education

FROM THE JOURNALS Edited highlights of weekly research reviews on https://bit.ly/2PLtil8

Antibiotics for diverticulitis

Which antibiotic combination works best for diverticulitis in the community? This active comparator, new user study (a design that aims to mitigate bias and emulate head-to-head randomised controlled trials) used data from two large US-wide retrospective cohort studies to compare outcomes with metronidazole plus a fluoroquinolone (such as ciprofloxacin) versus amoxicillin plus a clavulanate (such as co-amoxiclav). There was no significant difference in rates of hospital admissions or urgent surgery within the first year or elective surgery within three years.

Rates of *Clostridium difficile* infection were similar, with a small rise among older patients who were prescribed metronidazole with a fluoroquinolone. Residual confounding is still possible, and important possible antibiotic induced harms such as liver damage could not be assessed. There are good reasons to avoid fluoroquinolones if possible, and co-amoxiclav seems a good alternative.

Ann Intern Med doi:10.7326/M20-6315

Cholinergics for psychosis?

Most antipsychotic drugs block dopamine receptors, but there's interest in the role of the muscarinic cholinergic system in schizophrenia. This small, double blind, phase II trial found that a combination of xanomeline (a muscarinic cholinergic receptor agonist) combined with trospium (an anticholinergic drug given to block unwanted peripheral cholinergic effects of xanomeline) was effective compared with placebo in acutely psychotic patients (reduction in PANSS total score (which measures schizophrenia symptoms) of −16.1 *v* −7.1).

The traditional unwanted effects such as weight gain, sedation, and parkinsonism were no greater with active treatment than with placebo, but in their place were cholinergic side effects such as dry mouth, nausea, vomiting, and constipation. The patients were in hospital, and follow-up was only five weeks. Head-to-head studies against current antipsychotics and longer, bigger trials among a more diverse population are needed before anything meaningful can be deduced.

N Engl J Med doi:10.1056/NEJMoa2017015

Refined carbs are bad for rich and poor

In high income countries, a diet with a high glycaemic index (GI) is known to be associated with an increased risk of a major cardiovascular event or death. This ambitious study asked whether the same is true in low and middle income countries. Researchers estimated glycaemic index and glycaemic load (which reflects how quickly and how high blood sugar rises after a portion of a given food) in 137 851 people aged 35-70 years across five continents for a median 9.5 years. People in China, Africa, and South East Asia had high GI diets, and, for individuals with a high body mass index, a poor diet was associated with worse outcomes.

But I wonder what this study adds to our understanding: GI estimates are imprecise, populations are heterogeneous, the numbers aren't sufficient for analysis by geographical region, and, perhaps most importantly, diets are changing at varying rates.

N Engl J Med doi:1 0.1056/NEJMoa2007123

The holy grail: an effective weight loss drug

This STEP 3 trial of 611 overweight or obese non-diabetic people found that 14 months of once weekly subcutaneous semaglutide combined with intensive behavioural therapy and a low calorie diet for the initial eight weeks resulted in significant weight loss compared with placebo (mean weight loss 16.0% *v* 5.7%). An astonishing 96% of people in both groups reported side effects, most of which were mild and short lived. Serious adverse events were higher in the semaglutide group (9.1% *v* 2.9%). Similar results have been found with liraglutide, another GLP-1 agonist, and a head-to-head trial of the two drugs is now under way. What we need to know is whether the impressive weight loss is maintained and whether the three prongs of diet, therapy, and drugs are all critical for a successful result.

JAMA doi:10.1001/jama.2021.1831

Do covid antibodies protect against future infection?

This huge cohort study of more than 3.2 million US patients found that only 0.3% of those who tested positive for SARS-CoV-2 antibodies had evidence of a positive nucleic acid amplification test (NAAT) more than 90 days after index, compared with 3.0% among those with negative antibody test results. This implies, but doesn't prove, a 10-fold increase in protection from further infection if you have antibodies. The study used non-randomised observational data from commercial laboratories and makes no claim to be as robust as a classic prospective seroprotection trial.

There are important unknowns. Were the positive NAAT results in either group associated with clinical signs of infection? How long does protection associated with having antibodies last? How much protection is attributable to antibodies or to T cells?

JAMA Intern Med doi:10.1001/jamainternmed.2021.0366

Ann Robinson is an NHS GP and health writer and broadcaster

Acute covid-19 and multisystem inflammatory syndrome in children

Jessica H Rubens,[1] Nadine Peart Akindele,[1] Megan M Tschudy,[2] Anna C Sick-Samuels[1]

[1]Johns Hopkins University School of Medicine, Department of Pediatrics, Division of Infectious Diseases, Baltimore, Maryland
[2]Johns Hopkins University School of Medicine, Department of Pediatrics, Division of General Pediatrics, Baltimore, Maryland
Correspondence to: A Sick-Samuels asick1@jhmi.edu

CPD READING
0.5 HOURS

The most common symptoms in children with acute SARS-CoV-2 infection (covid-19 disease) are fever and cough. Other symptoms may include sore throat, rhinorrhoea, or congestion, myalgias, headache, fatigue, and gastrointestinal symptoms including nausea, vomiting, or diarrhoea. Table 1 (bmj.com) summarises the range of symptom prevalence reported from three large meta-analyses.[1-3] Though children have a similar distribution of initial symptoms as compared with adults, children are more likely to have mild, self-resolving symptoms without progression to the lower pulmonary disease that necessitates hospitalisation.[4] Data that further disaggregate paediatric symptoms by age are relatively limited. Among infants the most common symptoms of acute covid-19 similarly include fever, cough, and nasal congestion. Infants may also present with isolated fever, poor feeding, or fussiness.[9-12]

