

# education

## ART OF MEDICINE

### The art of pronunciation



We are in full flow, and the bright eyed woman in her 80s in front of me is rising to the challenge I am presenting her with. A little memory test.

“How do you spell the word ‘world’ backwards?” I ask.

“Whirled? Like a whirlpool? D,E, L...” she looks at me quizzically.

I am a northerner in the south of the UK. This same problem has happened to me before, and I don’t seem to have learnt from the experience. I have to hold back my gut reaction to help the patient by spelling the word forward. It’s not the patient’s fault that my mouth won’t let me pronounce “world” the way she has heard it all her life.

“No,” I interject, “the word ‘wa-orld,’” trying to imitate how I’ve heard it said on the BBC. “Like the earth.”

“What word are you saying? I don’t understand,” she says.

We are both frustrated. I think to myself that I am too ingrained in protocol; if only I’d just let her spell “whirled” backwards. I consider whether Language Line translation service has a north-south translator. Then I consider how difficult it must be to be a patient or a doctor where a day doesn’t pass without having to repeat yourself because of your accent; despite saying all the right words in the right order. I start again with renewed patience.

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We welcome contributions to this column via our online editorial office: <https://mc.manuscriptcentral.com/bmj>.

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## PRACTICE UPDATES

### Drug misuse prevention

NICE has issued guidance on targeted interventions for drug misuse prevention—including illegal drugs, “legal highs,” and prescription-only medicines. NICE recommends discussing a person’s circumstances and consideration of their physical and mental health; their personal, social, educational, and employment circumstances; and any history of drug use (including the type used and how often). Practitioners should offer adults who are assessed as vulnerable to drug misuse clear information on drugs and their effects and feedback on any existing drug use information on local services and where to find further advice and support.

◉ <http://bit.ly/2l0n3tb>

### Obesity and mental health

Public Health England (PHE) and the University of Sheffield have published a joint systematic review of the evidence relating to obesity in adult mental health secure units and a summary of the implications for practice. Having identified a two-way association between mental health problems and obesity, PHE recommends how to improve the obesogenic environment in secure settings. These include addressing food policies, access to takeaway meals, and shop product selection. Providers should also encourage meaningful activities and ensure that appropriate health promotion equipment is in place. Patients should be empowered, with support, to make informed decisions about which interventions and lifestyle changes to adopt.

◉ <http://bit.ly/2l8PPIT>

### FAST FACT—DIETARY SUPPLEMENTS IN MULTIPLE SCLEROSIS

- Do not use vitamin B<sub>12</sub> injections to treat fatigue or multiple sclerosis (MS) unless the patient has a vitamin deficiency
- Do not use omega-3 or omega-6 fatty acid compounds as there is no evidence that they affect relapse frequency or progression of MS
- Vitamin D should not be used solely to treat MS as there is no convincing evidence for its efficacy in managing the condition, although research is ongoing.

◉ For more information visit BMJ Learning (<http://bit.ly/2lpyHBn>)



0.5 HOURS

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# Community acquired pneumonia in children

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**In 2015, community acquired pneumonia (CAP) accounted for 15% of deaths in children under 5 years old globally and 922 000 deaths globally in children of all ages.<sup>1</sup> It is defined as a clinical diagnosis of pneumonia caused by a community acquired infection in a previously healthy child.<sup>2</sup> Clinical assessment can be challenging; symptoms vary with age and can be non-specific in young children, and aetiology is often unknown at presentation.**

**This article will provide an update on CAP management in otherwise healthy children outside the neonatal period and summarises recommendations from the British Thoracic Society guidelines for UK practice.<sup>2</sup>**

## How common is CAP?

Around 14.4 per 10 000 children aged over 5 years and 33.8 per 10 000 under 5 years are diagnosed with CAP annually in European hospitals.<sup>5 6</sup> A bias exists towards hospital based studies, which potentially underestimates overall incidence. Children aged 5-16 years are underrepresented in the literature.

In otherwise healthy children, those less than 5 years old are at greatest risk. Boys have a higher incidence

across all ages.<sup>5</sup> Other risk factors include prematurity, immunodeficiency, chronic respiratory disease, and neurodisability.

## What causes CAP?

Defining causative organisms is a challenge. Clinical and radiological features do not reliably distinguish between viral and bacterial aetiology, and obtaining cultures from the lower respiratory tract of young children is tricky.

CAP aetiology varies with age (table 1). Respiratory viruses are common, particularly in infants, accounting for 30-67% of hospitalised cases. Respiratory syncytial virus accounts for 30% of viral aetiology. Other viruses include parainfluenza, influenza, and human metapneumovirus.<sup>11-13</sup> *Streptococcus pneumoniae* is the commonest bacterial cause across all ages, accounting for 30-40% of cases.<sup>9 13</sup> *Mycoplasma pneumoniae* accounts for up to a third of all cases and is a common cause of atypical CAP.<sup>14 15</sup>

Less common pathogens are often related to an underlying health problem—for example, fungi in an immunocompromised child. *Burkholderia cepacia*, *Aspergillus fumigatus*, and *Pseudomonas aeruginosa* are associated with primary immunodeficiency and cystic fibrosis.<sup>16</sup> Consider aspiration pneumonia in high risk children or if the history is suggestive.

