Mastering your Fellowship

Klaus von Pressentin,[a]* Mergan Naidoo[b] and Bob Mash[a]

[a]Family Medicine and Primary Care, Stellenbosch University, Stellenbosch, South Africa
[b]Family Medicine, University of KwaZulu-Natal, Durban, South Africa
*Corresponding author, email: kvonpressentin@sun.ac.za

Abstract

The series, "Mastering your Fellowship", provides examples of the question format encountered in the written examination, Part A of the FCFP(SA) examination. The series aims to help Family Medicine registrars prepare for this examination.

Keywords: FCFP(SA) examination, Family Medicine registrars

Introduction

This section in the *South African Family Practice Journal* aims to help registrars prepare for the FCFP(SA) Part A examination (Fellowship of the College of Family Physicians), and includes examples of the question formats encountered in the written examination, i.e. multiple choice questions (MCQs), modified essay question (MEQ) and critical reading paper (evidence-based medicine). Each of these question types are presented according to a theme. The MCQs are based on the 10 clinical domains of Family Medicine, the MEQs are aligned with the five national unit standards, and the critical reading section includes evidence-based medicine and primary care research methods. Please visit the Colleges of Medicine website for guidelines on the Fellowship examination: http://www.collegemedsa.ac.za/view_exam.aspx?examid=102

1.   MCQ (multiple choice questions): women's health

A 29-year-old gravida 3 para 2 patient was booked for an elective Caesarean delivery at a district hospital. Some difficulty was experienced during the procedure before the foetus could be extracted. Despite multiple attempts to control the intraoperative bleeding, the patient died due to an atonic uterus. As the family physician responsible for care at this district hospital, the next most appropriate step after counselling the family, would be to:

A	Certify this death as natural, as the cause of death was due to an atonic uterus
B	Conduct a maternal death review meeting with all staff involved in the case
C	Fill in the death certificate, but note that this was an unnatural cause of death
D	Make arrangements to move the patient to a government mortuary for a post mortem
E	Report the case to the South African Police Service and seek guidance

2.   MEQ (modified essay question): the family physician's role in community-orientated primary care

You have been working as a family physician in a rural, agricultural community for the past year. This community consists of approximately 140 000 people, of whom 90% are dependent on the health services provided by the state-funded health facilities (a district hospital which supports several fixed and mobile clinics). You and your family have settled in this community, in which you have also made various professional and personal connections within the community structures, e.g. church, schools, nongovernment organisations and local municipality.

The local hospital's health advisory board has invited you and other community leaders to attend a meeting at which health-related data will be presented. The board has asked you to help to define the community diagnosis for your community, as well as lead the process of prioritising health issues for this community.

2.1 Describe the potential sources of information and broad categories or types of information that would be used to make a community diagnosis.

2.2 Describe how you will facilitate the prioritisation process at the meeting.

3.   Critical appraisal of research

Answer the following questions on the methods used in the linked article:

Komolafe AO, Ally MMTM, Van Tonder JJ, Greeff OBW. The anti-inflammatory properties of simvastatin can benefit statin-naive rheumatoid arthritis patients with associated risks for cardiovascular disease. S Afr Fam Pract. 2015:57(1):28–30 [homepage on the Internet]. c2015. Available from: http://www.tandfonline.com/doi/pdf/10.1080/20786190.2014.995919

Introduction (6 marks)

1.   Summarise the argument that the authors make for the social value of this study (4 marks).

2. Summarise the argument that the authors make for the scientific value of this study (2 marks).

Method (24 marks)

3. Define the terms used in the description of the study design: (4 marks)
   - Open-label
   - Randomised
   - Controlled
   - Cross-over.

4. Critically appraise the description of the method, and outline at least six issues which need more attention (12 marks).

5. Define the concepts of a median and range? (2 marks)

6. Explain why the results were analysed as a median and range, rather than a mean and standard deviation? (2 marks)

7. If you were to calculate a sample size for this study, what information would you need to do so? (4 marks).

Results (4 marks)

8. Discuss whether or not the results were statistically significant (2 marks).

9. Discuss whether or not the results were clinically significant (2 marks).

Discussion (6 marks)

10. Summarise how the researchers interpreted their results, and whether their interpretation was consistent with the results? (2 marks)

11. Define the concept of "therapeutic carryover between treatment periods"? under the limitations of the study (2 marks).

