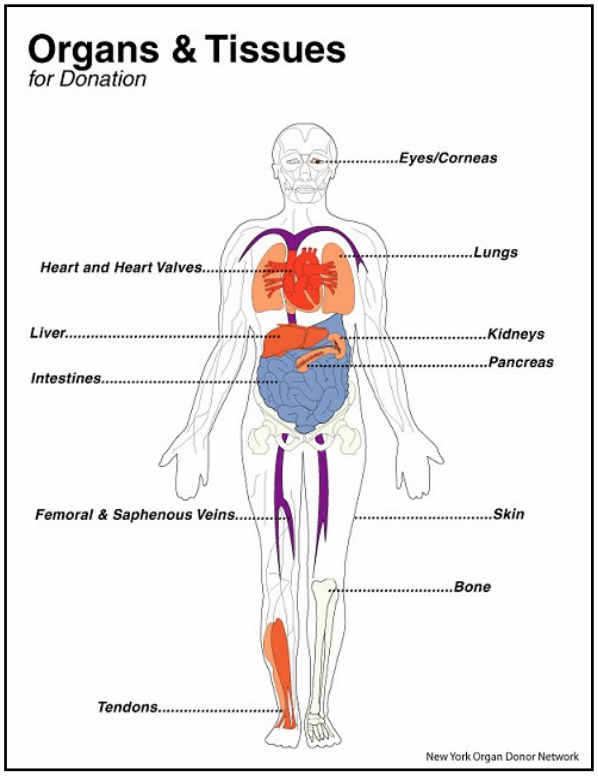
What organs are suitable for DCD?

•*More than you might imagine...*

Potentially retrievable organs and tissue

- Kidneys
- Liver
- Pancreas
- Lungs
- Eyes
- Heart valves
- Tendons
- Skin
- Bone



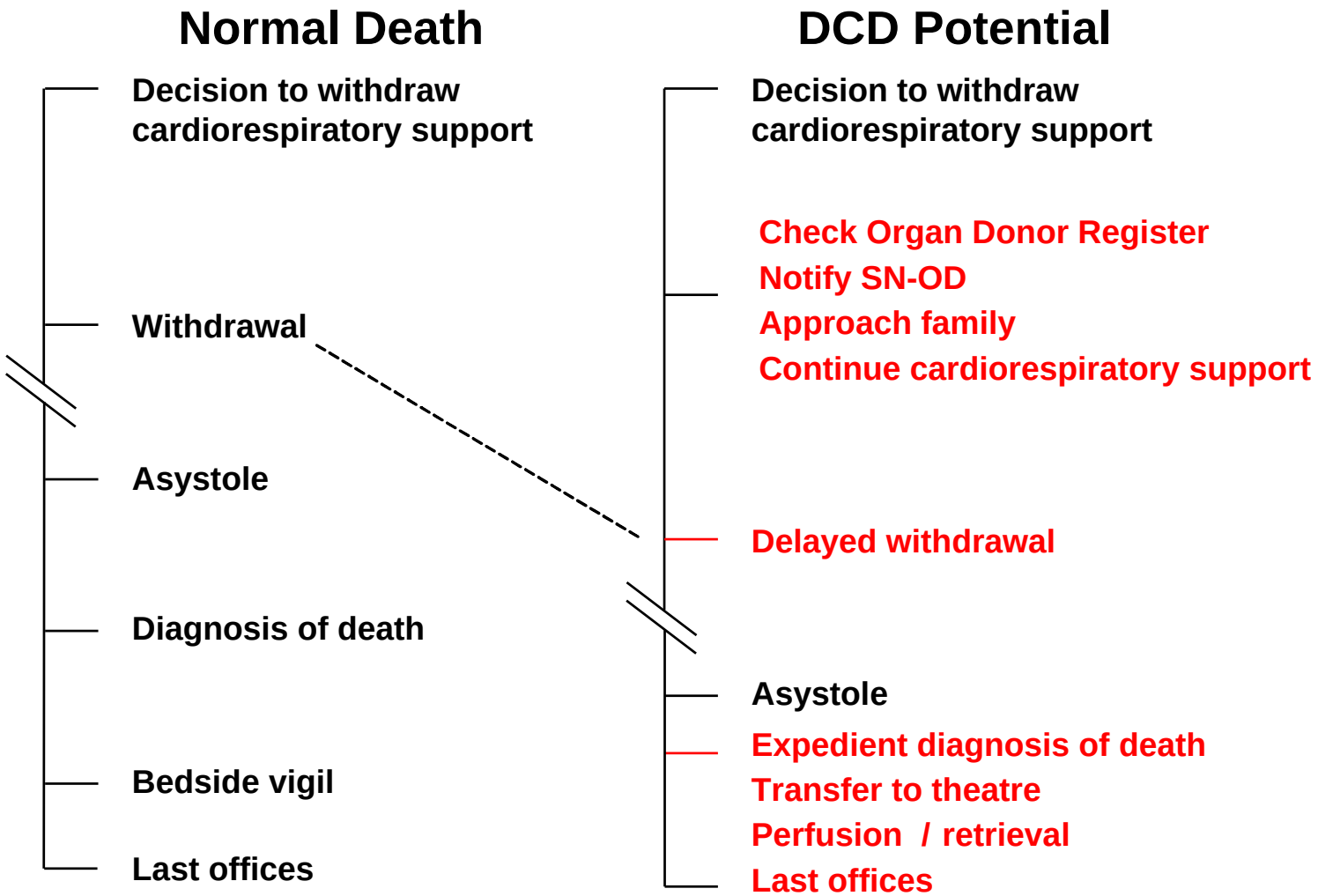
How many organs from DCD are transplanted in the UK?

