

# education

**FROM THE JOURNALS** Edited highlights of weekly research reviews on <https://bit.ly/2PLtl8>

## Flu jabs for over 65s don't reduce hospital admissions

The race to find a vaccine for covid-19 is on. Presumably, older and frailer people would be vaccinated first. But this recent well designed (albeit observational) study of the flu vaccine provides food for thought. The vast data set from 2000 to 2014 included 170 million episodes of care and 7.6 million deaths among 55-75 year olds in England and Wales. Over 65s were more likely to get a flu jab, but there was no evidence that it reduced hospitalisations or mortality in this older age group. Additional strategies may be needed to reduce the risk of flu, say the authors.

• *Ann Intern Med* doi:10.7326/M19-3075



## Long acting injectables for HIV-1 infection

In our species' eternal fight against pathogenic viruses, the treatment of HIV infection with combination antiretroviral agents is a triumph. Long acting injectables offer a chance to simplify therapy for adults with HIV-1 infection. This phase III, randomised, open label trial gave 20 weeks of standard daily oral induction therapy with three drugs (dolutegravir-abacavir-lamivudine) to HIV-1 infected individuals who had never previously had antiretrovirals. The authors then assigned responders to continue oral therapy or to switch to monthly injections of two long acting drugs (cabotegravir and rilpivirine) after one month on an oral dose. After 48 weeks, the long acting therapy was non-inferior to daily oral therapy. Despite injection site reactions being common, 91% of patients preferred the long acting therapy. If ongoing trials (ATLAS, FLAIR, and LATITUDE) demonstrate that the long acting drugs are safe, effective, and adhered to over a longer period, they're likely to be a popular option.

• *N Engl J Med* doi:10.1056/NEJMoa1909512

## Pharma profits: ensuring value for money

Large pharmaceutical companies were more profitable than similar sized non-pharmaceutical companies during 2000-2018 (median net income as a fraction of revenue of 13.8% v 7.7%) according to this fascinating cross sectional study. The difference was admittedly smaller once differences in company size, research and development expense, and time trends were taken into account. A viable pharma industry is widely thought to be important to innovate and produce drugs, but profits and costs clearly need to be contained to

ensure that the public gets value for money. One might argue that studies such as this one have no place in an academic medical journal, but I think evidence based debate about the role of the state in the pharmaceutical industry is both valid and vital.

• *JAMA* doi:10.1001/jama.2020.0442

## Non-obstructive chronic bronchitis—it's not COPD

This prospective cohort study of 22 325 US adults found that non-obstructive chronic bronchitis (chronic bronchitis without airflow obstruction or clinical asthma) is associated with adverse respiratory health outcomes, particularly among those who have ever smoked. The adverse outcomes included worse lung function tests, more hospital admissions, and greater mortality rates from both respiratory and other causes. People with non-obstructive chronic bronchitis who had never smoked fared better; they had more hospital admissions and mortality due to respiratory causes, but no significant difference in the rate of lung function decline or all cause mortality compared with non-smokers without chronic bronchitis.

• *JAMA Intern Med* doi:10.1001/jamainternmed.2020.0104

## QT-prolonging drugs increase sudden cardiac deaths—but why?

QT-prolonging medications (QTPMs), such as some antipsychotics and antibiotics, are a reported risk factor for sudden cardiac death as a result of sudden arrhythmic death. But previous studies may have overestimated the risk, says this case-control autopsy study of 525 presumed sudden cardiac deaths. These were defined by standard consensus criteria and 104 matched control deaths due to trauma. QT-prolonging medications were associated with increased odds of presumed sudden cardiac death, but not because of arrhythmias or QT prolongation. The results do not exclude an increased risk of sudden arrhythmic death with QTPMs, so caution should continue in prescribing them, but "it remains unclear whether routine screening and QT interval guided tailoring of therapy is beneficial or sufficient to alter the risk of sudden death."

• *JAMA Intern Med* doi:10.1001/jamainternmed.2020.0148



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# Blurred vision

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0.5 HOURS



See <http://learning.bmj.com> for linked learning module

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This series of occasional articles provides an update on the best use of key diagnostic tests in the initial investigation of common or important clinical presentations. The series advisers are Steve Atkin, head of School of Postgraduate Studies and Research, RCSI-Bahrain; and Eric Kilpatrick, Division Chief, Clinical Chemistry, Sidra Medical and Research Center, Qatar; honorary professor, department of clinical biochemistry, Hull Royal Infirmary, Hull York Medical School.

**Blurred vision is a loss of clarity or sharpness of vision. It is a broad term that patients might use to describe a multitude of ophthalmic complaints, and therefore requires careful questioning to guide evaluation. It is important to differentiate blurred vision due to refractive error (the commonest reason globally<sup>1</sup>) from other symptoms that may be inaccurately described as blurred vision, such as scotomata (visual field defects), diplopia (double vision), floaters, photopsia (flashes), and metamorphopsia (visual distortions).**

This rational testing article provides some pointers for effective history taking and examination in order to guide appropriate next investigations and onward referrals.

