MFPHM DIPLOMA AND PART I EXAMINATION

WITH EXAMINERS' KEY POINTS AND COMMENTS

JANUARY 2000

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

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

Monday 24th January 2000: 9:30 – 12:30

PAPER I
SHORT ANSWER QUESTIONS ON PUBLIC HEALTH MEDICINE

You must answer all eight 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 eight questions or give grossly inadequate answers to **any** of them. It is, therefore, essential that candidates ALLOW SUFFICIENT TIME FOR EVERY QUESTION.*

1. Antibiotic resistant infection constitutes a potential threat to global human health. What strategies can be used to reduce resistance?

2. What are the health hazards of a refugee camp in a developing country? How would you go about reducing the hazards on a limited budget?

3. Write short notes on observer variation and its reduction.

4. In designing a case control study, what information should be considered in determining the sample size required? How does one decide on the factors by which cases and controls could be matched?

5. A centre for the post-operative care and rehabilitation of patients following traumatic brain injury is about to open in your area. You have been asked to help appraise its performance over the next three years. Outline the structure of that appraisal and draw attention to any weaknesses in your design.

6. An influenza epidemic is predicted within the next 6 months. Outline specific initiatives you would take to reduce the expected increase in morbidity and mortality amongst the elderly population (those over 75 years of age). How would you evaluate the success of these initiatives?

7. Give a brief explanation and an example of the application of any three of the following techniques in health economics:

- Cost-effectiveness analysis
- Cost-utility analysis
- Cost-minimisation analysis
- Marginal cost analysis
- Discounting future costs and benefits

8. A Mental Health Users' Group approaches you, as a Public Health practitioner, to express their concern about stigma. They ask for your co-operation in developing strategies to reduce stigma. In short notes, define stigma; state how it affects people; and briefly describe approaches you could suggest to help reduce stigma related to mental ill-health in your local area.

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

Monday 24th January 2000: 2:00 – 5:00

PAPER IIA

Candidates should answer one question from each of the four sub-sections A B C and D

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

SECTION A

1. A consultant physician in your local acute hospital is concerned about an apparent increase in the number of cases of condition X that she is seeing. Outline briefly how you would investigate whether there has been a change in the incidence of condition X in your health district.

2. Discuss the epidemiological evidence concerning the introduction and maintenance of an organised cervical screening programme.

SECTION B

3. You are a public health doctor with responsibility for communicable disease control. The headteacher of a school of children aged 4-10 years in your area reports that there is an outbreak of hepatitis A amongst the staff and pupils. Describe how you would investigate, manage and control this outbreak.

4. Certain members of a local environmental pressure group are seeking your support, as a public health practitioner, to prevent the siting of a clinical waste incinerator near to their village on the grounds of the risk to their children's health. Discuss how you would respond to this group.

SECTION C

5. You have been asked to prepare a profile of the health of children (aged 5-16 years) in your area (circa 250,000 population). Select 5 key indicators that you would use to prepare this profile. For each indicator, describe the source of the data and justify its inclusion as a key measure.

6.

Regions	Deaths	Death rate
A	807	67.99
B	639	64.37
C	625	61.88
D	669	55.27
E	676	48.69
F	822	54.77
G	668	68.16
H	728	59.75
Country	**5634**	**59.43**

The table above shows the number of deaths as well as the direct age-standardised death rate (deaths per 100,000) from accidents in men aged 65 and over for the years 1995-97, in eight regions making up a country of 45 million people. (*cont. overpage*)

a) Comment on the data, paying particular attention to the variation between the regions. What additional analyses would you wish to see before commenting on the variations?

b) List and discuss critically the sources of error in the calculated rates.

c) What are the limitations of the data in giving a picture of accidents in older people? How would you, as a public health practitioner, monitor this aspect of the health of older people?

SECTION D

7. Hospital specific mortality rates for certain conditions have recently been published. Thirty-day mortality rates following admission to hospital with a myocardial infarction for hospitals A and B are 10% and 12% based on 400 and 150 cases over the same calendar year. The data have been collected from the hospital discharge database.

a) What statistical tests are appropriate for comparing the above data?

b) If further data on age, sex, co-morbidities, baseline risk and other potential confounders were also available, list the statistical approaches which could be used to compare hospital outcomes.

8. Two methods were used to measure systolic blood pressure on each of 311 men. The mean (and standard deviation) of values for the first method were 148.3 (23.9) mmHg, and for the second method were 144.6 (22.5) mmHg. The Pearson correlation coefficient between values for the two methods was 0.92.

a) Explain reasons why the correlation coefficient is not a good way to assess agreement between the two methods.

b) Describe how the raw data might be used to present properly the agreement between the two methods.

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

Tuesday 25th January 2000: 9:30 – 12:30

PAPER IIB

Candidates should answer one question from each of the four sub-sections E F G and H

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

SECTION E

1. "The only way to make significant progress to improve cardiac health in a population is to divert a large proportion of the resource used in treatment services into preventive ones." To what extent do you agree with this statement? Illustrate your answer with reference to a defined population of your choice.

2. What opportunities are there for schools to contribute to reducing inequalities in health?

SECTION F

3. What social and psychological factors limit the success of childhood immunisation programmes and what steps can be taken to improve uptake?

4. "Behavioural habits are certainly relevant to health, but perhaps less so than the social environment in which they are embedded." (*Blaxter*) Discuss examples of evidence which supports this statement.

SECTION G

5. Discuss the economic issues which arise from the differing perspectives (patient, practitioner, policy maker) of the cost of drugs when benefit and side effects are included in the assessment.

6. What health economic methods are there for valuing outputs in health care? Compare and contrast them in helping to decide between funding for either a new multi-agency accident prevention programme or a new palliative care service for your local population.

SECTION H

7. Discuss the public health practitioner's role in helping hospital providers to cope with seasonal increases in demand.

8. Discuss the advantages and disadvantages of the primary health care practitioner being the "gatekeeper to health care".

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

Tuesday 25th January 2000: 2:00 – 5:00

PAPER III
UNITED KINGDOM CANDIDATES

Candidates should answer one question from each section. Candidates are advised to spend approximately two hours on Section A and one hour on Section B

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.

SECTION A

1. Your local radio station has approached you for an interview about 'Baby Check'. They feel it should be distributed to all new parents locally.

a) Write a critical appraisal of the attached paper by Thomson H *et al*: "Randomised controlled trial of effect of Baby Check on use of health services in first 6 months of life." ***(BMJ:1999;318:1740-1744.)***

b) What are the main points you would wish to say in the interview?

2. You work within a publicly funded, free at the point of service health system. A group of clinicians has written to the Director of Health of your organisation, which has responsibility for deciding the availability of treatments within the health system, citing the attached paper by Rösler M *et al*: "Efficacy and safety of rivastigmine in patients with Alzheimer's disease: international randomised controlled trial" ***(BMJ 1999; 318:633-640)*** and asking that the drug rivastigmine be made available within secondary care outpatient clinics within your health system.

a) Write a critical appraisal of the paper.

b) Prepare a draft reply to the clinicians on behalf of the Director of Health.

SECTION B

3. The performance indicators published by the NHS executive have highlighted that conceptions below age 16 are a particular problem in your district. Your director therefore intends to include a chapter focussing on teenage pregnancy in her Annual Report. Write a structure for this chapter, outlining:

- The key issues relating to teenage pregnancy;
- Strategies for prevention;
- The type of information you would wish to include in the annual report to examine your local problem.

4. Your district has developed five groups based on primary care with populations that vary between 80,000 and 140,000. Two are coterminous with local authority boundaries and three are not. The groups will commission health services and improve the health of their local populations. You are asked, as a public health practitioner, to lead the production of health information profiles for these groups.

a) Produce a paper for your Director of Public Health, outlining the process you will use in terms of how you would produce the profiles and who you would need to involve. Include some of the problems you anticipate.

b) List an initial 'contents list' for the profiles for discussion, and indicate the sources for your information.

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

Tuesday 25th January 2000

PAPER III
HONG KONG CANDIDATES

Candidates should answer <u>one</u> question from <u>each</u> section. Candidates are advised to spend approximately two hours on Section A and one hour on Section B

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.

SECTION A

1. You represent the Department of Health in a multi-disciplinary working party to formulate recommendations on preventing injuries in children in Hong Kong. The paper by Kendrick D *et al*: "Preventing injuries in children: cluster randomised controlled trial in primary care" ***(BMJ 1999:318; 980-983)*** was one of the most recent publications in your medline search.

a) Write a critical appraisal of the paper.

b) Prepare a paper for other members of the workgroup, to outline how programmes for preventing injuries in children can be implemented through the infrastructure within the Department of Health, and the perceived difficulties of implementing such programmes.

2. You work within a publicly funded, free at the point of service health system. A group of clinicians has written to the Director of Health of your organisation, which has responsibility for deciding the availability of treatments within the health system, citing the attached paper by Rösler M *et al*: "Efficacy and safety of rivastigmine in patients with Alzheimer's disease: international randomised controlled trial" ***(BMJ 1999; 318:633-640)*** and asking that the drug rivastigmine be made available within secondary care outpatient clinics within your health system.

a) Write a critical appraisal of the paper.

b) Prepare a draft reply to the clinicians on behalf of the Director of Health.

