EULAR
On-Line Course on Rheumatic Diseases
Section B and Section C
Detailed working guidelines for authors

http://www.eular-onlinecourse.org
# Table of Content, sections B and C

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Each module follows the same pattern with regard to the educational structure and organization of the material. The content should be adapted to the student level: trainees in their very last year of training in rheumatology as well as established, practicing rheumatologists in Europe. This should affect the level, the scope and the aims of all components of the course for each module. These components are:

- A review / update on the topic/main text (approx. 10’000 to 15’000 words) with learning objectives, pictures for illustration in the text, summary points and references
- Review / update of the two additional and separate in-depth discussions (max. 1’500 words each) expanding on selected clinical problems, with an evidence-based discussion
- Review / update of the two additional and separate interactive typical clinical cases with questions and prepared answers for feedback
- Assessments questions: Two sets of questions addressed to core aspects of the module, adding up to 20 marks each (1 mark = 1 correct choice out of a set of possible choices). One of these sets (20 marks) will be used for the final examination. The exception are all modules with a letter (29a, etc. for instance, as these do not enter the exam)

**B 1. Update / Review**

FIRST: Please view how the students rate this module by clicking on "actual online course" at the upper right side and choose "statistics". This will be relevant for your updating.

**B 1.1. Learning objectives**

**Background:** The review should offer a comprehensive state-of-the-art and evidence-based overview of the field, aimed at the practicing physician. Before you formulate the learning objectives and start writing the review, please consider the following:

The overall area of the module should be introduced in broad terms. It might be useful to deal with differences of terminology in different countries/cultures at this point. Since at some point diagnostics and treatment modalities might differ in different states in Europe, it might be wise to mention these differences.

Explain the importance, relevance and usefulness of the material presented in the module. For the conditions described, outline their commonality, rarity and epidemiology and possibly their economic impact.

In order to formulate the learning objectives of this module please consider the following questions:

- What background knowledge and experience is required to understand the module?
- What pre-module reading or experience would be useful?
- What is the overall area covered by the module?
- Why is it important and relevant?
- How common or rare are the cases described in the module?
• What will the participant be able to do after finishing your module?

Because clear learning objectives are very important (and are also linked with the assessment) your contribution should be clearly structured, guided by clear learning objectives like:

After following this module (example: on crystal arthropathies) the student will be able to:

- Make a diagnosis of a specific crystal arthropathy, based on history, physical examination, and interpretation of synovial fluid and laboratory results.
- Differentiate gout from other crystal arthropathies and septic arthritis.
- Manage an acute attack of crystal arthropathy.
- Decide whether or not to start chronic treatment of crystal arthropathy.
- Use different treatment strategies and monitor adverse reactions
- Educate patients on disease management, including work participation.
- Critically evaluate the evidence for the effectiveness of different treatment strategies

(Note that conventional learning objectives are always written using active “doing” verbs. Avoid ‘know’ or ‘understand’ as these words do not specify any actions.)

B 1.2. Main text

The order of authorship has been defined as follows (please use the following phrasing also in the main text of your update):

For this module, the

Lead author is (name of author)
Junior author is (name of author)
Senior author is (name of author)

Normally the Lead author should be the first Author, his junior can be the second author and the Senior author is the last. Authors can decide the order – i.e. in some cases the Junior might be the first author. Authors are asked to write the order of the authors right beneath the title of the main text.

Previous authors were: (please add the previous authors)

The review should be written in the style of a good quality text-book chapter with headings, sub-headings, tables, graphs and diagrams, (10’000 to 15’000 words).

• It should be written in clear simple English.
Sentences should be kept short.
Terminology and explanations should be made simple.
New words, concepts, abbreviations and acronyms should be explained.
Care should be taken when constructing explanations of concepts, procedures or processes to include all relevant steps.

**Clear summary in (10) bullet points** should form the closure. Please check that this summary covers the key learning objectives of the module.

- References should not be numbered in the text, correct example: (Demoulin et al, 2012).
  A link to pdf-versions of free PubMed articles (where possible) would also be useful.
  - Please add the complete list of all references in alphabetical order at the end of the main text, marking the key references with an asterisk. This procedure should make it easier to add references (no re-numbering necessary upon updating) and help to equalize the different versions.
  - Key references should be limited to 10 (in some cases to a max of 20-30).

B 1.3. Pictures / -figures

10 to 30 pictures / figures (with a short self-explanatory legend for each) should be included and referred to in the text (high quality jpeg pictures concerning clinical, radiological or biological data.
See “Technical guidelines” for the questions of quality). Using pictures is an asset of an interactive educational text; for instance when in the chapter on systemic sclerosis Raynaud phenomenon is described, you might click on the term Raynaud phenomenon, and a picture of this phenomenon will pop up. **Please use this modality!**

If a patient is recognizable on a picture, informed consent of that patient is needed; please supply that.

Please realize that these pictures will be part of the next edition of the EULAR Textbook on Rheumatic Diseases, and need therefore be free of copyright.

Students should be able to download the pictures for personal use. Therefore, when supplying pictures, please be sure to supply them without copyrights. You can obtain free pictures for this purpose from several sources, e.g,

- CRI (Club Rhumatismes et Inflammation) (http://www.cri-net.com/prive/base_images/accueil.asp for the image bank or http://www.cri-net.com for the general site)

B 2. In-depth discussions (illustrated)

Two in-depth discussions (if possible max. 1’500 words each) are meant to expand on one relevant clinical problem each. It is expected that these papers will include evidence-based discussion. Please note that also here pictures may be important for illustration.
For example, in a chapter on crystal arthropathies there might be additional discussion, at greater depth, on two of the following topics:

- co-existence of gout and septic arthritis
- management of allopurinol hypersensitivity
- renal dialysis arthropathy.

