nurses in Organ Donation and transplantation surgery.
2. Implementation of the Organ Donation Taskforce report and its recommendations has progressed extremely well over the past three years. It has become increasingly clear that Emergency Departments (ED) have a hitherto poorly recognised, but important role, in the identification and referral of patients who may be potential organ donors. Donation from the ED must be seen as part of a "whole hospital" pathway and not in isolation.
3. Recent years have seen a ten-fold increase in donation after circulatory death (DCD or non-heartbeating donors) but a static number of donors after brain death (DBD or heartbeating donors). The incidence of diagnosed brain-stem death recorded in intensive care units has declined by nearly 25% in the past 5 years.
4. It has been suggested that the overall incidence of brain-stem death in the UK may be low because patients with catastrophic brain injury are not admitted to critical care and instead have treatments withdrawn at an earlier stage in the ED. Furthermore, it seems likely that a significant proportion of the potential donors likely to be identified within the ED will have been referred to the local neurosurgical unit for advice on possible therapeutic options prior to a decision to limit or withdraw treatments.
5. Emergency Departments may play a role in increasing organ donation in two ways; firstly through the robust identification of the donation potential of those patients whose catastrophic brain injuries (medical or traumatic) are clearly not survivable. In these circumstances, rather than have life sustaining treatment withdrawn, the legal wishes of the patient - either

recorded on the Organ Donor Register or with their closest relatives orally or in written form - should guide the ED to early referral of the patient to the Specialist Nurses for Organ Donation. It is in the best interests of the patient that they be cared for in a critical care environment to allow a full assessment of their donation potential.

Secondly, and less commonly, if admission to ICU is not appropriate or possible for the entire donation pathway prior to transfer to theatre, for the organ retrieval to be managed from within the ED. Even in large Emergency Departments, donation is likely to be a relatively infrequent event.

6. The workshop discussed the key issues surrounding the role of Emergency Departments in organ donation under the following headings:
  - Education and engagement with the ED (Focusing on DBD and Controlled DCD donors)
  - Human Resources (Focussing on DBD and Controlled DCD donors)
  - Non-Human (Service) Resources (Focussing on DBD and Controlled DCD donors )
  - Ethical Issues (Focussing on DBD and Controlled DCD donors)
  - Uncontrolled DCD donors
  
7. The principle recommendations from the Workshop are:
  - All Emergency Departments should consider the identification of a lead clinician with an interest in donation.
  - All Emergency Departments should be represented on the local Donation Committee, and thus engage the support of the Trust/Health Board.
  - Trusts/Health Boards should review data from the Potential Donor Audit (PDA) on the potential for organ donation from ED every six months, and the potential for donation should be reviewed as part of the standard discussion that follows every death within ED.

- Organ donation is part of the core competencies in Emergency Medicine, but should be reinforced by incorporation of donation into ED induction programmes and regional/local study days.
- Consideration should be given to the development of a national “template” care pathway, within the End-of Life care pathways, taking account of current national Guidance. This should include a recognition of, and advice on, the ethical issues involved in organ donation. There is a NHSBT map of medicine Emergency Medicine pathway available at [http://www.organdonation.nhs.uk/ukt/about\\_us/professional\\_development\\_programme/pathways.jsp](http://www.organdonation.nhs.uk/ukt/about_us/professional_development_programme/pathways.jsp).
- Local policies and guidelines should be developed based on the national template, but reflecting local factors such as the likely frequency of potential donors and the resources that are available or will be needed.
- Neurosurgery/neurosciences should be part of these developments both nationally and locally.
- These policies should include the care of a ventilated patient, the transfer of patients to intensive care for further assessment, and the withdrawal of life-sustaining treatment within the Emergency department.
- Whilst every effort should be made to avoid the necessity for inter-hospital transfer for donation, this could be justified if in the best interests of the patient and if the necessary resources to facilitate donation were only available elsewhere.
- It would appear that in principle an uncontrolled DCD donation programme is possible from Emergency Departments in the UK. There is a need for a detailed agreed protocol between the department, the SN-ODs, the transplant teams and the coroner/procurator fiscal.
- Uncontrolled DCD donation is extremely resource intensive, and is unlikely to be possible unless the ED is co-located with, or in very close proximity to, a transplant retrieval team. In general, it would appear appropriate to address controlled DCD issues before starting an

uncontrolled DCD programme, although local initiatives should be supported where possible.

