

Monthly paediatric update newsletter for all health professionals working with children – put together by Dr Julia Thomson, Paediatric Consultant at Homerton University Hospital, London, UK. Housed at [www.paediatricpearls.co.uk](http://www.paediatricpearls.co.uk) where comments and requests are welcome!

## WELCOME to healthcare professionals rotating into paediatrics this August and September!

These monthly newsletters are produced to help you learn and then keep up to date with all things paediatric. Do send me topic requests at <http://www.paediatricpearls.co.uk/contact-paediatric-pearls/>. Have you ever wondered how to prescribe fluids or medications to a child when you don't know their weight? Try the following formulae for estimating weight:

### Child 0–12 months

$$\text{Weight} = (0.5 \times \text{age in months}) + 4$$

### Child 1–5 years

$$\text{Weight} = (2 \times \text{age in years}) + 8$$

### Child 6–12 years

$$\text{Weight} = (3 \times \text{age in years}) + 7$$

## What's new for children in the updated BTS/SIGN British Guideline on the Management of Asthma, published July 2019?

The emphasis in this updated guideline is on personalised care, assessment of current asthma control, prediction of future risk.

### DIAGNOSIS:

- \* This remains clinical, see algorithm at [https://www.sign.ac.uk/assets/sign158\\_diagnostic\\_algorithm.pdf](https://www.sign.ac.uk/assets/sign158_diagnostic_algorithm.pdf)
- \* Compare the results of diagnostic tests undertaken whilst a patient is asymptomatic with those undertaken when a patient is symptomatic to detect variation over time.

### LONG TERM MANAGEMENT:

- \* Step 2 can now be a very low dose inhaled corticosteroid OR a leukotriene receptor antagonist. See [https://www.sign.ac.uk/assets/sign158\\_summary\\_of\\_management-children.pdf](https://www.sign.ac.uk/assets/sign158_summary_of_management-children.pdf)
- \* Categorisation of inhaled corticosteroids by dose is at [https://www.sign.ac.uk/assets/sign158\\_categorisation\\_of\\_inhaled\\_corticosteroids-children.pdf](https://www.sign.ac.uk/assets/sign158_categorisation_of_inhaled_corticosteroids-children.pdf)
- \* Consider once daily inhaled steroids at same total daily dose as when giving it twice daily if good control is established.

### ACUTE MANAGEMENT:

- The recognition of degrees of severity remains the same. Easy to follow algorithms on the management of acute asthma in primary care are available at: <https://www.guidelines.co.uk/respiratory/sign-and-bts-management-of-asthma-in-children-guideline/454880.article>
- \* Children with sats < 94% should receive O<sub>2</sub> to achieve normal sats of 94–98%
- \* Consider intensive inpatient treatment for children with sats < 92% in air after initial bronchodilators
- \* Add ipratropium bromide 250mcg to the nebulised salbutamol solution if symptoms are refractory
- \* Consider adding 150mg magnesium sulphate to each nebulised salbutamol and ipratropium in the first hour if duration of symptoms is short and sats < 92%
- \* Give oral steroids early. 3 day treatment should be sufficient.
- \* Aminophylline not recommended in mild to moderate asthma.
- \* Children who are known to respond poorly to first line salbutamol, consider iv Mg sulphate as first line treatment.
- \* Children can be discharged when stable on 3–4 hourly inhaled bronchodilators that can be continued at home. PEF and/or FEV<sub>1</sub> should be >75% of best or predicted and SpO<sub>2</sub> >94%.

## LESSONS FROM THE FRONT LINE:

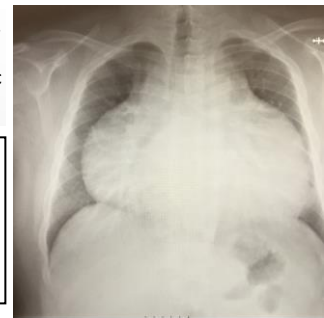
### A cardiac cause of chest pain in children is vanishingly rare....

Dr Vicky Agunloye, paediatric registrar, reminds us that very occasionally the heart *is* to blame.

A 14-year-old Asian male presented with a 2-week history of epigastric pain associated with vomiting after returning from a holiday in the Philippines. Symptoms had progressed and were now associated with chest pain and mild shortness of breath on exertion. He had been given a diagnosis of gastritis. Past medical history included, non-alcoholic fatty liver disease, OSA and TB.

On examination in the ED: mild shortness of breath at rest, BMI >99.9<sup>th</sup>, quiet heart sounds, mild epigastric tenderness on palpation. HR=120, RR=18, saturation=100% in room air, BP=132/77. The patient then went to the toilet and was noted to have severe dyspnoea on exertion. The combination of unexplained tachycardia and dyspnoea led to a request for a chest radiograph.

Cardiac tamponade was diagnosed on the basis of an echo, 2L of blood-stained fluid was drained from his pericardial space and a cardiac MRI later showed a primary cardiac tumour encasing his right coronary artery.



**Take home message:** -This boy presented with a very rare life-threatening condition, tamponade 2<sup>nd</sup> to a cardiac tumour BUT presented in a common way - unexplained tachycardia. This case reminds us of the importance of reviewing observations and not disregarding unexplained abnormalities in them. **Vitals are vital.**

### 1. Normal observation values at different ages (from APLS, Edition 5)

	Age of child (years)				
	<1	1–2	2–5	5–12	>12
Respiratory rate	30–40	25–35	25–30	20–25	15–20
Heart rate	110–160	100–150	95–140	80–120	60–100
Systolic blood pressure	80–90	85–95	85–100	90–110	100–120

**Palivizumab** is a monoclonal antibody licensed for preventing RSV bronchiolitis. Injections are monthly throughout the RSV season (October to April). Eligibility is quite complicated. See <https://www.gov.uk/government/publications/respiratory-syncytial-virus-the-green-book-chapter-27a>.

Recommended for:

- Some babies born ≤ 34/40 who are < 6/12 old at the start of the RSV season (October)
- Children < 2 yrs of age requiring treatment for bronchopulmonary dysplasia within last 6/12
- Children < 2 yrs with haemodynamically significant congenital heart disease (CHD) or those with CHD and “co-morbidity” such as Down syndrome.
- Children < 2 yrs of age with severe combined immunodeficiency (SCID)

Are your patients eligible? Prematurity and cardiac problems are significant risk factors for severe bronchiolitis necessitating hospital admission and PICU.

The vaccine is expensive and is usually given in specialist neonatal clinics in secondary care. Contact your local provider if you are concerned that a patient of yours might be missing out.

Dr Neaha Patel's **Coca-cola urine** story continued... Refer to the case in [June 2019](#) newsletter. Our patient was treated for malaria and then we found out that she was G6PD deficient. Was her acute haemolysis due to that? Had we inadvertently given her primaquine for her malaria?

Glucose-6-phosphate dehydrogenase (G6PD) deficiency is an X-linked recessive condition, almost exclusively affecting males. People with G6PD deficiency are at risk of haemolytic anaemia during times of oxidative stress eg.:

- Bacterial or viral infection
- Moth balls (naphthalene)
- Antimalarials such as primaquine, chloroquine
- Fava beans

**Malaria and G6PD deficiency** - In cases of non-falciparum malaria, the recommended treatment is chloroquine (in areas where there is no chloroquine resistance). Primaquine is used for 14 days to eradicate liver hypnozoites which can result in dormant *Plasmodium vivax* and *Plasmodium ovale* that are responsible for future relapses. Therefore it is important to check the levels of G6PD in all patients presenting with non-falciparum malaria, to ensure these medications are not used for treatment. Her malaria was falciparum.