My Heart Will Go On:

Determination of Death, Organ Donation and Transplantation in Children

Mudit Mathur, MD, MBA, FAAP, FCCM

Director Pediatric Critical Care, Kaiser Permanente

Associate Professor of Pediatrics, Loma Linda University

Disclosures

I have no financial disclosures or conflicts of interest

Objectives

A. Discuss the growing waiting list for organs

B. Define pediatric brain death criteria

C. Discuss organ donation

- Donation after brain death (DBD)
- Donation after circulatory determination of death (DCDD)

D. Discuss strategies for organ preservation for the potential organ donor

Q1: Has your life been touched by organ/tissue donation or transplantation? (think friends, family, neighbors, coworkers.)

1. Yes
2. No

Why Transplant?
e.g. Renal Transplant vs Dialysis

Longer Life

Enhanced quality of Life

Cost-effective for the Healthcare system

The Importance of Innovative Efforts to Increase Organ Donation.
Matas and Sutherland
JAMA. October 2005;294:1691-1693

Q2: How many organs can a deceased donor potentially donate?

A. Two (2 kidneys)

B. Four (2 Kidneys, liver and heart)

C. Six (2 kidneys, liver, heart and 2 lungs)

D. Eight (2 kidneys, liver, heart, 2 lungs, intestine and pancreas)

Actual organs per donor

In 2015, One Legacy had 460 donors

Organs transplanted per donor was 2.91 on average

(of a possible eight)

Nationally 2016 YTD 83% donors after BD, and 17% DCDD

OTPD 3.02

Q3 How many patients are waiting for a solid organ transplant?

1. Less than 25,000
2. 25,000-50,000
3. 50,000-100,000
4. 100,000-125,000
5. Over 125, 000

US and California: Waitlist and transplants

US wait list: 131, 238
(2107 < 18 yrs)
CA Waiting List: 23, 246
(419 <18 yrs)

OPTN data as of Sept 4, 2016

4 OPOs
22 Transplant centers

In 2015:
3703 Transplants
2955 Deceased donors
748 Living donors

Waitlist-additions and removals

One patient added to wait list every 10 minutes

Twenty two die each day

In 2015: 6986 patients died

6701 removed from waitlist-too sick to transplant

Who can be a donor? (deceased donor)

UDDA-Uniform Determination of Death Act, 1981

CA law-Health and Safety codes, section 7180

Uniform Determination of Death Act

"An individual who has sustained either

(1) irreversible cessation of circulatory and respiratory functions or

(2) irreversible cessation of all functions of the entire brain, including the brain stem, is dead.

A determination of death must be made in accordance with accepted medical standards"

Defining timing of cessation and irreversibility

Accepted medical standards

"Dead donor rule"

California Law

CALIFORNIA CODES HEALTH AND SAFETY CODE SECTION 7180

Uniform Determination of Death Act (a) An individual who has sustained either (1) irreversible cessation of **circulatory and respiratory functions**, or (2) irreversible cessation of **all functions of the entire brain, including the brain stem, is dead**. A determination of death must be made in accordance with accepted medical standards

7181. When an individual is pronounced dead by determining that the individual has sustained an irreversible cessation of all functions of the entire brain, including the brain stem, there shall be **independent confirmation by another physician.**

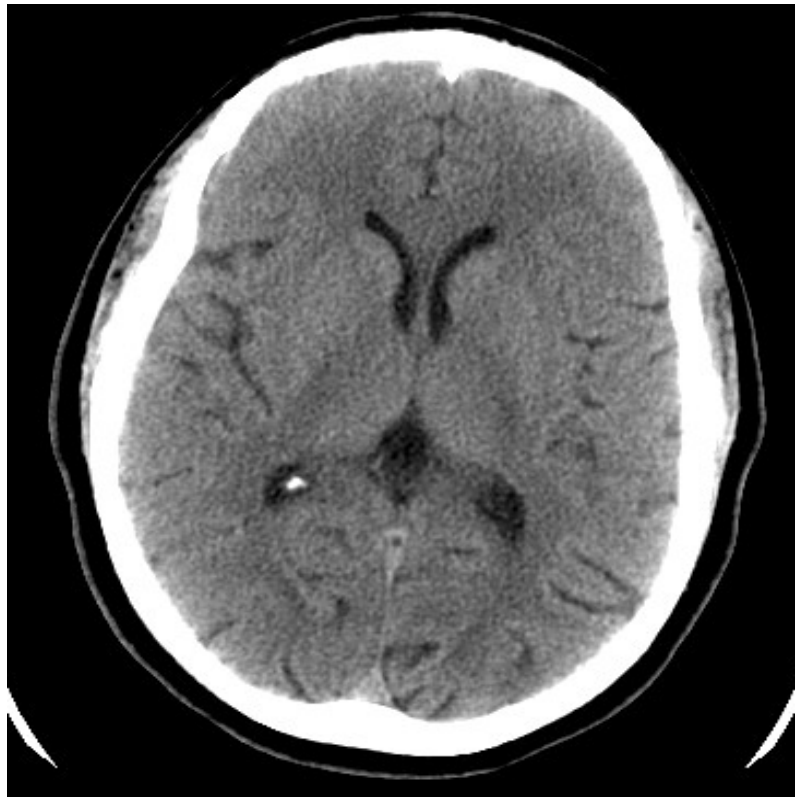
7182. When a part of the donor is used for direct transplantation pursuant to the Uniform Anatomical Gift Act (Chapter 3.5 (commencing with Section 7150)) and the death of the donor is determined by determining that the individual has suffered an irreversible cessation of all functions of the entire brain, including the brain stem, there shall be an independent confirmation of the death by another **physician. Neither the physician making the determination of death under Section 7155.5 nor the physician making the independent confirmation shall participate in the procedures for removing or transplanting a part.**

BRAIN DEATH-CESSATION AND IRREVERSIBILITY

- Determine the cause
- Ensure the absence of confounding conditions
- Examination, apnea test, ancillary test

- Cessation of function of the entire brain
- Irreversibility-unchanged examination over a period of observation in PICU

