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DIPLOMA AND PART I MFPHM EXAMINATION

JUNE 2001

EXAM QUESTIONS WITH EXAMINERS' KEY POINTS AND COMMENTS

N.B. Please note that these are Key Points and not model answers

Registered Charity No. 263894

**DIPLOMA & PART I EXAMINATION FOR MEMBERSHIP OF THE FACULTY OF PUBLIC
HEALTH MEDICINE**

Thursday 14th June 2001: 10:00 – 12:30

PAPER IA

You must answer all six questions

*This paper is intended to test knowledge across the broad range of the discipline. Candidates will be heavily penalised if they fail to attempt any of the six questions or give grossly inadequate answers to **any** of them. It is, therefore, essential that candidates **ALLOW SUFFICIENT TIME FOR EVERY QUESTION.***

1. The following 2×2 contingency table was obtained in a randomised controlled trial.

		Treatment	
		Active	Control
Outcome	Success	70	60
	Failure	30	40
Total		100	100

$$\chi^2 = 2.20 \quad df = 1 \quad p = 0.14$$

- a) Explain what should be inferred from the above results and chi-square test.
- b) For the above data show how you would calculate:
- (i) Number needed to treat (NNT)
 - (ii) Relative risk (RR)
 - (iii) Odds ratio (OR)
- c) Discuss the advantages and disadvantages of the above three measures in the context of the study described above.
- d) Which of the three measures in section b) is a valid measure of effect size in a case control study, and why?
2. Give an outline of the hierarchy of research evidence used for assessing clinical interventions in evidence based medicine. What are the strengths and weaknesses of using such a hierarchy to assess public health interventions?
3. Summarise the evidence supporting the effectiveness of local interventions tackling the causes and consequences of accidents, that will shape a strategy for a population of 500,000.

4. Describe the epidemiology and control measures in a named country for **two** of the following:

- a) Multi drug resistant tuberculosis
- b) Measles
- c) Typhoid

5. The table below illustrates median monthly referral rates, before and after the limitation of sales of paracetamol to 8g at one time, to one specialist liver failure unit and one national liver transplant service, and a p-value for the before and after difference in medians in each case.

	Before September 1998	After September 1998	P Value
Specialist liver failure unit	2.5	1	<0.02
National liver transplant service	3.5	2	<0.02

Adapted from: Lancet 2000; 355: 2047

- a) Describe briefly what is shown in the table.
 - b) What other types of information could you use to determine whether the changes in legislation had resulted in an impact on the public health? Give three examples and indicate the strengths and weaknesses of each approach.
6. a) Describe three uses to which disease registers may be put.
- b) Outline the advantages and limitations of using disease registers, including ethical issues which are raised by their use.

Illustrate your answer by reference to examples of specific registers with which you are familiar.

**DIPLOMA & PART I EXAMINATION FOR MEMBERSHIP OF THE FACULTY OF PUBLIC
HEALTH MEDICINE**

Thursday 14th June 2001: 2:00 – 3:30

PAPER IB

You must answer all four questions

*This paper is intended to test knowledge across the broad range of the discipline. Candidates will be heavily penalised if they fail to attempt any of the four questions or give grossly inadequate answers to any of them. It is, therefore, essential that candidates **ALLOW SUFFICIENT TIME FOR EVERY QUESTION.***

1. "A well-intended policy which improves average health may have no effect on inequalities. It may even widen them by having a greater impact in the better off".
 - a) What is the evidence that this effect can occur?
 - b) How may this effect on health inequalities be avoided?

2. You have been asked to conduct an economic evaluation of a proposal to reduce the number of accident and emergency departments from four to one in a 'compact' city with 600,000 inhabitants. Outline the steps you would take and the types of information you would need.

3. Write short notes on barriers to the implementation of Clinical Guidelines.

4. a) What is meant by a "model of management"? Describe two models of management with which you are familiar.
 - b) Illustrate how knowledge of models of management may be helpful in a public health role.

DIPLOMA & PART I EXAMINATION FOR MEMBERSHIP OF THE FACULTY OF PUBLIC HEALTH MEDICINE

Friday 15th June 2001: 10:00 – 12:30

PAPER IIA

Candidates should answer all parts of this question.

Style, clear grammatical English and legibility will be taken into consideration by the Examiners.

Answers should be written in a form appropriate to the audience specified in the question.

*You should answer **all five** sub-sections of this question.*

Weighting of marks for each sub-section is shown in parenthesis.

As a public health practitioner working in a government district public health department, you are responsible for the prevention of coronary heart disease in the district. A representative of an organisation of general practitioners has written to you to propose that lipid lowering drugs should be used for primary prevention of coronary heart disease. The paper by Pignone M et al: "Use of lipid lowering drugs for primary prevention of coronary heart disease: meta-analysis of randomised trials. **BMJ 2000;321:983-6**" is attached as the supporting document.