The content of these in-depth discussions may of course be adapted yearly. If for instance a new treatment for gout becomes available, the in-depth discussion can be changed to: new treatment modalities of gout.

**B 3. Interactive clinical cases (illustrated)**

Two classic cases should be drawn up, exemplifying and illustrating key objectives of the module (if possible max. 1,000 words for each). These cases can be used to add new information and may emphasize important aspects of diagnosis or treatment. Note, however, that they are mainly intended to illustrate the application of knowledge, the ability to do things, to solve clinical problems with the acquired knowledge.

They should be interactive studies taking the student through a clinical case from initial presentation through history, examination, differential diagnosis, investigations, interpretation of investigations, diagnosis, management and follow up. At each stage of this process there should be challenging questions making the students stretch their thinking and work at the highest clinical level. Illustrations can be used here as well.

- Please study attentively: “Interactive clinical cases – an example” appendix C2 of this document (p. 10).

**B 4. Assessment questions and final exam**

Please prepare assessments based on the key learning objectives.

**Key Points Summary**

- Preparing assessments takes time, skill, experience and team work
- Base your assessments on the examples in the appendices
- work with your convenor – allow plenty of time before the deadline
- Provide 2 sets of questions providing 20 marks in each set
- You can award 1 mark for 1 correct answer
• You must ensure correct choices have to be chosen from sufficient incorrect possibilities
• Do not use True False questions
• Vary the choice of question type
• Select questions which test content from across the whole range of module
• Avoid complex questions such as double negatives
• Always include some questions asked in relation to a clinical context, given as a ‘vignette’
• Avoid simply testing student recall of simple facts; better to test application or clinical reasoning, treatment and management applied in a specific clinical context

Question Sets A1 and A2

Two sets of questions are needed. One of these sets will be used for the final. Each set should have a total of 20 marks. **A mark is equivalent to a correct choice from a set of possible choices** (see appendix C4, p 24).

Module Assessment: A1

One set of questions (totalling 20 marks) will be used at the end of each module. An 80% correct assessment mark is needed if the student is to progress to the next module. There is a 3-step procedure:

1) Students answer the questions, submit the assessment and get an immediate response: they know their success percentage and get feedback on the questions whether they are right or wrong.

2) Try again, think again. If the questions are wrong a second time, Try again, think again. If students fail, they now receive the correct answer(-s) and may proceed to the next module.

Course Exam: A2

The last set of questions (totalling 20 marks) will be used in the final examination at the end of the course. It is particularly important that the questions in A2 are examples of best practice in assessment in order for the exam to be valid and reliable.

Exceptions
Module No. 14a,b,c ; 29a,b,c ,38a,b,c ; 42a,b,c – these do not enter the exam and do not need the 2nd set of questions!

Tips for how to write good enough questions
The types of questions that can be used are demonstrated in appendix C3 (p 16). A variety of question types are available: multiple choice, multiple response, extended matching and ranking.

Multiple Choice, single best answer

*(Choose 1 from x, where x > 4)* Examples C3 p18

For each mark, you must construct a clear question stem and 4 plausible but incorrect answers. You cannot use options such as, all of the above, or none of the above.

Multiple Response

*(Choose n from x, where n ≤ 3 and x > 2n)* Examples C3 p19

Offer up to 3 marks per question stem for correct answers from a selection of at least twice as many options.

Extended Matching

Match Examples C3 p20

This is an excellent choice. Offer 3 marks for matching a list of 3 items, (often clinical cases or features), with a longer list (7-9 items) of treatments, drugs, conditions etc. You can generate more marks with fewer options; test higher order reasoning and incorporate clinical context.

Use images in Questions C3 p22

A useful way to introduce variety and generate question possibilities in clinical context.

Ranking C3 p21

This is very occasionally useful to introduce some variety, but you must be clear to use in situations where evidence is clear. For clarity it is best to limit the required selection to 3 ranked correct choices and to allocate 1 mark for the whole correct ranking in order to avoid ambiguity.
Clinical context is important

The assessment should preferably follow a case-based format, i.e. a clinical case is designed and questions are put along its description (see appendix C4, p 24). This might include questions on history and examination, investigations, interpretation of data, diagnosis, management, follow up and sequels. Even if the authors choose not to use a clinical case, please take into account that questions should be related to a clinical context and not simply assess isolated facts or pure recall memory.

Enhance fairness through valid and reliable assessment technique

Please try to refrain from double negative questions. It is important to make sure that the content of the questions relates to the educational material provided in the module. The level of questioning should be appropriate to the target group i.e. critical evaluation of evidence, advanced interpretation of investigative data and the use of professional diagnostic reasoning.

Learning from Feedback on Assessment: A1 in particular

All questions should be provided with an appropriate amount of feedback for each of the correct and incorrect answers.

We do realise that preparing the assessments is quite difficult. However it represents a major part of the educational quality of what we provide. Therefore, we have added in the appendix extensive examples, and both your convenor and the educationalist, may help you further. Please realize that this part of the module will take quite some time for you to prepare.