Organs transplanted from DBD and DCD deceased donors in UK, April 2010 to March 2011.

	DBD	DCD
Donors	**637**	**373**
Kidney	1091	567
Pancreas	30	11
Heart	134	0
Lung	147	22
Liver	580	100
Total organs transplanted	**1982**	**700**
Transplanted organs per donor	3.1	1.9

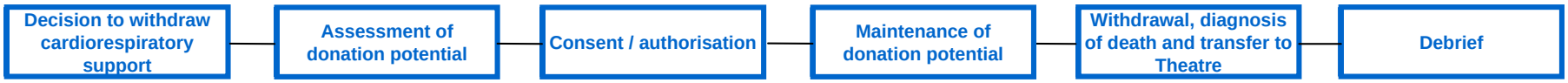
700 people received kidney, liver, lung, or pancreas transplants last year from DCD donors

How does controlled DCD differ from normal death following withdrawal of therapy?



How does a typical controlled DCD progress?

Phase	Key Consideration
Decision to withdraw cardiorespiratory support	Withdrawal decision should be independent of any consideration of donation
Assessment of donation potential	Early involvement of SN-OD is a key factor in a successful donation process
Consent / authorisation	DCD poses particular challenges to the consent / authorisation process - more clinical uncertainty, timing more challenging
Maintenance of donation potential	Some potential donors will be physiologically unstable before the retrieval team is ready for withdrawal
Withdrawal, diagnosis of death and transfer to Theatre	Sensitivity and skill are required to maintain the balance between the needs of the family, and the requirement to diagnose death and transfer to Theatre in a professional and timely way.
Debrief	Debriefing is an excellent way of learning lessons and thus continuously improving organ donation in your Hospital.



From Theory to Practice: What are the challenges facing DCD?

- **Challenges to DCD can be found at all stages:**
  - Decision to withdraw cardiorespiratory support
  - Assessment of donor potential
  - Consent / Authorisation
  - Transplantation
  - Withdrawal, diagnosis of death and transfer to Theatre
- **The key challenges can be categorised as follows:**
  - Clinical (experience, understanding of the process)
  - Professional (clarity between roles and stakeholder relationships)
  - Operational / logistical
  - Individual Perspective
  - Legal
  - Ethical

To what extent have we overcome these challenges?

