

Reactive Arthritis: Texts

Text A

Reactive Arthritis

Reactive arthritis is clinically associated with inflammatory back pain, oligoarthritis and extra-articular symptoms that typically follow a gastrointestinal or urogenital infection by a minimum of one to a maximum of 3-6 weeks. The three most commonly associated enteric pathogens are *Campylobacter*, *Salmonella* and *Shigella* species. Post-venereal cases may follow *Chlamydia trachomatis* infection or human immunodeficiency virus (HIV).

Presentation

- Reactive arthritis usually develops 2-4 weeks after a genito-urinary or gastrointestinal infection. About 10% of patients do not have a preceding symptomatic infection.
- The onset is most often acute, with malaise, fatigue, and fever.
- An asymmetrical, predominantly lower extremity, oligoarthritis (usually no more than six joints) is the major presenting symptom.
- Low back pain often occurs.
- Heel pain is common because of inflammation of the Achilles.
- Reiter's syndrome (urethritis, conjunctivitis and arthritis) may occur.
- Skin (e.g. erythema nodosum, circinate balanitis), nails (dystrophic changes) and mucous membranes (mouth ulcers) may all be affected.

Text B**Investigation**

Test type	Details
ESR/CRP	Elevated at the onset of the disease. Later may become normal in the chronic stage.
HLA-B27	Positive in the majority of those affected. Rheumatoid factor and antinuclear antibodies are absent.
Joint aspiration	To rule out septic or crystalline arthritis. Synovial fluid analysis in patients with reactive arthritis shows a high white blood cell count.
Lab culture	Stools, throat and urogenital tract samples taken in order to identify causative organism.
Serology	For detection of chlamydia. Refer to a sexual health clinician for further genito-urinary investigation in sexually active patients.
X-rays	Normal in early stages of disease. However, in advanced or long-term disease, they may show periosteal reaction and proliferation at sites of tendon insertion, plantar spurs, marginal erosions with adjacent bone proliferation in the hands and feet.

Text C**Management**

- In the acute phase, rest affected joints, aspirate synovial effusions.
- Physiotherapy.
- Non-steroidal anti-inflammatory drugs (NSAIDs).
- Corticosteroids:
 - These can be used as either intra-articular injections or systemic therapy. Joint injections can help avoid the use of other systemic therapy. Sacroiliac joints can be injected, usually under fluoroscopic guidance.
 - Systemic corticosteroids can be used (particularly in patients unresponsive to NSAIDs or who develop adverse effects).
- Antibiotics to treat an identified causative organism.
- Disease-modifying anti-rheumatic drugs (DMARDs):

- Clinical experience with DMARDs in reactive arthritis is limited.
- Sulfasalazine has been shown to be beneficial in some patients (potential impact on blood count or liver – regular blood tests required).
- Experiences with other DMARDs (e.g. azathioprine and methotrexate) may be used in patients unresponsive to standard treatments (NSAIDs and physiotherapy).
- Antibiotics (tetracyclines) may be useful in uroarthritis but have not been successful in enteroarthritis. In more aggressive cases TNF alpha-blockers may represent an effective choice

Text D

	METHOTREXATE	AZATHIOPRINE
Indications & dose	<p>Moderate to severe Arthritis: By mouth</p> <p>For Adult:</p> <ul style="list-style-type: none"> • 7.5mg once weekly, adjusted according to response; maximum 20mg per week. <p>Severe Arthritis:</p> <ul style="list-style-type: none"> • By intramuscular injection, or by subcutaneous injection <p>For Adult:</p> <ul style="list-style-type: none"> • Initially 7.5mg once weekly, then increased in steps of 2.5mg once weekly, adjusted according to response; maximum 25mg per week. <p>Note that the dose is a weekly dose. To avoid error with low-dose methotrexate, it is recommended that only one strength of methotrexate tablet (usually 2.5mg) is prescribed and dispensed.</p>	<p>Arthritis that has not responded to other disease-modifying drugs.</p> <p>By mouth</p> <p>For Adult</p> <ul style="list-style-type: none"> • Initially up to 2.5mg/kg daily in divided doses, adjusted according to response, rarely more than 3mg/kg daily; maintenance 1–3mg/kg daily, consider withdrawal if no improvement within 3 months.

Side-effects	Pneumonitis (folic acid given on a different day from the methotrexate may help to reduce the frequency of the side effects).	Hypersensitivity reactions (including malaise, dizziness, vomiting, diarrhoea, fever and interstitial nephritis): call for immediate withdrawal. Nausea, vomiting and diarrhoea Nausea, vomiting and diarrhoea may occur early during the course of treatment and it may be appropriate to withdraw the drug.
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Part A

Questions 1-8

For each question, 1-8, decide which text (A, B, C or D) the information comes from. You may use any letter more than once.

