Faculty of Public Health

of the Royal Colleges of Physicians of the United Kingdom

Working to improve the public's health

Questions, Key Points and Comments

FEEDBACK to Candidates

June 2016 Part A Examination

This set of key points refers candidates to the marking descriptors used by examiners to assess and score answers. Feedback has been received that key points are of variable length and so the word count of key points has been provided – the majority for Papers I and II range from 300-500. Paper IIA question 1 word count is also provided to illustrate an answer can be provided in less than 600 words.

Please note these are key points and not model answers. Comments from the Chair of Examiners are included, indicating general points to support candidates preparing for each section for future sittings. They are intended to be helpful rather than prescriptive.

Please note that comments from feedback on the current sitting may also be included in the chairs comments.

Sections of the syllabus being tested are included and indicate the **main** part of the syllabus being tested. Because questions in Paper IIB are from a limited pool of questions syllabus mapping is not provided. However all questions contain material included within the syllabus.

Candidates are encouraged to review the Frequently Asked Questions (FAQ) (section 12 on - preparing for the Part A examination) and also the Part A syllabus. Both are on FPH website:

http://www.fph.org.uk/frequently_asked_questions_about_the_part_a_exam

http://www.fph.org.uk/uploads/Sept%202013%20Part%20A%20Syllabus.pdf

Descriptors for Paper I (from www.fph.org.uk/part_a_examiners)

Dimension	Criteria	Suggested mark allocation
Knowledge base	All or most key points mentioned	+6 to +8
	50% key points mentioned	+4 to +5
	Fewer than 50% key points mentioned	+2 to +3
	None or almost no key points	0 to +1
(Errors of fact)	(Errors of fact, interpretation or significant amounts of irrelevant material).	(-1 to -2)
		Max 8
Structure	Outstanding structure with well organised material.	+1
	Good structure	0
	Poor or absent structure, with little coherence of information.	(-1)
		Max. 1
Application	Excellent use of material or evidence to answer specific question asked and demonstrate excellent critical understanding of the topic.	+1
	Good use of material or evidence to demonstrate a clear understanding of the topic.	0
	Candidate does not answer the question posed. Evidence is poorly focused and demonstrates inadequate understanding of the topic.	(-1)
		Max. 1
Total mark attainable		**10**

Paper IIA Marking Descriptors		
Mark	**Category**	**Descriptors**
41-50	Excellent pass	• All of the essential key points mentioned **and** • Most or all of the additional key points mentioned **and** • Very well- to excellently constructed answer
31-40	Good pass	• Most of the essential key points mentioned **and** • Some of the additional key points mentioned **and** • Well- to very well-constructed answer
26-30	Clear pass	• Clear majority of the essential key points mentioned **and** • Averagely- to well-constructed answer
25	Borderline pass	• Half of the essential key points mentioned
24	Borderline fail	• Almost half of the essential key points mentioned
21-23	Clear fail	• Clear minority of the essential key points mentioned
0-20	Bad fail	• Small minority, almost none or none of the essential key points mentioned **or** • Answer illegible **or** • No answer submitted

Summary statistics for the sitting are included on the FPH website

Section A

Research Methods

Question 1

Cluster randomised trials are increasingly popular in the evaluation of certain types of health and social care interventions.

a) Describe **two** reasons why the use of a clustered design for a randomised trial may be appropriate. Provide an example relevant to public health for each.

(40% of marks)

b) Identify **two** disadvantages of cluster randomised trials and explain why these are two disadvantages.

(20% of marks)

c) Describe the statistical issues specific to estimating the sample size for a cluster randomised controlled trial

(40% of marks)

Key points

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

a) Two circumstances where the use of cluster RCTs is appropriate

- Some interventions are implemented at the level of an area or organisation e.g. health promotion message delivered through the media, or to groups, e.g. group counselling.
- Individuals will all receive the same intervention ipse facto.
- Clusters are used if an intervention is randomised and delivered to individuals but would lead to 'contamination' of the groups. For example, a health promotion message to school children may lead to discussion of the intervention between children randomised to different groups (e.g. if in the same class) thus the group randomised to not receive the intervention receive it inadvertently.
- Some interventions require structural change in the delivery of care such that it is not possible to randomise individuals to receive different types of care. For example, a change to the programme for antenatal scans so that women receive more scans. This would require a wholesale change to how scans are provided and might require changes at a hospital level.

b) Disadvantages

- Requires additional necessary skills in design, implementation and analysis
- May be more complex to assess generalisability, for example are the results applicable to clusters/persons or both
- Require a larger sample size

- As a consequence of the larger sample size they are likely to be more expensive than a trial which is individually randomised.

c) Statistical issues specific to estimating sample size for a cluster RCT

- The ordinary sample size calculation, which involves estimating the difference between the intervention and the control group, may be carried out but it needs to be inflated appropriately, allowing for the interdependence of outcome data between individuals within a cluster.
- The necessary inflation of the sample size involves quantifying the homogeneity of response between individuals within a cluster.
- The usual statistic required to quantify the homogeneity of the response is the "intra class correlation coefficient" (ICC).
- As a rule of thumb cluster randomised controlled trials often require a sample size which is 30% larger than a standard RCT.

Additional points that might improve the answer from 'good' to 'excellent'

- Good example of a cluster randomised trial, with justification for the cluster design
- The Design Effect = $1 + (m-1) \times \rho$, where ρ is the ICC and m is the average number of individuals within a cluster. This should be multiplied by the number required for an individual based trial, where the same benefit of the new intervention is assumed.

