



Update on Paediatric Emergency Care

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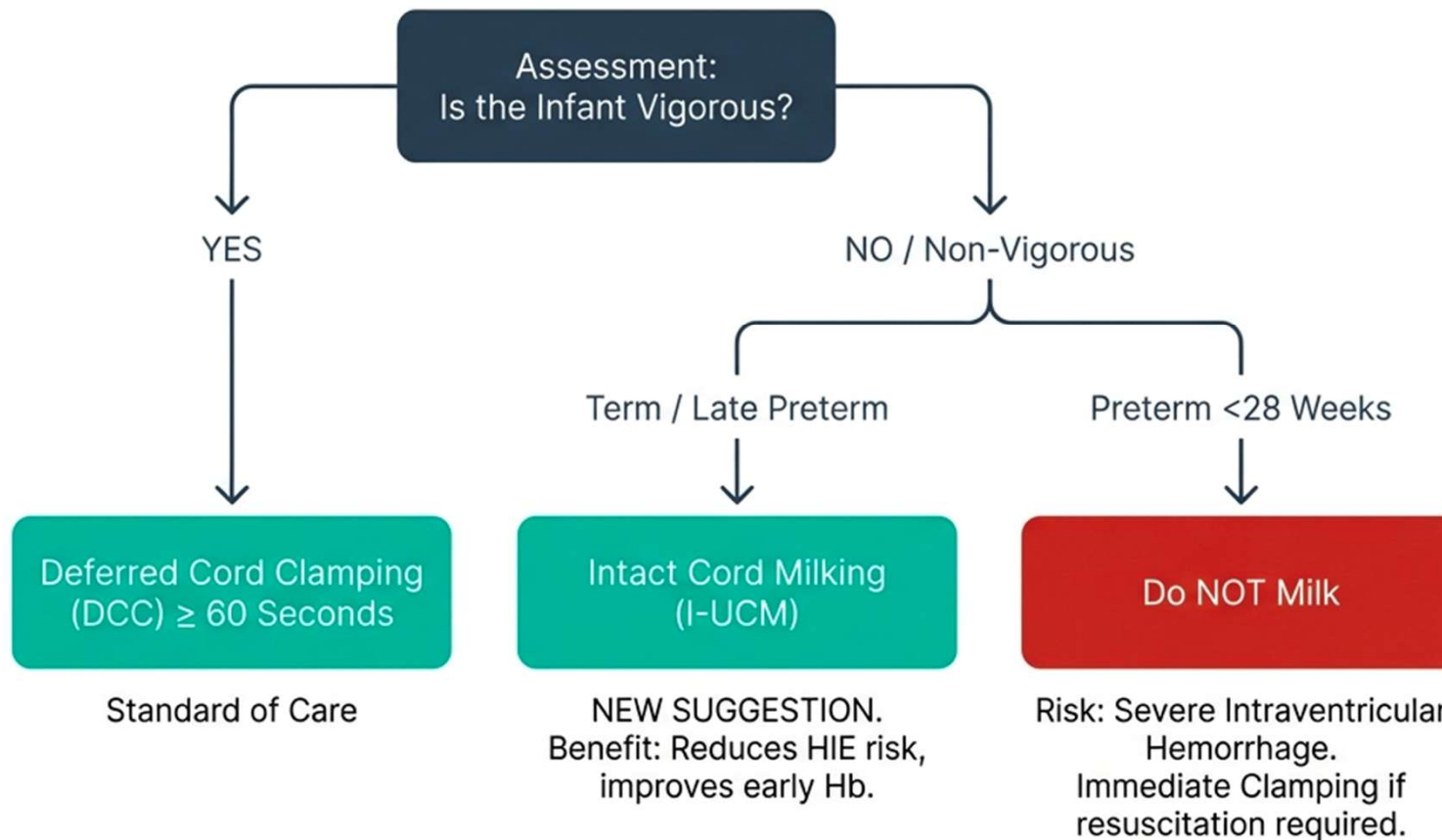
University of the Witwatersrand
Rahima Moosa Mother and Child
Hospital



ILCOR 2025: Evolution of Paediatric & Neonatal Life Support

A Comparative Review of Key Recommendation Changes (2015–2025)

Neonatal Cord Management: From 'Clamping' to 'Transition'



The Shift:

Moving away from immediate clamping in non-vigorous term infants to facilitate physiological transition.

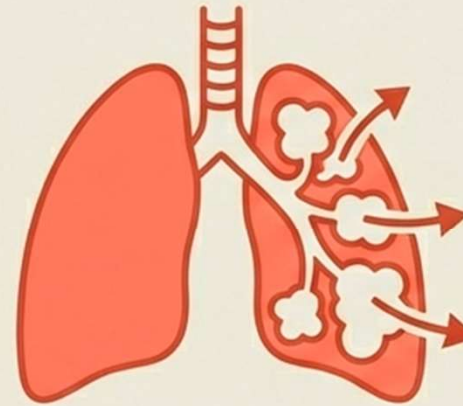


Airway Clearance

Meconium-Stained Fluid (Non-Vigorous)



Old Rec:
Immediate
intubation &
suction.

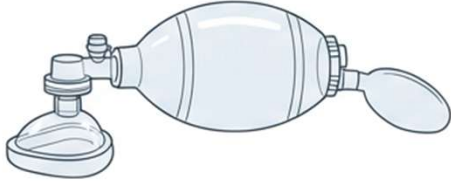


2025 Update:
Prioritize
Ventilation.

**Suggest AGAINST routine immediate direct laryngoscopy.
Start ventilation first.**

Reference: NLS 5130. Intubation rarely required to relieve obstruction.

