LIFE SAFE MEDICAL TRAINING · BC EDITION 2026

Dental PALS

Algorithm Handout

The five pathways you work from with a child in the chair, and the vital signs card. Pull them out, laminate them, and keep them with the defibrillator.

INSIDE THIS HANDOUT

1. Dental BLS — Child Cardiac Arrest
2. Pediatric Bradycardia With a Pulse
3. Pediatric Tachycardia With a Pulse
4. Pediatric Cardiac Arrest
5. After Return of Circulation
6. Vital Signs Reference Chart · **both sides**

BCCOHP QUALITY ASSURANCE PROGRAM

Download your learning reflection

5 PATHWAYS · 1 REFERENCE CARD

PULL OUT AND LAMINATE

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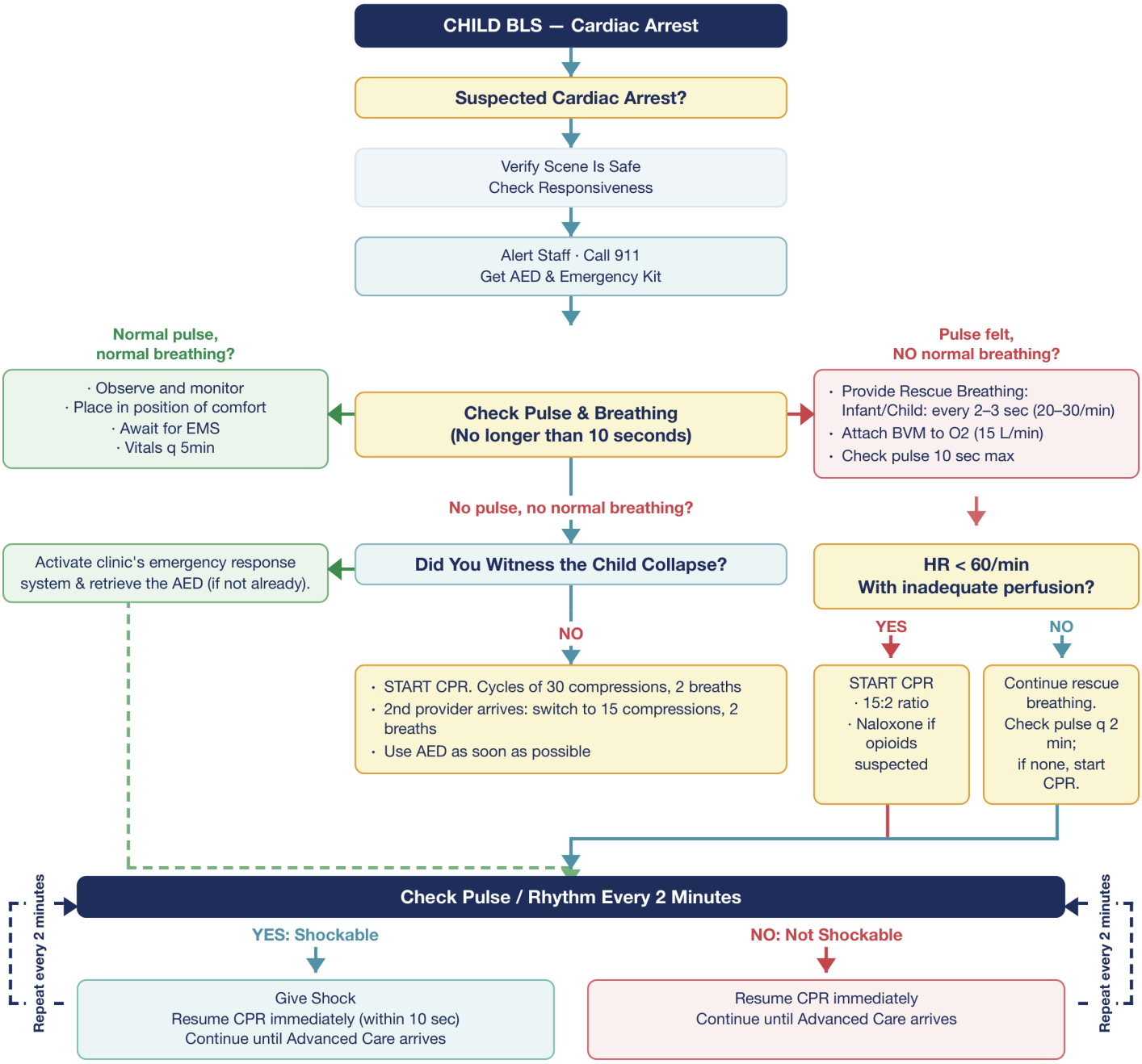
CHAPTER 6B