## **1. Introduction**

The UK Health Departments accepted in full the report from the Organ Donation Taskforce (Organs for Transplants) in January 2008. This report identified barriers to deceased donation and made 14 specific recommendations as to how to overcome them. As the work of implementation of these recommendations progresses, it has become increasingly clear that Emergency Departments (ED) have a hitherto poorly recognised but important role in the identification and referral of patients who may be potential organ donors. Donation from the ED must be seen as part of a "whole hospital" pathway and needs to be approached from that viewpoint. This document summarises the discussions at a Workshop organised by the Department of Health in association with the College of Emergency Medicine and NHS Blood and Transplant (NHSBT) on October 4<sup>th</sup> 2010.

The aims of the workshop were to explore the key issues surrounding the role of Emergency Departments in organ donation, and through discussion to gain as much consensus as possible.

### **Nomenclature**

The descriptive terms used for deceased donors have changed, and are still evolving. Donation after Brain Death (DBD) is now the preferred term for what was previously called heartbeating donation, and follows death that is diagnosed on neurological criteria as laid out in the Guidance from the Academy of Medical Royal Colleges .

Donation after Circulatory Death (DCD) is now the preferred term for what was previously called non-heartbeating donation (the phrase Donation after

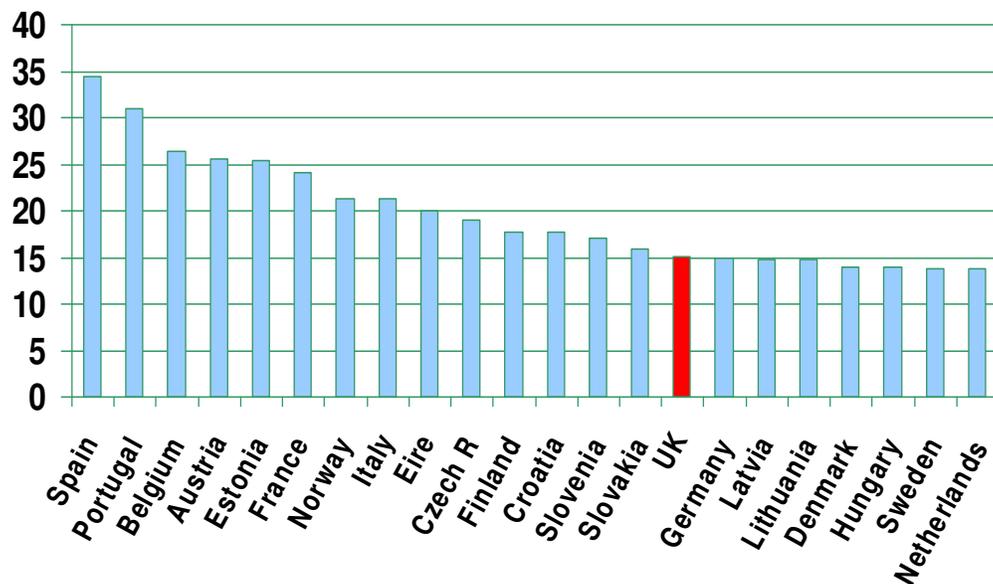
Cardiac Death is also used) and follows death that is diagnosed on cardio-respiratory criteria as laid out in the same Guidance. DCD donors can be further categorised according to whether death is unexpected or anticipated. Thus, un-controlled DCD donors are patients who suffer an unexpected cardiac arrest (Maastricht categories 1 and 2) whereas controlled DCD donors are those in whom cardiac arrest is anticipated after the withdrawal of life-sustaining treatment (Maastricht categories 3 and 4).

## 2. Background.

The UK has one of the lower deceased organ donation rates in Western Europe (Fig 1). As a result, there are currently approximately 8000 patients actively waiting for an organ transplant and over 1000 patients die each year before a suitable organ becomes available. Furthermore, many thousands more who would benefit from a transplant are not accepted onto the waiting lists because donor organs are so scarce.