Ventilation Strategy: Devices & Interfaces

Self-Inflating Bag 	Status: Backup Device. Use if T-piece is unavailable or gas supply fails.
T-Piece Resuscitator 	Status: Preferred Device. Use where resources permit for Positive-Pressure Ventilation (PPV).

New Suggestion: If face mask ventilation fails, a Supraglottic Airway Device (SAD) is a suggested alternative to intubation.

Intubation Technique

Visualizing the Airway



2025 Update: Suggest Video Laryngoscopy over direct laryngoscopy.

- Improves first-pass success.
- Enhances team communication.
- Standard where resources/training allow.

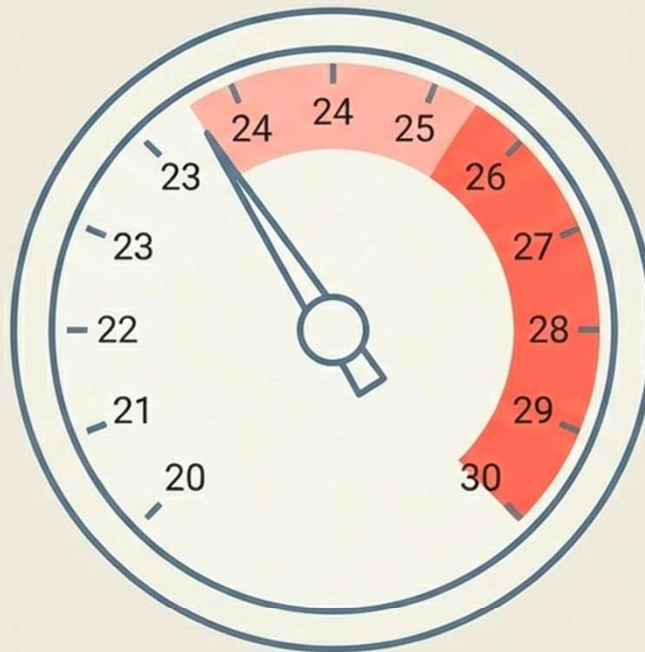
Reference: NLS 5351. Conditional recommendation, moderate-certainty evidence.



Thermal Management

Delivery Room Temperature

Old Rec: 23-25°C
(Ambiguous, often
preterm only)



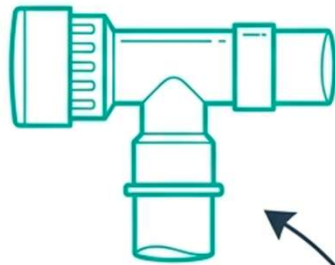
2025 Update:
Suggest room
temperature of **23°C+**
for ALL infants
(term and preterm).

Reference: NLS 5100 & 5101. Focus is preventing hypothermia on admission.

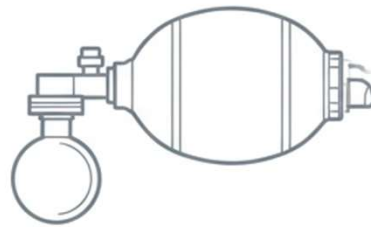
Ventilation & Oxygenation: Precision Over Habit

The Interface

T-Piece Resuscitator



Self-Inflating Bag



T-Piece Resuscitator

Self-Inflating Bag

Recommendation: T-Piece Resuscitator preferred.
Why? Superior control of PIP and PEEP.

The Oxygen Target (Initial FiO₂)

< 32 Weeks



Start at 30%
(Low Certainty)

Term / Late Preterm



Start at 21%
(Room Air)

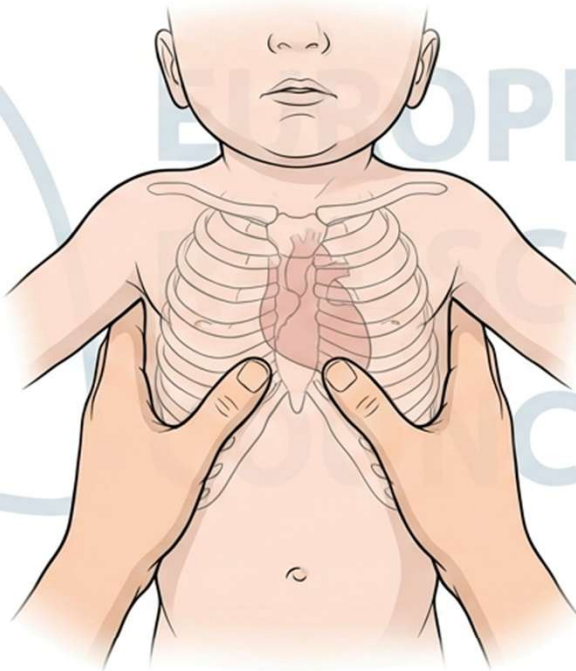
Strong recommendation against 100% is withdrawn,
but 21% remains starting point.

STOP Routine Suctioning

Do not suction clear fluid. Do not suction meconium in non-vigorous infants unless airway is obstructed.

Circulatory Support: Compression Technique

Previous: 2-finger technique was an acceptable alternative.