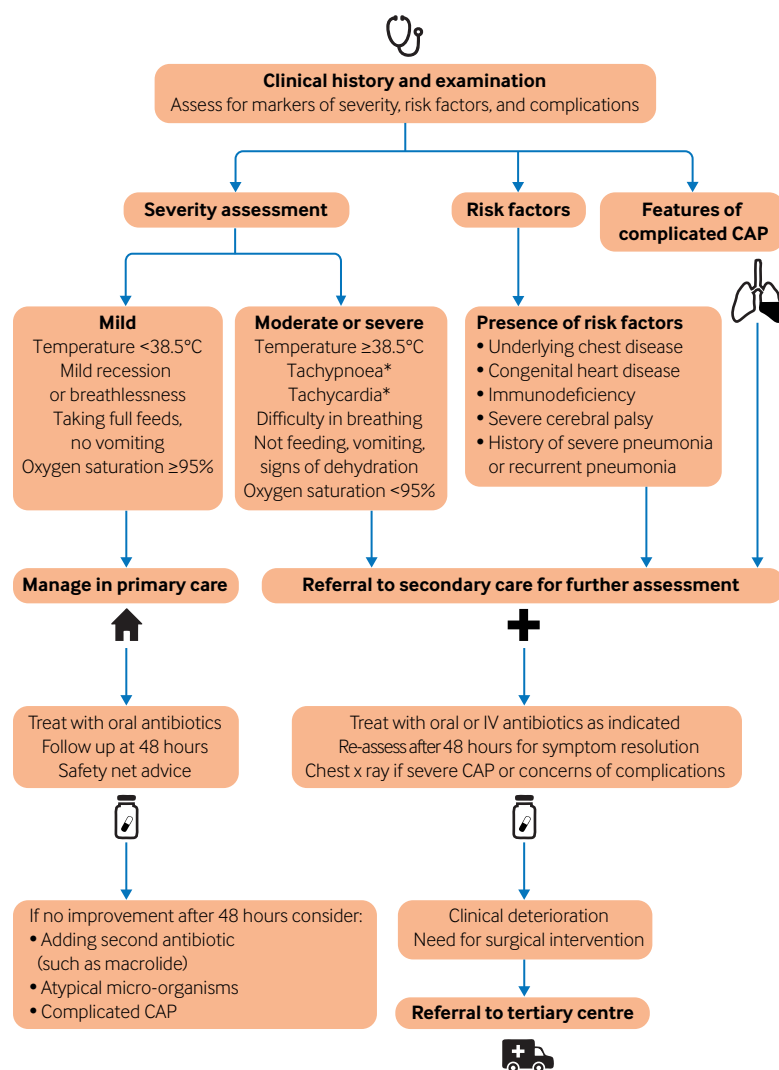
If there has been recent foreign travel, unusual organisms associated with the travel destination and variations with antibiotic resistance are important considerations. Consider atypical organisms if treatment fails.

## WHAT YOU NEED TO KNOW

- Introduction of the pneumococcal conjugate vaccine has significantly reduced rates of community acquired pneumonia (CAP) in the developed world
- Clinical assessment requires careful evaluation of clinical features, severity, and evidence of complications
- Children with mild to moderate symptoms can be managed in the community
- Recommended empirical first line treatment is oral amoxicillin. Intravenous antibiotics are indicated in children who cannot tolerate oral medicines or have septicaemia or complications
- Patients should be reviewed 48 hours after starting treatment to monitor response and for evidence of complications

**Table 1 | Causative organisms of community acquired pneumonia by age group**

Age group			Immunocompromised
1-3 months	<5 years	≥5 years	(all ages)
Common			
<i>Streptococcus pneumoniae</i>	<i>Streptococcus pneumoniae</i>	<i>Streptococcus pneumoniae</i>	As with age group plus Fungi, <i>Burkholderia</i> , <i>Pseudomonas</i> , and <i>Mycobacterium</i> spp
<i>Chlamydia pneumoniae</i>	Respiratory viruses	<i>Mycoplasma pneumoniae</i>	
Respiratory viruses		Respiratory viruses	
Enterovirus			
Less common			
Group A streptococcus	<i>Mycoplasma pneumoniae</i>	<i>Staphylococcus aureus</i>	
Group B streptococcus		<i>Chlamydia pneumoniae</i>	
<i>Haemophilus influenzae</i>	Group A streptococcus	<i>Mycobacterium</i> spp	
	<i>Haemophilus influenzae</i>		
	<i>Staphylococcus aureus</i>		
Rare			
<i>Mycobacterium</i> spp	Moraxella	Group A streptococcus	
Varicella zoster virus	<i>Mycobacterium</i> spp		



\*According to normal parameters for age. IV=intravenous.

**Fig 1 | An approach to assessment and management of community acquired pneumonia (CAP)**

	Infants (age <1 year)	Older children
<b>Mild to moderate (management in primary care)</b>		
Temperature (°C)	<38.5	<38.5
Respiratory rate (bpm)	<50	Tachypnoea†
Breathing difficulty	Mild recession	Mild breathlessness
Oxygen saturation*	≥95%	≥95%
Feeding	Taking full feeds	No vomiting
<b>Severe (management in secondary care)</b>		
Temperature (°C)	≥38.5	≥38.5
Respiratory rate (bpm)	>70	>50
Breathing difficulty	Moderate to severe recession Nasal flaring Grunting respiration Intermittent apnoea	Severe difficulty in breathing Nasal flaring Grunting respiration
Oxygen saturation*	<95% Cyanosis	<95% Cyanosis
Feeding	Not feeding	Signs of dehydration
Heart rate	Tachycardia†	Tachycardia†
Capillary refill time (s)	≥2	≥2

bpm=beats per minute. s=seconds.  
 \*If oxygen saturation monitoring is available.  
 †Tachypnoea and tachycardia defined according to age related reference values.

## How is CAP assessed?

Figure 1 summarises the approach for assessment and management of CAP. Assess the likelihood and severity of CAP by measuring fever, tachypnoea, cough, breathlessness, chest wall recession, and chest pain. Respiratory rate and dyspnoea are useful measures of severity and predict oxygen requirement.<sup>2 17</sup>

It is difficult to distinguish clinically between bacterial and viral aetiologies. Consider bacterial pneumonia in children presenting with persistent or recurrent fever ≥38.5°C over the preceding 24-48 hours with chest wall recession and tachypnoea.<sup>2</sup> Fever and tachypnoea are early features of pneumococcal pneumonia. Cough is not always apparent or required for diagnosis, and may be absent in the early stages of illness. *Mycoplasma pneumoniae* presents with cough and chest pain and is often associated with wheeze, general malaise, arthralgia, sore throat, and headache.