SECTION B

3. The chairman of a district board in Hong Kong has decided that some school programmes should be carried out to prevent children from smoking in that district. As a public health physician responsible for tobacco control, you are requested to advise the chairman on how to proceed. An advisory meeting will soon be held between yourself and the Chair.

a) Describe how you would prepare yourself for the meeting.

b) Prepare a proposed action plan for the meeting.

4. Recent reports of two human influenza A (H9N2) cases in Hong Kong have attracted much mass media attention. As a public health physician responsible for the control of influenza, you are requested to attend a public forum to give a presentation and to answer queries from the floor.

a) Describe how you would prepare yourself for the meeting.

b) Prepare an outline of your presentation.

DIPLOMA & PART I MFPHM EXAMINATION - JANUARY 2000

EXAMINERS' KEY POINTS AND COMMENTS

PAPER I

QUESTION 1

Background (*candidates will not be expected to reproduce all of this)*

Large volume of antibiotics in use, 50% animal (33% growth promotion) 50% human (on weight basis). Eight times more courses prescribed in general practice than in hospital.

Problem: examples - MRSA, MDR tuberculosis, penicillin resistant pneumococci

Difficulties: transfer of resistance from non-pathogenic to pathogenic bacteria, particular role of gut bacteria in humans;
Cross resistance between veterinary/agricultural antibiotics and those used in humans;
Delay in initiating effective treatment because empirical choice fails;
Lack of choice of antibiotic;
Unable to use antibiotic.

Result: increased morbidity, increased mortality

MDR tuberculosis probably greatest threat 'captain of men of death', problems with compliance with multi-drug regimens, side-effects, length of treatment, cost, link with HIV infection. Could argue MRSA or vancomycin resistant enterococci because of possible transfer of resistance once generated.

Candidates must appreciate the following from this background:

- A large volume of antibiotic use is in animal growth promotion, and some of these antibiotics are related to those used to treat humans.
- Most antibiotic use occurs in the community (general practice) and there is a correlation between the amount of antibiotics used, and their ease of access and the amount of bacterial resistance.

The rest of the key points are essential.

Strategies for control and reduction of resistance:
Resistance appears to be linked to amount of use and availability.

Humans

1. Use fewer antibiotics:	Role of guidelines (sore throats, colds etc.) Shorter courses Use narrow rather than broad spectrum antibiotics Re-educate public
2. Use antibiotics better	Computer assisted choice of empirical treatment Audit More rapid diagnosis, new techniques not involving traditional culture Cyclical policies on use
3. Reduce need to use (Prevent cross infection)	Education and audit Improve cleaning Improve building design

Decrease throughput

Is it possible to reduce pool of pathogens in community? (Role of resistant bacteria generated in animals.)

4. Develop new antimicrobial agents, may need joint government/industry investment

Animals
Stop the use of antibiotics as growth promoters
Makes meat more expensive
Involves long period of investment

Obviously sick animals still to be treated but some restriction may be necessary on types of antibiotic (e.g. not using novel agents soon to be used in humans).

COMMENTS

Examiner 1
Relatively few candidates attempted a definition of antibiotic resistance; fewer still described how resistance arose and could be transferred, hence they failed to explain how the measures described might reduce acquired resistance. There seemed to be little awareness of the relative bulk of use of antibiotics between farming and veterinary practice, general practice and hospital, and hence the targeting of interventions was not explained.

Most candidates dealt with guideline and public education issues well, and many mentioned the House of Lords and SMAC reports. Few mentioned the use of narrow rather than broad spectrum antimicrobials, but most gave a good range of examples of antibiotic resistance.

Some candidates quoted international initiatives to control antimicrobial resistance and the need to develop new antibiotics and improve infection control, these generally were in the better answers.

Examiner 2
This was a highly topical subject and it was not answered well by the majority of candidates. Not all candidates gave examples from current clinical practice of problems caused by antibiotic resistance. Recent government publications were mentioned by only a few. Many candidates did not appear to appreciate the extensive use of antibiotics in animal husbandry.

The best candidates approached the question in a systematic way, with headings and sub-headings, and focussed (rightly) on animal husbandry and on primary care as the prime targets for their action plans.

QUESTION 2

- Risks due to inadequate and poor nutrition
- Risks due to contaminated or inadequate water supply and/or poor sanitation
- Risks due to crowding and close contact
- Risks from violence
- Enteric infectious disease, rotavirus, cholera, typhoid, Hepatitis A
- Diseases spread by the respiratory route

Measles
Meningitis
Pneumonia

- Infestations

Scabies

Body lice (risk of typhus in some parts of world)
Head lice

Need to provide shelter.
Probably little can be done about food supply, but obviously maximise, ensure fair distribution of available food.
Try to establish latrines, as per WHO standard, to ensure separation of people, drinking water and sewage.
Try to establish supply of uninfected water, draw from upstream, treat, chlorinate.
Establish vaccination programme.
Need to ensure the segregation of rival factions, and the control of weapons within camps.

COMMENTS

Examiner 1

This question required a considered, structured answer, which some candidates failed to achieve. Health hazards needed to be enumerated, in priority order, and then interventions to address these needed to be described. Most candidates were aware of the major key points for a pass answer, although some got carried away in the consideration of the meaning of health.

Better answers were more structured, described setting up rudimentary disease surveillance systems, establishing aid agency and refugee co-ordination committees, and using refugee human resources to help address post-traumatic stress and also physical needs.

Examiner 2

Few candidates appeared to have thought about this issue in advance, and the answers were interestingly diverse. Almost all candidates appreciated the fact that a healthy infrastructure (shelter, food, water, latrines, safety) was more immediately important in the refugee scenario than immediate access to drugs and vaccines. Only a few candidates however mentioned the personal and epidemic health risks posed by parasitic infestations.

QUESTION 3

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

- Variation or error due to the failure of the observer to measure or identify observations accurately
- Within observer variation - discrepancies between repeated observations by the same observer
- Between observer variation - differences between individuals when reporting on the same material
- Studies need clear criteria of measurement and interpretation where possible
- Studies should include some check of the repeatability of observations

Additional Points

- Within observer variation largely random
- Observer may also show digit preference
- Between observer variation adds systematic component
- Random error can be reduced by larger sample size but biased errors cannot
- For check of repeatability:
  - Observer must be unaware of first result
  - Sample to be retested must be representative
  - Should reproduce study conditions

- If multiple observers, analysis of results by observer may identify major problems (retraining, statistical adjustments)

COMMENTS

Most candidates identified within and between observer variation, and the other main key points.
Some had unrealistic expectations of the extent to which observer variation can be eliminated.

QUESTION 4

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

The choice of sample size depends on:
- the effect size that is clinically (or epidemiologically) significant, leading to the effect size to be detected
- the likely proportion of the non cases who have the exposure (or risk factor)
- the level of statistical significance to be used (equivalently, the probability of Type I error that is tolerable)
- the desired power (equivalently, the probability of Type II error that is tolerable)
- the number of controls per case
- practical considerations, including the sampling frames and available numbers of cases and controls

Matching should be considered on a factor
- which is a known confounder, and is strongly associated with the exposure (risk factor)
- which has a presumed strong association with the risk of disease (or other outcome variable) [otherwise danger of overmatching]
- for which no analysis will be required of the factor effect on the disease (or other outcome variable)

Most studies match on age and sex only, since they are usually extremely strong confounders, and any imbalance between cases and controls could mask every other association one would like to study.

The following are additional points that might improve the answer to "good" or "excellent":
Matching should not be used blindly for all plausible factors, since this usually reduces study efficiency
- if matching is used, usually it is imperative to use a matched analysis
- if a potential confounder can be measured fairly accurately and is unlikely to be very strongly associated with the exposure and/or outcome, then that variable can be taken into account in the analysis
- if the study will be analysed for the effect of more than one exposure, matching should only be used when it appropriate for all such exposures

COMMENTS

This question was mainly well done. Those who failed the question did so generally because of a poor overall approach, rather than deficiencies in specific technical matters.

QUESTION 5

Candidates should show a logical structure to their appraisal, such as the Donabedian approach – Structure, Process and Outcome (or Impact in this short time frame), or the Maxwell approach – Effectiveness, Efficiency, Equity, Accessibility, Acceptability, Responsiveness.
The new centre should be encouraged to set specific, measurable, ambitious, realistic, time-bound targets at the outset.