- *The Organ Donation Taskforce gave clinicians a commitment to resolving the professional, legal and ethical obstacles to donation in the UK*

1. National guidance
    I. Professional guidelines from ICS/BTS/NHSBT
    II. AoMRC Code of Practice on Diagnosis or Confirmation of Death
    III. Guidance on lawfulness now published throughout UK
    IV. Advice from UK Donation Ethics Committee published
2. Professional acceptability
    I. 373 DCD donors in 2010-11
3. Public acceptability
    I. No litigation
    II. No adverse publicity
    III. Comparable consent rates

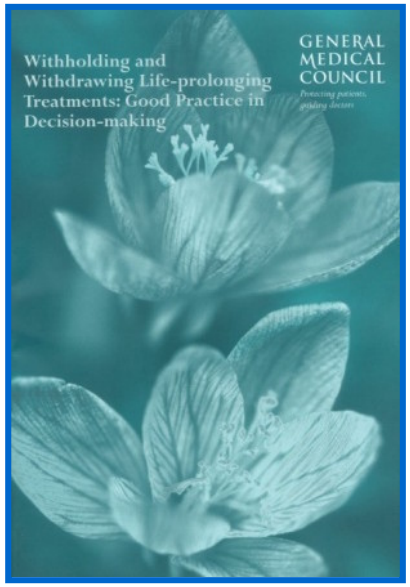
What are the considerations relating to the decision to withdraw cardiorespiratory support?

Withdrawal decision should be independent of any consideration of donation

1. **Withdrawal or withholding of treatments consistent and in line with established unit policy and national professional & legal guidance**

2. Clear distinction between decision over futility of continued cardiorespiratory treatments and any subsequent consideration of donation after death

3. Presentation of donation as a component of end of life care if raised by family at this time

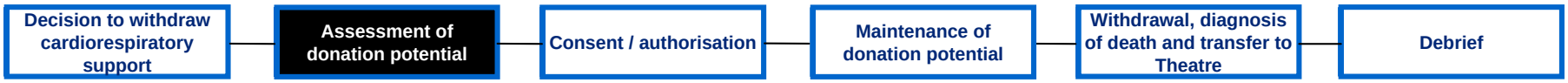


Decision to withdraw cardiorespiratory support → **Assessment of donation potential** → **Consent / authorisation** → **Maintenance of donation potential** → **Withdrawal, diagnosis of death and transfer to Theatre** → **Debrief**

What are the considerations for the assessment of donation potential?

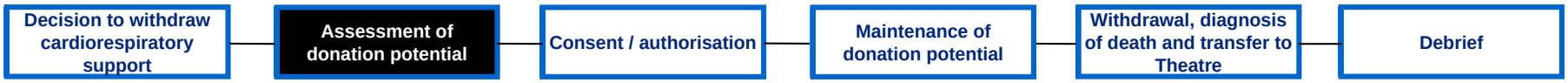
Early involvement of the SN-OD is a key factor in a successful donation process

1. Early referral to SN-OD as per Minimum Notification Criteria
2. Check NHS Organ Donor Register (SN-OD can check)
3. Consider need to discuss donation with coroner / procurator fiscal
4. Establish absence of absolute medical contraindications
5. Regional variation in application of referral criteria - role of PDA
6. Consider likelihood of asystole within prescribed time interval
    a. High inotrope requirements
    b. High levels of ventilatory support



What are the absolute contra-indications to DCD?

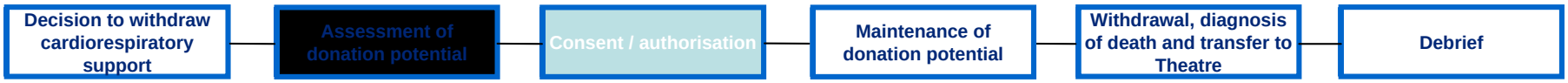
1. Age > 90 years
2. HIV disease (HIV positive status not absolute contra-indication)
3. Disseminated cancer (above & below the diaphragm)
4. Melanoma (except local melanoma > 5 years ago)
5. Treated cancer within last 3 years (except non-melanoma skin cancer & in-situ cervical cancer)
6. nvCJD & other neurodegenerative diseases associated with infectious agents
7. Organ-specific donor contra-indications



What are the considerations for Consent / Authorisation?

