

Day 3 — Paediatric Emergencies

Case simulation cards — facilitator pack (4 scenarios)

How to run these simulations

- Each scenario runs 10–12 minutes plus a 10-minute debrief. Use an infant or child manikin; a parent (staff actor) is present in every case — managing the family is part of the scenario.
- All drug doses must be calculated aloud from estimated weight and cross-checked against the printed paediatric dose chart before 'giving'.
- Prepare weight cards: facilitator states age; the team estimates weight using $(\text{age} + 4) \times 2$ or a length tape.
- Reveal vital signs only when actually assessed. Use the Paediatric Assessment Triangle findings as your first data release.
- One observer completes the Day 3 Audit Tool; a second observer can time drug intervals.
- Stop and correct any unsafe action (wrong dose $\times 10$, abdominal thrusts in an infant), then resume.

Standard debrief structure (after every case)

- **Reactions** — one word from each participant on how it felt.
- **Description** — what was the case? Confirm the clinical facts.
- **Analysis** — what went well, what would we do differently? Use the audit checklist findings.
- **Summary** — each participant states one thing they will do differently in a real emergency.

Case 1: Bronchiolitis Sliding into Respiratory Failure

PAT • respiratory distress vs failure • when NOT to give bronchodilators • escalation

Scenario brief — read aloud to the team

A mother brings her 7-month-old boy (approx. 8 kg) with three days of runny nose and cough, now feeding poorly — less than half his usual bottles today, only two wet nappies. He looks tired in her arms. It is winter and bronchiolitis is circulating.

Setting, roles & equipment

Location	Consultation room → treatment room.
Participants	Nurse, doctor, second nurse; mother played by staff actor (anxious, asking questions).
Equipment	Infant manikin, paediatric SpO2 probe, oxygen with paediatric mask/nasal cannula, suction, BVM (infant size 450–500 mL), monitor.
Facilitator controls	If oxygen + gentle suction started and escalation activated → child stabilises on oxygen. If team dithers or gives repeated ineffective nebulisers instead of escalating → progress to failure stage.

Initial patient status

Stage	RR	SpO2	HR	Temp	PAT / other
Arrival	64, subcostal + intercostal retractions	89% air	172	37.8	Tired but consolable; nasal flaring; scattered crackles + wheeze
Failure stage (if delayed)	38 and falling, gasping pattern	84% on low-flow O2	88 and falling	37.8	Floppy, poor gaze, grunting — pre-arrest
Stabilised	56, moderate retractions	93% on O2	158	37.8	More alert, tolerating nasal cannula

Facilitator progression — how the case unfolds

Stage / trigger	Patient state	Expected team response
0–2 min	PAT: increased work of breathing, tired appearance	PAT verbalised from doorway; child kept on mother's lap; SpO2 and full vitals by age bands
2–5 min	SpO2 89%, RR 64, retractions	Oxygen started promptly; gentle nasal suction; recognised as bronchiolitis — routine bronchodilators NOT indicated
5–8 min	Partial response to oxygen	Feeding/hydration status assessed; weight estimated; doctor states severity and transfer decision — this infant needs hospital
8–10 min	Stable on oxygen OR failure stage per team performance	If failure: BVM-assisted ventilation with oxygen, help called, peri-arrest transfer activated
Wrap-up	Stabilised for transfer	Monitoring continued, mother informed and kept close, SBAR call made with age, weight, vitals, oxygen requirement

Expected critical actions — observer ticks each

- Paediatric Assessment Triangle verbalised before hands-on examination
- Vitals interpreted against AGE-BASED normal ranges (RR 64 and HR 172 recognised as abnormal for 7 months)
- Oxygen started within 5 minutes for SpO2 < 92%
- Bronchiolitis recognised; ineffective repeated salbutamol avoided or critically reviewed
- Feeding and nappy history used as severity markers
- Falling RR / falling HR / grunting recognised as FAILURE, not improvement
- BVM-assisted ventilation started promptly if failure stage reached
- Transfer decision made early with correct SBAR including weight and oxygen requirement
- Mother kept informed; infant kept calm on her lap whenever safe

Debrief points

- What in the PAT told you 'sick' before you touched him?
- Why is a falling respiratory rate in this infant terrifying rather than reassuring?
- When exactly did this child earn a hospital bed — which finding?

LIMA PULSE

Case 2: Anaphylaxis After a Nut Snack

IM adrenaline first • weight-based dosing • positioning • biphasic risk

Scenario brief — read aloud to the team

A father runs in carrying his 4-year-old daughter (approx. 16 kg). At a birthday party 20 minutes ago she ate a biscuit, then developed lip swelling, widespread hives, and now noisy breathing with vomiting. She is known to be 'allergic to nuts' but they don't carry an auto-injector.