Syllabus sections being examined:
1.a. Epidemiology: design, application of intervention studies (including randomised controlled trials); clustered data – effects on sample size

EXAMINERS' COMMENTS

The question was answered reasonably well with most candidates understanding the reasons to undertake cluster randomised trials and disadvantages of this. The statistical elements were answered less well.

The majority of candidates were able to identify two reasons for using a clustered randomised design and relevant examples. Most candidates were also aware that clustered designs require increased sample sizes.

Statistical issues specific to clustered designs were less well answered. In particular, very few candidates demonstrated knowledge of the design effect. Many candidates seemed to think that clustered trials were based on analysis of aggregated cluster level data rather than from individuals randomly allocated to different arms at a cluster level.

Section A
Research Methods

Question 2

Recent data shows variation in attendance at the local emergency department of patients with diabetic ketoacidosis registered at different general practices in your area.

a) Give four possible causes for this variation and explain how each might arise.

(40% of marks)

b) What are the key features of a clinical audit of the management of diabetic ketoacidosis in the community, for example, in general practice.

(60% of marks)

Key points

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

a) Causes of variation
Four of the following would be required:

- Random variation – due to small numbers

  The following may vary by practice
- Prevalence of diabetes in the population - varies from practice to practice depending upon the proportion of high risk patients registered
- Proportion of diagnosed and undiagnosed disease
- Patient factors (e.g. ability to self-care) – may vary from practice to practice depending upon the characteristics of the population registered, e.g. differences in the proportion of older patients with diabetes.
- Availability, proximity and acceptability of alternative A&E service provision
- In and out of hours community diabetes support- may vary from practice to practice
- Quality of primary and community care
- Patient preference

b) **Key features of a clinical audit of the management of diabetic ketoacidosis**
Scope

- Agree pre-determined standards (NICE, clinical guidelines, locally agreed criteria)
- Sample population (sampling method, time period)

Measure performance

- Agree data sources and retrieval methods (identify patients e.g. registers, routine data from practice systems, specially collected e.g. patient satisfaction)
- Compare performance against standards

Findings

- Disseminate to key stakeholders/decision makers (e.g. Primary Care Staff, CCGs, Hospital Staff, Patient Groups)

Implement recommendations

- Change management approach to improve services

Measure improvement

- Re-audit

Additional points that might improve the answer from 'good' to 'excellent'

- Specific example in relation to the audit cycle for diabetes management and primary care
- Involve staff in all stages of audit process.
- Patients need to be involved.

Syllabus sections being examined:
1.a. Epidemiology: sources of variation, its measurement and control
1.c. Approaches to the assessment of health care needs, utilisation and outcomes, and the evaluation of health and health care: principles of evaluation, clinical audit

EXAMINERS' COMMENTS

Overall the question was well answered with most candidates demonstrating a knowledge of potential sources of variation between practice populations and the key features of clinical audit.

Most candidates had a framework for the key features of an audit.

Few candidates referred to change management approaches when discussing implementation of audit findings. Some candidates also mentioned possible causes of variation without linking this to the context of the question. For example, "chance" would only gain credit if it was linked to the potential of some practices having small numbers of admissions.

CHAIR'S COMMENTS

This proved to be a very high scoring question with most candidates providing high quality answers, and some scoring extremely highly on it.

Section B

Disease causation and the diagnostic process in relation to public health; prevention and health promotion

Question 3

You have been asked to develop a plan to increase uptake of influenza immunisation for a local population. For a named country of your choice:

a. Briefly describe the epidemiology of seasonal influenza.

(30% of marks)

b. Discuss how you would organise an effective local influenza immunisation programme to ensure high uptake in all relevant groups.

(70% of marks)

Key points

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

a. **Brief summary of the epidemiology of seasonal influenza**

Influenza is a highly infectious respiratory disease caused by influenza A or B viruses. The disease has a high attack rate in unimmunised persons and is transmitted person-to-person from respiratory secretions via droplets, aerosols, or direct and indirect contact. Infections may be sporadic or form part of wider outbreaks; in temperate countries, infections and outbreaks are more common in winter while in tropical countries, infections and outbreaks occur year round. More severe epidemics may be associated with antigenic drift, while antigenic shift may result in influenza A pandemics.

All age groups may be affected, but more serious respiratory complications (up to 10%) and deaths (3000-30,000 excess winter deaths in the UK) are associated with influenza in children (especially <2 years), older adults, people with chronic medical conditions or immunosuppression.

b. **Organising an effective local influenza immunisation programme.**

Identify the different potential target groups (elderly, those with chronic health conditions, children [as 'super-spreaders'], pregnant women, certain occupations such as health/social care staff).

Information/education targeted to specific target groups to increase awareness (including media, printed materials, training of health/social care staff).

Identify registers of individuals within the target group – primary care/population registers, disease registries, school roll, occupational records.

Identify, set up and/or review appropriate systems for call/recall and uptake monitoring.

Identify, set up and/or review appropriate and accessible routes for access to immunisation services, including primary care, district nursing, midwifery, school/children's services, occupational services, etc.

Engage immunisation service providers through normal service planning and delivery mechanisms or set up a stakeholder group

Develop and implement an action plan with SMART objectives. Monitor and evaluate implementation of the plan.

Additional points that might improve the answer from "good" to "excellent"

Identify all relevant target groups and clearly identify similarities/differences in the organisation of effective programmes to target those groups.

Recognise the role and importance of patient choice.

Syllabus sections being examined:
2.b. Epidemiology of specific diseases (and their risk factors) of public health significance: Knowledge of the defining clinical features, distribution, causes, behavioural features and determinants of diseases which currently make a significant impact on the health of local populations.

EXAMINERS' COMMENTS

In general, this question was answered well, with many candidates taking a structured approach to their response. Almost all candidates easily met the minimum standard set out in the agreed key points.