12. How would you describe the group of patients to which the results could be generalised? (2 marks).

Conclusion (10 marks)

13. Reflect on whether reading this study is likely to change your own clinical practice (10 marks).

Model answers to the questions

Question 1

Short answer: Option E.

Long answer: The term "anaesthetic death" which is stipulated in the Health Professions Act, Section 56 of 1974, was substituted in 2007 with Section 48 of the Health Profession Amendment Act (Act 29 of 2007), to read as follows:

"The death of a person undergoing, or as a result of, a procedure of a therapeutic, diagnostic or palliative nature, or of which any aspect of such a procedure has been a contributory cause, shall not be deemed to be a death from natural causes as contemplated in the Inquests Act 1959 (Act 58 of 1959), or the Births and Deaths Registration Act,1992 (Act 51 of 1992)".

According to the Inquests Act (Act 58 of 1958), all procedure-related deaths must be investigated by a police officer. The initial step is to report the case to a police officer. The Act further outlines the need to leave the body in place, e.g. on the theatre table, unless advised to move the body by the police officer. Only an appointed person from the forensic pathology service may move the deceased, and all instruments and equipment should also be left in place to allow for an investigation of the scene.

Practice points

Many doctors are not fully aware that the term "anaesthetic death" has been replaced by "procedure-related death", and are unaware of their professional responsibilities when dealing with a procedure-related death.

Most cases of procedure-related deaths do not follow the legal pathway of a medico-legal post mortem and inquest by a court-appointed magistrate.

The results of the medico-legal post mortem are generally not made available to any party, including the managing doctor. However, the managing doctor can request a copy of the post-mortem report from the investigating officer.

Consent from the family is not needed for a medico-legal post mortem following a procedure-related death.

The Inquests Act 58 of 1959 further specifies that any person who suspects that a death was due to an unnatural cause, such as a procedure-related death, should report this to a police officer. Failure to do so may result in the doctor being found guilty of an offence.

Navigating the various acts that apply to clinical practice can prove to be quite a challenge, so a suggestion would be to review the relevant legislation as it relates to a patient encounter.

If still unsure on how to proceed, contact the nearest forensic pathology department to seek advice.

Further reading:

- Jansen van Vuuren, S. Acts and procedures concerning procedure-related deaths in South Africa. African Journal of Primary Health Care & Family Medicine [homepage on the Internet]. 2013. Available from: http://www.phcfm.org/index.php/phcfm/article/view/453>
- Department of Justice, South Africa. The Inquests Act 58 of 1959 [homepage on the Internet]. c2015. Available from: http://www.justice.gov.za/legislation/acts/1959-58.pdf

Some guidance on preparing for the FCFP (SA) Final Paper 1

Candidates writing the FCFP Final Part A are advised to carefully examine the Paper 1 blueprint, as this may be adjusted after feedback from examiners. The current blueprint (available at http://www.collegemedsa.ac.za/view_exam.aspx?examid=102) allows for assessment items in Paper 1 to be set from unit standard 5, which requires the family physician to "demonstrate an awareness of the legal and ethical responsibilities in the provision of care to individuals and populations by applying a

problem-solving approach in which the law, ethical principles and theories, medical information, societal and institutional norms and personal value systems are reflected". This edition's MCQ is based on a case from clinical practice.

Question 2

The blueprint of Paper 1 refers to the agreed unit standards (available at http://www.collegemedsa.ac.za/view_ exam.aspx?examid=102). Unit standard 3 addresses the requirements for family- and community-orientated primary care (COPC). As part of COPC, the family physician should be able to "identify and address problems influencing the health and quality of life of the community in which the family physician works".

The purpose of a community diagnosis is to assess the health status of a defined community, to identify important risk factors affecting the community, and to decide on appropriate intervention programmes. The process of making this community diagnosis has been compared to the clinical method of making a patient diagnosis, except that the "patient" is the particular community of interest (keeping in mind that the same principles of holism and "person"-centeredness apply when making the community diagnosis).

In order to make this diagnosis, appropriate indicators ("symptoms and signs") need to be selected in order to make the correct diagnosis (or problem statement).

