Clinical Process Instruction Manual

Donation after Death Determination by Neurologic Criteria

Policy:

Ontario Health (Trillium Gift of Life Network [TGLN]) has aligned its clinical protocols for donation following death determination by neurologic criteria with *A Brain-Based Definition of Death and Criteria for its Determination After Arrest of Circulation or Neurologic Function in Canada: A 2023 Clinical Practice Guideline* (DDD).

Physicians performing death determination by neurologic criteria (DNC) must hold full and current licensure for independent (non-educational) medical practice in Ontario. The physician must have skill and knowledge in the management of patients with severe brain injury, as well as DNC. For the purpose of donation for transplantation, clinicians determining death must not have an association or active involvement in transplant procedures, organ allocation, or care of the intended transplant recipient. Responsibility for accuracy in DNC rests with the physicians who document it. The role of Ontario Health (TGLN) staff in this context is supportive.

The *Gift of Life Act* requires two physicians to confirm death to proceed with organ donation. For Adults and children greater or equal to 1 year of age, these assessments may be performed concurrently, as per DDD guidelines. For infants 2 months to less than 1 year corrected gestational age, there is no fixed exam interval between the two assessments. The first and second physician's determinations should be performed at different points in time, including apnea tests. For newborns 37 weeks corrected gestational age to less than 2 months, the first exam and assessment should be delayed until 48 hours after birth and the interval between exams should be greater than or equal to 24 hours. This interval may be extended based on physician judgement. When performed at different points in time, full clinical examinations, including the apnea test, are to be performed by both physicians.

Ontario Health (TGLN) may require additional information or testing in order to proceed with donation following DNC. Where judgment is required, Ontario Health (TGLN)'s Donation Support Physician (DSP) or on-call designate may be consulted to determine the need for additional testing.

Process:

1. Prior to the completion of DNC, the Ontario Health (TGLN) coordinator completes the *DNC Confounding Factors Worksheet* portion of CSF-9-5 (Adults) or CSF-9-6 (Pediatrics) in collaboration with the most responsible physician (MRP). The Specialist Organ and Tissue Donation (SOTD) or Clinical Responder (CR) reviews the DNC documentation ensuring it is filled out accurately, completely and confirms that DNC meets DDD guidelines and the *Gift of Life Act* requirements to proceed with donation following DNC. An electronic signature is required to indicate verification. See Sample 1- 3 for adult cases and Sample 4-6 for pediatric cases. The SOTD/CR will ensure that the documentation meets the clinical criteria outlined in Appendix 1. For situations when clinical criteria in Appendix 1 is not met, a DSP consult is mandatory to confirm DNC.

2. As a quality assurance check, the Clinical Services Coordinator (CSC)/Referral Triage Coordinator (RTC)

reviews the DNC documentation to verify its completion and notifies the SOTD/CR if there is any missing information or any corrections needed. The CSC or RTC will complete an electronic signature indicating verification of completion.

3. If judgment is required as to whether DNC is valid, a DSP consult with the SOTD/CR, and the CSC/RTC, if available, via conference-call is mandatory and should occur on a taped line.

4. If it is likely the DSP is needed to consult on the case, the SOTD/CR may inform the MRP that given the nature of the case, the SOTD/CR will be reaching out to the DSP and that the DSP may want to speak directly to the MRP. If the MRP would rather speak to an RML or the CMO-Donation with whom the MRP may feel more comfortable, the MRP is free to do so. However, the RML or CMO-Donation must then speak to the DSP on call and advise him/her of the conversation details.

5. The SOTD/CR and CSC/RTC document the DSP or on-call designates decision in the clinical notes.

6. Prior to the organ recovery, the SOTD/CR assembles all required DNC forms for the Operating Room and Transplant teams which includes:
   - *Confirmation of Death Determination by Neurologic Criteria (DNC),* or hospital approved alternates
   - *Consent to Donate Organs and/or Tissues*
   - *Coroner/Forensic Pathologist Permission* form (when applicable)

7. The SOTD/CR ensures that a copy of all forms specified in step 6 are retained in the Ontario Health (TGLN) Donor Management System (DMS), in addition to:
   - *DNC Confounding Factors Worksheet* and any reports or results that may confound DNC if applicable
   - Baseline and final arterial blood gas results from apnea test
   - Neuroimaging evidence that supports the devastating brain injury
   - Any repeat imaging to support DNC, including ancillary test images and reports

8. The CSC will confirm that all of the required documentation in step 7 is uploaded to the DMS.

9. In the event that transfer for organ recovery surgery is required, the SOTD/CR will:
   - convey details of DNC and any deviation from DDD guidelines (if applicable) to the receiving ICU physician (e.g., if DNC is based in part on ancillary tests alone);
   - facilitate discussion between the sending and receiving ICU physicians if indicated

10. In the event that transfer for organ recovery is required, the SOTD/CR will ensure the following documentation accompanies the potential donor:
    - copy of all forms (as described above in 6) and any supporting images, reports, and/or test results, if applicable.