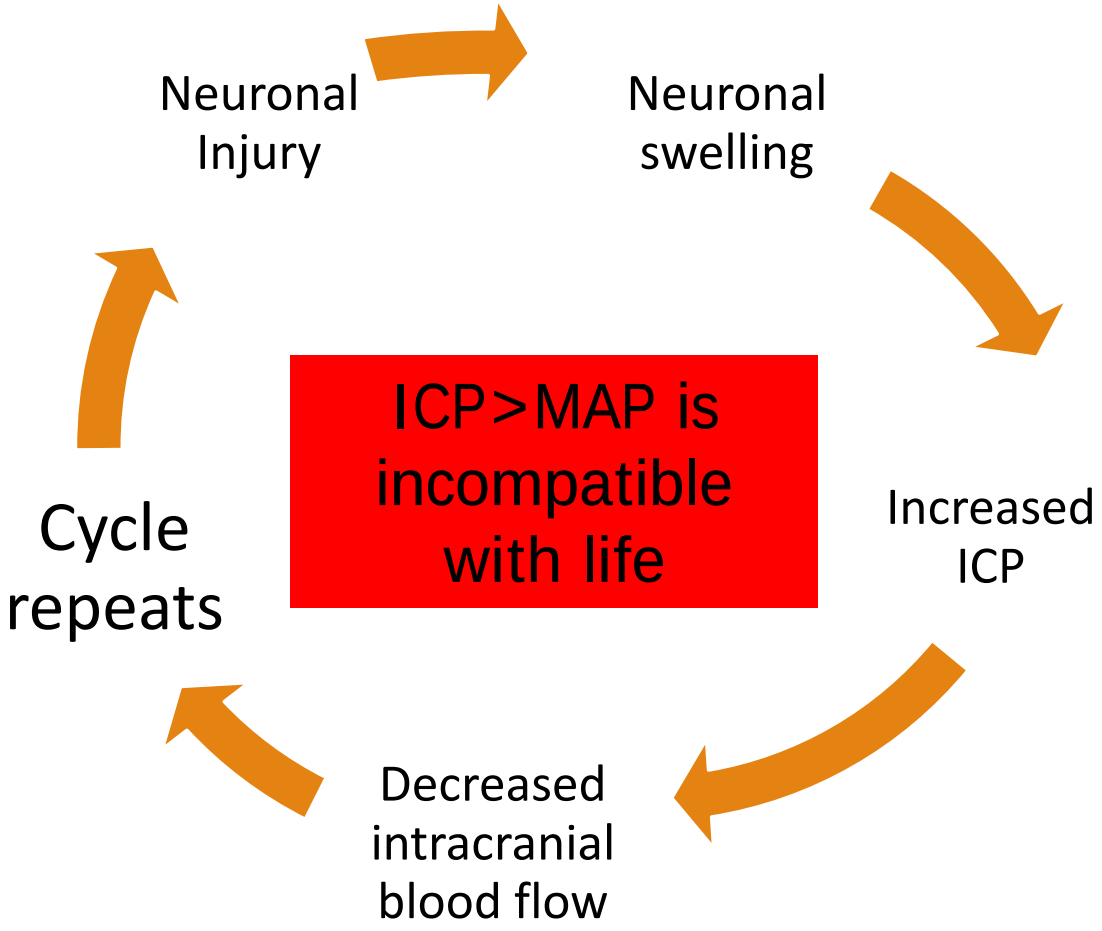
Causes of Brain Death



Normal

Cerebral Hemorrhage

Mechanism of Neuronal Death



Sequence of events

Initial brain injury

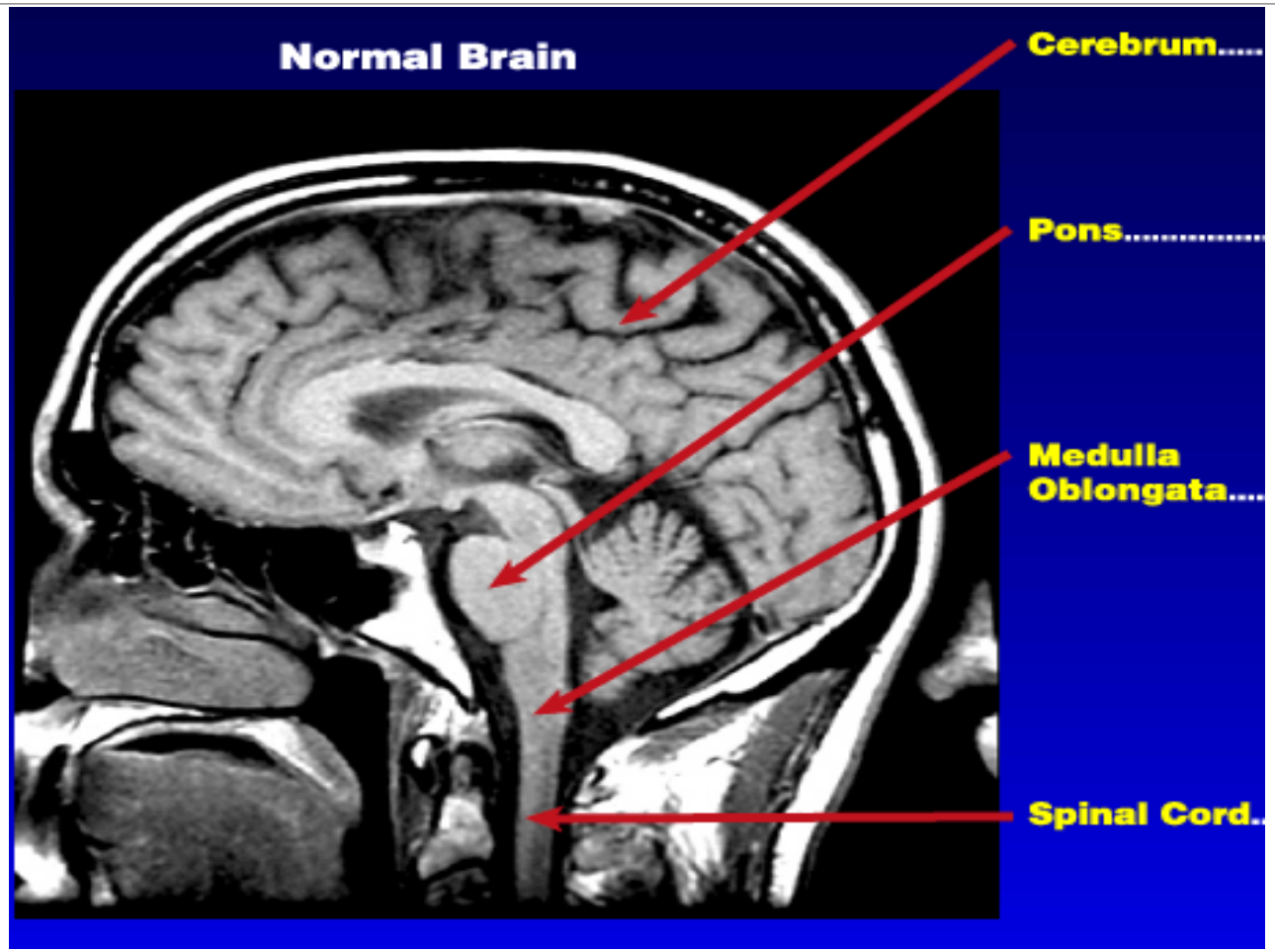
Secondary brain injury-hypoxia/hypotension

Progressive ICP elevation

Loss of function

- Upper brain-Transtentorial herniation
- Pressure on pons, medulla, brainstem
- Hypothalamus, Pituitary-temp, endocrine effects

Physiologic Correlates



LOC Posturing.
Seizure Herniation

Cushing's triad

Brainstem infarct, compression, hemorrhage, distortion-marked CV instability, loss of reflexes

Pediatric Brain Death Guidelines

Guidelines for the determination of brain death in infants and children: An update of the 1987 Task Force recommendations*

Thomas A. Nakagawa, MD, FAAP, FCCM; Stephen Ashwal, MD, FAAP; Mudit Mathur, MD, FAAP; Mohan R. Mysore, MD, FAAP, FCCM; Derek Bruce, MD; Edward E. Conway, Jr, MD, FCCM; Susan E. Duthie, MD; Shannon Hamrick, MD; Rick Harrison, MD; Andrea M. Kline, RN, MS, FCCM; Daniel J. Lebovitz, MD; Maureen A. Madden, MSN, FCCM; Vicki L. Montgomery, MD, FCCM; Jeffrey M. Perlman, MBChB, FAAP; Nancy Rollins, MD, FAAP; Sam D. Shemie, MD; Amit Vohra, MD, FAAP; Jacqueline A. Williams-Phillips, MD, FAAP, FCCM; Society of Critical Care Medicine; the Section on Critical Care and Section on Neurology of the American Academy of Pediatrics; and the Child Neurology Society

Nakagawa T, Ashwal S, Mathur M. Crit Care Med 2011; 39 (9) 2139-2155

Brain Death Examination for Infants and Children

Two physicians must perform independent examinations separated by specified intervals.

