# education

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

#### The biggest risk factor for death from covid-19

Tartof and colleagues conducted a retrospective cohort study of almost 7000 people diagnosed with covid-19 treated in the Kaiser Permanente



Southern California healthcare system. They confirmed a clear relation between death and body mass index (BMI): risk of death was four times higher in the people with a BMI over 45 compared with those with a normal BMI. Increasing age was also associated with death, as was having had an organ transplant. The weirdest finding was that hypertension, cardiovascular disease, and black, Asian, and Hispanic ethnicities weren't associated with death. There are countless papers about these risk factors and mechanisms of harm, and yet this study found that they didn't matter that much. What is the truth? Was obesity always the biggest risk factor, thus confounding the relationships previously reported? Is this Californian population intrinsically different, or did they receive systematically different healthcare that mitigated the effects of the risk factors? Ann Intern Med doi:10.7326/M20-3742

#### Positive trial for children with myopia

The BLINK trial is a US double-blind randomised controlled trial of three contact lens types in 7-11 year olds who were followed up for three years. The three lens types were commercially available high add power multifocal lens, medium add power multifocal lens, and single vision lens (non-multifocal). The idea behind using high add power is that increasing the light to the retina may slow the progression of myopia. The high add power multifocal lens slowed the rate of myopia progression compared with both other groups. This is a well conducted trial showing a clear advantage with the high add power lens in a doseresponse manner. The authors raise the interesting point that "the dose-response result exhibited in this study only examined up to a +2.50 D add power. Speculation remains about whether add powers outside of the standard range may provide better myopia control."

JAMA doi:10.1001/jama.2020.10834

#### **Alternative masks**

Sickbert-Bennett and colleagues assessed the filtration efficiency of 29 masks that aren't new in-date N95 respirators, including used sterilised ones (with a variety of sterilisation methods), expired ones, and other non-approved masks. They tested the masks on volunteers using a standard US fit testing protocol with sodium chloride. Impressively, the fitted filtration efficiency was greater than 95% for N95s up to 11 years after their expiration date and for used N95s sterilised with ethylene oxide or vaporised hydrogen peroxide. The other non-approved masks did not reach this threshold of filtration efficiency. Interestingly, masks with ties consistently outperformed those with ear loops. This study has immediate practical implications for areas affected by mask shortages but has one major limitation. Testing was performed on only two subjects: one man and one woman. *JAMA Intern Med* doi:10.1001/jamainternmed.2020.4221

#### Viral shedding in covid-19

One of the disturbing features of covid-19 is asymptomatic spread. Lee and colleagues analysed 303 patients isolated in a centre in the Republic of Korea in March 2020. Polymerase chain reaction testing was being used to determine when they could be released from isolation. The cohort were mainly female, in their 20s, and 64% were symptomatic. A fifth of asymptomatic people later developed symptoms. Viral load was similar in symptomatic and asymptomatic people, which supports the idea of searching for and isolating asymptomatic people. Knowing the viral load is a surrogate for knowing how transmissable the virus is, but the threshold isn't known, and we certainly won't get any closer to knowing using serial testing of cohorts without their contacts. I hope that the legacy of covid-19 research will be something more than a lesson about research waste. JAMA Intern Med doi:10.1001/jamainternmed.2020.3862

#### Trends in lung cancer

In a large US registry, both incidence of and mortality from lung cancer are decreasing, and improvements have sped up in more recent



sped up in more recent years. This is great news, and, of course, we are interested in how this has been achieved. Lower rates of smoking are probably important. However, the authors' primary conclusion is that advances in targeted treatment may be responsible for improvements in mortality in non-small cell lung cancer. Of course, that is possible—that's what the treatments were designed to do after all. Yet the authors' overstate the certainty of this explanation, dismissing the idea that mortality improvements could be due to diagnoses being made at an earlier stage.

N Engl J Med doi:10.1056/NEJMoa1916623

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#### **CORONAVIRUS**

## Covid-19 communication aids

This graphic, based on a guide by VitalTalk, explores conversations around serious illness.

The guide is a starting place for improving conversations with patients and families facing covid-19.