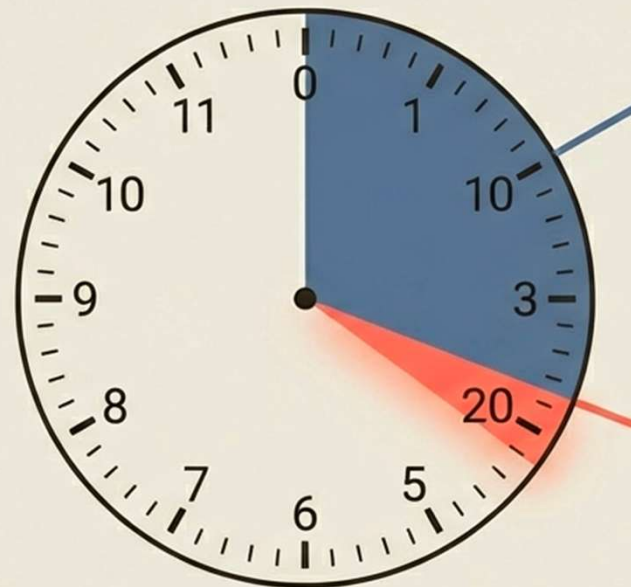


2025 Update: The 2-thumb, hands-encircling-the-chest method is the **PREFERRED** option.

- **Benefit:** Improved compression depth.
- **Benefit:** Reduced rescuer fatigue.

Prognostication

Discontinuation of Resuscitation



Old Rec: Consider discontinuation after 10 mins.

2025 Update:
Reasonable timeframe to consider discontinuation is around 20 minutes after birth.

Context: Discussion with clinical team and family required.

Neonatal Post-Resuscitation Care



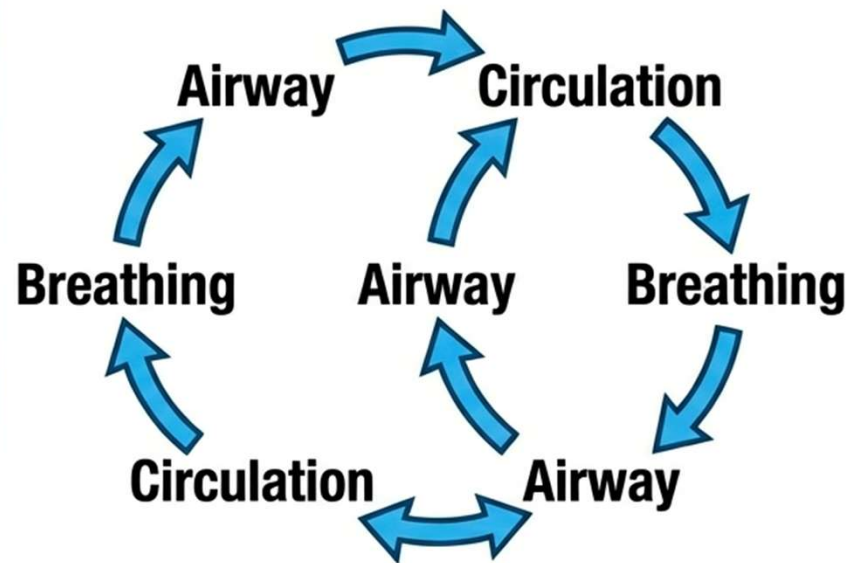
New Emphasis: Measure blood glucose early post-resuscitation to avoid hypoglycemia.



Low-Resource Settings: Therapeutic hypothermia for HIE is suggested ONLY where comprehensive supportive care (ventilation, radiology, labs) is available.

Previous focus was primarily on cooling regardless of setting resource density.

The Sequence: ABC vs. CAB & Pulse Checks



Flexibility: Both ABC and CAB approaches are acceptable.



CRITICAL UPDATE:
Palpation of a pulse is
UNRELIABLE as the sole
determinant of cardiac arrest.

Start CPR if the child is unresponsive and not breathing normally. Do not wait for a pulse check.

Bradycardia with Hemodynamic Compromise



Treatment Recommendation

Start CPR for HR <60 bpm with poor perfusion.

2025 Good Practice Statement

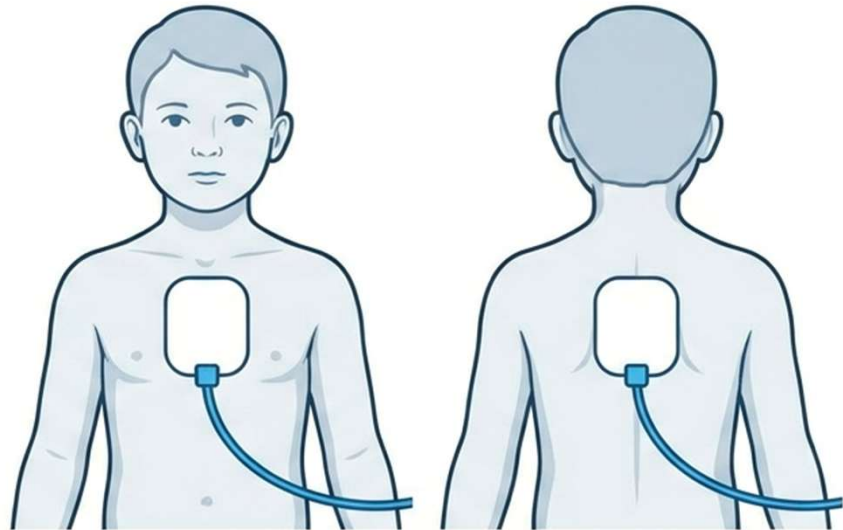
In infants and children with bradycardia (HR <60 bpm) and hemodynamic compromise: **Start CPR.**

Note: Previous recommendation withdrawn and replaced with Good Practice Statement due to lack of direct comparator evidence, reinforcing this as a standard of care.

Defibrillation Strategy & Pad Placement

Previous: Stacked shocks were historically used.

2025 Update: Single-shock strategy followed by → IMMEDIATE CPR.



For infants/young children using adult pads/AED:
Place Anterior-Posterior to avoid pad overlap.