Often a combination of clinical signs, rather than individual features, leads to a clinical diagnosis and helps assess severity.

Table 2 lists disease severity markers to help aid management. Mild to moderate severity confers a low risk of complications. Previously well children with only mild symptoms who present directly to community or acute secondary services can be managed safely in the community. Children with severe symptoms require secondary care referral for urgent assessment and may require admission to paediatric intensive care. Children who present with mild symptoms but have red flag features (see box 1, overleaf) may require secondary care management and need careful assessment.

## Assessment in the community

Focus the examination on defining severity and identify children with underlying conditions who are at increased risk. Hypoxaemia increases mortality risk, and oxygen saturations <95% in room air are a key indicator for hospital assessment.<sup>20</sup>

## Assessment in hospital

All children require pulse oximetry. Level of C reactive protein is not useful to differentiate viral and bacterial causes, but it can guide investigation and management of CAP complicated by effusions, empyema, or necrosis.<sup>2</sup> Urinary pneumococcal antigen detection has a high sensitivity but very low specificity.<sup>21</sup> If it is available, consider using it as a negative predictor.<sup>2</sup>

Avoid routine chest radiography in children requiring hospital admission.<sup>2</sup> Radiographic appearance correlates poorly with clinical signs and outcome, and there is high inter-observer variability in interpretation.<sup>22 23</sup> Consider radiography in severe cases or where complications such as effusion or empyema are suspected (fig 2, overleaf).

Investigations recommended by the British Thoracic Society for complicated or severe CAP are summarised in box 2.<sup>2</sup>

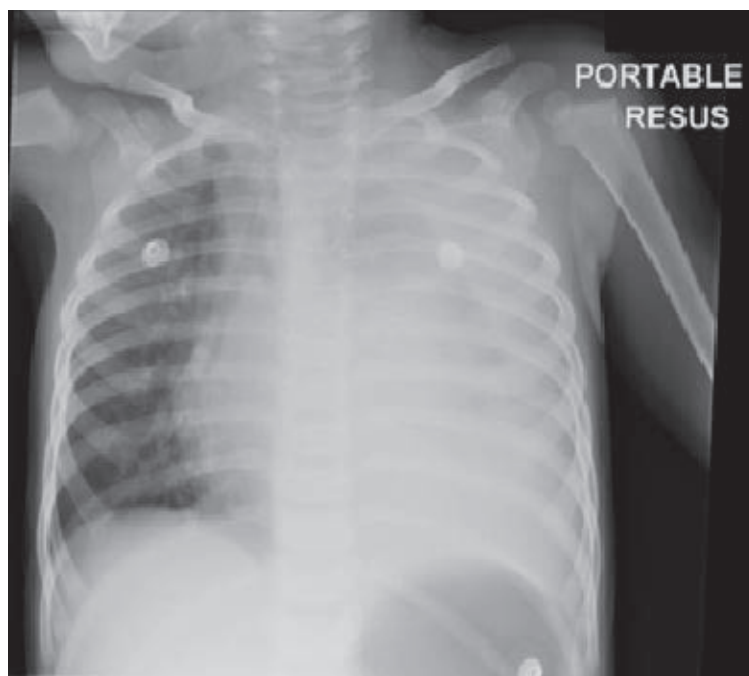


Fig 2 | Chest x ray of complicated pneumonia showing opacification of the left lung field consistent with a large pleural effusion and empyema. There is associated right sided bronchial wall thickening and consolidation. The pleural effusion resolved after chest drain insertion. Group A streptococcus was isolated from pleural fluid

### Box 1 | Red flag features for community acquired pneumonia (CAP)

#### History of underlying comorbidities, including

- Bronchopulmonary dysplasia
- Disorders of mucus clearance (such as cystic fibrosis)
- Congenital heart disease
- Immunodeficiency
- Severe cerebral palsy

#### Relevant medical history

- History of severe pneumonia (inpatient stay requiring oxygen, paediatric intensive care admission, complications of CAP (such as lung abscess, effusion, empyema)
- Recurrent pneumonia

### Box 2 | British Thoracic Society recommended investigations for complicated or severe community acquired pneumonia (CAP)<sup>2</sup>

- Bloods (full blood count, urea and electrolytes, C reactive protein, blood culture, anti-streptolysin O titre, serology for viruses, *Mycoplasma pneumoniae* and *Chlamydia pneumoniae*, atypical CAP screen)
- Nasopharyngeal secretions and swabs for viral PCR or immunofluorescence detection
- Chest x ray to assess for effusion or empyema
- Consider pleural fluid for microscopy, culture (including tuberculosis), pneumococcal antigen for PCR, biochemistry, and cytology (if aspiration required)

PCR=polymerase chain reaction.

### HOW PATIENTS WERE INVOLVED IN THIS ARTICLE

The BMJ did not ask the authors to involve patients in the creation of this article.