Candidates who scored particularly well showed clear evidence of applying a generic approach to the specifics of the question, considered different strategies for different targeted populations, adopted a multilevel approach, and considered issues relating to implementation and monitoring. Many people used the Health Belief Model and/or a Donabedian approach to structure their answer, and well-structured answers tended to score better. In most cases there was a good balance in the answer between section a (30%) and section b (70%).

Candidates who scored less well often considered only educational and awareness raising approaches to increasing immunisation uptake, and did not consider structural or process issues relating to vaccine and programme delivery (e.g. call-recall approaches). A small number of candidates spent a long time describing pandemic or avian influenza, which did not attract extra credit, or attempted to describe 'UK' flu policy, without recognising that there are now significant differences between the four nations (e.g. there is a primary school based programme in Scotland). A few candidates produced answers that were not appropriately balanced between the two sections, given that most marks were allocated to section b.

Section B

Disease causation and the diagnostic process in relation to public health; prevention and health promotion

Question 4

A local residents group has collected drinking water samples from a housing estate. The results show that the lead level is elevated in most of the samples.

As a public health specialist, describe how you would investigate and manage this situation.

(100% of marks)

Key points

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

The response should adopt a generic or structured approach to managing a health protection incident.

Initial response

- Contact the residents group to obtain more information about the result and complaint, e.g. reasons for undertaking sampling, sampling method, which laboratory has been engaged to perform the testing (is it an accredited laboratory), the lead level detected and timeframe of the results.
- Form a multi-agency (interdepartmental) incident team/task force to handle the incident. The terms of reference/aims of the group should include identifying the cause of the problem, formulating a solution and making recommendations to prevent similar events in future.
- Membership should include the agencies responsible for water quality/supply, housing/environmental health, public health (e.g. the local health authority or local authority) and the press office.

Risk assessment

- Lead in drinking water is primarily from household plumbing systems in which the pipes, solder, fittings or service connections to homes contain lead.
- The average daily intake of lead from water forms a relatively small proportion of the total daily intake for most children and adults but a significant one for bottle-fed infants.
- Younger children are at particular risk; they absorb 4-5 times as much lead as that of adults.
- Lead poisoning leads to neurological effects (affecting intellectual abilities and behaviour of children).

Risk management

- Immediate measures – stop using the existing water system of the housing estate and provide alternative source of drinking water (e.g. bottled water, by-pass system).
- Consider possible longer term measures – running the tap for 5 minutes before using water may be advised. If household plumbing system is implicated, this will require changing the plumbing system.
- May consider keeping a registry of the affected persons of the housing estate and perform health surveillance if necessary (e.g. developmental assessment on infants/children).

Risk communication

- Designate spokespersons for the incident and inform the public about what is being done and will be done by the local authority etc.
- Dissemination of health information (e.g. health effects of lead, effective measures to mitigate the problem).

Additional points that might improve the answer from "good" to "excellent"

- The initial response may also include attempts to establish the demographic profile of the housing estate (risk-groups) and the extent to which water is supplied via the same source (are other developments supplied from the same source?).
- The amount of lead dissolved from the plumbing system depends on several factors, including the presence of chloride, pH, temperature, water softness and standing time of the water. The leaching of lead from soldered joints decreases with time.
- Lead poisoning is also associated renal disease, hypertension, anaemia and preterm delivery in pregnant women.
- There is no safety threshold for the intake of lead, however, the WHO guideline value of lead at 10mcg/L in drinking water is based on practical consideration (i.e. it is extremely difficult to achieve a concentration lower than 10 mcg/L).
- If the problem is extensive, changing the plumbing system may not be a practical solution. Mitigation measures (e.g. adding lime to water to raise the pH of the water system) or adding filters to water taps should be considered instead.
- Results of the investigation may call for legislative review of the existing legal framework for regulation of water standards.

Syllabus sections being examined:
2.f.Environment: the health problems associated with water pollution;
2.f. Health protection: methods of control; response to natural and man-made disasters

EXAMINERS' COMMENTS

This question was answered reasonably well by most candidates, and while some did not demonstrate more than limited knowledge of the specific hazard, they were often still able to apply a generic approach to health protection incidents to produce an acceptable answer.

Candidates who scored well were able to apply a general 'model' approach for health protection incidents to the specific scenario, and importantly gave equal weight to all elements of managing the incident they were presented with (including risk assessment, mitigation measures and communications). Better answers recognised the need for prompt control measures; this is an incident and may require immediate action such as advice to let the tap run and/or provide bottled water. Answers that described assessment then management and communication of risks did well. Many people showed good use of the source/pathway/receptor model.

Candidates who scored less well did not present a coherent structure to their answer or were only able to describe their response in very general terms without applying it to the specific scenario.

Many candidates' answers were overly weighted towards the initial alerting steps, with no specific consideration of the factors relevant to the risk assessment or knowledge of mitigation strategies.

Section C

Health Information

Question 5

You have been asked to develop an electronic information system to support the planning of healthcare services.

a) For a named country of your choice, list the types of available routine data, including the key characteristics of the population, which you would want the system to include.

(60% of marks)

b) Discuss the main things you would want to be able to do with the data in an electronic information system to support service planning.