Child BLS — Cardiac Arrest Algorithm



Reference: BCEHS Clinical Practice Guideline M06, Pediatrics - Cardiac Arrest; 2025 ILCOR Consensus on CPR and ECC Science.

PATHWAY 2 OF 4 · DENTAL PALS · PROVIDER TRACK

Pediatric Bradycardia With a Pulse

A slow heart rate with signs of poor perfusion. In a child, **hypoxia until proven otherwise. Say the weight out loud: _____ kg.**

IS PERFUSION POOR?

Altered consciousness · weak pulses · cool skin · capillary refill over 2 seconds · low blood pressure for age. **A slow rate in a well-perfused, alert child** (for example, an athletic adolescent) may be normal — monitor and reassess.

▼

1 · AIRWAY, OXYGEN, VENTILATE

Stop the procedure · position, suction, jaw thrust · oxygen · **bag-mask ventilation** about 1 breath every 2–3 seconds, only until the chest rises · attach the monitor · call for help and 911.

▼

2 · STILL UNDER 60 WITH POOR PERFUSION DESPITE OXYGENATION AND VENTILATION?

Start CPR. If the pulse is lost, go to Pathway 1.

▼

3 · PERSISTENT — EPINEPHRINE

0.01 mg/kg IV or IO (0.1 mL/kg of **0.1 mg/mL**) · max 1 mg · every 3–5 minutes.

▼

4 · VAGAL STIMULATION OR HEART BLOCK — CONSIDER ATROPINE

0.02 mg/kg IV or IO · maximum single dose 0.5 mg · may be repeated once. For vagal causes (suction, airway manipulation, gagging, a painful stimulus) or heart block — not a substitute for ventilation.

▼

5 · CONSIDER PACING · TREAT THE CAUSE

Transcutaneous pacing with expert help. Causes: **hypoxia** · vagal stimulation · drugs (sedatives, opioids, the child's own cardiac medications) · low temperature · heart block.

Life Safe Medical Training — Dental PALS. LSMT's own pathway, written from the signed-off course content. Doses per kg, checked by a second person.

Reference: BCEHS Clinical Practice Guideline M01 — Pediatrics, Cardiac Emergencies; 2025 ILCOR Consensus on CPR and ECC Science.

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Because of the dynamic nature of medicine, decisions regarding medical therapy must be based on guidelines set out by the clinicians governing body, and independent judgement of the clinician(s) providing treatment to the patient, along with a current knowledge of proper medical practices.

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PATHWAY 3 OF 4 · DENTAL PALS · PROVIDER TRACK

Pediatric Tachycardia With a Pulse

A fast heart rate for age, with a pulse. Oxygen, monitor, call for help. **Say the weight out loud: _____ kg.**

ASSESS — QRS WIDTH AND PERFUSION

Narrow: about 0.09 seconds or less · Wide: longer than 0.09 seconds · Poor perfusion: altered consciousness, weak pulses, cool skin, capillary refill over 2 seconds, low blood pressure.

NARROW — SINUS TACHYCARDIA?

P waves normal · rate varies with crying, pain, fever · a cause you can find · usually under about 220 (infants) / 180 (children).

Find and treat the cause. Never slow it.

NARROW — SVT, PERFUSION ADEQUATE

No normal P waves · fixed rate · abrupt onset · usually about 220+ (infants) / 180+ (children).

1. **Vagal manoeuvres:** ice to the face (infants, young children) · blowing through a narrow straw (older children)
2. **Adenosine 0.1 mg/kg** rapid IV push, max 6 mg, immediate rapid saline flush
3. **Adenosine 0.2 mg/kg**, max 12 mg

SVT OR WIDE-COMPLEX — POOR PERFUSION

Synchronized cardioversion 0.5–1 J/kg, then **2 J/kg**.