HOW PATIENTS WERE INVOLVED IN THE CREATION OF THIS ARTICLE

Patients (and their families) under the care of the authors were invited to be interviewed about their perspective on covid-19, as well as the effect of the pandemic on their family and their livelihood. Parents were confused regarding how their children had acquired the illness, particularly when SARS-CoV-2 antibodies were found during an evaluation for MIS-C. Some parents expressed concern about their own risk of acquiring SARS-CoV-2 while in a hospital setting with their sick child and were unsure of the possibility that they, as parents, may acquire the illness. Families recognised that there is still much to be learnt about the disease and its transmission—but were puzzled by the varied manifestations of infection in different people. Gaining a better understanding of the specific concerns and challenges facing families informed the focus of this article.

WHAT YOU NEED TO KNOW

- Exclude covid-19 in children with fever, respiratory tract symptoms, or loss of taste or smell, especially if there is possible exposure to others with the virus
- Consider multisystem inflammatory syndrome (MIS-C) in children presenting with fever and abdominal symptoms—particularly if they develop conjunctivitis or rash
- MIS-C can have overlapping symptomatology with sepsis, toxic shock syndrome, myocarditis, and meningitis. Consider empiric antibiotics and evaluations if the patient develops cardiovascular or respiratory compromise, evidence of acute abdomen, or meningismus
- Mask wearing, hand hygiene, and social distancing remain crucial to prevent the spread of SARS-CoV-2 in children and adults

BURGER/PHANIE/SPL

Asymptomatic and mild disease

Multiple reports have described a mild illness trajectory and high rates of asymptomatic infection in children with acute covid-19. The true incidence of asymptomatic SARS-CoV-2 infection is difficult to confirm, as asymptomatic children may not be tested; however meta-analyses estimate that between 16% and 19% of paediatric cases are asymptomatic.[1 2 3] A recent prospective multicentre study of four French hospitals screened all admitted patients for SARS-CoV-2 infection by polymerase chain reaction testing and found that 45% of the 438 positive paediatric cases hospitalised were asymptomatic.[14]

Severe covid-19 disease

A small proportion of children go on to develop severe acute covid-19 disease and require hospitalisation because of respiratory compromise or complications of SARS-CoV-2 infection, such as multisystem inflammatory syndrome in children (MIS-C). A CDC study in August 2020 of 576 children hospitalised with SARS-CoV-2 infection reported a lower hospitalisation rate compared with adults (8 versus 165 per 100 000); however, one in three hospitalised children required admission to intensive care units, a rate similar to adults.[4] This report also describes a bimodal distribution in hospitalisation rate by age. Infants <2 months accounted for 19% of admissions—which may reflect a general practice standard to admit and evaluate neonates with fever or other symptoms that could indicate a serious bacterial infection rather than disease severity—because most neonates have mild self-resolving infections with brief admissions.[17] Children aged 12-17 years accounted for 42% of admissions, which may reflect more severe illness in adolescents.[4] It appears that children who become severely ill with acute covid-19 often have one or more underlying conditions, including medical complexity, obesity, asthma, sickle cell disease, and immunosuppression.[18] Reassuringly, the mortality rate in paediatric patients remains low, accounting for <1% of all deaths associated with SARS-CoV-2 in the US.[18 19] The risk factors for severe illness in children will likely be further clarified by ongoing research.

Table 2 | Differential diagnosis of acute covid-19 and multisystem inflammatory disease (MIS-C)

Acute covid-19 (chief concern: respiratory tract symptoms)	MIS-C (chief concern: fever with abdominal pain and/or rashes)
Infectious causes	
Other respiratory viral infections (eg, influenza, adenovirus, respiratory syncytial virus, rhinovirus) causing upper and/or lower respiratory tract infection	Acute covid-19 or other viral infections (eg, adenovirus, enterovirus/coxsackie viruses)
Atypical pneumonia	Toxic shock syndrome
Acute bacterial pneumonia	Bacterial sepsis
Bacterial sinusitis	Appendicitis
Tuberculosis	Abdominal abscess
Non-infectious causes	
Reactive airway disease/asthma	Intussusception
Cardiac dysfunction	Myocarditis
Hyperglycaemia	Kawasaki disease
Dehydration	Haematological malignancy
Diabetic ketoacidosis	Macrophage activation syndrome
Foreign body	Haemophagocytic lymphohistiocytosis
	Systemic juvenile idiopathic arthritis
	Systemic lupus erythematosus

Community transmission of SARS-CoV-2 is happening in my region. How should I approach a sick child?

In places where there is active community transmission of SARS-CoV-2, children with fever, respiratory tract symptoms, loss of taste or smell, or multiple infectious symptoms should undergo testing for covid-19 or be considered to have the disease until proved otherwise. Acute covid-19 does not appear to be easily distinguished from other viral infections based on symptomatology. A retrospective cohort study compared children infected with influenza (n=1402) or SARS-CoV-2 (n=315) and found that those admitted with SARS-CoV-2 reported more frequent non-specific viral symptoms than those with influenza, but no difference was seen in the rate of hospitalisation, intensive care unit admission, or mechanical ventilation.[20] In addition, a systematic review suggested that 6% of children with covid-19 also had a concurrent bacterial or viral co-infection.[1] Though children with fever and respiratory tract symptoms will likely undergo testing for SARS-CoV-2 where covid-19 is endemic, clinicians should consider a range of other diagnoses, including other pulmonary infections and systemic illnesses with respiratory manifestations, including non-infectious diagnoses such as diabetic ketoacidosis (table 2). Encourage parents or caregivers to return to care if their child develops symptoms that suggest more serious disease, including rapid or laboured breathing, dehydration, persistent fever, severe abdominal pain, or altered mental status.