Clinical Process Instruction Manual

Donation after Death Determination by Neurologic Criteria

Records:

Record Name	Form No. (if applicable)	Record Holder	Record Location	Record Retention Time (as a minimum)
Assessment Form: Organ/Combined Organ and Tissue Donor	CSF-9-15	PRC	PRC	16 years
Guidelines for death determination by neurologic criteria (DNC) for the purposes of organ donation in Ontario: adult and children greater than or equal to one year of age	CSF-9-5	PRC	PRC	16 years
Guidelines for death determination by neurologic criteria (DNC) for the purposes of organ donation in Ontario: Infants 2 months to less than 1 year and newborns 37 weeks corrected gestational age to less than 2 months of age	CSF-9-6	PRC	PRC	16 years

Clinical Process Instruction Manual

Donation after Death Determination by Neurologic Criteria

References:

- *Coroner's Case Process Instruction, CPI-9-203*
- *Discussion Donation Opportunities and Obtaining Consent Process Instruction, CPI-9-204*
- *Donor Assessment Process Instruction, CPI-9-208*
- *Donor Transfer for Organ Recovery Process Instruction, CPI-9-400*
- *Gift of Life Act*
- Canadian Council for Donation and Transplantation. Report on the Canadian Forum on Severe Brain Injury to Neurological Determination of Death. Vancouver, BC. May 16, 2003
- Canadian Council for Donation and Transplantation. Brain Blood Flow in the Neurological Determination of Death. Montreal, QC. February 2007

Clinical Process Instruction Manual

Donation after Death Determination by Neurologic Criteria

Appendix 1: Death Determination by Neurologic Criteria Documentation

1.1 The patient must have an established cause of devastating brain injury and this should be supported by documented neuroimaging evidence. In addition, confounding factors (see Appendix A) must be excluded to prevent the observation of neurological responses that may mimic death; including severe electrolyte abnormalities.

1.2 The patient's core body temperature should be greater than or equal to 36° Celsius.

1.3 The physicians involved in the DNC must have the knowledge and ability associated with the management of patients who have severe brain injury as well as in DNC for all relevant age groups within their care.

Clinical Criteria for Death Determination by Neurologic Criteria (DNC) for* Adults and children greater or equal to 1 year of age *must include all of the following)

1.4 Bilateral absence of:

- Pupillary response, with pupils greater than or equal to 3mm;
- Corneal reflex;
- Oculovestibular response and
- Motor response to central (painful) stimulation (e.g., supraorbital pressure), excluding spinal reflexes

1.11 Absence of a cough and a gag response.

1.12 A lack of respiratory effort as determined by apnea testing.

1.13 Both clinical exams may be performed concurrently.

1.14 One apnea test may be performed in the presence of both physicians. However, if both physicians are not present, then a second clinical examination and separate apnea test must be performed for organ donation purposes.

Clinical Criteria for Death Determination by Neurologic Criteria (DNC) for Infants aged 2 months to less than 1 year (Corrected for Age) (must include all of the following)

1.15 Bilateral Absence of:

- Pupillary response, with pupils greater than or equal to 3mm;
- Corneal reflex;
- Oculovestibular response; and
- Motor response to central (painful) stimulation (e.g., supraorbital pressure), excluding spinal reflexes

1.16 Absence of a cough and a gag response.

1.17 A lack of respiratory effort as determined by apnea testing.

1.18 The second required clinical examination for DNC must occur separately and independently from the initial examination, including apnea testing.

1.19 There is no recommended time interval that must occur between the two examinations; however, each must be performed independently.

Clinical Criteria for Determination of Death by Neurological Criteria (DNC) for Newborns aged 37 weeks corrected gestational age to less than 2 months (must include all of the following)

1.20 Bilateral Absence of:

- Pupillary response, with pupils greater than or equal to 3mm;
- Corneal reflex;
- Oculovestibular response; and
- Motor response to central stimulation (e.g., clavicular pressure), excluding spinal reflexes

1.21 Absence of a cough and a gag response.

1.22 Absence of sucking and rooting reflex.

1.23 A lack of respiratory effort as determined by apnea testing.

1.24 For this age group, there should be aa minimum of 48 hours between birth and the first clinical assessment for DNC.

1.25 The second required clinical assessment for DNC should take place after a minimum interval of 24 hours after the first clinical assessment for DNC. This interval may be extended based on physician judgement. Consultation with DSP is recommended. Additional caution should be exercised in this age group.

Clinical Process Instruction Manual

Donation after Death Determination by Neurologic Criteria

Sample 1: Confirmation of Death Determination by Neurologic Criteria (DNC): Adults and Children Greater than or Equal to One Year of Age

Ontario Health
Trillium Gift of Life Network

483 Bay Street South Tower, 4th Floor Toronto, Ontario M5G 2C9
Tel: 416-363-4438 or toll free 1-877-363-8456
Fax: 416-214-7797 or toll-free 1-866-557-6100
Website: www.giftoflife.on.ca

HOSPITAL CARD STAMP

CONFIRMATION OF DEATH DETERMINATION BY NEUROLOGIC CRITERIA (DNC): ADULTS AND CHILDREN GREATER THAN OR EQUAL TO ONE YEAR OF AGE

