

AVOIDING COMMON ERRORS IN KEY FEATURE PROBLEMS

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Introduction

Questions on Key Features Problems (KFP) are an important component of the theory paper for Part 1 of the membership examination of the Academy of Family Physicians of Malaysia (MAFP) and the Fellowship for the Royal Australian College of General Practitioners (FRACGP).¹

These KFP questions are designed to assess your reasoning and decision-making skills at every stage of a consultation process. They reflect common or life-threatening problems typically encountered by family physicians. The questions focus on your ability to take critical steps to resolve a medical problem. They may begin with the historical data of a case. Using the KFP format, you can be assessed on your ability to make critical decisions, e.g. arrive at a diagnosis, based on the historical data provided. Determining your ability to choose the areas to focus on when conducting a physical examination and your ability to appraise relevant positive or negative signs are also critical decision-making aspects of medical practice that the KFP assesses. The KFP questions further test your ability to choose essential and cost-effective investigations and to provide appropriate short and long term management of the patient's problems.

The KFP is one of the most difficult and discerning of all the theory papers because it tests the highest level of learning i.e. the application and clinical reasoning. Many candidates find KFP the most challenging because unlike the applied knowledge test (AKT), no books on KFP cases are available for reference. The 2007 Examination Handbook provides six questions from previous years.¹

This paper will attempt to provide information on the format and marking scheme of KFP. Expected answers for some KFP cases will be discussed and common errors made by candidates highlighted with suggestions on how to avoid them.

Format of KFP

KFP cases generally cover the breadth of the problems seen in Family Medicine. Questions from previous years include

acute conditions (pneumonias, urinary tract infections, jaundice) and chronic conditions (hypertension, diabetes, heart failure, dyslipidaemias, obesity, thyroid problems), emergencies (coma, anaphylaxis), musculoskeletal problems (sports and work injuries, degenerative disorders), depression, anxiety, sexually transmitted infections, teenage problems, women's health like breastfeeding and contraception, childhood problems, geriatric care and preventive care including screening at the different ages.

A maximum of 25 KFP cases may be given for a 3-hour examination. For the 2006 Conjoint MAFP/FRACGP examination, 16 KFP cases were offered to be attempted in 2 hours. Each case is followed by a number of questions (usually 2-4) addressing the key features of the case. Each question is answered either by writing in note form the answer(s) in the space(s) provided or by selecting choices from a numbered list of options (usually between 10 and 30). The maximum number of options or written answers that are to be provided by candidates without penalty is also stated.

KFP Case 1 given in the discussion below illustrates the format used in KFP. This case comes with 2 questions. The first question requires a write-in answer with no clues given for expected answers. The second question provides a list of 18 possible answers for candidates to choose from.

Marking Scheme

It is important that you read carefully the case scenarios and the questions. Failure to follow instructions may result in unnecessary loss of marks. Examiners who are correcting the answer scripts have to abide by the caveats pre-set in the scoring key for each question. Using Case 1 as an example, Question 1 requires the candidate to list a maximum of FIVE (5) differential diagnoses. Any listing above five will cause the caveat to be exercised and zero mark is awarded for that particular question.

Question 2 requires candidates to circle up to FOUR (4) options. You may lose all marks for that particular question if

you miss putting in a “mandatory” option even though you have other correct answers. Listing an answer that is considered “dangerous” can also cause you to lose all marks for that particular question. An example would be to offer a beta blocker to a hypertensive patient who has asthma.

Occasionally, the maximum number of options/answers is not stated, e.g. “circle as many options as are appropriate”. You are expected to look carefully at the key information provided and the specific question asked. You are then supposed to be focused and answer within reason and not to provide blunderbuss answers hoping to make a strike somewhere. Since a maximum number of allowable answers or options may have already been pre-set in the scoring key, you may then get no marks.

Although the cases in the KFP are different, they each carry the same marks. However within a case, different questions are given different percentages of marks depending on how critical the decision-making is for that question. Incomplete but correct answers will be given a partial mark. Some cases are long and others are short. Read through all the questions carefully and apportion your time appropriately. Skip difficult questions and come back to them later. Try not to leave any questions unanswered. You will be surprised by the extent of residual knowledge you have acquired through the years. There is no negative marking or carry over of negative marking to the next question.

Write-in Answers

As a general rule of thumb for all written work, writing clearly and neatly is paramount as illegible answers cannot be marked. Avoid abbreviations which are not universally used and may be foreign to an examiner.