DCD poses particular challenges in the consent / authorisation process

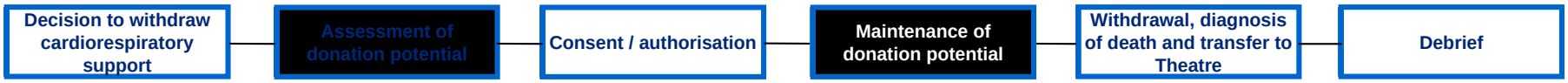
1. Approach family for consent / authorisation - presentation to family of donation as a normal component of end of life care
2. Challenge: when & how to introduce SN-OD
3. DCD-specific information includes:
   - Uncertainty about if & when death will occur
   - Uncertainty that organs will be suitable for transplantation
   - Need for expedient transfer of patient to Theatre after death
   - Need for transfer to Theatre prior to withdrawal in some circumstances
4. Possible organ specific interventions
5. Preparing families for death – providing reassurance



What are the considerations for the maintenance of donation potential?

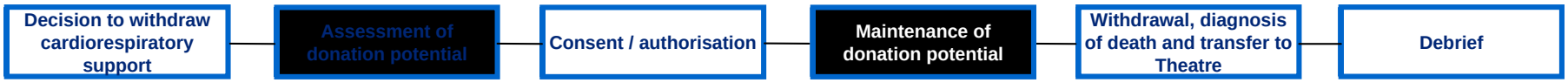
Some potential donors will be physiologically unstable before the retrieval team is ready for withdrawal

- Traditional view that potential for DCD should not alter how the dying process is managed
- Many clinicians uneasy about instituting or increasing organ supportive therapies purely to optimise function of organs for donation
- Legal & ethical guidance supports the view that it is acceptable to apply a broader definition to best interests, to include facilitation of an act of altruism at time of death
- Permissible to support organs if dying patient on ODR or family in agreement, & minimal distress / discomfort



What are the considerations for the maintenance of donation potential?

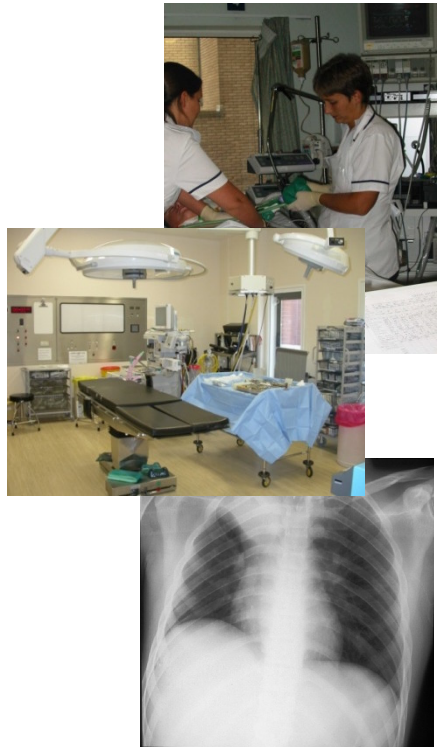
- Admission to ICU purely for purpose of being organ donor?
- Admit to last ICU bed?
- Transfer to another ICU / another hospital if bed pressures?
- Should a busy ICU Consultant devote many hours of attention to this rather than other patients?
- Is saving the lives of others as deserving of ICU input?
- Is it permissible to give drugs purely to optimise the organs for donation (eg antibiotics, heparin, steroids)?



What are the considerations for the maintenance of donation potential?

Some potential donors will be physiologically unstable before the retrieval team is ready for withdrawal

- Respiratory instability
  - Increase FiO2
  - Increase ventilation
  - Tracheal toilet and physiotherapy
  - Chest X-Ray
  - Intubation?
  - Apnoea (brain dead?)