## WHAT YOU NEED TO KNOW

- “Blurred vision” is synonymous with several different visual disturbances and must be further defined
- A careful history and examination will often reveal the most likely underlying pathology. Pinhole occluders are a cheap, quick, office-based test that can reveal an underlying refractive error during evaluation by a general practitioner
- New cases of blurred vision will likely need assessment by an optometrist or ophthalmologist. The urgency of referral depends on the history and examination findings
- It is important to have an understanding of local service provision and referral pathways to allow efficient use of services and provide a direct patient journey

## Box 1 | Taking a history for blurred vision<sup>2,3</sup>

### Ask about:

- Pattern of blurred vision:
  - Sudden or gradual onset?
  - How long has the vision been blurred?
  - Does it affect one or both eyes? Those with unilateral symptoms may have compensated with good vision from the contralateral eye
- Associated visual symptoms:
  - Any floaters or flashes? Are they new or persistent?
  - Any visual “curtain” effects (such as the sensation of a black curtain coming down across the field of vision in one eye)?
  - Any visual distortion? Does it affect their central vision?
  - Does the blurred vision improve with blinking?
- Other associated symptoms:
  - Pain? If so, how severe is the pain? Any associated nausea or vomiting?
  - Any pain on eye movement? Sharp pain or a sensation of something in the eye?
  - Any recent trauma?
  - Any headache? If so, is it temporal? Any scalp tenderness? Any jaw claudication (pain in jaw after chewing for some time)?
  - Any redness?
  - Any discharge?
- Medical history—Blurred vision may be a manifestation of a systemic disease, commonly diabetes and hypertension, but autoimmune diseases (including seronegative arthropathies) can also result in ophthalmic manifestations such as uveitis
- Ophthalmic history:
  - Any contact lens use?
  - Any recent surgery or intra-vitreous injections?
  - Any history of amblyopia (lazy eye)?
- Social history—The patient’s occupation may expose them to a high risk of foreign body injuries
- Family history of eye disorders such as glaucoma and hereditary disease such as retinitis pigmentosa will also help to estimate patients’ risk and prognosis of these conditions

## How should I assess the patient?

Diagnostically, much can be achieved with a careful history and basic examination in primary care. The key elements of a history are the pattern of blurred vision, associated symptoms, and ophthalmic and medical history. Key questions are detailed in box 1.

Typically, blurry vision of sudden onset that is painful and unilateral raises concern for an ophthalmic emergency and warrants immediate ophthalmologic referral. In contrast, gradual onset, bilateral, painless blurred vision is more often related to conditions such as refractive error or cataracts and can be referred less urgently. Stable floaters may suggest a posterior vitreous detachment, whereas

a shower of new floaters, persistent flashing lights with associated “visual curtain” effects (such as the sensation of a black curtain coming down across the field of vision in one eye) is concerning for retinal detachment. Box 2 summarises the differential for blurred vision according to acute versus chronic presentation and unilateral versus bilateral symptoms.

Age is also an important diagnostic consideration: sudden unilateral painful loss of vision in an 80 year old patient requires exclusion of giant cell arteritis, whereas a similar presentation in a 30 year old may point towards ophthalmic presentation of multiple sclerosis.

## Targeted examination

Information gathered from a focused history will ideally point towards a likely diagnosis (see box 2). A focused physical examination is the next, essential investigation in order to determine which patients need to be referred for ophthalmology evaluation and how urgently.

### External appearance

External eyelid appearance may suggest a periorbital cellulitis. Features of orbital involvement include proptosis, restriction in eye movement, and features of optic nerve dysfunction such as a relative afferent pupillary defect (RAPD) or reduced colour vision, any of which warrants urgent hospital referral or admission.

Circumferential conjunctival injection or ciliary flush (fig 1) may suggest uveitis, whereas generalised diffuse redness is more likely to suggest conjunctivitis. Sectorial injection may point towards episcleritis, but if the globe is tender, then the more sight-threatening scleritis needs to be considered.<sup>2</sup>

### Visual acuity

Visual acuity should be assessed by means of a Snellen chart with the patient wearing their spectacles if these are for long distance. This is easy to do by simply printing off a 3 m Snellen chart or even using certain mobile apps. Having 6/6 vision or better does not exclude all serious pathology, but good visual acuity on exam tells you that the direct pathway of light through the eye is relatively unobstructed (it requires a clear central cornea, lens, vitreous, and a functioning macula and optic nerve).

#### Box 2 | Potential causes of blurred vision<sup>4-7</sup>

##### Unilateral, painful, sudden onset

- Acute angle closure glaucoma
- Giant cell arteritis
- Other optic neuritis (multiple sclerosis)
- Corneal ulceration or trauma
- Uveitis
- Endophthalmitis (inflammation of the internal eye tissues, usually due to infection)
- Orbital cellulitis (inflammation of the eye tissue behind the orbital septum)

##### Unilateral, painless, sudden onset

- Mostly retinal, think detachments or vein/artery occlusions
- Wet age-related macular degeneration
- (If transient) amaurosis fugax

##### Bilateral, painless, quick onset

- Cerebral vascular disease
- Raised intracranial pressure leading to papilloedema

##### Unilateral or bilateral, painless, gradual onset

- Refractive
- Diabetic or hypertensive retinopathy
- Cataracts
- Open angle glaucoma
- Dry age-related macular degeneration
- Other systemic disease (often inflammatory in nature)
- Iatrogenic (drugs such as hydroxychloroquine or amiodarone)

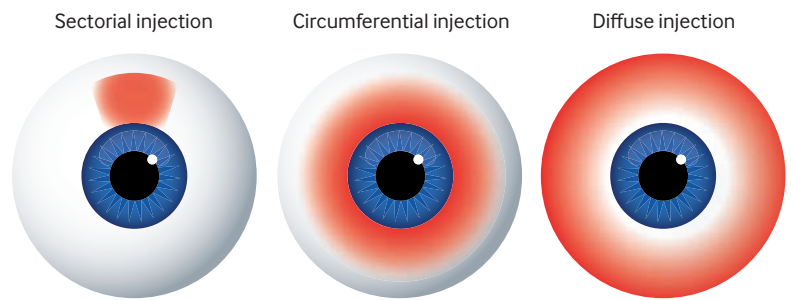


Fig 1 | Digital image highlighting circumferential injection versus sectorial injection

An often underused tool in primary care is the use of pinhole occluders with Snellen charts. The pinhole occluder is an opaque shield with one or more small openings through which the patient attempts to read the Snellen chart. These can be bought or can be hand made by creating a hole in a piece of paper using a pin or pen-tip.<sup>3</sup> A pinhole occluder removes scattered light, so that light entering the eye is focused through the centre of the lens onto the retina. If patients achieve significant visual acuity improvements with a pinhole occluder, this points towards a refractive component to their visual impairment.