### Box 3 | British Thoracic Society recommendations for antibiotic selection in community acquired pneumonia (CAP)<sup>2</sup>

#### Preferred route of administration

- Oral antibiotics are safe and effective for children even with severe CAP
- Use intravenous antibiotics in children who:
  - Are unable to tolerate oral fluids (such as because of vomiting) or
  - Have signs of septicaemia or complicated pneumonia

#### Which antibiotic?

- Amoxicillin is first line therapy (use macrolides as first line in penicillin allergy)
- Macrolides can be added at any age if there is no response to first line therapy
- Macrolides should be used if *Mycoplasma* or *Chlamydia pneumoniae* are suspected or if disease is severe
- Co-amoxiclav is recommended for pneumonia associated with influenza
- Intravenous antibiotic treatment with amoxicillin, co-amoxiclav, cefuroxime, cefotaxime, or ceftriaxone is recommended for severe pneumonia

### How is CAP managed?

Children with clinical features consistent with CAP require antibiotics (box 3, above). CAP in a fully vaccinated child less than 2 years old (who has received the pneumococcal vaccine) with mild symptoms is unlikely to be bacterial, and antibiotics are not required unless symptoms become more severe.<sup>2</sup>

### Antibiotics

British Thoracic Society guidelines recommend amoxicillin as first line treatment.<sup>2</sup> Consider adding a macrolide if there is no improvement or resolution of symptoms after 48 hours. Macrolides are recommended instead of amoxicillin as first line treatment if the child is allergic to penicillin. Dual treatment with amoxicillin and a macrolide may be considered for suspected mycoplasma pneumonia.

Second or third line treatment may be required to cover resistant pneumococcal strains or children who have recently travelled to mainland Europe.

Several large randomised controlled trials, including the UK PIVOT trial, have shown that oral amoxicillin produces outcomes equivalent to those achieved with parenteral penicillin.<sup>25-27</sup> This was confirmed by a Cochrane review of children hospitalised with severe CAP.<sup>28</sup> Amoxicillin is safe to administer orally if tolerated, even in cases of severe CAP. Its treatment efficacy is similar to that of co-amoxiclav but it is better tolerated and more cost effective.<sup>2</sup>

In the absence of guidance for optimal treatment duration, empirical treatment is generally for 7-10 days.

### Supportive therapies and advice for care givers

For children managed in the community with mild to moderate symptoms, provide safety net advice on signs of deterioration, dehydration, and complications.



**Table 3 | Clinical features and management of complications of community acquired pneumonia (CAP)<sup>34-36</sup>**

Clinical features		Management	
Risk factors	Symptoms and signs	Investigations	Treatment
<b>Empyema</b>			
<ul style="list-style-type: none"> <li>• Age &gt;3 years</li> <li>• Recent varicella infection</li> </ul>	<ul style="list-style-type: none"> <li>• Fever &gt;7 days</li> <li>• Pleuritic chest pain</li> <li>• Severe CAP symptoms</li> <li>• No response to 48 hours antibiotics</li> <li>• Evidence of effusion: <ul style="list-style-type: none"> <li>- Decreased chest expansion</li> <li>- Dull percussion</li> <li>- Reduced or absent breath sounds</li> </ul> </li> <li>± Cyanosis</li> </ul>	<ul style="list-style-type: none"> <li>• Chest x ray</li> <li>• Ultrasound scan</li> <li>• Blood tests</li> <li>• Microbiology</li> </ul>	<ul style="list-style-type: none"> <li>• Referral to tertiary centre</li> <li>• High dose IV antibiotics</li> <li>± Thoracentesis or decortication</li> <li>± Fibrinolytic therapy</li> <li>• Oral antibiotics for further 1-4 weeks</li> </ul>
<b>Necrotising pneumonia</b>			
<ul style="list-style-type: none"> <li>• Congenital lung abnormalities</li> <li>• Bronchiectasis</li> <li>• Immunodeficiency</li> <li>• Neurological disorders</li> <li>• <i>Staphylococcal aureus</i> with PVL toxin</li> </ul>	<ul style="list-style-type: none"> <li>• Insidious onset</li> <li>• Persistent fever</li> <li>• Night sweats</li> <li>• Productive foul smelling sputum</li> <li>• Weight loss</li> <li>• Pleuritic chest pain</li> </ul>	<ul style="list-style-type: none"> <li>• Chest x ray</li> <li>• CT scan</li> <li>• Blood tests</li> <li>• Microbiology</li> </ul>	<ul style="list-style-type: none"> <li>• Referral to tertiary centre</li> <li>• High dose IV antibiotics (2-3 week course)</li> <li>• Prolonged oral antibiotic course</li> <li>± Surgical intervention</li> </ul>

IV = intravenous. PVL = Panton-Valentin leucocidin. CT = computed tomography.

## ADDITIONAL EDUCATIONAL RESOURCES

### Resources for clinicians

- Harris M, Clark J, Coote N, et al; British Thoracic Society Standards of Care Committee. British Thoracic Society guidelines for the management of community acquired pneumonia in children: update 2011. *Thorax* 2011;66(suppl 2):ii1-23. doi:10.1136/thoraxjnl-2011-200598
- World Health Organization. Revised WHO classification and treatment of pneumonia in children at health facilities: evidence summaries. 2014. [http://apps.who.int/iris/bitstream/10665/137319/1/9789241507813\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/137319/1/9789241507813_eng.pdf)
- Balfour-Lynn IM, Abrahamson E, Cohen G, et al; Paediatric Pleural Diseases Subcommittee of the BTS Standards of Care Committee. BTS guidelines for the management of pleural infection in children. *Thorax* 2005;60(suppl 1):i1-21. doi:10.1136/thx.2004.030676
- Public Health England. The complete routine immunisation schedule. 2016. [www.gov.uk/government/publications/the-complete-routine-immunisation-schedule](http://www.gov.uk/government/publications/the-complete-routine-immunisation-schedule)

### Resources for patients

- NHS Choices. Pneumonia. [www.nhs.uk/Conditions/Pneumonia/Pages/Introduction.aspx](http://www.nhs.uk/Conditions/Pneumonia/Pages/Introduction.aspx)
- NHS Choices. Vaccinations: When to have vaccinations. [www.nhs.uk/conditions/vaccinations/pages/vaccination-schedule-age-checklist.aspx](http://www.nhs.uk/conditions/vaccinations/pages/vaccination-schedule-age-checklist.aspx)

Offer written information, if available, regarding fever management and what to watch out for. Ask the parents or carers to seek further advice if fever persists or symptoms deteriorate despite 48 hours of antibiotic treatment.