1. Write a structured abstract of no more than 400 words. (10%)

2. Critically appraise the paper, paying particular attention to:
 - i) the methods used;
 - ii) the inclusion criteria;
 - iii) the choice of outcomes;
 - iv) the sensitivity analysis. (40%)

3. How might any deficiencies in the information available be addressed? (10%)

4. You are invited to propose agenda/discussion items for the working group meeting. Prepare the list of items and the key points under each item. The key points are to be distributed to the working group prior to the meeting. (20%)

5. During the discussion in the meeting, some members tell you that lipid lowering drugs are increasingly used for primary prevention of coronary heart disease by general practitioners. How would you respond? (20%)

DIPLOMA & PART I EXAMINATION FOR MEMBERSHIP OF THE FACULTY OF PUBLIC HEALTH MEDICINE

Friday 15th June 2001: 2:00 – 3:30

PAPER IIB

Candidates should answer all parts of this question.

*Style, clear grammatical English and legibility will be taken into consideration by the Examiners.
Answers should be written in a form appropriate to the audience specified in the question.
You should answer **all five** sub-sections of this question.
Weighting of marks for each sub-section is shown in parenthesis.*

You have spent 6 months gathering information on the health of your local population, and you are about to give a presentation to a gathering of local community groups. The following table shows some information that you include in your presentation, split into 4 localities.

<i>Localit y</i>	<i>Populati on</i>	<i>% black and minorit y ethnic groups</i>	<i>% aged 0-24</i>	<i>% aged 25-64</i>	<i>% aged 65+</i>	<i>Teenage pregnanc y rate (%)</i>	<i>CHD SMR</i>	<i>Number of Suicide s</i>
<i>A</i>	<i>126,000</i>	<i>10.1</i>	<i>41.1</i>	<i>45.3</i>	<i>13.6</i>	<i>15.5</i>	<i>115</i>	<i>6</i>
<i>B</i>	<i>115,000</i>	<i>5.6</i>	<i>34.2</i>	<i>48.1</i>	<i>17.7</i>	<i>7.4</i>	<i>108</i>	<i>11</i>
<i>C</i>	<i>85,000</i>	<i>2.9</i>	<i>38.2</i>	<i>46.4</i>	<i>15.4</i>	<i>8.7</i>	<i>91</i>	<i>2</i>
<i>D</i>	<i>90,000</i>	<i>0.4</i>	<i>32.6</i>	<i>50.9</i>	<i>16.5</i>	<i>6.5</i>	<i>101</i>	<i>19</i>
<i>Whole countr y</i>	<i>52,211,2 00</i>	<i>6.1</i>	<i>31.3</i>	<i>52.9</i>	<i>15.8</i>	<i>8.6</i>	<i>100</i>	<i>3,424</i>

- Briefly describe the main characteristics of locality A. (10%)
- Using the information you have and that in the table below, calculate Standardised Mortality Ratios (SMRs - correct to the nearest whole number) for suicide for localities A to D. (20%)

Populations in different age groups and numbers of suicides – England and Wales 1997

Age group	Population	Suicides
0-24	16,365,300	388
25-64	27,573,800	2,427
65+	8272,100	609

- The councillor representing locality D, who is in attendance at the meeting, states that the number of suicides in the locality is so high that it should have the highest priority for extra resources. How do you respond to this statement? (10%)
- What would be the 3 key points with which you ended your presentation? (10%)

(cont.)

5. With reference to two of the following four areas, you are requested to write a brief report which outlines the strategies you could adopt to improve the health of the population in localities A to D.

- a) Suicide
- b) Teenage pregnancy
- c) Older people
- d) Coronary heart disease

You will be presenting each report to the relevant multi-agency Health Improvement Groups.
(40%)

(10% of marks allocated for presentation, grammar and planning.)

EXAMINERS' KEY POINTS AND COMMENTS

PAPER IA

A: RESEARCH METHODS

QUESTION 1

Most or all of the following would be required for a pass:

- a) Specify H_0 & H_1 , H_0 not rejected at 5% level, no clear evidence of benefit
- b) $NNT = 1/(70/100 - 60/100)$
- $RR = (30/100)/(40/100)$ [alternatives not acceptable here]
- $OR = (30/70)/(40/60)$ or $(40/60)/(30/70)$ [either acceptable]
- c) All valid here, NNT widely held to be most intuitive, OR least intuitive
- Only OR likely to be transferable to a population with different baseline risk of failure – a large RR may not indicate worthwhile benefit if baseline risk low
- d) Only OR valid in retrospective studies.
- Other measures distorted by artificially high proportion of “cases”
- Inverting $p_1 - p_2$ and calling it NNT only sensible when issue is treatment, prevention etc.

The following are additional points which might improve the answer to “good” or “excellent”:

- a) Clear explanation of meaning of p-value
- Doesn't imply absence of benefit, need to consider clinical or public health importance, appropriate effect size measure with CI
- Type II error possible, need prior justification for sample size re power etc.,
- Multiple comparison issue little importance here as outcome chosen is clearly primary
- Simple analysis like this OK for RCT, little need to consider adjusting for confounders
- b) Often relative risk reduction quoted, complement of RR above
- If intervention detrimental, NNT negative, often referred to as NNTH.
- OR similar to RR when risk low, but more extreme when risk not low.
- c) Snag with NNT: need CI, obtained by inverting CI for $p_1 - p_2$. This will include 0, inverts to doubly infinite CI for NNT, far from intuitive.