Figure 1

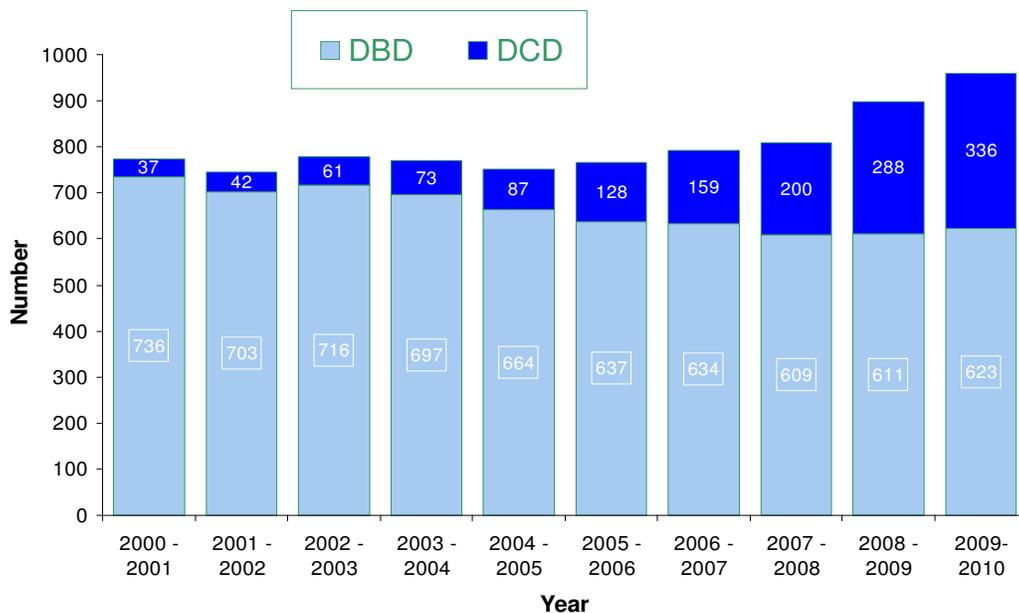
### Deceased Donors 2009 (per million population)



There has been around a 28% increase in deceased donation since the publication of the Taskforce report in January 2008, an increase that can be attributed almost entirely to the continued development of DCD programmes around the UK (Fig 2), while DBD rates remain static. Implementation of the Taskforce recommendations is progressing well. Almost all acute hospital Trusts and Health Boards now have the necessary infrastructures in place to improve the identification and referral of potential donors (resident donor coordinators (Specialist Nurse- Organ Donation), Clinical Leads for Organ Donation, Donation Committees etc).

**Figure 2**

## Deceased Donors in the UK



In addition, there has also been considerable progress at a national level, both with the provision of legal and ethical guidance for deceased donation (e.g. Legal Guidance on DCD donation and the establishment of the UK Donation Ethics Committee), and also in the recommendations that refer to training of healthcare staff involved in the care of potential donors, increasing public awareness and support for donation (over 18 million people are now

registered on the ODR), research and engagement with the black and minority ethnic communities.

Extensive data on actual organ donors are available from NHSBT, which is also responsible for the UK Potential Donor Audit (PDA), an on-going analysis of the potential for donation from patients who have died in intensive care units in the UK since 2003. Analysis of the PDA data reveals that:

1. the incidence of diagnosed brain-stem death on UK critical care units is much lower than that reported from mainland Europe and North America, and
2. The incidence of diagnosed brain-stem death has declined by nearly 25% in the past 5 years.

The recent fall in the incidence of death confirmed using neurological criteria might be attributable in part to improvements in the treatment of life-threatening brain injury. However, it is reasonable to ask whether the overall incidence of brain-stem death in the UK is low because patients with non-survivable brain injury are not being admitted to critical care and instead having treatments withdrawn at the point of entry into acute hospital care, namely in Emergency Departments. Furthermore, although there is currently no hard audit data, it seems likely that a significant proportion of the potential donors likely to be identified within the ED will have been referred to a neurosurgical unit for advice on possible therapeutic options prior to a decision to limit or withdraw treatments.

More recently, the PDA has been extended to cover most Emergency Departments and although national data are not yet available, the early experience from the audit and of the introduction of donation programmes in several departments clearly demonstrates the potential to increase donation through closer engagement.

