

CLINICALJUDGE™ · NGN NCLEX SERIES

DROWNING

INTERVENTION & PRIORITY MANAGEMENT

Symptomatic & asymptomatic care · Rescue sequencing · Population-specific protocols · Post-submersion monitoring

NCLEX PRIORITY INTERVENTION

RESPIRATORY EMERGENCY

NEUROLOGIC MONITORING

ALL AGE GROUPS

MATERNAL ADAPTATION

PREVENTION & EDUCATION

CLASSIFICATION

Emergency · Critical Care
Community Health · Pediatrics
Maternal-Newborn

LEGEND

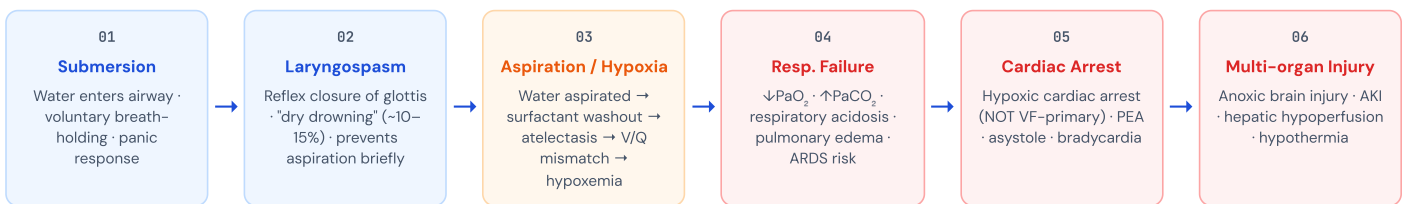
■ Critical / Life-Threatening ■ Pathophysiology ■ Safe / Expected ■ Complication ■ NCLEX Trap ■ Medication

■ Patient Education



PATHOPHYSIOLOGY FLOW

SECTION 03



FRESHWATER: HYPOTONIC → FLUID SHIFT INTO CIRCULATION → DILUTIONAL HYPONATREMIA, HEMOLYSIS

SALTWATER: HYPERTONIC → FLUID PULLED FROM CIRCULATION → HEMOCONCENTRATION, HYPERNATREMIA

ARDS ONSET: 12–72 HRS POST-SUBMERSION — MONITOR ALL ADMITTED PATIENTS



EXPECTED VS. CRITICAL SIGNS & SYMPTOMS

SECTION 04

✓ EXPECTED / ASYMPTOMATIC PRESENTATION

- **Coughing, sputtering** — airway clearance intact, protective reflex
- **Mild tachycardia** — stress response, resolves with reassurance
- **Alert & oriented** — GCS 15, follows commands
- **SpO₂ ≥ 95%** on room air within minutes of rescue
- **Mild dyspnea** resolving spontaneously within 10–15 min
- **Wet cough** without blood-tinged sputum
- **Mild hypothermia** (≥32°C/89.6°F) — shivering present, protective
- **Anxiety/distress** — appropriate emotional response post-event

⚠ **Still Requires:** Minimum 6–8 hr observation, SpO₂ monitoring, neuro checks even with apparent full recovery

✗ CRITICAL / SYMPTOMATIC PRESENTATION — ACT NOW

- **Apnea / absent respirations** — immediate rescue breathing
- **Pulselessness / cardiac arrest** — CPR priority is airway/rescue breaths
- **SpO₂ < 90%** or persistent desaturation after rescue
- **Altered LOC** — GCS <14, confusion, unresponsiveness
- **Severe bradycardia** — especially in infants and hypothermic patients
- **Frothy/pink sputum** — pulmonary edema, imminent resp. failure
- **Severe hypothermia** (<28°C/82.4°F) — VF risk, no CPR halt until rewarmed
- **Nasal flaring, retractions, grunting** — impending respiratory failure
- **Cyanosis** — central (lips/tongue) vs. peripheral

NCLEX Rule: Drowning = airway first. Unlike cardiac arrest from other causes, rescue breaths are delivered BEFORE compressions