Age of Patient	Timing of first exam	Inter-exam. interval
Term newborn 37 weeks gestational age and up to 30 days old	☐ First exam may be performed 24 hours after birth OR following cardiopulmonary resuscitation or other severe brain injury	☐ At least 24 hours ☐ Interval shortened because ancillary study (section 4) is consistent with brain death
31 days to 18 years old	☐ First exam may be performed 24 hours following cardiopulmonary resuscitation or other severe brain injury	☐ At least 12 hours OR ☐ Interval shortened because ancillary study (section 4) is consistent with brain death

Section 1. PREREQUISITES for brain death examination and apnea test

A. IRREVERSIBLE AND IDENTIFIABLE Cause of Coma (Please check)

☐ Traumatic brain injury ☐ Anoxic brain injury ☐ Known metabolic disorder ☐ Other (Specify)

B. Correction of contributing factors that can interfere with the neurologic examination	**Examination One**		**Examination Two**	
a. Core Body Temp is over 95° F (35° C)	☐ Yes	☐ No	☐ Yes	☐ No
b. Systolic blood pressure or MAP in acceptable range (Systolic BP not less than 2 standard deviations below age appropriate norm) based on age	☐ Yes	☐ No	☐ Yes	☐ No
c. Sedative/analgesic drug effect excluded as a contributing factor	☐ Yes	☐ No	☐ Yes	☐ No
d. Metabolic intoxication excluded as a contributing factor	☐ Yes	☐ No	☐ Yes	☐ No
e. Neuromuscular blockade excluded as a contributing factor	☐ Yes	☐ No	☐ Yes	☐ No

☐If ALL prerequisites are marked YES, then proceed to section 2, OR
☐ _____ confounding variable was present. Ancillary study was therefore performed to document brain death. (Section 4).

Section 2. Physical Examination (Please check) **NOTE: SPINAL CORD REFLEXES ARE ACCEPTABLE**	**Examination One** **Date/ time:**		**Examination Two** **Date/ Time:**	
a. Flaccid tone, patient unresponsive to deep painful stimuli	☐ Yes	☐ No	☐ Yes	☐ No
b. Pupils are midposition or fully dilated and light reflexes are absent	☐ Yes	☐ No	☐ Yes	☐ No
c. Corneal, cough, gag reflexes are absent	☐ Yes	☐ No	☐ Yes	☐ No
Sucking and rooting reflexes are absent (in neonates and infants)	☐ Yes	☐ No	☐ Yes	☐ No
d. Oculovestibular reflexes are absent	☐ Yes	☐ No	☐ Yes	☐ No
e. Spontaneous respiratory effort while on mechanical ventilation is absent	☐ Yes	☐ No	☐ Yes	☐ No

☐The _____ (specify) element of the exam could not be performed because _____.
Ancillary study (EEG or radionuclide CBF) was therefore performed to document brain death. (Section 4).

Section 3. APNEA Test	**Examination One** **Date/ Time**	**Examination Two** **Date/ Time**
No spontaneous respiratory efforts were observed despite final $PaCO_2 \geq 60$ mm Hg and a ≥ 20 mm Hg increase above baseline. (Examination One) No spontaneous respiratory efforts were observed despite final $PaCO_2 \geq 60$ mm Hg and a ≥ 20 mm Hg increase above baseline. (Examination Two)	Pretest $PaCO_2$: _____ Apnea duration: _____min Posttest $PaCO_2$: _____	Pretest $PaCO_2$: _____ Apnea duration: _____min Posttest $PaCO_2$: _____

Apnea test is contraindicated or could not be performed to completion because _____.
Ancillary study (EEG or radionuclide CBF) was therefore performed to document brain death. (Section 4).

Section 4. ANCILLARY testing is required when (1) any components of the examination or apnea testing cannot be completed; (2) if there is uncertainty about the results of the neurologic examination; or (3) if a medication effect may be present. **Ancillary testing can be performed to reduce the inter-examination period, however, a second neurologic examination is required. Components of the neurologic examination that can be performed safely should be completed in close proximity to the ancillary test**	**Date/Time:** _____
☐ Electroencephalogram (EEG) report documents electrocerebral silence OR	☐ Yes ☐ No
☐ Cerebral Blood Flow(CBF) study report documents no cerebral perfusion	☐ Yes ☐ No

Section 5. Signatures

Examiner One

I certify that my examination is consistent with cessation of function of the brain and brainstem. Confirmatory exam to follow.

_____ _____
(Printed Name) (Signature)

_____ _____ _____ _____
(Specialty) (Pager #/License #) (Date mm/dd/yyyy) (Time)

Examiner Two

☐I certify that my examination☐ and/or ancillary test report ☐confirms unchanged and irreversible cessation of function of the brain and brainstem. The patient is declared brain dead at this time.
Date/Time of death: _____

_____ _____
(Printed Name) (Signature)

_____ _____ _____ _____
(Specialty) (Pager #/License #) (Date mm/dd/yyyy) (Time)

Timing of exam

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Prerequisites

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Physical examination

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d. Oculovestibular reflexes are absent	☐ Yes	☐ No	☐ Yes	☐ No
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Apnea test

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Apnea test is contraindicated or could not be performed to completion because_____. Ancillary study (EEG or radionuclide CBF) was therefore performed to document brain death. (Section 4).		

Apnea Testing

1. Pre-Oxygenation
2. Monitor pulse oximetry
3. Disconnect Ventilator with tracheal O2 catheter or use CPAP mode (apneic oxygenation)
4. Observe for Respiratory Movement until PCO2 over 60 mm Hg **and** 20 above baseline
5. Discontinue Testing if BP drops, PO2 saturation decreases, or cardiac dysrhythmia observed

Ancillary testing and Time of Death

Section 4. ANCILLARY testing is required when (1) any components of the examination or apnea testing cannot be completed; (2) if there is uncertainty about the results of the neurologic examination; or (3) if a medication effect may be present. **Ancillary testing can be performed to reduce the inter-examination period, however, a second neurologic examination is required. Components of the neurologic examination that can be performed safely should be completed in close proximity to the ancillary test**	**Date/Time:** _____
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Examiner Two

☐I certify that my examination☐ and/or ancillary test report ☐confirms unchanged and irreversible cessation of function of the brain and brainstem. The patient is declared brain dead at this time.