Setting, roles & equipment

Location	Straight to treatment room.
Participants	Triage nurse, doctor, second nurse; father played by staff actor (frightened, hovering).
Equipment	Child manikin, mock adrenaline 1 mg/mL ampoules + syringes, oxygen, nebuliser + salbutamol prop, IV/IO trainer, fluid bag, monitor.
Facilitator controls	Improvement begins 2–3 min after each correct IM adrenaline dose. If adrenaline delayed >6 min or child stood upright → deteriorate to stridor + hypotension; if still no adrenaline → collapse (becomes paediatric arrest).

Initial patient status

Stage	RR	SpO2	HR	BP	Signs
Arrival	36 with audible wheeze + soft stridor	93% air	148	92/58	Hives, lip/tongue swelling, vomiting, frightened
If adrenaline delayed	44, marked stridor	88% on O2	168	74/40	Pale, floppy, drowsy — decompensating
After correct treatment	28, mild wheeze	97% on O2	128	96/60	Swelling stabilising, more settled

Facilitator progression — how the case unfolds

Stage / trigger	Patient state	Expected team response
0–2 min	ABC involvement obvious	Anaphylaxis NAMED immediately; child laid flat/semi-recumbent (NOT stood up); help called into the room
2–4 min	No improvement yet	Adrenaline 150 micrograms IM (0.15 mL of 1 mg/mL) anterolateral thigh — dose verbalised and checked; time noted
4–8 min	Partial response	High-flow oxygen; nebulised salbutamol for wheeze; IV access; fluid bolus 10–20 mL/kg (160–320 mL) if hypotensive
8–10 min	Reassessment at 5 min after dose	Second IM adrenaline dose if not clearly improving; antihistamine/steroid only AFTER adrenaline priorities
Wrap-up	Improving	Transfer arranged for observation (biphasic risk verbalised); father given clear explanation; auto-injector education flagged for discharge planning

Expected critical actions — observer ticks each

- Anaphylaxis diagnosed clinically and stated aloud within 2 minutes
- IM adrenaline given within 5 minutes of arrival — correct dose for age/weight (150 micrograms / 0.15 mL)
- Correct site (anterolateral mid-thigh) and route (IM, not IV) used
- Child kept lying down; standing/sudden upright posture avoided and verbalised as dangerous
- Reassessment at 5 minutes with repeat adrenaline if incomplete response
- Oxygen and salbutamol used for bronchospasm; fluid bolus calculated by weight if shocked
- Antihistamines/steroids correctly sequenced AFTER adrenaline
- Transfer for observation arranged with biphasic reaction risk stated in SBAR
- Father managed with clarity and compassion; kept with the child

Debrief points

- What would have justified a second — or third — adrenaline dose?
- Why is posture a life-or-death detail in anaphylaxis?
- What must this family leave hospital with, and what is our centre's role in that?

LIMA PULSE

Case 3: Febrile Seizure That Won't Stop

Timed seizure care • buccal midazolam dosing • glucose • status epilepticus transfer

Scenario brief — read aloud to the team

A grandmother carries in her 2-year-old grandson (approx. 12 kg), hot and convulsing. Generalised jerking started at home 'maybe ten minutes ago' — she rushed straight here. He has had a cold with fever since yesterday. No known epilepsy, no medication at home.

Setting, roles & equipment

Location	Treatment room.
Participants	Nurse, doctor, second nurse; grandmother played by staff actor (distressed, limited history).
Equipment	Child manikin, oxygen + mask, suction, glucometer prop, mock buccal midazolam, thermometer, monitor, IV trainer.
Facilitator controls	Seizure continues until TWO correct benzodiazepine doses at correct interval OR facilitator ends it after good first-dose care at 8 min. Glucose reads 4.8 mmol/L when checked. If airway neglected → SpO2 falls progressively.