POPULATION-SPECIFIC INTERVENTION ORDERS

SECTION 05

INFANT

0–12 months · Bathtub, bucket, toilet drowning

CHILD

1–12 years · Pool, pond, bath, buckets

ADULT

≥13 years · Ocean, lake, pool, alcohol-related

PREGNANT

Any trimester · Double patient: mother + fetus

- ▶ **Remove from water, do NOT hold upside down**
- ▶ Assess responsiveness: tap foot, shout
- ▶ Call for help / activate EMS
- ▶ **5 rescue breaths** (cover nose + mouth)
- ▶ If no pulse: 30 compressions (2 fingers on sternum, 1 finger below nipple line) : 2 breaths
- ▶ Compress 1.5 inches at ≥ 100 bpm
- ▶ No blind finger sweeps — only if object visible
- ▶ Keep warm — high hypothermia risk
- ▶ IV/IO access — consider 20 mL/kg NS bolus
- ▶ Monitor glucose — hypoglycemia common

△ **Key:** Infant CPR = 5 rescue breaths FIRST. Ratio 30:2 (1 rescuer), 15:2 (2 rescuers). ALWAYS suspect non-accidental trauma (NAT) in infant drowning.

- ▶ Remove from water, protect C-spine if trauma suspected
- ▶ Tap shoulders, shout; call EMS
- ▶ **5 rescue breaths** → check pulse (brachial/femoral <10 sec)
- ▶ No pulse: 30:2 CPR (1 rescuer); 15:2 (2 rescuers)
- ▶ Compress lower ½ of sternum, 2 inches
- ▶ Apply pediatric AED pads when available; use child pads if <25 kg
- ▶ Supplemental O₂ — target SpO₂ $\geq 94\%$
- ▶ IV/IO access — isotonic crystalloid
- ▶ Consider NG tube if abdominal distension (impairs ventilation)
- ▶ Monitor temp, glucose, electrolytes

△ **Key:** Pediatric drowning is the #1 cause of unintentional death age 1–4. Coughing after rescue ≠ safe — observe ≥ 8 hrs.

- ▶ Ensure scene safety; do NOT enter water without training
- ▶ Activate EMS immediately
- ▶ **5 rescue breaths** → check carotid (<10 sec)
- ▶ No pulse: 30:2 CPR; allow full chest recoil
- ▶ Compress 2–2.4 inches at 100–120 bpm
- ▶ Apply AED — do NOT delay defibrillation if shockable rhythm
- ▶ High-flow O₂ / BVM ventilation; intubate if airway unprotected
- ▶ 2 large-bore IVs, isotonic crystalloid
- ▶ C-spine precautions if diving/trauma history
- ▶ Screen: ETOH, drugs, trauma, medical cause of collapse

△ **Key:** Adults: alcohol involved in ~70% of teen/adult drowning. C-spine injury in <0.5% unless diving/trauma. Don't reflexively immobilize — may impair airway.

- ▶ **Maternal airway/resuscitation is priority #1**
- ▶ Tilt 15–30° left lateral (after 20 wks) to relieve aortocaval compression
- ▶ Rescue breaths × 5; carotid check <10 sec
- ▶ CPR: Hand placement slightly higher on sternum (2nd–3rd trimester)
- ▶ Compressions may feel less effective — continue standard technique
- ▶ Early airway management — aspiration risk ↑ (delayed gastric emptying)
- ▶ Fetal monitoring as soon as mother is stable (≥ 24 wks)
- ▶ OB/MFM consult immediately
- ▶ Perimortem C-section at 4–5 min of maternal arrest (>20 wks)
- ▶ IV fluid cautious — avoid pulmonary edema; monitor FHR continuously

△ **Key:** Fetal O₂ depends entirely on maternal oxygenation. Treat mother aggressively. Do NOT delay resuscitation for fetal assessment.