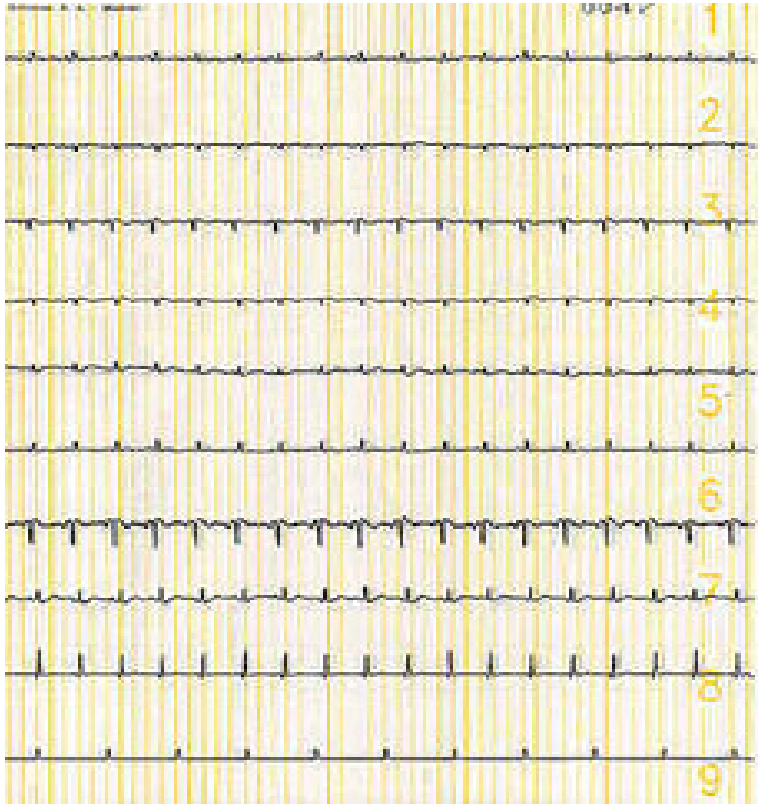
Date/Time of death: _____

_____ _____
(Printed Name) (Signature)

_____ _____ _____ _____
(Specialty) (Pager #/License #) (Date mm/dd/yyyy) (Time)

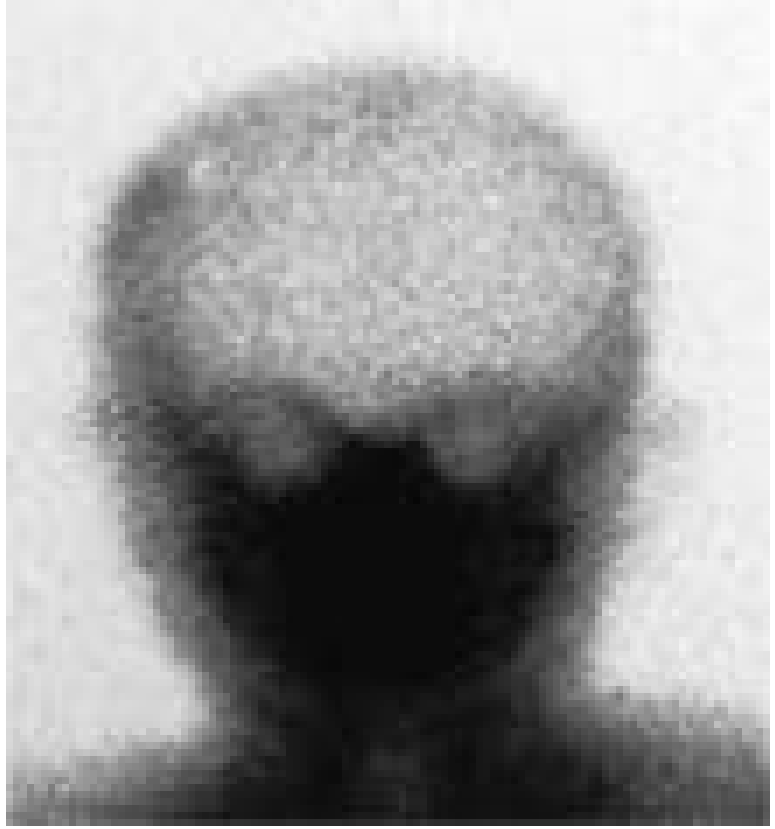
Ancillary Testing: EEG

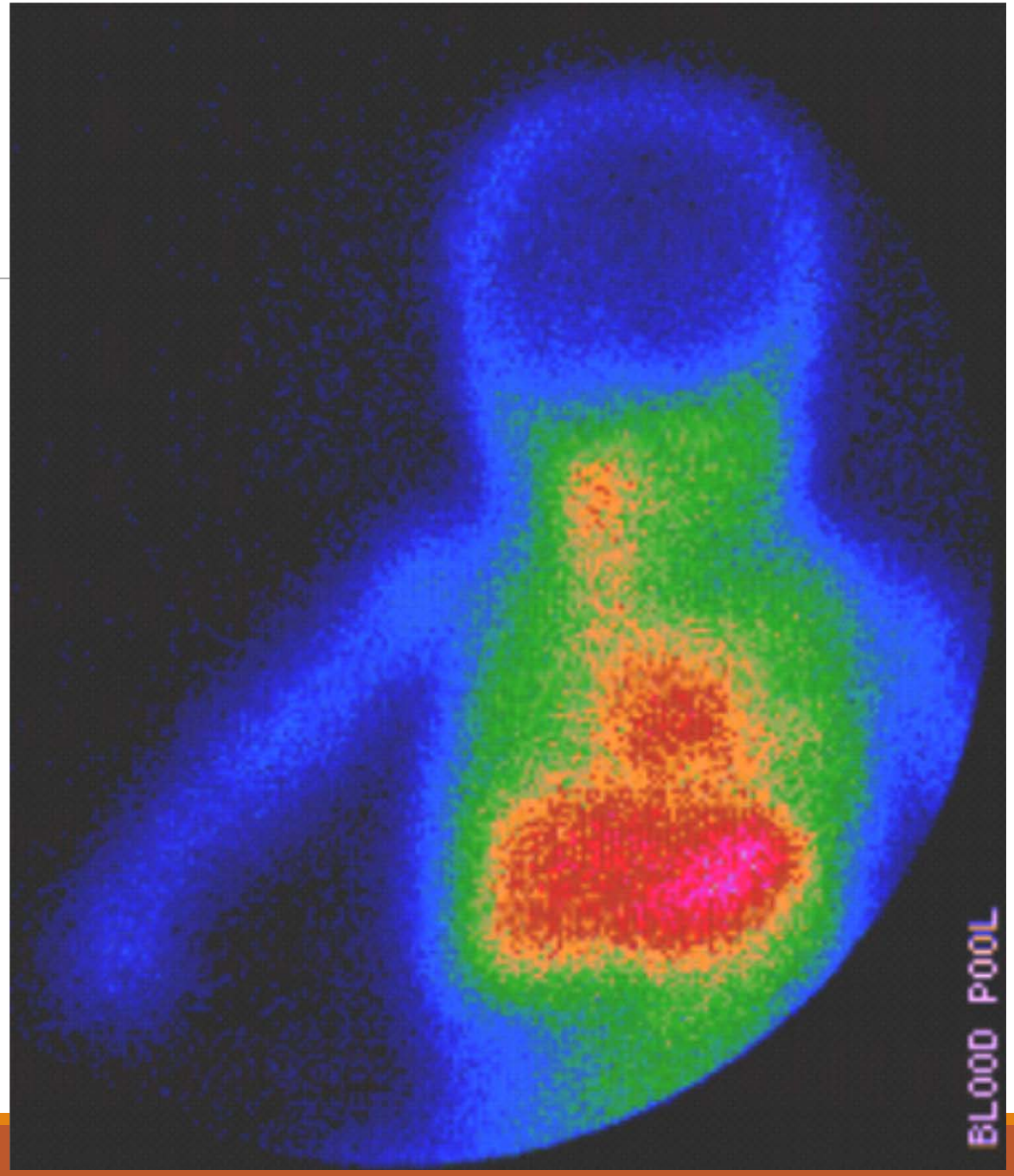
Normal



Electrocerebral Silence

Absent CBF





Brain Death Exam in Children

1. Use checklist
2. Wait at least 24 hours after CPR before first exam
3. Two exams (different physicians) and two apnea tests
4. Ancillary study <u>not</u> required
5. PCO2 should be over 60 <u>and</u> >20 more than baseline
6. Interval between exams:
   - Term newborn to 30 days age: 24 hours
   - 31 days to 18 years age: 12 hours