In secondary care, children with oxygen saturations <92% in room air require supplemental oxygen to maintain >95% saturation. Oxygen can be administered via face mask, nasal cannulae, or head box (a device that surrounds the head to deliver humidified oxygen to babies). Method of delivery depends on the clinical condition, required volume of inspired oxygen, and practical considerations such as age and feeding. There is no evidence to suggest that any method is superior to others.<sup>2</sup>

Hydration can become compromised in severe CAP due to breathlessness, fatigue, and vomiting. Nasogastric feeds can maintain hydration, but if they are not tolerated because of vomiting or severe illness, intravenous fluid replacement may be required, with daily electrolyte monitoring for sodium depletion or syndrome of inappropriate antidiuretic hormone secretion.

Clinical trials have not shown any benefit from physiotherapy on radiological resolution, length of hospital stay, or symptom improvement.<sup>31 32</sup> This may not be true during recovery for children with underlying respiratory diseases and impaired mucus clearance.

## Spotting complications

Empyema (pus in the pleural space) is the most common complication.<sup>33</sup> Table 3, left, summarises the clinical features that should arouse suspicion for empyema and lung abscess.

Other complications include necrotising pneumonia, systemic sepsis, haemolytic uraemic syndrome, and bronchiectasis following severe or complicated CAP. Offer secondary care referral to those with suspected complications.

## What follow-up is required?

Follow-up is not routinely needed in children who recover fully without complications. Children who do not improve in 48-72 hours after starting treatment need reassessment, which can be in the community. Children who have lobar collapse, round pneumonia, or complications of CAP on radiography require follow-up as an outpatient at six to eight weeks with a repeat x ray and clinical assessment.

## Reducing CAP incidence

Various public health measures reduce CAP incidence. The current UK vaccination schedule involves doses of pneumococcal conjugate vaccine (PCV) at 2, 4, and 12 months old. *Haemophilus influenzae* type B (Hib) vaccination is given at 2, 3, and 4 months with a booster at 1 year.<sup>38</sup> An annual influenza vaccine is given to children between 2 and 8 years old every September, including children in school years 1, 2, and 3.<sup>38</sup> Additional pneumococcal, and in some cases influenza, vaccination is provided for high risk children with asplenia or splenic dysfunction, cochlear implants (due to the meningitis risk), chronic disease, complement disorders, and immunosuppression.<sup>38 39</sup>

PCV implementation has reduced CAP incidence, admission rates, invasive pneumococcal disease, and radiologically confirmed pneumonia in both developed and low income settings.<sup>43-47</sup> PCV13 introduction has prevented infection by resistant pneumococcal strains including serotype 19A. Hib vaccination has reduced pneumonia rates in the developing world and the UK.<sup>48 49</sup> Canadian data suggest that routine influenza vaccination reduces mortality in all ages and emergency department attendances.<sup>50</sup>

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# A suspected viral rash in pregnancy

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**A pregnant woman at 12 weeks' gestation seeks help for a red rash covering her back and chest. She is worried that the rash might be caused by a virus. She is originally from Bangladesh and is unsure about her vaccination history.**

Viral exanthema can cause a rash in pregnant women and should be considered even in countries that have comprehensive vaccination programmes.

These infections have consequences for both mother and fetus. Measles and rubella can cause intrauterine death. Intrauterine infection with rubella can lead to congenital rubella syndrome in the liveborn baby, characterised by deafness, eye abnormalities, congenital heart disease, and learning disability.<sup>5,6</sup> Meanwhile, the current Zika virus epidemic has garnered international attention for its link to microcephaly and birth defects.<sup>7</sup>

## What you should cover

### History

#### Ask about

- Location of the rash; speed, and date of onset.
- Associated symptoms: fever, sore throat, and malaise suggest an infectious cause. Itching is usually suggestive of a non-viral cause (fig 1).<sup>8</sup>
- Vaccination. Has the patient received two doses of measles, mumps, and rubella vaccine? Public Health

## WHAT YOU NEED TO KNOW

- Consider the country of origin in a woman presenting with a rash in pregnancy and ask for immunisation history.
- Test for measles and rubella IgM and IgG antibodies, particularly if immunisation history is not clear.
- Refer women with an active infection to the fetal medicine unit for fetal monitoring.

## HOW PATIENTS WERE INVOLVED IN THE CREATION OF THIS ARTICLE

We asked a pregnant woman with a rash to review the article. She said, "If there's anything that can be done to prevent things from worsening (eg, situations I should avoid, etc), that information would be quite helpful. I would likely be quite concerned about the health of the baby, and I would want the GP to be willing to answer any questions I have." We thereby inserted specific ways the GP could address concerns.



0.5 HOURS



England recommends asking pregnant women for this information at their initial antenatal appointment.<sup>4</sup> If available, review documented evidence of vaccination, as patients might not recall or be familiar with the vaccines.<sup>9</sup>

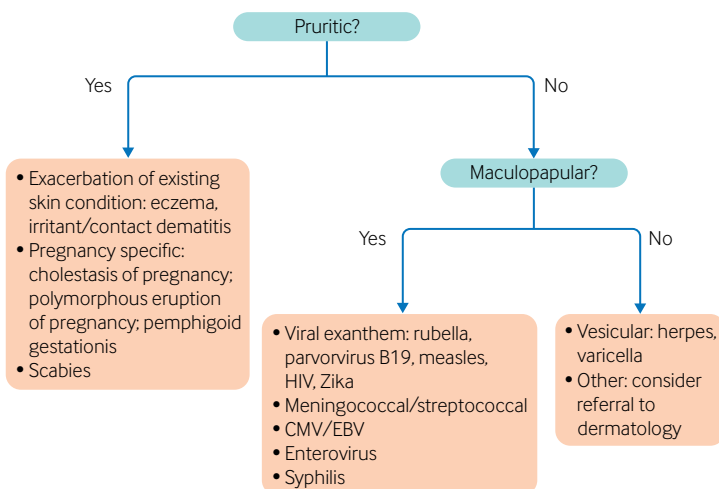
- History of chickenpox or if the woman has received the vaccine.
- Antibody testing for viral infections in previous pregnancy, or if she has been vaccinated since.
- Country of origin, as vaccination coverage can vary.
- Recent travel to countries where rubella and measles are endemic. Travel to South America or the Caribbean in the last two weeks should prompt consideration of Zika virus.<sup>10</sup>
- Sexual history for suspected HIV.<sup>7</sup>
- Duration of present pregnancy.
- Drug history. If the patient is on immunosuppressants or steroids, herpes zoster may be more likely. Some medications can cause rashes.