Intra-Arrest Management: The Single Shock Strategy



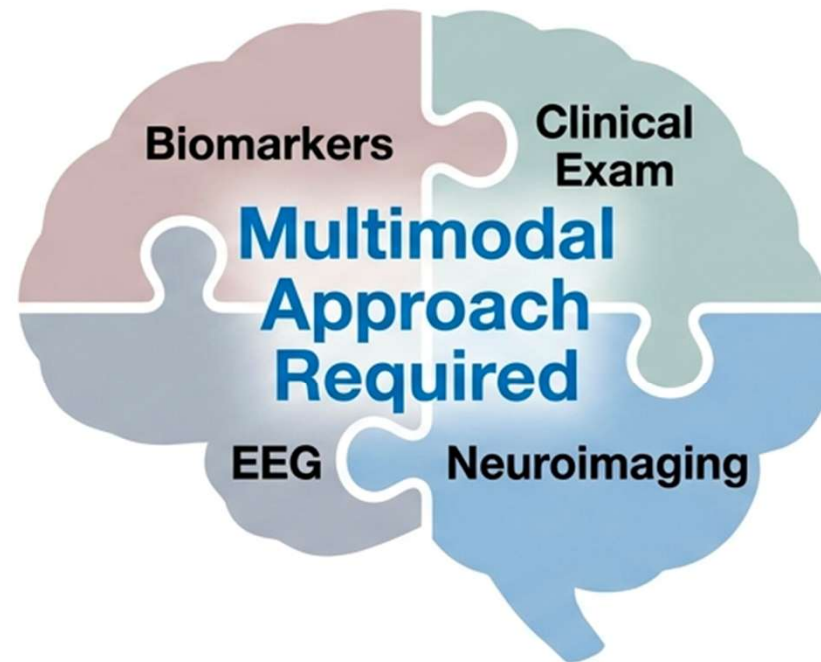
Old Practice: Stacked Shocks
(Shock-Shock-Shock)

New Standard: Single Shock strategy followed by immediate CPR.

Algorithm Flexibility

ABC and CAB sequences are both acceptable.

Post-Arrest Prognostication



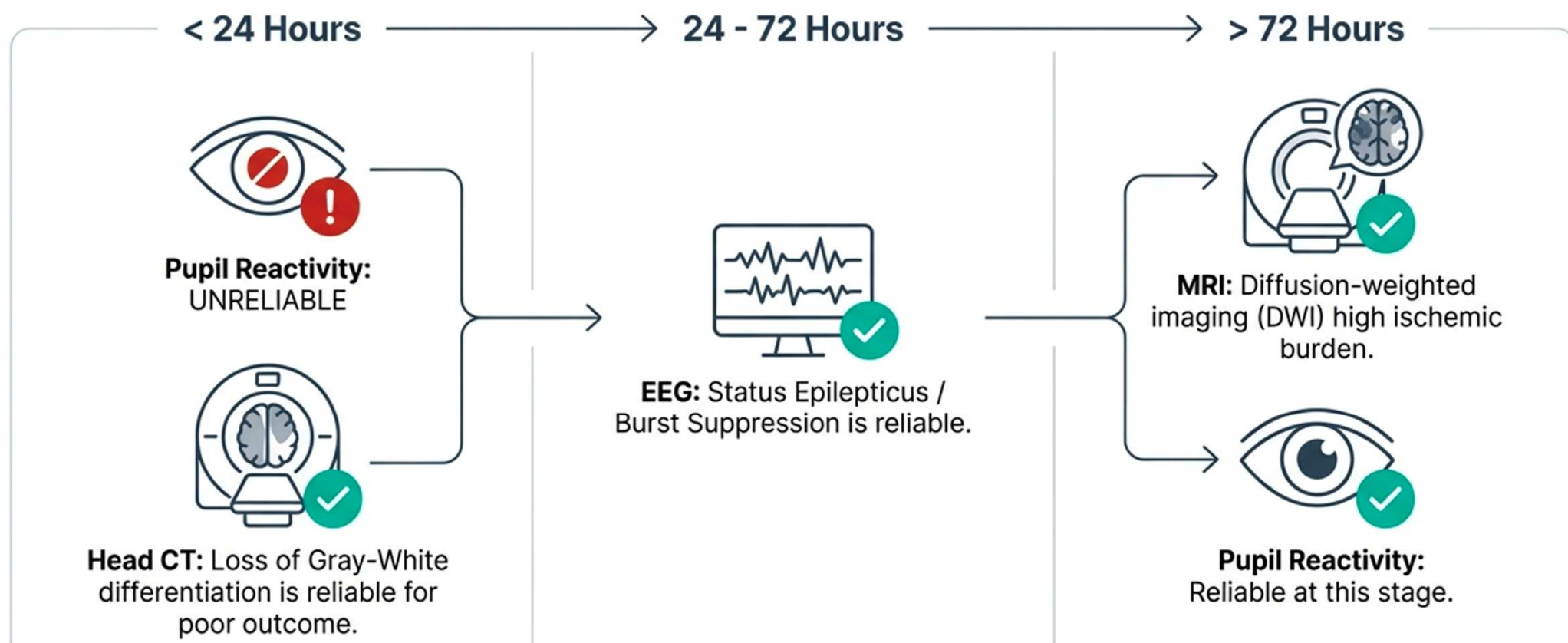
No single test should be used in isolation to predict poor outcome.

Previous: Reliance on single factors or isolated exam findings.



