Carotenaemia - with thanks to Dr Anusuya Kawsar, dermatology registrar at Barts Health NHS Trust. Yellow pigmentation of skin particularly over soles and palms. Carotenoids are precursors of Vitamin A/ retinol found in red, green, yellow and orange vegetables and fruit. It’s harmless and reversible.

How many carrots does it take to turn skin orange? Ans: 5-10 a day for a few weeks. Less if they are cooked and puréed as this increases the absorption of carotene. Carotenaemia is more common in vegetarians and in young children fed large quantities of baby jars. A 2.5oz jar of sweet potatoes or carrots contains 4-500% of an infant’s recommended daily intake.

Other Possible Causes: Secondary Carotenaemia: hyperlipidaemia, liver disease, hypothyroidism, diabetes, nephrotic syndrome which all impair the conversion of β-carotene into retinol. Rare genetic defect in carotene metabolism

Investigations: Serum beta carotene levels will be high

Treatment: Modify the diet or treat underlying cause

More reading: https://www.dermnetnz.org/topics/carotenaemia
http://www.medicalzone.net/differential-diagnosis-of-carotenaemia.html

LESSONS FROM THE FRONT LINE – Getting the lingo right

Heart murmurs are often picked up incidentally in the ED or in the GP surgery when a child is unwell. There’s a good article on how to approach this at https://www.rcemlearning.co.uk/foamed/listen-to-your-heart-murmurs-in-children/

If the child is well grown, there are no red flags and the murmur is soft, short, systolic, symptom free and shifts with position then the heart will be normal.

In illness or stress a child’s heart pumps faster and harder. Often we’ll hear a murmur just a tiny one

Instead of telling the parents that their child might have a hole in their heart or a leaky valve, use reassuring language such as that in the RCEM cartoon above or that found in the GOSH information leaflet on innocent murmurs at

https://www.gosh.nhs.uk/conditions/treatments/general-medical-conditions/heart-murmurs-innocent

Medically Unexplained Symptoms (MUS) Part 2 – Risk factors and the “filter theory”. (Last month Part 1 - background)

For those of you who may not have seen last month’s edition, I recommended an e-learning resource on MUS from MindEd at https://www.minded.org.uk/Component/Details/525083.

Experiencing bodily symptoms, without suffering from a well-defined physical disease, is a normal response to a broad range of life stressors. The e-learning module talks about the factors involved. NB: health professionals are implicated in some of these: Predisposing – anxious or perfectionist personality traits
Precipitating – physical trauma or harm. This can include experiences within the health service, operations or even misinterpretation of results
Perpetuating – unnecessary medical examinations or treatment (initiated by the doctor as (or more) often as insisted upon by the patient or parent

Protective – well functioning family

Signal Filter Theory: describes how, in healthy people, the CNS filters out a lot of signals before they reach their brain eg. we are not constantly aware of our clothes touching our skin. This filter seems to be broken in children with MUS and their CNS is somehow rewired. These changes are however reversible.

Somatosensory Amplification Theory: suggests that a physical sensation arises and that patients then focus their attention on this sensation. They develop certain cognitions and attributions which further amplify the perception of these physical signals. This amplification results in a vicious circle in a way that symptoms are reinforced by patients’ thoughts and concerns.

These and 8 other explanatory models of MUS are described in the Dutch paper (full text available) referenced below. No papers about children were included in this analysis. I think the theories can be extrapolated to children – with the added complication of the effect the parents’ health beliefs might be having on their child’s perception of their own health.


Urinary tract infection (lower): antimicrobial prescribing
https://www.nice.org.uk/guidance/ng109 (publ October 2019) sets out an antimicrobial prescribing strategy for lower urinary tract infection (cystitis) in children, young people and adults (without a catheter). It aims to optimise antibiotic use and reduce resistance. For the under 16s, we are referred principally to the separate guidelines on UTI in the under 16s and on fever in the under 5s.

Offer antibiotics immediately as per chart below, taking into account any previous urine culture results and antibiotic use.

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Dosage/dose interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amoxicillin</td>
<td>3 months to 11 years, 50 mg/kg every 8 hours for a day. 3 days to 12 days, 50 mg/kg every 8 hours for a day. 12 days to 2 weeks, 50 mg/kg every 12 hours for a day.</td>
</tr>
<tr>
<td>Cefaclor</td>
<td>3 to 5 years, 50 mg/kg every 6 hours for a day. 5 days to 10 days, 50 mg/kg every 8 hours for a day.</td>
</tr>
<tr>
<td>Cefuroxime</td>
<td>3 months to 11 years, 50 mg/kg every 12 hours for a day.</td>
</tr>
<tr>
<td>Cefuroxime</td>
<td>3 months to 11 years, 50 mg/kg every 8 hours for a day.</td>
</tr>
</tbody>
</table>

For asymptomatic babies ≤6 weeks of age with a maternal or neonatal risk factor for UTI, we recommend removing from the neonatal nursery and treating with amoxicillin 50 mg/kg every 8 hours for a day or cefuroxime 50 mg/kg every 8 hours for a day.

Bottom Line: children with simple CAP and no signs of sepsis should be assessed and managed in primary care with no investigations and oral antibiotics. I suspect many are. In the ED, we need to follow that lead.

The 2011 BTS guideline on community acquired pneumonia (CAP) in children was last audited in 2017. The standards are all about reducing investigations and escalation of care in simple pneumonia if at all possible. https://www.brit-thoracic.org.uk/quality-improvement/clinical-audit/bts-national-audit-reports/ houses the last one. Although there were fewer x-rays and blood tests done overall, we still have a way to go to achieve the standards:

- less than 5% of children with CAP should have blood tests
- less than 10% should have a chest x-ray
- less than 10% should have iv antibiotics
- less than 5% should have hospital follow up

We are supposed to be achieving these targets by 2020. In 2016/7, 45% of children had blood tests and 73% had chest x-rays which is a long way off the 5% and 10% expected for these tests respectively. NICE guidelines on sepsis were published during this audit period and could have led to more investigations being done as their high risk criteria for severe sepsis are more conservative than BTS’.

Bottom Line: children with simple CAP and no signs of sepsis should be assessed and managed in primary care with no investigations and oral antibiotics. I suspect many are. In the ED, we need to follow that lead.