The appraisal would look for:

- objective evidence against published sources (where available) that its proposed structure, processes and outcomes are of proven worth
- normative or comparative data that the unit will compare favourably with its peers
- 3rd party independent inspection and accreditation, e.g. Royal Colleges or King's Fund, "charter mark" or "Investors in People Award"
- outcomes measured in meaningful terms, such as quality of life, physical functioning, independence, social integration, as well as clinical terms
- evidence of relief of pressure on carers
- high levels of satisfaction from patients, carers, and the local health economy
- well-established links with further care, e.g. social services, education, housing and employment
- evidence of research or service evaluation and publications in peer-review journals
- a strong training function and culture of staff development (personal and organisational)
- robust multi-disciplinary clinical audit in place
- an organisational culture of transparency and accountability, eg publication of an annual report, public meetings
- financially robust and secure
- a responsible employer, with high levels of staff satisfaction, good recruitment record and low staff turnover
- recognition of excellence and role model in its field

Weaknesses:

- Difficulty (or impossibility) of getting a control group
- Quality is often highly subjective
- Published evidence may be scarce or absent, especially if this is a ground-breaking initiative

Demonstrating efficiency and value for money will be difficult

COMMENTS

Examiner 1

- Generally not very well answered - about a third failed this question and very few exceptionally good answers.
- Many candidates saw this as an academic exercise and designed elaborate case-control or cohort studies; some wasted time expanding on epidemiology and demography. There was an obvious lack of "real world" perspective.
- Too many candidates ignored non-clinical indicators of outcome and effects on carers and non-NHS agencies (or equivalent overseas).
- Good answers added up to date health circulars and guidance, e.g. "Towards a healthier Scotland", NHS Performance Assessment Framework, "Clinical Governance".

Examiner 2

Few candidates answered this question well. The focus of this question is the appraisal of performance but many candidates wasted time discussing "needs assessment". The question demonstrated poor application of knowledge to a practical problem - an RCT is not the method of choice on this occasion! Few candidates discussed an "evidence base", the interface with other services on clinical governance.

QUESTION 6

There are two clear elements to this question: the campaign and the evaluation

The campaign:

- Set up a campaign team with relevant expertise, e.g. consultant in communicable disease control, health promotion/campaigns expertise, primary care (GP and nurse), secondary care (e.g. Geriatrician), secretarial support.
- Establish a budget and secure the commitment of funding organisations
- Raise public awareness – eg print and broadcast media
- Raise professional awareness – in primary care and secondary care
- Identify special high risk groups amongst the over-75s from GP lists, nursing homes, residential homes, secondary care patient databases
- Target care-givers (part of the over-75s protection strategy)
- Identify any likely low-uptake areas for special attention from previous campaigns or local knowledge
- Measure uptake by locality, investigate low uptake
- Agree case definition and ascertainment
- Ensure logistics of supply are secure – availability of vaccine, cold chain, sufficient nurses with the right training

Evaluation:

- Evaluate “penetration” of awareness campaign
- Evaluate coverage of vaccine
- Evaluate numbers and rates of ascertained cases
- Evaluate hospital admissions
- Evaluate influenza deaths – numbers and rates
- Check immunisation status of cases to check for vaccine failures
- Assess costs and relate to outcomes
- Look specifically at any stated objectives of the campaign
- At the end of the 12 month period write up the findings in a report for future reference, for audit of this campaign and for training purposes.
- Consider publication in a peer-review journal if there are generalisable lessons.

COMMENTS

Examiner 1

- Generally adequately answered, with only 1/6 failing this question.
- Generally weaker on evaluation than campaign.
- More lateral thinking (non-health services) needed.
- No need to explain what 'flu is - not part of the question.
- Too few mentioned a team approach.
- Good additional points included mention of drug treatments:- amantacline and relenza, or simultaneous pneumococcal vaccination.
- Some forgot to mention wider impact on secondary care.

Examiner 2

Frequently candidates began their answer with 1-2 pages about influenza (epidemiology, clinical manifestations, treatment etc.) This is unnecessary! Also common was the absence of a team approach to the development of initiatives and few answers included the concept of targeting the very high risk groups amongst the over 75's. Proposed evaluations were often absent, incomplete or poorly described. Read the question!

QUESTION 7

Cost-effectiveness analysis

Relates cost to outcomes where outcomes are measured in some natural unit like length of life, tumour size, pain score, or pregnancy rates. Useful for comparing between treatments whose costs and effectiveness are different, but is restricted to comparisons between interventions that can be measured in the chosen units e.g. Finding the most efficient way of treating blood pressure when different drugs directed at that objective have different costs and outcomes. Useless for comparing between very different types of healthcare activity where units of outcome are different.

Cost-utility analysis

Relates costs to outcomes where outcomes are measured in units of "utility" - typically quality of life scores, quality-adjusted life years, or disability-adjusted life years. Useful for comparing across very different disease areas by using a common measure of outcome. Helps address the "allocative efficiency" issue, where health care purchasers are trying to maximise population health gain from a fixed budget across vastly different treatment and disease areas e.g. Cost per QALY league tables to guide purchasing decisions, or comparing cost-utility of cancer therapy versus chiropody versus hip replacements. Limited by relatively weak techniques for measuring utility.

Cost-minimisation analysis

Relates costs to outcomes where costs are different but the outcomes are identical e.g. Deciding between branded or generic drug.

Marginal cost analysis

Principally important in making the distinction from average costs. Looks at the cost of the next unit of activity e.g. In an expanding orthopaedic demand situation, the cost of the next few hip replacements may be at marginal cost (mostly consumables) because the fixed costs are already covered. But there comes a point when the next hip replacement triggers a "stepped" cost (steep increase) because a new ward might have to be opened or a new member of staff taken on. Another good example is in deciding optimum frequency of repeat tests in a screening programme - what is the added cost per additional screen and what is the added yield in terms of cases detected? The marginal cost per case usually climbs dramatically with each successive test (whereas the average cost may not - marginal cost is the key indicator but often overlooked by uninitiated policy makers!).

Discounting future costs and benefits

Technique in health economics for allowing for the fact that society and individuals place a lower value on costs or benefits when they materialise in the future rather than the present. Standard rates are used (typically 6% per year).
e.g. 1: Assessing the choice between investing a sum in health promotion which might yield benefits for many people in 20 years' time, or the same sum in treating heart disease now with immediate benefits for a few.

e.g. 2: Comparing between two interventions of similar total cost, one of which involves a lot of early expenditure and the other where costs are spread out over several years, such as assessing the economic arguments for patients with life-threatening unstable cardiac rhythm receiving implantable defibrillators now at great cost, or continuous drug therapy at less immediate cost but greater cumulative cost over the next twenty years.

COMMENTS

Most candidates had little trouble with this question. The commonest problem was confusion between cost-effectiveness and cost-minimisation analyses: several candidates believed cost-effectiveness analysis required the same outcome, rather than having to be measured in the same natural units. Some responses were unclear on which techniques were useful for allocative and which for technical efficiency. Marginal cost analysis was taken to mean programme budgeting and marginal analysis by many candidates: this was so common that candidates were not penalised for it, and the question was marked accordingly.

QUESTION 8

Sample answer:
Stigma is "a social reaction which spoils normal identity" (Goffman): stigmatising conditions are those which set people apart. Good candidates will relate the concept to ideas of norms and deviance, and to labelling. A better answer would mention the distinction between "discrediting" and "discreditable" attributes, but this would not be essential for a pass.

The description of how stigma affects people should state the additional burden stigma can add to the original impairment. This could be done either by linking it into the WHO model of impairment/disability/handicap, or by discussing primary and secondary deviance (Lemert). A good answer would also mention the affect on relatives, carers and friends. Some mention of the effect of stigma on interactions with professionals would also be expected.

Good candidates might also mention some symbolic interactionism in their discussion. Some recognition of how people deal with stigma should also be included, probably by referring to Goffman's short-term strategies (passing/covering/withdrawal) or by talking about the interaction of social values and self-concept (Anspach).

In discussing stigma reduction, the answer should include reference to population strategies, media work, work with high risk groups including relatives and carers, and work with professionals. Good answers will refer to the limited evidence for effectiveness of stigma-reducing work identified in the HEA's review of mental health promotion effectiveness, and will place it in the context of the HEA's mental health promotion framework, or a similar national document.

Throughout the answer, practical examples will add value.

COMMENTS

This question was less well answered than question 7. Most candidates were familiar with the main features of stigma, although some had difficulty in interpreting different theories. The section covering possible approaches to stigma tended to be answered from first principles and often did not link to answers to the earlier part of the question.

PAPER IIA

QUESTION 1

- *Confirmation of change.* Use routine data sources such as hospital episode data, disease registers and deaths data if relevant. Explore magnitude and trend of any change. Use relevant comparative data from other health areas. Consider whether there may be a cluster of cases.

- *If there is a change, is it real or artefactual?*

- **Real changes** may be explored by considering changes in the host, agent and environment.
- Changes in host susceptibility (for example changes in immunity or exposure to drugs or environment).
- Cohort effect e.g. due to an increase in incidence in an ageing population.
- Change in exposure to risk: behaviour, occupation or leisure.
- Appearance of a new risk factor.
- Change in influence of protective factor
- Change in survival due to new treatment

- **Artefactual changes** may be explored by considering changes in the numerator and denominator:

  Numerator
- Changes in diagnostic practice – definition, awareness in public and clinicians, histology, post mortem
- Change in availability and access to care
- Changes in certification – reflecting the above
- Changes in disease coding
- Artefactual survival changes due to later presentation

  Denominator
- Population migration between censuses
- Changes in population structure due to migration, fertility
- Changes in administrative boundaries

- The impact of artefactual changes can be minimised by having standard diagnostic classification; combining diagnostic categories between which cases night be transferred; using standardised recording and registration procedures; and ensuring that denominator populations are drawn from a similar source.