### Visual fields

Visual field testing outside of an ophthalmic or optometry unit is usually done via the confrontation method.<sup>3</sup> With the patient keeping one eye closed and their gaze kept steady on your nose, you can assess their peripheral vision by asking them to count fingers in each quadrant of their field of view. Repeat the test with the other eye. This can identify gross neurological defects such as homonymous hemianopia that would require prompt referral.

### Diplopia, ocular motility, and eye movements

Monocular diplopia (double vision that persists with one eye closed) often suggests a problem within the eye itself (from cataract to refractive error). Binocular diplopia (double vision that disappears with one eye closed), on the other hand, suggests an ocular alignment problem which, if acute, could be due to a cranial nerve palsy or intracranial lesion, especially if accompanied by the typical eye movement limitations. Pain with extra-ocular muscle use and evidence of optic nerve dysfunction may indicate optic neuritis.

### Pupils (including testing for RAPD)

Testing for a relative afferent pupillary defect requires swinging a bright light from eye to eye. If the pupil of the stimulated eye dilates rather than constricts, then a relative afferent pupillary defect (RAPD) is present, which indicates a serious underlying pathology of the optic nerve or retina.<sup>4</sup>

Irregular pupil sizes can also be a cause for concern if the discordance is new: causes range from third nerve palsy to inflammatory conditions such as uveitis causing synechia (iris being stuck to the lens), although the latter usually presents with a red painful eye.



### Box 3 | Referral criteria<sup>4,5,7,8</sup>

#### Same day urgent referral to hospital or urgent discussion with ophthalmology

- All patients with eye-related trauma
- Contact lens-related corneal ulcers
- Red flag headaches (for example, precipitated by Valsalva manoeuvre, older age at onset, thunderclap headache, associated neurological deficits, associated weight loss) with signs of optic disc swelling (see fig 2)
- Sudden onset, painful loss of vision, especially if symptoms of giant cell arteritis are present
- Sudden onset, painless loss of vision suspicious for retinal arterial occlusion
- Sudden onset loss of vision suggestive of retinal detachment (for example, the sensation of a black curtain coming down across the field of vision in one eye)
- Red eye with recent ocular surgery, headache, nausea and vomiting, non-reactive pupils, or loss of vision
- Suspected giant cell arteritis with ophthalmic involvement
- Periorbital cellulitis with suspicion of orbital involvement
- Suspected optic neuritis—Pain with eye movements and evidence of optic nerve dysfunction such as reduced visual acuity, loss of colour vision, or relative afferent pupillary defect (RAPD)

#### Prompt referral to ophthalmology (patient should be seen within a few days) or discussion with ophthalmology if any uncertainty

- New floaters with persistent flashes
- New or worsening central visual distortion
- Isolated visual field defect
- Shingles with eye involvement
- Pre-septal cellulitis without suspicion of orbital involvement

#### Routine referral to ophthalmology or opticians

- Gradual onset blurred vision that is fully corrected with pinhole occluder without any associated visual symptoms
- Dry eyes
- Lid malposition (ectropion or entropion)
- Sticky eyes of prolonged duration with normal vision

### Direct ophthalmoscopy

An ophthalmoscope can be used to check for a red reflex. If there is no red reflex in one eye, then this may indicate gross pathology in that eye. Examining an eye with a direct ophthalmoscope provides a magnified view of the central retina and optic disc, but limited view of the periphery. For clinicians who are able to visualise the fundus, it would be helpful to comment on the appearance of the optic nerve and determine whether it is swollen (see fig 2).

### Fluorescein staining

When available, fluorescein staining allows you to assess the integrity of the cornea, and will highlight areas of damage to the corneal epithelium.<sup>4</sup> There are minimal contraindications for this test (such as fluorescein allergy), but it will require removal of contact lenses. Under fluorescein staining, any area of corneal epithelial damage will appear bright green under cobalt blue light (fig 3). Prominent staining with white corneal opacification (infiltrates) could be suggestive of a corneal ulcer, which will require an urgent referral.<sup>3,4</sup>

Competing interests:  
None declared.

Cite this as: *BMJ* 2020;368:m569

Find the full version with references at <http://dx.doi.org/10.1136/bmj.m569>

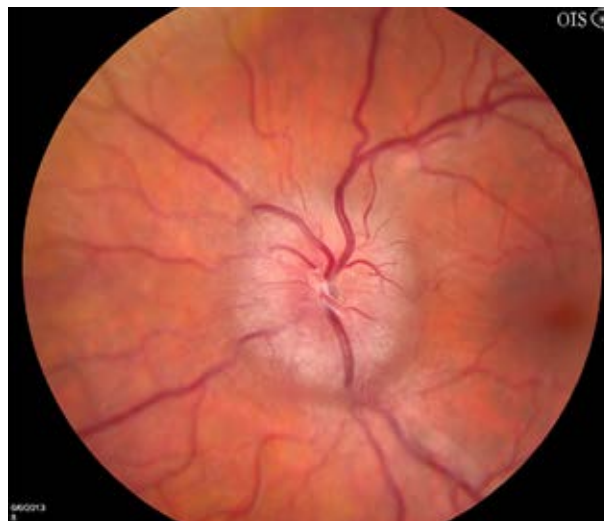


Fig 2 | Example of a swollen optic disc on fundus examination. Note the blurred disc margins and raised optic disc causing distortion of blood vessels at the disc margin