Nakagawa T, Ashwal S, Mathur M. Crit Care Med 2011; 39 (9) 2139-2155

Brain Death-Do's and Don'ts

- Use "death", not "brain death"
- Use "artificial ventilation", not "life support"
- Time of death = 2nd neurologic determination (NOT when ventilator is removed or when heart beat ceases)
- Do not say "kept alive" for organ donation
- Do not talk to the patient as if they are alive
- Redirect family questions on timeframes to focus on just being with the child (hold, cuddle etc)
- Help the family reminisce-tell me about….

Donation after circulatory determination of death (DCDD):

Also called

- Non-Heart Beating Donation
- Donation after Cardiac Death
- Donation after Cardio-circulatory Death

Donation after Circulatory Determination of Death (preferred)- circulation not heartbeat

Q4: Have you heard of Organ Donation after Circulatory Determination of Death (DCDD)?

1. Yes, and have cared for a DCDD donor in my unit
2. Yes, but have not participated in a DCDD donation
3. Not sure what DCDD is-that's why I am here!

Brain Death vs. Donation *after* Circulatory Determination of Death (DCDD)

Brain Death	DCDD
Ventilator dependent	Ventilator dependent
No brain stem reflexes • Unable to maintain own vital functions	Minimal brain stem reflexes • Also cannot maintain own vital functions
Cardiac arrest is unavoidable	Cardiac arrest is unavoidable
Complex multistep process	*Simpler for family to understand*

Cessation-DCDD

Clinical examination that reveals absence of responsiveness, heart sounds, pulse, and respiratory effort.

Confirmatory tests-intra-arterial monitoring or doppler examination may be preferable

Irreversibility-DCDD

Cessation of function during an appropriate period of observation.

2000 IOM report

"Irreversible" cessation of cardiopulmonary function:

1) Will not resume spontaneously

2) Cannot be restarted with resuscitation measures

3) Will not be restarted on morally justifiable grounds

Are DCDD organs any good?

Long term graft survival for Kidneys from DCDD donor are identical to DBD donors

Delayed graft function is higher

Liver outcomes also similar, with some increase in biliary complications

Emerging data from other organs is also promising

Clinical scenario

- 12 year old, previously healthy female
- Admitted to the PICU after severe headache and LOC
- Massive subarachnoid bleed from ruptured AVM
- Despite aggressive care, remains comatose on ICU Day 5 (off sedation)
- Does not fulfill brain death criteria: minimal neurological reflexes persist (weak cough, occasional breaths on CPAP trial).

- Family requests “stop everything”…ICU team agrees…then they ask……

Q5: Is organ donation an option?..... Your response?

1. No
2. Only if the patient progresses to brain death
3. If the heart stops within 60 minutes of withdrawal of life support
4. If the heart stops within 120 minutes of withdrawal of life support

How common is it for the family to request DCDD?

Utah 2005-2007, family initiated in 9/53 (17%) evaluations for DCDD

7 successful donors, 37% of organ donors in the study period

- Pleacher et al. *Pediatr Crit Care Med* 2009; 10 (2): 166-170

CHOP 1995-2005 9/12 DCDD donations were family initiated

- Naim et al. *Crit Care Med* 2008; 36 (6): 1729-1733.

Exploring the psychological effects of deceased organ donation on the families of the organ donors

Shaila J. Merchant[a], Eric M. Yoshida[a,b], Tim K. Lee[a,c], Penny Richardson[b], Kari M. Karlsbjerg[b] and Elsie Cheung[d]

98% would choose donation again

92% identified positive aspects to the donation process/experience

Majority agreed that donation was comforting

- Associated with less depression

Clinical Transplantation

When is the patient dead?..... Why is it important?

Important for DCDD

The “dead donor rule”-Uniform anatomical gift act

- Robertson JA: The dead donor rule. *Hastings Cent Rep* 1999; 29:6–14

The skeptics say…since we have not tried to resuscitate for… (?15 min)… we have not proved irreversibility, therefore the DCDD donor is not dead

……..What about the non-donor situation?

Q6: When do you declare death after withdrawal of life support?

1. When all EKG activity seizes
2. With agonal rhythm as long as no pulse
3. When EKG and A-line are flat
4. Don’t really know-I disconnect everything and examine/ pronounce later

Q7: So when is the patient really dead?…How long would you wait before the surgeons can start?

1. **75 seconds**
2. **2 minutes**
3. **5 minutes**
4. **10 minutes**

So when is the patient really dead?....How long would you wait?

- 75 seconds (Denver study)
  - Boucek et al. Pediatric Heart Transplantation after Declaration of Cardiocirculatory Death. *N Engl J Med* 2008; 359 (7) 709-714.
- 2 minutes (Pittsburgh, Cleveland Clinic)
  - DeVita MA: Development of the University of Pittsburgh Medical Center policy for the care of terminally ill patients who may become organ donors after death following the removal of life support. *Kennedy Inst Ethics J* 1993; 3:131-143
- 5 minutes
  - IOM, SCCM, AAP policy statements, Bernat et al *Crit Care Med* 2010; 38(3): 963-970
- 10 minutes ("no touch" period-Netherlands)
  - De Vries et al: Kidney donation from children after cardiac death. *Crit Care Med* 2010; 38 (1): 249-253

Autoresuscitation

27 articles with 32 cases of autoresuscitation analyzed (all adults)
Inconsistent monitoring practices- All after sustained CPR

No reports after elective withdrawal.

- Hornby K, Hornby L, Shemie SD. A systematic review of autoresuscitation after cardiac arrest. *Crit Care Med*. 2010; 38 (5) 1-8.

Prospective observational study in 73 patients

No autoresuscitation after 2 minutes

- Sheth et al. Crit Care Med 2012; 40 (1): 158-61

Vital Signs After Cardiac Arrest Following Withdrawal of Life-Sustaining Therapy: A Multicenter Prospective Observational Study*

Sonny Dhanani, MD[1,2,3]; Laura Hornby, MSc[4,5]; Roxanne Ward, BScN, MSc[1,2]; Andrew Baker, MD[6,7]; Peter Dodek, MD[8,9]; Jane Chamber-Evans, BScN, MSc[4,10,11]; Rob Fowler, MDCM[7,12]; Jan O. Friedrich, MD[6,7]; Robert M. Gow, MBBS[2,3,13]; Demetrios J. Kutsogiannis, MD[14,15]; Lauralyn Mcintyre, MD[16,17,18,19]; Franco Momoli, PhD[18,19,20]; Karine Morin, LLM[21]; Tim Ramsay, PhD[18,19]; Damon Scales, MD[7,12]; Hilary Writer, MD[1,2,3]; Serafettin Yildirim, BMgmt[22]; Bryan Young, MD[23,24]; Sam Shemie, MD[4,25,26]; on behalf of the Canadian Critical Care Trials Group and in collaboration with the Bertram Loeb Chair and Research Consortium in Organ and Tissue Donation

- Arterial BP, EKG, pulse oximetry monitored in 30 patients over a 16 month period
- Longest observed period before resumption of A line activity was 89 seconds (n=4)
- Persisted for 1 to 172 seconds, max SBP recorded: 27 mm Hg in an adult

Dhanani et al, Crit Care Med 2014; 42(11)

When does the brain die?