COMMENTS

See Comments to Question 2.

QUESTION 2

Most of the following required for a pass:

Size of the problem

- 2nd most common cancer in women world-wide
  5th most common cancer overall
- cases four times more numerous in developing than developed countries

15% of all female cancers

Natural history

- Mild dysplasia (CIN) → severe dysplasia → Ca in situ → invasive cancer. (Could be expansion on CIN II, III etc.)
- Long pre-invasive phase (>10 years usually)
- Screening can detect pre-invasive stages by Pap smear
- Screening at 18-35 yrs encounters "dysplasia swamp" (8% of cancers)
- Screening at 35-59 has maximum cost-effectiveness in developing countries; 35-64 in developed countries (92% of cancers)

Effectiveness of screening

- No RCT
- Evidence from historical studies describing the effect of introduction of *organised* programmes
- Evidence from case-control studies
- Effects on both incidence and mortality
- Data from Europe and north America used by ARC to quantify the reduction in the probability of developing cervical cancer according to different screen intervals. (Once every 10 yrs ≡ reduction of 66%; 1 yr is as effective as 3 yrs or 5 yrs)
- Mathematical models
- Protection from screening independent of age

Benefits of *organised* programme

- Achievement of coverage of defined population
- Recruitment of higher risk women (older, low socio-economic group)

The following would improve an answer to "excellent"

- Improves cost-effectiveness including reduction in proportion of false positives (reduces overscreening in lower risk population)
- Incidence of invasive cancer and mortality declining in countries with *organised* programmes
  - Nordic countries; also reduction in incidence of mortality in UK after setting up call and recall system
- Incidence and mortality increasing in countries where there are no *organised* programmes.

COMMENTS

The overall standard of answers to both Questions 1 and 2 was good, although Question 1 had a higher proportion of very good answers.

The better answers tended to be well structured.

Those who failed or struggled to achieve a pass tended not to address the question posed and had poorly structured responses.

QUESTION 3

Most of the following will be required for a pass:

Verify the diagnosis of hepatitis A
- clinical
- microbiological

Verify the diagnosis of an outbreak
- definition of an outbreak
- background surveillance

Convene an incident control team
- define membership
- allocate roles and responsibilities
- review the evidence and describe the outbreak in terms of time, place and person
- initiate case finding
- determine any common exposure history
- identify specific at risk groups
- decide and implement immediate control measures
- disseminate information (professional/public/media)
- monitor the implementation and outcome of the immediate control measures
- determine criteria to declare the outbreak over
- write a report with recommendations to prevent reoccurrence

The following will raise a pass to a "good" or "very good":

Demonstration of specific knowledge about the epidemiology and control of hepatitis A which is appropriately related to each of the above

Demonstration of an awareness of the debate about the use of human normal immunoglobulin and hepatitis A vaccine in the control of hepatitis A

Demonstration of an understanding of the role of legislation in the control of hepatitis A

Demonstration of an awareness of current national guidance on the control of hepatitis A

COMMENTS

37 responses, most of which achieved a pass but with very few “good” answers. Candidates demonstrated a reasonable knowledge about the epidemiology of hepatitis A and about outbreak investigation, management and control in general but few seemed able to effectively relate the two. This probably reflects a lack of experience in the field. Few candidates considered the relative merits of the use of immunoglobulins and hepatitis A vaccine, although most did mention their use as part of control. Candidates who used headings and sub-heading were more successful in focusing their answer to the needs of the question with one or two candidates using a succinct summary of their response to good effect. A small number of candidates did not complete their answer, presumably as a result of poor time management. This was a relatively straight forward question to which many candidates failed to apply the usual control of an outbreak structure.

QUESTION 4

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

Ascertain the facts of the situation:

- Is an incinerator to be built near to the village and if so exactly what, where, when and by whom?
- What is the membership, nature and influence of the pressure group?
- What exactly are the health and other concerns of the pressure group?
- Who is/are the responsible authority/ies and to what extent have they been or should they be involved?
- Mechanisms/processes available for obtaining the facts

- Decide on whether there is a the need for the involvement of a public health practitioner and if so the nature and extent of that involvement:
- Personal/professional
- Independent advice to the pressure group/advice to the responsible authority/ies
- Informal/formal advice (e.g. to the group or to an official enquiry)
- Expertise/resources available
- Mechanisms/processes available for deciding on the involvement

Assuming a professional involvement, obtain and interpret the relevant and available data and information, make recommendations and facilitate their implementation:

- Past and current health risk and health data of the population in question
- Known health risks and health effects of exposure/proximity to clinical waste incinerators
- Likely health risks to and health effects in the population in question of exposure/proximity to the proposed clinical waste incinerator
- Sources of data and expertise
- Possible recommendations
- Mechanisms/processes available for implementation of recommendations

The following will raise a pass to a "good" or "very good":

Demonstrated knowledge of the health risks and health effects of exposure/proximity to clinical waste incinerators

Demonstrated understanding of the practical and political aspects of such situations

Demonstrated understanding of the organisational and legislative frameworks within which such situations are dealt with

COMMENTS

4 responses of variable but reasonably good quality. All responses demonstrated an awareness of the issues with the most successful responses betraying experience in the field. The use of a structure to the answer such as that adopted for outbreaks of infectious disease would have been helpful.

QUESTION 5

The applicants should be able to provide a clear and rationale approach to justifying the indicators selected. Areas selected are likely to include some of the following:

- Demographic data including ethnicity
- Age specific mortality rates
- Hospital admission rates for selected conditions
- Uptake of vaccination rates and preventive child health services
- Number of children on "at risk register"
- Information on behaviour and lifestyle such as obesity, smoking and drug taking from national sources like Health Survey for England or local surveys
- Socio-economic data e.g. number of children supported on benefit, free school meals

Clear structured answers should be provided which demonstrate an understanding of the potential inequalities in health within a geographic area, and the broader determinants of health, as well as focussing purely on the absolute indicators of mortality and morbidity. Applicants should demonstrate that they are aware of the diverse sources of information that may be of use in preparing such a profile.

COMMENTS

Less than half the candidates chose to answer this question. Most tackled it reasonably well, though only a few gave exceptional answers. Few candidates gave structured answers, setting out the sources of data for the chosen indicators and the reasons why it should be included. None chose to present their answer in a tabular format.

The question was clearly understood by all the candidates. However some felt it called for a preamble on the definition of health and wasted time.

QUESTION 6

a) The data show some but not a lot of variation between the regions. There is no easily discernible pattern in the variation. Comparing rates even if age standardised, is not straight forward and ideally we should consider the confidence intervals of the individual regions' rates. A good guess would be that most, if not all, regions would have overlapping intervals.

b) Candidates would be expected to have a clear understanding of the mechanics of age standardised rates. These are 65+ men and so the process would be:
   - Select suitable age bands, say 65-69 … 80-84 … 85+
   - Calculate the age specific death rates for each of the age bands
   - Apply these stratum specific rates to a standard population. This could be the population of England, or more conventionally a 'made-up' standard population such as the European standard population.

The calculated deaths in the standard population is then divided by the population size to give the standardised rate.

Limitations of approach: the exact figure arrived at depends to some extent on the standard population chosen. Hence it may be best to stick to an accepted standard such as the European standard reference population. If the true age distribution of any one region is markedly different from the standard then the results may be misleading. Standardised rates do not have intuitive meaning for lay people. Their main use is to allow a fair comparison across areas or over time intervals. (*cont. overpage*)

c) These are death rates and the basis for the data is the death certificate. Certification practices tend to vary a great deal and whether a death is ascribed to an accident depends on the extent of information provided in the certificate.

Many more accidents occur in the elderly than result in deaths ascribable to them. Hence death rates provide only a limited picture of the burden of morbidity due to accidents in the elderly. Other data sources include hospital in patient data sets, A&E department records, nursing home reports and special surveys.

COMMENTS

Most candidates chose to answer this question. A few omitted to state the obvious and did not summarise the data succinctly. Many candidates commented at length on the apparent variation in the numbers of deaths in each region and a few even pointed out the lack of a relationship between the number and the rate, suggesting reasons for why this might be so. Some candidates failed to give prominence to the need for confidence intervals before drawing conclusions about inter-regional differences. A few candidates suggested that SMRs would get around the problem of small numbers.

QUESTION 7

(a) The options are :

1. Chi square tests.
2. Calculations of confidence intervals around each proportion.
3. Calculation of confidence intervals for difference between proportions.

(b) There are several possibilities based on standardisation or modelling including:

- directly standardised rates
- indirectly standardised rates e.g. SMR
- Mantel Haenszel chi square
- logistic regression with the dependent variable as alive/dead and hospitals included as dummy independent variables
- Poisson regression based on the numbers of deaths
- survival analysis looking at time to death and Cox regression
- Bayesian methods

Additional points for a good answer

- cumulative sum method (CUSUM) is a graphical representation of cumulative observed events (deaths) versus cumulative number of cases. A change in the shape of the graph indicates changing outcome. Formal statistical tests are available. A refinement is the variable life adjusted display which includes both success and failures and adjusts for underlying risk.

- a variety of risk stratification models exist. Comparison of the performance of models can be undertaken using Receiver Operating Characteristic Curves.