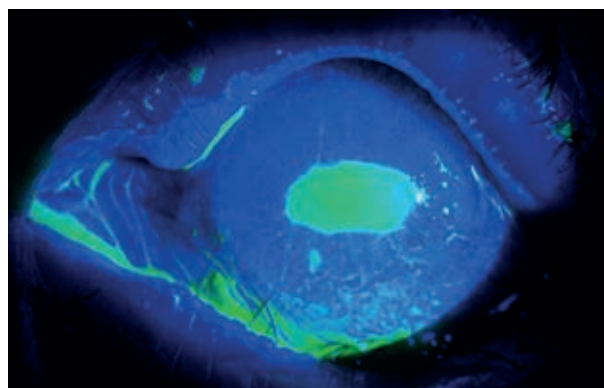


Fig 3 | An area of dense fluorescein pooling, highlighting an area of corneal epithelial defect

### Further investigations

After the directed history and physical exam, further evaluation will usually be undertaken by an ophthalmologist or optician (see box 3).

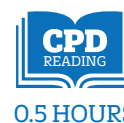
#### EDUCATION INTO PRACTICE

- Do you ask about risk factors for diabetes or hypertension when a patient presents with blurred vision of gradual onset?
- In patients whose primary complaint was bilateral blurred vision, how many had documented discussions about DVLA guidance on driving?
- Think about the last time you examined a patient's visual fields. How might you alter your language to ensure a more accurate and efficient test?

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

Patient experiences were taken generally from Hull University Teaching Hospitals NHS Trust. Their experiences fed into the article, especially the focus on a direct and straightforward patient journey.

# Coronavirus disease 2019 (covid-19): a guide for UK GPs



See <http://learning.bmj.com> for linked learning module

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**The UK recorded its first confirmed case of acute respiratory infection due to coronavirus disease 2019 (covid-19) on 31 January 2020 and responded by quarantining at-risk individuals to contain the spread of infection. Executive agencies Public Health England (PHE)<sup>1</sup> and Health Protection Scotland (HPS) have since published guidance to healthcare providers on managing patients suspected to have the disease.**

Guidance for the public and health professionals varies internationally, depending partly on risk levels and healthcare systems, and is being regularly updated.

This article offers a practical guide for GPs and others working in UK primary care on when to suspect covid-19 and how to respond. It is based on current UK guidance at the time of going to press (5pm on Tuesday, 10 March 2020).

## WHAT YOU NEED TO KNOW

- Consider covid-19 infection in anyone with cough, fever, or breathlessness who has had contact with someone with covid-19, or has returned from a high risk area in the 14 days before the onset of symptoms
- Every effort should be made to avoid in-person assessment of patients with possible covid-19 in primary care
- GP surgeries should plan ahead and develop clear protocols for managing possible cases, including isolation procedures, personal protective equipment, seeking specialist advice, and decontamination
- If covid-19 infection is suspected in someone attending the practice, isolate the patient in a room (away from other patients and staff), close the door, and ask the patient to call NHS 111
- The guidance may change so it is essential to look at the latest guidance online (box 1)

## HOW THIS ARTICLE WAS MADE

This article uses international websites, recent research papers, and the latest advice from Public Health England and Health Protection Scotland on identifying and managing patients with suspected covid-19 in primary care.

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

No patients were involved in the creation of this article.

## What do we know about the clinical course of covid-19?

The median estimated incubation period is five to six days (range 0 to 14 days).<sup>2</sup> The median age of confirmed cases is around 59 years.<sup>3</sup> Initial data indicate that more than 80% of patients have asymptomatic or mild disease and recover, but about 15% may get severe disease including pneumonia, and around 5% become critically unwell with septic shock and/or multi-organ and respiratory failure.<sup>4</sup> The case fatality rate is estimated at approximately 2% overall, but ranges from 0.2% in people under 50 to 14.8% in those over 80, and is higher among those with chronic comorbid conditions.<sup>5</sup>

## When to consider covid-19

Consider covid-19 in anyone requiring hospital admission with an flu-like illness, or acute respiratory distress syndrome, or either clinical or radiological evidence of pneumonia<sup>6</sup>. Otherwise, consider covid-19 in anyone who has either had contact with someone with confirmed covid-19 infection or returned from a high risk country in the 14 days before the onset of symptoms if they present with any of the following:

- acute respiratory infection of any degree of severity including shortness of breath (difficult breathing in children) or cough (with or without fever) or
- fever with no other symptoms

A contact is defined as:

- living in the same household as a person with a confirmed infection or
- direct contact with someone who has a confirmed infection, or with their body fluids, without appropriate personal protective equipment or
- face-to-face contact with a person with a confirmed infection, for any length of time or
- being within two metres of a person with a confirmed infection for longer than 15 minutes or
- being advised by a public health agency that contact with a confirmed case has occurred.<sup>6</sup>

## Which countries are considered high risk?

As of 2 March 2020, category 1 areas (highest risk) included Wuhan city and Hubei Province in China, Daegu or Cheongdo in Republic of Korea, Italian towns under containment measures, and Islamic Republic of Iran. Category 2 (high risk) countries included China, Thailand, Japan, Republic of Korea, Hong Kong, Taiwan, Singapore, Malaysia, Macau, Italy, Cambodia, Laos, Myanmar, and Vietnam (box 1). If the outbreak evolves in the UK and there is sustained secondary transmission, travel history may become less relevant.