Children with fever and gastrointestinal symptoms (abdominal pain, vomiting, or diarrhoea) or any child with other features consistent with Kawasaki disease (eg, persistent fever plus lymphadenopathy, mucocutaneous changes, conjunctivitis, or swelling of extremities) could have MIS-C. These patients require urgent evaluation in an emergency department, preferably staffed by paediatric specialists.

Multisystem inflammatory disease in children

MIS-C (box, p 369) is thought to be a hyperinflammatory syndrome that develops approximately 2-6 weeks after SARS-CoV-2 infection.

Typically, school aged children are affected (median age 8 years), though MIS-C has been reported in children from infancy through young adulthood.[22-24] Children with MIS-C present with persistent fever, and most often have gastrointestinal symptoms (eg, abdominal pain, vomiting, diarrhoea), mucocutaneous changes (eg, rash, conjunctivitis), and may experience neurological symptoms (eg, headache, meningismus) (table 3, p 369). Patients with MIS-C may present with some features consistent with Kawasaki disease (particularly fever and mucocutaneous changes); however, MIS-C is likely a distinct clinical entity. Patients with MIS-C often have predominant cardiac dysfunction and gastrointestinal symptoms, in addition to biomarker and cytokine differences that appear distinct from Kawasaki disease.[23 26 27 28] One study observed that younger patients (aged 0-5 years) with MIS-C were more likely to meet Kawasaki disease or atypical Kawasaki disease criteria compared with adolescents (48% *v* 12%), had a higher prevalence of mucocutaneous symptoms (87% *v* 62%), and had a lower prevalence of myocarditis (39% *v* 73%) or neurological symptoms (13% *v* 39% of adolescents).[26] Though there are hypotheses around risk factors for MIS-C, such as lower pre-existing immunity to coronaviruses, specific risk factors for developing MIS-C in children are not well established.[28]

MIS-C is typically a progressive illness, and patients who initially had mild symptoms can develop severe illness with multi-organ dysfunction within a few days of symptom onset. Critical signs may include haemodynamic instability, tachycardia, left ventricular dysfunction, and respiratory distress, which could be primary or caused by cardiac dysfunction. Two thirds of patients in the US with MIS-C required admission to intensive care[23] and 30 deaths among 2060 patients with MIS-C have been reported in the US as of 8 February 2021.[21] Laboratory abnormalities often include lymphopenia, anaemia, and thrombocytopenia, in addition to elevations in liver enzymes, creatinine, pro-brain natriuretic protein, troponin, and coagulation studies. If MIS-C is suspected, it is important to obtain laboratory tests to evaluate for evidence of inflammation, cardiac, and other organ dysfunction, and to obtain additional diagnostic imaging based on physical examination findings or laboratory results. All patients in whom there is strong suspicion for MIS-C should have an echocardiogram to evaluate cardiac function and look for evidence of coronary artery dilatation. The presenting signs and symptoms of MIS-C in children can overlap with sepsis, toxic shock, myocarditis, appendicitis, or meningitis. Pursue evaluation and initiate antibiotic therapy if necessary (table 2).

BURGER/PHANIE/SPL

Table 3 | Clinical features of patients with MIS-C, summarised from two surveillance studies and one meta-analysis

	Range[22 23 24]*
Previously healthy	66-73%
Median age	8 years (range 0- 20 years)
Organ system involvement	
Gastrointestinal	87-92%
Cardiovascular	67-87%
Haematological	74-76%
Mucocutaneous	71-74%
Respiratory	63-70%
Neurological	38-39%
Admission to intensive care	64-80%
Mechanical ventilation	13-30%
Vasoactive support	42-48%
Death	2-4%

*Feldstein et al included 186 patients; Godfred-Cato et al included 570 patients; and Jiang et al included 660 patients in their meta-analysis

Case definition of MIS-C

- Presence of fever for ≥24 hours
- Elevated inflammatory markers
- Multi-organ dysfunction (≥2 systems: cardiac, dermatological, gastrointestinal, renal, respiratory, haematological, and/or neurological)
- No plausible alternative diagnosis
- Positive viral or serological testing for SARS-CoV-2 or close contact with a person with covid-19 within four weeks of symptom onset[21]

Transmission dynamics of SARS-CoV-2 in children

While questions remain regarding the susceptibility of children to covid-19 when exposed to the SARS-CoV-2 virus and their ability to transmit it to others, transmission of the virus from children to contacts in their households, camps, and schools[30-32] has been clearly documented, particularly when face masks are not worn universally.[33] If a household or other close contact contracts SARS-CoV-2, the exposed child should quarantine.