Please refer to below appendixes C2 (p 11), C3 (p 23) and C4 (p 30) for details and examples of questions.
APPENDIX C1

Technical guidelines

Minimum requirements for users:

- Windows 98, 2000, XP or higher with IE5 (or higher) or Firefox including Macromedia Flashplayer 8 and Acrobat Reader 5 or higher.
- Mac OS 9 or X with Safari, IE5 (or higher) or Firefox including Flashplayer 8 and Acrobat Reader 5 or higher.
- Pentium III 500 Mhz (AMD equivalent) or higher, 128 MB RAM.
- Minimum screen display: 800x600 pixels.
- Modem 56kb/s tolerated, better with an higher bandwidth.
- Basic knowledge of internet use/navigation.
- An active and valid e-mail address.

WRITTEN TOPIC TITLES

Text headings should be numbered consecutively and by level like this:

I- FIRST LEVEL HEADINGS

Type first level text headings in capital letters over to the left. Begin with the text on the following line.

I-1 Second Level Headings

Second level headings should be typed in lower case letters but with the main words capitalised. Begin the text on the following line.

I-1-1 Third level headings

For third level headings, only the first letter should be capitalised. Begin the text on the following line.

All pictures should be numbered with consecutive Arabic numbers. When referred to in the text, the word "picture x" should be written out in full. Keep the actual picture separate from the text, but indicate an approximate position for each in the text by inserting at an appropriate place the line:

"Picture x near here + Legend".
APPENDIX C2

Interactive clinical cases – an example

This case description was designed to offer the authors some ideas about the potential educational use of the interactive opportunities offered by the internet. It was kept intentionally simple in trying to convey possibilities that are immediately available. For practical reasons, authors are invited to adhere to the given examples. However, the Committee warmly welcomes any suggestions authors may have on further interactive models. These will be explored for feasibility and possibly considered in future editions of the Course.

Amongst the case description below you will find coloured areas with comments:

Those in yellow are intended to exemplify the kind of information the webmaster will expect from you in order be able to respond to your wishes. Please also shadow in yellow (in your case description) all comments you intend to address to the webmaster only. Those in green are intended to clarify issues relevant to authors.

Case:

Susan, a 27 year old secretary asked for an appointment at our clinic because of mild morning stiffness affecting her hands.

As she worked in a hospital, she had heard that such symptoms might be significant and she wanted just to make sure.

While walking into the clinic she looked well and happy. She spontaneously stated that she was in general good health and had no other major complaints.
• What would you do?

1. Reassure the patient and tell her to come back if any other symptoms emerged
2. Ask for blood tests
3. Write a prescription for a mild NSAID
4. Continue with questioning and clinical examination
5. Arrange to see her again with X-rays of the hands

Notes to Webmaster

Type of question: MCQ (see educational guidelines)
Right answer: 4
Feedback to readers:

Authors are expected to comment (feedback) relevantly on all hypotheses posed in questions, either right or wrong. These will be seen by students only upon clicking a designated button in the internet question.

Q1. Although the complaints seemed mild and unimportant, we should keep in mind that early diagnosis is extremely important in a large number of rheumatic conditions. This requires the consideration and exploration of mild compatible complaints. Certainly, early morning stiffness, especially in a young woman, deserved more attention.

Q2. Blood tests must be guided by clinical hypotheses: do you already have a consistent one?

Q3. It would be ill-advised to start medication without exploring more the diagnosis. This could be a serious condition, requiring a completely different approach!

Q4. Of course! We still knew too little about the patient and her complaints, to decide on the next step.

Q5. More information is needed to choose the best investigations. Hand X-rays are not very informative in the early stages of most rheumatic conditions.
Case continued:
She had had morning stiffness for about six months. She did not pay attention to it at first but it got worse with the cold weather. She felt her hands were stiff and clumsy for about 20 minutes in the morning before maximum improvement. No other areas were affected and she had no joint complaints during the day.

She wasn’t absolutely sure about swelling of the hands: they felt swollen in the morning but they only looked swollen for about two weeks, two or three months previously. At that time she also felt feverish and tired, but this resolved spontaneously.

- **What would you do at this stage?**

1. Reassure the patient and tell her to come back if any other symptoms emerged
2. Ask for antinuclear antibodies screening
3. Write a prescription for prednisolone (5mg, od)
4. Continue with questioning and clinical examination
5. Arrange to see her again with X-rays of the hands

Notes to Webmaster:
Type of questions: MCQ
Right answer: 4
Feedback to readers:
Q1. This would not be a good option. Suspicion of a relevant condition should be increased in face of a history of unexplained fever, fatigue and swollen hands.

Q2. Blood tests must be guided by clinical hypotheses: even if the additional information may allow the hypothesis of a connective tissue disease, there is a lot more relevant clinical data we
should collect to support our choice of investigations.

Q3. Definitely not, at this stage. Glucocorticoids are only warranted in face of a clear diagnosis or, at the most, some ill-defined but life-threatening conditions. Their administration at this stage could actually delay the final diagnosis and complicate subsequent investigations.

Q4. Of course! Further clinical information, including of course, clinical examination may be pivotal in focusing the diagnostic approach.

Q5. Although some rheumatic conditions, such as rheumatoid arthritis, may cause clear changes in hand X-rays as early as six months after onset, appropriate interpretation of radiological data would require a more comprehensive clinical picture and be related to other investigations.

Notes to Webmaster: Insert page break

Write down the main questions you would like to ask regarding the presenting complaints and check your questions against our approach.