## Examination

Assess general wellbeing and vital parameters. A fever should prompt consideration of infectious causes.

Examine the rash:

- Is the rash vesicular or maculopapular (fig 1, fig 2, fig 3)? A vesicular rash suggests varicella or herpes infection.<sup>11</sup> If maculopapular, consider other viral infections.
- Distribution of the rash: a viral exanthem is frequently found on the trunk and limbs. Varicella often follows a dermatomal pattern, and herpes simplex can present with genital lesions. Appearance of the rash might vary based on skin complexion.



**Fig 1 | Diagnostic flow chart for rash in pregnancy.<sup>8</sup> CMV: cytomegalovirus. EBV: Epstein Barr virus. Source: adapted from Health Protection Agency Rash Guidance Working Group, *Guidance on viral rash in pregnancy*; 2011**

## Common viral causes of a rash in pregnancy

Infection	Epidemiology	Assessment	Investigation in primary care	Management	Possible outcomes
Rubella	23 cases of infection in pregnancy in the UK since 2005; three recent cases of congenital rubella syndrome. <sup>1</sup> Endemic to South East Asia: Bangladesh reported 66 cases of congenital rubella syndrome in 2014. <sup>12</sup>	Maculopapular rash in pregnancy; exposure to a person with a rash in the last two weeks. Vaccination history	Blood for PCR <sup>*</sup> and serology (IgM and IgG)	Referral to fetal medicine unit	Intrauterine death. Congenital rubella syndrome resulting in sensorineural deafness, learning difficulties, congenital heart disease, and other deformities in the child
Measles	Outbreaks throughout the world. Endemic to South East Asia and Africa. Former Soviet republics affected. <sup>4,12</sup>	Maculopapular rash, Koplik's spots on buccal mucosa, fever; exposure to a person with a rash in the last two weeks. Vaccination history	Blood for PCR and serology (IgM and IgG)	Referral to fetal medicine unit	Preterm delivery and stillbirth. Learning difficulties in live births
Zika <sup>13</sup>	75 countries report Zika virus transmission. Major areas affected: South America, Central America, Caribbean	Maculopapular rash, fever within two weeks of travel to endemic area, sexual history	Blood for PCR and serology (IgM and IgG)	Referral to fetal medicine unit	Guillain-Barré syndrome in the mother. Microcephaly is the most commonly reported abnormality in the baby
Varicella <sup>14</sup>	In the UK, varicella complicates three in 1000 pregnancies; more common in women born outside the UK	History of exposure to chickenpox; no medical history of chickenpox. Vesicular rash in a painful dermatomal distribution	Blood for PCR and serology (IgM and IgG)	Referral to fetal medicine unit. The mother may need varicella intravenous immunoglobulin if she presents within 10 days of an exposure and no rash clinically; PO aciclovir can be used in those with a rash	Congenital varicella: limb defects, ocular and auditory defects, learning difficulties. Neonatal varicella: severe chickenpox

\*PCR: Polymerase chain reaction



Fig 2 | Rash caused by rubella virus

## EDUCATION INTO PRACTICE

Do you routinely ask for vaccination history in women of child bearing age when they register with your practice?



Fig 3 | Varicella rash (shingles) showing vesicles

Figure 1 presents one approach suggested for rash in pregnancy.<sup>8</sup> The table shows common viral causes of rash in pregnancy.

## What you should do

### Investigations

If a viral exanthem is suspected, offer testing for measles, rubella, parvovirus B19, varicella, and possibly Zika virus. Take blood for serology to test for IgM and IgG antibodies.<sup>15</sup> See box for information to be included when requesting the

### Information to be recorded on the blood test request

- Name, age, date of birth, address
- Duration of pregnancy in weeks
- Date of onset of rash, clinical features, type and distribution of rash
- Antibody testing, if known
- Vaccine history including dates and places, if known
- Any known contacts who are unwell with rash, and dates of contact

Source: adapted from Health Protection Agency Rash Guidance Working Group, *Guidance on viral rash in pregnancy*; 2011

test. Where available, polymerase chain reaction for virus isolation can be requested.

In general, a positive IgM and IgG demonstrate acute infection; but IgG only positivity reflects previous exposure or vaccination.<sup>16</sup>

## Management

Arrange a follow-up appointment to discuss the results and prepare the patient for possible referral to a fetal medicine unit if the results indicate active infection.<sup>16,17</sup>

Be prepared to answer questions about potential risks to the baby, as this will likely be her main concern. Explain that positive serology in the mother may not correlate with infection in the fetus. Avoid using words like “testing the fetus” or “termination of pregnancy,” as at this stage it is too early to predict the effect on the fetus from initial investigations. The fetal medicine unit might monitor with frequent ultrasonography rather than perform invasive fetal testing.

Advise avoiding contact with other pregnant women or children to minimise transmission.

Competing interests: None declared.