2.1 A range of possible information sources may be used, which include the following:

- Interviews with community members and key stakeholders.

- Existing records and research conducted in this community (routine data and registers, as well as published and known unpublished research).

- Surveys, such as an asset-based approach to gathering information, as described by Foot and Hopkins in 2010.

Information from these sources could be organised around a range of information categories (different groups of indicators):

- *Geographical:* The community setting.

- *Demographic:* The size of the population, age groups, and gender and racial distribution.

- *Health status:* Primary care morbidity, i.e. what are common reasons for encounters and diagnoses made in primary care?

- *Health status:* Mortality and burden of disease (child and perinatal mortality rates, adult mortality rates according to different age groups).

- *Health status:* Disability.

- *Health status:* Key programme outcomes (immunisation coverage, antenatal care, family planning, tuberculosis cure rates and antiretroviral treatment coverage).

- *Socio-economic:* Poverty, unemployment, literacy rate, access to services, and the availability of schools and shops.

- *Environmental health:* Water, sanitation, waste disposal and pollution.

- *Lifestyle and habits:* Smoking, alcohol, violence, family stability and active lifestyles.

- *Health services:* Availability, access, affordability, quality, utilisation, resources, and community involvement.

- *Health services:* Health promotion and disease-prevention programmes.

- *Alternative health services:* Complementary, alternative and traditional healers.

- *Other community services:* Municipality, non-profit organisations, schools, churches, recreation and youth programmes.

- *Community structures:* Traditional and political leadership structures.

2.2 The prioritisation process is important as the most important health needs of the community should be targeted in order to utilise the available resources efficiently. These resources include human, financial and infrastructural resources required to address these health priorities. We want to be sure that any agreed intervention targets "where it hurts (the community) most". Therefore, the community should be involved and empowered in this prioritisation process. It is important to "explore what the community feels, thinks and does about its health needs, since interventions need to be directed towards those aspects about which people can do much themselves" (Sidney Kark, *The practice of community-oriented primary health care,* 1981).

At the community health advisory board meeting, it would help to consider each health issue in relation to the following criteria:

- How common is the problem? (prevalence and incidence)

- How serious is? (case fatality rate)

- To what extent is the community concerned about it?

- Is it feasible to intervene?

- Would an intervention be effective?

A well-described method of prioritisation is the nominal group technique, which consists of the following steps:

1. *Silent phase:* Each member of the group is provided with a paper on which to write down the community health issues that he or she thinks are most important. This should be performed in silence and independently. Allow approximately 15-20 minutes for this stage.

2. *Item generation or round-robin phase:* Organise subgroups of 5-6 people. Each subgroup must select its own scribe. The scribe should record each member's ideas or responses onto a flip chart. Equal participation is allowed by this process. Discussion of the ideas is not allowed at this stage.

3. *Item clarification phase:* Each subgroup discusses the items recorded by the scribe. Their meaning should be

clarified. A shorter list of items can be generated via editing of duplications or overlapping items.

4. *Voting phase:* Each person in the subgroup must choose five items from the list which they feel are most important. Each person must also rank their list of five items on a scale of 5 (most important) to 1 (least important). A voting paper is used for each person, on which he or she should document his or her selection and ranking. Each subgroup compiles the prioritised items into a master list (not in rank order).

5. *Reassembly of group phase:* The entire group repeats steps 3 and 4 (item clarification and voting phases) for the master list. The final voting papers from all of the participants are collected and analysed to provide a final ranking of the items prioritised by the group.

Other methods of prioritisation are also available, such as the Hanlon method. The advantage of the nominal group technique is its inclusive and democratic nature. It allows for the generation of many ideas in a short time frame. Care should be taken to facilitate the group without bias and prevent vocal group members from dominating the conversation. Adequate discussion is important to allow sufficient clarification of the items generated.

It is important to capture the results of the prioritisation process in a working document, which may be used to plan interventions which target the identified health priorities. Subsequently, a project team should be established to address this health priority in a structured manner.

Further reading

- The Asset-Based Community Development Institute [homepage on internet]. c2015. Available from: http://www.abcdinstitute.org/

- Buso D, Reid S. How to make a community diagnosis and prioritise health issues. In: Mash B, Blitz J, editors. South African family practice manual. 3rd ed. Cape Town: Van Schaik, 2015; p. 497–500.