Pause and reflect

The patient was systematically questioned and denied a variety of symptoms. Some are listed below. Please think of potential causes for such findings, which may merit consideration in this clinical context:

1. weight loss
2. itchy eyes
3. hair loss
4. skin rash
5. recurrent infection
6. lower limb oedema
7. hypertension
8. convulsions
9. raynaud’s phenomenon
Notes to Webmaster:

Type of question: rhetorical (to promote thinking: an answer is provided by the author)

Authors are asked to adhere, as much as possible, to the type of questions described in the educational guidelines, p 12. The scientific committee felt, however, that rhetorical questions can be very useful in the interactive clinical cases in promoting the student’s reasoning even if they are not adequate for the student’s assessment.

Right answer: no right answer

Feedback to readers:

Q1. weight loss: Hyperthyroidism – can also cause puffy hands, feverish feeling; Malabsorption – coeliac disease can cause arthralgia, fatigue; Several CTDs may be associated with weight loss in early stages.

Q2. itchy eyes: Sjogren’s syndrome (primary or secondary)

Q3. hair loss: common in several CTDs

Q4. skin rash: Psoriasis might be a relevant cause; a photosensitive rash would suggest a CTD such as SLE, dermatomiositis;

Q5. recurrent infection – hypogammaglobulinemia, hypocomplementemia, AIDS are all potential causes of recurrent infection and also of other features of the case.

Q6. lower limb oedema – malabsorption, heart failure, nephrotic syndrome

Q7. hypertension – lupus glomerulonephritis; vasculitis

Q8. convulsions: SLE, vasculitis

Q9. Raynaud’s: CTDs

Q10. heel pain – seronegative spondylarthropathies

- Would you ask the patient about past medical history? Any specific points?
- Pause and reflect
We asked the patient about any relevant previous health events.

She declared that two years earlier she had been affected by chest pain, on the left, which was exacerbated by deep breathing. This complaint persisted for about three months and no formal diagnosis was made despite in depth investigation in the Chest Department.

- **How would you interpret these findings?**
- **Pause and reflect**

The clinical pattern of this pain suggests pleural inflammation. The lack of aetiological diagnosis after investigation suggests that it was not infectious. Could this be related with the present history of arthralgia and fatigue?

She had one child, aged 5 and had a spontaneous abortion at 2 months pregnancy, 2 years before.

- **Would you value this story?**
- **Pause and reflect**
Spontaneous abortions are not rare events and can be otherwise meaningless. However, in this clinical contest, the physician would be wise to consider the possibility of antiphospholipid syndrome underlying this event.

She denied any other significant events (including specific issues such as deep venous thrombosis, mouth and/or genital ulcers, unexplained fever, abnormal bleeding)

- What could be the potential relevance of these aspects?
- Pause and reflect

Notes to Webmaster:

Type of question: rhetorical (to promote thinking and give an answer)

Feedback (to appear on clicking an icon for “answer” after the question above):

1. Deep venous thrombosis: would reinforce the hypothesis of APS, if present. 2. Mouth ulcers are frequent in CTD, especially SLE. Mouth and genital ulcers would raise the possibility of Behcet’s disease. 3. Unexplained fever, could have several meanings – not rare in CTDs, it could suggest and underlying chronic infection such as tuberculosis or brucellosis or even AIDS. - all of them plausible in this clinical context; 4. Abnormal bleeding – could be a clue to thrombocytopenia (e.g.: in SLE) or disturbed coagulation (e.g: in APS)

Her family history was irrelevant.

- Please now make a list of items you would like to check on physical examination.
- Pause and reflect

Notes to Webmaster: Insert page break

On clinical examination, the hands seemed rather puffy but with no secure signs of synovitis. No other joint abnormalities were found.

Small painless lymph nodes could be palpated bilaterally in the cervical area.
There were no abnormalities in the skin or mucosae. Heart and lung sounds were normal. No lower limb oedema. The blood pressure was normal. The neurological examination was normal.

- **Please make a short description of the case**
- **Pause and reflect**

**Notes to Webmaster:**

Type of question: rhetorical (to promote thinking and give an answer)

*Elaborating a short case description (framing the problem) is a very useful and productive educational task*

Feedback (to appear on clicking an icon for “answer” after the question above):

Inflammatory arthralgia and fatigue in a young female with lymphadenopathy, Raynaud’s and a history of spontaneous abortion and pleuritis.

- **Please consider the two most probable diagnoses and the arguments for and against each**
- **Pause and reflect**

**Notes to Webmaster: Insert page break**

- From the list below rank the three most probable diagnoses.
  
  Fibromyalgia
  Hypothyroidism
  Rheumatoid arthritis (2)
  Systemic lupus erythematosus (1)
  Polymiositis/Dermatomyositis
  Primary antiphospholipid syndrome
  Primary Sjogren’s syndrome (3)
  No rheumatic disease
Notes to Webmaster:

Type of question: Ranking

Right answer: SLE -1 ; RA -2; Sjogren’s - 3

Feedback to readers:

- Fibromyalgia. Not at all. Although patients with FM may complaint of swollen joints, fatigue and stiffness, the pain, in this case, was not generalized and tender points were not checked. FM has no relationship with abortion, pleuritis. Lymphadenopathy is not a feature of FM although it can be found in chronic fatigue syndrome, a close affiliate to FM.

- Hypothyroidism. Puffy hands, arthralgia and even pleural effusion can be found in cases of hypothyroidism. The clinical picture is, however, usually dominated by fatigue and psychological impairment. Abortion and lymphadenopathy do not enter this clinical pattern.