# covid-19 in primary care (UK)

What should I do if I suspect a patient may have coronavirus disease 2019?

This graphic summarises guidance from Public Health England and Health Protection Scotland to prepare primary care practices in the UK. The aims are to identify potential new cases of covid-19 and either isolate patients to reduce onward transmission or refer safely to hospital if severely unwell.

See <http://bit.ly/co19loc>

**AND** Returned from a high-risk country in the 14 days before the onset of symptoms\*

**OR** Has had contact with a confirmed case of covid-19 infection

See <https://www.gov.uk/health-protection-team> or <https://www.hps.scot.nhs.uk/>

Report to local Health Protection Team immediately

Person with one or more of:

- Cough
- Fever
- Breathlessness

**Patients requiring hospitalisation**  
Suspect covid-19 in any seriously ill patients with influenza-like illness, ARDS†, or pneumonia

## Preparing the GP surgery in advance

Advise patients to call 111 instead of attending in person, with messages via:

- Reception staff
- Automated phone systems
- Prominent posters
- SMS message systems
- Warning notice on online booking systems

Plan which room is most appropriate for isolation

- Located away from waiting areas and other consultation rooms
- Without carpeted floors or soft furnishing
- Close to separate toilet facility

**Patient identified in GP surgery**

During consultation    At reception

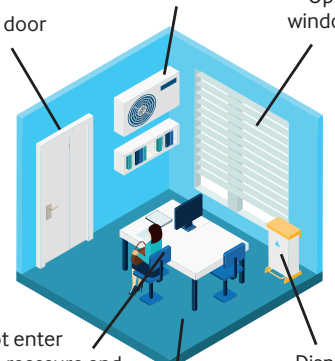
Ask patient to return home immediately and contact 111

If they do not feel well enough or are unwilling to leave, they should immediately be isolated

Telephone consultation

**Isolation room**

- Close door
- Turn off air conditioning
- Open window



Do not enter room, reassure and update patient by telephone

Dispose of all waste in a clinical waste bag

Clean and disinfect hard surfaces and reusable care equipment after patient leaves. Cleaners should wear personal protective equipment.

Bring consultation to a close

Avoid direct physical contact and exposure to respiratory secretions

Advise patient to call NHS 111 from within the consultation room‡

Leave the room and close the door

Wash hands thoroughly with soap and water

Assess whether clinically stable  
Initial data indicate that patients display approximately these proportions of severity:



Advise patient to contact NHS 111

**Call 999**

Inform operator that patient may have covid-19

Alert local infection specialist

## Personal protective equipment (PPE) in primary care

If contact with patient is unavoidable, and for cleaning the isolation room afterwards, use standard PPE

- Standard surgical mask
- Gloves
- Apron

Dispose of PPE as clinical waste after use

## Self isolation

Stay indoors for 14 days, separate from the rest of the household

Double bag waste, wait for test results before disposal

Choose a well ventilated room

Wear clean mask in shared kitchen, use separate crockery and cutlery

Do not invite visitors

Use separate bathroom, or clean shared bathroom regularly and use separate towels

† ARDS = acute respiratory distress syndrome

\* Travel destination may be less important if UK transmission becomes more common

‡ In Scotland GP should call local infection specialist or Health Protection Team

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## What are the public being asked to do if they are concerned about covid-19?

The public are advised not to attend GP surgeries, community pharmacies, or hospitals if they have concerns that they may have been exposed to or become infected by covid-19. Instead, in the UK they are being advised to use NHS 111, the national non-emergency helpline. Box 2 outlines how to respond during a telephone consultation where exposure or infection is suspected.

GP surgeries should put measures in place to reinforce this approach by

- Displaying large posters at the entrance to GP surgeries and a prominent notice on websites and online booking systems
- Using pre-recorded messages on telephone systems
- Sending patients SMS (text) messages
- Asking screening questions to patients as they arrive at reception:
  - Do you have a high temperature or cough or breathlessness?
  - Have you been in close contact with someone with coronavirus infection?
  - Have you been to any of the following areas (see list on previous page) in the last 14 days?

## What to do if you suspect covid-19 during a consultation

If you suspect possible coronavirus infection during a face-to-face consultation with a patient, stop the consultation and leave the room, avoiding physical examination, direct physical contact, and exposure to respiratory secretions. Wash your hands thoroughly with soap and water. Isolate the patient and reassure them that you are following precautionary guidelines (box 3).<sup>7</sup> The patient should call NHS 111 from the isolation room. (In Scotland the GP should seek advice from the local infection specialist or Health Protection Team.)

The NHS 111 clinician will contact the GP surgery after their assessment to advise on maintaining isolation of the patient pending transfer to home or hospital/receiving unit, or to continue routine GP care if coronavirus is not suspected. If further advice is needed, the GP should call the local infection specialist.

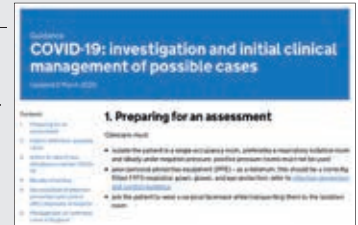
If the patient with suspected covid-19 is accompanied by family members or friends, they should all be isolated if they are close contacts of the patient.

## What if the patient is unwell?

If the patient is critically ill, call 999 and advise the call handler that the patient may have covid-19 infection. If you make a clinical judgment that the patient needs further assessment or intervention, while awaiting transfer to hospital, bear in mind your own safety and those around you and wear personal protective equipment as described in box 4.