In which text can you find information about

1. Bacteria causing reactive arthritis? _____
2. Non-medical treatment of reactive arthritis? _____
3. Confirming a diagnosis of reactive arthritis? _____
4. Drugs to avoid using with certain types of reactive arthritis?

5. A reminder about the correct dosage of anti-rheumatic drugs?

6. Conditions associated with reactive arthritis? _____
7. How to choose appropriate medication for a case of reactive arthritis?

8. Eliminating other forms of arthritis from a diagnosis? _____

Questions 9-15

Answer each of the questions, 9-15, with a word or short phrase from one of the texts. Each answer may include words, numbers or both.

9. Which test will identify the original cause of reactive arthritis?

10. Which test is only effective in the early stages of reactive arthritis?

11. Who should you check with if you suspect chlamydia was the source of the original infection?

12. What drug is recommended for severe uroarthritis where antibiotics are ineffective?

13. How should azathioprine be administered to arthritis patients?

14. What should be used to manage reactive arthritis in patients who have reacted negatively to non-steroid drugs?

15. What is the maximum weekly dose of methotrexate?

Questions: 16-20

Complete each of the sentences, 16-20, with a word or short phrase from one of the texts. Each answer may include words, numbers or both.

16. Approximately _____ of reactive arthritis patients won't have experienced signs of infection.

17. Patients may experience _____ if their mucous membrane is affected.

18. At the onset of the disease, _____ don't reveal abnormalities.

19. It is recommended that joints are rested in the _____ of the disease.

20. You might consider ending treatment with azathioprine if the patient soon experiences _____.

Part B

In this part of the test, there are six short extracts relating to the work of health professionals. For questions 1-6, choose the answer (A, B or C) which you think fits best according to the text.

1. This policy includes the instruction that nurses are responsible for

- A) Deciding on the most effective way to begin administering medication.
- B) Reminding doctors to check patients' medication at the start of each week.
- C) Ensuring that patients receive the full dose of medication prescribed to them.

Antibiotic Stop / Review Date Policy

6.4.2 Responsibilities for Nurses

Please query all prescriptions continuing beyond the review dates. Whilst awaiting review, continue to administer the antibiotic. If a patient has been prescribed IV because they could not swallow, but have subsequently improved their swallowing before the review date, ask a doctor to review with a view to doing an IV to oral switch. Ask a doctor to review the duration of the antibiotic if doses have been missed at the beginning (e.g. if drug was not available) or during the prescribed course, especially if the patient is still unwell, or it is over the weekend, where regular review is unlikely.

2. This part of the policy statement regarding wheelchair users is primarily intended to

- A) Prevent staff from giving unintended offence.
- B) Encourage staff to offer them extra assistance.
- C) Advise staff how to handle any awkward situations.

Safety Instructions for Water Mattress 50W

- Always fill the Water Mattress to the required level before using it. Preferably fill with lukewarm water at around 35° C.
- When the unit is delivered, it is brand new, but has not been sterilised. Please follow standard hospital decontamination routines prior to installation.
- Always place the heating pad inside the pocket of the Water Mattress before you switch on the unit.
- Always place the baby with its head towards the closed semicircular part of the Water Mattress.
- Check the water temperature regularly.
- Check the temperature of the baby regularly.
- Continue to use appropriate monitoring of vital signs.

NOTE: A cold Water Mattress, or a mattress which is cooling down due to the heating being switched off, will decrease the temperature of the baby. Likewise, a Water Mattress which is too warm can give the baby a fever.

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Memo

To: All staff

Subject: Wheelchair users

People use wheelchairs for different reasons. A patient's wheelchair is an extension of their person and is as important to them as their shoes or car.

Dos and don'ts for communicating with a wheelchair user:

- Do not touch the wheelchair or lean on it or move it without asking permission, even if it is not being used at the time.
- Do not assume that a patient who is using a wheelchair will want you to push them.

- Do ask patients in wheelchairs if they need any help, particularly if there are obstacles, e.g. doors, slopes, or rough terrain or floor surfaces.
- Do talk to a patient in a wheelchair at their eye level by sitting or kneeling by them.
- Do not stand where a patient in a wheelchair has to look up or turn around to maintain eye contact.

4. What information do the guidelines give regarding Family Witnessed Resuscitation (FWR)?

- A) The documentation that must be in place before it is permitted
- B) How to ensure that it doesn't interfere with treatment
- C) Under what circumstances it may be refused

Family Witnessed Resuscitation (FWR)

Relatives must be asked if they wish to remain present during resuscitation and their wishes must be respected. Verbal consent should be documented in the medical notes. If FWR is not offered, it is essential that the reasons are documented. If relatives are present during resuscitation, this should also be documented, and if CPR is successful, the patient must be informed that their relatives were present.