(40% of marks)

Key points

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

a) Types of information

- Population (denominator data), by age group, sex, locality, etc.
- Protected characteristics, including sex, age, ethnicity, etc.
- Unique identifier (e.g. NHS number)
- Geographic indicator, e.g. locality/postcode/ward
- ICD coded mortality data
- Service activity data including: primary care activity, prescribing, community services, mental health services and acute hospital services
- Morbidity data, e.g. from cancer registration
- Outcome measures in relation to a particular healthcare service you are planning
- User feedback (e.g. friends and family test, GP survey or similar)
- Special survey data e.g. health survey for England
- Risk factor prevalence data e.g. smoking rates, distribution of BMI and hypertension

b) Main uses

- Record linkage and aggregation of person-based data from the included information sources
- Handling of information at different geographical levels
- Automated data feeds into system to avoid need for manual entry
- Timeliness of data (users generally want near real time)
- Ease of access to information for analysis
- Ability of system to automate some routine analysis

Additional points that might improve the answer from 'good' to 'excellent'

- Discuss the likely availability of different types of data in the named setting
- A clear structure
- Mention of: security and information governance issues such as data sharing, identification of individuals, additional risks of data linkage, physical and electronic security, passwords etc.

Syllabus sections being examined:
3.c. Applications: use of information for health service planning and evaluation; specification and uses of information systems

EXAMINERS' COMMENTS

This was a relatively straightforward question although, to obtain higher marks, it was necessary to demonstrate a clear understanding of the purpose and uses of an electronic information system that is used for planning health services.

The best candidates addressed the question that was asked and demonstrated an understanding of the potential of an electronic information system to improve service planning. They addressed the benefits of data linkage and recognised the information governance issues that this presents. Failing to mention the ability to use the system for data linkage was a common mistake. Few of those that did identify this as a use mentioned the need for a unique identifier to permit linkage.

Many candidates just listed a range of data sources without discussing the types of data using a logical structure.

A few candidates confused an electronic system for health service planning with a patient register. In part (b) candidates tended to list all the service planning activities that such a system might be able to perform, rather than how the system can support service planning.

Section C

Health Information

Question 6

You have been asked to provide a forecast of the number of people with dementia in 10 years' time in your area.

a) How would you calculate this forecast?

(30% of marks)

b) What are the key assumptions you have made when calculating your forecast?

(40% of marks)

c) Assess how possible changes in dementia care might affect your mathematical modelling of your 10 year forecast.

(30% of marks)

Key points

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

a) Calculating the forecast

Using robust baseline routine population data estimate a projection of the population in 10 years' time based on: projected all-cause age/sex-specific mortality rates, apply the current age/sex-specific dementia prevalence estimates, stratify the forecast by sex as well as age

b) Key assumptions

No significant change to population, e.g. due to migration (in or out)
No significant change in incidence of dementia or duration of dementia (P=ID)
Accuracy of current data, and estimates used in (a)
No major changes in the treatment of dementia

c) Effect of changes in care on the modelling

Discuss the impact on P=ID

- Population - may be affected as centres of excellence tend to attract more of those at risk of dementia to live in the area
- Incidence - unlikely to be directly impacted by changes in dementia care
- Duration will be affected by the following: introduction of 'screening' and earlier diagnosis; new treatments prolonging life with dementia, introduction of doctor assisted suicide.

Additional points that might improve the answer from 'good' to 'excellent'

- Include population data on subgroups at higher or lower risk of dementia**,**

Syllabus sections being examined:
3.a. Populations: demography; methods of population estimation and projections

EXAMINERS' COMMENTS

This was a reasonably straightforward question on which it was possible to score well, and some candidates scored highly on this question. However, many candidates scored less well by failing to mention the stratification of input and output data, particularly for gender; a few candidates also failed to specify age stratification.

The commonest pitfall was failing to provide a clear written explanation of how to go about making the forecast. Thus, whilst many candidates identified the relevant types of input data, some could not provide a convincing account of how they would use those data\ to generate the forecast.

Some candidates based their approaches on incidence data which is hard to obtain and unreliable. Better candidates used prevalence data and discussed possible sources for this.

Some candidates mixed up their proposed methods, or failed to explain the source of population projections.

Most candidates identified the majority of the forecast assumptions (section b). Better candidates discussed possible sources of prevalence data for generating the forecast.

Some candidates appeared to apply a generic answer to this question which, while demonstrating a basic understanding, did not give confidence that the candidate had taken account of the context: for example including changes in fertility when estimating 10 year population projections of those vulnerable to dementia; including strategies to reduce non-specific risk factors within the concept of 'dementia care'. In the same way, the impact of possible changes in prevalence brought about by changes in diagnosis through screening, or through the finding of a cure were not discussed in the context of dementia.

Some candidates citing potential changes in the management of dementia did not then clearly articulate the possible impact (if any) on prevalence.

CHAIR'S COMMENTS

Candidates also need to be aware that good written communication skills are also important for this examination (and indeed for public health practice). Examiners on this question reported that some candidates struggled to write clear and concise descriptions of the steps taken to create the forecast of dementia numbers.

Section D

Medical sociology, social policy and health economics

Question 7

In a named country with an established cervical screening programme:

From a sociological perspective:

a) Explain differences in uptake between different groups in society.

(50% of marks)

b) Discuss how inequalities in uptake of the screening between different groups can be reduced.

(50% of marks)

Key points

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

a) Differences in uptake

- Cultural/religious beliefs and practices
- Role of women in society
- Social class
- Access – e.g. transport, evening sessions, childcare, access issues for women may be different to what we would expect for services which are targeted at men
- Theories re locus of control and vulnerability
- Service barriers, e.g. language, people with learning disabilities
- Some women may doubt the effectiveness of this programme
- Education levels and understanding
- Effects of migration, student and traveller populations

b) Reduction in inequalities

- Services tailored to meet the needs of those with differing cultural/religious beliefs
- Outreach services, e.g. in children's centres
- Promotion of services to specific groups
- Use of role models/celebrities
- Media/communication campaigns targeted at women in disadvantaged groups

Additional points that might improve the answer from 'good' to 'excellent'

- Some discussion around equity in addressing inequality; screening programmes tend to widen inequalities
- Reframing of the issue drawing on peoples' assets and what is important to them

Syllabus sections being examined:
4.a. concepts of health, wellbeing and illness, and the aetiology of illness: explanations for various social patterns and experiences of illness
4.c.equality, equity and policy: inequalities in health; concepts of need and social justice

EXAMINERS' COMMENTS

This question appeared reasonably straightforward. It was an open question which allowed candidates to demonstrate a wide range of knowledge. However, there were few high scores, though most candidates passed.