LABORATORY VALUES WITH NCLEX SIGNIFICANCE

SECTION 86

LAB / DIAGNOSTIC	NORMAL RANGE	EXPECTED IN DROWNING	CRITICAL VALUE ALERT	NCLEX SIGNIFICANCE
ABG – PaO ₂	80–100 mmHg	<80 (hypoxemia)	<60 = respiratory failure	CRITICAL First priority — drives all intervention
ABG – PaCO ₂	35–45 mmHg	↑ (hypoventilation)	>50 = hypercapnic failure	CRITICAL ↑CO ₂ = ventilation failure → intubate
ABG – pH	7.35–7.45	<7.35 (acidosis)	<7.20 = severe acidosis	CRITICAL Respiratory acidosis → metabolic acidosis with prolonged hypoxia
SpO ₂	$\geq 95\%$	<94% (treat)	<90% = critical hypoxemia	CRITICAL Continuous monitoring; guide O ₂ titration
Sodium (Na ⁺)	135–145 mEq/L	↓ freshwater / ↑ saltwater	<120 or >160 mEq/L	PRIORITY Freshwater: dilutional hyponatremia → seizure risk
Potassium (K ⁺)	3.5–5.0 mEq/L	↑ with acidosis/hemolysis	>6.5 = cardiac arrhythmia risk	PRIORITY Hyperkalemia → ECG changes; do NOT give K ⁺ supplement without checking level
Glucose	70–110 mg/dL	Hypoglycemia (infants/children)	<50 mg/dL pediatric	PRIORITY Children exhaust glycogen stores quickly under stress
Temperature	36.5–37.5°C	Hypothermia common	<28°C = severe; VF risk	CRITICAL Use rectal/core temp — peripheral misleads; rewarm before calling code
Hemoglobin / Hct	Hgb 12–17 g/dL	↓ freshwater (hemolysis); ↑ saltwater	Hgb <7 requires transfusion eval	MONITOR Freshwater hemolysis → hemoglobinuria → renal injury
BUN / Creatinine	BUN 7–25 / Cr 0.6–1.2	↑ with hypoperfusion / hemolysis	Cr rising >0.5 from baseline	MONITOR AKI from hypoxic injury and hemoglobinuria
Chest X-Ray	Clear lung fields	Pulmonary infiltrates, atelectasis	Bilateral "white-out" = ARDS	CRITICAL Normal CXR initially does NOT rule out pulmonary injury — repeat at 6 hrs
ECG	Normal sinus	Sinus tach, bradycardia, PEA	VF/VT, J-wave (hypothermia)	CRITICAL Osborn (J) waves = hypothermia marker; defibrillation may be ineffective <30°C

NUMBERED PRIORITY NURSING INTERVENTION LADDER

SECTION 87

1

AIRWAY — Open & Maintain

Head-tilt chin-lift (jaw-thrust if C-spine concern) · Clear visible obstruction · No blind sweeps · Drowning CPR starts with 5 RESCUE BREATHS

LIFE THREAT

5

OXYGENATION MONITORING

Continuous SpO₂ · ABG q1–2h · Target SpO₂ $\geq 94\%$ · Supplemental O₂ titrated · CPAP/BiPAP if SpO₂ 90–94% with effort

HIGH

VASCULAR ACCESS & FLUID MANAGEMENT

2 BREATHING — Rescue Ventilation
5 rescue breaths before compressions · BVM with high-flow O₂ · Intubation if no gag reflex / GCS <8 · Avoid hyperventilation **URGENT**

3 CIRCULATION — CPR & AED
30:2 (adults/1-rescuer child); 15:2 (2-rescuer peds) · AED — analyze/shock when rhythm shockable · Do NOT stop for hypothermia **URGENT**

4 EXPOSURE & TEMPERATURE
Remove wet clothing immediately · Warm blankets · Active rewarming: warm IV fluids, warm O₂, warm environment · Core temp monitoring **HIGH**

6 2 large-bore IVs or IO · Isotonic fluids (NS, LR) · Avoid excess volume (ARDS risk) · Monitor UO ≥1 mL/kg/hr (peds) / 0.5 mL/kg/hr (adults) **HIGH**

7 NEUROLOGIC MONITORING
GCS q1h · Pupillary response · Seizure precautions · Continuous neuro checks for 24 hrs · Brain cooling protocol if post-arrest **ONGOING**

8 PSYCHOSOCIAL & FAMILY SUPPORT
Trauma-informed communication · Social work referral · Child Protective Services if NAT suspected in infant/toddler · Debrief family **SUPPORT**