- examples of risk stratification systems include PARSONNET and POSSUM in surgery and APACHE scores in intensive care.

COMMENTS

About 2/3 candidates attempted this question and about half answered satisfactorily. However, many candidates were limited in the number of methods used to compare outcomes they listed in their

answers. Nobody mentioned CUSUM techniques, or the use of risk adjustment scoring systems used widely in cardiac surgery, intensive care and a wide variety of specialties. Only one candidate mentioned Bayesian methods.

The limitations of the answers were somewhat surprising given the high profile attached to the Bristol inquiry in the previous year. It would seem that many candidates learn their statistics in a technical sense but perhaps do not have much hands on experience in analysing data sets or considering how hospital or clinical performance could be assessed.

QUESTION 8

(a) The reasons are :

- Correlation is a measure of association, not of agreement. It is obvious that two methods of measuring the same variable will be associated with one another.
- Correlation coefficients depend on the range of values of SBP in the sample.
- When values for the two methods are plotted against each other, correlation coefficients assess conformity of data points to *any* straight line, rather than the line of identity, thus they miss biases in the data (one method giving consistently higher values than another)

(b)

- The best method is as described by Bland and Altman, using the "limits of agreement" approach. This involves plotting the difference between values for the two methods against their mean.
- Calculating the mean difference, and the 95% limits of agreement. The limits of agreement are mean difference $\pm$ 1.96 x (SD of differences). These should then be plotted on the graph.
- Assessing the possible relationship between difference and mean.
- Possibility of bias could be assessed by calculating confidence interval for mean difference, and by a paired t test.

Additional points for a good answer:

- Limits of agreement provide information on agreement in the units of measurement (mmHg in this case), unlike the correlation coefficient.
- Intraclass correlation coefficients may be used and will be (appropriately) lower than the Pearson correlation if there is bias between the two methods.
- Possibility of bias could be assessed by paired t test (see above): beware a non-significant difference. It does not imply good agreement; large amounts of random error can mask a true bias.
- If differences (positive or negative) increase in magnitude with mean, log transformation (or other suitable transformation) of all SBP values may be required.
- Ideally we should need repeated measures for each method to determine how much difference between the methods is due to measurement error of each.

COMMENTS

Unfortunately this question was answered very poorly indeed. Only 3 of the 16 candidates choosing this question managed to attain a pass mark. It appears that the topic of assessing agreement between two methods of measurement has not been taught. This is not a satisfactory situation, since accurate measurement of key clinical variables such as blood pressure has major implications for public health.

A careful read of the paper by JM Bland and DG Altman, Lancet 1986; I: 307-10, "Statistical methods for assessing agreement between two methods of clinical measurement" contains all relevant information to answer the question. This paper, which is clearly written and very practical, is a citation classic and is referenced by several of the textbooks on the recommended reading list for this examination.

Bland and Altman list five reasons why the correlation coefficient is inappropriate; they do not even mention the distribution of the variables, since other reasons are more important. It would be astonishing if two methods designed to measure the same quantity were not well correlated. This does not mean the methods agree, and agreement (or lack of it) is best demonstrated by plotting the difference between the two methods against their mean. Bland and Altman describe the “limits of agreement” technique, which is NOT the same as a confidence interval for the mean difference.

PAPER IIB

QUESTION 1

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

- Brief definition of cardiac health; measures of cardiac health and their limitations; routine and non routine sources of information; difficulties in obtaining health status measures; limitations of easily available information (e.g. mortality)
- knowledge of range of treatment services available; primary and secondary care; tertiary services; rehabilitation; relative effectiveness and costs
- knowledge of the range of methods of prevention; primary prevention including the wider determinants of health and the role of the individual behaviour and society as a whole; role of non NHS organisations; secondary prevention services including risk factor assessment and management (e.g. hypertension, lipids, diabetes etc); effectiveness of these interventions and their relative costs; general understanding of resources consumed by preventive versus treatment services
- discussion of merits of transferring resources from treatment to preventive services; professional influences; patient expectation; political priorities; economic considerations; difficulties of wholesale transfer of resources; incremental movements towards more resources for prevention but maintaining the correct balance
- proper description of a defined population and practical points in relation to implementation depending on the population under discussion (e.g. country, district, neighbourhood etc); to include evaluation and audit

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

- Understanding of national priorities and context e.g. Our Healthier Nation
- Difficulties of overt rationing and resource problems within a cash limited system
- Limitations of research evidence in relation to preventive services

COMMENTS

Generally poor answers. Most candidates who attempted the question knew the basics about the prevention of Cardiac ill health, but very few demonstrated an understanding about how all the different elements fitted together. Quite a few just listed the elements of a preventive strategy and assumed they would all fit into place without any further work at a population level. A number of candidates failed to appreciate the difference in the practical realities of implementing primary versus secondary preventive policies.

Those who achieved better marks were able to describe a proper preventive strategy and describe the main elements of treatment and care, and then discuss the balance between them. Only one or two candidates demonstrated an understanding of the complexities and difficulties of achieving the sentiment expressed in the question.

Candidates who scored best were able to demonstrate a reasoned answer, rather than the facts on primary and secondary prevention.

Quite disappointing overall.

QUESTION 2

- Escaping the poverty trap
- Knowledge for pupils on the wider determinants of health, health related behaviour and skills, relationships, practical skills
- Developing community awareness, social justice
- Reducing truancy and school exclusion

Additional points

- Reference to studies on this subject
- Examples of evaluated projects from the literature and from practice.

COMMENTS

Candidates should have demonstrated some understanding of the health promotion approach. More referred to the behavioural, rather than the social determinants of health inequalities. The examiners wanted discussion on both.

QUESTION 3

Most or all of these points would be required for a pass:

1) Lay perspectives regarding immunisations and in particular views that immunisations cause harm.
2) Commitment to alternative medicine.
3) Ethnicity - lack of awareness of immunisations on offer, especially due to language barriers.
4) Lack of awareness of the potential for epidemics.
5) Indifference to disease prevention where the diseases are seen as a thing of the past.
6) Social class - educational differences and influence on positive health behaviours among parents, difficulties faced by single parents in taking children to the GP to be immunised.
7) Effects of media scares.

Steps to improve uptake: PCGS and Health Authorities to gain a better understanding of the local factors limiting uptake and targeting efforts to improve uptake accordingly, accessibility to publicity and educational materials which are easy to understand and in appropriate languages, seeking the support of community leaders and alternative medicine practitioners, integrated efforts by community staff (health visitors, practice nurses, etc) to support families with specific needs, working with the media, education at all ages including school children to influence healthy choices among the next generation of parents.

Additional points for an excellent answer:

Awareness of previous observations of a preponderance of rubella babies born to Asian mothers as evidence of the effects of language barriers in ethnic minority communities which are generally compliant with health advice if offered in languages familiar to them, religious barriers to immunisations in some communities and the need to seek the support of religious leaders, community mothers schemes aimed at improving mothers' self esteem and parenting skills which have observed improvements in immunisation rates.

COMMENTS

Please see Question 4.

QUESTION 4

Most or all of these would be required for a pass:

1) Social class, ethnicity, occupational determinants of lifestyle, especially with regard to diet, exercise, smoking and alcohol consumption, stress and leisure time.
2) The effects of subcultures and lay perspectives on individual behaviours.
3) Structural limits with regard to ability to pursue advice- e.g. availability of shops and cost of healthy foods, transport, leisure facilities, and the influence of these factors on socio-economically deprived communities and on older people. Also community safety - physical dangers and environmental hazards.
4) The concept of social capital - the extent to which individuals are able to participate in their community and the implications for healthy lifestyles and individual behaviours and mental health.
5) Situational constraints (e.g. Hunt and Mcleod's work which showed the importance of factors such as changing jobs/moving house - which were more significant than concerns about health in terms of motivating individuals).
6) Accumulating evidence of the importance of the social milieu as a fundamental determinant of health.

Additional points for an excellent answer:

Awareness of important research such as the study of Whitehall civil servants which revealed health differences throughout the socio-economic spectrum not explained by differences in health behaviours, The strength of the relation between levels of income inequality and population health which go beyond what can be explained as a result of an individual level relation between income and health.

COMMENTS TO QUESTIONS 3 & 4

Examiner 1

Only 9 out of 41 candidates attempted question 4, but it was well covered by most candidates who did. By contrast, answers to question 3 were disappointing and variable in their content. Some candidates seemed to forget that 'childhood' immunisations were more likely to be influenced by the attitudes of parents rather than those of the children. Others mentioned factors which apparently influence immunisation, but these were presented with no supporting evidence. We also noticed a general deterioration in handwriting, making some answers difficult to read.

Examiner 2

Overall, although fewer candidates attempted question 4, the standard was better. Many of the answers to question 3 concentrated on social class differences and there was a tendency to emphasise re-education at the expense of developing an understanding of lay perspectives and formulating community strategies. The better answers to question 3 highlighted the "prevention paradox" i.e. acknowledged the tension between prevention for the individual and for the population. The better answers also discussed perceptions of vulnerability to disease and the "natural history" of vaccines and their impact on disease prevalence. Most of the answers to question 4 contained thoughtful applications of the variant theories of health-related behaviour and cited relevant studies as examples of the impact of social factors.