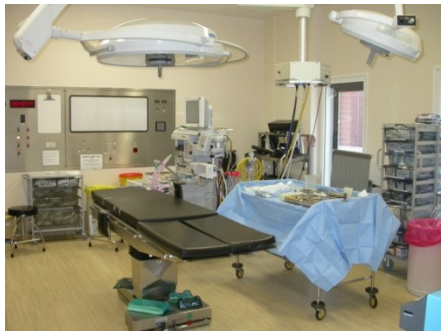


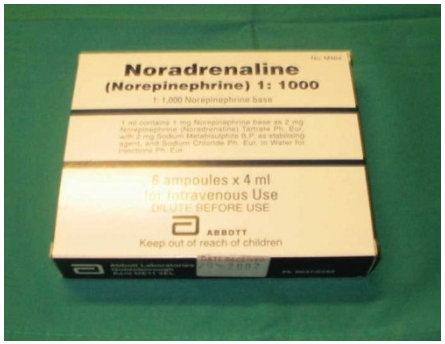
Decision to withdraw cardiorespiratory support | Assessment of donation potential | Consent / authorisation | Maintenance of donation potential | Withdrawal, diagnosis of death and transfer to Theatre | Debrief

What are the considerations for the maintenance of donation potential?

Some potential donors will be physiologically unstable before the retrieval team is ready for withdrawal

- Cardiovascular instability
  - Hypotension / Oliguria
    - Fluids
    - Blood transfusion
    - Inotropes
    - Mannitol
  - Arterial, central venous cannulation
  - Cardiopulmonary resuscitation





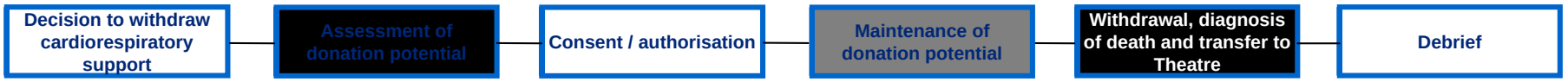
Decision to withdraw cardiorespiratory support → Assessment of donation potential → Consent / authorisation → Maintenance of donation potential → Withdrawal, diagnosis of death and transfer to Theatre → Debrief

What are the considerations during the Withdrawal, Diagnosis of Death and Transfer to Theatre Phase?

Sensitivity and skill are required to maintain the balance between the needs of the family, and the requirement to diagnose death and transfer to theatre in a professional and timely way

1. Withdrawal of cardiorespiratory support as per Unit policy
2. Appropriate seniority of clinician
3. Withdraw in ICU or anaesthetic room? (Or ED?)
4. Extubate or not according to clinical discretion
5. Diagnosis of death as per AoMRC Code of Practice
6. Immediately after confirmation of cardiorespiratory death transfer to Theatre for organ retrieval
7. Have route cleared / lifts ready, etc
8. Privacy & dignity preserved

Process of withdrawal should be consistent with established unity policy for withdrawal

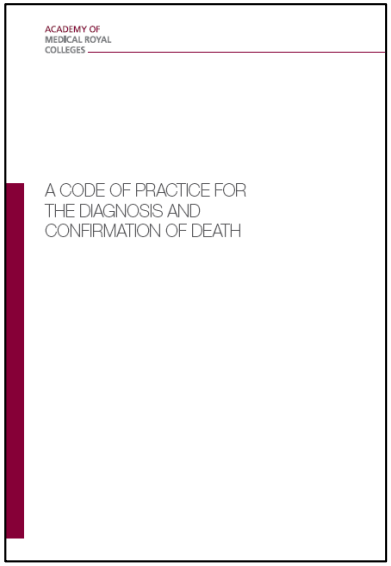


How is Cardiorespiratory Death Confirmed?

•*AoMRC Code of Practice gives detailed guidance on diagnosis of death*

•The patient should be observed by the person responsible for confirming death for a minimum of 5 minutes to establish that irreversible cardiorespiratory arrest has occurred.

•Any spontaneous return of cardiac or respiratory activity during this period of observation should prompt a further 5 minutes observation from the next point of cardiorespiratory arrest.



