Task distribution in organ transplantation
The German example
Patients newly registered on the waiting list for organ transplantation (per million population)

Prognosis of patients on hemodialysis
ERA-EDTA-Registry – Annual report 2008
MELD score vs. waiting list mortality

Expected 3-months mortality and MELD score

Assist device as destination therapy in inotrope-dependent heart failure (INTrePID-Trial – Novacor-LVAD)

Rogers et al, JACC 2007; 50:741-7
Prognosis with Cardiac Assist Device

Jun 23, 2006 – Mar 30, 2007, n=156

Prognosis of mechanical ventilated patients awaiting lung transplantation - MHH, Germany, 2005 - 2008
The organ donation process
The organ donation process

Donor identification

Donation after Circulatory Death (DCD)

Potentially eligible donor

A person who has been declared dead based on the irreversible absence of circulatory and respiratory functions as stipulated by the law of the relevant jurisdiction, within a time frame that will enable organ recovery.

Eligible donor

A potentially eligible donor who has been declared dead based on the irreversible absence of circulatory and respiratory functions as stipulated by the law of the relevant jurisdiction, within a time frame that will enable organ recovery.

Actual DCD donor

A consented eligible donor:

A. In whom an operative incision was made with the intent of organ recovery for the purpose of transplantation and/or
B. From whom at least one organ was recovered for the purpose of transplantation.

Utilized DCD donor

An actual donor from whom at least one organ was transplanted.

Reasons why a potential donor does not become a utilized donor

System

- Failure to identify/refer a potential or eligible donor
- Brain death diagnosis could not be confirmed (e.g., does not fulfill criteria) or completed (e.g., lack of technical resources or clinician to make diagnosis or perform confirmatory tests)
- Circulatory death not declared within the appropriate time frame.
- Logistical problems (e.g., no recovery team)
- Lack of appropriate recipient (e.g., child, blood type, serology positive)

Donor/organ

- Medical unsuitability (e.g., serology positive, neoplasia)
- Haemodynamic instability/unanticipated cardiac arrest
- Anatomical, histological and/or functional abnormalities of organs
- Organs damaged during recovery
- Inadequate perfusion of organs or thrombosis

Permission

- Expression intent of deceased not to be donor
- Relative's refusal of permission for organ donation
- Refusal by coroner or other judicial officer to allow donation for forensic reasons

Organ donation may occur in medically defined circumstances other than patients with anticipated circulatory death or devastating brain injury.
Causes of Death of Organ Donors

<table>
<thead>
<tr>
<th>Causes of Death</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intracranial haemorrhage</td>
<td>588</td>
<td>56.2%</td>
</tr>
<tr>
<td>Ischaemic-hypoxic brain damage</td>
<td>162</td>
<td>15.5%</td>
</tr>
<tr>
<td>Cranioencebral trauma</td>
<td>159</td>
<td>15.3%</td>
</tr>
<tr>
<td>Cerebral infarction</td>
<td>130</td>
<td>12.4%</td>
</tr>
<tr>
<td>Inflammatory brain damage</td>
<td>4</td>
<td>0.4%</td>
</tr>
<tr>
<td>Hydrocephalus</td>
<td>2</td>
<td>0.2%</td>
</tr>
<tr>
<td>Primary brain tumours</td>
<td>1</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

84% Atraumatic causes of death

Killed in road traffic

Entwicklung der Zahl der im Straßenverkehr Getöteten 1953 bis 2009

- October 1973: Einführung der Höchstgeschwindigkeit von 50 km/h auf Landstraßen
- July 1973: Einführung des 3.5 Prozent-Hochdruckgerätes für den Straßenverkehr
- November 1973: Einführung der Nebelscheinwerfer
- August 1993: Einführung der Trenngrenze
- May 1974: Einführung der Höchstgeschwindigkeit auf Autobahnen
- May 1999: Einführung des 0.5 Prozent-Hochdruckgerätes für den Straßenverkehr

© Statistisches Bundesamt, Wiesbaden 2009

2010: 3657 Verkehrstote
Reduced mortality after stroke

EU Joint Action: Achieving Comprehensive Coordination in ORgan Donation throughout the European Union