Comments

This question tested basic issues and was generally not well answered. When asked to identify the relative risks, most candidates instead showed how to calculate the ratio of the success rates in the two groups. Some correctly noted the relationship between relative risk and odds ratio, but believed it depended on the sample size being large, rather than on the prevalence or event rate being low. Many candidates did not realise that the 3 measures of the strength of relationship correspond to exactly the same data and hypothesis test, and thought that some of the measures, but not others, were specifically related to issues such as analysis by intention to treat or confounding.

QUESTION 2

Most or all of the following would be required for a pass:

- Correct ranking of evidence from RCT's at top, observational studies in the middle, and expert opinion, case studies at bottom
- Role of systematic review
- Aimed at assessing size of effect in an unbiased manner
- Depends on evidence being available: fewer RCT's in public health interventions than clinical medicine
- RCTs more likely if individual interventions rather than community or policy interventions, so individual interventions may be falsely prioritised
- May be susceptible to publication bias
- Evidence may not be accessed by or accessible to those who make the decisions
- Hierarchy of evidence should not be the sole criterion for evidence based decisions. In addition to position in hierarchy, other measures of quality and relevance are important, for instance duration of follow up, quality of life assessment, economic evaluation

The following are additional points which might improve the answer to "good" or "excellent":

- Work of the Cochrane and Campbell collaborations
- Need to find some way of assessing quality of research in non RCTs
- Good examples to illustrate the "essential points" (eg trials of Day care and the Perry Project in the US)
- Hierarchy sometimes tells what works but not how, so difficult to implement
- Studies with non-random allocation tend to yield exaggerated effect size estimates

Comments

In general this question was answered reasonably, with many candidates able to give the hierarchy of evidence. Not all candidates who correctly ranked research designs mentioned the role of systematic review and meta-analyses. Some candidates took the opportunity to outline the strengths and weaknesses of different study designs in general, rather than apply these strengths and weaknesses to the assessment of interventions.

Fewer candidates applied the principles of evidence medicine to public health in any depth, though most recognised the lack of RCT's in public health and the fact that these were unlikely to be carried out for community level interventions. The advantages of using an agreed system in an explicit manner were usually recognised. Some candidates answers would have been improved by giving examples of interventions in public health and /or medicine.

B: DISEASE CAUSATION & PREVENTION; HEALTH PROMOTION

QUESTION 3

- Accidental injury is the leading cause of death in young people in the UK and many parts of the world. Accidents responsible for more hospital admissions in children than other causes.

Social and economic interventions

- Promotion of safety practices at work through health and safety legislation. Back injury prevention programmes may be beneficial but require more research

- Tackle social exclusion – strong association between poverty and rate of childhood injuries. Systematic approaches to reducing inequalities are effective.
- Local partnership work targeting high risk households and populations supported by loan or subsidised equipment schemes is effective.
- Promotion of safety measures to community groups reduces incidence of home accidents

Environmental interventions

- Traffic calming and other road safety schemes reduce rate and severity of childhood accidents
- Installation of smoke alarms – effective in reducing fire related injuries. Targeting households at highest risk likely to be most effective
- Promote and maintain home safety checks in older people – mainly related to preventing falls. Choose drugs with fewer side effects, home assessment and surveillance, target multiple risk factors through behavioural interventions.
- Maintenance of playgrounds – woodchips and sand appear safer but more research needed
- Ensure well developed emergency planning. Up to date equipment and trained staff reduce case fatality rates.

Influencing personal behaviour

- Ensure effective provision/ loans of safety equipment to target groups
- Conduct local campaigns – can increase motor vehicle restraint use, smoke detector give away programmes effective; counselling in primary care can reduce childhood injuries
- Put measures in place on prevention (stairgates and car seat loans), hip protector pads can reduce hip fractures in elderly in institutional settings

Developing services interventions

- Promote safety awareness with risk assessment of fallers on hospital discharge – hip protectors in elderly in institutions, choose drug regimens carefully, home assessment and surveillance of elderly, behavioural interventions in individual at risk patients
- Physical activity promotion may be effective, maybe better combined with other approaches
- Promotion of family support – counselling in primary care increases safety equipment use, home based social support and visiting programmes is effective
- Healthy schools programmes are effective
- Pedestrian training – no strong evidence to suggest children can be trained successfully to avoid injury on the roads

Comments

Generally not a well-answered question. Too many candidates did not answer the question and did not describe available evidence. There was little comment by candidates on the paucity of evidence for some interventions.