QUESTION 5

The approach to this question will depend upon the health care system in place.

A pass answer will include definitions of the types of benefits and costs, indicate the health care system being referred to and give a comparative review of the three perspectives, emphasising the differences, but mentioning the similarities and constraints. Both direct and indirect costs will be included in the discussion.

A good answer will show wide appreciation of the difficulties in measuring costs and benefits of drug treatment, include some discussion of 'Moral Hazard' in reimbursed systems, or opportunity cost issues for the policy maker.

POINTS:-
Patient. Depends on health care system.
In reimbursed systems will be dominated by subjective preferences rather than direct and indirect financial costs.
In non-reimbursed situations may be dominated by drug cost.

Practitioner. Also depends on health care system.
If budgets are limited, or at least controlled, then choice of drugs will be driven more by the direct cost of the drug, than by the future indirect costs of treating complications, especially if they fall on other budgets.
If treatment options include effective drugs, which for example reduce clinic visits, then good practice suggests that this is also in the best interests of the patient.
Some systems positively encourage extra visits if there are perverse financial incentives.
In all systems if costs of complications and their treatment fall elsewhere, then they are likely to be ignored in decisions about individuals.

Policy maker - the level should be described.
Nationally the economic evaluation of treatment alternatives should look at all sectors which might be involved in costs and benefits of differing treatments.
This is one of the functions of NICE.
This will include the health care sector, but also economic effects (good and bad) elsewhere, perhaps on social work, employment, and economic efficiency in general.
Trade-offs will be much more evident to the policy-maker than to patients and practitioners.

Examples should be given:-
For example keeping GPs' drug use costs low, could easily have a negative effect if ineffective drugs, or cheaper drugs with a higher side effect profiles are used.

Secondary referral (for the effects of poorly controlled disease) might increase, but in many health care systems have limited effects on practitioners' budget and income.
likewise the costs of referral for treating complications if they are serious enough to require hospital interventions may well have no effect on practitioners' budgets.

COMMENTS

Good answers included discussion about the problems of measuring costs and benefits given the three perspectives, as well as the limitations of a purely economic approach.

Poor answers spent too much time listing economic terms and analyses, or concentrated on rationing issues, or current specific drug 'stories', without showing a good grasp of the economic issues given the different perspectives.

QUESTION 6

Methods include:

Implied values approach:

- based on existing health care decision making procedures and values
- but implied values based on existing programmes, vary markedly

Human capital approach:

- based on labour costs of employment discounted & adjusted
- omits non-work values
- potential for bias towards working men

Consumer demand/willingness to pay:

- addresses consumer sovereignty
- are consumer values appropriate in health care

Essay needs to at least address the above points and for each scenario consider:

- problems of whose costs & benefits to include
- whose values to use

COMMENTS

Candidates failed to read the question. They discussed types of economic appraisal rather than addressing the valuation of outputs. In the compare and contrast section, few candidates were able to illustrate the advantages and problems of even the techniques they described, when practically applied to the two health programme scenarios.

QUESTION 7

Seasonal increase in demand in the UK is usually synonymous with increase in demand for emergency medical admission in winter. It can also represent inflated demand at other times, such as from episodic holiday and tourist and conference trade, which can also create demand for trauma care and acute surgical care.

The practitioner should:

1) anticipate the nature and volume of demand in the particular circumstances;
2) know the strategies which have been used successfully to cope;
3) ensure that primary care purchasing groups and hospital medical directors have access to all the relevant information about these strategies;
4) ensure that an appropriately constituted team (including the PHP) adopts a strategy for the particular circumstances;
5) arrange for the structures put in place, the ensuing processes and outcomes to be systematically documented;
6) subsequently review the effectiveness and costs of the exercise.

The ***pass*** answer, as well as offering a general framework similar to the above, will give examples of contingency actions to be adopted, such as, postponing elective admissions, commandeering beds from other specialties, increasing frequency of decision-making ward rounds, introducing/increasing nursing flying squad/hospital at home services, appeals to public to self-medicate where possible, and anticipatory actions such as immunising the old and vulnerable against influenza.

An ***excellent*** answer will quote accurately the published evaluation studies supporting the measures to be applied.

COMMENTS

Generally this question was answered well. Unfortunately, a few candidates failed to answer the specific question and produced responses which were overly generic, saying little or nothing about seasonal increases in demand. Such answers were penalised.

QUESTION 8

Advantages

- Deals with health care problems
  - geographically close to home
  - with appropriate (initial) levels of investigative sophistication
  - in the most economical way possible

- It allows one individual (the GP)
  - to have oversight of all of the patients medication and conditions thus facilitating continuity of care
  - it allows the family and social background to more fully be taken into account
  - it allows co-ordination of inputs from all those in the multidisciplinary primary care team
  - the GP may have more of a population perspective than hospital based specialist and be better able to prioritise healthcare spend through referral decisions.

Disadvantages

- GP's are of necessity generalists - they may not have the specialist knowledge to deal with or appropriately refer every case.

- having to go via the GP
  - can cause diagnostic and therapeutic delay
  - can limit choice for the patient
  - may be just a nicety as referral onward is more or less guaranteed in some circumstances e.g. breast lump.

- GP's are still focussed on individual patients when compared e.g. to a Public Health Physician and may thus find prioritising access to care difficult.

COMMENTS

One or two candidates chose to interpret this question as an invitation to write about recent developments in general practice. Such answers were penalised. The best answers were thoughtful and balanced, addressing both the advantages and disadvantages of primary care practitioners fulfilling the "gatekeeper to health care" role.

PAPER III - UK
SECTION A

QUESTION 1

a) Critical Appraisal

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

Objective

To evaluate the effect of Baby Check on parents use of health services for their baby.

Methods

Randomised control trial in 13 practices in Glasgow. 997 newly delivered mothers received either a "Play it Safe" leaflet (control group) or this and "Baby Check" (intervention group) on a random basis - but the role of practice stratification was not clear. The professionals were blinded to the allocation.

GP notes were reviewed after 6 months post birth and information on health services including the reason for and outcome of consultations noted. Mothers were also asked by questionnaire about their use of "Baby Check" to look for cross contamination. Socio-demographic data was obtained for the mother and the baby. Ethical approval was also obtained.

Results

1010 deliveries
1004 eligible
7 excluded leaving 997 to be randomised
935 had their case notes retrieved.

Maternal and baby characteristics were very similar for the intervention and control groups. No difference in health service use were noted between the two groups - except that the intervention group received more antibiotics. At 6 months, 5% of the control group had seen Baby Check from another source.

Bias

The response rate to the questionnaire was not quoted, so the extent of cross contamination between intervention and control groups can not be ascertained.

Generalisability

It is not clear how typical of the population this sample was, even though it had wide socio-demographic characteristics. It would have been helpful to compare the various data with national data where known, for example antibiotic prescribing appears high in general. It is possible that this style of general practice could undermine the potential for the impact of Baby Check on health service use.

Discussion

Results of the questionnaire not presented.
The acceptability of Baby Check had been established elsewhere, but we don't know how much it was actually used in this study. In practice, the intervention here was simply posting it - would a more active approach to its use have lead to greater use and to differences in health services utilisation between the two groups?

The absence of effects in this study doesn't prove it has not effect - and perhaps the wrong outcome is being looked at. Perceived helpfulness would be another perfectly valid outcome. Crucially, because of the low numbers, we don't know the effect of Baby Check on health service utilisation for more serious illnesses.

The apparently high antibiotic prescribing rate itself is a cause for concern and suggests that investigating the impact of Baby Check on the quality of consultations might be worthwhile.

b) Main Points for Radio Interview

Most of the following would be required for a pass:

- Minor illness is common in babies. Most settles by itself and doesn't need medical intervention. Baby Check is a user friendly booklet which helps parents work out how ill their babies are; and when to contact a GP or health visitor.

- Previous studies have shown that parents like Baby Check and find it useful. This study looked at whether it altered how parents used their GPs - but it didn't seem to make much difference. However, we would still support its use because it has been well received by parents.

- We don't yet know how exactly to use Baby Check. For example, should GPs or health visitors give it out and in doing this explain to new parents how to use it? We will be discussing with local professionals whether and how we should be distributing it. There clearly is a case for more widespread distribution, but we wouldn't wish to do this before we had had a fuller discussion with the relevant professionals.

- One of the worrying findings in the study was what appeared to be a fairly high rate of antibiotic prescribing. It is not clear why this is the case and we clearly need to do further work on this.