The original text is at www.vitaltalk.org/guides/ covid-19-communicationskills/



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See bmj.com for the graphic in full

#### **PRACTICE POINTER**

## Insect bites



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Insects bites are a common reason for patients to seek medical advice, often with concerns that the skin around the bite might have become infected. Clinicians use a combination of clinical features and risk factors when assessing insect bites, but a lack of evidence for the diagnostic and prognostic value of these features, as well as a lack of data on outcomes, means that most practice is based on clinical experience and custom. This article outlines these uncertainties and offers an approach to assessing a patient in the UK who presents with an insect bite.

#### What type of insects bite?

In the UK common biting insects include mosquitoes, gnats or midges, ants, fleas, lice, bedbugs, sandflies, and flower bugs (small oval flies). Ticks and spiders (both technically arachnids) can also bite. Clinical assessment varies according to world location and includes consideration of vector-borne illnesses, which are mainly contracted outside the UK.

#### WHAT YOU NEED TO KNOW

- There is little research evidence on best practice for insect bites
- Insect bite reactions vary widely and depend on the insect and the patient's response
- Secondary infection may be indicated by fever, systemic symptoms, and worsening reactions with spreading erythema. It can be difficult to know if mild secondary cellulitis has occurred

#### Exclude anaphylaxis or other **Presentation with** severe allergic reaction: presumed insect bite Possible referral Ask about foreign travel, exclude vector bourne illness: • Possible investigation or referral (such as for malaria) Exclude sepsis: • Unwell, take temperature, BP, pulse or Lymphangitis: Possible referral Consider differential diagnoses: • Such as chickenpox, impetigo, bullous pemphigoid, pyoderma gangrenosa Consider other contacts: Vegetation (such as poison ivy, giant hogweed) • Caterpillar reactions (such as oak processionary Detailed history of moth) activity, indoors or • Bee or wasp stings outdoors, gardens, parks, woods, pets and Erythema migrans or visible tick: other animal contact, • Treat as Lyme disease other household members affected Not infected: Inspection and examination Cool compress Antihistamines • Topical steroid cream Consider monitoring by marking the border with a pen Likely infection: Insect bite diagnosed Appearance: • Pus, abscess, prolonged time course with spreading erythema Periorbital Patient factors predisposing to infection: • Such as immunocompromised, diabetes, medication, extremes of age Limb factors such as severe eczema. lymphoedema, venous stasis, peripheral vascular disease • Antibiotic if patient otherwise well

#### Insect bite uncertainties

#### Incidence

The exact incidence of insect bites and stings is not known as most are not reported.<sup>23</sup> According to a study of data recorded by sentinel general practices in England and Wales, GP consultations about insect bites are 5.4/100 000 patients per week on average. This rises above 12 per 100 000 in August and September.<sup>4</sup> Geography, month, and activity influence insect bite experience. In some parts of the UK insect bites are particularly common. For instance, a questionnaire survey of mostly young adults attending a duathlon event in the West of Scotland reported that only 14.2% claimed not to have experienced a midge bite,<sup>5</sup> with 34% reporting experience of a "bad" bite reaction (defined as a red, itchy mark that lasts a few days).

#### Bite resolution, management, and outcomes

Draft guidelines from the National Institute for Health and Care Excellence (NICE) on antimicrobial management of insect bites<sup>6</sup> highlights the lack of evidence for recommendations, limited evidence with high uncertainty for the use of oral antihistamines, and no evidence for other self care treatments. Our literature review found no published research that could be used to inform insect bite management in UK primary care. Published literature tends to cover vector-borne illness (such as malaria, Lyme disease), anaphylactic reactions or severe allergy, and rare complications such as necrotising fasciitis. Incidence numbers in primary care of insect bites complicated by cellulitis or lymphangitis are also lacking. In the UK, flucloxacillin prescribing rises by 33% in the summer months, although it isn't clear how much of this is prescribed for infected insect bites.<sup>7</sup>

Fig 1 | Suspected insect bites: decision aid for primary care

#### An approach to assessing a patient with an insect bite

Most insect bites are managed by the public, perhaps with use of over-the-counter drugs or with advice from community pharmacists. Patients may attend their GP with concerns about severity of reactions or infection, often referred by other healthcare professionals, including pharmacists.<sup>8</sup> Virtual consulting, widely adopted since the covid-19 pandemic, means that patients may send in photographs of bite lesions or ask the clinician to look at them on video. While photographs give high definition pictures that allow detailed inspection, videos give a useful 3D picture of the overall bite area and distribution. Clinicians may find looking carefully at both modalities helpful in determining the nature and severity of the bite. An approach to assessment is outlined in figure 1