There must be an appropriate member of staff available to take responsibility for the relatives. If there is no member of staff available, the relatives should not be allowed to remain. If the relatives do not speak English, an interpreter should be sought to help the health professional provide adequate support. This may take time, but must not delay resuscitation.

5. What does the email tell us about treating MRSA-positive patients?

- A) procedures tend to vary across departments
- B) delays are more common in some departments
- C) certain departments need to revise their approach

To: All medical staff

Subject: What does an MRSA positive result mean for a patient being treated at this hospital?

The patient should not have their clinical care compromised due to a positive MRSA result; their clinical care should take precedence.

Cancelling surgery or investigations simply because patients are MRSA positive is not acceptable. Individual cases should be discussed with the Infection Prevention and Control (IPC) team so that a risk assessment can be undertaken if necessary. Disruption of patient flow may occur if there are insufficient resources to accommodate all patients due to cleaning requirements, but allocation should be on clinical requirements.

In an attempt to reduce disruption to patient flow, Theatres, Angiography, Interventional Radiology, MRI, CT and Ultrasound have specific advice developed in conjunction with the IPC team to care for these patients in these departments, including specific advice on cleaning, which will differ from inpatient ward areas. This may need explaining to patients.

6. The extract from the manual stresses the need to

- A) Give clear instructions to the patient prior to the procedure.
- B) Allow the patient to decide when to initiate the procedure.
- C) Prioritise the patient's comfort throughout the procedure.

Spirometer operating instructions

Instruct the patient to breathe in until their lungs are completely full, seal their lips around the mouthpiece, blow out as hard and as fast as possible until they cannot push any more air out and then breathe in fully immediately after the expiratory manoeuvre. This completes the Flow Volume loop. The spirometer will not take any measurement until a key is pressed, which allows the patient to breathe through the transducer before measurement of a forced expiration, if required. Do not press a key to start the measurement until the patient is ready to immediately perform the forced expiration.

Part C

Text 1: Communicating with Patients

'A 53-year-old woman with right lower quadrant abdominal pain'; 'a 21-year-old opioid abuser in withdrawal'; 'an 80-year-old woman with chest pain'. On a single shift in the emergency department, I regularly read through the 'one-liners' of more than two dozen patients. Along with most of my colleagues, I end up recalling people by their presenting clinical symptom or main medical diagnosis. It's the only practical way of keeping track of who's who. Much as we recognise this to be clinically necessary, what do we lose when we think of patients in this way?

The loss of compassion and the risk of dehumanization in medicine is a real one. Studies show that empathy systematically decreases over the course of residency, while burnout increases. As much as this is a product of challenging schedules and tough daily work, clinicians contribute to this decline in many other ways as well — notably through our routes of communication. Examples of this include how we write our medical notes, how we present cases on morning rounds, and how we talk about patients with colleagues.

The way we currently communicate reinforces a culture in which patients become simply another case of 'X' disease. Our manner of speaking and writing about patients not only reflects, but also impacts on how we feel about them. It can contribute to a steady loss of empathy and even, I'd argue, a deterioration in patient health outcomes. Studies have already found that patients treated by physicians who score higher on measures of empathy have better outcomes. Similarly, when the physician has a negative attitude, patients have been shown to have worse outcomes. While the link between language, empathy, and outcomes hasn't been studied, I think they're connected. Our complacency in referring to a patient as 'the pancreatitis guy' or 'the heart failure lady' can also become a precursor to more harmful misuse of language. On the more grievous end of the spectrum, there are many documented cases of physicians speaking ill

of their patients. Unfortunately, these aren't rare anomalies. As physicians, we know that disrespectful language can be a common occurrence in some hospitals.

There are many changes clinicians can make to improve how we communicate about patients. One of the easiest and most critical is how we write our medical notes. One of the best doctors I've ever worked with systematically starts every single note with the person's social history. Who is this patient? It's not just a lady with abdominal pain. She's a mother of three, a retired teacher, and an active cyclist. That is the first thing we read about her, so when I enter her room, I can't help but see her **in this way** rather than as a case of appendicitis.

This matters because patients deserve to be treated as people - a statement that's so obvious it shouldn't need to be said, but which physician behaviour doesn't always reflect. You wouldn't expect to know the most sensitive and vulnerable aspects of someone before even knowing their most basic background, yet we do this in medicine all the time. This is also important because in many clinical presentations, it provides critical information that helps deduce how they got sick, and why they may get sick again in the same way if we don't restructure something essential in their life.