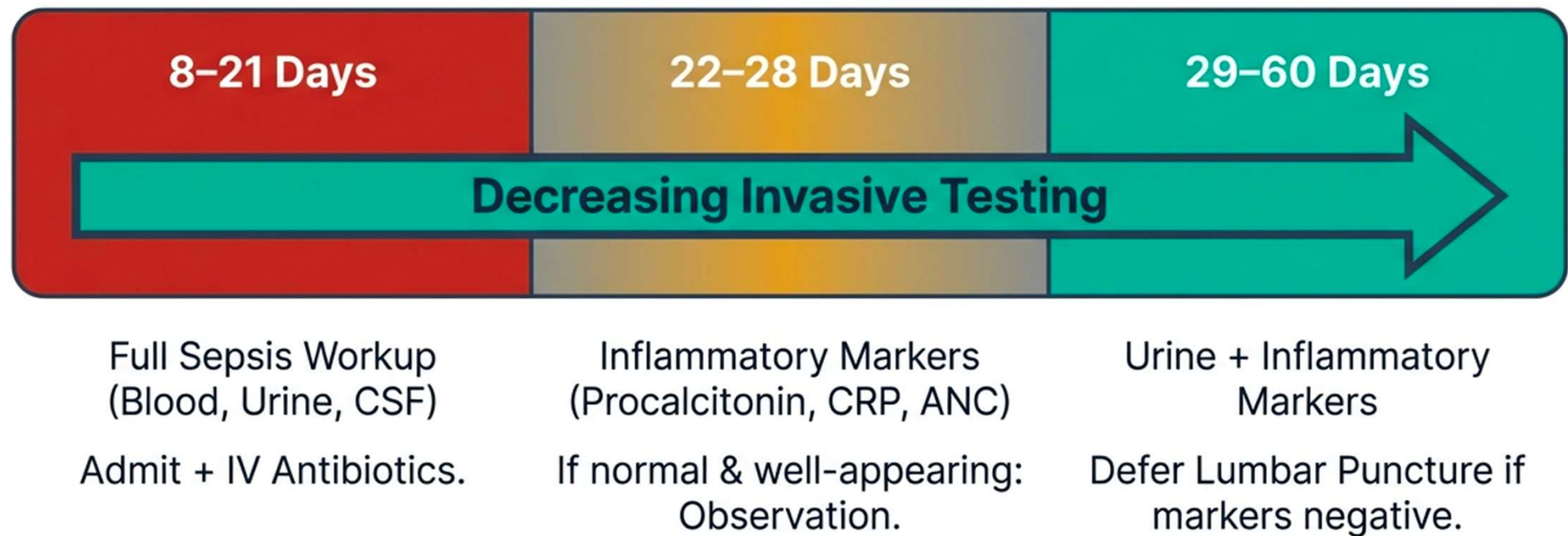
Post-Arrest Neuro-Prognostication: A Multimodal Approach

Principle: No Single Test Should Be Used in Isolation.



The Febrile Infant (8–60 Days): Risk Stratification

Source: AAP Clinical Practice Guideline (2021)



New Age-Based Risk Stratification



Change: Moved from binary grouping (<28 vs >28 days) to **granular stratification**.

Lumbar Puncture (LP) in the 29-60 Day Group

Previous: Routine LP

Historically routine for most febrile infants <60 days.



2025 Update (AAP): Sequential Testing

For well-appearing infants 29–60 days with reassuring inflammatory markers (Procalcitonin, CRP, ANC):
CSF studies may not be needed.

9. Grief MM, Yamamoto LG. Pediatr Emer Care. 2023.

Pediatric Asthma: The 'SMART' Revolution

Source: GINA 2023/24 & NHLBI EPR-4

Old Standard

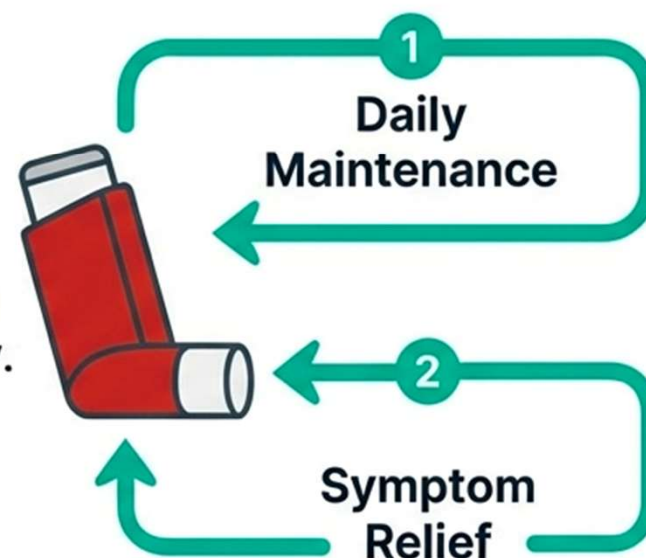


SABA (Albuterol)
Monotherapy.

New Standard: SMART

Single Maintenance
and Reliever Therapy.

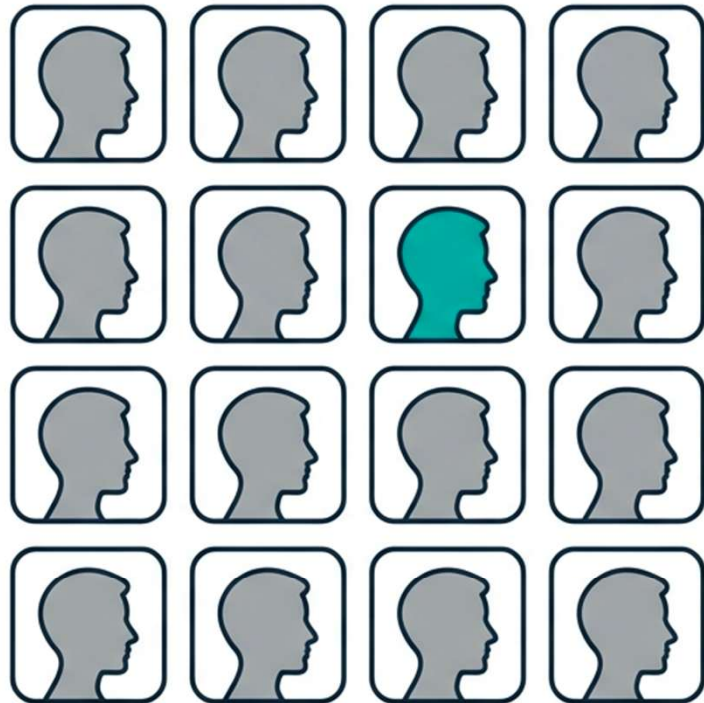
ICS -Formoterol.