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Find the full version with references at <http://dx.doi.org/10.1136/bmj.j512>



## DIGITAL HIGHLIGHTS

# Diagnosing Donald Trump

A group of mental health professionals recently wrote a letter to the *New York Times* to express their unease over “the grave emotional instability indicated by Donald Trump’s speech and actions” and their belief that it “makes him incapable of serving safely as president.” The American Psychiatric Association’s “Goldwater rule” says that it is unethical for professionals to offer public opinions on people they have not personally examined. Yet the signatories of the letter said that “too much was at stake” for them to remain silent any longer about Trump’s mental health.

Healthcare professionals have since been divided on whether it is right to broadcast diagnoses of a public figure. Here are some responses from social media:

### Juan Franco

If they have no clear pre-specified criteria to define fitness for presidency, the psychiatrists are playing with fire.

### Stéphane Rinfret

He will simply say that his potential mental illness is fake news by dishonest scientific people and journals.

### Arthur Caplan

Are you Trump’s doctor? Then don’t comment on his mental health.

### Rob Yeung

Yes, it may be fun to diagnose Donald Trump. But that’s not the way proper psychologists work.

### Robert Howard

Absolutely classic splitting among mental health professionals.

### Nathan Meyers

It is irresponsible to try to “armchair diagnose” Trump.

### Alex Langford

Put away those symptom checklists that you found on Google, real life mental healthcare is more complex than that. And how do you think people with real mental health problems will feel, seeing their suffering likened to a set of undesirable traits?

### Almost Jane

MDs were 100% right—Goldwater rule no longer relevant. Plus any amateur could diagnose Trump after all we’ve seen of him.

### Sam Wagener

I don’t believe anyone should ever be diagnosed for a psychiatric condition purely based on what we see through the media. Psych is already a field of much controversy because of the subjective nature of diagnosis.

### Allen Frances

Instead of misdiagnosing Trump, we must analyse the societal sickness that gave someone so flawed the power to determine the fate of the world.

## BMJ OPINION

# Inequality matters

Oxfordshire—most often represented by dreaming spires and country houses—may be regarded as a part of the country where health inequalities are not a problem, but data and experience tell us otherwise. Within the county, depending on which area you come from, there is a stark mismatch in life expectancy of up to 10 years. Families with dependent children still face homelessness despite the overall prosperity in the county, and children with free school meal status are more likely to be lower educational achievers. This once again shows that unmet health needs of children and young people go beyond clinical care, and that reducing health inequalities needs to be a priority for government and society.

Sian Griffiths and colleagues

### bmj.com

Read the full BMJ Opinion article on why recognising variation and deprivation is important in all areas, no matter how affluent they are at [http://bmj.co/inequality\\_matters](http://bmj.co/inequality_matters)



## TALES FROM THE ARCHIVE

# An outcry over vice and venereal disease

In the early months of 1917, debate raged in the correspondence section of *The BMJ* over the provision of prophylactics for sexually transmitted disease and doctors’ role and duty in dispensing advice on this. One doctor, A Neve, in the 10 March issue (*Br Med J* 1917;1:349) was troubled by the public health message sent out by offering prophylaxis and how it could influence

behaviour. He frets that until “prophylactic remedies for venereal diseases [can] be applied all round, and upon all occasions” then occasional prophylaxis may foster “a habit of sexual indulgence.” “How about the shame faced lads led astray after an extra glass by sirens and opportunities,” he continues, “Who will safeguard these against disease?”





## CASE REVIEW

### The importance of recording first passage of meconium in neonates

A 2 day old baby boy born at term was referred to the neonatal surgical unit with progressive abdominal distension and failure to pass meconium within his first 24 hours. On examination the boy weighed 2.9 kg and the anus was placed in the normal position. Cardiovascular, respiratory, and other system examinations, along with a brief developmental assessment, were normal. The abdomen was grossly distended but there were no features of peritonitis. The baby was haemodynamically stable. Blood results, including full blood count, urea and electrolytes, C reactive protein, and clotting were normal.

Radiographs of the abdomen showed equal distribution of grossly dilated bowel loops throughout the abdomen, with no gas in the rectum. A water soluble contrast enema showed contrast passing from distal spastic colon to dilated proximal normal colon in the area of the transitional zone. This was followed by suction rectal biopsy performed on the ward for histopathological evaluation.



Colour enhanced radiograph showing the most likely diagnosis in an infant (not described patient)

- 1 What is the diagnosis and what are the differential diagnoses?
- 2 How is this condition managed?
- 3 What are the long term complications of this condition?

Submitted by Daniel W Scholfield and Ashok Daya Ram  
Parental consent obtained.

Cite this as: *BMJ* 2017;356:j711

## CASE REVIEW

### A pedunculated nasal nodule

A 92 year old man presented to his primary care doctor complaining of a lesion on his right nostril (figure). The lesion had been present for 10 or more years, however recently it had increased in size. His only history was of chronic renal impairment. Examination revealed a 10 mm pink, pearlescent, pedunculated nodule with telangiectasia arising from the right nasal ala.

1. What is the most likely diagnosis?
2. What is the most appropriate management for patients with this condition?
3. What post-treatment/follow-up instructions are important for the primary care doctor and patient?

Submitted by Magnus Lynch, Faisal Ali, and Raj Mallipeddi

Patient consent obtained.

Cite this as: *BMJ* 2017;356:j763



If you would like to write a Case Review for Endgames, please see our author guidelines at <http://bit.ly/29HCBAL> and submit online at <http://bit.ly/29yyGSx>

## CASE REVIEW

### The importance of recording first passage of meconium in neonates

- 1 Hirschsprung's disease. Differential diagnoses include: anorectal malformations, meconium plug syndrome, small left colon syndrome, colonic atresia, meconium ileus, and jejunoileal atresia.
- 2 The patient must first be resuscitated with intravenous fluids, followed by decompression with rectal washouts. Broad spectrum intravenous antibiotics are administered
- 3 if Hirschsprung's-associated enterocolitis is present. Surgery is then needed for definitive treatment, in the form of a pull-through procedure.
- 3 The most common long term problems after surgery include constipation, faecal incontinence, and enterocolitis. Enterocolitis can occur before and after surgical correction and can be life threatening.
- 1 Basal cell carcinoma.
- 2 Referral to dermatology where biopsy can be performed, after which the patient should either undergo surgery (including Mohs micrographic surgery and reconstructive surgery), or radiotherapy.
- 3 Monitor for signs of infection if surgery was performed. Inform the patient to monitor the treatment site in the future because of the small risk of recurrence.