Diagnosis of death is determined by irreversible loss of cardiorespiratory and neurological function, NOT ischaemic tolerance of transplantable organs

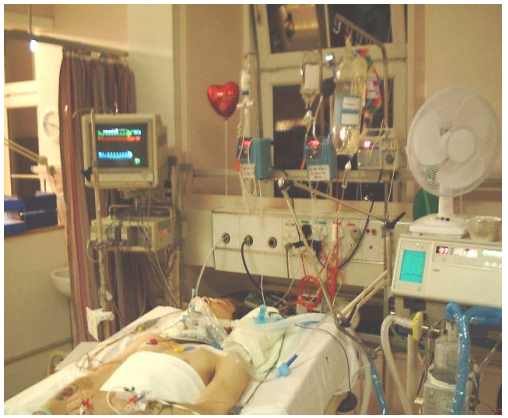
Decision to withdraw cardiorespiratory support — **Assessment of donation potential** — **Consent / authorisation** — **Maintenance of donation potential** — **Withdrawal, diagnosis of death and transfer to Theatre** — **Debrief**

How is Cardiorespiratory Death Confirmed?

The absence of mechanical cardiac function is normally confirmed using a combination of the following:

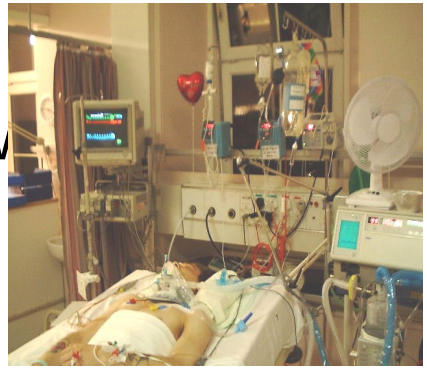
- Absence of central pulse
- Absence of heart sounds on auscultation
- Asystole on continuous ECG display
- Absence of pulsatile flow using direct intra-arterial pressure monitoring
- Absence of contractile activity using echocardiography

Irreversible cardiorespiratory death can be diagnosed after five minutes of continuous absence of mechanical cardiac function



How is Cardiorespiratory Death Confirmed?

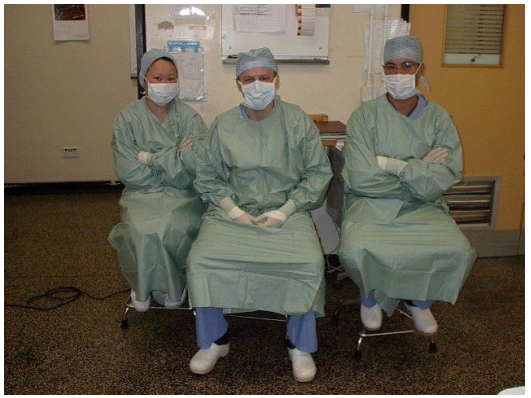
- After 5 minutes of continued cardiorespiratory arrest the absence of the pupillary responses to light, of the corneal reflexes, and of any motor response to supra-orbital pressure should be confirmed
- The time of death is recorded as the time at w criteria are fulfilled



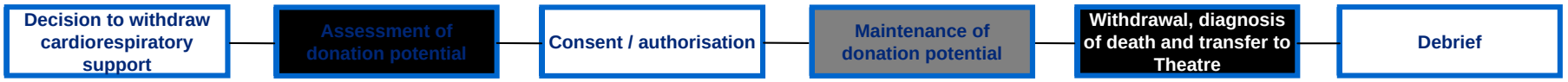
Decision to withdraw cardiorespiratory support — Assessment of donation potential — Consent / authorisation — Maintenance of donation potential — Withdrawal, diagnosis of death and transfer to Theatre — Debrief

What happens during retrieval?

1. On arrival in theatre, the aorta is cannulated and the organs rapidly cold perfused
   - ➢ Re-intubation to facilitate lung retrieval
2. Organ retrieval
3. Last offices in theatre
4. Death certificate given to family, offered opportunity to view body