Significantly reduces severe exacerbations.
For ages 5+ (Mod/Severe) and 12+ (Mild/Mod).

Adolescent Suicide Prevention: Universal Screening

Source: AAP Blueprint & USPSTF (2022)



Shift from Symptom-Based to Universal Screening

- **WHO:** All adolescents 12+.
- **WHEN:** Every clinical encounter (ED, Primary Care, Specialty).
- **HOW:** Validated Tools (ASQ or C-SSRS).
- **GOAL:** Identify Major Depressive Disorder (MDD) early.

Suicide Risk Screening Protocol

Vital Signs

BP: 110/70

HR: 82

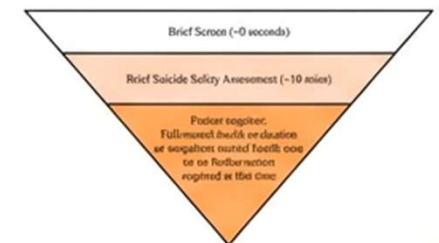
Temp: 98.6°F



Suicide Screen:
Negative (Checked)

Old: Screen only if symptomatic.

New: Universal screening for all youth ages 12+. (Ages 8-11 if clinically indicated).



The “Planting the Idea” Myth



Myth: Asking induces suicide.



Fact: Screening reduces distress.

**No iatrogenic Effect
found in 13 studies.**

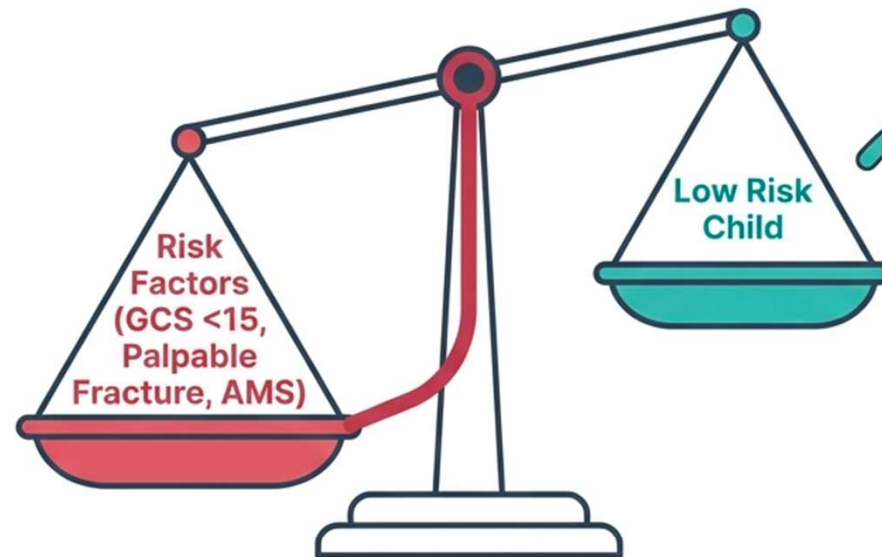
DeCou CR, et al. Iatrogenic Risk of Assessing Suicidality: A Meta-Analysis. 2024; Gould MS, et al. JAMA. 2005.



NotebookLM

Head Trauma & Imaging: Radiation Stewardship

Source: PECARN & NICE (2023)



**OBSERVE.
DO NOT SCAN.**

Rationale

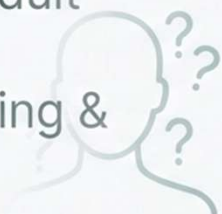
Rationale: Avoid CT radiation in low-risk patients.

The C-Spine Decision Rule

Old Recommendation

Rely on clinical gestalt or extrapolate adult rules (NEXUS).

Risk: Over-imaging & low specificity.



New Recommendation

PECARN Rule

99.8%
Negative
Predictive Value

Adult Rules

80% Specificity

Validated specifically for children to safely rule out CSI.