Work Package 5 - Increasing the collaboration between donor transplant coordinators and intensive care professionals
National indicators that could be relevant to a well-established deceased donation program – ACCORD 2014

- Legal definition for brain death
- Legal definition for cardio-respiratory (circulatory) death
- Professional guidance/standards/codes of practice for the diagnosis of brain death
- Professional guidance/standards/codes of practice that support clinicians who are treating potential organ donors
- National independent ethical codes of practice or guidance that support organ donors
- Relevant guidance on the withdrawal or limitation of life sustaining treatment in critically ill patients
- National criteria to alert the Donor Transplant Coordinator to a potential organ donor
- Guidance or best practice documents for the process of obtaining consent for organ donation from families
- Formal training provided for healthcare professionals in the organ donation process
- National organization responsible for organ donation
- Regulatory body that has oversight of organ donation

Donor rate by number of positive national indicators for organ donation

Spearman’s Rank correlation coefficient, $r=0.2$
End-of-Life Practices in European Intensive Care Units
The Ethicus Study

Charles L. Sprung, MD
Simon L. Cohen, MD
Peter Sølvits, MD
Mario Baras, PhD
Hans-Henrik Bølow, MD
Seppe Hovelsbo, MD
Ditte Ledger, MD
Anne Lipper, MD
Paul Maia, MD
Dermot Phelan, MD

Context: While the adoption of practice guidelines is standardizing many aspects of patient care, ethical dilemmas are occurring because of forgoing life-sustaining therapies in intensive care and are dealt with in diverse ways between different countries and cultures.

Objectives: To determine the frequency and types of actual end-of-life practices in European intensive care units (ICUs) and to analyze the similarities and differences.

Design and Setting: A prospective, observational study of European ICUs.

Participants: Consecutive patients who died or had any limitation of therapy.

Intervention: Prospectively defined end-of-life practices in 37 ICUs in 17 European countries were studied from January 1, 1999, to June 30, 2000.

Main Outcome Measures: Comparison and analysis of the frequencies and patterns of end-of-life care by geographic regions and different patients and professionals.

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**End of life Categories (% patients)**

<table>
<thead>
<tr>
<th>End of Life Categories</th>
<th>Unsuccesful CPR</th>
<th>Brain death</th>
<th>Treatment limitation</th>
<th>Treatment withdrawal</th>
<th>Active shortening of dying process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denmark, Finland, Ireland, Netherlands, Sweden, UK</td>
<td>10.2</td>
<td>3.2</td>
<td>38.2</td>
<td>47.4</td>
<td>0.9</td>
</tr>
<tr>
<td>Central</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Austria, Belgium, Czechia, Germany, Switzerland</td>
<td>17.9</td>
<td>7.6</td>
<td>34.1</td>
<td>33.8</td>
<td>6.5</td>
</tr>
<tr>
<td>Southern</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greece, Israel, Italy, Portugal, Spain, Turkey</td>
<td>30.1</td>
<td>12.4</td>
<td>39.6</td>
<td>17.9</td>
<td>0.1</td>
</tr>
<tr>
<td>Range between countries</td>
<td>5 - 40</td>
<td>0 - 15</td>
<td>16 - 70</td>
<td>5 - 69</td>
<td>0 - 19</td>
</tr>
</tbody>
</table>

End-of-Life Practices in European Intensive Care Units
Care of the patient

The organ donation process
Declaration of death

“Brain death”
- Death declared on the basis of neurologic criteria
- Irreversible loss of all functions of the entire brain, including the brain stem

Brain death protocol

- According to the guidelines of the federal medical council
- 2 qualified doctors not involved in transplantation have to confirm independently brain death
Brain death – No cerebral perfusion

Declaration of death

“Brain death”
• Death declared on the basis of neurologic criteria
• Irreversible loss of all functions of the entire brain, including the brain stem

“Circulatory death”
• Death declared on the basis of cardiopulmonary criteria
• Permanent cessation of circulatory and respiratory function
Donation after cardiac/circulatory death (non heartbeating donation) in Europe

The organ donation process

Donor identification

Determination of (brain) death

Family approach

Data transfer & allocation

Organ recovery

Organization of procurement

Transport

Transplantation

Follow-up donor hospital

Family support

Thank you letter

Last farewell

Family support

Thank you letter

Donor maintenance

Donor diagnostics

SAE/R

Thank you letter

Donor hospital
Approaching the family

At a sensitive and appropriate time, a member of the medical team together with the transplant coordinator meets with the family. After offering condolences, the conversation begins with whether their loved one has made the decision to donate.