- Rheumatoid arthritis. Bilateral “inflammatory” hand arthralgia in a young female should raise this possibility. It is usually not flincting, though. Lymphadenopathy and pleural effusion can de cause by RA, but usually this happens in the context of active overt disease. Abortion would require and alternative explanation.

- Systemic lupus erythematosus. All manifestations present can be part of SLE. The case illustrates a common clinical pattern where this diagnosis must be considered: mild, frequently unspecified but compatible complaints in a young person. Spontaneous abortion could be a sign of APS, a common associate of SLE.

- Polymiositis/Dermatomyositis. Fatigue, a common non-specific symptom, must be distinguished from muscle weakness – a highly significant and specific finding. Lymphadenopathy, arthralgia and bouts of fever can occur in PM/DM.

- Primary APS. APS is an important cause of spontaneous otherwise unexplained abortions, but it wouldn’t explain any of the other problems. APS should be considered but only as “secondary” to another disease, such as SLE.
- Sjogren’s can mimic SLE quite closely. The only negative argument would be the age-range – Sjogren’s commonly starts later in life.

- No disease. It would be very unwise to disregard these clinical manifestations

- Would you request laboratory tests? Please write down which and why.
- Pause and reflect

Notes to Webmaster: Insert page break

Keeping in mind the clinical features reviewed above, select from the list (a to j), the diagnosis suggested by each of the following lab sheets (1 to 4):

- a. Rheumatoid arthritis
- b. SLE without major organ involvement
- c. SLE with kidney involvement
- d. SLE and antiphospholipid syndrome
- e. Systemic sclerosis – limited type
- f. Systemic sclerosis – diffuse type
- g. Polymyositis/Dermatomyositis
- h. Primary Raynaud’s phenomenon
- i. Primary Sjogren’s syndrome
- j. Mixed connective tissue disease

1. Full blood count: Normal. Platelet count: normal
   Creatinine: 95 µmol/L. CPK, aldolase: normal. Urinalysis: normal
   Coagulation: Prothrombin time: Normal. Partial tromboplastin time: 52 Sec (ct < 35)
   ANA: IF positive (1:320) fine speckled pattern.
   Anti ds-DNA: neg; ss-DNA; Ro, Sm: positive. IgM Rheumatoid factor: positive (1:320)
   Anticardiolipin antibodies: IgG 42 GPL units
   Hand X-rays: soft tissue swelling

2. Full blood count: Normal. Platelet count: normal
   Creatinine: 95 µmol/L. CPK: 420 IU/L, aldolase: 21 units/mL. Urinalysis: Protein 10 mg/dL
Coagulation: Prothrombin time: Normal. Partial tromboplastin time: Normal. **ANA:** IF positive (1: 80) **Anti** ds-DNA, ss-DNA, Ro, Sm, IgM RF: negative.

**Anticardiolipin antibodies:** IgG <5 GPL units

**Hand X-rays:** no changes

3. **Full blood count:** Normal. **Platelet count:** normal

**Creatinine:** 95 µmol/L. **CPK, aldolase:** normal.

**Urinalysis:** Protein – 50mg/dl; Protein cylinders - >100/µl

Coagulation: Prothrombin time: Normal. Partial tromboplastin time: Normal

**ANA:** IF positive (1: 320) fine speckled pattern.

**Anti** ds-DNA: positive, 25 UI/L; ss-DNA; Ro, Sm: positive. **IgM Rheumatoid factor:** negative

**Anticardiolipin antibodies:** IgG <5 GPL units

**Hand X-rays:** no changes

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**Notes to Webmaster**

**Type of question:** Extended matching

Right answer: 1-d; 2-g; 3-c

**Feedback to readers:**

a. RA is not suggested by any given lab pattern. – the presence of RF in a high titre has a high specificity for this diagnosis in a compatible clinical scenario.

b. There are two descriptions compatible with SLE: Nºs 1 and 3. In the first scenario there is a clear lab suggestion of antiphospholip antibody syndrome which has probably resulted already in abortion. In the third, there is evidence of renal involvement – a major event in SLE.

c. This is strongly supported by the third scenario: the immunological profile is quite typical of SLE (common IF pattern and antibodies against a range of extractable nuclear antigens). There presence of increased urine protein loss and cylindruria demonstrates the involvement of the kidney.

d. The first scenario is strongly suggestive of this diagnosis, especially taking into account the history of unexplained abortion. The immunological pattern is compatible with SLE and the high titre of anticardiolipin IgG antibodies establishes the diagnosis of APS.
e. Although the main clinical manifestations described may occur in Systemic sclerosis, the most specific ones are missing from the clinical description: skin sclerosis, telangiectasia, oesophageal symptoms. The lab does not add to the suspicion: the typical findings are missing (anti-Scl70; anti-centromere antibodies).

f. See e.

g. The presence of raised levels of CPK and aldolase in pattern 2 would support this hypothesis even if it was not very strong on strictly clinical grounds. ANAs are frequently negative in this condition.

h. The clinical scenario would not allow this hypothesis and the investigation results would only reinforce this – the lab should be normal in primary Raynaud’s.

i. All the main clinical manifestations described may occur in Sjögren’s syndrome, and this could not be ruled just because the patient denied dry eyes and mouth. ANAs are commonly positive on Sjögren’s but the typical cases will show antibodies with limited specificity to Ro and La.

j. Mixed connective tissue disease: the typical immunological profile – anti-RNP is not described in any of the sheets.

APPENDIX C3

Examples of question types

Authors are asked to use only the following four types of questions.