Considerations for testing

If a child has symptoms of a viral infection and SARS-CoV-2 is circulating in the community, testing for SARS-CoV-2 infection is warranted. Even if symptoms are mild, confirming SARS-CoV-2 infection informs isolation and contact tracing of positive cases. For the purposes of school attendance, attempts have been made to risk stratify children with symptoms regarding likelihood of SARS-CoV-2.[36-38] However, manifestations in an individual can vary greatly, the virus can transmit among asymptomatic people, and co-infections are possible. The local prevalence of SARS-CoV-2 and the child's personal exposures should be taken into consideration. If testing is not available, regardless of the actual cause of symptoms, it is safest to keep children at home until fevers resolve and symptoms improve, following regional public health guidance on when they may return to school. Generally, SARS-CoV-2 testing among children is considered as reliable as testing from adults—for example, a study found that children with mild to moderate SARS-CoV-2 infection had similar or even higher nasopharyngeal SARS-CoV-2 viral loads compared with adults.[39] Antibody testing is generally not recommended unless a patient is being evaluated for MIS-C, as the presence or absence of antibodies would not otherwise inform clinical management or modify need for preventive behaviours.[40]

EDUCATION INTO PRACTICE

- If SARS-CoV-2 is circulating in your community and a child presents with fever, cough, or congestion, what differential diagnoses should you consider?
- How might infants present differently from older children with SARS-CoV-2 infection?
- What are the most common presenting symptoms of MIS-C and what other diagnoses should also be considered?

Health disparities in clinical outcomes and social determinants of health

The covid-19 pandemic has dramatically highlighted health disparities among racial and ethnic groups. In the US, children of Latinx, Black, and minority ethnicities experienced higher rates of hospitalisation owing to SARS-CoV-2 compared with non-Hispanic white children (16.4 *v* 10.5 per 100 000),[4] and Indigenous Americans/Alaska Natives were 5.3 times more likely to be hospitalised.[41] These racial and ethnic differences may reflect vulnerabilities to virus transmission related to occupational exposures, housing arrangements, or need to use public transportation. Consider asking families about financial and psychosocial stressors and connect families with local support services, where available.

Therapeutic and prevention efforts

Children with mild acute covid-19 benefit from usual supportive care measures, including rest, hydration, and antipyretics as needed. Dexamethasone was shown to decrease mortality in adults with moderate to severe respiratory distress, and may be considered in children with significant respiratory illness, though paediatric data are still forthcoming.[43] Similarly, though efficacy is still being evaluated in children, remdesivir may be prescribed for children with respiratory deterioration. Other treatments, such as convalescent plasma or monoclonal antibodies, might be considered in high risk patients, but these therapeutics require further study in adults and children. Children with MIS-C most commonly are treated with intravenous immunoglobulin and often steroids. Data on outcomes and treatment efficacy are limited overall.

Competing interests: None declared.

Cite this as: *BMJ* 2021;372:n385

Find the full version with references at http://dx.doi.org/10.1136/bmj.n385

PRACTICE POINTER

How to conduct written online consultations with patients in primary care

Minal Bakhai,[1] Helen Atherton[2]

[1]NHS England and NHS Improvement London
[2]Warwick Medical School
Correspondence to: M Bakhai minal.bakhai1@nhs.net

CPD READING
0.5 HOURS

A written online consultation is a two way written exchange between a healthcare professional and a patient using an online medium (such as an online web platform or email portal). Such exchanges offer an alternative route of access for patients alongside telephone and face-to-face consultations. This article offers a guide to help clinicians, particularly those working in primary care, use written online consultations effectively with their patients.

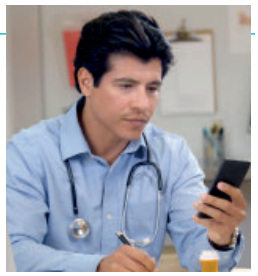
Where are written online consultations used in primary care?

Use of written online consultations has increased over the past decade, with many health systems adopting them as a way for primary care staff to interact with patients.[1-4] In Denmark, offering patients email consultations has been mandatory in general practice since 2007, and 21% of all consultations were conducted this way in 2019.[5] In England, general practices have been encouraged by NHS England and NHS Improvement to adopt online triage platforms. These offer patients a secure way to send a request or message to their practice via a structured online form.[6 7] US health maintenance organisations have for many years used patient portals to facilitate this type of communication.[8 9] The covid-19 pandemic has accelerated adoption of written online consultation because it offers communication without proximity.[10 11] Many primary care health professionals will now be encountering this form of consultation with patients for the first time.

HOW PATIENTS WERE INVOLVED IN THE CREATION OF THIS ARTICLE

A draft of this article was shared with the Patient Public involvement reference group linked to the Unit of Academic Primary Care, Warwick Medical School, via Helen Atherton and the Community Barnet Primary Care Group, via Minal Bakhai. Recommendations were made on all parts of the draft by participants. Of particular note detailed suggestions were made to sections on accessibility, privacy, and security.

WHAT YOU NEED TO KNOW



- Have a blended approach to communication (using text, online message, phone, video, and face-to-face consultations) focused on patient need
- Written online consultations work best in the context of an existing healthcare professional-patient relationship
- Draw on your current skills and clinical acumen in conducting consultations and apply these when consulting online
- The experience of the personal communication matters more to patients than the consultation modality

What is the evidence base?

Evaluating online written consultations has to date been challenging because of differences in the way different approaches are implemented and delivered, the complexity of factors that influence change, low uptake by patients, and, for quantitative studies, a lack of standardised approaches to recording consultation type use in practice.[12] To date, evaluations have mostly been small scale and short term or have been exploratory in nature.