#### Is it an insect bite?

When patients present with an "insect bite" it can be hard to tell, from inspection alone, if it is truly an insect bite. A detailed history can help and includes inquiry about outdoor activities, whether other household members are affected, and animal contact. Differentials to consider include bee and wasp stings and contact reactions to caterpillars such as the oak processionary moth, which can have a similar appearance. Scabies is due to a burrowing mite and egg laying, rather than a bite. It typically has intense tiny, red, multiple areas of itch, especially on the hands around the finger web spaces. Contact reactions may also occur with vegetation, such as poison ivy or giant hogweed. Chickenpox, shingles, impetigo, bullous pemphigoid, and pyoderma gangrenosum all may be difficult to differentiate, particularly in their early stages.

#### Clues from the history, appearance, and distribution

The puncture mark from an insect or arachnid bite may be visible. There may be no surrounding reaction. Most common reactions are small, red, raised, and itchy, demonstrating typical erythema and wheal shortly after the bite, making it hard to offer a definitive explanation of cause to the patient. However, the appearance and distribution, when combined with the history, can give some helpful clues:

- A single prominent mark or blister may indicate a tick, horsefly, mosquito, or flower bug bite or a sting. These tend to be painful
- Multiple small red papules suggest mosquitoes, fleas, midges, mites, or bed bugs (fig 2)
- Bed bug bites may occur anywhere on the body but are often multiple and occur overnight in exposed areas such as face and neck
- Flea bites, from pets, tend to occur below the knees
- Two small fang puncture marks may be visible after a spider bite
- Tick bites are often painless.

If the patient saw the insect but cannot identify it, it may help to review images of common biting insects with them, for instance on the NHS website. $^{9}$ 

Most insects that bite either do so defensively or are haematophagous (feed on blood). The latter inject saliva into the skin—containing a variety of products, including anticoagulants, vasodilators, and digestive enzymes—to effect the meal. People have different predispositions to such bites, with a variety of inflammatory and allergic responses. Reactions are either immediate wheal-andflare reactions, mediated by specific IgE antibodies, or more delayed reactions characterised by pruritis, indurated papules, papular urticaria, or blistering.<sup>10</sup> Reactions can vary from single, small, red reactions to multiple or large areas of erythema. Erythema, swelling,



Fig 2 | Bed bug bites on arm showing a cluster of erythematous papules

heat, pain, and itch are typical features of any reaction and don't necessarily indicate secondary bacterial infection (fig 3). Note that erythema may be more difficult to distinguish on darker skin tones (fig 4). Severe systemic reactions, such as anaphylaxis, are unusual from insect bites—they are far more likely to occur after bee or wasp stings.

#### Is it infected?

Our literature review found no published research to guide distinguishing "usual" insect bites from infected ones (see fig 1). Clinical findings that may indicate infection include fever or other systemic features, and worsening reactions with spreading erythema after expected time to improvement (fig 3).<sup>8</sup> Other signs include pus, purulent discharge (providing an opportunity to take a swab), lymphangitis, and a fluctuant swelling suggestive of abscess formation.

Consider comorbidities such as diabetes, local factors such as leg ischaemia, and body areas of risk such as periorbital. These are often used in deciding benefit and harm thresholds for antibiotic prescribing when infection is possible but not certain.

HOW PATIENTS WERE INVOLVED IN THE CREATION OF THIS ARTICLE No patients were involved in the creation of this article.

#### EDUCATION INTO PRACTICE

- What factors would influence the safety-net advice offered to a patient with swelling and itch after an insect bite?
- How might consulting remotely influence your assessment of an insect bite, including your discussion about possible secondary infection?





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Fig 3 | (a) a single bite on the ankle with surrounding reaction of erythema and oedema. (b) Infected insect bite on the hand, with surrounding inflammation, redness, and swelling caused by cellulitis, a bacterial infection of connective tissue below the skin. Distinguishing between reaction and infection can be difficult and requires clinical judgment



Fig 4 | Reaction to a gadfly bite. Swelling is apparent, but erythema is harder to distinguish on darker skin

#### Possible pitfalls in practice

Although most insect bites are easily diagnosed and will resolve with no treatment or advice on self care, there are some pitfalls to be aware of:

- Is it an insect bite? Consider differentials, including rare skin conditions, particularly if the appearance or history is unusual
- Ask about allergic reactions, anaphylaxis, wheeze, angioedema, past allergic reactions
- Ask about recent travel to a destination where malaria and other vector-borne diseases are endemic
- Does the patient have risk factors for secondary infection? These may be systemic (such as diabetes) or medication related (such as oral steroids)
- Is the reaction site at risk of severe infective complications (for example, a periorbital reaction or local limb factors such as chronic lymphoedema or past lymph node dissection in a breast cancer survivor)?
- Is there a rare complication requiring urgent secondary care opinion? Necrotising fasciitis typically has severe pain, out of proportion to the skin breach. There may also be pyrexia, malaise, or lymphangitis tracking up the limb
- Is there an erythema migrans rash of early Lyme disease?

#### Advice and self management

Explanation and reassurance are key aspects of management. Explore the reasons underlying the patient's attendance and acknowledge their underlying concerns. Provide an explanation of likely time to resolution. GPs in our survey thought non-infected bites reached maximum size at two to three days (range 1-7 days), and reactions could last 10-14 days (range 2-28), showing wide variability in experiences. Suggest to the patient drawing a line around the border of the erythema, and to seek further advice if the erythema spreads beyond the line or if they feel unwell or feverish, and offer self care options.

Discuss strategies for reducing itching, including cold compress and oral antihistamines.<sup>36</sup> Short term topical steroid application can also reduce itching. Explain that reducing itching could reduce the likelihood of secondary infection caused by scratching and breaks the itch-scratch cycle. Draft guidelines from NICE on antimicrobial prescribing for insect bites and stings recommend oral antihistamines as first line treatment, with reassessment for worsening reactions, signs of infection, or if the person feels systemically unwell.<sup>6</sup> Flucloxacillin is the first choice antibiotic for an infected bite. Direct patients to a local pharmacy or online self care advice if scabies or bed bugs are likely.

Consider follow-up strategies. It can be useful to ask the patient to take images on their mobile phone to show reaction progression. Serial images can often be used as part of a remote or online consultation. Consider follow-up contact for reassessment if there is diagnostic uncertainty.

#### Prevention is better than being bitten

A consultation about an insect bite severe enough for the patient to seek medical advice is an opportunity to discuss insect bite prevention. Insect bites can be reduced or prevented by wearing clothing that covers the limbs, especially in early evening, and by tucking trousers into socks. Insect repellents (such as DEET or picaridin) can be used for infants over 2 months old and by pregnant and breastfeeding women.<sup>1112</sup> Citronella products are less effective (shorter period of protection compared with picaridin or DEET).<sup>13</sup> There are high quality online resources where patients can read about insect bite prevention in further detail (see box of additional resources). There is no evidence for popular suggestions to try turmeric, garlic, vitamin B, Marmite, and mint tea, which are ineffective protectors, nor for ultrasonic devices.<sup>14</sup>

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#### **PRACTICE POINTER**

## How to move beyond quality improvement projects



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In recent years we have seen a proliferation in the interest and use of quality improvement in health and healthcare. This represents a promising shift in our mental models about how to solve some of our most complex quality issues. Alongside the increasing use of the word "improvement" in our everyday language within healthcare, there are differences in understanding of what exactly we mean by the term "guality improvement." This article explores the difference between quality improvement and a quality management system, by defining quality improvement and describing how best to use quality improvement alongside control, assurance, and planning as part of a more holistic management system focused on quality.

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

Service users are deeply involved in the quality management system at East London NHS Foundation Trust, including quality improvement projects, planning and redesign, and quality assurance programmes. Shared learning over many years has contributed to our understanding of how to manage quality, what a quality management system should incorporate, and how best to involve and partner with service users within each of the quality management functions.