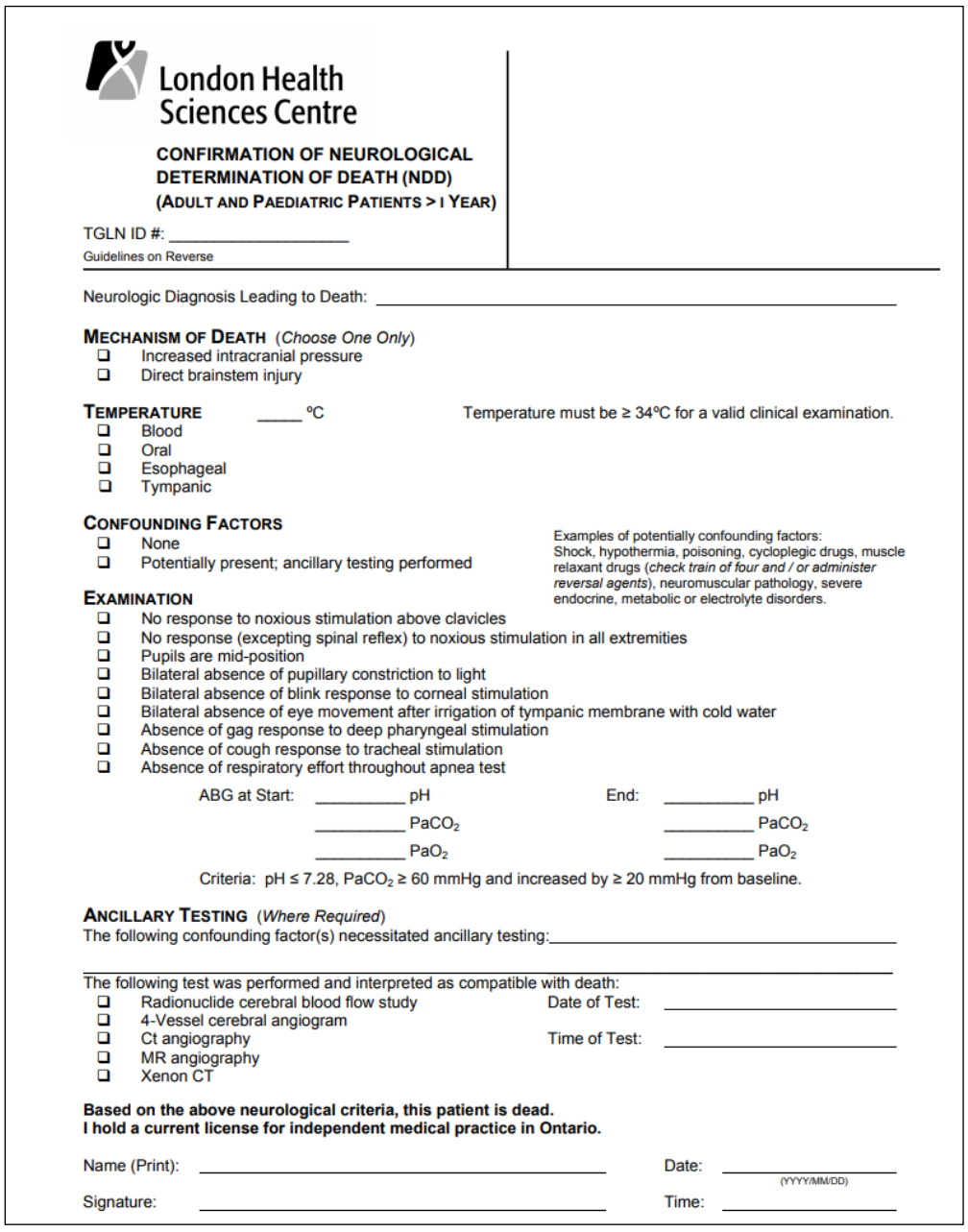
TGLN ID:				
Prerequisites				
What is the mechanism of devastating brain injury that has led to the suspected death?	☐ Elevated ICP/Hydrocephalus ☐ Anoxic Brain Injury ☐ Isolated Infratentorial Brain Injury ☐ Other (please explain):			
Is the mechanism of devastating brain injury indicated above supported by imaging?			☐Yes	☐No
Potential confounders of an accurate clinical assessment have been considered and excluded. If confounders cannot be excluded, the clinical assessment must be completed to the fullest extent possible and ancillary investigation is recommended. If no, please explain:			☐Yes	☐No
Core Body Temperature (esophageal, bladder, central venous, or arterial catheter monitoring)			°C	
Clinical Assessment	**Exam 1**		**Exam 2**	
Absent motor responses (excluding spinal reflexes)	☐Yes	☐No	☐Yes	☐No
Absent cough (tracheal) reflex	☐Yes	☐No	☐Yes	☐No
Absent gag (pharyngeal) reflex	☐Yes	☐No	☐Yes	☐No
Absent (bilateral) corneal reflexes	☐Yes	☐No	☐Yes	☐No
Absent (bilateral) vestibulo-ocular reflexes	☐Yes	☐No	☐Yes	☐No
Absent (bilateral) pupillary response to light	☐Yes	☐No	☐Yes	☐No
Apnea Testing Apnea testing should be the final element of the clinical assessment.				
Baseline	pH _____ $PaCO_2$ _____ mmHg		pH _____ $PaCO_2$ _____ mmHg	
At completion of apnea test	pH _____ $PaCO_2$ _____ mmHg		pH _____ $PaCO_2$ _____ mmHg	
$PaCO_2 \geq 20$ mmHg above the baseline level and pH ≤ 7.28	☐Yes	☐No	☐Yes	☐No
Absent breathing/respiratory efforts	☐Yes	☐No	☐Yes	☐No
Date/time blood sample was taken when $PaCO_2$ reached targets:	(DD-MM-YY): (00:00)		(DD-MM-YY): (00:00)	
Criteria: *pH less than or equal to 7.28, $PaCO_2$ greater than or equal to 60 mmHg and greater than or equal to 20 mmHg rise from baseline CO_2*				
Ancillary Testing If any portion of the clinical assessment cannot be completed and/or potential confounders of an accurate clinical assessment cannot be excluded, an ancillary test should be performed. For isolated infratentorial brain injury, an ancillary test is required or a period of observation and reimaging demonstrating whole-brain involvement.				
Date/time ancillary test performed:	(DD-MM-YY):		(00:00):	
Ancillary Test Performed:				
☐ Radionuclide Perfusion ☐ Transcranial Doppler ☐ CT-Angiography ☐ CT-Perfusion	Read by (PRINT):			
Absent intracerebral blood flow/perfusion			☐Yes	☐No
Time of Death The legal time of death is recorded as the time of completion of the last test required to fulfill death determination criteria (typically, the time the blood sample was taken when the $PaCO_2$ reached the apnea test targets, or the time ancillary test was performed).				
This patient fulfills the criteria for death determination by neurologic criteria			☐Yes	☐No
Date/time of death:	(DD-MM-YY):		(00:00):	
Physician 1 (PRINT):	Signature:			
Physician 2 (PRINT):	Signature:			