Candidates who provided a structure or theoretical context for their answer produced better written and more complete answers. Those who described and applied relevant sociological models scored more highly.

Unfortunately, quite broad and somewhat superficial answers were not uncommon. Many candidates were unclear about the basic aspects of the programme, including wrong age range and length of recall.

Broad superficial explanations of inequalities were encountered that demonstrated insufficient depth of knowledge. Equally, there was often a lack of structure to describe approaches to explaining inequalities observed or improving uptake (e.g. using Dahlgren and Whitehead). There was often consideration of too limited a range of causes e.g. only considering language for differences among ethnic groups with lack of consideration of cultural influences or the role of women in society.

A common pitfall was providing long descriptions of screening programmes in general, and cervical screening in particular (or describing it inaccurately) before tackling the substance of the question. This was not necessarily required in the answer, but where candidates provided an inaccurate description of this core screening programme this did not reflect well on their overall answer. Also there were answers with detailed descriptions of where the inequalities were without explanation of possible causes. Better answers linked the two together.

CHAIR'S COMMENTS

Candidates are advised to be aware that in the sociology section, where there are applicable sociological theories, these should be mentioned, with clear application to the question. However, listing a range of sociologists or theories without demonstrating knowledge of these and explaining their connection/applicability to the question topic will not attract marks.

Section D

Medical sociology, social policy and health economics

Question 8

In a named country with an established cervical screening programme the government is considering whether to increase the level of funding available to this programme to increase the uptake of cervical screening.

Describe at least three economic concepts that can be used to inform this decision.

(100% of marks)

Key points

Three or more of the following would be required for a pass:

- Concept of return on investment
- Programme budgeting
- Opportunity cost e.g. with reference to HPV vaccination
- Discounting – costs are incurred now but the financial benefits of this programme will be received many years into the future
- Cost/benefit analysis
- Marginal cost of improving uptake is likely to be higher than the current unit cost

Additional points that might improve the answer from 'good' to 'excellent'

- Demonstration of understanding that economic considerations are not the only factors which making decisions such are this
- Need to consider the wider barriers to taking up screening, e.g. social class, cultural and religious ideas, access
- There is limited cost/benefit information available from published studies to help with this decision

Syllabus sections being examined:
4.d. health economics: principles of health economics including: the notions of opportunity cost, discounting, margins; financial resource allocation; techniques of economic appraisal including cost-benefit analysis

EXAMINERS' COMMENTS

Candidates who selected the economic concepts most relevant to the question and described them in the context of the question performed better. Candidates got credit for mentioning other factors, alongside economic considerations, which would influence decisions around increased funding for screening, for example issues of equity and political considerations.

Some candidates described as many economic concepts as they could without reference or application to the question which was around cervical screening. Many candidates did not describe discounting, an economic concept of key relevance for screening programmes. Candidates described considerations such as equity as an economic concept, which was not accurate, although a recognition that equity considerations should also influence economic

decision making was accepted. Many candidates described concepts of supply and demand but did not then consider this concept in the context of a screening programme targeted at asymptomatic people whose ‘demand’ would be variable.

CHAIR’S COMMENTS

Examiners also commented that candidates should be able to produce clear, concise definitions of key economic concepts such as opportunity cost, discounting, PBMA and the different forms of economic evaluations.

Section E

Organisation and management of health care, and health care programmes

Question 9

Targets have been used as an improvement tool for health services

a) List and describe five disadvantages of the use of targets.

(50% of marks)

b) Using an example, describe the features of a good target.

(50% of marks)

Key points

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

Disadvantages – five required

- Targets risk focusing individuals and organisations on the 'measurable' and may mask underlying clinical priorities e.g. waiting lists and the prioritisation of those waiting longest over those with urgent clinical need, lack of follow-up services for screening programmes, shifting of the focus away from other important measures for infectious disease prevention such as hygiene practices

- Aspects of care which are important but difficult to measure may not appear as targets e.g. in UK sexual health is an example. In Hong Kong this applies particularly to infectious diseases in relation to the measurement of hygiene practices and other infectious disease control measures. This issue is partly implied by the phrase "we value what we measure rather than measuring what we value".

- A target may oversimplify and mask complexity making valid comparisons difficult, e.g. debate over use of post-operative mortality statistics that ignore case-mix; or different degree of susceptibility, complication rates and vaccine efficacy among different groups of influenza vaccine recipients

- Monitoring targets can be costly and/or consume resources that are needed elsewhere e.g. GP contract (for example in England); lack of good infrastructure for collecting information from practices in private healthcare sectors in Hong Kong; hospital targets require staff, computerised systems, data entry costs, etc.

- Targets may be demoralising or counterproductive if they are missed or if people/ organisations decide in advance that a target is unreachable and make no effort to hit it.

- Targets may conflict – for example, targets related to improved case-finding may lead to higher numbers of clinically insignificant cases being identified.