#### WHAT YOU NEED TO KNOW

- Quality improvement, by itself, does not represent a holistic approach to managing quality
- Quality improvement needs to be used alongside quality planning, quality assurance, and quality control to create a single, consistent management system
- Knowing when and how to use each of these four approaches, and creating an appropriate balance across all four, is the gold standard



#### Is quality improvement the same as improving quality?

Quality improvement should be seen as part of an overall system of quality management. Quality improvement is a systematic and applied approach to solving a complex issue, through testing and learning, measuring as you go, and deeply involving those closest to the issue in the improvement process.<sup>1</sup> Anyone who has undertaken quality improvement work will testify that it is not easy-you are generally tackling a problem to which we do not know the solution, and where part of the answer is about behaviours, and hearts and minds. Quality improvement can be used to reduce unwarranted variation, reliably implement interventions that have been shown to improve outcomes, or discover new solutions through a process of innovation. As we are looking to learn whether a particular service or issue has improved, the process also involves reviewing data to see whether something has changed over time.<sup>2</sup> A range of different methods can be used, from the Institute for Healthcare Improvement's Model for Improvement to the Toyota Production System and Six Sigma. The evidence suggests that there is no significant difference in efficacy among these different methods, the key seems to be fidelity to a given method for a long period of time to embed changes into the organisational culture.<sup>3</sup>

Just as all care is delivered in teams, quality improvement is best done as a team, of staff and patients working together on what matters most. We ought to reserve our limited capacity to undertake quality improvement for where it will have the greatest return—to solve complex adaptive problems. Factors related to the success of quality improvement efforts include aspects related to the quality improvement project team (diversity, involvement of key stakeholders, experience of quality improvement), the microsystem (leadership, culture, capability and motivation to change) and the wider environment (organisational culture, leadership, external motivators).<sup>4</sup>

#### What else is needed for quality management?

If we're using quality improvement to solve complex adaptive problems, then we need other approaches for different types of problem. Quality improvement works well as part of a quality management system that incorporates several approaches to ensure that we are meeting, and exceeding, the needs of those we serve.<sup>5</sup>

#### Planning or redesign

Planning or redesign involves understanding the needs of the population, customer, or service user, and looking at the evidence and best practice across the industry in order to ascertain what structures and processes we need to put in place to optimise outcomes.<sup>6</sup> This is something we might do once a year as part of our annual planning or commissioning process. The quality planning process helps us set goals, through understanding the needs and desires of the end user. We can then design what we need to put in place within our operational structures and processes to achieve this, using the available lived experience and knowledge, as well as the evidence base and innovation literature.<sup>7</sup>

#### Assurance

One of the main mechanisms used traditionally in healthcare to improve quality has been quality assurance. Assurance involves occasionally checking that we are meeting a particular standard or threshold. This is usually about achieving standards and obtaining a simple binary response—OK or not OK. Audit, accreditation, and inspection are common mechanisms of assurance in healthcare.<sup>8</sup> While assurance is helpful in ensuring we are meeting set standards and identifying gaps that need addressing, it isn't a mechanism to help us to achieve new levels of performance. Innovation and creativity are needed to discover new practice, and many issues require behavioural change. The occasional checking process is not conducive to exploration, deeper insight, and ownership of change.

#### Quality control

Quality control is probably the least developed part of quality management in healthcare. This incorporates good operational management, monitoring performance in real time within the team, taking action when needed to bring the system back into control, and escalating rapidly when we can't solve a problem.<sup>9</sup> Quality control ought to be owned and managed by the team or service rather than be supported from outside the team (as assurance often is). Features of a robust quality control system include visual management that allows a transparent display of the key metrics for the service; regular huddles around the data to discuss and take action; and rapid escalation when problems can't be solved within the team.

#### EDUCATION INTO PRACTICE

- Can you describe what you currently do in your service within each of the quality management functions: planning, control, assurance, and improvement?
- How are you currently balancing your energy and time across these four domains, and what do you think the current balance should be?
- Can you describe your role in the team's quality management system?

#### Quality management systems



Fig 1 | The four aspects of a quality management system: planning, control, assurance, and improvement

#### Tools within the Quality management system



#### Fig 2 | Examples of tools that might be used within each of the four aspects of a quality management system

## How can these four approaches be combined within the service?

Together, improvement, assurance, planning and control form the quality management system (fig 1).

This draws on the work of Joseph Juran, who developed the quality trilogy of planning, control and improvement.<sup>4</sup> While manufacturing has largely managed to eradicate assurance due to the high level of reliability and advanced quality control systems, in healthcare there is still a significant portion of activity devoted to assurance – both within organisations, and from outside organisations. A key challenge in healthcare is to balance energy and activity across these four domains: planning ought to be an annual activity; improvement should be used in short bursts to achieve new levels of performance; assurance ought to be used occasionally to check whether standards are maintained; and control should be the way daily work is managed in a team.

## Different tools and approaches to use in the four aspects of quality management

Figure 2 shows some of the improvement tools that might be used within each type of quality function.