ORDERED INTERVENTION SEQUENCE — SYMPTOMATIC VS. ASYMPTOMATIC

SECTION 07B

ORDER	INTERVENTION	SYMPTOMATIC (SpO ₂ <94%, ALTERED LOC, ARREST)	ASYMPTOMATIC (SpO ₂ ≥95%, ALERT, COUGHING ONLY)	POPULATION NOTE
1	Scene Safety & Rescue	Activate EMS immediately; do NOT enter water without flotation aid	Remove from water; keep calm; call 911	All populations equally
2	Airway Opening	Head-tilt chin-lift; jaw-thrust if trauma; suction if needed	Position upright or lateral; allow spontaneous cough	Infant: cover nose + mouth for rescue breaths
3	Rescue Breathing	5 rescue breaths BEFORE compressions (all ages)	Encourage deep breaths; supplemental O ₂ if SpO ₂ borderline	Pregnant: tilt left 15–30° first
4	Pulse Check & CPR	Check <10 sec; if absent → 30:2 CPR; continue without pause	Monitor HR/rhythm; pads applied but do not shock	Child/infant: check brachial/femoral pulse
5	AED Application	Apply ASAP; wipe chest dry; analyze; shock if VF/pVT	Apply pads; monitor rhythm only — do NOT shock	Child <25 kg: pediatric pads/dose; infant: manual defib preferred
6	Supplemental O ₂	100% O ₂ via NRB mask / BVM; titrate to SpO ₂ ≥94%	Low-flow O ₂ 2–4 L/min NC if SpO ₂ 92–94%; room air if ≥95%	Pregnant: maintain SpO ₂ ≥95% for fetal oxygenation
7	Warming Measures	Active rewarming: warm IV fluids (38–40°C), warm humidified O ₂ , bear-hugger	Remove wet clothing; warm blankets; warm environment	Infants: warmer/isolette; neonatal team alert
8	Vascular Access	2 large-bore IVs or IO; NS/LR bolus 20 mL/kg (peds) or 500 mL (adult)	Saline lock; IV access for medication if needed	Pregnant: avoid supine hypotension; left tilt maintained
9	Labs & Diagnostics	ABG, CBC, CMP, glucose, lactate, coags, UA, CXR, ECG STAT	SpO ₂ monitoring; glucose check (peds); CXR at 6 hrs	Pregnant: add fetal monitoring & OB ultrasound
10	Monitoring & Observation	ICU admission; continuous cardiac, SpO ₂ , EtCO ₂ ; hourly GCS; UO	ED observation ≥6–8 hrs; SpO ₂ q1h; neuro checks q2h	ALL patients: do NOT discharge without 6-hr observation
11	Medications (prn)	Epinephrine (CPR); NaHCO ₃ (severe acidosis pH <7.1); Bronchodilators (bronchospasm)	Bronchodilator if wheeze; antipyretics if temp instability	Avoid steroids — not evidence-based; may worsen outcomes
12	Psychosocial / Documentation	Family notification; trauma-informed care; mandatory reporting if abuse suspected	Debrief patient/family; safety counseling; documentation	Infant: always screen for NAT; file CPS report if indicated

IF → THEN CLINICAL DECISION RULES

SECTION 08

IF Patient appears alert after rescue but then becomes confused or lethargic within 4–6 hours	THEN → Do NOT discharge — this is delayed pulmonary edema / "secondary drowning." Immediate CXR, ABG, ICU consult
IF Core temperature <30°C with cardiac arrest and no signs of life	THEN → Continue CPR and rewarming — "not dead until warm and dead." Do not terminate resuscitation until core temp ≥32–35°C achieved
IF Infant found submerged in bathtub with no witnesses and inconsistent caregiver story	THEN → Resuscitate and stabilize FIRST, then initiate mandatory non-accidental trauma (NAT) workup and CPS notification simultaneously
IF SpO ₂ 90–94% after supplemental O ₂ with increased work of breathing	THEN → Initiate non-invasive positive pressure ventilation (CPAP/BiPAP) before intubation; prepare for rapid sequence intubation (RSI) if no improvement in 30 min
IF	THEN