Emergency Departments may play a role in increasing organ donation in two ways; firstly through the robust identification of the donation potential of those

patients whose catastrophic brain injuries (medical or traumatic) are clearly not survivable. In these circumstances, rather than have life sustaining treatment withdrawn, the legal wishes of the patient either recorded on the Organ Donor Register or with their closest relatives orally or in written form, should guide the ED to early referral of the patient to the Specialist Nurses for Organ Donation. It is in the best interests of the patient that they be cared for in a critical care environment to allow a full assessment of their donation potential.

Secondly, and less commonly, if admission to ICU is not appropriate or possible, for the entire donation pathway prior to transfer to theatre for organ retrieval to be managed from within the Emergency Department. Even in large departments, donation is likely to be a relatively infrequent event.

Donation after circulatory death raises a number of legal, ethical and organisational questions, and the Intensive Care Society and the British Transplantation Society have recently published a joint Consensus Report on Donation after Circulatory Death. This, together with the Legal Guidance from the Department of Health which states that if an individual wished to be an organ donor, treatments that facilitate that wish and do not cause the person harm or distress or place them at a material risk of experiencing harm or distress are in their best interests, will assist clinicians in resolution of many of these issues.

### **3. The Process**

Clinicians (medical and nursing) from Emergency Departments and Intensive Care, together with transplant surgeons, Specialist Nurses – Organ Donation (formerly donor transplant coordinators) and members of the UK Donation Ethics Committee discussed the role of Emergency Departments under five headings:

- **Education and engagement with the ED** (Focussing on DBD and Controlled DCD donors)
- **Human Resources** (Focussing on DBD and Controlled DCD donors)
- **Non-Human Resources** (Focussing on DBD and Controlled DCD donors)

- **Ethical Issues** (Focussing on DBD and Controlled DCD donors)
- **Uncontrolled DCD donors**

## **Discussion**

Each group was asked to address its key topic under the headings of a number of questions. The outcome of these discussions is presented below:

### **3.1. Education and engagement with Emergency Departments**

#### ***Who are the key individuals that need to be engaged with the organ donation programme?***

- It is usually possible to identify individuals who are interested and willing to take on work related to donation, rather than try to force people to engage.
- There is a need to influence all healthcare professionals in hospital, from Senior Consultants downwards.
- Senior trainees are actively involved in the work of the ED and are the consultants of the future. They are therefore a key audience.

#### ***How do we engage with them?***

- There is a need to provide positive feedback to staff, for tissue as well as organ donation.
- The potential for organ donation should be reviewed as part of the standard discussion that happens after every death within the ED.
- It is necessary to “advertise” donation within the ED, and to find ways of promoting organ donation to ED staff. Providing positive feedback would help with this.
- The presence of a SN-OD is critical, even though in some centres this may be at a relatively limited level.

### ***How could education influence that engagement?***

- It is desirable to develop a standard care pathway for organ donation within the End of Life Care (EoLC) pathway, perhaps through the development of a modified Liverpool Care Pathway and also through the Pathways now available via the Map of Medicine. This should include recommendations and training in the approach to bereaved families for consent/authorisation for donation.
- Training in the principles of organ donation for trainees is widely seen as being critical and is a core competency of Emergency Medicine training.
- It should be routine to incorporate organ donation into ED induction programmes for specialist trainees.
- Regional/Local study days on donation should include ED staff.

### ***What are the key issues that should be built in to an educational programme?***

- National guidance is needed that can be adapted to meet local systems and lead to the development of standard local procedures, which have been approved by all relevant people.
- Data from the PDA will increasingly become available, and will provide both local data and regional/national benchmarking data.

## **3.2. Human Resources**

### ***Who can facilitate/ hinder organ donation from the ED setting?***

- The support of all clinical (medical and nursing) staff in the ED is needed, but identified leaders are key to success.
- Many operational and organisational issues require the support of the entire trust management, from the Chief Executive downwards.
- There is a need for a national framework, which can be adapted locally. This should be built on existing Guidance from the General Medical Council, the end-of-life teams and NHSBT.
- Effective communication between all those involved is a major requirement for success.

