Pediatric respiratory and cardiac

Croup, epiglottitis, bronchiolitis, strep, cystic fibrosis, heart defects, Kawasaki disease and rheumatic fever

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1 AT A GLANCE

Children's airways are small, so swelling that would barely bother an adult can block a child's breathing. Heart disease in children is mostly something they're born with, and many of the signs show up at feeding time.

Croup or epiglottitis?

	Croup	Epiglottitis
Cause	Usually a virus, most often parainfluenza	Bacteria, mostly Hib before the vaccine
★ **Signs**	Follows a cold and low fever. **Barking, seal-like cough** and hoarseness, worse at night. Stridor means more swelling	High fever and sore throat; worsens fast. **Three D's: drooling, dysphagia, distress.** Sits upright leaning forward (tripod), muffled voice, stridor
★ **Care**	Usually managed at home. Mild: a steroid, dexamethasone; moderate to severe: add nebulized epinephrine. Acetaminophen for comfort, moist air; **avoid cough medicines**	**Nothing in the mouth; never a tongue blade**: it can close the airway. Securing the airway comes first, often by intubation in intensive care, then antibiotics and steroids
Watch	Emergency care for stridor at rest, retractions, cyanosis, drooling or exhaustion. Oxygen for low saturation; admission if not better in about 4 hours	Imaging only in a stable, cooperative child; labs after the airway is secure. Cyanosis is an ominous sign

How long: Croup usually lasts 3 to 7 nights; the first night or two are often the worst. If an insect sting or an inhaled object may be the cause, call 911.

Bronchiolitis and RSV

- Swelling and mucus in the smallest airways, usually from RSV, in children under 2. Peaks at 3 to 6 months, in fall and winter.
- Starts like a cold; within 2 to 3 days, wheezing, cough, fast breathing, flaring and retractions. Infants feed poorly; cyanosis needs emergency care.
- Infants normally breathe 30 to 60 times a minute (MedlinePlus).
- ★ **Supportive care: fluids, humidified air, saline drops and bulb suction, rest. Antibiotics don't work on viruses.**
- Hold and soothe, feed small amounts, and don't let him cry long, to prevent tiring.
- Spreads by contact and lives on surfaces for hours: handwashing, cover coughs, clean surfaces.
- Nirsevimab, an antibody shot, protects infants under 8 months in their first RSV season; not needed if the mother got an RSV vaccine at least 14 days before delivery. Palivizumab, the older monthly antibody, is no longer available as of the end of 2025.

Strep throat and tonsillectomy

- Group A strep, most common at ages 5 to 15: sudden fever, red throat with white patches, painful swallowing, swollen neck glands. A sandpaper-like rash means scarlet fever.
- Rapid strep test first, since most sore throats are viral; culture if negative but still suspected.
- ★ Treat only a positive test, usually penicillin or amoxicillin, for **all 10 days**: the full course helps prevent rheumatic fever and complications like an abscess near the tonsil.
- Home until at least a day of antibiotics. Call if not better within 24 to 48 hours. Throat lozenges can choke young children.
- After tonsillectomy: sore throat, ear pain, bad breath and a slight fever for a day or two are expected. Spit out blood. Soft foods, cool drinks; no acidic juices, spicy or rough foods, or aspirin.
- ★ **Bright red bleeding** from the mouth or nose: call; severe bleeding is an emergency. Also call for breathing trouble, being unable to swallow, or vomiting a lot of blood or past 24 hours.

Four heart defects to know

Defect	What it is	Key signs	Care
Ventricular septal defect	Hole between the ventricles; the most common defect	Murmur. Large ones cause heart failure; many small ones close on their own	Diuretics ease symptoms; surgery or a catheter device closes the hole if needed
Patent ductus arteriosus	A fetal vessel fails to close after birth; common in preterm babies	Fast breathing, poor feeding, sweating, a murmur (preterm babies may not have one)	**Indomethacin or ibuprofen can close it**, best given early. Then a catheter coil, or surgery
★ **Tetralogy of Fallot**	Ventricular hole, narrowed pulmonary outflow, overriding aorta, thick right ventricle. The most common cyanotic defect	**Blue spells, worse when upset**; older children squat. Clubbing, poor feeding, fainting	Repaired, usually before 6 months. Spell: **knees to chest**, calm the child, get help
★ **Coarctation of the aorta**	Narrowing of the aorta; more common with Turner syndrome	**Weak leg pulses; lower BP in the legs than the arms.** Newborn: fast breathing, poor feeding, even shock. Older child: headaches, nosebleeds, leg cramps with exercise	Surgery or a balloon; some need lifelong blood pressure treatment

Close or keep open: Indomethacin or ibuprofen can close a ductus; with some other defects, prostaglandin E1 keeps it open.