Features of a good target

Good targets:

- should be SMART (specific, measurable, attainable, relevant and timely
- data used for setting targets must be reliable
- should be focused towards a goal through a common and simple concept
- should be incremental
- are reviewed at appropriate time intervals to ensure they remain relevant and are at an appropriate level to achieve desired outcomes;
- are accompanied by suitable feedback and two-way communication with those expected to deliver them;
- are monitored in an explicitly stated and transparent way;
- are part of a system of support and understanding rather than blame and finger-pointing;
- can be directly used to inform and enable further service improvement;
- lead to motivation and enthusiasm rather than demotivation and discouragement.

Additional points that might improve the answer from 'good' to 'excellent'

a) Disadvantages

- Targets can be focused on one area at the expense of others
- Organisations can use targets to influence the behaviour of staff but constraints outside of the control of staff can affect the ability to meet the target which can be demoralising.

b) Good target

- all those involved should be involved in the target setting – helps ensure ownership of the target
- the target should be communicated to all staff including how the target will be set, measured and who is responsible for achieving the target – individual staff should have a clear idea of what this role is and the expectation of their performance
- all organisations should have a supportive culture where continuous learning and improvement are encouraged.
- Selection of an appropriate and illustrative example is an important aspect of a high-scoring answer. Answers that cover several of the points notes above within in the context of a good example and with a thoughtful structure (rather than just a list) are likely to score higher

Syllabus sections being examined:
2.i. Disease prevention, models of behaviour change: the role of target setting,

EXAMINERS' COMMENTS

The question was well understood and well attempted by candidates, with most candidates scoring very well on this question. There was no ambiguity in the wording of the question. Most candidates did better on the second part which was understood well. Most candidates used the SMART targets.

Most candidates understood the question and there were very few who did not give five disadvantages of targets. Those who scored highly followed a good structure, used bullet points and gave good examples.

Those who did not manage to do well mentioned only a few disadvantages. Some candidates did not have a good structure particularly for the second part of the question

CHAIR'S COMMENTS

This section of the exam is mainly based on factual knowledge and the examiners advice is to ensure that the curriculum is covered during exam preparation. Key points from previous years can often be used as a good template to answer many of the management questions that are asked.

Section E

Organisation and management of health care, and health care programmes

Question 10

a) Name and describe one motivational theory relevant to public health practice.

(50% of marks)

b) You are leading a public health team in a period of major organisational change. Referring to the challenges and opportunities likely to be faced by your team, explain how you would use the theory you have described above to support them through this period of change.

(50% of marks)

Key points

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

a) The three theories which candidates are likely to mention

Mention of another appropriate theory with a suitable answer will attract credit.

Herzberg: In order to pass candidates will need to list most or all of the motivator factors and hygiene factors listed below, and to describe at least two motivators and two hygiene factors in detail, and the role of dissatisfaction.
Motivation-Hygiene Theory, or two factor theory
'The factors which motivate people at work are different to and not simply the opposite of the factors which cause dissatisfaction'

Motivator Factors	Hygiene Factors (equally important)
• Achievement • Recognition • Work Itself • Responsibility • Promotion • Growth	• Pay and Benefits • Company Policy and Administration • Relationships with co-workers • Supervision • Status • Job Security • Working Conditions • Personal life

1. People are made dissatisfied by a bad working environment, but rarely satisfied by a good environment.
2. Prevention of dissatisfaction as important as encouragement of satisfaction
3. Hygiene factors operate independently of motivation factors.
4. Hygiene improvements have short-term effects.
5. Hygiene needs are cyclical in nature and come back to a starting point. This leads to the "What have you done for me lately?" syndrome.

Maslow: In order to pass, candidates will need to mention each level of the hierarchy of needs, with an example of each (e.g. safety needs include a working environment where hazards are minimised, and job security).
Biological & physical needs
Safety needs
Belongingness and love needs
Esteem needs
Self-actualisation
Candidates are expected to state that many workers will require some or all of these levels.

McGregor X/Y: In order to pass, candidates will need to mention at least two characteristics of Theory X and two of theory Y managers and the resulting cultural style.

Theory X- managers assume inherent laziness requiring close supervision/ systems of control
Hierarchical structure
Workers avoid responsibility

Theory X - Top down. Authoritarian style. Tight control. Limited culture

Theory Y – managers assume ambition/ self-motivation
Workers want to do well
Climate of trust
Shared decision making
Commitment to objectives

Theory Y - Bottom up. Liberating and developmental. Continuous improvement achieved by enabling, empowering and giving responsibility.

Other motivational theories described will be marked on merit.

b) Use of the theory in a time of change

- Candidates are expected to describe the importance of motivation for effective team functioning and the consequences for teams and team members of periods of major organisational change, discuss how the selected theory could be used as the basis on which to provide appropriate support in relation to this.

- Negative consequences might include job uncertainty, financial worries, stress, and anxieties around professional credibility; positive consequences might include opportunities for joint working, for improving clarity of purpose and identifying shared vision or outcomes, and for individual development through taking on new roles or responsibilities.

- Discussion of how the use of the selected theory should be appropriately critical and reflective – for example, whilst Maslow defines the different needs that need to be met, his theory doesn't take account of the fact that factors which motivate people at work are different to and not simply the opposite of the factors which cause dissatisfaction and there is a need to ensure short-term motivation to ensure the team will be effective in the long term.

Additional points that might improve the answer from 'good' to 'excellent'

Excellent answers will be well-structured and include concrete steps that could be taken to ensure motivation in light of the theory discussed.

Syllabus sections being examined:
5.a. individuals, teams/groups and their development: motivation, creativity and innovation in individuals, and their relationship to group and team dynamics

EXAMINERS' COMMENTS

The question was well understood and attempted by candidates. There was no ambiguity in the wording of the question. Almost all the candidates managed to identify a motivational theory.