**NB:** “True/False” or “Yes/No” dichotomous questions are no longer recommended for advanced clinical assessments.

a) **Multiple Choice or single best answer** (Choose 1 from x, where x > 4)

Sometimes known as ‘single best answer’ questions, this type involves choosing one correct answer from a list containing incorrect choices or distractors. The incorrect answers should be as plausible as possible. The usual ratio of incorrect to correct answer should be greater than 4. There should be an appropriate clinical context for each question, which may also serve as a background to other types of questions.
Example

A 76-year-old lady is admitted to hospital with abdominal pain and undergoes surgery for a strangulated femoral hernia. She had previously been well and was on no drugs apart from omeprazole 20mg daily as required for intermittent dyspepsia, and bendrofluazide 5 mg daily for the past year for bilateral ankle swelling. Over the past 15 years she had experienced bilateral anteromedial knee pain, worse going up and down stairs and on prolonged walking, and associated with a few minutes of early morning stiffness. She had taken nothing for her knee pain.

There were no surgical complications but on her 3rd post-operative day she develops an acutely painful swollen right knee and feels a little unwell. She had never before experienced acute swelling of any joint. On examination she has a warm effusion, marked joint-line and periarticular tenderness and overlying erythema of her right knee; it is too painful to fully examine movement. Her left knee shows patello-femoral crepitus, bony swelling of the tibio-femoral margins, a bulge sign and reduced flexion and extension without stress pain. Her temperature is 38.4°C.

Specify the single most likely diagnosis

- Acute pyrophosphate arthritis (pseudogout) [YES]
- Acute gout [ ]
- Acute haemarthrosis [ ]
- Acute reactive arthritis [ ]
- Exacerbation ("flare") of knee osteoarthritis [ ]
- Apatite-associated destructive arthritis (AADA or “Milwaukee” syndrome) [ ]
- Septic arthritis [ ]
- Acute psoriatic arthritis (sine psoriasis) [ ]
- Acute enteropathic arthritis [ ]

Example Feedback

Rapid onset of severe pain, swelling and overlying that is at its worst within 6-12 hours is very characteristic of crystal synovitis – gout or pseudogout. Intercurrent illness such as surgery can provoke acute attacks of crystal synovitis. Of either gout or pseudogout, pseudogout is the more likely because:

- this lady has been on diuretics for just 6 months (somewhat short for predisposition to gout)
- she has knee OA - this associates with CPPD deposition
- the knee is the key target joint for pseudogout

After crystal synovitis, septic arthritis requires consideration in this setting. However, septic arthritis is usually subacute and progressive in its presentation.

b) Multiple Response (Choose n from x, where n ≤ 3 and x > 2n)
A Multiple Response question is similar to Multiple Choice but there are more correct answers, and because of this more distractors (incorrect answers) are required. To avoid giving the student a 50:50 chance of getting the answer correct, at least more than twice as many distractors as correct answers are required.

It is recommended that there are no more than 3 correct choices.

**Example**

A number of risk factors for osteoarthritis (OA) are recognised. From the following, select the 3 statements that are correct.

Obesity is strong risk factor for development of knee OA, but not hip OA  
YES

High bone density increases the risk for development of both hip and knee OA  
YES

Smoking increases the risk for development and progression of knee OA [ ]

*(Feedback: No. There are some data that suggest a negative association between smoking and knee and hip OA).*

The radiographic pattern of concentric or central hip OA has a worse prognosis than superior pole OA [ ]

*(Feedback: No. This pattern predominates in women, associates with generalised nodal OA and has a better prognosis than superior pole OA).*

The prevalence of radiographic OA at the knee is higher in each of the two tibio-femoral compartments than in the patello-femoral compartment [ ]
(Feedback: No. The medial tibio-femoral and patello-femoral compartments are the two target sites for OA).

Haemochromatosis, epiphyseal dysplasia and endemic “Kashin-Beck” disease are recognized causes of late-onset polyarticular OA. [ ]

(Feedback: No. These conditions classically cause early-onset oligo- or polyarticular “OA”.)

The concordance between pain and radiographic OA is higher at the hip than at the knee YES

There is a negative association between knee OA and chondrocalcinosis [ ]

(Feedback: No. There is a positive association which is largely explained by an association between chondrocalcinosis and osteophyte).

c) Extended Matching

Extended matching questions involve matching elements of a shorter list with elements of a longer list. Usually the longer list consists of drugs, named diseases, conditions, diagnoses, treatments, etc., and the shorter list consists of presenting features or clinical case descriptions. The longer list should be at least twice as long as the shorter list.

Example

The following patients all have arthritis. Select the most appropriate diagnosis of arthropathies associated with characteristic patterns of joint involvement from the list below.

a psoriatic arthritis
b rheumatoid arthritis
c haemochromatosis
d) Ranking Questions

In this type of questions the students is asked to select elements from a list and place them in order of priority, importance or a temporal sequence. It is important that the ranking is unambiguously correct and based on good or well-established evidence. There should be no more than 3 rankings.
Example

From the following list, rank the three most important evidence-based treatment options that should be included in the management of a patient with fibromyalgia (1 = most important)

Cognitive behavioural therapy

(Feedback: Although CBT is widely used in the US particularly there is a limited evidence base for its clinical effectiveness)

Aerobic fitness training

(Feedback: There is a good evidence base for this intervention. It is recommended long-term as a safe and effective way of improving delta sleep, improving well-being, reducing pain and fatigue and improving quality of life in fibromyalgia).