One of the main responsibilities leaders have within teams and organisations is to ensure the four different aspects of quality management are balanced and that the appropriate approach for a particular type of opportunity is deployed. In order to support our teams and people in managing quality, it will be important to understand how different members of the team can contribute to each of the four aspects of quality management. Everyone in the team, including patients, should play an active part in a robust quality management system (see table 1 on bmj.com).

## Best practice use of quality management in a service

The activities in the management system should not be considered as isolated entities, but as being interconnected and sequential. Once a year, we go through a deep quality planning or redesign process, involving a range of stakeholders and data to understand the needs of the system and to develop structures and processes to achieve the desired outcomes. Once we have completed the planning or redesign phase, we move into quality control. This enables us to monitor ongoing performance and respond in real time to any changes outside the parameters that we would expect to see. A visual management board and regular huddles with clear escalation protocols form a robust quality control system. This allows us to build into our service occasional assurance activities in order to check that standards are maintained. These checks could be through tools such as audit or accreditation. Where a gap between actual performance and desired performance is identified, a small diverse team would be brought together to use quality improvement for a brief burst of rapid-cycle testing of new ideas designed to achieve a new level of performance. Once this is achieved and sustained, we move back into quality control to hold onto these gains. The system has, of course, undergone a number of changes through the quality improvement process, so these must be fed back into the next quality planning process. And so the cycle repeats.

The highest performing teams reduce assurance activity, create an intentional annual planning or redesign process, build a real-time quality control system (as this rarely exists in healthcare at the moment), and use quality improvement for the right type of problems in short bursts of rapid-cycle testing and learning.

In summary, in order to improve health and healthcare for those we serve, the quality management system represents a holistic approach to achieve this. All four types of activity will be needed, and the real challenge is to know which of the four management approaches is appropriate for the opportunity, and to balance our energy appropriately across all four.

#### Competing interests: None declared.

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

#### SPOT DIAGNOSIS Unilateral bloodstained nasal discharge

.(SCC) emoniones lles enones les enonic What is the most likely diagnosis?

extension into the right orbital cavity with bone destruction, and bowing of Fig 2 shows a lesion of the right maxillary and ethmoid sinuses, direct

generally associated with nasal cavity SCC. cytoplasmic keratinisation with intercellular bridges and squamous pearls is This diagnosis was supported by the histology findings: well differentiated the medial maxillary wall.

and the ethmoid sinus. manipulation. The most common sites are the maxillary sinus, nasal cavity, exophytic mass with necrotic and friable surfaces that often bleeds with appearance on anterior rhinoscopy or nasal endoscopy is often a bulky lbiqyT.(%08-26) yonengilam lasenonis nommoo teom of tei DOC

base, patients may present with visual disturbance and cranial neuropathy associated with poorer prognosis. If the SCC extends into the orbit and skull Bone destruction (fig 2) is seen in approximately 80% of cases and may be

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Biopsy differentiates SCC from other sinonasal neoplasms .emoignemed bns zemolliqeq ebuloni egred of the search of the sea

melanoma, non-Hodgkin's lymphoma, osteosarcoma, and (adenocarcinoma, nasopharyngeal carcinoma, esthesioneuroblastoma,

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#### 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

Patient consent obtained. Cite this as: BMJ 2020;368:m9

Submitted by Zhenxiao Huang and Qian Huang

keratin pearls. What is the most likely diagnosis?

A man in his 40s presented with six months of bloodstained nasal discharge from his right nostril. Nasal endoscopy showed purulent bloodstained nasal discharge in the right nasal cavity and a mass with an irregular friable appearance in the right middle meatus of the right nasal cavity; the appearance of the septum and left nasal cavity was normal. He underwent a non-contrast computed tomography scan of his sinuses (fig 1). Biopsy showed cytoplasmic keratinisation, intercellular bridges, and

### Unilateral bloodstained nasal discharge

## SPOT DIAGNOSIS







You can record CPD points for reading any article.