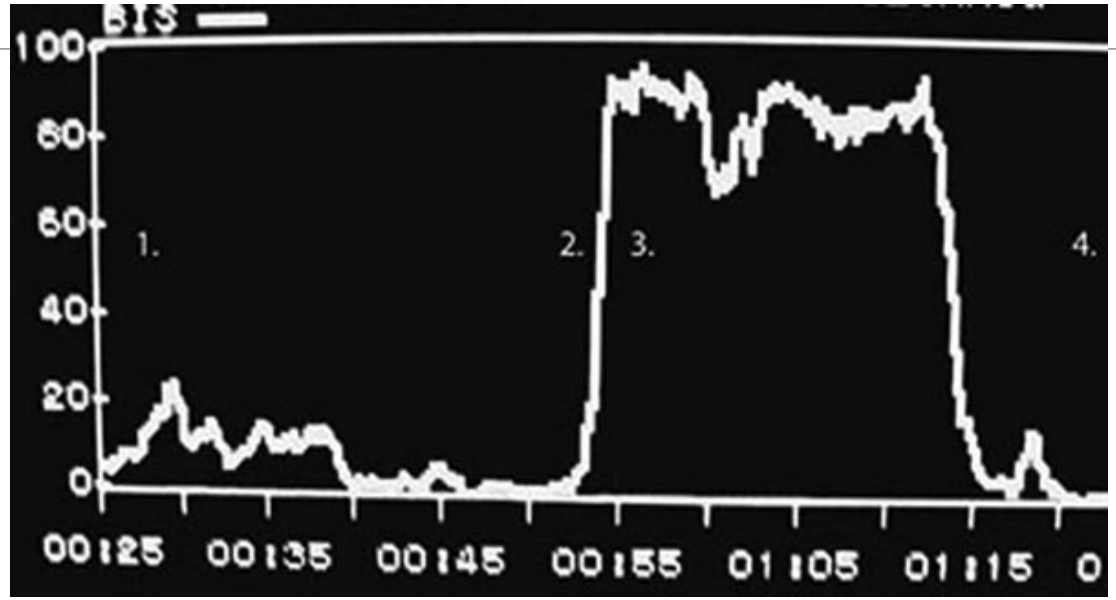
- Brain activity measurable by EEG ceases within seconds of unexpected or medically induced cardiac arrest in humans.

- Plaschke K, Boeckler D, Schumacher H, Martin E and Bardenheuer HJ. Adenosine induced cardiac arrest and EEG changes in patients with thoracic aorta endovascular repair. *Br J Anaesth* 2006; 96: 310–16
- The development of spectral EEG changes during short periods of circulatory arrest. Visser GH, et al. J *Clin. Neurophysiol* 2001; 18(02):169 –177
- Electroencephalographic changes during brief cardiac arrest in humans. Clute HL and Levy WJ. *Anesthesia* 1990; 71: 823-825
- Young WL and Ornstein E. Compressed spectral array monitoring during cardiac arrest and resuscitation. *Anesthesia* 1985; 62: 535-538
- Moss J and Rockoff M. EEG monitoring during cardiac arrest and resuscitation. *JAMA* 1980; 244 (24): 2750-2751

Accurate determination of cessation of circulation is important in DCD (A-line or ECHO/doppler should be used)

Bernat et al. *Crit Care Med* 2010 38(3):963-970

Unintentional awareness during withdrawal



Bispectral EEG index temporarily increases then falls dramatically with cardiac arrest, and remains zero at 5 minutes.

Auyong DB et al. Processed Electroencephalogram During Donation After Cardiac Death. *Anesth Analg*, 2010.

National endorsement of DCDD

Institute of Medicine Executive Summary: Non Heart Beating Organ Transplantation: Medical and Ethical Issues in Procurement. Washington, DC: *National Academy Press*, 1997

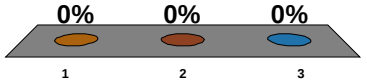
Society of Critical Care Medicine: Recommendations for nonheartbeating organ donation. *Crit Care Med* 2001; 29: 1826-1831

AAP Policy Statement: Pediatric Organ Donation and Transplantation. *Pediatrics* 2010; 125(4): 822-828

The circulatory-respiratory determination of death in organ donation. Bernat et al. *Crit Care Med* 2010; 38(3):963-970

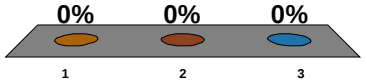
Q8 Would this be acceptable?
Giving comfort medications (narcotics, benzodiazepines or a combination) though these may hasten death

1. **Yes**
2. **No**
3. **I'm not sure…**



Q9: Would this be acceptable?
Giving a muscle relaxant so family cannot see any potential discomfort

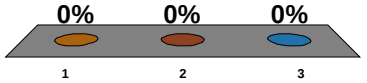
1. **Yes**
2. **No**
3. **I'm not sure…**



Q 10: Would this be acceptable?

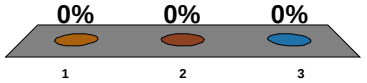
In a patient who arrests in the ER, cutdown and femoral cannulation with balloon catheter to isolate the abdominal aorta and perfusing the kidneys until the family decides

1. **Yes**
2. **No**
3. **I'm not sure…**



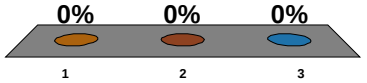
Q11: Would this be acceptable?
Placing ECMO cannulae premortem to start ECMO after pronouncing death and carefully precluding brain circulation with an aortic balloon