COMMENTS

In general this paper was well done. Issues that most candidates failed to pick up were:

- Few discussed the validity of the questionnaire results. We know that only 26 were returned - but the response rate is not documented.
- It's not clear what the actual stratification done in the study was. Some candidates assumed that it meant equal numbers of babies were allocated to the Control and Intervention Group within each practice - but this may not be the case.
- Not all candidates identified the generalisability issue. That is, how comparable are these practices to practices elsewhere? However, of those who did, most commented on the fact that 11 out of 13 practices were training practices which would make them atypical.
- Some candidates didn't understand why the Action on Accidents leaflets were sent to the controls. Indeed, some said that sending it to the controls and the intervention group altered the results.
- Nearly everybody picked up the fact that the data was non-parametric.
- In general, there was tendency to describe the paper rather than criticise it. It would be much more appropriate to simply say that the methods were appropriate because … rather than to just repeat what the methods were.
- In the radio interview there was quite a lot of confusion as to the relationship between the evidence the paper produced and whether or not Baby Check should be distributed to parents. The point is that the evidence in the paper was very uni-dimensional. It simply failed to show any difference in consulting rates and other aspects of health service utilisation. However, other data demonstrate

that it's liked and acceptable - and it's also important to recognise that we believe empowering people with information is a good thing. Simply saying that the evidence shows it doesn't lead to changes in health services utilisation and therefore it's ineffective and therefore it shouldn't be used is far too narrow.

- The other general point about the interview is that it is an opportunity for a range of health education/health promoting messages - but it's always important to present this in a reassuring context.

QUESTION 2

a) Critical Appraisal

Objective To assess the effects of rivastigmine on the core domains of Alzheimer's disease

Method Prospective, randomised, multicentre, double blind, placebo controlled, parallel group trial in 45 centres in Europe and North America – an appropriate design. Patients received either placebo, 1-4 mg/day (lower dose) rivastigmine, or 6-12 mg/day (higher dose) rivastigmine. Doses were increased in one of two fixed dose ranges (1-4 mg/day or 6-12 mg/day) over the first 12 weeks with a subsequent assessment period of 14 weeks. 725 patients with mild to moderately severe probable Alzheimer's disease diagnosed according to the Diagnostic and Statistical Manual of Mental Disorders, fourth edition, and the criteria of the National Institute of Neurological and Communicative Disorders and Stroke and the Alzheimer's Disease and Related Disorders Association. Outcome measures: Cognitive subscale of the Alzheimer's disease assessment scale, Clinician Interview Based Impression of Change incorporating caregiver information scale (CIBIC), and the Progressive Deterioration Scale (PDS).

Results At the end of the study cognitive function had deteriorated among those in the placebo group. Scores on the Alzheimer's disease assessment scale improved in patients in the higher dose group when compared with patients taking placebo ($P<0.05$): significantly more patients in the higher dose group had improved by 4 points or more than had improved in the placebo group (24% (57/242) v 16% (39/238)). Global function as rated by CIBIC had significantly improved among those in the higher dose group compared with those taking placebo ($P<0.001$), and significantly more patients in the higher dose group showed improvement than did in the placebo group (37% (80/219) v 20% (46/230)). Mean scores on the PDS improved from baseline in patients in the higher dose group but fell in the placebo group. 23% (55/242) of those in the higher dose group, 7% (18/242) of those in the lower dose group, and 7% (16/239) of those in the placebo group discontinued treatment because of adverse events.

Authors' conclusions Rivastigmine is well tolerated and effective. It improves cognition, participation in activities of daily living, and global evaluation ratings in patients with mild to moderately severe Alzheimer's disease. This is the first treatment to show compelling evidence of efficacy in a predominantly European population.

Bias & Confounding There is no consensus on how to assess quality of life in dementia. The Progressive Deterioration Scale (PDS) used to rate functionality was developed as a quality of life assessment, rather than a measure of activities of daily living, and it cannot be concluded, therefore, that improved PDS equates to improved functionality. The very moderate improvement in PDS seen with rivastigmine (2.8 on a 100-point scale) is misrepresented in the discussion by citing that one third of patients taking higher-dose rivastigmine attained at least a 10% improvement on PDS1 without noting that 20% of placebo patients also improved to this extent. So, just 13% (33% vs 20%) benefit which is reduced to 10% (29% vs 19%) on more appropriate intention-to- treat analysis. The intention-to-treat analyses are potentially biased because of non-random drop-outs: 77 (32%) of 243 higher dose rivastigmine patients did not have a 26-week assessment compared to just 31 (13%) of the 239 placebo patients. AD is a deteriorating disease and so replacing missing data by carrying forward

values obtained earlier in the trial will underestimate natural deterioration. No improvements in PDS were seen in the lower-dose rivastigmine group where the drop-out rate was the same as for placebo.

Chance Rösler et al. used parametric methods irrespective of type of data as measured by the three core instruments applied in the study. This is appropriate for the cognitive subscale of the Alzheimer's Disease Assessment Scale. However, CIBIC must be interpreted as a qualitative (ordinal) variable, and it is statistically incorrect to compare means or mean changes of CIBIC-scores. The same applies to the PDS which yields a compound score derived from visual analogue scaling of 29 items concerning participation in activities of daily living. Appropriate analysis of the scores of the CIBIC and PDS should have been done using non-parametric methods.

Omissions No attempt made at an assessment of cost-effectiveness of rivastigimine. No calculation of numbers needed to treat has been made. Length of follow up limited to 14 weeks.

Generalisability The trial was conducted in Austria, France, Germany, Switzerland and north America, in a predominantly white European population. its generalisability to other populations is not established, therefore.

b) Draft letter

The letter should be courteous and reflect that the vast majority of clinicians have as a first interest the interests of their patients.

Despite the shortcomings of the trial outlined above the results can probably be taken to be correct, although the efficacy of treatment and the duration of the effect are open to question: no assessment of numbers needed to treat has been made, and the length of follow up is very limited.

The subject matter of the letter should focus on the cost-effectiveness of the drug (not assessed in the paper).

Although this is neither an epidemiological study nor an attempt at needs assessment, the authors have nowhere estimated a likely requirement for this treatment based upon disease prevalence.

Given the potentially large numbers of elderly people in our future society, the limited benefits of this form of treatment must be balanced against the financial constraints imposed by a limited drug budget.

Better candidates might discuss the concepts of allocative efficiency and opportunity cost.

COMMENTS

Although most candidates passed this paper, it was a difficult one. Specific points were:

- Most candidates missed the glaring conflict of interest. A number of the authors appeared to be employees of the company which manufactures the drug.
- Cost is a critical issue. Most candidates didn't mention it. It's not just that cost is always important - but anybody who has followed the debate about drug treatments for Alzheimer's would know that money is at the heart of it.
- The paper dealt with issues about "Intention to Treat" very poorly. Candidates should have said that an Intention to Treat analysis should have been used and tried to interpret the rather confusing data in relation to this. Many candidates failed to pick this up. Related to this, the paper was extremely unclear about what the other two "non-Intention to Treat" analyses were. Only one candidate said he/she didn't understand what the paper was getting at.
- The graphs in the paper had very false origins and nobody picked this up.
- A number of candidates distinguished between statistical significance and clinical significance. In a paper of this sort, it's very unlikely that the candidates would actually know much about this

specific measurement scale. In these circumstances, it would always be reasonable to explore the possibility that data that demonstrated a statistically significant difference did not actually show clinically significant differences.

- Although a commentary on the article was supplied as part of the exam, it appeared that a number of candidates didn't actually use the information presented in it.
- Generalisability is an important issue in the paper. Most of the study population would have been white and severe cases of Alzheimer's disease were excluded. Few candidates picked up both of these points.
- There seemed to be a bit of an assumption that because randomised control trials are the gold standard - then conclusions drawn by such trials are OK. Clearly, RCTs are a mixed bag - and in this case the analyses had a lot of flaws even though large elements of the basic design of the study were OK.
- As regards the letter, some candidates didn't write it as a letter and most candidates were over critical. The director would be writing to clinicians who would be colleagues. However poor their arguments, maintaining relationships is important and demonstrating the wider context in which clinicians have to approach the subject would help. For example, demonstrating an understanding of the scale of Alzheimer's disease, the difficulties it creates for clinicians, patients and carers and everyone's desire to see improvements.

SECTION B

QUESTION 3

Key issues

UK teenage birth rates are the highest in Western Europe.

The percentage of those under 16 having sex for the first time has increased since the 1960s and over 25% of males and almost 20% of females have sex before the age of 16 and only half use contraception the first time.

Associated factors for higher teenage pregnancy rates include poverty; school exclusion

Some acknowledgement that young people may not see it as a problem.

Is it a true problem or just our social expectation? It is a problem as there are higher IMR and lower birth weights in young teenage mothers. Also a higher chance of those offspring becoming teenage mothers. Links with sexually transmitted disease. Poverty trap.

Causes of UK high rate? Thought to be linked with low expectation of education and jobs, ignorance and mixed messages and myth – i.e. Sex is OK but cannot go to Dr for contraception under 16.

Prevention

- National strategies – Govt and media – to increase understanding and change behaviour.

"Joined up" action – locally involving health education social services and the voluntary sector.

- Better prevention – Education – in and out of school – national curriculum.

Access to contraception - understanding of the disquiet some parts of society feel about this. Sat. morning clinics, clinics in schools and near schools open during the school lunch period.

- Ensuring young men/teenage boys are targeted too
- Improving self-esteem – enable to say no
- Increased support for those who are pregnant – i.e. education afterwards.

Information for annual report

Comparison of local rates with national:

Termination of Pregnancy - <16 and 16-19

Maternities <16 and 16-19

New diagnoses at sexually transmitted disease clinics 16-19 -Gonorrhoea, Chlamydia, genital herpes etc

Trends of above.