Pregnant patient >20 weeks gestation in cardiac arrest with no ROSC after 4 minutes of CPR	→ Prepare for perimortem cesarean delivery at 5 minutes — delivery improves maternal venous return and CPR efficacy; continue CPR during/after delivery
IF Child with saltwater submersion shows CNS changes: lethargy, seizures, oliguria	THEN → Check serum Na ⁺ stat — hypernatremia expected with saltwater. Correct SLOWLY (0.5 mEq/L/hr) with hypotonic fluids to prevent cerebral edema from rapid shifts
IF Drowning victim develops diffuse bilateral infiltrates on CXR with refractory hypoxia at 12–72 hrs	THEN → ARDS — initiate lung-protective ventilation: TV 6 mL/kg IBW, PEEP per ARDS table, FiO ₂ titrate, prone positioning if P/F <150
IF Patient rescued from icy water and is bradycardic but conscious with core temp 28–32°C	THEN → Handle gently — avoid triggering VF. Passive and active external rewarming only. Avoid atropine (ineffective in hypothermic bradycardia). Cardiac monitoring continuously

8-TRAP NCLEX PITFALL GRID

SECTION 09

1 Compressions Before Breaths

Standard CAB (compressions first) does NOT apply to drowning. Drowning arrest is hypoxic. The 2020 AHA guidelines specifically state: give 5 rescue breaths BEFORE beginning compressions in submersion victims.

✗ TRAP: "Start compressions immediately like all cardiac arrests"

2 "Looks Fine, Discharge Now"

A patient who is coughing but alert and SpO₂ 97% after rescue is NOT safe to discharge. Secondary drowning (delayed pulmonary edema) can occur 1–72 hours later. All submersion victims require minimum 6–8 hr ED observation.

✗ TRAP: "Patient is fine, discharge after 1-hour observation"

3 Hypothermia = Dead

Cold-water drowning victims with no signs of life should be fully resuscitated. Hypothermia is protective for the brain. The rule: "Not dead until warm and dead." Continue CPR until core temp ≥32–35°C before declaring death.

✗ TRAP: "Core temp 28°C, no pulse — call it"

4 Mandatory C-Spine Immobilization

C-spine injury in drowning is rare (<0.5%) and occurs almost exclusively with diving/trauma. Routine cervical immobilization delays airway management and ventilation, which is more dangerous. Immobilize only with diving mechanism or visible trauma.

✗ TRAP: "Always immobilize the neck in any drowning"

5 Heimlich Maneuver for Water Removal

The Heimlich maneuver is NOT recommended to remove aspirated water. It causes vomiting, aspiration of gastric contents, and delays CPR. The Heimlich is only for foreign body airway obstruction, not drowning.

✗ TRAP: "Perform Heimlich to clear water from airway before CPR"

6 Freshwater = Hyponatremia; Saltwater = Hypernatremia (Nuance)

While electrolyte changes are classic teaching, significant electrolyte shifts require massive aspiration (unusual). Clinical management is guided by symptoms and serum labs, not water type alone. Always check actual electrolytes before correcting.

✗ TRAP: "Saltwater drowning → always give hypotonic fluids empirically"

7 Steroids for Aspiration Pneumonitis

Corticosteroids are NOT indicated and may worsen outcomes in aspiration-associated lung injury. They increase infection risk. Current evidence does not support prophylactic antibiotics either unless culture-positive infection is confirmed.

✗ TRAP: "Give methylprednisolone to reduce lung inflammation post-drowning"

8 Normal Initial CXR = No Lung Injury

CXR may be completely clear immediately after submersion, even with significant aspiration. Pulmonary edema and ARDS changes can take 6–72 hours to appear. A normal initial CXR does NOT rule out the need for observation and repeat imaging.

✗ TRAP: "CXR clear — no pulmonary injury, safe to discharge"

NCLEX QUESTION PATTERNS GRID

SECTION 10

PRIORITY QUESTION TYPE

Stem: "Which action should the nurse perform FIRST?"

Answer pattern: Airway → Rescue breaths → Circulation. In drowning, this overrides standard CAB. Oxygenation is always the first priority when the mechanism is hypoxic.