A 6-week course of oral gabapentin (anticonvulsant, structurally similar to GABA)

(Feedback: There are no data to support the use of this relatively expensive agent in fibromyalgia)

Oral tramadol (an opiate analogue)

(Feedback: There are only limited data to support the use of this drug in fibromyalgia)

Oral creatine and folate supplements

(Feedback: There are no robust data to support these agents.)

Low-dose amitriptyline (i.e. 25-75mg) at night

(Feedback: Several studies show benefit from low-dose amitriptyline, making it the pharmacological agent with the best research evidence for fibromyalgia).

A full explanation of the nature of fibromyalgia

(Feedback: Education (including information access and encouragement for self-management) is regarded as the cornerstone of management).

Meditational yoga

(Feedback: This is often recommended as a coping strategy but is unsupported by rigorous research evidence.)

Use of images in questions
Using on-line assessments it is possible to use a variety of images such as x-rays, photographs and diagrams as items in questions. These can be used as contexts for questions or they can form the basis of identification or diagnostic questions.

Example of a Multiple Response question using an image:

2. A 29-year-old woman presents with a 6-month history of pain and stiffness affecting her hands, wrists, neck, knees and forefoot. Her stiffness lasts for several hours each morning and she has noticed swelling and purpuresis of both wrists and several finger joints (Figure).

On examination of this patient, which 2 following signs would strongly support a diagnosis of rheumatoid arthritis?

- Splanchnic pain and palpable cervical and epigastric lymph nodes
- Stress pain and synovitis in symptomatic joints without accompanying peri-articular inflammation
- Nail dystrophy with thumbnail pitting
- Proteinuria and haematuria on urine dip-stick testing
- Epidermitis
- Alopecia areata

(3 marks)

Alternatively images can appear in Extended Matching questions as shown in the two examples below. Here the use of 'Image Hotspots' is demonstrated where a specific area of the image is the focus of the question. When submitting questions that use image hotspots it will be necessary to outline the area or areas of the image that are the focus of questions and to communicate this information to the question programmer.
4. The following plain radiograph of the right midfoot in a 20-year-old man was obtained on this patient. From the following list, select the correct label to best describe:

- Osteoporosis
- Arthritis
- Fracture
- Joint space narrowing
- The bone ends of the joint

It is recommended that questions are fitted into a 20 mark case-based assessment.
APPENDIX C4

Example of a case-based assessment

The case begins with some general extended matching questions concerning the presentation/history of arthritis.

Q.1: Match the clinical histories of patients with arthritis (1 - 3) with the most likely clinical diagnoses of arthropathies associated with characteristic patterns of joint involvement (A – K). (Extended Matching: 3 marks)

Diagnoses

A. psoriatic arthritis
B. rheumatoid arthritis
C. haemochromatosis
D. chronic tophaceous gout
E. ankylosing spondylitis
F. nodal generalised osteoarthritis
G. pyrophosphate arthropathy
H. neuropathic (Charcot) arthropathy
I. reactive arthritis
J. Gonococcal arthritis
K. Behcet’s disease

Histories

1.

A 65-year-old man developed relapsing attacks of acute arthritis in his forties, initially affecting his forefoot, midfoot or ankle. Over many years they became more frequent and spread to also involve his knees and hands. Each episode affects just one joint, develops within hours, causes severe pain and swelling, and lasts 1-2 weeks. In the last 15 years he has also developed chronic pain and stiffness of his forefeet, ankles, knees, fingers, wrists and elbows. He has nodular swellings over his hands, elbows and knees.

[D]

2.

Over a 2-week period a 22-year-old woman developed pain, stiffness and swelling of her right knee, left ankle and big toe. She has right knee synovitis, synovitis and periarticular swelling of her left ankle and midfoot and synovitis of her big-toe interphalangeal joint. The only other abnormalities are two large (painless) buccal ulcers.

[I]
3.
A 37-year-old woman gives a 6-month history of pain and stiffness affecting several finger proximal interphalangeal and metacarpophalangeal joints, both wrists, both elbows, left knee, and both forefeet. She has several hours of early morning stiffness, has lost 6kg in weight and feels tired. She has synovitis of her symptomatic hand joints, wrists, elbows and knees. There are no extra-articular signs. [B]

A specific case is now the feature of the question. The next multiple response question focuses on diagnostic features.

A previously fit 36-year-old woman presents with a 3 year history of intermittent pain and stiffness affecting multiple joints and her back.

Q 2: From the following list, select the three features in the history and examination that would most strongly support a diagnosis of psoriatic spondarthritis. (Multiple response: 3 marks)

Nailfold hyperaemia [ ]

(Feedback: No: This might associate with dermatomyositis but not psoriasis).

A family history of psoriasis in her maternal uncle [ ]

(Feedback: No: Although there is a genetic component to psoriasis, psoriasis is relatively prevalent and a positive or negative family history carries little diagnostic weight).