Initial patient status

Stage	Seizure	RR	SpO2	HR	Temp	Glucose
Arrival	Generalised tonic-clonic, ongoing ~10 min	Irregular	90% air	165	39.6	4.8 when checked
After 1st midazolam	Continues (facilitator's choice)	Irregular	94% on O2	158	39.4	—
Post-ictal	Stopped; drowsy, responds to voice	28 regular	96% on O2	140	39.2	—

Facilitator progression — how the case unfolds

Stage / trigger	Patient state	Expected team response
0–2 min	Actively convulsing on arrival	Timer started immediately; safe position/side; nothing in mouth; oxygen applied; suction ready; help called
2–4 min	Still fitting (total >10 min = status territory)	Glucose checked; weight estimated (12 kg); midazolam 2.4 mg buccal/IM — dose calculated aloud and cross-checked
4–8 min	Continues or stops per facilitator	If continuing at 10 min after dose 1: second dose given; transfer activated — two doses = hospital, always
8–12 min	Post-ictal drowsiness	Recovery position, airway reassessed, antipyretic given, fever source examined (ears/throat/chest/rash), meningism actively excluded

Wrap-up	Stable post-ictal	Documentation of times and doses; SBAR transfer call; grandmother reassured and febrile seizure explained
---------	-------------------	---

Expected critical actions — observer ticks each

- Seizure TIMED with a clock from arrival; pre-arrival duration incorporated
- Airway protected: positioning, oxygen, suction ready — nothing placed in the mouth
- Glucose checked before/with the first drug dose
- Midazolam dose correct: 0.2 mg/kg = 2.4 mg for 12 kg (max 10 mg), route appropriate
- Second dose given only after the correct interval, then transfer activated
- Non-blanching rash and neck stiffness actively looked for and verbalised
- Post-ictal recovery position and reassessment from A
- Times, doses and responses documented and handed over in SBAR
- Family communication calm and structured despite pressure

Debrief points

- Total seizure time when the first drug went in — and where did those minutes go?
- What features would have changed this from 'febrile seizure' to 'meningitis until proven otherwise'?
- Why is 'two doses = transfer' a hard rule in our setting?

Case 4: The Choking Infant at Reception

5 back blows + 5 chest thrusts • no abdominal thrusts in infants • transition to CPR

Scenario brief — read aloud to the team

A mother at the reception desk suddenly screams: her 9-month-old daughter (approx. 9 kg) was chewing a piece of apple and is now silent, wide-eyed, unable to cry, turning dusky. The receptionist shouts for help.

Setting, roles & equipment

Location	Reception/waiting area — first responder may be non-clinical staff.
Participants	Receptionist (scripted first actions), nurse, doctor; mother played by staff actor.
Equipment	Infant choking manikin (or infant manikin), infant BVM, AED trainer, timer.
Facilitator controls	Object clears after 2 full cycles of correct back blows + chest thrusts IF technique is correct. If techniques are wrong or delayed >90 s → infant becomes unresponsive → paediatric CPR sequence; object visible and removable at first airway opening.

Initial patient status

Stage	Response	Breathing/cry	Colour	Other
Onset	Awake, terrified	Silent — no cry, no cough	Dusky lips	Ineffective effort = SEVERE obstruction
If cleared	Crying loudly	Strong cry	Improving pink	Exhausted mother; check for residual symptoms
If unresponsive	Floppy, no response	None	Cyanosed	Proceed to CPR; object seen at mouth check

Facilitator progression — how the case unfolds

Stage / trigger	Patient state	Expected team response
0–30 s	Silent infant, ineffective effort	Severe obstruction recognised (silent = severe); clinical help called by name; infant NOT slapped on the back while upright
30–90 s	Obstruction persists	5 back blows head-down along forearm → 5 chest thrusts (2 fingers, sternum); mouth checked between cycles; NO abdominal thrusts
Cycle repeat	Clears OR deteriorates per technique	Cycles repeated with correct technique; team communicates clearly around the frightened mother
If unresponsive	Floppy, apnoeic	CPR started: 30:2 (15:2 once second rescuer present), object looked for at each airway opening, removed only under direct vision
Recovery	Cleared and crying	Full reassessment — back blows/chest thrusts can injure; observation or transfer decision; mother supported

Expected critical actions — observer ticks each

- Severe obstruction recognised from SILENCE (no cry, no cough) within 15 seconds
- Back blows delivered head-down along the forearm with correct force and hand position
- Chest thrusts (not abdominal) used for the infant, correct two-finger technique
- Mouth checked between cycles; blind finger sweeps avoided
- Transition to CPR immediate on unresponsiveness, starting with compressions
- Second rescuer integrated smoothly (15:2 once available)
- Infant fully reassessed after clearance for injury and residual foreign body
- Non-clinical staff involvement debriefed — reception knew what to do first

Debrief points

- Why do we never perform abdominal thrusts on an infant?
- What made this obstruction 'severe' from the first seconds?
- What should every receptionist in this centre be able to do after today?

LIMA PULSE