### Box 1 | Essential resources

Covid-19: latest case definition, investigation, and initial clinical management of possible cases: <https://www.gov.uk/government/publications/wuhan-novel-coronavirus-initial-investigation-of-possible-cases/investigation-and-initial-clinical-management-of-possible-cases-of-wuhan-novel-coronavirus-wn-cov-infection>



Coronavirus: latest information and advice including updated list of high risk countries: <https://www.gov.uk/guidance/wuhan-novel-coronavirus-information-for-the-public>

Guidance on isolation of healthcare workers: <https://www.gov.uk/government/publications/novel-coronavirus-2019-ncov-guidance-for-healthcare-providers-with-staff-who-have-travelled-to-china/guidance-for-healthcare-providers-healthcare-workers-who-have-travelled-to-china>

Find your local Health Protection Team in England: <https://www.gov.uk/health-protection-team>

Covid-19: interim guidance for primary care including environmental cleaning after possible case: <https://www.gov.uk/government/publications/wn-cov-guidance-for-primary-care/wn-cov-interim-guidance-for-primary-care>

Covid-19: latest guidance for primary care on Health Protection Scotland (HPS): <https://www.hps.scot.nhs.uk/a-to-z-of-topics/covid-19/>

World Health Organization (WHO): technical documents for coronavirus (covid-19) outbreak: <https://www.who.int/health-topics/coronavirus>

European Centre for Disease Prevention and Control: latest guidance for EU/EEA: <https://www.ecdc.europa.eu/en/novel-coronavirus-china>

US Centers for Disease Control and Prevention: latest guidance, advice and information: <https://www.cdc.gov/coronavirus/2019-ncov/index.html>

### Box 2 | How to respond during a telephone consultation if you suspect exposure or infection

If a patient calls for advice from home or elsewhere and covid-19 is suspected:

- Assess whether they are clinically stable and not critically unwell. If the patient is critically unwell and requires urgent transfer to hospital, call 999 and inform the ambulance call handler of a suspected case of covid-19
- Avoid a face-to-face assessment in primary care including out-of-hours centres and GP hubs. Advise the patient to call NHS 111
- If hospital care is being considered, call the local hospital infection specialist (infectious diseases physician or microbiologist/virologist) for advice to discuss possible safe assessment in hospital
- If hospital assessment is advised, agree a method of transport with the hospital team, such as the patient's own car or an ambulance. Patients should not use public transport or taxis to get to hospital

### Box 3 | How to isolate patients with suspected covid-19 in primary care<sup>7</sup>

- Isolate individuals suspected to have covid-19, their waste, and their belongings in a room with the door closed and window open (switch off any air conditioning). Ensure that they have a mobile phone or access to a telephone line and ask them to call NHS 111 for advice
- Plan in advance which room is most appropriate for isolation. It should ideally be located away from the waiting area and other consultation rooms. Avoid a room with carpeted floors or soft furnishing as these are difficult to decontaminate
- Avoid entering the isolation room. If further clinical history needs to be obtained this should be done by phone
- The patient must not use the surgery's communal toilets. A toilet facility should be reserved, preferably close to the isolation room. Advise the patient not to touch anything or anyone when walking to the toilet and to wash hands thoroughly afterwards
- Communicate with the isolated patient preferably by phone or a conversation through the closed door to reassure them and provide updates



#### Box 4 | Personal protective equipment for covid-19 in primary care<sup>7</sup>

- If the person suspected to have covid-19 is identified on entry to a GP surgery and is isolated as soon as possible, there is no need for protective clothing or equipment
- If entry to the isolation room or contact with the patient is unavoidable, wear protective clothing in line with the standard infection control precautions, such as gloves, apron, and a standard fluid resistant surgical mask, and keep exposure to a minimum. All protective clothing and equipment should be disposed of as clinical waste
- If a patient needs to be reviewed for another medical reason while on home isolation, s/he should call NHS 111. If a GP visit is needed and telephone consultation is not appropriate, seek advice from the local Health Protection Team on appropriate protective equipment. Aim to keep a distance of 2 metres from the patient and avoid physical examination<sup>8</sup>

#### Box 5 | Self-isolation at home for people suspected to have covid-19 who are undergoing testing and are not critically ill<sup>9</sup>

- Where possible, patients with suspected covid-19 should self-isolate at home while awaiting the outcome of testing. If an individual is not suitable for self-isolation at home (for example, the accommodation is not suitable or there are other vulnerable occupants in the same dwelling such as pregnant or immunosuppressed individuals) you should advise the Health Protection Team immediately (resources in box 1 offer guidance for circumstances where home isolation is not suitable).
- Self-isolation means staying indoors for 14 days from the date of contact with a confirmed case or return from high risk areas, avoiding contact with other people, and separating themselves from the rest of the household
- If contacts of a patient awaiting test results have had substantial close contact with a suspected case, they should call NHS 111 for advice

#### Patients who are self-isolating are advised to

- Stay in a well ventilated room, use a separate bathroom if available; if they have to share the bathroom clean it regularly, use separate towels, wear a clean mask when using a communal kitchen, use separate crockery and cutlery
- Wash hands with soap and water before cooking and eating and after using the toilet
- Have food, medication, and supplies delivered to them
- Cover coughs and sneezes with a tissue and put it in a bin
- Avoid going out except if advised to seek medical care and do not use public transport or taxis. Own vehicle may be used
- Not have visitors at home
- Double bag and seal all waste. Subsequent disposal of waste is dependent on the result of the test for covid-19. Advice will be given by the Health Protection Team if confirmed positive
- Further information on self-isolation is available on the PHE website (box 1)

#### EDUCATION INTO PRACTICE

- How aware are staff in your practice of the latest advice regarding covid-19?
- Can you describe a clear protocol for identifying and isolating patients with possible covid-19 as quickly as possible if they are seen in the surgery?
- Do you have personal protective equipment in the practice including surgical face masks, aprons, and gloves?
- Do you have the telephone number for the local health protection unit or infection specialist to call for advice?
- Do you have a clear process for seeking advice and referring to occupational health for any affected staff members?