QUESTION 4

MULTI DRUG RESISTANT TUBERCULOSIS

Name of country

Epidemiology

- incidence and mortality rate
- brief outline of epidemiology of TB and proportion of cases that are MDRTB, time and place trends
- In which groups greatest risk of MDRTB and why

Control

- Notification/surveillance
- Treatment – supervised therapy
- infection control in hospitals and in the community, including use of negative pressure rooms
- contact tracing
- role of vaccination
- education

raising answer to very good

sources of information
 mechanisms to improve surveillance
 management protocols
 links between MDRTB and HIV
 use of skin testing

MEASLES

Name of country

Epidemiology

- description of notifications and deaths over time
- more detailed trends over recent years, incidence and mortality rates
- rates of complications

control

- effect of immunisation on morbidity and mortality
- use of two dose schedule for MMR for control
- effect of herd immunity
- treatment

raising answer to very good

Role of one off schools’ campaigns
 Use of epidemiology in countering recent controversies in MMR uptake
 Surveillance of measles – notifications and laboratory data

TYPHOID

Name of country

Epidemiology

- Incidence and death rate (case fatality rate)
- Time trends
- Predisposing factors

Control

- understanding of route of spread
- importance of good sanitation
- production and protection of clean water supplies
- education campaigns on personal hygiene (hand washing) and food safety
- exclusion of typhoid carriers from handling/preparation of food
- role of immunisation in prevention

raising answer to very good

screening for carriage

control of flies
spread by shellfish
comparison with paratyphoid

Comments

Generally a well-answered question, though a large proportion of candidates answered the tuberculosis question with little reference to the epidemiology and control of MDRTB.

C: HEALTH INFORMATION

QUESTION 5

Most or all of the following would be required for a pass:

i.

- The median monthly rate of referrals to the specialist liver failure unit for paracetamol related liver damage declined by 60% from 2.5 to 1 in the period following September 1998.
- A similar fall was seen in referrals to the national liver transplant service from 3.5 to 2, a fall of 57%.
- Both falls were significant at the 0.05 level

ii.

- A variety of different sources of information would be acceptable e.g.
- Hospital admissions for suicide and parasuicide. This is relatively easy to access, can provide long time trends but coding may not be accurate enough to allow differentiation of paracetamol (check). Severity may be difficult to assess. Overdoses not admitted will be omitted.
- A&E records of overdose admissions. This will provide information on less severe overdoses but may miss some direct admissions. In most places no standard information systems exist to collect this data.
- Mortality from paracetamol related hepatotoxicity. Will detect the very severe end of the overdose spectrum.
- Data on prescriptions of paracetamol and drugs containing paracetamol from PACT data are available in the UK but not in every country. Most paracetamol is sold over the counter, however. Will allow trends to be examined.
- Data on overall levels of sales (most paracetamol is purchased over the counter). Will not allow individual patterns of consumption to be determined.
- Strength

The following are additional points which might improve the answer to “good” or “excellent”:

- A clear well structured answer which recognised the complexity of monitoring public health problems
- An answer demonstrating a real understanding of using data e.g. referring to E codes on ICD
- Aspirin was limited at the same time

(Comments on questions 5&6 together, below)

QUESTION 6

Most or all of the following would be required for a pass:

Uses: Comprehensive picture of disease, incidence, and outcome and changes over time

Research - can provide detailed information on prognosis and factors influencing prognosis over a long time period

Can be used to plan and to deliver services e.g. regular recall

Many examples could be given, from cancer registries to community based coronary heart disease, stroke or other chronic diseases such as cystic fibrosis, artificial joint implants, heart valves etc

Advantages: can provide invaluable data on population rates of disease and prognostic factors that cannot be collected any other way; in a fast changing field such as prosthesis can be the only real way to monitor long term effectiveness or otherwise. Where linked to service delivery can enhance care.

Limitations: Can be expensive and require a high level of administrative support and detailed input; of dubious value if there is not a high level of completeness of data; can be developed in isolation separate from other information systems and not tie into them.

Comments (Questions 5 and 6)

It is clear a number of candidates failed to read the questions, as some did not list registers that were examples with which they were familiar (question 6) or their answer drifted off the point and became irrelevant (e.g. discussed p values, or described how they would improve the data in question 5, rather than discuss additional data).

PAPER IB

D: MEDICAL SOCIOLOGY, SOCIAL POLICY, HEALTH ECONOMICS

QUESTION 1

Most or all of the following would be required for a pass:

- This applies particularly to preventive services, and health-related behaviour
- There is evidence that smoking rates have fallen faster in better-off groups in society, leading to an overall increase in health inequalities.
- The effect of preventive programmes such as cervical cancer screening - people from least wealthy groups are at highest risk and least likely to attend screening, thereby widening social class differentials in mortality
- The "inverse care law" (Julian Tudor-Hart) - the people who need health services the most access them the least, for example access to coronary artery by-pass surgery. So providing more services is unlikely to narrow health inequalities unless these are explicitly addressed at the time the service is introduced.
- Provision of services that are not dependent on individual behaviour e.g. water fluoridation.
- Health impact assessment should include assessment of both overall health impact and impact on inequalities
- Fiscal policies to redistribute wealth and target the most needy groups
- Local policies via Health Improvement Programmes must address health inequalities
- Health Action Zones and Single Regeneration Budget intending to promote community regeneration
- Social Exclusion Unit

The following are additional points which might improve the answer to “good” or “excellent”:

- Recognising that this statement comes from Acheson "Independent Inquiry into Inequalities in Health".
- Lack of evidence of effectiveness of policies reducing inequalities - this is usually indirect e.g. Income Support is insufficient to meet the costs of an adequate diet for an expectant mother, evidence of widening mortality differentials alongside widening income differentials in the UK. It is also unclear whether interventions such as banning tobacco advertising will address inequalities, or widen them.
- Mentioning specific examples of local HiMP or HAZ policies addressing inequalities.
- Mentioning key recommendations of Acheson report.