Benefits of getting info at a sub district level i.e. with PCG groups. Understanding of the potential problems in achieving this i.e. could use hospital activity data (postcodes allocating to PCG) for TOP but this would exclude private TOP figures
Local school exclusion rates and children in care rates
Information on availability and use of local contraception services aimed at teenagers

Additional points expected in a good answer
Knowledge of the Report by the Social Exclusion Unit on Teenage pregnancy
Awareness of ethnic differences within UK
Trends show live birth rates decreasing in UK and other countries during mid 70s. The decrease continued in most W. European countries but stopped in UK.
Current rates worst in poorer areas of UK, but prosperous areas in UK worse than the average in most West. European countries.
Teenage parenthood a cause and consequence of social exclusion

COMMENTS

This was a popular question and generally answered quite well. Some candidates had obviously read the recent report by the Social Exclusion Unit although few discussed risk factors or tried to explain why the UK had high teenage birth rates.

Whilst most candidates produced a well structured answer outlining the three areas stated, some answers were unstructured and missed out one of the three areas altogether.

QUESTION 4

(In key points refer to the groups based on primary care as PCGs)

a) Candidates should include:
- A structured paper identifying the purpose of the profile and what is to be included (i.e. data comparing PCGs with other PCGs and the HA may also include data comparisons within PCGs).
- What data is available – what is easily available (i.e. PHCDS has LA data) and what raw data can be used – particularly when PCGs are not coterminous with LAs.
- The need to make methods are explicit so that the limitations of the presented data is recognised
- An appreciation of the difficulties when comparing data.
- How to "sell" end product. Will they be different for each PCG?
- Who within the HA/Trusts/primary care will be able to provide data
- A process for liaison/consultation with others – to find out what other information is available (i.e. TEC, LAs) and to consult on what is useful to PCGs.

Good answers will include:
- An appreciation of the political sensitivity around public data comparison, particularly if financial mapping is included
- The complications of PCGs- practice populations do not adhere to the ward base of much of the available data
- Acknowledgement that even LA coterminous PCGs will have patients outside the borders and that PCGs cross HA boundaries

b) Contents suggestions:

There will be other data that could be included and it is not expected that candidates would include all the suggestions below. It is expected that they include some suggestions from at least 5 of the 7 headings.

1. Demographic Data	**Possible Source**
Practice based population by Primary Care Group (age/sex) (PCG)	- HA data
Census and ward based population by PCG	- census
Comparison of populations from different sources	
Population pyramids by PCG	
Birth rates by Local Authority District (LAD)	- census/HA data
Conception rates below age 16 by LAD	) PHCDS
2. Socio-economic Data	
Deprivation scores by ward and PCG	- census
Income support index by ward and PCG	
Percentage of adults in receipt of benefits	
Health related issues from LAD housing strategies	- housing
3. Mortality Data	)
Infant mortality rate by LAD	)
Most common causes of death by PCG	) PHCD/Death Register
Mortality rates for ICD9 cause groups by PCG	)
All cause Standardised Mortality Ratios (SMRs) by PCG	
All cause mortality rates by LAD	)
Specific cause SMRs by LAD	) PHCDS
SMR trends by LAD	)
4. Morbidity Data	
Standardised long term limiting illness rates by PCG	- census data
Standardised registration ratios for selected cancers by PCG	- cancer registry
Age standardised asthma incidence by PCG	- Practice annual reports/asthma register
Age standardised hospital episodes for mental illness by LAD	- PHCDS
5. Health Service Usage – Primary Care	
Consultation rates by PCG	)
Medical and nursing staff rates by PCG	)
Average GP practice lists by PCG	)
GMS cash limited expenditure by PCG	) HA data
Vaccination and cervical cytology uptake rates by PCG	)
Breast cancer screening programme	)
Prescribing	)
6. Health Service Usage – Secondary Care	
Emergency and elective episode rates by PCG	)
In patient and day case episodes rates by specialty for PCGs	)
Day cases as % of total elective cases by specialty for PCGs	)
In patient and day case waiting list rates by PCG	)
Out patient first visit rates by specialty for PCGs	)
Out patient first visit and subsequent visit rates by PCG	)
Out patient subsequent visits per first visit by specialty group for PCGs	)) HA data
Top 20 HRGs by provider for PCGs	)
IP and OP episodes by provider and PCG	)
Health service spend for acute, mental health, and community services	))))
7 Resource mapping	
HCHS by PCG – total	)
Acute services	)HA data

Community services)
Mental Health Services)
GMS by PCG)
Primary care prescribing costs by PCG)

COMMENTS

Few candidates answered this question, but those who did produced a good response. To score well, issues relating to primary care group/local authority coterminosity needed to be examined, together with how the profiles would be used, and ownership. All candidates included population, mortality and morbidity data. Some candidates showed a wide knowledge of available data and an understanding of the problems associated with using data from different sources.

PAPER III - HK
SECTION A

QUESTION 1

Please note that the BMJ published the following corrections and clarifications in a later edition, which were appended to the examination copy of the article.

This general practice paper by Denise Kendrick and colleagues (10 April, pp 980-3) contains three errors. The calculation of sample size was based on "a mean cluster size of 60 [not 60%]" (first sentence, p981); in table 3 (p982) the number of children who received advice at the 18-24 month check should have been 535 rather than 35; and in table 4 (p982) the number of children in the control group who had any medically attended injury should have been 330 rather than 220.

a) Critical Appraisal

- Study design of RCCT suitable for purpose
- Use of GP practice as sampling units and study base acceptable
- Intervention quite general; e.g. no surveillance of home safety was made
- Primary outcome measures clear and objective
- Secondary outcome measures more likely to be biased
- Study underpowered, which makes proper interpretation of borderline values very difficult
- Study not blinded to assessors
- Lumping of all injuries may be crude, intervention may be more useful in preventing some injuries than others
- Study results have limited applicability to Hong Kong

b) Paper for Workgroup

- Description of infrastructure for child care in Hong Kong required
- Implementation through Maternal and Child Health Services may be feasible but may be limited by number of contact visits
- GP system does not exist in Hong Kong to deliver preventive programme
- High risk groups e.g. new immigrants may not be reached
- Due to high population density, community-based programmes in estates may be feasible

COMMENTS

No Examiner comments.

QUESTION 2

Same as UK Paper III, Question 2 (please see key points/comments for this section).

SECTION B

QUESTION 3

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

For (a):

1. Find out what has been done or in progress in Hong Kong (from Hong Kong Council on Smoking and Health, the Education Department and others), and the experience and results.
2. Review the literature on school programmes.
3. Find out the views and commitment of the chairman and the district board, including resources and time schedule.
4. Find out what other persons and organisations have been/will be invited to participate, and their roles and commitment.

For (b):

1. The action plan should have well defined objectives and expected outcomes in terms of knowledge, attitude and behaviour, and a time schedule.
2. Evaluation should be specifically discussed in terms of processes and outcomes.
3. The specific contents of the programmes would depend on the resources available and other constraints.
4. The design of the programmes should be based on evidence; other successful programmes should be consulted.
5. The involvement of others in the planning and implementation e.g. the schools, the Hong Kong Council on Smoking and Health, the Department of Health, the Education Department, members of the district board, representatives of parents.

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

1. An understanding of the limitation of school programmes and importance of a comprehensive tobacco control policy which include, e.g. banning of tobacco advertisements, banning of smoking in public places, the school policy on smoking, parental smoking, change in smoking in the home.
2. A critical appraisal of the effectiveness of school programmes in the literature.
3. Have action plans or options which can cater for the different constraints, for example, in the district board and the schools.
4. To consult other organisations and experts outside Hong Kong.

COMMENTS

Three (out of six) candidates answered this question. Most covered the key points satisfactorily. The major weakness is in the critical appraisal of the literature on the limited evidence on the effectiveness of school health education programmes, particularly the lack of evidence on long term outcome in reduction of uptake of smoking in children and students. The answers should also take into account the usual constraints of limited resources, the tightly packed curriculum, etc. and should emphasise on systematic evaluation.

QUESTION 4

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

For (a):

1. To find out what should be the format of the forum, who will be the other speakers, the expected audience, the length of the presentation.

2. To collect the relevant and updated information of the two cases.

3. To consult or organise a meeting with those involved (e.g. the virologists, the clinicians) to review the situation and the position, and to consult external experts (such as World Health Organisation).

4. To prepare a list of possible questions which may be raised and to prepare the answers.

For (b):

1. Information on the two cases reported.

2. Further investigations and surveillance actions taken.

3. What is known, and what needs to be further investigated.

4. Recommendations of an expert working group.

5. Future plan of action of the government.

6. What the general public can do.

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

1. An understanding of the two cases and the principles in how the problem of new diseases like this should be handled.

2. An explanation to answer criticisms that the government was slow in releasing the information to the public.

Influenza vaccination – use and limitations.

COMMENTS

Three (out of six) candidates answered this question. The candidates demonstrated good understanding of the local situation of influenza. Some gave a good background of the concerns in the public and the mass media. None actually prepared a list of possible questions which would be raised by the concerned media and the answers to such questions. There was also no critical analysis of the action taken.