### ***Who is responsible for improving donation from ED?***

- A collaborative approach between ED clinicians, ICU staff and local SN-ODs and organ retrieval teams is essential, as all healthcare professionals have a role.
- Trusts and Health Boards, working with their Donation Committees, must support local clinical initiatives and the introduction of local policy and Guidance.

### ***What can Clinical Leads for Organ Donation and SN-ODS do to help?***

- CLODs and SN-ODs should work with all relevant parties to develop local policies that are (where possible) based upon published national guidance.
- The Trust/ Health Board Donation Committee may have an important role in facilitating these discussions and in resolution of local issues.
- It is important that these discussions take place in a staged and progressive fashion, and in the full awareness of issues such as the likely frequency of potential donors and the resources that are available or will be needed.

### ***How do we engage neurosurgery within an appropriate time period?***

- To date neurosurgeons and other neuroscience clinicians have not been involved at a national level – this must be addressed.
- Most Emergency Department obtain neurosurgical advice from a regional centre, and there is a need to ensure that consideration of organ donation is integrated into the care plan for patients in whom no neurosurgical intervention is appropriate.
- Neurosurgery/ neuroscience should be represented throughout the planning stages and on local and regional Donation Committees.

## **3.3. Non-Human (Service) Resources**

### ***What are the service barriers to the ongoing clinical management of potential donors? (ED space, ICU capacity, theatre recovery etc).***

- There may be reluctance on the part of critical care staff to admit patients to ICU primarily to maintain a patient's potential to donate after their death. Similarly, units may lack personnel or physical capacity to admit a patient in

such circumstances. In this regard, it was recognised that few clinicians would support the inter-hospital transfer of gravely ill patients solely to facilitate donation unless there was very clear support for this from the individual's family, and that this might also lead to capacity and other issues within the ambulance service.

- Whilst physical space may be available in the ED to facilitate donation, personnel may not be available to provide the necessary care for the patient until organ retrieval takes place.
- Although there has been some central relaxation in England around the 4hr standard for admission, transfer or discharge from the ED, local commissioning criteria may still apply.
- The distance and complexity of the journey from the ED to the operating theatre suite may represent a significant obstacle to controlled DCD.
- Difficulty in contacting coroners/procurators fiscal.
- Theatre capacity, and in particular the disruption to other elective or emergency surgery.

***What do hospitals have to look at and plan for to get this to work?***

- Emergency Departments should develop policies and protocols governing the withdrawal of life sustaining treatments, and ensure that they are applied consistently. The decision to withdraw life-sustaining treatments should not be made hastily, and should ideally involve a minimum of two doctors, at least one of whom is a consultant.
- Hospitals must develop clear operational policies to support the management of potential organ donors identified within the ED. These policies must be developed in a multi-disciplinary fashion that thereby acknowledges local arrangements governing critical care bed management and workforce issues and acute access to operating theatre capacity. These policies should specifically consider the priority that needs to be given to a potential organ donor identified within the ED, both in terms of critical care and theatre availability. The development of the policies should transparently acknowledge and plan for the transfer of care of the potential donor from Emergency Departments to critical care / theatre teams where it is anticipated.

- There is a need to engage with patient flow managers, who have the potential to resolve ICU capacity issues.
- There should be appropriate educational and training programmes to ensure that clinical staff within Emergency Departments are aware of the criteria that are used to diagnose and confirm death within the context of both DBD and DCD. However, it is anticipated that in most circumstances, particularly in the diagnosis of death on neurological criteria, these diagnoses will be made by suitably experienced critical care staff<sup>1</sup>. The financial reimbursement from NHSBT for donation might be used to fund such training events.
- Local policies should emphasise the benefits of timely referral to the SN-OD of potential donors.
- Clear lines of communication between the coroner, police, SN-ODs and clinicians should be established as part of a local protocol.
- Placing generic recipient stories on the hospital intranet was identified as an effective way of providing feedback to all on the outcomes of donation from that hospital. This would need to be done in an acceptable way that respected patient confidentiality.

***Where should ventilated patients be cared for?***

- There should be a local policy to identify where patients who are potential donors can be cared for. Whilst there was agreement that Emergency Departments can deliver high quality end of life care, there was similar consensus that, in circumstances where deceased donation was being considered, there were many advantages to that care being delivered within ICU.
- CLODs and SN-ODs should be involved in developing and introducing individual hospital care pathways, in cooperation with an identified consultant lead clinician from the ED.