A 2012 Cochrane systematic review of email consultations found the evidence to be equivocal.[13] A 2019 systematic review of e-consulting (including written online consultation) examined 57 studies, many of which were small.[14] It reported that uptake and utilisation of e-consulting tended towards younger and employed adults, with acceptability and ease of use strongest in those with long term conditions and living in remote areas. Patients reported improved communication and increased engagement. Primary care professionals expressed fears about potential impact on workload, expectations of a quick response time, and the need for guidelines on the rules of engagement and communication strategies.

A 2019 rapid review focused on "digital first primary care"[15] found a lack of quantitative empirical data. It reported concerns from healthcare professionals about implementation and the potential for inequitable access to services for patients. Possible benefits included the ability to maintain continuity of care with a specific clinician. Included studies reported that written online consultations were popular among some older patients, patients who find face-to-face consultations difficult, and those with hearing, mobility, or anxiety issues.[15]

A 2015 realist review examining use of digital communication with marginalised groups found online written consultations offered advantages and that they worked best in the context of an ongoing doctor-patient relationship.[16] The reviews that examined safety issues did not identify problems.[13-15]

thebmj Visual summary

Online consulting

Tips for effective online consultations

Online consultation requests can be a convenient way for patients to contact primary care services, and allow their queries to be triaged to the appropriate member of the primary care team. Use clinical judgment to decide whether to respond with a written message, telephone, video call, or face-to-face consultation.

Banner on website

Practice social media

Practice staff encourage use

Telephone answer message from senior GP

SMS text message link

Note on prescriptions

Pre-screening for covid-19 and option of self care offered

Use multiple channels to encourage use of online consultations. Reassure patients that they are still accessing a clinician

Screening

Query directed to the most appropriate member of staff

Pharmacist

Nurse

GP

Admin team

Care coordinator

Send a templated confirmation message to patient

Consider continuity needs

View completed consultation form

Review alongside patient record

Confirm patient identity, preferred name, and proxy if relevant

Be alert to written cues and clues

Decide how to respond

Is it clear what they want?

Do you have the information you need?

Are you confident in using a written online consultation method?

Is a written reply acceptable for the patient?

Can a two way dialogue be reliably established and information provided in a way the patient understands?

Is this a complicated or high-risk issue?

Has the patient repeatedly consulted about this issue?

Does the patient need a physical or visual assessment?

Is this issue clinically urgent?

Will seeing or speaking to the patient change what you do?

Are there any safety, safeguarding, capacity, or privacy concerns?

If answers to all questions are as shown, respond with a written reply, using the online system

If not, respond using an alternative method based on patient needs

If further information is needed, you can request it with an online message

For more complex discussions, a voice or video call may be easier

If a face to face appointment is needed, are there steps you can arrange remotely beforehand?

Be flexible - change the mode of consultation if needed

Compose response

Writing tips

Start positively — *Thank you for...*

Confirm understanding — *I can see that...*

Write with emotion and empathy

Use pre-set messages, highlighting key points with formatting

Send links or attach patient information documents if relevant

Consultation skills

Apply your expertise in consultation skills to the written consultation including shared decision making, summarising, and safety netting

Share concerns explicitly

Advise about possible solutions to the problem and justify decision making

Manage expectations

Consider health beliefs

Inform patient about any medications or other interventions that you have prescribed, and how they can access them

Follow-up options

Schedule automated 'check-ins' using SMS

Ask patients to follow up with another online consultation

Decide if and when a practice-initiated voice call is needed

For face to face appointments, send an SMS reminder or voice call to avoid missed appointments

How to conduct a written online consultation

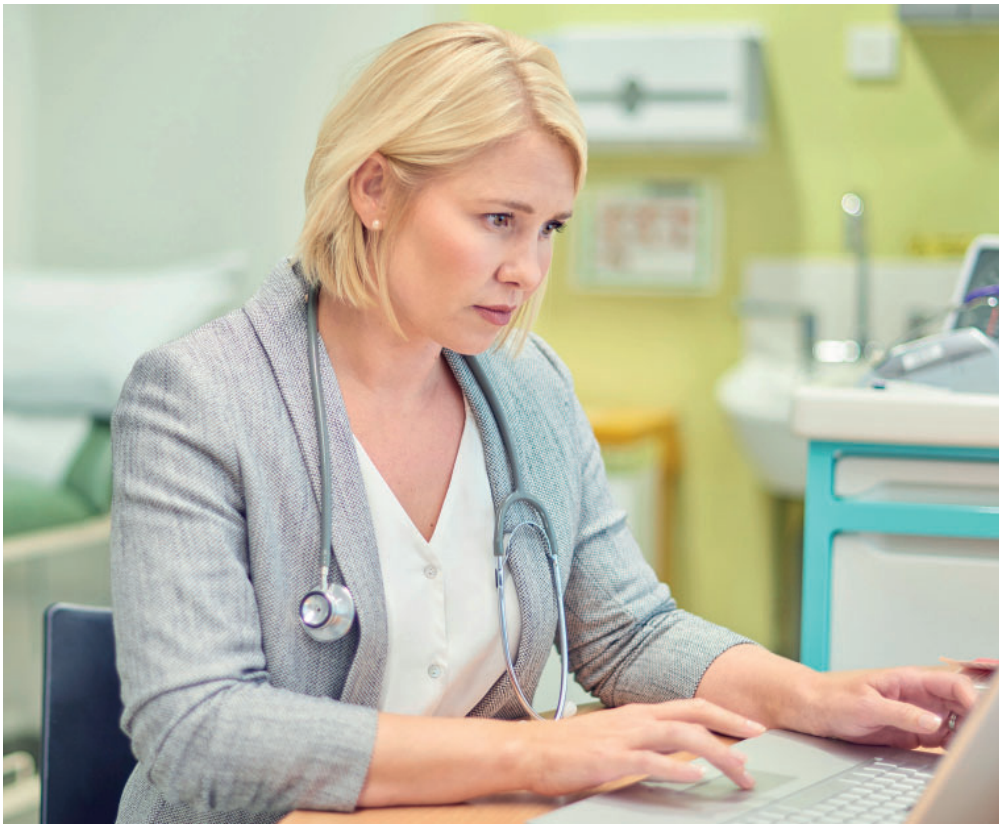
Key steps to consider when approaching a written online consultation are summarised in the infographic. Written online consultation should be considered part of a dynamic primary healthcare model and not a stand-alone service. Box 1 on bmj.com has our suggestions for how to incorporate this mode of consultation into a general practice service.