Retrieval is stood down on 40% of occasions



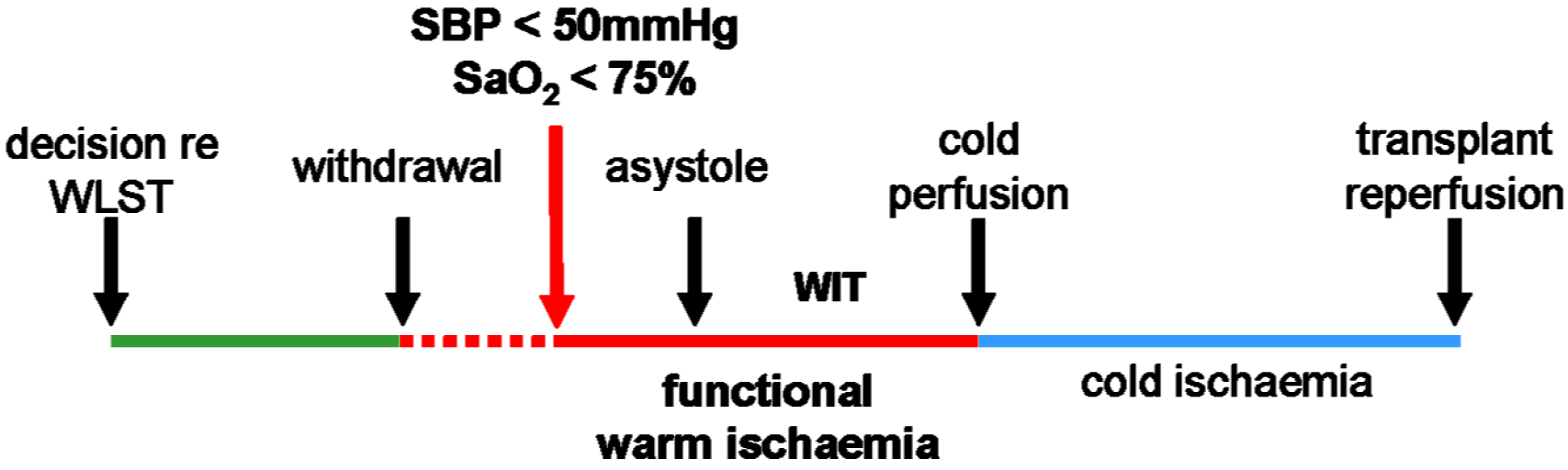
What are the components of warm ischaemia?

Some warm ischaemia (time "t") is unavoidable

Functional warm ischaemia:

- Agonal hypotension and hypoxia (unavoidable)
- Diagnosis of death (5 minutes, non-negotiable)
- ? Additional 5 minutes on ICU for family - not now
- Transfer to theatre and preparation for perfusion

Clinicians should be mindful of the benefits of minimising warm ischaemia… but not at the expense of compromising the diagnosis of death

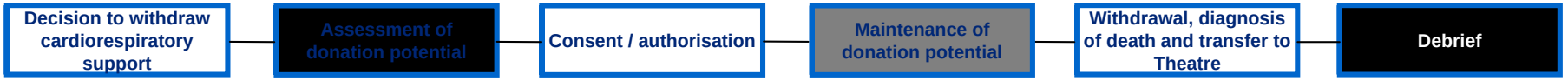


How should you debrief and resolve potential problems?

Debriefing is an excellent way of learning lessons and thus continuously improving organ donation in your hospital

- Management of instability prior to withdrawal of cardiorespiratory support
- Lack of senior medical involvement and unfamiliarity of junior staff with process, particularly diagnosis of death and transfer to theatre
- Surprise at the need for rapid surgical intervention to secure prompt perfusion (‘crash retrieval’)
- Management of ‘stand downs’
- Unexpected elements (e.g. need for re-intubation for lung retrieval)
- Coroner / Procurator Fiscal problems
- Discuss outcomes for each organ if information is available

It is essential that anxieties and issues are acknowledged and addressed. The views of conscientious objectors should be respected, but this should not deny a patient the opportunity to donate



DCD Clinical Pathway - Summary

- Donation potential has to be considered & explored before death
- Donation may not happen
  - Difficult to predict time to asystole; patient may not die
  - Organs may be unsuitable
- Delayed withdrawal
  - Physiological instability
- Tension between the interests of the dying patient and the recipient
- Altered management of death
  - Place of death
  - Interventions to optimise function of organs for donation
  - Rapid transfer to theatre following confirmation of death