When providing ‘write-in’ answers, write in note form only, in the spaces provided. Do not waste time writing in long sentences. For example, if 2 diagnoses are required, simply list them as follows:

Rheumatoid arthritis

Polymyalgia rheumatica

Answers for the ‘write-in’ component are expected to be conceptually distinct. Therefore avoid multiple versions of the same answers. This is illustrated in the following scenario:

A 56-year-old contractor with hypertension and dyslipidaemia for the past 20 years presents with severe intractable epigastric pain since the past two hours. Case records revealed previous non-compliance to drugs and poor blood pressure control. His last measurement a week ago was 180/110 mm Hg. He has a history of dyspepsia for many years. He smokes 30 cigarettes daily for the past 40 years and indulges in heavy drinking during his weekend alcoholic binges.

What are the possible diagnoses for his presenting problem? List up to 4.

Listing down 4 related and linked diagnoses like ***Gastric Ulcer, Duodenal Ulcer, Peptic Ulcer, Dyspepsia*** should not be done as you have used up all your 4 choices. You will then be unable to offer “essential” answers like ***acute myocardial infarct, acute pancreatitis, dissecting aortic aneurysm, perforated peptic ulcer***, thus resulting in partial marks being awarded.

Discussion of Case 1 KFP

Consider the KFP for Case 1 written below and attempt to answer the questions. It may help you to underline key features in the scenario provided, and *keywords* in the question, to assist you in providing exactly what is being requested. Match your answers to the model answers. We will discuss the clinical reasoning behind the choice of accepted answers and also highlight some quirks which reflect different approaches to practice in Malaysia and Australia.

KFP Case 1

Mr. Tan, a 59-year-old school bus driver presents with a persistent cough with muco-purulent sputum for ten weeks despite being treated with cough mixtures, bronchodilators and three courses of antibiotics. He is a chronic smoker; thirty cigarettes per day for the last 40 years. He has a history of dyspepsia for which he takes Ranitidine. He is otherwise well.

Question 1

What are the most important differential diagnoses?

List, in note form only, up to five (5) diagnoses.

On examination, apart from marked nicotine staining of the fingers and occasional pulmonary crepitations that cleared on coughing, no significant abnormalities are detected.

Question 2

Which investigations would you organise first?
 Circle up to four (4) options from the following list.

Code	Answer/Description of key words or phrases	Score
1	24 hour ambulatory oesophageal pH monitoring	
2	Arterial blood gases	
3	Barium swallow	
4	Blood cultures	
5	Bronchoscopy	
6	Chest X-ray (CXR)	
7	CT scan of chest	
8	CT scan of sinuses	
9	Electrocardiograph (ECG)	
10	Endoscopy	
11	Full blood count (FBC)	
12	Human immunodeficiency virus (HIV)	
13	Spirometry	
14	Mantoux test	
15	Sinus X-rays	
16	Sputum for cytology	
17	Sputum for microscopy, culture and sensitivities	
18	Urinalysis	

Answers to Question 1

The most important differential diagnoses are the following:

1. *Carcinoma lung* (2 marks)
2. *Chronic bronchitis or emphysema or chronic obstructive pulmonary disease* (2 marks)
3. *Gastro-oesophageal reflux* (2 marks)
4. *Unresolved infection, either atypical/undiagnosed agent including tuberculosis (TB), pertussis, viral and /or collapsed segment preventing resolution/post viral cough* (2 marks)
5. *Cardiac failure/ pulmonary oedema* (1 mark)
6. *Post nasal drip, chronic sinusitis/ rhinitis* (1 mark)

Answers from the first four groups attract 2 marks each whereas the last two groups warrant only 1 mark each. You have to remember some answers are deemed more likely or important and hence are given more marks.

One of the commonest mistakes committed by earlier candidates is to write in more than the 5 diagnoses. Present candidates are wiser having been forewarned about the dire consequence of their over enthusiasm. However the pendulum has swung the other way around with candidates not daring to even attempt an answer for some cases thus failing their

KFP. Others cannot get rid of their old habit and try to squeeze in 2 diagnoses on one line, with the hope that the examiner will pick the correct ones to mark. An example is provided.