When choosing and setting up an online consultation platform,[7 24] important considerations include[25]:

- The use of questionnaires that are structured, use plain language, and offer a flexible approach can help patients to clearly detail their problem(s) and needs. Consider factors that may affect usability such as the length of time taken to set up and complete a consultation and the number of pop-ups patients will have to navigate (versus their intended benefit in providing safeguards for clinician and patient safety)
- The availability of functionality offered by the online system to assist with verifying patient identity
- Patients appreciate a consultation that feels personal and allows them to get a prompt response, even if this is simply letting them know that their query is being reviewed
- To enable continuity of care, patients should be able to address the written online consultation to a specific clinician, or the system should display a rota of who is available.

The patient completes a written online consultation

Written online consultations are commonly used for clinical administrative requests, medication queries, simple clinical queries, follow-ups, long term condition surveillance, risk factor monitoring, and providing advice and information.[26-28] Online consultation systems can also be used to gather more detailed information to support decision making—patients can send photos, audio or video files, remote observations, and attachments—and to follow up or monitor patients more easily. Consider if it is practical for the patient to take a photograph (such as, of certain areas of the body) if they have restricted dexterity or require a carer to help (and whether they would feel comfortable with this).



The primary care practice screens the patient's message

When the practice receives a request from a patient via the online consultation platform, this should be screened and directed to the most appropriate member of staff. This allows for administrative tasks to bypass a clinician and for effective use of the primary care clinical team (pharmacist, care coordinator, nurse, etc). This can be done by an appropriately trained member of the administrative team[22 32]:

- The staff member screening requests can direct any obvious "red flags" to a clinician in the same way they would do with a telephone contact
- Where possible, try to ensure continuity of care and pass the consultation to a clinician already known to the patient, particularly if the request is about an ongoing or non-urgent problem. When this is not possible, maintain effective communication between professionals[22 33]
- It's a continuous learning curve. Seek feedback from patients and staff to keep improving your processes. Use patient feedback questionnaires and routine reports to understand demand patterns, assess outcomes, and improve the service.

Responding to a written online consultation

Review and prioritise the patient's request based on the need and consider the most appropriate method of response: this might be a written reply, a telephone call, a video call, or a face-to-face appointment. Take a risk stratification approach, considering the clinical, technical, and socio-cultural context. Consider the person's preferences and accessibility of the format; the complexity, acuity, and urgency of the health need; your familiarity with the patient, their history and the psychosocial context to judge their current state of health; the potential risk of harm from the intervention; patient experiences that may make it more difficult to develop trust such as trauma, stigmatisation, or discrimination; the patient's ability to have their voice heard and maintain autonomy in managing their healthcare; the need for a physical or visual assessment of the patient; and the ability to establish a two way dialogue and share information in the way the patient understands or needs.

Review and act on information presented in line with your clinical judgment as you would with any other consultation type. Be flexible and change the consultation method as needed.

EDUCATION INTO PRACTICE

- Peer review written online consultations as part of ongoing team training to improve quality and appropriateness
- Design a crib sheet with your team with key messages and frequently asked questions to ensure patients get a consistent message and to help staff answer queries more easily

Patients appreciate a consultation that feels personal

There are many similarities with other forms of communication. For instance, we suggest writing in the tone that you would normally use with the patient.[5 26]

- Write in a structured way, keeping sentences short.
- Introduce yourself, your role, consider stating your gender (such as "I'm Dr X, one of the female GPs at the practice"; as it may not be obvious from an unfamiliar name.
- Briefly summarise what the patient has written to confirm you have understood their point and the patient's expectations. However, don't be tempted to repeat taking the whole history. Clarify specifics or check if anything has changed if needed. This also reassures patients that you have read what they have written.
- Offer to explain anything again and ask the patient if they have any questions.
- Be specific about what will happen next.
- Share an agreed summary or management plan electronically and consider enabling full record access so patients can refer back to the consultation.
- Have a threshold at which you revert to telephone, video, or face-to-face consultation if the conversation is lengthy, not going well, or a deeper discussion is required.