---

### ***Where should the family be cared for?***

- A lack of suitable space within the ED for the patient's relatives was described as a common observation.
- No clear resolution is available nationally, but this should be addressed as part of local implementation, in consultation with SN-ODs, CLODs and Donation Committees.

### ***Where does/ should withdrawal occur?***

- This will depend entirely on the layout of the hospital (specifically, the facilities within the ED, the proximity of the theatre complex etc), together with the outcome of local discussions and the availability of resources.
- It may be advisable to identify a second- (and perhaps third-) choice option should the preferred site be unavailable.

## **3.4. Ethical Issues**

### ***What are the ethical issues surrounding donation within Emergency Departments?***

- There may be a perception that it is difficult to recognise the best interests of a patient, particularly at a very early stage or before the decision to withdraw life sustaining treatments had been made.
- It may be that there are few real ethical problems – more a perception or a barrier in light of “uncomfortable feelings”.
- The need to balance competing demands for resources and personnel.
- A general lack of clarity regarding the validity of consent as given through registration on the ODR.
- Uncertainty as to when it is appropriate to contact the SN-OD in a situation where decisions have to be made quickly.
- It may be unethical to deny families the choice of donation where this is possible.
- There are not felt to be ethical concerns regarding moving patients from the ED to ICU for organ donation to proceed, provided that it was the patient's wish to be a donor.

- Although the law states that the wishes of the patient to become an organ donor cannot be over-ruled by the relatives, it is unclear from an ethical perspective whose wishes are paramount in practice – the family's or the donor's?

***Can we be assured the practices are ethically sound?***

- Probably yes – but there remains some uncertainty as to where the line is. However, there is an increasing body of legal and ethical advice concerning the steps that are necessary to preserve the option of organ donation, and the UK Donation Ethics Committee is an important source of further advice.

***When does a patient become a potential donor?***

- Ideally, as soon as decisions to withdraw life sustaining treatment are made, although this may seem to some to be uncomfortably early in some situations.

***Is inter-hospital transfer for donation ethical?***

- Whilst every effort should be made to avoid the necessity for this, it was felt that it could be justified if in the best interests of the patient and if the necessary resources to facilitate donation were only available elsewhere.
- The known wishes of the individual, and the strength of those wishes, may be highly relevant.
- There could be significant practical, resource and communication problems but in principle, transfer can be seen in the same light as other inter-hospital transfers for necessary care.

### **3.5. Uncontrolled DCD donors**

***Is this possible in the UK?***

- In the recent past uncontrolled DCD has been carried out in Leicester, South London and Newcastle. Much can be learnt from the experiences of these centres.
- It would appear that in principle an uncontrolled DCD donation programme is possible from other Emergency Departments in the UK.

### ***What are the ethical issues?***

- The Human Tissue Acts allow for minimal steps to be taken after death, without consent/authorisation, to maintain the option of organ donation. In practice, these steps involve the insertion of cannulae into the femoral artery and vein and in-situ cooling of the abdominal organs. To maintain the option of lung donation it is necessary simply to ensure that the lungs remain fully inflated.
- There is inevitably an extremely short timescale for families, but the steps above help to ensure that patient's known wishes are met if possible.

### ***What are the practical issues?***

- There is a need for a detailed agreed protocol between Emergency Departments, the SN-ODs, the transplant teams and the coroner/procurator fiscal. The Human Tissue Authority has published a Code of Practice on Donation that should be used in developing a local protocol. . In Scotland there are 'Explanatory Notes' which accompany the Human Tissue (Scotland) Act 2006
- Experience with uncontrolled DCD indicates that action must be taken within 15 minutes of diagnosis and confirmation of death to ensure viability of the organs for transplantation. Uncontrolled DCD donation is extremely resource intensive, and is unlikely to be possible unless the ED is co-located with, or in very close proximity to, a transplant retrieval team.
- There is a clear potential for attracting adverse publicity, and in general, it would appear appropriate to address controlled DCD issues before starting an uncontrolled DCD programme.
- The DCD Consensus report offers suggested criteria for the suitable warm ischaemia time (from cessation of the circulation to cold perfusion) for different organs.