#### QUESTIONS PATIENTS MIGHT ASK ABOUT COVID-19

##### How do I know if I am infected with the virus?

If you have fever, cough, or feel breathless and in the past 14 days you have had contact with someone with a confirmed infection or you have been to a high risk country you may be infected. Please seek medical advice by calling NHS 111.

##### Is it contagious?

Yes, although we do not yet fully understand the precise routes of transmission. The virus is transmitted in respiratory droplets and can be spread by coughing, sneezing, or touching infected surfaces. Coronaviruses have also been detected in blood, faeces, and urine.

##### Will I get infected if I go out?

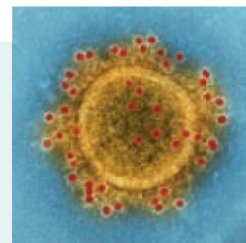
At the time of publication, it is very unlikely that you will get infected with the virus if you have not been to a high risk country or been in close contact with someone who is infected. Visit the NHS website: <https://www.nhs.uk/conditions/coronavirus-covid-19/>

##### What precautions do I need to take to prevent infection?

Wash your hands frequently, especially after using public transport. Avoid touching your eyes and nose, and sneeze or cough into a tissue. Common disinfectants such as soaps and alcohol based hand rub are effective in eliminating the virus if it is on your hands. Face masks for the general public are not recommended.

##### What is the treatment for covid-19?

Most people do not need any specific treatment. Those who are ill will receive supportive care to help them recover from the illness in specialist settings.



#### What happens next?

Diagnostic sampling in primary care is not recommended and local pathways for obtaining nose and throat swabs vary. Testing may take place in the hospital, the patient's home, or in designated receiving units. Samples are sent for urgent testing at a designated PHE laboratory. Results should be available within 48 hours.

Patients with relevant contact or travel history who have no symptoms or those who have tested positive for covid-19 infection and have mild symptoms are likely to be asked to self-isolate (box 5).

After the patient is transferred from the surgery premises, the room should be kept closed until it has been cleaned. Follow detailed guidance (box 1) to ensure that the room is cleaned correctly. The person(s) cleaning the room should wear a disposable plastic apron, facemask, and gloves. Dispose of all waste in a clinical waste bag, and clean and disinfect all hard surfaces, floors, chairs, door handles, sanitary fittings, and reusable non-invasive care equipment with a combined detergent disinfectant solution at a dilution of 1000 ppm available chlorine. All non-disposable items used for patient care that cannot be cleaned with detergent and disinfectant should be put in a clinical waste bag and quarantined until the patient's test results are known. If the patient is later confirmed to have covid-19, seek further advice from the Health Protection Team.

Debrief with the practice team, especially those who were directly involved in management of the patient. Provide reassurance as appropriate. Staff who came into contact with a patient who tests positive for covid-19 should seek advice from occupational health and the local Health Protection Team. Practice staff who have been in contact with a suspected case are not required to self-isolate unless directed otherwise by the Health Protection Team (see box 1 for link to full guidance). Advise all staff if they have any symptoms to call NHS 111 for advice and to inform the practice.

Cite this as: *BMJ* 2020;368:m800

Find the full version with references at <http://dx.doi.org/10.1136/bmj.m800>



CASE REVIEW

**A woman with spreading erythema after caesarean section**

A 26 year old woman presented to the emergency department six days after having a caesarean section with an area of spreading erythema extending from her wound site over the infra-umbilical abdomen (figure). She had had gestational diabetes, and during labour had experienced premature rupture of membranes. She reported that the area of erythema had doubled in size over the preceding 12 hours and an area of dark bruising had appeared over the last four hours. The wound had become increasingly painful, despite regular analgesia, with a pain score of 9/10, and she felt generally unwell. Her temperature was 39°C, heart rate 135 beats/min, and respiratory rate 27 breaths/min. Results of relevant blood tests are shown in the table.

- 1 What is the most likely diagnosis?
- 2 How would you manage this condition?
- 3 What is the prognosis of this condition?

Submitted by Oscar Johnson, Anna Louise Pouncey, Sonya Gardiner, and David Ross  
Patient consent obtained.

Cite this as: *BMJ* 2020;368:m445



Photograph of abdomen at presentation

Relevant bloods results

Test	Result (normal range)
White cell count	20 (4-11)
C reactive protein	468 (<5)

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

answers

**CASE REVIEW A woman with spreading erythema after caesarean section**

**1 What is the most likely diagnosis?**

Abdominal wall necrotising fasciitis. Erythema (a result of tissue necrosis and capillary breakdown), rapidly spreading cellulitis, and pain out of proportion are highly suggestive of necrotising fasciitis, which is a surgical emergency. The spectrum of necrotising soft tissue infections ranges from mild pyoderma to necrotising fasciitis. Necrotising fasciitis is a fulminant, progressive bacterial infection which spreads along the fascial layers, causing simultaneous tissue necrosis. It is characterised by its rapid progression and extreme inflammatory response; it can rapidly progress to shock and end organ damage. Recent surgery is a risk factor. Other associated factors include anaemia, diabetes, obesity, malnourishment, hypertension, and immunosuppression. Necrotising fasciitis occurs in 1.8 per 1000 patients undergoing caesarean section, and usually appears within the first 5-17 days.