Managing risk

It can be difficult to identify cues and clues when consulting online. Be aware of the challenge of not missing these, and be prepared to switch consultation method when needed. There is little research to indicate whether misunderstandings are increased or reduced with written online consultation[34]:

- An established patient-clinician relationship makes a written online consultation easier,[35] reduces the potential for miscommunication, and provides a better understanding of what "normal" is for the patient
- You may need to follow up with a telephone or face to face consultation in cases where a detailed history or discussion is needed. Non-verbal cues may be more important with some patients, such as those with learning difficulties or language barriers, where history taking may be more challenging
- Remain professionally curious and be vigilant to safeguarding, capacity, and privacy issues. If you have concerns arrange a face-to-face assessment
- Be alert to written cues and clues—for example, through the language used, literacy and language skills and consistency of responses; disproportionate or unsolicited intimate image sharing[21] and alerts in the patient's clinical record. If an online request has been submitted by a proxy, check their relationship with the patient and that consent has been given by the patient where appropriate
- Follow up online requests from young people under 16 years old with a face to face assessment to determine whether the patient is capable of giving informed consent to medical treatment without the knowledge or permission of their parents (or legal guardian) and whether this is in their best interests, following the principles of Gillick Competence[21]
- Ensure clinical safety risk management processes have been applied to your implementation strategy for online consultation systems.[36 37] Have a robust policy for clinically triaging incoming online consultation requests to avoid missing urgent issues and flagging requests from patients known to be vulnerable, children, and young people—with a low threshold for seeing them. Take into consideration who initiated the consultation, the patient's engagement with health and care services and choosing a consultation method that enables the person to talk about private concerns confidentially
- Discuss cases with colleagues or take peer reviewed decisions
- If a patient has repeatedly consulted about the same problem online or has multiple failed encounters, offer them a face to face or telephone appointment
- To support the patient's understanding of the consultation, it can be helpful to summarise key points and ask, for example, "Are you in agreement? Is there anything important I've missed?" and attach a link or digital leaflet to information, to consolidate your mutually agreed plan. Safety-net, explicitly highlighting red flags, particularly as you have not been able to see or speak to the patient
- Fears that healthcare professionals will be overwhelmed with lengthy exchanges that take up time by using written online consultation have not been realised. A UK based analysis of email consultations found that the median number of emails in a consultation was two and the median number of days from the first to last email was three.[38 39]

Adapting to written online consultations

Written online consulting is a new skill, and adapting to it can be cognitively demanding. Healthcare professionals facing the greatest transition and adaptation often require enhanced training and longer periods of support.[40] There is no "one size fits all" approach for training.

- Provide space for peer review, debriefs, and discussions.
- Create routine with regular "huddles" and check-ins for the whole team to share learning and feedback. Consider a shared working space (while adhering to any social distancing rules for the workplace). Teams with a strong foundation have found remote working easier and are better able to realise the benefits.[41]
- Join existing communities of practice for generating collective learning and clinician crowd-sourced advice.
- Ensure all staff receive training in using the systems and test the pathway to see how it works from the patient perspective.

Competing interests: See bmj.com.

Cite this as: *BMJ* 2021;372:n264

Find the full version with references at http://dx.doi.org/10.1136/bmj.n264

SPOT DIAGNOSIS

A boy with purpura on the legs

A boy in his mid teens presented to the dermatology department with a one week history of non-pruritic rash on his legs, and abdominal and bilateral knee pain. On examination, palpable purple papules were present on both legs, extending from the ankles to the thighs (figure). Other examination findings were unremarkable. The boy reported no history of upper respiratory tract infection in the four weeks before symptom onset. The table shows the results of relevant blood and urine investigations.

Several conditions were considered unlikely: meningococcal sepsis, because of the absence of fever, neurological symptoms, and biomarkers of bacterial infection; thrombocytopenia, because the platelet count was within normal range; and coagulopathy, because coagulation biomarker levels were within normal range.

Results of relevant blood and urine investigations

Test	Result
Peripheral blood cell counts, including platelet count	Within normal range
Renal and hepatic function test results	Within normal range
Blood coagulation study results	Within normal range
Protein electrophoresis	Within normal range
Autoimmunological antibodies	Negative
C reactive protein, erythrocyte sedimentation rate	Within normal ranges
Immunoglobulin A, M, and G and complement proteins C3 and C4	Within normal ranges
Faecal occult blood	Positive
Urinalysis	Microscopic haematuria and proteinuria
24 hour proteinuria	2.36 g (normal range <150 mg)

Because the rash distribution was considered extensive and therefore atypical, a cutaneous biopsy specimen was taken of a papule to differentiate between vasculitis, vasculopathy, and embolism. The sample showed leucocytoclastic vasculitis.

As the patient's proteinuria level was high (2.36 g) a renal biopsy sample was taken. This showed crescents and infiltration of lymphocytes and neutrophils around the capillaries and glomeruli. Immunofluorescent staining of the specimens showed IgA deposition in postcapillary venules.

What is the most likely diagnosis?

Submitted by Yan Song, Qin Zhou, Jianjun Qiao, and Jianghua Chen

Patient consent obtained.

Cite this as: *BMJ* 2021;372:n329

answers

SPOT DIAGNOSIS **A boy with purpura on the legs**

What is the most likely diagnosis?

Immunoglobulin A vasculitis.

Henoch-Schönlein purpura, mainly involves the skin, kidneys, gastrointestinal tract, and joints. The annual incidence is 326.7 per 100 000 in children and 0.8-1.8 per 100 000 in those aged 16 years or older.

Immunoglobulin A vasculitis is generally self-limiting and resolves within an average of four weeks. It is characterised by immunoglobulin A deposition in postcapillary venules, accompanied by leucocytoclasis. Immunoglobulin A vasculitis is a systemic small vasculitis that features palpable purpura, renal damage, joint pain (80%), and abdominal pain (70%). Upper respiratory tract infections often precede symptom onset by one to two weeks.

Palpable purpura, which quickly develops from pink to red papules, is symmetrically distributed, often appears in crops, and occurs mainly on the legs and buttocks and occasionally on the arms and trunk. The papules typically subside within two weeks but might evolve to bullae and necrotic rash.