1. *Carcinoma lung /pulmonary tuberculosis*
2. *Chronic bronchitis / emphysema*
3. *Gastro-oesophageal reflux / asthma*
4. *Cardiac failure*
5. *Psychogenic cause*

The candidate has actually offered 8 diagnoses, some of which are wrong. The scoring key provided to the examiner has the following caveats:

Number of responses requested = 5
Number of responses accepted = 5
Total score for this question = 9
Percent value for this question = 50%
No marks are to be awarded if candidate omits PTB as a possible diagnosis.

He is immediately marked zero because only 5 answers are accepted by the examiner.

Another candidate wrote the following:

1. *Carcinoma lung*
2. *Chronic bronchitis*
3. *Gastro-oesophageal reflux*
4. *Cardiac failure*
5. *Smoker's cough*

He also gets zero marks because he has left out *pulmonary tuberculosis* (PTB) which is an important diagnosis to exclude because PTB is endemic in Malaysia. As a school bus driver, diagnosing this condition late will not only affect the patient's lung function but poses a public health hazard of possible spread of the disease to the school children he is driving.

If your answer had been the following:

1. *Carcinoma of lung*
2. *Chronic bronchitis*
3. *Chronic obstructive pulmonary disease*
4. *Pulmonary tuberculosis*
5. *Mycobacterial infection*

You will be given only 6 marks because answers 2 and 3 are linked and 4 and 5 are from the same group of infection.

No marks will be given if you had listed *Upper respiratory tract infection (URTI) and laryngitis* as these are acute respiratory conditions. Mr Tan's cough is unlikely to be due to *asthma, post infective bronchial hypersensitivity or allergy* as these would respond to bronchodilators. Dismissing Mr Tan as having *Smoker's cough* is wrong because you must exclude important conditions like malignancy and PTB.

Answers to Question 2

The correct answers are Code 6 (2 marks), 11, 13, 14, 16 and 17 (all score 1 mark each). The examiner's key for scoring (not given to candidates) is as follows:

Number of responses requested = 4

Number of responses accepted = 6 (Means 6 correct answers)

Total score for this question = 5

Percent value of this question = 50%

It appears that five answers can still be accepted for this question without any penalty although only four are *requested*. Unfortunately the candidate will not know about the examiner's key for scoring. Hence to be on the safe side, STICK TO THE RULES and give the number of answers requested.

If you had read the question carefully, you will realize that the question asked for preliminary investigations ("*organise first*"). Note that Code 6, CXR, is given 2 marks because of its value in detecting lung conditions like infections (PTB) and Ca bronchus. In order to qualify for the full 5 marks, CXR has to be offered as one of the 4 options.

CT scan of the chest is not recommended as an initial investigation because it is not cost-effective. It can be ordered for staging of cancer or to clarify doubts suspected in the CXR.

Spirometry is awarded one mark because it can determine whether pulmonary obstruction or restriction exists and to quantify the amount if present. Unfortunately this answer is not usually offered by candidates in Malaysia because lung function test is not readily available here as a first line investigation unlike in Australia. Note that the Malaysian guideline has listed this as an essential item for the assessment of patients with chronic obstructive lung disorders.³

The Malaysian guidelines on TB Management recognises that the Mantoux test has some role to play in the diagnosis of TB in children and extrapulmonary sites,² but in Australia, this answer does not attract any marks. The answers expected reflect the different practice in the two countries. TB is not an endemic disease in Australia unlike in Malaysia. Hence this test would not be offered for first line investigation.

In Malaysia, the Mantoux test is read after 72 hours. Interpreting a positive Mantoux test has to take into consideration several factors including endemicity and previous BCG vaccination. A diameter of less than 10 mm in induration indicates a "negative" result. However this does not exclude a diagnosis of TB. HIV patients with TB may give a negative Mantoux because their immunity is so suppressed that they cannot mount any reaction to the mycobacteria. A positive test indicates TB infection but this is not necessarily an active disease at the time of testing. A reading of 10 mm and above in a child or adult with no BCG vaccination is positive but a diameter of 15 mm is required for significance for a child who has received BCG. This strongly positive reaction also indicates a recent infection.

In conclusion, KFP is the most challenging aspect of the Part 1 Conjoint MAFP/FRACGP Examination. It is difficult but not impossible to surmount. Most errors arise from failing to read the questions properly. Hence carefully reading the case scenario and adhering strictly to the instructions will minimise unnecessary loss of marks. You should also be familiar with all common family medicine problems, some of the rarer but important conditions like emergencies and current topics of interest like weight management, travel medicine, sleep disorders, bird flu, etc.

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