Comments

Very few of the candidates successfully attempted both parts of this question. Many of the answers involved detailed accounts of the evidence for the existence of inequalities rather than discussing the evidence that policies can serve to widen the gap. Not all gave specific examples of policies and some limited their answer unduly by concentrating on one example at the expense of others. The second part of the question was not well-answered. Although most included discussion of access to services (referencing the Inverse Care Law), targeting of health promotion and the provision of culturally sensitive services and campaigns, very few illustrated the range of possible interventions with reference to specific initiatives. Universal responses such as fluoridation of water and addition of folic acid to wheat flour was mentioned by only a handful.

QUESTION 2

- Decide on type of economic analysis to be used & why.
 - Cost effectiveness (CEA) or cost benefit (CBA). CEA assumes that outcome is the same and in this case would need to be in terms of cost per patient seen.
 - CBA would allow clinical outcomes to be considered which may not be the same for the 2 options.
 - Cost Utility Analysis (CUA) would also allow differences in clinical outcome to be taken into account and would also be a reasonable method.
- Define costs.
 - Direct, indirect and intangible costs.
 - Practical problems of identifying them.
 - Whose costs to include; NHS or beyond.
- Should also consider practical problems of identifying differences in clinical outcomes, which may even be a reason for considering CEA rather than CBA or CUA as method of analysis.
- Consider outcome measures
 - Outcomes for CEA would be cost per increased unit of activity – this could be per patient seen.
 - Outcomes for CUA would be cost per QALY gained.
 - Outcomes for CBA must be converted into monetary terms i.e. must incorporate a valuation of the benefits gained in monetary terms (e.g. standard gamble, time trade-off, WTP etc)
 - Consider also
 - Outcomes to whom e.g. health service, patients, doctors, etc.
 - Practicalities of measurement
- Mention other issues e.g.
 - Incorporating improving clinical effectiveness
 - Benefits may differ between the 2 options e.g. deaths in transit with 1 unit option

- Defining effectiveness in terms of activity or outcome
- Discounting future benefits e.g. where there is an initial reduction in effectiveness (e.g. due to longer transit times) followed by an increase in effectiveness (e.g. due to improvements in clinical management).

Comments

Although the key points did not cover the information which would be required to approach this question, this part was generally answered well. Many of the candidates, however, had not read the question properly, some wasting precious time by copying out the question, providing too much detail of committee membership and the process of needs assessment (which was irrelevant). Some merely listed the types of economic analysis which would be considered, without providing evidence that they understood the differences between them and the nature of the choices to be made. Many failed to mention direct and indirect costs; capital and revenue costs; and marginal costs. However, those few candidates who answered this question well, referred to sophisticated economic evaluation.

E: ORGANISATION & MANAGEMENT OF HEALTH CARE

QUESTION 3

Most or all of the following would be required for a pass:

Internal Barriers

- Lack of validity (when followed correctly do not lead to predicted health gain)
- Lack of reproducibility (interpretation of evidence)
- Lack of reliability (when applied to the same clinical circumstances different professionals interpret the guidance differently)
- Clinical inapplicability - do not reflect the evidence base
- Clinical inflexibility - do not allow individual patients' circumstances/needs or preferences to be involved in clinical decision making
- Ambiguity - lack of precision in pathway

External Barriers

- Problems with dissemination (wrong group, format, presentation, language)
- Problems with user groups (lack of ownership, lack of incentive to comply)
- No systematic programme to promote, disseminate or monitor guidance
- Perceived additional workload
- Concerns of eroding clinical autonomy
- Concerns over interface with professional patient relationship
- Fear of external audit
- Fear of increased litigation

The following are additional points which might improve the answer to "good" or "excellent":

- Active and passive resistance of professionals to guidelines
- Professional protection of clinical consultation
- Fear of identification of poor clinical practice
- Hostility to guideline developed

Comments

This question was answered with varying degrees of accuracy. Better candidates clearly had no problems and were able to do justice to the question, often raising points the examiner had not considered. Poorer candidates failed to answer the question on barriers to implementation and wasted time on describing how to develop guidelines.

Better candidates used frameworks (headings etc.) to ensure they put in the detail without necessary duplication.

QUESTION 4

The question is divided equally into two parts - 5 marks for section (a) and 5 marks for section (b).

Section a

(i) Definition of a model of management should include mention of:-

- Structured approach to an organisation
- Systematic
- Ensure deliverables and outcome
- Monitoring and motivating staff

TOTAL MARKS 2

(ii) Description of two named models of management.

Any two; 1 ½ marks each

TOTAL MARKS 3

Section b

Demonstration of how knowledge of models is useful in public health role. I would expect candidates to mention most of the following points.

- Assessment and surveillance, use of evidence base, data and systems analysis.
- Influencing, leadership, change management conflict resolution
- Communication, advocacy, partnerships.
- Accountability, professional issues, monitoring, evaluation and research
- Resource management as in staff, time and money, prioritisation.