SVT: adenosine may be tried first only if IV access is already in place and it will not delay cardioversion.

Sedate a conscious child only if it will not delay cardioversion, and only if you can manage the airway.

WIDE — PERFUSION ADEQUATE

Treat as **ventricular tachycardia** until proven otherwise.

Get expert help before giving antiarrhythmic drugs.

SYNCHRONIZED CARDIOVERSION

Press **sync** · confirm the markers sit on each QRS · **re-select sync before every shock** — many defibrillators return to unsynchronized after each one · oxygen away from the chest · "clear" out loud · nobody touching.

DETERIORATES TO VF OR PULSELESS VT?

Turn sync **off** and defibrillate — **Pathway 1**.

NEVER

Never apply eyeball pressure. Never try to slow sinus tachycardia with drugs or electricity.

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Reference: BCEHS Clinical Practice Guideline M01 — Pediatrics, Cardiac Emergencies; 2025 ILCOR Consensus on CPR and ECC Science.

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PATHWAY 1 OF 4 · DENTAL PALS · PROVIDER TRACK

Pediatric Cardiac Arrest

No pulse — or a heart rate under 60 with poor perfusion despite oxygenation and ventilation. **Say the weight out loud: _____ kg.**

START

Shout for help · **call 911** · start CPR **with oxygen** · attach the defibrillator or AED as soon as it arrives · **check the rhythm**.

HIGH-QUALITY CPR — THROUGHOUT

Depth at least one-third of the chest (about 4 cm infant, about 5 cm child) · 100–120/min · full recoil · **15:2** with two or more rescuers (30:2 with one) · advanced airway: continuous compressions and 1 breath every 2–3 seconds · pauses under 10 seconds · swap compressors every 2 minutes · squeeze only until the chest rises.

▼

SHOCKABLE — VF / PULSELESS VT

1. **Shock 2 J/kg** → CPR 2 min · IV or IO access
2. **Shock 4 J/kg** → CPR 2 min · **epinephrine** 0.01 mg/kg, repeat every 3–5 min
3. **Shock 4 J/kg or more** (max 10 J/kg or adult dose) → CPR 2 min · **amiodarone** 5 mg/kg **or lidocaine** 1 mg/kg
4. Continue the cycle · look for the cause throughout

NON-SHOCKABLE — ASYSTOLE / PEA

1. CPR · IV or IO access
2. **Epinephrine as soon as possible**, 0.01 mg/kg, repeat every 3–5 min
3. Rhythm check every 2 minutes — shockable? **move left**
4. Find and treat the cause: usually **hypoxia or shock**

DRUGS — PER KG, CHECKED BY A SECOND PERSON

Epinephrine 0.01 mg/kg IV/IO = 0.1 mL/kg of **0.1 mg/mL** · max 1 mg
Amiodarone 5 mg/kg IV/IO · max 300 mg · up to 3 doses in total
Lidocaine 1 mg/kg IV/IO

REVERSIBLE CAUSES — READ THE SEDATION RECORD OUT LOUD

H's: hypoxia (most common) · hypovolemia · hydrogen ion · hypoglycemia · hypo/hyperkalemia · hypothermia
T's: toxins — sedatives, opioids, **local anaesthetic** · tension pneumothorax · tamponade · thrombosis

DEFIBRILLATOR

AED: follow its prompts; pediatric pads or attenuator under about 8 years; adult pads if that is all you have. Pads must not touch — front and back on a small chest. Oxygen away from the chest · "clear" out loud · nobody touching · resume compressions immediately after the shock.

LOCAL ANAESTHETIC TOXICITY CHANGES THIS PAGE

Epinephrine is reduced to small doses of 1 mcg/kg or less · amiodarone, not lidocaine · 20% lipid emulsion · CPR may need to be prolonged. **Appendix G.**

Life Safe Medical Training — Dental PALS. LSMT's own pathway, written from the signed-off course content. Every child who needed resuscitation is transported to hospital.