Physician 1 and physician 2 determinations may be performed concurrently. If performed at different times, a full clinical examination including apnea test must be performed, without any fixed examination interval, regardless of the primary etiology.

Clinical Process Instruction Manual

Donation after Death Determination by Neurologic Criteria

Sample 2: Confirmation or Neurological Determination of Death (NDD) (Adult and Paediatric Patients >1 Year)



London Health Sciences Centre

CONFIRMATION OF NEUROLOGICAL DETERMINATION OF DEATH (NDD)
(ADULT AND PAEDIATRIC PATIENTS > 1 YEAR)

TGLN ID #: _____
Guidelines on Reverse

Neurologic Diagnosis Leading to Death: _____

MECHANISM OF DEATH (*Choose One Only*)
- ❑ Increased intracranial pressure
- ❑ Direct brainstem injury

TEMPERATURE _____ °C — Temperature must be ≥ 34°C for a valid clinical examination.
- ❑ Blood
- ❑ Oral
- ❑ Esophageal
- ❑ Tympanic

CONFOUNDING FACTORS
- ❑ None
- ❑ Potentially present; ancillary testing performed

Examples of potentially confounding factors: Shock, hypothermia, poisoning, cycloplegic drugs, muscle relaxant drugs (*check train of four and / or administer reversal agents*), neuromuscular pathology, severe endocrine, metabolic or electrolyte disorders.

EXAMINATION
- ❑ No response to noxious stimulation above clavicles
- ❑ No response (excepting spinal reflex) to noxious stimulation in all extremities
- ❑ Pupils are mid-position
- ❑ Bilateral absence of pupillary constriction to light
- ❑ Bilateral absence of blink response to corneal stimulation
- ❑ Bilateral absence of eye movement after irrigation of tympanic membrane with cold water
- ❑ Absence of gag response to deep pharyngeal stimulation
- ❑ Absence of cough response to tracheal stimulation
- ❑ Absence of respiratory effort throughout apnea test

ABG at Start:		End:	
_____ pH		_____ pH	
_____ $PaCO_2$		_____ $PaCO_2$	
_____ PaO_2		_____ PaO_2	

Criteria: pH ≤ 7.28, $PaCO_2$ ≥ 60 mmHg and increased by ≥ 20 mmHg from baseline.

ANCILLARY TESTING (*Where Required*)
The following confounding factor(s) necessitated ancillary testing: _____

The following test was performed and interpreted as compatible with death:
- ❑ Radionuclide cerebral blood flow study
- ❑ 4-Vessel cerebral angiogram
- ❑ Ct angiography
- ❑ MR angiography
- ❑ Xenon CT

Date of Test: _____
Time of Test: _____

Based on the above neurological criteria, this patient is dead.
I hold a current license for independent medical practice in Ontario.

Name (Print): _____ Date: _____ (YYYY/MM/DD)
Signature: _____ Time: _____

Clinical Process Instruction Manual

Donation after Death Determination by Neurologic Criteria

Sample 3: Death Determination by Neurologic Criteria (DNC) Checklist

Death Determination by Neurologic Criteria (DNC) Checklist
Death is the permanent cessation of brain function.