We suggest half an hour to read and reflect on each.

into the right orbital cavity with bone destruction; (C) bowing maxillary and ethmoid sinuses; (B) tumour direct extension the coronal plane. (A) Squamous cell carcinoma of the right ni nwodz sezuniz edi to nszz vdgrzomoż beżuqmoż | 2 gił

of the medial maxillary wall

#### PATIENT OUTCOME

resection of the tumour. and radiotherapy. He died one year after endoscopic were recommended but the patient declined chemo Endoscopic surgery, chemotherapy, and radiotherapy

#### **LEARNING POINTS**

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05HOURS

#### MINERVA

## Aspirin doesn't prevent cognitive decline

Low dose aspirin irreversibly blocks the formation of thromboxane A2 in platelets and inhibits their aggregation. Daily doses are of proven benefit in the secondary prevention of cardiovascular disease, but a large trial finds no evidence that they reduce the incidence of dementia or cognitive decline (*Neurology* doi:10.1212/WNL.00000000000277). Out of 20 000 older people

randomised to either 100 mg aspirin each day or placebo, around 600 developed dementia over five years of follow up. However, there were no differences in risk of any type of dementia between the two treatment groups.

## Alcohol and cognitive function in older people

Aspirin may not prevent cognitive decline, but another large longitudinal study suggests that modest alcohol consumption may have a beneficial effect. The Health and Retirement Study followed 20 000 middle-aged and older people for nine years (*JAMA Netw Open* doi:10.1001/ jamanetworkopen.2020.7922). When compared with those who never drank alcohol, participants who drank low to moderate quantities had higher scores for mental status, word recall, and vocabulary, and lower rates of decline in all of these cognitive domains

#### Time trends in dementia

Regardless of the influence of individual risk factors, an analysis of aggregated data from seven population based cohort studies in the United States and Europe provides some good news about cognitive function in people over 65 years old (*Neurology* doi:10.1212/ WNL.0000000000000022). Over the past 25 years, the incidence of dementia has fallen by around 13% per calendar decade. The decline was consistent across the individual studies and tended to be greater in men than in women.



#### Quality of the built environment

East Village is a housing development in London originally built for the 2012 Summer Olympics and subsequently converted for residential use. Nearly 900 people who moved to East Village were compared with a similar group who hadn't yet moved (*J Epidemiol Community Health* doi:10.1136/ jech-2019-213591). Those who moved had better access to parks and public transport and perceived their neighbourhood to be safe and of high quality. Even so, despite their better environment, people who had relocated to East Village showed no improvement in their mental health or wellbeing.

#### Understanding the antivaxxers

The British prime minister recently described people who were against vaccination as "nuts". Instead of insulting them, it might be better to explore the reasons for their doubts and acknowledge that the history of vaccination has not been free of disasters. In 1955 many children developed paralytic poliomyelitis after the administration of a faulty vaccine. A rushed campaign of flu vaccination in 1976 led to an epidemic of Guillain-Barré syndrome. More recently, a rotavirus vaccine was withdrawn because of increased risk of intussusception, and a vaccine against dengue fever was found to make the disease worse in people not previously infected. (UnHerd https:// unherd.com/2020/07/dont-dismiss-theanti-vaxxers/)

#### **Breadwinners and losers**

Over the past 50 years, women have played an increasing part in the labour force of many industrialised countries. Although it has often been suggested that this is harmful for the mental health of both working women and their children, an analysis of data from a longitudinal study of Australian children gives no support to the idea (*Am J Epidemiol* doi:10.1093/aje/kwaa138). It found no association between patterns of household employment and mental health—except in men. In households where men were the only breadwinners, their mental health was poorer.

## Transferring the beneficial effects of exercise

It's easy to understand why physical exercise is good for cardiovascular and musculoskeletal health, but it's less clear why it protects against cognitive decline. An experimental study in mice identifies liver-derived glycosylphosphatidylinositolspecific phospholipase D1 as a key molecule (Science doi:10.1126/science. aaw2622). Plasma concentrations rose after exercise and correlated with better performance on tests of cognition. What's more, the benefits seem to be transferable. Elderly mice that received injections of plasma from mice that had exercised did better on memory tasks than mice that received injections from sedentary mice.



#### Increasing physical activity in adolescents

Talking of exercise, most adolescents in the UK fall a long way short of recommended levels of physical activity. A cluster randomised trial of a school-based intervention to promote exercise suggests that might be hard to change (*PLoS Med* doi:10.1371/journal.pmed.1003210). Despite a comprehensive programme of new activities, competitions, and rewards, children who received the intervention took no more exercise than the control group when evaluated by accelerometry 10 months later. Cite this as: *BMJ* 2020;370:m3190