



BRAIN DEATH

Death by neurological criteria · a rigorous checklist

EXCLUDE
confounders

DEFINITION: irreversible loss of ALL brain / brainstem function from a known, irreversible cause. It is a clinical diagnosis - confounders must be excluded first.

PREREQUISITES

all must be met first

- **Known cause** - irreversible catastrophic brain injury of established aetiology
- **No drug effect** - exclude sedatives, opioids, paralytics (check levels / reversal / time)
- **Temperature** - core temperature $> 35-36^{\circ}\text{C}$
- **No confounders** - no severe electrolyte, acid-base, endocrine or metabolic derangement
- **Stable physiology** - adequate BP and oxygenation; no neuromuscular blockade (train-of-four)

CLINICAL EXAMINATION

- **Coma** - no response / motor to central pain (spinal reflexes may persist)
- **Pupils** - fixed, no response to light
- **Corneal + gag / cough** - absent
- **Oculovestibular** - no eye movement to ice-cold caloric; absent oculocephalic
- **Apnoea test** - no respiratory effort as PaCO_2 rises ≥ 20 mmHg (> 60) / per local code

PROCESS: two suitably senior, independent assessors per local code; ancillary test (EEG, cerebral blood-flow / angiography) if the clinical exam or apnoea test cannot be completed. Document the time of death; involve organ donation via a SEPARATE team.

KEY STEPS

APNOEA TEST

Pre-oxygenate, disconnect, watch for ANY respiratory effort; ABG showing PaCO_2 rise ≥ 20 mmHg (> 60). Abort if unstable / desaturating.

ANCILLARY TESTS

Use when the clinical exam or apnoea test cannot be completed: EEG, cerebral blood-flow study, 4-vessel / CT angiography or nuclear perfusion.

AFTER DIAGNOSIS

Time of death = completion of the second assessment. Continue support pending a SEPARATE donation team; support and update the family.

PEARLS & PITFALLS

- Exclude confounders BEFORE testing - drugs, hypothermia and metabolic derangement mimic brain death.
- The apnoea test must show no respiratory effort with a documented rise in PaCO_2 - do it carefully.
- Spinal reflexes (limb / trunk movements) can persist and do NOT exclude brain death.
- Follow your local code of practice exactly; approach organ donation through a separate, specialist team.

References: AAN Brain Death 2010/2023 · World Brain Death Project 2020 · AoMRC UK Code of Practice.

Educational aid; verify doses against local protocol and patient factors.

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