Patient Name:	MRN:		
Communicating with Substitute Decision Makers/Families			
Substitute decision makers/families have been offered a multidisciplinary support team to be included in end-of-life care discussions		Yes	No
Substitute decision makers/families have been informed about when and how death determination will occur		Yes	No
Prerequisites			
Specify the established cause of devastating brain injury severe enough to cause death and supported by neuroimaging evidence:			
Potential confounders (see Page 2) of an accurate clinical assessment have been considered and excluded. If confounders cannot be excluded, the clinical assessment must be completed to the fullest extent possible and ancillary investigation is required. If no, please explain:		Yes	No
Clinical Assessment			
Absent motor responses (excluding spinal reflexes)		Yes	No
Absent cough (tracheal) reflex		Yes	No
Absent gag (pharyngeal) reflex		Yes	No
Absent (bilateral) corneal reflexes		Yes	No
Absent (bilateral) vestibulo-ocular reflexes		Yes	No
Absent (bilateral) pupillary response to light		Yes	No
Absent rooting and sucking (newborns only)	N/A	Yes	No
Apnea Testing Apnea testing should be the final element of the clinical assessment.			
Baseline	pH _____	$PaCO_2$ _____ mmHg	
At completion of apnea test	pH _____	$PaCO_2$ _____ mmHg	
$PaCO_2 \geq 20$ mmHg above the baseline level and pH ≤ 7.28		Yes	No
Absent breathing/respiratory efforts		Yes	No
Date/time blood sample was taken when $PaCO_2$ reached targets:			
Ancillary Investigation If any portion of the clinical assessment cannot be completed and/or potential confounders of an accurate clinical assessment cannot be excluded, ancillary investigation is required for patients greater than 2 months of age. See indications for ancillary investigation on Page 2 and recommendation below.			
Date/time ancillary test performed:			
Ancillary Investigation Performed (circle):			
CT-Perfusion	Radionuclide Perfusion (specify):	Other (specify):	
CT-Angiography	Transcranial Doppler		
Absent intracerebral blood flow/perfusion		Yes	No
Time of Death The legal time of death is recorded as the time of completion of the last test required to fulfill death determination criteria (typically, the time the blood sample was taken when the $PaCO_2$ reached the apnea test targets, or the time ancillary investigation was performed).			
This patient fulfills the criteria for death determination by neurologic criteria		Yes	No
Date/time of death:			
Clinician (print):	Signature:		
Second Clinician, if needed (print):	Signature:		

For organ donation, two medical practitioners/physicians are required to determine death. Clinicians can perform the clinical assessment concurrently. If performed at different points in time, the second clinical assessment required for organ donation must be fully repeated.

We recommend that one complete clinical assessment is sufficient for patients one year of age or older who are undergoing DNC (Strong recommendation, moderate certainty in evidence).

We suggest two complete clinical assessments separated in time are sufficient for patients less than one year corrected gestational age who are undergoing DNC (Weak recommendation, very low certainty in evidence).

We suggest against performing an ancillary investigation in infants under 2 months corrected gestational age who require an ancillary investigation for DNC (Weak recommendation, very low certainty in evidence). If two complete clinical assessments are not possible, DNC cannot be determined. Alternative end of life care may be considered.

Clinical Process Instruction Manual

Donation after Death Determination by Neurologic Criteria

Sample 4: Confirmation of Death Determination by Neurological Criteria (DNC): Pediatrics 37 Week Corrected Gestational Age to Less Than 1 Year

Ontario Health
Trillium Gift of Life Network
483 Bay Street South Tower, 4th Floor Toronto, Ontario M5G 2C9
Tel: 416-363-4438 or toll free 1-877-363-8456
Fax: 416-214-7797 or toll-free 1-866-557-6100
Website: www.giftoflife.on.ca

HOSPITAL CARD STAMP

CONFIRMATION OF DEATH DETERMINATION BY NEUROLOGIC CRITERIA (DNC): PEDIATRICS 37 WEEKS CORRECTED GESTATIONAL AGE TO LESS THAN 1 YEAR