TOTAL MARKS 5

Comments

The question as answered illustrated candidates' knowledge of a wide range of modules. Generally candidates who answered the question well picked up on the major points of the public health role. Better candidates also gave critical reviews of models in relation to public health competencies. Poorer candidates demonstrated a lack of understanding of the breadth of the public health role. Many candidates concentrated development on partnerships. Few mentioned professional development.

PAPER IIA

(* for additional points)

1. Abstract

Headings should include at least objective, methods, results and conclusions. Methods must include search methods and inclusion criteria.

2. Critical appraisal

a. Justification of such meta-analysis

Importance of the research question to medical practice and public health. Availability of sufficient studies in which data can be pooled. The authors present good justification.

- * Is the meta-analysis premature? (Shall we wait for a longer follow up for published but on-going studies, or wait for results from other not-yet-published on-going studies?) It appears to be somewhat premature for the question of all cause mortality.

b. Methodology in general

Are standard protocols of meta-analysis being followed? Are the procedures described with sufficient details for repetition? Are the statistical analysis appropriate? Are the results clearly presented?

c. Validity of the trials included.

The authors did not provide a critical appraisal of the trials and accepted all the data into their meta-analysis.

d. Interpretation of the meta-analysis results

What is the internal validity of the results of the meta-analysis? Are the conclusions well justified or supported by the data? What is the external validity or generalisability? Are the implications explained clearly?

- * e. Are there any recommendations on medical practice or public health actions, and if so, are these justified and practicable?

f. Publication bias

Could studies with positive results (i.e. those showing benefits) be more readily published than those which did not show positive results or which showed negative (harmful effects) results? The authors did not discuss this problem.

- * g. Specificity of the treatment

The authors used the term “lipid lowering drugs” and included 4 studies. Of the 4, 3 used statins. If the research question is specified to statins, only 3 studies would be included. Adding only one non-statin study is not sufficient to broaden the question from “statin

only” to “lipid lowering drugs” in general. However, the results on the 3 statin studies are consistent.

h. Adverse effects of the treatment

The failure to reduce all cause mortality suggest some adverse effect but the authors state that it is most likely due to the generally low risk of mortality in the subjects. How convincing is this argument? What is the evidence to support this? Further explanation is necessary.

Information, if any, on side effects from the trials are not presented and discussed.

* i. Costs, cost benefit and effectiveness

These do not necessarily need to be formally analysed in a meta-analysis. However, useful to be included in the discussion.

* j. Efficacy versus effectiveness

The research question only give answers to the effects under trial conditions. We do not know what will be the effects in routine medical practice. Informations on acceptability (to doctors and patients) and compliance are lacking.

(i) Inclusion criteria

Clearly described.

Somewhat narrow – only 4 studies (out of 516 articles) were included, with 4 other “possibly suitable”. The criteria used to determine “possibly suitable” studies are not specified. Could there be more than four, e.g. one study included by Hebert (the Kuopio study) was not included. The inclusion criteria limited the generalisability of the results to non-Caucasian populations or to other European populations (other than Helsinki and Scotland – the authors seem to assume that the results can be generalised to all European populations).

Only randomised controlled trials (RCT) are included and this is a standard practice, and is appropriate, as non-RCT are not likely to provide valid evidence for the research question.

- * The authors could have included the Kuopio study – and could include data after excluding the 10% with histories of myocardial infarctions.
- * With the exception of the Texas study, the risk profile of the subjects are not described, and this is not an inclusion criteria. Relevant or possibly suitable studies which are published not in English, or in abstract form, and other unpublished studies should be described if these have been found or are known.
- * The authors could write to authors of published studies with continuing follow up to request updated information. What is the status of follow up of the two early studies (1984 LRC, 1987 HHS)? These two may give useful data on all cause mortality after >10 years of follow up since publication.

(ii) Choice of outcome

The 3 outcomes chosen are most important and relevant. However, the outcome of all cause mortality seems to be inadequate as the follow up duration is short, and the subjects are of low risk. Other outcomes, which could provide other indicators of benefits, such as those examining only changes in cholesterol or angiographic outcomes.

The definitions of coronary heart disease events are not described. Different trials may have used different definitions.

- * It seems that all 3 outcomes must be present in a trial before it is included. Have the authors excluded studies which include one or two of the three outcomes? Studies which only include CHD events or mortality but not all cause mortality should be included.
- * Another outcome of non-CHD mortality (i.e. all cause minus CHD mortality) can be examined separately to see whether there are any differences in this outcome. There is a legitimate concern as there may be side effects of treatment and epidemiological studies have shown that lower cholesterol is associated with excess mortality from some diseases.

(iii) Sensitivity analysis

Sensitivity analysis is necessary to test whether the results are robust by including or excluding studies which are arguably eligible or not eligible. It can be done (but not done here) to test the results by different statistical models/assumptions. The analysis by including the 4 possibly suitable studies is appropriate and the consistent results give support to that based on 4 eligible studies. The analysis on the 3 statin studies is useful and can provide specific answers on statins.

- * However, sensitivity analysis can be carried out by including (a) the Kuopio study, and (b) other studies (non-English, in abstract forms), if data are available.