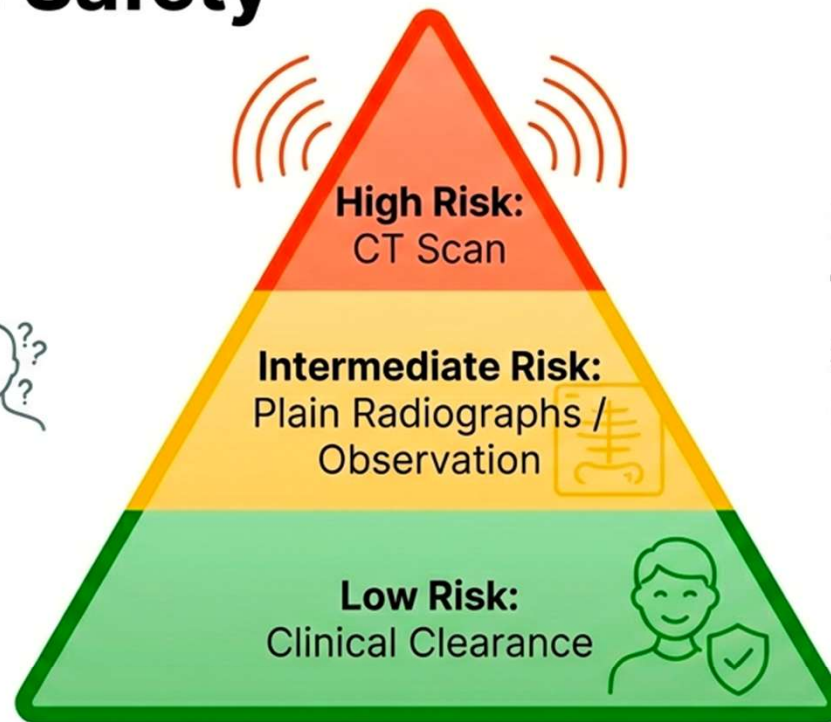


Leonard JR, et al. A Cervical Spine Injury Prediction Rule for Children After Blunt Trauma. Lancet Child Adolesc Health. 2024.

Imaging Modalities & Radiation Safety

Old Approach

Liberal CT use to
“ensure safety”.



New Approach

**Tiered Imaging to
spare thyroid
radiation (ALARA).**



Criteria for High-Risk Imaging (CT)

CT is indicated only if one of these 4 factors is present.



GCS < 14



Altered Mental Status



Focal Neurologic Deficit



Substantial Torso Injury

Clinical Clearance



0.2%

Risk of injury in absence
of risk factors.

New Recommendation: Clinically clear without ANY imaging.
No high or intermediate risk factors = No imaging.



APLS vs PALS: Which is More Useful for SA Private Paediatricians?



South African Private Practice Reality

- ✓ Stabilise before transfer
- ✓ Rarely lead full arrests
- ✓ Need structured early recognition
- ✓ Often no immediate ICU backup



APLS Strengths

- ✓ ABCDE assessment
- ✓ Early recognition focus
- ✓ Medical & trauma care
- ✓ Preventing arrest

Best for **General Paediatricians**



PALS Strengths

- ✓ Cardiac arrest algorithms
- ✓ Rhythm & drugs
- ✓ Resus team leadership
- ✓ AHA protocols

Best for **ED & ICU Settings**



— **Key Take-Home Message:** —

APLS stops a child from arresting.

PALS manages the child in arrest.

APLS vs PALS: Differences in Content & Approach



APLS

Advanced Paediatric Life Support



Developed By:
Advanced Life Support Group (ALSG)

Approach

Problem-solving, diagnosis-focused

Clinical Scope

- Broad acute paediatrics
- Medical + **trauma** + stabilisation



Assessment Model Trauma Content

Structured 'ABCDE' assessment

Integrated **trauma** management included



Teaching

Clinical reasoning + case discussions

Certification Length

Typically **4 years** certification



PALS

Paediatric Advanced Life Support



Developed By:
American Heart Association (AHA)

Algorithm-focused, cardiac arrest-centric



- Focused on **cardiac arrest**
- Peri-arrest & **code** management



Rhythm recognition + resus algorithms



Minimal trauma content covered (separate ATLS)



Simulation & algorithm rehearsal



2 years certification (AHA standard)

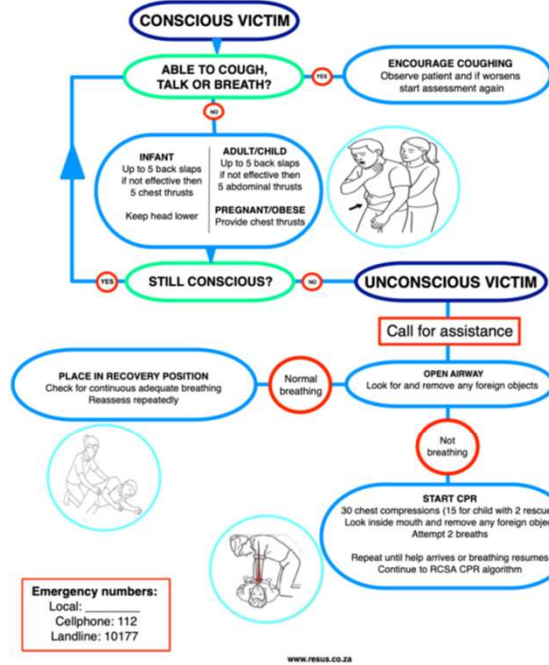


APLS prevents the child from **arresting**.

PALS manages the child already in arrest.