## CASE REVIEW

### A pedunculated nasal nodule

### Epidermal naevi

A 14 year old boy presented with multiple asymptomatic linear velvety lesions on the anterior chest and upper limbs, which had been present since birth (figure). These lesions increased in number and grew larger as he grew older. Physical examination showed multiple verrucous papules and plaques following the lines of Blaschko. Skin biopsy confirmed a diagnosis of epidermal nevi, congenital hamartomas of ectodermal origin that occur in one in 1000 live births. Rare complications are development of basal cell carcinoma and squamous cell carcinoma within the naevi. Epidermal naevus

syndrome refers to the involvement of other systems, including the skeletal, ocular, and central nervous systems. Infants and children with extensive epidermal naevi require thorough dermatological, neurological, ophthalmic, and orthopaedic examinations and regular follow-ups. We found no systemic involvement in this patient.

Chien-Ho Chu (akenchu921@gmail.com), Dermatology, Cathay General Hospital, Taipei, Taiwan; Chih-Sen Hsu, Family Medicine, Sijhih Cathay General Hospital, New Taipei City, Taiwan

Parental consent obtained.

Cite this as: *BMJ* 2017;356:i6654



### Most people who need statins are on them

When the National Institute for Health and Care Excellence (NICE) published its updated recommendations on lipid modifying therapy in 2014, there was consternation at the scale of the effort that would be required to follow them. But a survey of statin prescribing in a cohort of 183 565 high risk patients in the UK in 2014 shows that 79% of patients with atherosclerotic cardiovascular disease were already on a statin of some kind, as were 62% of patients classified as having high risk diabetes or kidney disease (*BMJ Open* doi: 10.1136/bmjopen-2016-013255). If the NICE guideline were followed to the letter, however, treatment would have to be changed in about 3 million such patients in the NHS.



0387-z). But 56% of the smokers were still smoking, 57% of those taking statins still had high LDL cholesterol, 46% of those treated for hypertension were outside target, and 59% of those with diabetes had suboptimal glucose control. Obesity was found in 34%, and 60% were physically inactive.

### Non-predictive procalcitonin

Procalcitonin has been widely promoted as a marker for distinguishing bacterial infections. A retrospective study of 813 patients in medical intensive care units set out to determine a procalcitonin value that would predict any positive bacterial culture (*Antimicrob Agents Chemother* doi: 10.1128/AAC.02007-16). The receiver operating characteristic analyses were 0.62 for all cultures, 0.49 for pulmonary infections, 0.43 for urinary tract infections, and 0.78 for bacteraemia, meaning that for anything short of bacteraemia, there was no procalcitonin level that showed a useful predictive value in this setting.

### Yorkshiremen and babies

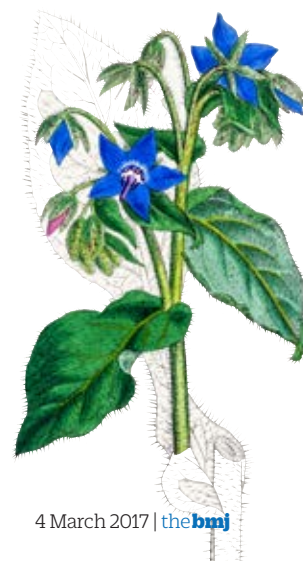
BaBY is the acronym for a cohort study called Born and Bred in Yorkshire, though it includes some interlopers from north Lincolnshire. The qualitative study (*BMC Pregnancy Childbirth* doi:10.1186/s12884-017-1229-4) explores the psychological stresses that Yorkshire fathers experience as they live through the pregnancies of their womenfolk and their first year of parenthood and nappy changing. Minerva recollects the days when their main anxiety was to rush their wives from foreign parts like Lincolnshire to give birth in Yorkshire, so their lads would be eligible to play cricket for t'county.

### Carpal tunnel choices

In a Korean trial, 67 patients with electrophysiologically confirmed carpal tunnel syndrome were randomised to open or endoscopic median nerve release (*BMC Musculoskelet Disord* doi: 10.1186/s12891-017-1438-z). Both mini-incision or endoscopic division of the transverse carpal ligament produced the same symptom relief with the same morphological results on median nerve ultrasonography.

### Diets for depression

"The leane of fat meat is best, and all manner of brothes, and pottage, with borage, lettuce, and such wholesome hearbes are excellent good," wrote Robert Burton in his *Anatomy of Melancholy* (1621). This is perhaps the nearest one could get to a Mediterranean diet in Jacobean Oxford, and it may really have some effect on depression, according to the SMILES trial (*BMC Med* doi: 10.1186/s12916-017-0791-y). Of 67 Australian patients with moderate to severe depression, 33 were randomised to follow a diet of fruit and vegetables, lean protein, and whole grains, while the others were allocated to "befriending." A third of patients in the diet group were scored as achieving remission at 12 weeks, compared with 8% in the control group.



Cite this as: *BMJ* 2017;356:j963

### Risk factors stay high after coronary events

Secondary prevention of cardiovascular disease isn't just about prescribing statins. A Norwegian survey of 1127 patients who had myocardial infarction (80%) or angina (20%) showed that 90% had been through a revascularisation procedure and 93% were on statins and agents to reduce blood pressure (*BMC Cardiovasc Disord* doi: 10.1186/s12872-016-