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Pediatric respiratory and cardiac

1 AT A GLANCE, CONTINUED

Congenital heart disease and infant heart failure

- The most common birth defect. Cyanotic (blue skin from low oxygen): tetralogy of Fallot, transposition of the great vessels, hypoplastic left heart. Non-cyanotic: septal defects, a patent ductus, coarctation, valve narrowing.
- Risks: Down and Turner syndromes; in pregnancy, rubella, alcohol, poorly controlled diabetes. Prenatal ultrasound finds some; newborn pulse oximetry screening catches more.
- ★ Large holes send too much blood to the lungs. Heart failure signs: fast or hard breathing, fast heart rate, **sweating while feeding**, poor feeding, tiring easily, poor weight gain, paleness, frequent respiratory infections.

Cystic fibrosis

- Inherited, one defective gene from each parent. Thick, sticky mucus clogs the lungs and pancreas.
- ★ Newborn screening finds most cases; the **sweat chloride test** confirms it.
- Early signs: no stool in the first 24 to 48 hours, salty skin, poor weight gain. Pale, greasy, foul-smelling stools that float.
- Airway clearance (percussion, postural drainage, devices or exercise) 1 to 4 times a day.
- ★ **Pancreatic enzymes with every meal**; high-calorie, high-protein diet; vitamins A, D, E and K. Extra fluids in hot weather or with diarrhea.

Kawasaki disease and rheumatic fever

	Kawasaki disease	Rheumatic fever
Who	Blood vessel inflammation, mostly under 5; more common in boys	Follows untreated strep throat or scarlet fever, usually 2 to 4 weeks later, at ages 5 to 15
★ **Signs**	**Fever of 102 °F or higher for at least 5 days**, that often doesn't come down with fever medicine. Red eyes without drainage; red, cracked lips; strawberry tongue; red, swollen palms and soles that later peel; rash; swollen neck node	Fever; painful joints that move from one to another; ring-shaped rash or skin nodules; jerky movements (chorea). Can damage heart valves
★ **Treat**	**High-dose IV immune globulin with high-dose aspirin**: a prescribed exception to the usual rule against aspirin in children. Often better within 24 hours	Preventive antibiotics: until age 21, or at least 5 years in teens; longer, perhaps for life, with heart damage
After	Without treatment, about 1 in 4 develop coronary artery problems, like an aneurysm; early immune globulin makes that far less likely. Echocardiograms are repeated in the first weeks; longer follow-up depends on whether the coronary arteries were affected	Best prevention: quick, complete treatment of strep throat

2 PRIORITY AND SAFETY CALLS

★ Suspected epiglottitis: keep the child calm and upright, avoid the throat, and get help to secure the airway.

★ Tetralogy spell: knees to chest, calm the child, and get help right away. Crying and upset make the cyanosis worse.

Check leg pulses on every newborn, since coarctation may show no other signs.

Any child with a fever over 5 days should be checked for Kawasaki disease.

Bronchiolitis: seek care for extreme tiredness, very fast breathing, or a cold that suddenly worsens.

3 EXAM ANCHORS

1. Croup: barking cough at night; steroids and nebulized epinephrine. Epiglottitis: drooling, tripod, nothing in the mouth.
2. Traps: a tongue blade for epiglottitis, antibiotics for bronchiolitis, cough medicine for croup.
3. Strep: test, then a full 10 days. Cystic fibrosis: airway clearance and enzymes with meals.
4. Infant heart failure: sweating, tiring with feeds. Squatting and knees to chest increase blood flow to the lungs.
5. Patent ductus: indomethacin to close it, prostaglandin to keep it open.
6. Traps: thinking aspirin is never given to children, and skipping the leg pulses.

4 SELF-QUIZ

1. Croup usually lasts _____ nights.
2. The three D's of epiglottitis: drooling, dysphagia and _____.
3. Strep throat is treated for all _____ days.
4. The _____ test confirms cystic fibrosis.
5. Tetralogy of Fallot is usually repaired before _____ months.
6. After rheumatic fever, preventive antibiotics last for years: until age _____, or at least five years in teens.

ANSWER KEY 1. 3 to 7 · 2. distress · 3. 10 · 4. sweat chloride · 5. 6 · 6. 21

5 SOURCES

1. Open RN, Health Promotion, 15.8 Croup. wtcs.pressbooks.pub/healthpromo/chapter/15-8-croup
2. Open RN, Health Promotion, 15.9 Epiglottitis. wtcs.pressbooks.pub/healthpromo/chapter/15-9-epiglottitis
3. Open RN, Health Promotion, 15.10 Bronchiolitis. wtcs.pressbooks.pub/healthpromo/chapter/15-10-bronchiol…
4. MedlinePlus, Strep throat. medlineplus.gov/ency/article/000639.htm
5. MedlinePlus, Cystic fibrosis. medlineplus.gov/ency/article/000107.htm
6. MedlinePlus, Tetralogy of Fallot. medlineplus.gov/ency/article/001567.htm
7. MedlinePlus, Kawasaki disease. medlineplus.gov/ency/article/000989.htm

Built from RN PocketPal course lessons: Pediatric respiratory conditions (c18-l02); Pediatric cardiac conditions (c18-l03). Every line on this sheet comes from those lesson scripts.

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