Combined synovitis and periarticular swelling affecting the interphalangeal joints of her left index finger YES

(Feedback: The combination of synovitis and adjacent periarticular swelling is very characteristic of seronegative spondarthritis, especially psoriasis and reactive arthritis)

Structural kyphoscoliosis with asymmetrical, restricted chest expansion [ ]

(Feedback: No. Inflammatory spondylitis is usually characterised by diffuse symmetrical involvement of the spine)

Restriction of lumbar flexion, extension, and lateral flexion each side YES

(Feedback: This diffuse symmetrical involvement is characteristic of inflammatory spondylitis)

Episcleritis [ ]

(Feedback: No. Episcleritis and scleritis mainly associate with conditions that have a vasculitis component (e.g. RA). Anterior uveitis/iritis is the main ocular association within the seronegative spondarthopathies, though more with AS and chronic Reiter’s than psoriasis)

Subungual hyperkeratosis affecting several fingers YES

(Feedback: This is typical of psoriatic nail dystrophy but can also occur with chronic reactive arthropathy. Any nail dystrophy from thimble-pitting to complete nail shedding can occur with psoriatic arthritis)
Erythema nodosum [ ]
(Feedback: No. This feature associates with inflammatory bowel disease but not psoriasis)

Asymptomatic buccal ulcers [ ]
(Feedback: No. This is an association with reactive arthritis but not psoriasis)

Next multiple response questions are concerned with interpreting radiological investigations in the case

Q. 3: Which four of the following features are characteristic of the radiographic features of psoriatic spondarthritis? (Multiple Response: 3 marks)

Targeting of the big toe interphalangeal joint in the forefoot YES
(Feedback: This is a classic target site in the forefoot for seronegative spondarthropathy)

Targeting of the first metatarsophalangeal joint in the forefoot [ ]
(Feedback: No: Although this joint may be involved by psoriatic arthritis it is not a target site. It is a target site for OA and gout)

Non-proliferative marginal erosions in synovial joints [ ]
(Feedback: No. These erosions are classical for RA)

Proliferative marginal erosions in synovial joints YES
(Feedback: These are the classical type of erosions for seronegative spondarthropathy, combining marginal erosion (due to synovitis eroding the “bare” areas) with a proliferative new bone response)

Peri-articular osteopenia in association with erosions [ ]
(Feedback: No. This would be more typical of RA)

Retained or even increased bone density adjacent to erosions YES
(Feedback: This is typical of seronegative spondarthropathy and may result in an “ivory phalanx”)

Peri-articular soft tissue calcification [ ]
(Feedback: No. This is not a feature of seronegative spondarthropathy and would suggest alternative conditions such as calcific periartitis or connective tissue disease).

Fine, symmetrical marginal syndesmophytes [ ]
(Feedback: No. these are more typical of syndesmophytes resulting from classic AS and spondylitis associated with inflammatory bowel disease)

After diagnosis the questions move onto management options
A diagnosis of psoriatic spondarthritis is made.

**Q. 4:** From the following list, select the 3 most important treatment options that should be included in her initial management plan. (Multiple Response; 3 marks)

- Low dose (7.5mg) oral prednisolone
  - [  ]

- A long-acting non-steroidal anti-inflammatory drug at night for symptom relief
  - YES

- Physiotherapy instruction concerning daily exercise routines and attention to spinal posture
  - YES

- Dietary supplementation with anti-oxidant vitamins (E,C) and cod liver oil
  - [  ]

- Education concerning the nature, management and prognosis of psoriatic spondarthritis
  - YES

- Advice to reduce her activities and to strictly rest for two hours every afternoon
  - [  ]

- An oral slow-acting drug such as methotrexate or sulphasalazine
  - [  ]

**Finally some general questions about the named condition**

**Q. 5:** From the following list, select the 3 correct statements concerning psoriatic spondarthritis. (Multiple Response: 3 marks)

- >80% of patients with psoriatic spondarthritis are HLA B27 positive
  - [  ]

- The pathology of psoriatic spondarthritis mainly targets extra-synovial...
joint tissues (entheses, capsule, ligament, periosteum) YES

Patients with extensive psoriasis are at greatest risk of developing psoriatic arthritis [ ]

Presentation with psoriatic arthritis accompanies or follows, but does not precede the development of skin psoriasis [ ]

Psoriatic arthritis associates more strongly with psoriatic nail dystrophy than with psoriatic skin plaques YES

Arthritis mutilans is a common complication (c.20%) in patients with a polyarticular presentation [ ]

In common with the other seronegative spondarthritides, aortic incompetence and conduction defects are a recognised association [ ]

Methotrexate and salazopyrine are effective slow-acting agents, especially for peripheral joint involvement YES

The long-term outcome for dactylitis is usually poor [ ]

Q. 6: From the following list, select the three images that most probably illustrate cases of Psoriatic arthritis. (Multiple Response: 3 marks)
Q. 7: Read the following list. Taking into account their typical clinical presentation, order them into an increasing degree of similarity with psoriatic arthritis, ie increasing relevance in differential diagnosis (Ranking question: 3 marks)

A. Nodal osteoarthritis vs DIP psoriatic arthritis
B. Rheumatoid arthritis vs peripheral symmetrical psoriatic arthritis
C. Gout vs oligoarticular psoriatic arthritis

Correct answer: C-A-B

(Feedback: Gout is almost always associated with an initial phase of recurrent acute monoarthritis absent in psoriatic arthritis. DIP psoriatic arthritis may, as nodal OA, affect the DIP joints. However the onset is much faster and synovitis is much more prominent in Psoriatic arthritis, while Heberden nodes are not a feature of the later. Psoritic arthritis can assume a "pseudo-rheumatoid" pattern, which closely mimics the rheumatoid condition.)

Consequential help

When writing case-based questions avoid providing information in the latter part of the case that can be used to answer earlier questions. For example a latter section of the case should not state a specific diagnosis that is the answer to an earlier question.

The main reference work for writing good quality questions is:
Constructing written test questions for the basic and clinical sciences. Case & Swanson (2001)


### APPENDIX C 5:

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