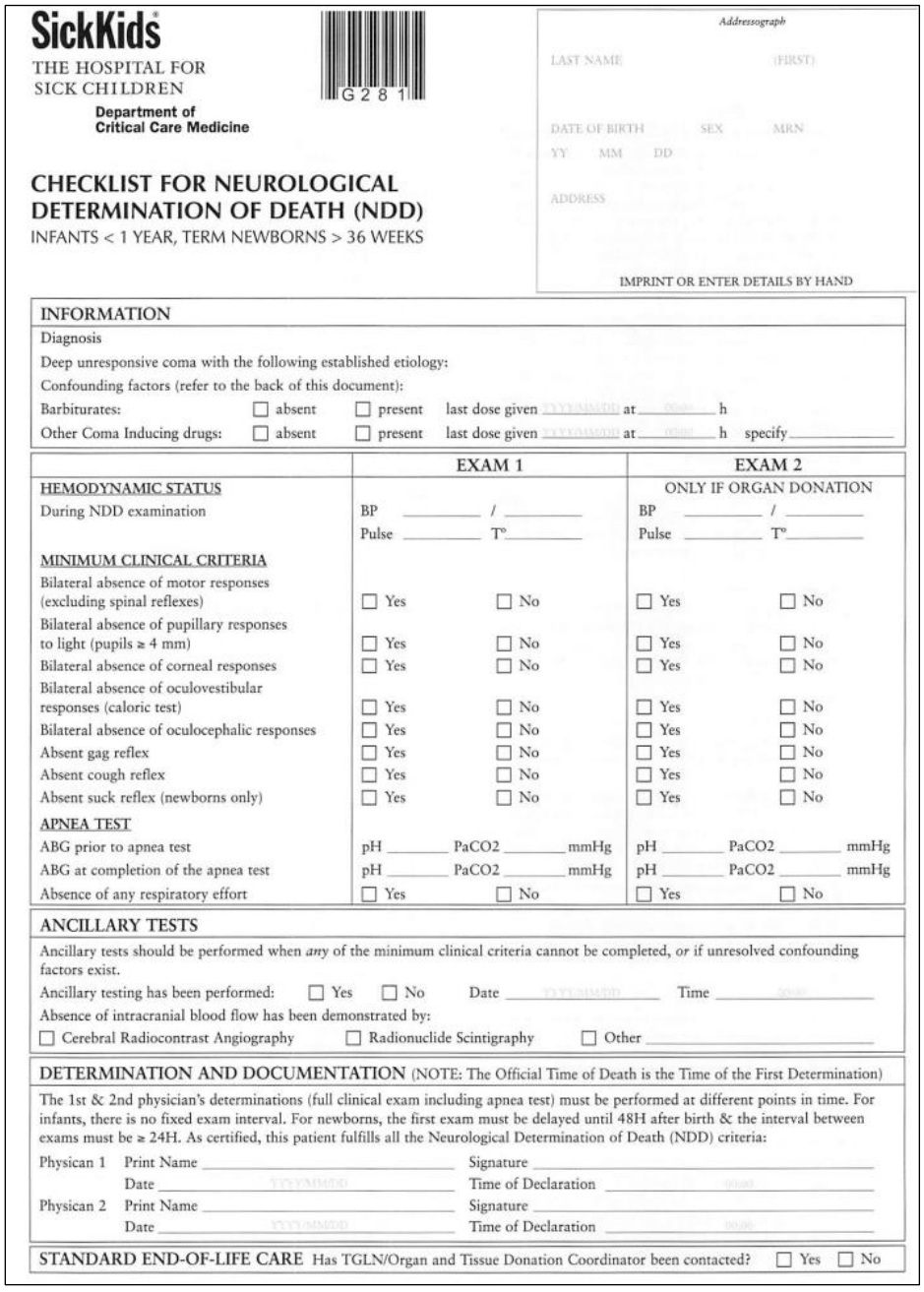
TGLN ID:				
Prerequisites				
Age: ☐ Infants 2 months to less than 1 year		☐ Newborns 37 weeks corrected gestational age to less than 2 months		
What is the mechanism of devastating brain injury that has led to the suspected death?		☐ Elevated ICP/Hydrocephalus ☐ Anoxic Brain Injury ☐ Isolated Infratentorial Brain Injury ☐ Other (please explain):		
Is the mechanism of devastating brain injury indicated above supported by imaging?			☐Yes	☐No
Potential confounders of an accurate clinical assessment have been considered and excluded. If confounders cannot be excluded, the clinical assessment must be completed to the fullest extent possible and ancillary investigation is recommended. If no, please explain:			☐Yes	☐No
Core Body Temperature (esophageal, bladder, central venous, or arterial catheter monitoring)			°C	
Clinical Assessment		**Exam 1**		**Exam 2**
Absent motor responses (excluding spinal reflexes)		☐Yes ☐No	☐Yes	☐No
Absent cough (tracheal) reflex		☐Yes ☐No	☐Yes	☐No
Absent gag (pharyngeal) reflex		☐Yes ☐No	☐Yes	☐No
Absent (bilateral) corneal reflexes		☐Yes ☐No	☐Yes	☐No
Absent (bilateral) vestibulo-ocular reflexes		☐Yes ☐No	☐Yes	☐No
Absent (bilateral) pupillary response to light		☐Yes ☐No	☐Yes	☐No
Absent rooting and sucking (newborns only)	☐N/A	☐Yes ☐No	☐Yes	☐No
Apnea Testing Apnea testing should be the final element of the clinical assessment.				
Baseline		pH _____ $PaCO_2$ _____ mmHg	pH _____ $PaCO_2$ _____ mmHg	
At completion of apnea test		pH _____ $PaCO_2$ _____ mmHg	pH _____ $PaCO_2$ _____ mmHg	
$PaCO_2$ ≥ 20 mmHg above the baseline level **and** pH ≤ 7.28		☐Yes ☐No	☐Yes	☐No
Absent breathing/respiratory efforts		☐Yes ☐No	☐Yes	☐No
Date/time blood sample was taken when $PaCO_2$ reached targets:		(DD-MM-YY): (00:00)	(DD-MM-YY): (00:00)	
Criteria: *pH less than or equal to 7.28, $PaCO_2$ greater than or equal to 60 mmHg and greater than or equal to 20 mmHg rise from baseline CO_2*				
Ancillary Testing If any portion of the clinical assessment cannot be completed and/or potential confounders of an accurate clinical assessment cannot be excluded, an ancillary test should be performed. Ancillary testing is not recommended for newborns under 2 months corrected age.				
Date/time ancillary test performed:		(DD-MM-YY):	(00:00):	
Ancillary Test Performed:				
☐ Radionuclide Perfusion	Read by (PRINT):			
Absent intracerebral blood flow/perfusion			☐Yes	☐No
Time of Death The legal time of death is recorded as the time of completion of the last test required to fulfill death determination criteria (typically, the time the blood sample was taken when the $PaCO_2$ reached the apnea test targets, or the time ancillary test was performed).				
This patient fulfills the criteria for death determination by neurologic criteria			☐Yes	☐No
Date/time of death:		(DD-MM-YY):	(00:00):	
Physician 1 (PRINT):		Signature:		
Physician 2 (PRINT):		Signature:		

Physician 1 and Physician 2's death determinations must be performed at different points in time. For infants, there is no fixed exam interval between the two. For newborns, the first assessment must be delayed until 48 hours after birth with a minimum of 24 hrs between the two assessments.