Reference: BCEHS Clinical Practice Guideline M06 — Pediatrics, Cardiac Arrest; 2025 ILCOR Consensus on CPR and ECC Science. Aligned to BCCOHP Standards of Practice for minimal, moderate and deep sedation.

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PATHWAY 4 OF 4 · DENTAL PALS · PROVIDER TRACK

After Return of Circulation

Keep the child stable until handover. The cause may still be present. **Say the weight out loud: _____ kg.**

OXYGENATION

Oxygen saturation about **94–99%**. Avoid both too little and too much.

VENTILATION

Aim for a **normal end-tidal CO_2**. Over-ventilating is common after a resuscitation — squeeze only until the chest rises.

GLUCOSE

Check it. Treat hypoglycemia: dextrose 0.5–1 g/kg IV or IO (for example, 5–10 mL/kg of 10%).

TEMPERATURE · SEIZURES

Prevent and treat fever. Do not actively warm a child who is not cold. Watch for seizures and treat them.

BLOOD PRESSURE — TREAT LOW BLOOD PRESSURE FOR AGE

Lowest acceptable systolic: infants 1–12 months 70 mmHg · 1–10 years 70 + (2 × age) mmHg · over 10 years 90 mmHg. **Fluid bolus 10–20 mL/kg** of isotonic crystalloid, reassessing each time.

SUSPECTED CARDIOGENIC SHOCK

5–10 mL/kg over 10–20 minutes. Listen to the lungs between boluses. **Stop** if signs of fluid overload develop or worsen: crackles, increasing work of breathing, falling oxygen saturation or an enlarging liver.

▼

TRANSFER — EVERY CHILD WHO NEEDED RESUSCITATION GOES TO HOSPITAL

Keep monitoring and the recorder's timeline running until paramedics take over. Keep ventilation going during handover.

HANDOVER

Identity — name, age, **weight**, parent or guardian · **What happened** — procedure, sedation and local anaesthetic given (drugs, doses, times), the event · **What we did** — CPR time, shocks and energies, drugs and doses with times, airway and access · **Now** — rhythm, pulse, breathing, oxygen saturation, blood pressure, level of response · **Background** — allergies, conditions, medications, last food and drink.
Hand over the recorder's timeline and a copy of the sedation record.

AFTER THEY LEAVE

Resuscitation record and any required incident report · restock the kit and check the defibrillator · debrief the team · support the family.

Life Safe Medical Training — Dental PALS. LSMT's own pathway, written from the signed-off course content.

Reference: BCEHS Clinical Practice Guideline M06 — Pediatrics, Cardiac Arrest (post-return of spontaneous circulation care); 2025 ILCOR Consensus on CPR and ECC Science.

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REFERENCE CARD · DENTAL PALS · VITAL SIGNS

Vital Signs Reference Chart

Every threshold this course uses, gathered in one place: normal values by age here, and the thresholds taught in the course overleaf. Keep it with the monitor.

Normal breathing and heart rates by age

Patient	Age	Breathing rate per minute	Heart rate per minute (lowest–highest normal)	Possible arrhythmia at rest
Infant	Under 1 year	**30–53**	**90–220**	Over 220
Toddler	1–2 years	**22–37**	**90–180**	Over 180
Preschool	3–4 years	**20–28**	**65–120**	Over 180
Primary school age	5 years to adolescence	**18–25**	**75–118**	Over 180
Adolescent	Puberty and older	**12–20**	**60–100**	Over 150

Normal blood pressure by age

Patient	Age	Systolic (mmHg)	Diastolic (mmHg)
Newborn	0–3 days	**39–84**	**16–53**
Infant	1–12 months	**67–104**	**37–56**
Toddler	1–2 years	**86–106**	**42–63**
Preschool	3–5 years	**90–112**	**45–72**
Primary school age to preadolescent	6–11 years	**97–120**	**61–79**
Adolescent	12–15 years	**110–131**	**64–83**

■ THE CHILD, NOT THE NUMBER

These are ranges for a healthy child at rest. Fear, crying, pain and fever push rates up. A value inside the range does not make a sick-looking child well, and the child's own trend matters more than any single reading. For hypotension, use the lowest acceptable systolic pressure on the next page.