SATA — INTERVENTIONS FOR SUBMERSION

Select all that are appropriate:

- ✓ 5 rescue breaths before compressions
- ✓ Remove wet clothing
- ✓ Place AED pads on dry chest
- ✓ Observe minimum 6 hrs even if alert
- ✗ Heimlich to clear water
- ✗ Steroids for lung injury

NEXT-GEN: ENHANCED HOT SPOT

Scenario: Vitals → SpO₂ 91%, GCS 13, temp 32°C, HR 50, BP 90/60

Click abnormal findings: SpO₂ (↓), GCS (altered), temp (hypothermia), HR (bradycardia), BP (hypotension) — ALL are priority findings in drowning

TRENDING (NGN MATRIX)

Serial data: hour 1 → SpO₂ 97%, hour 4 → SpO₂ 91%, hour 6 → respiratory distress

Pattern recognition: Deteriorating after initial stability = secondary drowning. Action = immediate provider notification, CXR, ICU consult

MEDICATION KNOWLEDGE

Q: Which medication is the nurse correct to anticipate in cardiac arrest following drowning?

A: Epinephrine 1 mg IV/IO q3–5 min
NOT: Atropine (ineffective in hypothermic arrest), NOT vasopressin (removed from guidelines)

SAFETY / ETHICAL (INFANT)

Q: Infant found in bathtub. Caregiver stories conflict. What is the nurse's priority AFTER stabilization?

A: Mandatory CPS report — nurses are mandated reporters; report suspected abuse regardless of proof; documentation and social work referral

NGN BOW-TIE CLINICAL JUDGMENT SUMMARY

SECTION 11

CONDITIONS (RECOGNIZE CUES)

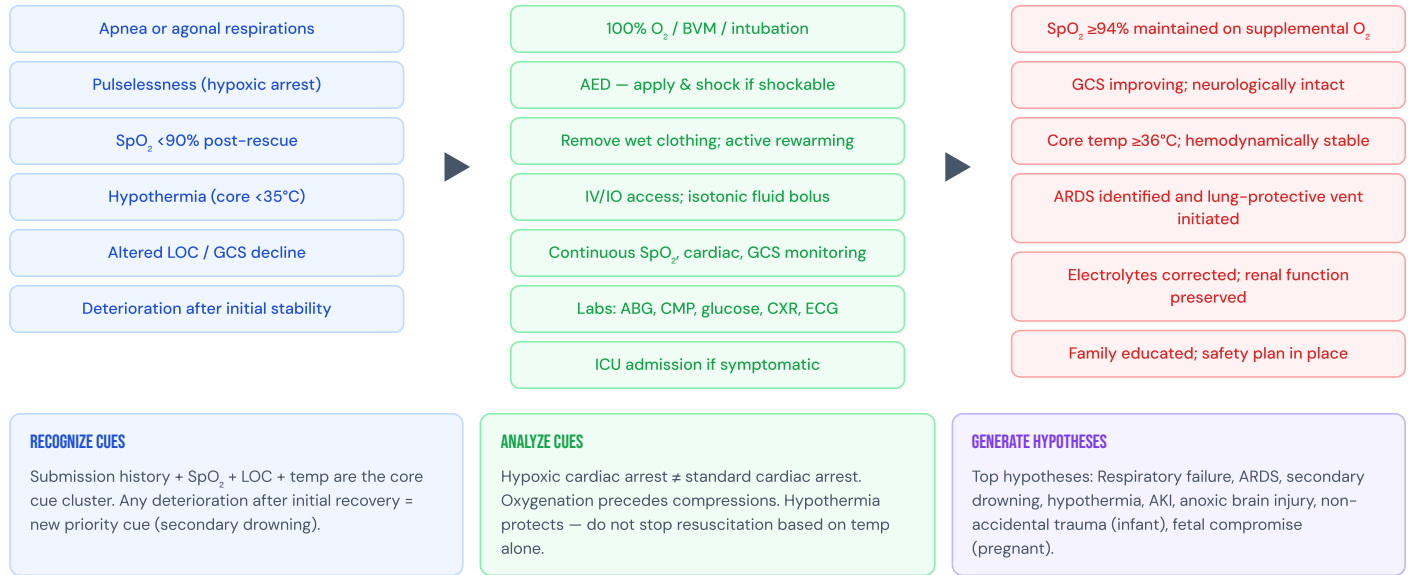
Submersion / near-drowning event

ACTIONS (TAKE ACTION / EVALUATE)

5 rescue breaths → CPR 30:2

OUTCOMES (PRIORITIZE HYPOTHESES)