Clinical Process Instruction Manual

Donation after Death Determination by Neurologic Criteria

Sample 5: Checklist for Neurological Determination of Death (NDD) Infants < 1 Year, Term Newborns >36 Weeks



SickKids®
THE HOSPITAL FOR SICK CHILDREN
Department of Critical Care Medicine

G281

Addressograph
LAST NAME (FIRST)
DATE OF BIRTH SEX MRN
YY MM DD
ADDRESS
IMPRINT OR ENTER DETAILS BY HAND

CHECKLIST FOR NEUROLOGICAL DETERMINATION OF DEATH (NDD)
INFANTS < 1 YEAR, TERM NEWBORNS > 36 WEEKS

INFORMATION

Diagnosis
Deep unresponsive coma with the following established etiology:
Confounding factors (refer to the back of this document):
Barbiturates: ☐ absent ☐ present last dose given YYYY/MM/DD at 0000 h
Other Coma Inducing drugs: ☐ absent ☐ present last dose given YYYY/MM/DD at 0000 h specify _____

	EXAM 1	EXAM 2
HEMODYNAMIC STATUS		ONLY IF ORGAN DONATION
During NDD examination	BP ____ / ____ Pulse ____ T° ____	BP ____ / ____ Pulse ____ T° ____
MINIMUM CLINICAL CRITERIA		
Bilateral absence of motor responses (excluding spinal reflexes)	☐ Yes ☐ No	☐ Yes ☐ No
Bilateral absence of pupillary responses to light (pupils ≥ 4 mm)	☐ Yes ☐ No	☐ Yes ☐ No
Bilateral absence of corneal responses	☐ Yes ☐ No	☐ Yes ☐ No
Bilateral absence of oculovestibular responses (caloric test)	☐ Yes ☐ No	☐ Yes ☐ No
Bilateral absence of oculocephalic responses	☐ Yes ☐ No	☐ Yes ☐ No
Absent gag reflex	☐ Yes ☐ No	☐ Yes ☐ No
Absent cough reflex	☐ Yes ☐ No	☐ Yes ☐ No
Absent suck reflex (newborns only)	☐ Yes ☐ No	☐ Yes ☐ No
APNEA TEST		
ABG prior to apnea test	pH ____ PaCO2 ____ mmHg	pH ____ PaCO2 ____ mmHg
ABG at completion of the apnea test	pH ____ PaCO2 ____ mmHg	pH ____ PaCO2 ____ mmHg
Absence of any respiratory effort	☐ Yes ☐ No	☐ Yes ☐ No

ANCILLARY TESTS

Ancillary tests should be performed when *any* of the minimum clinical criteria cannot be completed, *or* if unresolved confounding factors exist.
Ancillary testing has been performed: ☐ Yes ☐ No Date YYYY/MM/DD Time 0000
Absence of intracranial blood flow has been demonstrated by:
☐ Cerebral Radiocontrast Angiography ☐ Radionuclide Scintigraphy ☐ Other _____

DETERMINATION AND DOCUMENTATION (NOTE: The Official Time of Death is the Time of the First Determination)

The 1st & 2nd physician's determinations (full clinical exam including apnea test) must be performed at different points in time. For infants, there is no fixed exam interval. For newborns, the first exam must be delayed until 48H after birth & the interval between exams must be ≥ 24H. As certified, this patient fulfills all the Neurological Determination of Death (NDD) criteria:

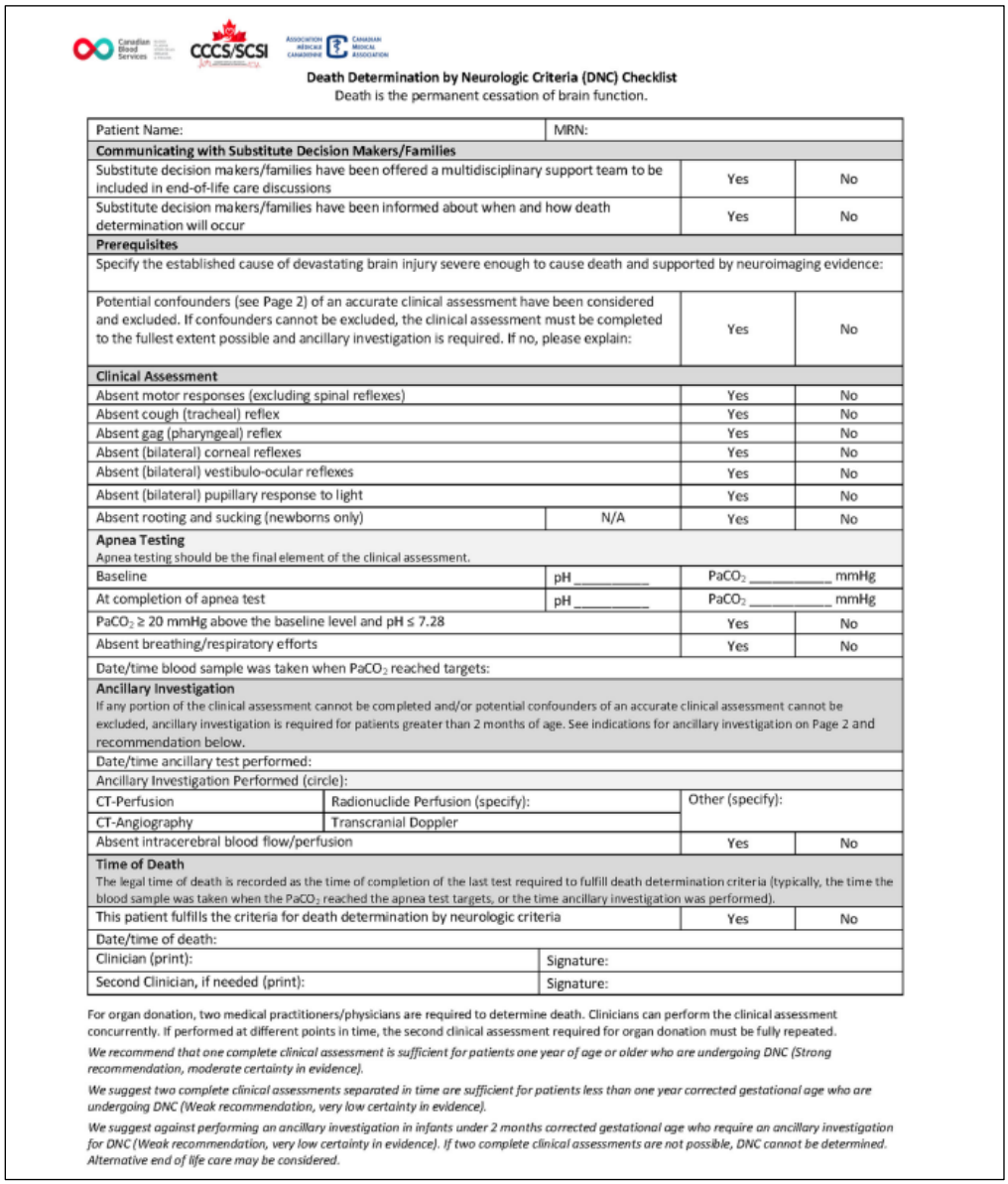
Physican 1 Print Name _____ Signature _____
Date YYYY/MM/DD Time of Declaration 0000
Physican 2 Print Name _____ Signature _____
Date YYYY/MM/DD Time of Declaration 0000