Around half of the candidates used Maslow's theory of motivation.

A small number of candidates did not base their answer on any theory of motivation and concentrated on change management and behaviour change theories only without any application of theory discussed.

Good candidates approached the question with a good structure and the question was understood well by most candidates. They described the theories (based on factual knowledge) well and demonstrated that they had learnt this topic with a good level of understanding. Those who managed to get high marks used good examples from their own work environment. There was a good balance between the two sections.

CHAIR'S COMMENTS

This section is well described in the curriculum and past papers provide good examples of well-structured answers that candidates can use as part of their preparation.

Paper IIA

You are a public health specialist working in the public health team of a City of 500,000 residents which has recently launched a campaign to halve the levels of obesity in its population by 2025.

You have been asked to work with the City transport team to identify opportunities for them to contribute to this strategy and you find this paper in a recent journal.

Flint E, Cummins S, Sacker A. Associations between active commuting, body fat, and body mass index: population based, cross sectional study in the United Kingdom. *BMJ* 2014; 349:g4887

Note to candidates: This paper has been reduced in length by removing:

- The abstract
- The strengths and limitations
- The start of the discussion
- The conclusions
- Box entitled “What is already known on this subject” and “What this study adds”

1. In approximately 600 words, summarise the study’s findings and its strengths and limitations.

(40% of marks)

2. What is the rationale for the use of t-tests in the analysis of the sex differences in the outcome variables? What type of t-test would have been carried out? What assumptions would have been made in using t-tests?

(10% of marks)

3. A local television presenter is present at the meeting where this paper is discussed and asks to interview you about the broader public health implications. Outline your three key messages to the public.

(20% of marks)

4. Your local City transport committee is formulating a transport policy. You are asked to write a letter to the lay chairman of the transport committee who has asked to be briefed about the findings of the paper and the key actions arising from it for the committee to consider.

(30% of marks)

Key points

1. In approximately 600 words, summarise the study's findings and its strengths and limitations.

(40% of marks)

Summary of the findings:

- Men and women who commuted to work by active and public modes of transport had significantly lower BMI and percentage body fat than their counterparts who used private transport.
- These associations were not attenuated greatly by adjustment for important covariates such as diet and work based physical activity.

Strengths:

- The UKHLS is a large nationally representative study, involving individuals from across the UK and therefore allowing a high level of generalisability.
- The research used objectively measured outcomes obtained BMI and % body fat from UKHLS Health assessments conducted by nurses at home visits.
- The magnitude of effects observed in this study were clinically meaningful.
- The study used existing data and so was relatively cheap to conduct.
- Demonstrates reduced adiposity associated with commuting to work by public transport.
- Supports the theory and existing evidence, based on self-reported outcomes, that the promotion of active commuting may help individuals to maintain a healthier body composition as well as BMI, which in turn could result in significant population health benefits.
- Such a strategy could also yield large environmental benefits.

Limitations:

- Possible selection bias as these two analytic samples were restricted to those with complete data for the relevant outcome (BMI or percentage body fat) and all selected covariates. The final analytic samples were in fact samples (those with transport mode data), of samples (30% with objective health assessment) of samples (of the total population). Whilst the original sample and those with a health assessment were representative, it is not clear from the paper if those with transport data were a representative sample or may have been biased in some way.
- Potential residual confounding, for example, the dietary quality variables available in the UKHLS do not allow potential confounding by energy intake to be fully adjusted for; whilst social class is operationalised into just the three top level categories of NS-SEC. Also, some of the potentially important confounder data were collected by self-report e.g. level of physical activity at work.
- Exposure is crudely quantified as those who reported using a form of public transport as their main mode were potentially highly heterogeneous in terms of the levels of physical activity their commutes entailed. Similarly, those using private transport might park and walk a long way, whilst those in the active group walking or cycling might only travel short distances.
- Following from the point above, a high degree of heterogeneity in the three commuting mode categories is likely to result in weaker associations and an

underestimation of the true effects; this is both a limitation and a strength – the latter because it results in a conservative estimate of effect.

- Cross-sectional study design as UKHLS health assessment data are currently available for only one time point. Direction of causality can therefore not be inferred from these findings.
- Whilst the sample size was fixed by the data an indication of power, with a power calculation, should have been provided.
- In the calculation of % body fat an assumption of 'standard' body type was made.
- Men and women who commuted to work by active and public modes of transport still had mean BMI scores indicating that they were, on average, overweight.

2. What is the rationale for the use of t-tests in the analysis of the sex differences in the outcome variables? What type of t-test would have been carried out? What assumptions would have been made in using t-tests?

(10% of marks)

Rationale:

- Two samples of data are collected from different participants (sexes) in two experimental conditions (use of private transport or other). The paper compares mean scores for outcome (dependant) variables across two groups of participants and t-statistic used to test for differences.
- Test is therefore an independent samples t-test

Assumptions of this parametric test are:

- The sampling distribution is normally distributed
- Data are measured at the interval (or ratio) level
- Variances in these populations are roughly equal (homogeneity of variance)
- Scores are independent (because they come from different people)

3. A local television presenter is present at the meeting where this paper is discussed and asks to interview you about the broader public health implications. Outline your three key messages to the public.

(20% of marks)

- Paper provides evidence of the benefits of active/public transport as a means of commuting compared to private transport in that those utilising the former are likely to have significantly lower BMI and percentage body fat compared to the latter, with consequent benefits to health. In other words, incorporate exercise into everyday living activities – for commuters this means leave the car at home, but for others, such as school children, make exercise a part of everyday life.
- As well as cardiovascular benefits, health benefits may also include a reduction in risk of developing type II diabetes and certain types of cancer, such as breast or bowel cancer.
- Although this is achievable without the need to participate in sporting activities or dietary change, the mean BMI of those commuters who used active or public transport still indicated that they were likely to be overweight, even if less so than

those using private transport, and therefore it is not the complete answer. In order to avoid being overweight, other lifestyle changes, such as healthier diet options, are still important.