## 4. Summary and Recommendations

**It is essential that the following recommendations are seen as part of a “whole-hospital” approach to donation. Emergency Departments do not and cannot work in isolation in promoting organ donation.**

1. All Emergency Departments should consider the identification of a lead clinician with an interest in donation. This should be done in association with the Clinical Lead for Organ Donation and the Specialist Nurse-Organ Donation, and needs the support of the whole Department from senior consultant downwards.
2. All Emergency Departments should be represented on the Trust/Health Board Donation Committee, and thus engage the support of the trust/hospital Board.
3. Data from the PDA on the potential for organ donation from the ED should be reviewed every six months, and the potential for donation should be reviewed as part of the standard discussion that follows every death within ED.
4. Organ donation is a core competency in the Emergency Medicine curriculum but should be reinforced by incorporation of donation into ED induction programmes and local / regional study days.
5. Consideration should be given to the development of a national “template” care pathway, within the End-of Life care pathways, taking account of current national Guidance. This should include a recognition of, and advice on, the ethical issues involved in organ donation.
6. This could then be used for the development of local policies and guidelines. It is important that these discussions take place in a staged and progressive fashion, and in the full awareness of issues such as the

likely frequency of potential donors and the resources that are available or will be needed. Neurosurgery/neurosciences should be part of these developments both nationally and locally.

7. These policies should include the care of a ventilated patient, the transfer of patients to intensive care for further assessment, and the withdrawal of life-sustaining treatment within the ED. The development of the policies should transparently acknowledge and plan for the transfer of care of the potential donor from the Emergency Department to critical care / theatre teams where it is anticipated that this will be necessary.
8. Whilst every effort should be made to avoid the necessity for inter-hospital transfer for donation, this could be justified if in the best interests of the patient and if the necessary resources to facilitate donation were only available elsewhere. The known wishes of the individual, and the strength of those wishes, may be highly relevant. There could be significant practical, resource and communication problems but in principle, transfer can be seen in the same light as other inter-hospital transfers for necessary care.
9. It would appear that in principle an uncontrolled DCD donation programme is possible from Emergency Departments in the UK. There is a need for a detailed agreed protocol between the ED, the SN-ODs, the transplant teams and the coroner/procurator fiscal. The Human Tissue Authority has published a Code of Practice on Donation that should be used in developing a local protocol.
10. Uncontrolled DCD donation is extremely resource intensive, and is unlikely to be possible unless the ED is co-located with, or in very close proximity to, a transplant retrieval team. In general, it would appear appropriate to address controlled DCD issues before starting an uncontrolled DCD programme, although local initiatives should be supported if possible.

## References

1. Code of Practice for the Diagnosis and Confirmation of Death, Academy of Medical Royal Colleges, 2008

<http://www.aomrc.org.uk/publications/reports-guidance.html>

2. Legal issues relevant to non-heartbeating donation, Department of Health, 2009

[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_108825](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_108825)

3. Guidance on legal issues relevant to donation following cardiac death, Scottish Government Health Directorates, May 2010

SGHD/CMO/(2010)11

[http://www.sehd.scot.nhs.uk/cmo/CMO\(2010\)11.pdf](http://www.sehd.scot.nhs.uk/cmo/CMO(2010)11.pdf)

4. An Ethical Framework for Controlled Donation after Circulatory Death

<http://www.aomrc.org.uk/publications/reports-guidance.html>

## Acknowledgements

## Members of the Steering Group

Dr Brodie Paterson – College of Emergency Medicine

Mr Keith Rigg - British Transplantation Society

Dr Paul Murphy - NHS Blood and Transplant – Clinical Lead for Donation

Ms Paula Aubrey - NHS Blood and Transplant – Specialist Nurse – Organ Donation

Prof Matthew Cooke – Department of Health – National Clinical Director for Urgent and Emergency Care

Mr Chris Rudge - Department of Health – National Clinical Director for Transplantation

Special thanks also go to:

- Department of Health
- Welsh Assembly Government
- Scottish Executive
- Department of Health and Social Care Northern Ireland
- NHS Blood and Transplant
- West Midlands Strategic Health