STANDARD END-OF-LIFE CARE Has TGLN/Organ and Tissue Donation Coordinator been contacted? ☐ Yes ☐ No

Clinical Process Instruction Manual

Donation after Death Determination by Neurologic Criteria

Sample 6: Death Determination by Neurologic Criteria (DNC) Checklist



Death Determination by Neurologic Criteria (DNC) Checklist
Death is the permanent cessation of brain function.

Patient Name:	MRN:		
Communicating with Substitute Decision Makers/Families			
Substitute decision makers/families have been offered a multidisciplinary support team to be included in end-of-life care discussions		Yes	No
Substitute decision makers/families have been informed about when and how death determination will occur		Yes	No
Prerequisites			
Specify the established cause of devastating brain injury severe enough to cause death and supported by neuroimaging evidence:			
Potential confounders (see Page 2) of an accurate clinical assessment have been considered and excluded. If confounders cannot be excluded, the clinical assessment must be completed to the fullest extent possible and ancillary investigation is required. If no, please explain:		Yes	No
Clinical Assessment			
Absent motor responses (excluding spinal reflexes)		Yes	No
Absent cough (tracheal) reflex		Yes	No
Absent gag (pharyngeal) reflex		Yes	No
Absent (bilateral) corneal reflexes		Yes	No
Absent (bilateral) vestibulo-ocular reflexes		Yes	No
Absent (bilateral) pupillary response to light		Yes	No
Absent rooting and sucking (newborns only)	N/A	Yes	No
Apnea Testing Apnea testing should be the final element of the clinical assessment.			
Baseline	pH _____	$PaCO_2$ _____ mmHg	
At completion of apnea test	pH _____	$PaCO_2$ _____ mmHg	
$PaCO_2$ ≥ 20 mmHg above the baseline level and pH ≤ 7.28		Yes	No
Absent breathing/respiratory efforts		Yes	No
Date/time blood sample was taken when $PaCO_2$ reached targets:			
Ancillary Investigation If any portion of the clinical assessment cannot be completed and/or potential confounders of an accurate clinical assessment cannot be excluded, ancillary investigation is required for patients greater than 2 months of age. See indications for ancillary investigation on Page 2 and recommendation below.			
Date/time ancillary test performed:			
Ancillary Investigation Performed (circle):			
CT-Perfusion	Radionuclide Perfusion (specify):	Other (specify):	
CT-Angiography	Transcranial Doppler		
Absent intracerebral blood flow/perfusion		Yes	No
Time of Death The legal time of death is recorded as the time of completion of the last test required to fulfill death determination criteria (typically, the time the blood sample was taken when the $PaCO_2$ reached the apnea test targets, or the time ancillary investigation was performed).			
This patient fulfills the criteria for death determination by neurologic criteria		Yes	No
Date/time of death:			
Clinician (print):	Signature:		
Second Clinician, if needed (print):	Signature:		

For organ donation, two medical practitioners/physicians are required to determine death. Clinicians can perform the clinical assessment concurrently. If performed at different points in time, the second clinical assessment required for organ donation must be fully repeated.

We recommend that one complete clinical assessment is sufficient for patients one year of age or older who are undergoing DNC (Strong recommendation, moderate certainty in evidence).

We suggest two complete clinical assessments separated in time are sufficient for patients less than one year corrected gestational age who are undergoing DNC (Weak recommendation, very low certainty in evidence).

We suggest against performing an ancillary investigation in infants under 2 months corrected gestational age who require an ancillary investigation for DNC (Weak recommendation, very low certainty in evidence). If two complete clinical assessments are not possible, DNC cannot be determined. Alternative end of life care may be considered.