1. **Yes**
2. **No**
3. **I'm not sure…**



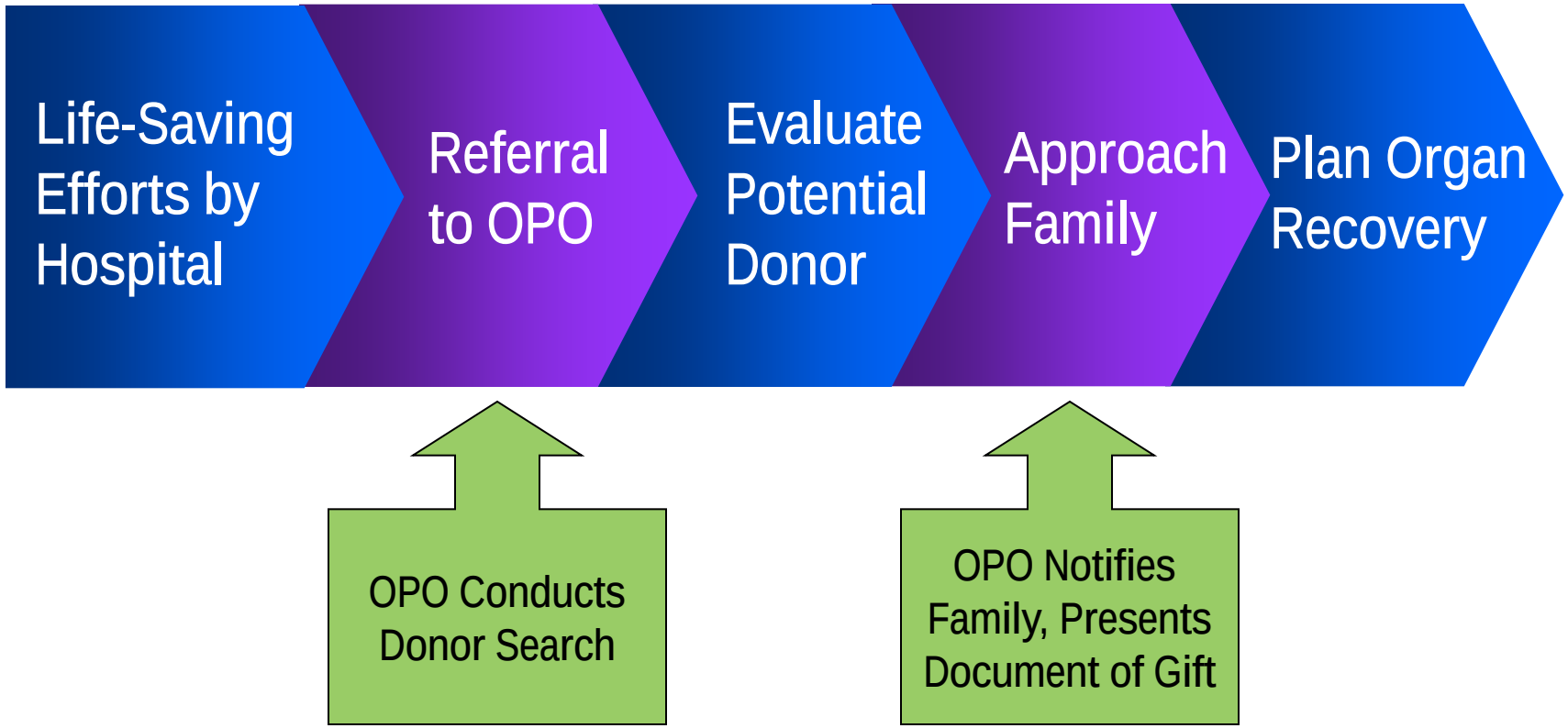
Q 12: Would this be acceptable?
Ex-vivo "ECMO" or organ perfusion after procurement

1. **Yes**
2. **No**
3. **I'm not sure…**



What is my role in Organ Donation?

The Donation Process



Trigger for referral

Consult OneLegacy within **ONE HOUR**

To Preserve the Opportunity of Organ Donation

800-338-6112

VENTILATOR DEPENDENT PATIENT
with a non-survivable illness or injury

With One or More of These Triggers

- Anticipated discussion of withdrawal of ventilator or End-of-Life care
- Loss of one or more brainstem reflexes

To Preserve the Opportunity of Organ, Eye & Tissue Donation Call

EVERY Death within ONE HOUR

OneLegacy

DONATE LIFE DONE VIDA

saving lives through organ, eye & tissue donation

Role of physicians and other Healthcare providers in Donation

Early referral if patient meets triggers

Integrate donation into end-of-life care-preserve the option of donation

Identify if your patient is a registered donor

>50% of US population, Over 13.3 million in CA

Website: donatelifecalifornia.org

Donor Designation=Advance Directive

A Comparison of the Request Process and Outcomes in Adult and Pediatric Organ Donation

Laura A. Siminoff, PhD[a], Anthony J. Molisani, MPH[b], Heather M. Traino, PhD[a]

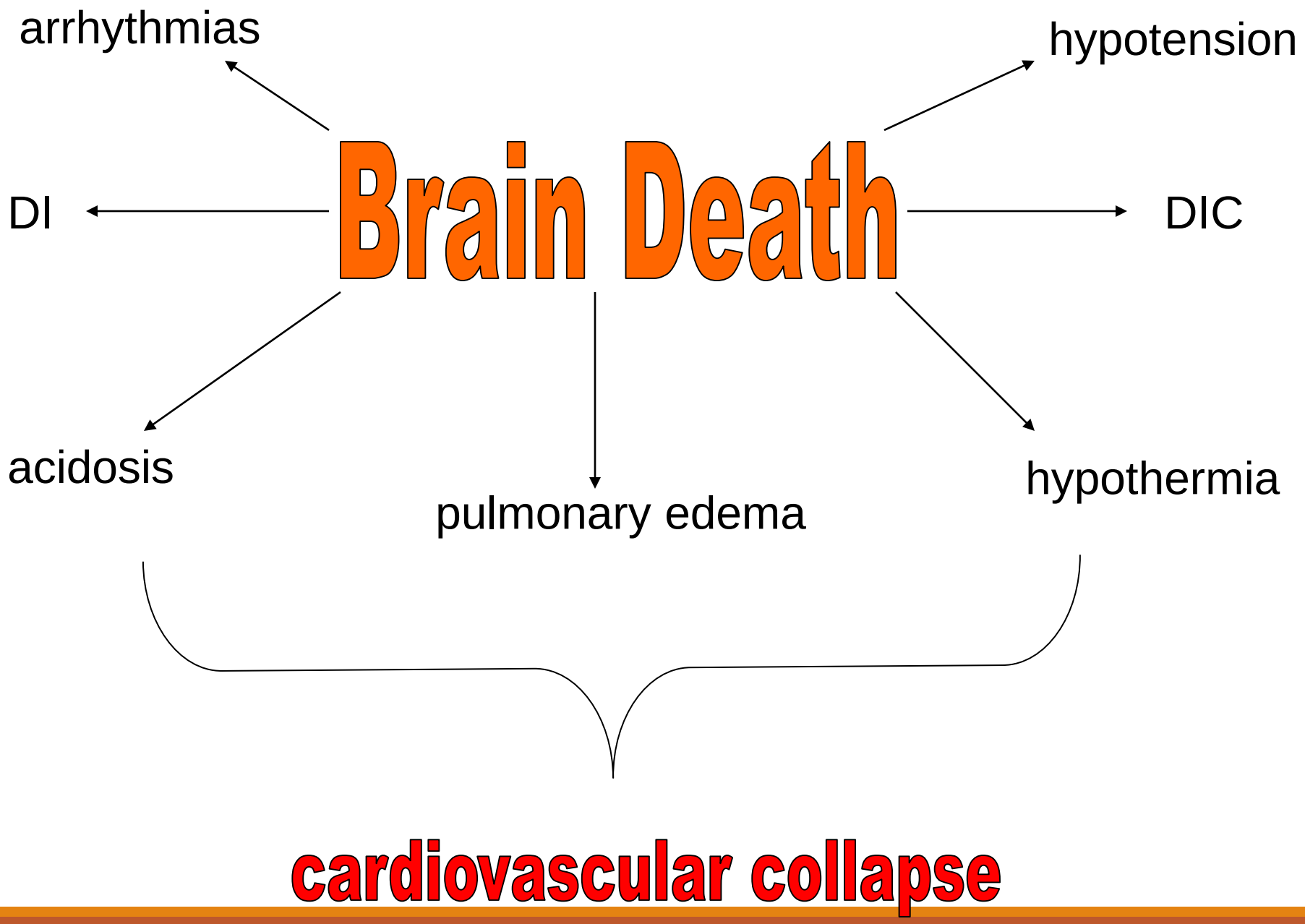
Higher donation authorization rate in Pediatrics: 89.7% VS. 83%, correlated with communication