3. - A longer follow up will produce more events, especially on all cause and other non CHD mortality.
 - Authors of published or unpublished studies can be requested to provide updated data on outcomes, or other data on risk profile of subjects, side-effects, compliance, etc.
 - Inclusion of non-English studies, and data from studies published in abstracts can provide a larger database and can increase external validity.
 - * - A cost analysis will provide answers on cost-effectiveness.
 - * - RCT may be needed in non-Caucasian populations, such as Chinese/Asians with different risk profiles and other characteristics.

4. Discussion items

- Critical appraisal of the meta-analysis paper.
- Existing guidelines on statins for primary prevention. e.g. UK Department of Health Standing Medical Advisory Committee.
- Other measures for primary prevention.
- Existing practice and experience among GP in lipid lower drugs for primary prevention.
- Do we need a guideline (existing one) if there is not one in the district?

- Do we need to modify existing guideline based on the new results from the paper?
 - Do we need an RCT locally? This is relevant if the population in the district is non-Caucasian.
 - * - Lipid lowering for secondary prevention – can be brief; useful to find out what is the existing practice among GP.
 - * - Are there other ethnic groups in the district and should they be considered separately?
 - * - Cost effectiveness and who pay?
5. - Find out how common is the practice.
- What are the beliefs or the informations of GP to support this practice?
 - Who pay for the drugs and what are the costs?
 - What are the characteristics of the patients being treated – high risk / low risk?
 - Find out the queries, uncertainties and/or sentiments of the GP.
 - Are the GP aware of some published guidelines? And if so, are they using the guidelines, and what are their comments?
 - Would the GP organisation wish to further study the issue and to consult its members on the possible options for actions?
 - Offer to work together with the GP to reach a consensus and to promote primary prevention of CHD.
 - How would the payment issue affect GP's practice and income? (Private GP may generate more income by prescribing to more clients)
 - Patient's acceptance and compliance; any side effects or other treatment problems.
 - Are the GP also using other methods of reducing CHD risk before or in addition to prescribing, e.g. smoking cessation, diet, control of BP.

Comments

1. The answers about the critical appraisal are, on the whole, very satisfactory, although far too few candidates put the issue into a wider public health context by referring to the size of the public health issue. Most candidates were not convinced that the evidence is sufficient to support the use of lipid lower drug in primary prevention. A significant proportion of candidates continue to make the perennial mistake of only *describing* what the authors did without clear statements of the candidates' own interpretation/appraisal/opinions. In addition to being merely descriptive, many candidates were unnecessarily repetitive.
2. Time allocation was a problem for some as too much time was spent on the early part, leaving too little time to answer parts 4 and 5.
3. Many candidates said that e.g. inclusion criteria and specific outcomes were used without actually saying what they were. Although many candidates gave reasonable answers about the sensitivity analysis, few actually described what it involved and why it is done.
4. Some candidates repeated the deficiencies in answering part 3 and did not provide solutions for exactly HOW they might address the deficiencies; i.e. too many candidates described the deficiencies without referring to what they would actually do about them.
5. A few candidates wrote an essay/letter to answer part 4 and did not prepare a list of items and the key points, in the form of an agenda. Many continue to give theoretical answers to questions of this type without demonstrating insight into what one actually needs to do in

order to achieve certain outcomes. Pragmatism, courtesy and diplomacy were often sadly lacking from this part of the question, and the next.

6. Many answers to parts 4 and 5 were sensible, pragmatic and well-articulated. Better answers were from those who were cautious in noting the alleged increasing use of lipid lowering drugs and suggested to collect more information before jumping to conclusion and actions. Too many candidates launched into a rigid action plan directed at the GPs without eliciting more information. These candidates failed to realise how much can be achieved by asking rather than telling. Too few candidates mentioned collaboration in taking the issue forward in part 5.
7. In questions that involve taking practical decisions and action, many candidates failed to acknowledge any future process after such meetings.
8. A few candidates rightly noted that constraints are often imposed by journals on the length of the paper so that authors could not provide all the necessary details in their papers.

PAPER IIB

1. Locality A has a very high proportion of people from black and minority ethnic groups; a lower than average proportion of those aged 65+ and very high rates of teenage pregnancy and CHD mortality. Candidates may speculate that this is typical of an inner city deprived population, with possibly a larger than average childhood population.
2. The candidate needs to first work out age-group specific suicide rates from the England and Wales data given in the second table.

Age group

$$0-24 \quad 388/16,365,300 = 23.70/1,000,000$$

$$25-64 \quad 2,427/27,573,800 = 88.01/1,000,000$$

$$65+ \quad 609/8,272,100 = 73.62/1,000,000$$

These rates should then be applied to the data given in the first table to produce an expected number of suicides for each locality.

Using locality A as an example:

$$\begin{aligned} \text{Expected number of deaths in 0-24 age group} &= (126,000 \times 0.411 \times 23.70)/1,000,000 \\ &= 1.2273 \end{aligned}$$

Across all four localities expected deaths are as follows

	0-24	25-64	65+	Total
A	1.2273	5.0234	1.2616	7.5123
B	0.9321	4.8683	1.4985	7.2989
C	0.7695	3.4711	0.9637	5.2043
D	0.6954	4.0317	1.0933	5.8204

The general formula $SMR = (O/E) \times 100$ can then be used to calculate an SMR for each locality. So:

$$\text{Locality A SMR} = (6/7.5123) \times 100 = 79.87$$

$$\text{Locality B SMR} = (11/7.2989) \times 100 = 150.71$$

$$\text{Locality C SMR} = (2/5.2043) \times 100 = 38.43$$

$$\text{Locality D SMR} = (19.5.8204) \times 100 = 326.44$$

Clearly many candidates will round up or down at various stages in this process and marks should not be deducted for this.