**2 How would you manage this condition?**

Immediate broad spectrum intravenous antibiotics and intensive haemodynamic support, followed by surgical debridement with excision extending beyond the margins of necrotic tissue.

**3 What is the prognosis of this condition?**

Mortality in necrotising fasciitis ranges from 8% to 76%. Appropriate treatment has been associated with a decrease in mortality (10%-40%); however, mortality is higher if there is shock and end organ damage (50% to 70%).

**LEARNING POINTS**

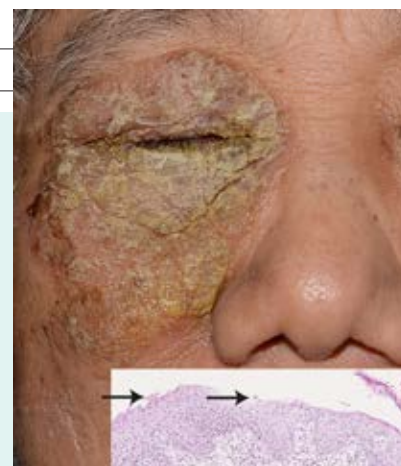
- Consider necrotising fasciitis when moderate to severe cellulitis is present at any location on the body, especially if the patient has had recent surgery or trauma, or has anaemia, diabetes, obesity, immunosuppression, malnutrition, hypertension, or peripheral vascular disease.
  - Rapidly progressive cellulitis and ecchymosis with pain out of proportion to clinical findings are late signs.
- PATIENT OUTCOME**  
The patient underwent emergency surgical resection of the necrotic tissue with 24 hours high dependency care postoperatively. After surgery she was able to continue breastfeeding her baby with temporary use of a breast pump. She was discharged 14 days later.



You can record CPD points for reading any article. We suggest half an hour to read and reflect on each.



Articles with a "learning module" logo have a linked BMJ Learning module at <http://learning.bmj.com>.



### Localised pemphigus foliaceus around the eyes

This is a picture (figure) of localised pemphigus foliaceus in a 67 year old Chinese woman. The well demarcated, periorcular, eroded plaque with yellowish brown crusts gradually extended over two months. Infectious causes such as bullous impetigo were excluded as fungal and bacterial culture were negative. Histopathology showed superficial epidermal/intragranular acantholysis (figure inset, arrows) and the serum anti-Dsg1 antibody was slightly elevated at 20.5 U/mL (normal <20 U/mL), which confirmed the

diagnosis. Localised pemphigus foliaceus is a rare autoimmune blistering disease. Diagnosis can be challenging, but the condition is important to identify early as dissemination could result in severe blistering and life threatening skin infection.

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Patient consent obtained.

Cite this as: *BMJ* 2020;368:m582

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

### Arches of the foot

Unlike the feet of other primates, the human foot has a longitudinal arch running from the calcaneus to the metatarsal heads. It provides both spring and stiffness so that forces generated by the musculature of the leg are efficiently transmitted to the ground. A new study, part computer simulation and part direct measurement on cadaveric specimens, finds that the transverse tarsal arch of the foot is almost as important (*Nature* doi:10.1038/s41586-020-2053-y). It too contributes substantially to the stiffness of the foot in the same way that a bank note becomes less floppy if it is curled transversely.



### Bias in heart surgery

Left digit bias refers to the tendency for people to pay more attention to the first figure of a numerical variable than the rest of it. This bias is often exploited by retailers who find that stuff is easier to sell if it carries a price tag of £9.99 rather than £10, despite the obvious fact that the difference in cost is negligible. Something similar can occur when doctors are deciding what treatments to offer older people. Patients with acute myocardial infarction admitted in the two weeks following their 80th birthday were less likely to receive coronary artery bypass grafting than those admitted in the two weeks before their 80th birthday when the leftmost digit of their age was only 7 (*N Engl J Med* doi:10.1056/NEJMc1911289).

### Benefits of intensive treatment of hypertension

The systolic blood pressure intervention trial (SPRINT) showed that intensive treatment of hypertension (to a target of <120 mm Hg) reduced rates of cardiovascular events by a quarter compared with standard treatment (*N Engl J Med* doi:10.1056/NEJMoa1511939). A re-analysis of the trial data using actuarial methods puts this risk reduction in absolute terms. Intensive blood pressure control improved projected survival by between six months and three years, with those

who started intensive treatment at a younger age getting greater benefit (*JAMA Cardiol* doi:10.1001/jamacardio.2019.6192). Of course, this applies only to middle aged and older people at high risk of cardiovascular conditions, but without diabetes, who form the trial's target population.

### Stevens-Johnson syndrome

Stevens-Johnson syndrome and toxic epidermal necrolysis are rare but severe mucocutaneous reactions, usually in response to drugs. A claims database for the entire South Korean population identified 200 people who had been diagnosed with one of these conditions during 2011 (*J Allergy Clin Immunol Pract* doi:10.1016/j.jaip.2019.09.032). As in other studies from other countries, the single most common culprit was allopurinol. Other common offenders were the anti-epileptic drugs carbamazepine and lamotrigine, and antibiotics—particularly amoxicillin. Most cases occurred two to six weeks after initiating the drug.

Cite this as: *BMJ* 2020;368:m866



### Depression in adolescence

As children get older, they become less active and spend more time sitting, according to a longitudinal study from the UK that used accelerometer recordings to measure physical activity. Children whose physical activity declined most were more likely to report depressive symptoms when interviewed at age 18 (*Lancet Psych* doi:10.1016/S2215-0366(20)30034-1). An additional hour of sedentary behaviour each day was associated with a 8–11% increase in depression score. The investigators think that increasing activity during adolescence might be a way to reduce the prevalence of depression.