Paediatric donors: guidelines, obstacles and chances

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Guidelines

- The Swiss Donation Pathway
  - Recognition of potential donors (Module 1)
  - Care for the family – communication (Module 5)
  - Treatment of the peadiatric donor (Module 4)

Guidelines

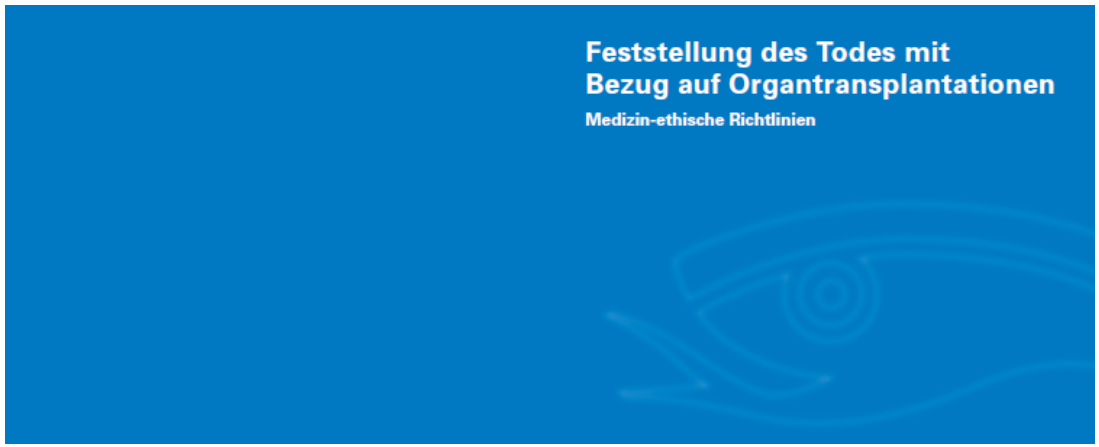
- Swiss Donation Pathway
  - Unique set of modules covering the whole process of organ donation
  - Consensus of expert opinion and research
  - Adapted to Swiss regulations, habits and needs

Guidelines

- Swiss Donation Pathway
  - Specially important for Paediatrics
    - 8 PICUs, ~50 Paediatric Intensivist
    - 20 donors in 5 years (2010-2014)
      - 3 in adult ICU
    - 1 – 8 donors per year (2010-2014)

    → “Twice in a lifetime event” for a paediatric intensivist

Guidelines



- Swiss Academy of Medical Sciences (SAMW)
  - Declaration of Death in relation to organ transplant
  - Protocols for the Declaration of Death
    - Children > 1 year & Adults (brain injury)
    - Children < 1 year (brain injury)
    - Children >1month & adults (cardiovascular arrest) NHBD

www.samw.ch

Obstacles

- Concept of brain death
  - Child is warm, “breathing”, the heart beating,…
  - Presence of the family at the time of cardiac arrest
- NHBD
  - no time to mourn for the child immediately after death

Obstacles

- Family not prepared
  - No discussion about organ donation with children
- Generation Y
  - Why care about others?
  - Similar in clinical research in PICU/NICU
- Assumptions
  - no donation possible in children
  - no donation after medication
  - …

Potentials

- NHBD
  - only few patients with brain death
  - most children die of “withdrawal of therapy”
    - Maastricht 3
  - “heart death” better accepted then “brain death”
    - Presence of the family when the heart stops
  - Measures for preservation of organs
    - In the responsibility of caregivers (no “patients will”)

Potentials

- Neonatal donation 1
  - Retrospective mortality database review
    - Single centre neonatal and paediatric ICU
    - Patients dying between 37 weeks gestation and 2 month of age
    - January 2006 – October 2012
  - 84 infants died (eligible for study)

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Potentials

Table 1 Infants identified as potential DNDD donors by Paediatric Specialist Nurse in Organ Donation (AS)

Patient	Underlying diagnosis	Examination findings
1	GBS meningitis	Pupils fixed and dilated No cough No gag No respiratory effort No reaction to painful stimulus Abnormal EEG
2	GBS, cerebral oedema	No cough No gag No respiratory effort No motor response SSEPs absent Off sedation
3	Subarachnoid haemorrhage	EEG—total cerebral inactivity No response to pain Pupils fixed and dilated
4	HIE	Pupils fixed and dilated No respiratory effort No gag reflex
5	GBS sepsis	Pupils fixed and dilated isoelectric EEG, severe brain injury CT
6	Hyperammonaemia	Pupils fixed and dilated
7	Intracranial haemorrhage	Pupils fixed and dilated, nil else recorded
8	Vein of Galen	No cerebral function off sedation EEG isoelectric
9	Isolated intracranial tumour	Pupils fixed and dilated No respiratory effort No cough/gag No motor responses Off sedation
10	Cerebral infarction, GBS	Pupils fixed and dilated No respiratory effort 'Irrecoverable' brain injury on CT and EEG
11	Mitochondrial myopathy	Pupils fixed and dilated No respiratory effort
12	Not clear—hyperammonaemia?	Pupils fixed and dilated
13	Meningoencephalitis	Pupils fixed and dilated EEG isoelectric

Donation following neurological determination of death. GBS, Group B Streptococcus.