Another easy change is to make sure there is a photograph of the patient in their electronic medical record - preferably one of when they were in better health. It acts as a stark reminder that the patient was once in good health, and helps us to frame how their disease has affected them physically, mentally, emotionally and spiritually. Ask any doctor how eye-opening it is to see a picture of an intubated, sedated patient in the ICU when they were smiling and healthy just a few months earlier. Family members often bring these pictures in, but we should proactively ensure that, with the permission of the patient or family member, they are included in every medical chart.

Changing the way clinicians speak about patients can make a big difference. While finding out on rounds that, say, 'Mrs. A is an avid football fan' may not change her clinical management, it will undoubtedly change the way we frame her in our minds, allowing us to connect with her not only in terms of her illness, but also those things that bring her joy. As practitioners, we're being trained to sift through large amounts of data to present relevant information, interpret this quickly, and create safe and effective treatment plans. In many ways, our current medical culture treats the social history and other 'soft' data without regard. But by restructuring how we integrate this information and making it a central part of how we write, speak, and engage, we'll not only become more empathetic, but also provide better care for our patients.

Text 1: Questions 7-14

7. In the first paragraph, what point does the writer make about the use of 'one liners'?

- A) It places too much emphasis on a patient's age.
- B) It should be restricted to written communications.
- C) It is an effective way to distinguish between patients.
- D) It can lead to misunderstandings between colleagues.

8. In the second paragraph, the writer recognises that

- A) A lack of compassion is partly caused by the way doctors pass on key information.
- B) Better training could help doctors retain their compassion for others.
- C) Showing less compassion makes it easier for doctors to cope with a difficult job.
- D) Doctors are not to blame for their tendency to become less compassionate over time.

9. The phrase 'another case of 'X' disease' is used to illustrate

- A) A lack of interest in patients beyond their illness.
- B) An indifference towards a patient's health outcomes.
- C) The frustrations of having to deal with very routine cases.
- D) A lack of concern regarding the prevalence of a particular condition.

10. In the third paragraph, the writer claims that the use of disrespectful language about patients

- A) Should be considered an indicator of the culture of a working environment.
- B) Can develop out of a habit of referring to them in terms of their condition.
- C) Has been proven to have a negative effect on their recovery.
- D) Is becoming ever more common in hospitals.

11. In the fourth paragraph, the phrase 'in this way' refers to

- A) The writing of medical notes.
- B) The confirmation of a diagnosis.
- C) Being reminded of a key symptom.
- D) Knowing about the patient's social history.

12. In the fifth paragraph, the writer points out that

- A) Patients reveal more information to doctors who treat them as people.
- B) Doctors forget that they're asking patients for sensitive information.
- C) A patient's social situation affects the treatment they receive.
- D) Doctors disregard a particular social convention on a regular basis

13. What is the writer's main point about photographs of patients?

- A) They can boost the spirits of their subjects.
- B) They must only be used with permission.
- C) They help underline the effects of illness.
- D) They are of most use with the critically ill.

14. What point does the writer make about data in the final paragraph?

- A) Too much is gathered at the moment.
- B) It needs to be recorded in a different place.
- C) The way it is prioritised needs to be revised.
- D) Doctors need more training in order to use it effectively.

Text 2: The Common Cold

Polio, smallpox, hepatitis A and B are all serious viruses that humanity learned to subdue with effective solutions. Even influenza, which can shift and mutate each year, has a vaccine. And yet, there's no remedy for the lowly cold. That's not for lack of trying, though. The hunt for a cure began in the 1950s, shortly after scientists discovered the primary group of pathogens, known as rhinoviruses, behind the condition. Together it accounts for up to 75 percent of colds in adults. But scientists quickly ran into an issue that still utterly **stymies** researchers today, says Peter Barlow, an immunologist at Edinburgh Napier University in Scotland, who is working on a cure for the cold. 'There are at least 160 different strains, or serotypes, of rhinovirus,' Barlow says. 'That means cracking the cold isn't so much looking for one solution to one problem; it's more like trying to design a master key to open hundreds of different locks at once,' Barlow says.

The discovery of these strains, made through the 1990s, was a blow to vaccine development. While the early work done in the mid-20th century showed simple vaccines could immunize people against one strain, the concept of developing dozens or even hundreds of vaccines for one illness, let alone a single individual requiring so many shots, is now seen as impractical and a drain on limited resources.