3. The table does not say whether the SMR is for one year or more than one, but the most likely explanation is that the huge variation in SMR is due to small numbers of suicides with wide random fluctuations from year to year. No firm conclusions can be drawn about suicides in locality D, but the issue is worthy of further investigation, but not automatically getting more resources; candidates may speculate on the role of the coroner/procurator fiscal or equivalent as the origin of the variation.
4. These could be any of the following:
 - The variation overall between the localities, and the need for targeting
 - The wide variation in suicide SMR requiring further investigation
 - The very high teenage pregnancy rate in one locality, and the need for action
 - The high level of people from BEM groups in A requiring ethno-sensitive policies, combined with high CHD SMR
 - Large number of elderly in B
 - Whatever point is made a reason must be given
5. *General comment:* need to understand different needs of the different localities and the fact that implementation strategies will differ; need to address primary, secondary and tertiary prevention; need to be ethno-sensitive; possible impact of private care
 - a) *Suicide:* need for distinction between attempted suicide and actual suicide; small numbers and random variation leading to difficulties in interpreting data; role of the coroner / procurator fiscal; preventive policies, including role of parents, schools, employers, media, primary health care professionals; need for specialised health services for those with major mental illness (outpatient, inpatient, crisis intervention); ongoing help from health and social services; role of housing and self help groups; need for health professionals to audit all suicides of people under their care
 - b) *Teenage pregnancy:* understanding that the UK has one of the highest rates in Europe; controversy whether it is a health or social problem, or a problem at all; preventive strategies including the role of parents, school, peers, the media; link with deprivation and underachievement (education, employment); role of health services; access to confidential counselling, contraception and termination services; support for teenagers who do become mothers, including midwifery, social, educational and housing services; role of midwife and health visitor post natally
 - c) *Older people:* basic demography and the rising number of people over 65, with a doubling of those over 85 over the next 10 years; prevention of ill health, including: the promotion of healthy lifestyles (particularly keeping active and nutrition), and preventive services (e.g. detection and treatment of hypertension, osteoporosis, breast cancer, flu vaccination); promotion of independence; rising age as a risk factor for many conditions (e.g. cancer, heart disease, accidents, Alzheimer's); role of good housing and winter warmth; social services and the role of social care, both at home and in care; need for health services, medical, surgical, psychiatric and palliative
 - d) *CHD:* basic demography; main risk factors (male, family history, age, smoking, diet, exercise, cholesterol, BP); preventive strategies including the promotion of health lifestyles,

prevention in primary care (e.g. BP, cholesterol); access to emergency services (e.g. suspected MI, new onset chest pain, heart failure); need for specialised services (e.g. coronary artery bypass, angioplasty, transplantation); need for rehabilitation after a cardiac event; importance of psychological aspects (e.g. work, sexual activity); palliative care

Spare bits

<i>Age group</i>	<i>Population E&W (thousands)</i>	<i>Suicides</i>	<i>Suicide rate (per 100,000)</i>
<i>0-24 M</i>	<i>8,396.1</i>	<i>325</i>	<i>38.71</i>
<i>25-44 M</i>	<i>7,943.2</i>	<i>1,175</i>	<i>147.93</i>
<i>45-64 M</i>	<i>5,946.3</i>	<i>735</i>	<i>123.61</i>
<i>65+ M</i>	<i>3,399.0</i>	<i>416</i>	<i>122.39</i>
<i>0-24 F</i>	<i>7,969.2</i>	<i>63</i>	<i>7.91</i>
<i>25-44 F</i>	<i>7,671.3</i>	<i>271</i>	<i>35.33</i>
<i>45-64 F</i>	<i>6,013.0</i>	<i>246</i>	<i>40.91</i>
<i>65+ F</i>	<i>4,873.1</i>	<i>193</i>	<i>39.61</i>

Comments

There was a high pass rate for this question by candidates who were able to calculate an SMR, although it was surprising how many confused a standardised mortality rate with a ratio. However those who scored badly on this part could pass if the other parts were well answered.

A brief description of a locality population required more than just copying data from the table. Comments on whether levels were high or low were necessary and good answers included speculation about the type of population the data might describe (i.e. deprived inner city). A brief answer (one side) was all that was required and some candidates who wrote pages obviously found themselves subsequently short of time in part 5.

Part 3 asked for the response the candidate would make to the councillor's statement and good answers described how they would respond rather than just listing the main points.

The standard of answers for part 5 was generally not high. Many people did not relate the reports to the information provided about the localities and although the format of some was excellent others wrote an unstructured essay. However it was recognised that many candidates found they were short of time. In view of the confusion over whether there should be one or two reports candidates were not penalised if only one was written.