TABLE 3 Topics Discussed With Requester

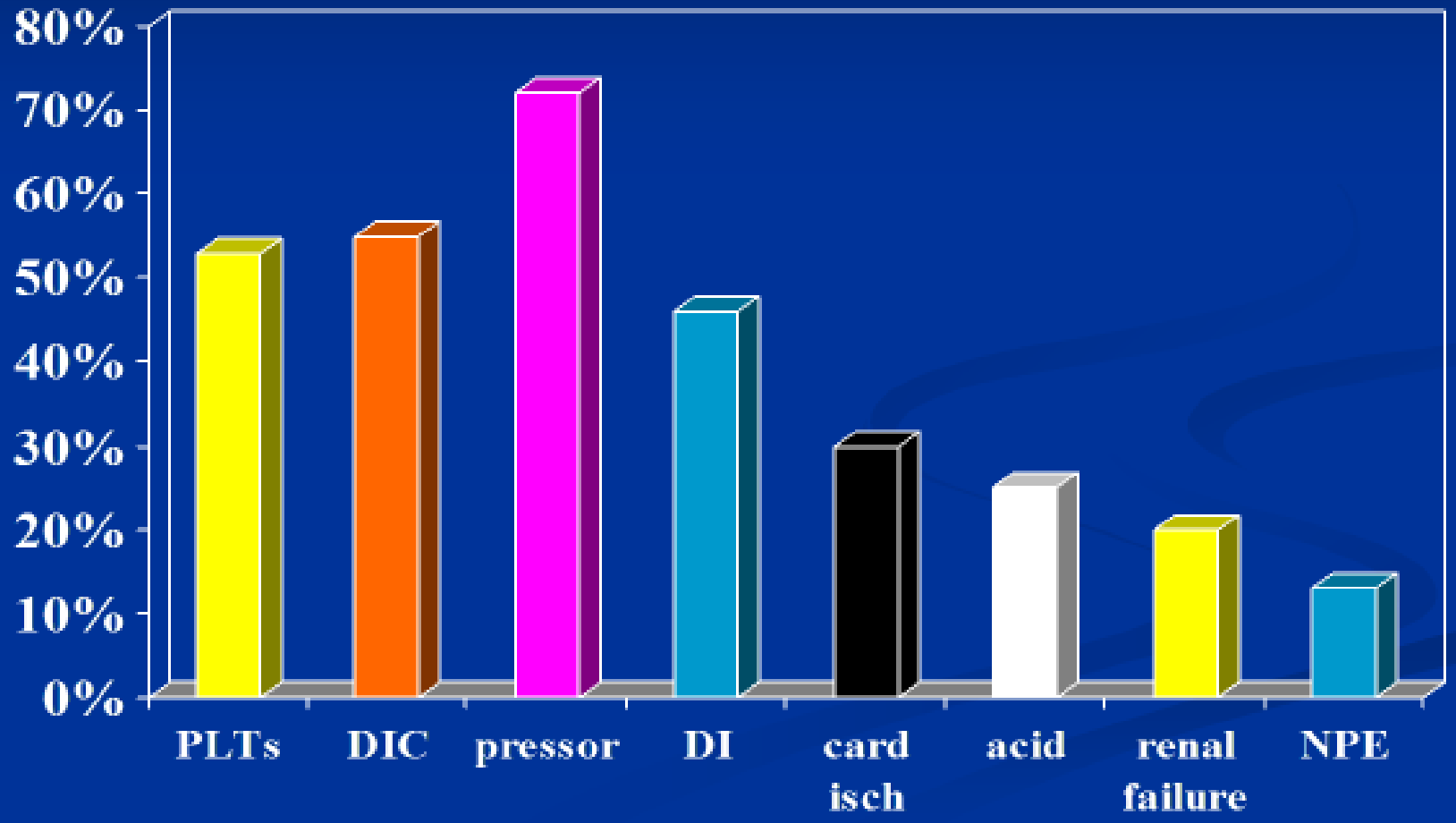
Topics Discussed	Donor Status Count (%)	
	Adult	Pediatric
Cost of donation*	880 (64.3)	165 (71.1)
Patient's donation wishes**	998 (72.9)	120 (51.7)
Ability to choose which organs to donate*	986 (72.0)	182 (78.4)
Treatment of patient's body*	991 (66.5)	170 (73.3)
Distribution of donated organs*	990 (73.0)	192 (82.8)

*$P < .05$; **$P < .001$.

Siminoff et al, Pediatrics 2015; 136 (1)


arrhythmias
hypotension
Brain Death
DI
DIC
acidosis
pulmonary edema
hypothermia
cardiovascular collapse

Complications of Brain Death



Medical Management-importance

Instability increases in proportion to the length of time between the declaration of brain death and the procurement of the organs

Progression from brain death to somatic death results in the loss of 10 to 20 percent of the potential donors

Care of the Potential organ donor.
Wood et al. NEJM Dec 2004, 351 (23): 2730-2739

Medical management-brain death

- Fluids and electrolyes: Vasopressin for DI
- Renal: Maintain urine output
- Hemodynamics: Inotropic or vasopressor support (40% peds donors have cardiac dysfunction, but improves)
- Oxygenation and ventilation
- Hormone replacement: Corticosteroids, thyroid hormone
- Heme: pRBC, platelets and plasma

Your role in DCDD

- Referral of potential DCDD to OneLegacy (usually RN)
- Evaluation of suitability as DCDD (RN, MD, RT, OneLegacy)
- If family asks you about donation
  - Acknowledge that it is a wonderful gift they are considering
  - Tell them you will contact OneLegacy to have them available for questions
  - Contact OneLegacy ASAP

Some Do's and Don'ts for DCDD

- Talk about "allowing a natural death" rather than "withdrawing care" or "withdrawing life support"
- Redirect family questions on timeframes to focus on just being with the child
- Help the family reminisce-tell me about….
- Keep you focus on providing comfort care as usual, donation is a secondary outcome

Steps to DCDD/Your role

- End-of-life decision (Family, with ICU team)
- Offering the option (OneLegacy, +/- ICU team)
- Family approach for consent (OL)
- Evaluation for suitability as donor (OL + ICU) and organ screening/placement (OL)
- Coordination with OR and transplant teams (OL)
- Preparing for surgery (OL, ICU, OR)
- Final goodbyes (in ICU/Recovery room/OR???)
- Withdrawal, provision of comfort care, determination of death **(ICU ONLY)**
- Organ recovery, preservation and transplantation (Transplant team)

DCDD: Best Practices

Considering withdrawal?.....

- Decision to withdraw life sustaining therapy should come first, and independent of donation decisions
- Every family deserves the option to consider organ donation (use withdrawal as a referral trigger)

After consent.....

- Our first responsibility is to the patient-irrespective of what happens after withdrawal
- Be consistent-do whatever you would do if donation was not in the picture-SAME COMFORT CARE, SAME DEATH DETERMINATION PRACTICES

Conclusions

- There is a growing shortage of solid organs for patients waiting for transplantation
- Early referral + ongoing medical management after brain death are key
- DCDD is an ethically sound practice
- DCDD organs have good outcomes-DCDD should be considered a routine part of end-of-life care
- Medical caregivers (nurses, RTs, OR staff, anesthesia etc.)have a major role in supporting organ donation