Still, researchers are working on some clever work-arounds, says virologist Martin Moore of Meissa Vaccines. One way, which a group at Imperial College London is currently investigating, is to discover some part of the viral structure that's common to all 160 strains. If they can successfully target an immune response

against **that**, then they could design a single vaccine that would offer protection against every strain of rhinovirus.

Moore's company is going for a more traditional approach, he says. Vaccines can be made to inoculate against one strain, but strains can also be mixed together into a kind of vaccine cocktail. The polio vaccine consisted of all three of polio's viral serotypes, and the vaccine created against pneumonia has components from 23 different bacterial strains. 'People have steadily increased the number of components in vaccines over the years,' Moore says. It's just adding more things. We're taking, I would say, the least exciting approach but it's a tried-and-tested method. 'Moore's goal is to create a vaccine mix of at least 80 strains, covering the group of rhinovirus serotypes that are the most common and virulent. Unlike the flu virus, he says rhinovirus isn't likely to mutate into new forms. Serums created decades ago are still effective against their specific rhinovirus strains today. Once the vaccine is complete, it shouldn't need much updating. Recently Moore was able to create an effective inoculation with 50 serotypes of rhinovirus, but he doesn't expect the remaining 30 to come easily. Each new serotype added to the mix costs a significant amount of money and adds complexity to the formula, he says.

Other researchers, like Barlow, are looking for compounds to cure the cold after an infection. For this, researchers are looking to the human body's own defences for inspiration. 'We're interested in a family of very tiny molecules found in human immune systems known as host defence peptides,' Barlow says. Our immune systems release these compounds after an infection, and they are able to attack the virus or prevent it from replicating. At the moment, these peptides degrade pretty quickly, so he is trying to find a way to stabilize them so they can be taken as a drug.

Still, some of the challenges of finding a cure don't lie in rhinovirus's variegated biology, Barlow says. 'There are a lot of societal challenges, I think,' he says. 'Even if we succeed, it probably won't be made available to healthy people who shrug

the cold off in three to four days. Plus, you would need to test to see if you even had rhinovirus rather than some unrelated virus that causes identical symptoms such as human coronavirus or adenovirus. I don't think there's been much of an appetite for developing a drug that acts in the early stages of a cold,' he says.

But a cure is still worth finding, Barlow says. The common cold might be a nuisance that causes most people to lay up for a few days, but it can seriously exacerbate chronic respiratory conditions such as Chronic Obstructive Pulmonary Disease or cystic fibrosis. 'If someone is in the hospital already and has an exacerbation of an existing disease from rhinovirus, the medication can be delivered quickly,' he notes. In this case, such a cure could save lives.

Text 2: Questions 15-22

15. In the first paragraph, the word 'stymies' reflects common cold researchers'

- A) Sense of frustration at the scale of the task which they face.
- B) Respect for the ability of rhinoviruses to survive any treatments.
- C) Surprise at finding themselves faced with such a complex virus.
- D) Continuing lack of understanding of the causes of the condition.

16. The second paragraph highlights an idea that common cold vaccine development

- A) Is still based on outmoded assumptions.
- B) Is unlikely to prove a profitable investment.
- C) Fails to attract enough interest amongst scientists.
- D) Has probably gone as far as it can in the circumstances.

17. What does the word 'that' in third paragraph refer to?

- A) A feature shared by serotypes.
- B) A newly discovered viral strain.
- C) A particular type of virus.
- D) A universal cold vaccine.

18. In the fourth paragraph, what do we learn about Martin Moore's work?

- A) It is the development of an existing approach to vaccinations.
- B) It represents a departure from recognised methods of vaccination.
- C) It makes use of research into the vaccination of related conditions.
- D) It combines several recognised approaches to vaccination in new ways.

19. In the fifth paragraph, what does Moore suggest about his proposed vaccine?

- A) Adding each new serum can have unexpected consequences.
- B) Identifying the final few components may be beyond his reach.
- C) The majority of its components have already been shown to work.
- D) Once developed, it will remain potent longer than any equivalent product.

20. The focus of Barlow's research into host defence peptides is

- A) Understanding their workings.
- B) Extending their lifespan.
- C) Clarifying how infections stimulate them.
- D) Developing medicines which mimic their effects.

21. One challenge that Barlow identifies with a cure for the common cold is

- A) Justifying the expense of manufacturing it.
- B) Prescribing it in time for it to be effective.
- C) Deciding which patients it would benefit.
- D) Establishing which stage of the cold it would target.

22. Barlow believes that curing the common cold is ultimately worthwhile because it could

- A) cut the overall numbers of hospital admissions.
- B) lead to shorter stays in hospital for some patients.
- C) reduce the likelihood of cross infection in hospitals.
- D) improve survival rates for certain types of hospital patient.