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Potentials

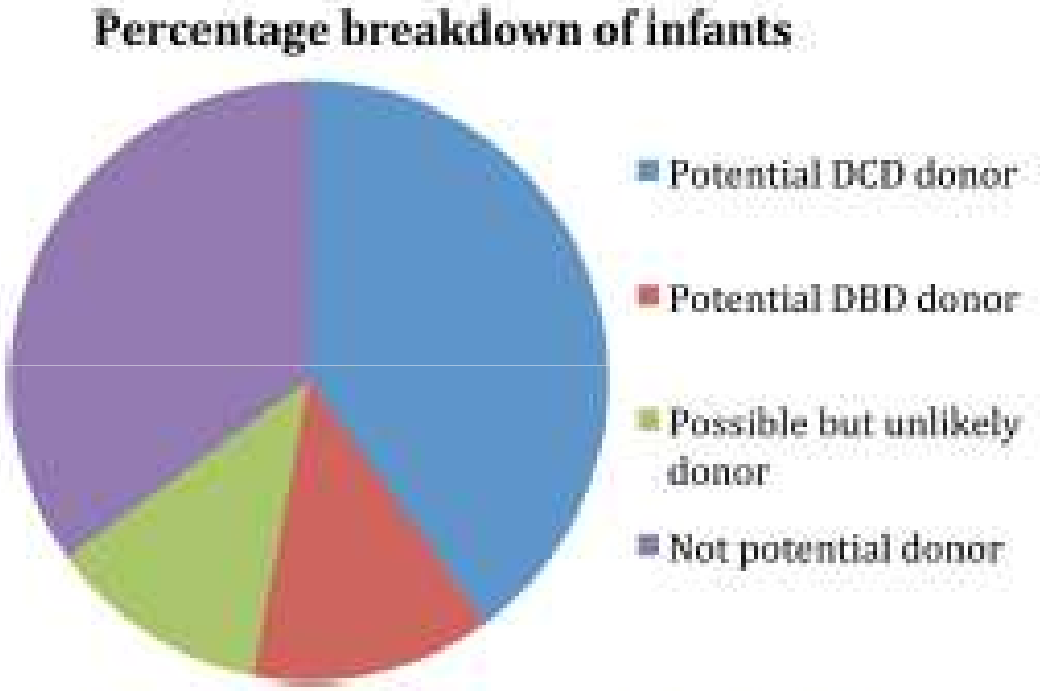

Figure 1 Pie chart showing percentage breakdown of infants as donors/non-donors.

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Potentials

- Neonatal donation 2
  - Retrospective database review
    - Single centre neonatal ICU
    - Potential DCD patients for kidney donation
    - November 2002 – October 2012
  - 159 patients eligible
    - 102 excluded
    - 42 of remaining 57 potential DCD patients

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Potentials

- Neonatal donation 2

TABLE 1 Potential Donors After DCDD

Characteristic	WIT 0–59 min (n = 42)	WIT 60–120 min (n = 15)
Age, d	1–214 (14.5)	2–233 (7)
Weight, kg	1.8–9.8 (3.3)	1.8–7.5 (2.9)
Gender, no.		
Male	19	9
Female	23	6
Urine output, mL/kg/h	1–7.4 (3)	1.5–6.4 (4.3)
Serum creatinine, mg/dL	0.1–1.2 (0.3)	0.2–1.2 (0.5)
WIT, min	0–57 (27)	60–115 (77)

Unless otherwise noted, data are presented as range (median).

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Potentials

- Neonatal donation 2

TABLE 2 Underlying Cause of Death in Potential Donors

Cause of Death	WIT 0–59 min (n = 42)	WIT 60–120 min (n = 15)
Complex congenital heart disease	10	5
Neurologic anomaly, disorder, or injury	10	4
Respiratory failure due to diaphragmatic hernia or lung hypoplasia	8	1
Genetic disorder, multiple congenital anomalies	5	4
Prematurity	4	1
Congenital anomaly: omphalocele, gastroschisis	4	0
Inborn error of metabolism	1	0

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Conclusions

- Guidelines are readily available
  - swisstransplant.ch
  - samw.ch
- More potentials than obstacles

Most important is to increase the awareness for paediatric organ donation in the population