- Foot J, Hopkins T. A glass half-full: how an asset based approach can improve community health and well-being. Improvement and Development Agency [homepage on the Internet]. 2010. c2015. Available from: http://www.local.gov.uk/c/document_library/get_file?uuid=bf034d2e-7d61-4fac-b37e-f39dc3e2f1f2

- Reid S. Community-orientated primary care. In: Mash B, editor. Handbook of family medicine. 3rd ed. Cape Town: Oxford University Press Southern Africa, 2011; p. 315–331.

Question 3

This question was used in the August 2015 FCFP(SA) written examination.

Answer the following questions on the methods used in the linked article:

Komolafe AO, Ally MMTM, Van Tonder JJ, Greeff OBW. The anti-inflammatory properties of simvastatin can benefit statin-naive rheumatoid arthritis patients with associated risks for cardiovascular disease. S Afr Fam Pract. 2015: 57(1):28–30 [homepage on the Internet]. c2015. Available from: http://www.tandfonline.com/doi/pdf/10.1080/20786190.2014.995919

Introduction (6 marks)

1. **Summarise the argument that the authors make for the social value of this study (4 marks).**

   They argue that rheumatoid arthritis (RA) is a common condition, which is associated with chronic inflammation. If is still difficult to control the disease, and prevent disease progression and complications, with existing treatments. Many patients also have an increased risk of cardiovascular disease. Statins can potentially reduce the cardiovascular risk, and help control the disease through their anti-inflammatory action.

2. **Summarise the argument that the authors make for the scientific value of this study (2 marks).**

   They argue that there is existing evidence on the anti-inflammatory properties of statins and some evidence of their effectiveness in RA. However, they argue that further research on their effect in patients with RA is required to establish a more solid evidence base.

Method (24 marks)

3. **Define the terms used in the description of the study design: (4 marks)**

   - *Open-label:* This means that the patients and investigators were not blinded as to the active medication used in the trial. The medication was identifiable when it was prescribed and used.

   - *Randomised:* This refers to the way in which patients were randomly allocated to the groups. There are at least three important components, i.e. the method used to generate the random allocation sequence, the practical mechanism used to implement the random allocation sequence and conceal the sequence until it is implemented, the person generating the sequence, enrolling subjects and allocating them to doing the random allocation. The candidate should not confuse this concept with random sampling.

   - *Controlled:* This refers to the fact that the study includes a group of people not receiving the intervention who are compared to the intervention group in the trial.

   - *Cross-over:* This design means that the two groups swop roles during the trial so that the intervention group becomes control, and the control becomes intervention. In other words, they cross over.

4. **Critically appraise the description of the methods and outline at least six issues which need more attention: (12 marks)**

   1. The exact setting of the study is not clearly described to readers who are not familiar with the hospital.

2. There is no description of a sample size calculation needed to determine how many patients would be required to have sufficient power to detect the desired effect on the primary outcome.

3. There is no explanation of the random allocation process, concealment mechanisms and who performed each step.

4. There is no definition of cardiovascular risk as an inclusion criteria.

5. There is no definition of moderately active RA as an inclusion criteria.

6. There is no mention of any exclusion criteria.

7. It is not clear how many visits were required, and how the assessment at each visit was converted into the final score.

8. Primary and secondary outcomes should be reported on in the Method section, not the Results section.

9. It is not clear if the assessor was blind to the treatment given.

10. It is not clear if this was an intention-to-treat analysis.

5. **Define the concepts of a median and range? (2 marks)**

The "median" is the "middle" value in a list of numbers. To find the median, the numbers have to be listed in numerical order, so the list may have to be rewritten. The range of a set of data is the difference between the highest and lowest values in the set.

6. **Explain why the results were analysed as a median and range, rather than a mean and standard deviation? (2 marks)**

If data are normally distributed, then the mean and standard deviation can be used to describe the dataset. If the data are not normally distributed, then the median and interquartile range are used to describe the dataset. The dataset in this study was very small ($n = 12$), and unlikely to be normally distributed. This is also why nonparametric statistical tests were used.

7. **If you were to calculate a sample size for this study, what information would you need to do so? (4 marks)**

- Define the minimally important clinical difference (effect size) for the primary outcome (DAS28 score – also called the disease activity score).