Next of kin
Written wish to donate

Special Eurobarometer 333a
European Commission

Organ donation and transplantation

Fieldwork: October 2009
Publication: June 2010
5. REASONS FOR NOT DONATING ORGANS

-Distrust of the system and fear of manipulation of the human body are the dominant reasons for not donating one’s own organs or those of a deceased close family member -

Q5. If you would be unwilling to donate your organs or those of a close family member what would these reasons be?

- Scare of manipulation of the human body: 28%
- Distrust in the system: 21%
- Religious reasons: 7%
- Other (SPONTANEOUS): 12%

Fieldwork: October 2009
Publication: June 2010

EU27 + Top ten countries for each item
The organ donation process

- Donor identification
- Family approach
- Data transfer & allocation
- Donor maintenance
- Donor diagnostics
- Family support
- Last farewell
- Organ recovery
- Organization of procurement
- Transport
- Transplantation

Standardized medical history
Donor and organ characterization

- HLA + CM
- Laboratory tests
- Microbiology (Non-invasive tests)
- Pathology
- CM / HLA
- Microbiology
- Pathology
- Inspection
- Machine perfusion (with conditioning)
- Allocation
- Transport
- Post-op treatment
- Prior to recovery
- During recovery
- Prior to/during transplantation
- After transplantation

- Donor hospital
- Transplant center
The organ donation process

Requirements for an organ allocation system

- **Objectivity**
  - Allocation is independent of subjective factors (procurement and allocation organization, transplant center)

- **Reliability**
  - With same donor information and same waiting list information an identical matchlist is generated

- **Transparency and accountability**
  - Every step in the allocation process is documented and can be explained

- **Validity of allocation criteria**
  - Ethically acceptable, medically based
The organ donation process

Donor identification

Determination of (brain) death

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Thank you letter

SAE/R

Last farewell

Organization of organ recovery

Regional DSO base

Sub-regional recovery (Liver/Pancreas/Kidney)

30 Recovery teams (Abdominal organs)

Transplant center (Heart/Lung)

24 Recovery teams (Thoracic organs)

North

North-East

North Rhine-Westphalia

Middle

Baden-Wuerttemberg

Bavaria

East

Regional DSO base

Sub-regional recovery (Liver/Pancreas/Kidney)

30 Recovery teams (Abdominal organs)

Transplant center (Heart/Lung)

24 Recovery teams (Thoracic organs)
The organ donation process

Core Tasks of an organ procurement organization

Responsibilities towards the donor (an his family)

• Respect and follow the wish of the donor

In case of an organ donor:

• Realize the wish to help patients in need beyond his own death
• Careful handling of this ultimate gift
• Respect the dignity of the donor at all times
• Support the family during donation and beyond
Core Tasks of an organ procurement organization

Responsibilities towards the recipient

Careful organ and donor characterization to

- Make selection of the best recipient possible
- Allow decision about acceptance of donor organ possible (by recipient / transplant center)

Preserve (improve) organ quality

- Careful treatment of donor and donor organs
  - Care of the donor in intensive care after determination of death
  - Procurement, preservation, packing and transport of the organ(s)

Survival benefit after kidney transplantation

ERA-EDTA-Registry – Annual report 2008

Transplantation

Survival benefit
Survival benefit after lung transplantation in mechanically ventilated patients - MHH, Germany 2005-2008

![Graph showing survival benefit over days since ventilation on HU status for LTx (n=53) and No LTx (n=31).]

Thank you for your attention