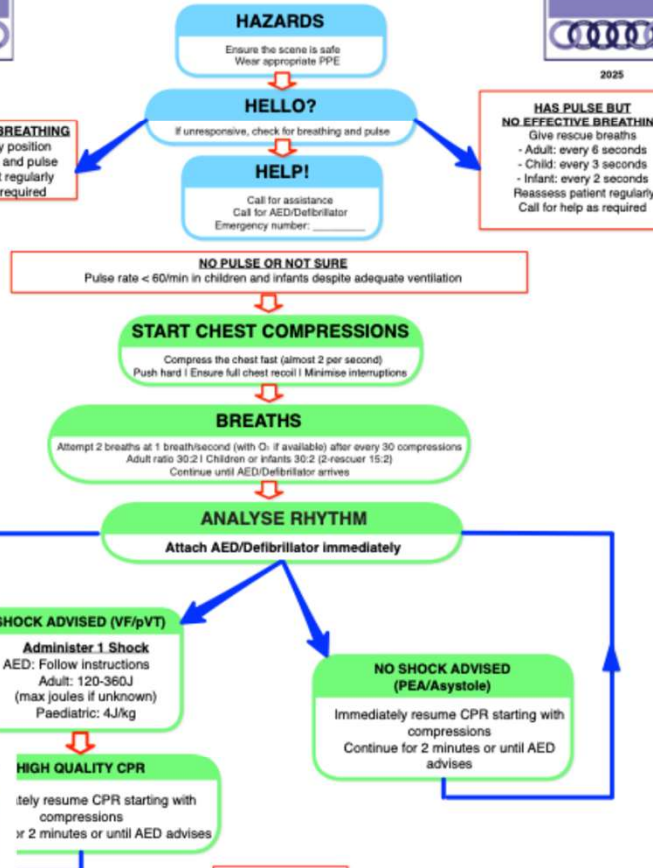


Choking Algorithm



Basic Life Support Adults and Children

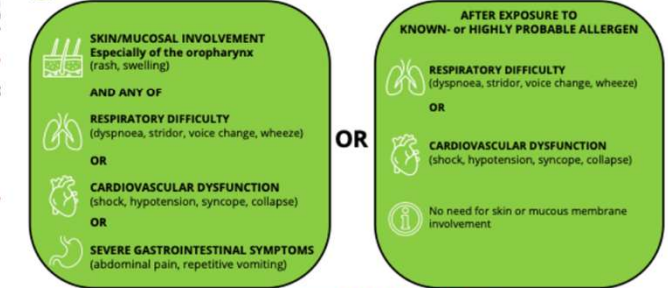
HAS PULSE AND BREATHING
Place in recovery position
Monitor breathing and pulse
Reassess patient regularly
Call for help as required



EMERGENCY MANAGEMENT OF ADULT & CHILD ANAPHYLAXIS 2025



1 RECOGNIZE THE SUDDEN ONSET OF EITHER



2 IMMEDIATE TREATMENT

Remove Exposure
Call for Help

ADRENALINE

Intramuscular - Anterolateral aspect of thigh
Administer every 5-10 minutes, until improvement

1mg/ml (1:1000) - 0.01mg/kg
Adult - 0.5 ml IM
Child - 0.3 ml IM
Infant - 0.15 ml IM

OR use an auto-injector
25kg - 0.3mg IM
<25kg - 0.15mg IM

3 ASSESS VITAL SIGNS OXYGEN - MONITORS - IV ACCESS

High flow oxygen, maintain patent airway, intubate early, prepare for difficult airway
Position patient: seated if breathing difficulty or supine with legs elevated if hypotensive or left lateral if pregnant

4 Additional Treatment

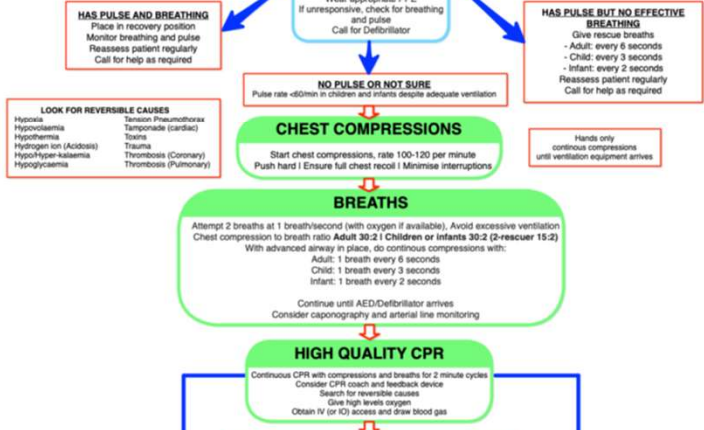


Risk Reduction Strategies
Only discharge patient if clinically stable 4-6 hours after resuscitation (may need longer if at risk of biphasic reaction)
Provide a written anaphylaxis emergency action plan, including how to administer IM adrenaline
Refer to specialist for investigation and management
Provide patient education (www.allergyfoundation.co.za) and medical bracelet

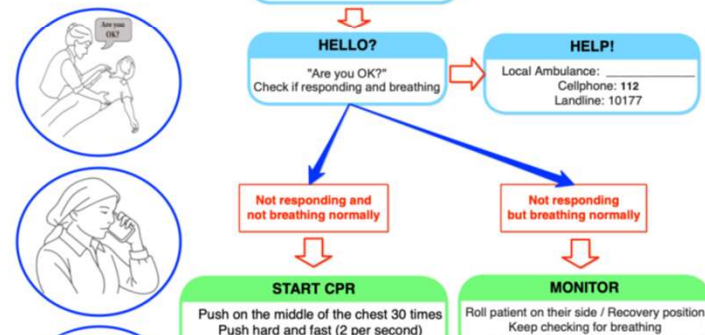
Why are Steroids and Antihistamines considered adjunctive treatment?
H1-antihistamines, like Promethazine may relieve itching and urticaria but do not prevent or relieve life-threatening symptoms of anaphylaxis. Antihistamines should not be used alone, or instead of adrenaline, for anaphylaxis. Steroids do not act quickly and their potential to prevent biphasic reactions is theoretical, with no proven evidence.



Advanced Cardiac Arrest Adult and Paediatric



CPR for Everyone



References & Guidelines

Resuscitation Consensus (ILCOR 2025)

- Neonatal Life Support: 2025
International Liaison Committee on Resuscitation Consensus on Science with Treatment Recommendations.
- Pediatric Life Support: 2025
International Liaison Committee on Resuscitation Consensus on Science with Treatment Recommendations.

External Clinical Guidelines

- Febrile Infant: AAP Clinical Practice Guideline (2021).
- Asthma: Global Initiative for Asthma (GINA) 2023/24 & NHLBI EPR-4.
- Mental Health: AAP/AFSP Blueprint for Youth Suicide Prevention & USPSTF (2022).
- Trauma: PECARN & NICE Guidelines (2023).