- A further health benefit for the wider population likely to result from an increase in use of active or public transport would be a reduction in pollution, including carbon emissions, resulting from a reduction in use of private transport, which is currently the mode of transport of two thirds of commuters. There are huge health gains to be made here.

Extra credit for mentioning
Although this paper provides good evidence of the benefits arising from use of active/public transport modes, it does need to be confirmed by further work in this area.

4. Your local City transport committee is formulating a transport policy. You are asked to write a letter to the lay chairman of the transport committee who has asked to be briefed about the findings of the paper and the key actions arising from it for the committee to consider.

(30% of marks)

Use of appropriate language to informed layperson avoiding patronising style. Thank him for his interest in the public health aspects of this issue and acknowledge the extent of the problem of both sedentary lifestyles and traffic pollution and congestion. (Extra marks for being able to give relevant local information).

Give brief summary of findings, highlighting the key points, results and any key limitations.

Demonstrate an understanding of the increasing importance of the problems arising from sedentary lifestyles (and traffic pollution) and the need to tackle these issues, in children as well as commuting adults.

Give an outline of how findings could be applied locally through the encouragement of active modes of transport e.g. provision of cycle pathways and facilities, and encouragement of use of public transport. Point out that benefits to the health of the wider population would arise through reduction of pollution levels from decrease in private car usage and reduction in carbon footprint – the green effect. Also, a reduction in traffic congestion could result in more efficient public transport (buses) which would further promote its use by the local population, as well as creating a safer environment for pedestrians and cyclists.

Be pragmatic about how this might be implemented – do not raise unrealistic expectations. Recognise what can practically be delivered in a local setting.

Extra credit would be attracted for discussion of the following points:
Although active transport and use of public transport results in significant reduction of both BMI and percentage body fat compared to private transport, mean BMI of active/public transport users still indicates them as being overweight, therefore this paper does not provide the total solution to problems arising from raised BMI. Thus, other public health measures still necessary. Also, measures aimed at working population could equally be applied to school attenders to establish pattern of transport involving some degree of exercise at a young age.

Further work is necessary to support the findings of the present study by establishing direction of causality.

EXAMINERS' COMMENTS

Q1

- Many candidates still wrote a 'standard format' critical appraisal, albeit in fewer words than in previous sittings
- Many candidates wrote considerably more than 600 words – this often did not lead to them including more useful/relevant information and will have meant that those candidates did not have as much time to spend on the other questions on the paper (which were worth similar numbers of marks as Q1)
- In many papers, there was repetition of the same facts – this did not lead to additional marks being given
- Many candidates did not pick up on the broader public health and population level issues raised by (and included in) the paper (e.g. environmental impact of commuting [pollution], and the fact that participants in the study were still overweight)

Q2

- Many candidates struggled to provide a good, clear definition and explanation of these simple statistical terms

Q3

- Many candidates did not address the 'broader public health issues' raised by the paper in their comments / key PH messages

Q4

- Some candidates spent a lot of time repeating the information from Q1 and going into too much technical detail about the research. The letter was to the lay chair of a committee and should have been written in an informative way (rather than just repeating the critical appraisal points).
- Often too much technical detail was included at the expense of discussing broader public health issues and opportunities for multi-agency / multi-factor approaches to tackling obesity.
- Few candidates mentioned the impact on environment / air quality when writing to the chair of the transport committee.

Good candidates

- Answered Q1 in a more discursive style – demonstrating that they had critically appraised the paper ad were able to synthesise their findings, addressing the key points about the research and its wider implications for public health practice
- Could clearly describe the statistical tests used
- Understood and were able to communicate how this research paper fitted in to the broader public health agenda re obesity (and wider determinants of health)
- Were able to communicate a clear message to stakeholders / partner and demonstrate enthusiasm and ideas about partnership working (with an understanding of the practical issues of implementation)

CHAIR'S COMMENTS

Candidates are advised to look carefully at how many marks are available for each section, and judge how much information should then be provided. For instance, 20% of the marks of the paper (i.e. 10/50) were available for question c – which therefore required considerably more than three short sentences (which was all that was provided by some candidates).

How to prepare for this section of the exam:

- Read 'strengths and limitation' and 'discussion' sections of papers to see how the information could be presented. We recognise that the question is often a slightly artificial premise but using a more discursive style (rather than just seeming to 'fill in' sections from a framework) should help candidates demonstrate that they have thought about the practical impact and implementation of the findings as seen in discussion sections.

- As noted above, take care to allocate enough time to the later questions in the paper – they are worth as many marks as Q1. The examiners noted, as in previous years, many candidates appeared to have rushed Q3 and Q4.

Paper IIB

EXAMINERS' COMMENTS

Overall there was a good performance by many candidates. Calculations were well done by most and the majority had a reasonable attempt at those that were required. However, the interpretation of the results, particularly making it relevant to the given data or study design, was less well done than the actual calculations.

Avoid writing all that one knows about the topic, rather than being specific and writing concisely. Do take great care to ensure the question set is the question you are answering.

CHAIR'S COMMENTS

The key advice is to be familiar with the exam syllabus, know core statistical formulas, the relevant assumptions needed to undertake the calculations, and their interpretations.

Show your working out for the calculations included, describing your findings and consider appropriate interpretations, taking into account the question's context.