Ranges based on published pediatric reference data, including Fleming S, et al. Normal ranges of heart rate and respiratory rate in children from birth to 18 years of age. *Lancet* 2011;377:1011–18.

Reference: values as taught in the Dental PALS student manual, chapter 4 (Reference Chart); 2025 ILCOR Consensus on CPR and ECC Science. Normal ranges vary between sources — these are the ones this course teaches to.

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REFERENCE CARD · DENTAL PALS · VITAL SIGNS

Thresholds Taught in This Course



Measure	Threshold taught in this course	Chapter
Lowest acceptable systolic BP	Infants 1–12 months: **70 mmHg** · Children 1–10 years: **70 + (2 × age in years) mmHg** · Over 10 years: **90 mmHg**	2.4
Capillary refill	Press 5 seconds and release. Normal **2 seconds or less**; longer suggests poor perfusion.	2.2
End-tidal CO_2	Normal about **35–45 mmHg**, regular square-shaped waveform. Flat line: look at the child.	4.2
Heart rate needing CPR	**Under 60** with poor perfusion despite oxygenation and ventilation.	4.3, 6.3
Sinus tachycardia vs SVT	Sinus: usually under about **220** (infants) / **180** (children), variable, with a cause. SVT: usually about **220+** (infants) / **180+** (children), fixed, abrupt.	6.2
QRS width in children	Narrow: about **0.09 seconds or less**. Wide: longer than 0.09 seconds.	6.1
Oxygen saturation after return of circulation	About **94–99%**. Avoid too little and too much.	8.5
Rescue breathing (pulse present)	About **1 breath every 2–3 seconds** (20–30 a minute). Squeeze only until the chest rises.	3.3
CPR	Depth at least **one-third of the chest**: about **4 cm** infant, about **5 cm** child; adolescents adult depth. Rate **100–120/min**. **15:2** with two or more rescuers, **30:2** with one. Pauses under **10 seconds**.	8.1
Suction	Each pass no more than about **10 seconds**; watch heart rate and saturation.	3.1
AED pads	Pediatric pads or attenuator under about **8 years** (about **25 kg**). Adult pads if that is all you have.	4.5
Blood pressure cuff	Bladder width about **40%** of arm circumference. Too small reads high; too large reads low.	4.3
Seizure	Lasting **5 minutes or more**: benzodiazepine (provider). Check the glucose.	9.4

Reference: values as taught in the Dental PALS student manual, chapter 4 (Reference Chart); 2025 ILCOR Consensus on CPR and ECC Science. Normal ranges vary between sources — these are the ones this course teaches to.

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AFTER THE SKILLS DAY

Your learning reflection, and your QAP entry

Scan this code for the Dental PALS course page. It carries the compliance statement for this course, and the **learning reflection** you fill in and keep for your BCCOHP Quality Assurance Program learning journal.

Download your learning reflection

A fill-in sheet that walks you through the self-reflection, two to three professional goals, and the wording of your Component A self-report. Fill it in while the day is still fresh.

lifesafemedical.com/dentalpals

Where this course sits in the Quality Assurance Program

Component	What it is	Where this course fits
A	Guided self-reflection, two to three professional goals, and a self-report of your continuing professional development. Annual, online.	**This is the one.** Self-report the course here, linked to the goal it serves.
B	Standards-based education and knowledge application — BCCOHP's own scenario-based modules, no more than three a year.	Not here. Nothing external goes in Component B.
C	Individualized support, if you are selected by audit or by not completing A and B.	Not here.

✦ THERE ARE NO HOURS AND NO CREDITS

BCCOHP does not quantify continuing professional development by hours or credits. Your self-report links each activity to your learning needs and your practice context — that is, to the goals you set. Do not go looking for a credit value on your certificate. Write down what changed instead.

The standards this course speaks to

From *Standards for the Oral Health Team*, April 1, 2026 — clauses **2.5.5** (a sufficient and properly maintained emergency kit), **2.5.6** (appropriate emergency protocols, and participating with your team in regular emergency training in which you understand your own role), and **2.7** to **2.7.3** (maintaining current knowledge, skills and abilities, reflecting on outcomes to identify gaps, and fulfilling your Quality Assurance requirements). The reflection sheet quotes each one in full.

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