ROSC achieved; hemodynamically stable



PATIENT & FAMILY EDUCATION CHECKLIST

SECTION 12

WATER SAFETY & PREVENTION

- ☒ Never leave children unattended near water — bathtubs, buckets, pools, natural water included
- ☒ Install 4-sided fencing (≥4 ft) with self-closing, self-latching gates around all home pools
- ☒ Always supervise with "touch supervision" for infants — within arm's reach, no phones/distractions
- ☒ Wear properly fitted life jackets in open water; swim near lifeguards
- ☒ Never swim alone or under the influence of alcohol or drugs
- ☒ Learn CPR — all parents, caregivers, and pool owners should be certified
- ☒ No diving in shallow or unknown depth water
- ☒ Empty buckets, baby pools, and inflatable pools immediately after use

AFTER A DROWNING EVENT — WHAT TO WATCH

- ☒ "Secondary drowning" — even a person who appears fine must be monitored for 6–24 hrs; return to ED if symptoms develop
- ☒ Watch for: increased coughing, difficulty breathing, chest pain, confusion, extreme fatigue, behavior change
- ☒ Return immediately to the ED for: any respiratory distress, SpO₂ concern, decreased consciousness
- ☒ Follow up with pediatrician or primary care within 24 hrs of discharge, even if seemingly asymptomatic
- ☒ Emotional trauma is normal after a drowning event — counseling may be needed for child and caregivers
- ☒ Pregnant patients: fetal monitoring is essential for 24–72 hrs post-event even with apparent maternal recovery
- ☒ Review and update home water safety plan with all family members
- ☒ Do NOT use alcohol or sedatives in recovery period — mask neurologic deterioration

MEDICATION REFERENCE — DROWNING RESUSCITATION

SECTION 12B

EPINEPHRINE (1:10,000)

Vasopressor / Cardiac Stimulant

Indication: Pulseless arrest (PEA, asystole, VF/pVT)

Adult: 1 mg IV/IO q3–5 min

Pediatric: 0.01 mg/kg IV/IO (max 1 mg) q3–5 min

NCLEX: Give after 2nd shock in VF; first drug in non-shockable

ALBUTEROL (SALBUTAMOL)

Bronchodilator / β_2 Agonist

Indication: Bronchospasm post-aspiration

Dose: 2.5 mg nebulized q20 min × 3; then q4h

Peds: 0.15 mg/kg (min 2.5 mg) nebulized

NCLEX: First-line for wheezing/bronchospasm in aspiration

SODIUM BICARBONATE

Buffer / Alkalinizing Agent

Indication: Severe metabolic acidosis (pH <7.1, prolonged arrest)

Dose: 1 mEq/kg IV/IO; repeat with ABG guidance

NCLEX: NOT routine in cardiac arrest; only with confirmed severe acidosis or hyperkalemia

AVOID: STEROIDS

NOT Indicated

Corticosteroids (methylprednisolone, dexamethasone) are **NOT evidence-based** for aspiration-related lung injury in drowning. They increase infection risk and are not recommended by current guidelines.

WARM IV FLUIDS (38–42°C)

Rewarming / Volume Resuscitation

Fluid: NS or LR (isotonic)

Adult: 500 mL bolus; reassess

Pediatric: 20 mL/kg bolus; max 60 mL/kg in first hour

NCLEX: Warm fluids serve dual purpose — volume AND rewarming

DEXTROSE (D10W/D25W)

For Hypoglycemia (Peds Priority)

Indication: Glucose <60 (adult) / <50 (peds) mg/dL

Neonate: D10W 2 mL/kg IV

Child: D25W 2–4 mL/kg IV

Adult: D50W 25–50 mL IV

NCLEX: Check glucose in all pediatric drowning patients

CLINICALJUDGE™

NGN NCLEX Study Series · Drowning & Submersion Injury

For educational purposes only · Not a substitute for clinical judgment or institutional protocols

AHA Guidelines for CPR & ECC 2020–2025

WHO Drowning Prevention Guidelines

PALS / ACLS Provider Manuals

UpToDate: Drowning (Submersion Injuries)

Chrome/Edge → Print → Save as PDF

Scale: 65–70% · Background graphics: ON

Margins: Minimum · Portrait orientation