- The risk of a type 1 or alpha error (suggesting that there is a difference, when there is none) is usually set at 5% or p 0.050.

- The risk of a type 2 or beta error (suggesting that there is no difference, when actually there is one), is usually set at 10–20%, or as a power of 80–90%.

- Variability in the data may also be useful, such as standard deviation.

Results (4 marks)

8. **Discuss whether or not the results were statistically significant? (2 marks)**

The p-value is < 0.050 for all the primary and secondary outcomes. This implies that the difference was not a chance event, and that there was a real difference between the groups. Thus, the results are all statistically significant.

9. **Discuss whether or not the results were clinically significant? (2 marks)**

The absolute improvement in DAS28 score was 1.09, in the swollen joint count 2.25, and in the tender joint count 3.00. The issue is whether or not these improvements would be clinically significant for the patient. The improvement in the blood test results held little meaning for the patient's experience. Although a relatively small improvement in score, this is likely to result in a meaningful improvement in the patient's quality of life, i.e. having two tender joints, rather than five. Therefore, it is most likely that the results are clinically significant, although knowledge of the DAS28 score from other studies would be helpful when making this judgement.

Discussion (6 marks)

10. **Summarise how the researchers interpreted their results, and whether or not their interpretation was consistent with the results? (2 marks)**

The researchers concluded that there was a marked improvement in disease activity as a result of the statin therapy. This was supported by the fact that all primary and secondary outcomes consistently improved. The findings were also consistent with those in other similar studies. The inflammatory markers all decreased, supporting the hypothesis that statins acted by reducing the inflammation. Therefore, they concluded that statins may be therapeutic in patients with RA and cardiovascular disease. They did not suggest that statins should be used in general as adjunct therapy. The article made no mention of any specific harm which might be involved in statin therapy.

11. **Under the limitations of the study, define the concept of "therapeutic carryover between treatment periods"? (2 marks)**

When the group who started with the intervention stopped and crossed over to become the control group, the effect of the medication took a while to disappear completely, as it was dependent, for example, on the half-life of the drug and mode of action. Therefore, the second control group might have still had some therapeutic carryover, unless there was a period of "washout". No washout period was described or discussed in the study. This may have reduced differences between the groups.

12. **How would you describe the group of patients to which the results could be generalised? (2 marks)**

People with rheumatoid arthritis, who have moderate disease activity despite maximum disease-modifying antirheumatic drug therapy, who also have associated cardiovascular risk, and who are being treated in a referral hospital environment.

Conclusion (10 marks)

13. Reflect on whether reading this study is likely to change your own clinical practice (10 marks)

The answer uses the relevance, education, applicability, discrimination, evaluation and reaction (READER) structure from the *Handbook of Family Medicine.*

The topic of RA is relevant to Family Medicine and primary care, where many such patients attend in order to receive chronic care. However, the study is performed on patients in a referral hospital specialist clinic, who may not be typical of patients seen in primary care.

The use of statins to reduce disease activity is a new approach using new knowledge, and could change current practice.

Statins are available to be prescribed in primary care. Therefore, the intervention is potentially feasible.

There were a number of limitations to the study quality in terms of sample size, open-label design, the effects of crossover, and several methodological issues which were not clarified in the article, as per the Consolidated Standards Of Reporting Trials statement when reporting on randomised controlled trials. Nevertheless, the results were consistent and both statistically and clinically significant. The overall quality was moderate at best, and the results should be taken in the context of other studies, and ideally, using a meta-analysis.

If a patient presented to me who met the same inclusion or exclusion criteria, I would seriously consider statin therapy as an option, but would discuss the potential benefits and harms with my patient. Any conclusion in this instance is neither right nor wrong, but should be consistent with the argument made previously.

Further reading:

- Resources. Centre for Evidenced Based Health Care [homepage on the Internet]. c2015. Available from: http://www.cebhc.co.za/teaching-resources/
- CONSORT 2010. CONSORT Transparent Reporting of Trials [homepage on the Internet]. c2015. Available from: http://www.consort-statement.org/
- Pather M. Continuing professional development. In: Mash B, editor. Handbook of family medicine. 3rd ed. Cape Town: Oxford University Press Southern Africa, 2011; p. 406–429.