Levels of serum immunoglobulin A might be increased in at least half of patients. A positive faecal occult blood test result indicates gastrointestinal tract involvement.

As a priority rule out meningococcal sepsis, profound thrombocytopenia, and coagulopathy as other causes of an acute onset purpuric rash.

Purpura with renal damage also occurs in cryoglobulinaemic vasculitis, systemic lupus erythematosus, Waldenström macroglobulinaemia, Wegener's granulomatosis, Churg-Strauss syndrome, microscopic polyangiitis, and polyarteritis nodosa.

Perform a renal biopsy if patients have severe proteinuria (>250 mg/mmol), persistent moderate proteinuria (100-250 mg/mmol) or impaired glomerular filtration rate.

Consider skin biopsy in cases of atypical rash to exclude alternative diagnoses.

LEARNING POINT

Consider immunoglobulin A vasculitis when patients present with multiple organ symptoms—namely, skin, kidney, joints, and gastrointestinal system.

PATIENT OUTCOME

See bmj.com

CPD READING 0.5 HOURS

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

LEARNING MODULE

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

Wolf's post-herpetic isotopic response

This is the left breast of a woman in her 60s with breast cancer. Five years previously she had received a diagnosis of herpes zoster of the T4 dermatome. The occurrence of a new skin disorder at the site of a previous herpetic eruption is referred to as Wolf's post-herpetic isotopic response. The mechanism is thought to be altered immunosurveillance in the affected skin.

The patient presented with a three month history of a firm tethered mass and erythema. The irregular shaped linear-like hypertrophic scars that remained after the herpes zoster infection had become thickened and hard with erythema and crusting. Skin biopsy results indicated luminal B breast cancer (that is, oestrogen receptor positive, progesterone receptor positive, and human epidermal growth factor receptor 2 positive).

Imaging revealed lymph node involvement and bone metastasis (T4cN3bM1). Biopsy should be performed in patients presenting with new skin conditions at the site of a previous herpes zoster infection.

Zhuang-Li Tang; Xiao-Yong Man (manxy@zju.edu.cn), Zhejiang University School of Medicine, Hangzhou, 310009, China

Patient consent obtained.

Cite this as: *BMJ* 2021;372:n397

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

Masks

If your spectacles steam up when you wear a mask, console yourself with the thought that this humidifying effect may be one reason why masks help reduce transmission and severity of respiratory infections. Tests of common types of masks showed that they all increased the humidity of inhaled air, especially at low ambient temperatures. High levels of humidity promote mucociliary clearance of pathogens from the upper respiratory tract and enhance the effectiveness of the innate immune system (*Biophysical J* doi:10.1016/j.bpj.2021.02.002).

Physical activity is good for the brain

It's well established that leisure time physical activity is good for health generally and vascular health in particular. The findings of a long term follow-up study of 1600 people whose physical activity was measured when they were in their 50s fit this pattern (*Neurology* doi:10.1212/WNL.0000000000011375). Investigated by magnetic resonance imaging 25 years later, the prevalence of lacunar infarcts and white matter hyperintensities was lowest in those who had taken most exercise in middle life.

Herpes zoster

The incidence of shingles increases with age. It's well known too that shingles is commoner in people who are immunosuppressed. Apart from these two risk factors, what causes varicella zoster to reactivate from its latent state in a posterior dorsal root ganglion is a mystery. Analysis of a large Danish population based cohort leaves us no wiser. No associations were seen between shingles and smoking status, alcohol consumption, body mass index, or physical activity (*Am J Epidemiol* doi:10.1093/aje/kwab027).

α-blockers

Alpha-blockers lower blood pressure by inhibition of α1-adrenoreceptors in vascular smooth muscle, resulting in vasodilation and decreased peripheral vascular resistance. A Canadian study compares outcomes in 16 000 patients prescribed α-blockers with a propensity matched control group prescribed other blood pressure lowering agents (*Am J Kidney Dis* doi:10.1053/j.ajkd.2020.07.018). Among patients with chronic kidney disease, α-blockade carried a higher risk of disease progression. On the other hand, α-blocker use was associated with a lower risk for cardiac events and, even among patients with compromised kidney function, lower risk of death.

How the pandemic ends

A survey of immunologists, infectious disease researchers, and virologists reports that the overwhelming majority expect the SARS-CoV-2 coronavirus to become endemic (*Nature* doi:10.1038/d41586-021-00396-2). Of course, many unknowns may still change that prediction. Will vaccines block transmission? Will vaccine coverage be wide enough to reach herd immunity? Will the virus persist in animal reservoirs? Or might it be possible to develop a vaccine that covered such a wide range of spike variants that there's no way the virus can evolve to escape them all? (https://www.lrb.co.uk/the-paper/v43/n05/rupert-beale/eeek).

Eggs

Although eggs contain substantial amounts of cholesterol, most dietary guidelines recommend enjoying them as part of a balanced diet and place no limit on how many people should eat (https://www.nhs.uk/live-well/eat-well/eggs-nutrition/). The results of a longitudinal study from the US may prompt second thoughts. Among more than half a million participants, followed for a median of 16 years, whole egg and cholesterol intakes were positively associated with both all-cause mortality and mortality from specific causes including heart disease, respiratory disease, and cancer (*PLoS Med* doi:10.1371/journal.pmed.1003508).

Cite this as: *BMJ* 2021;372:n540