



Faculty of Public Health

of the Royal Colleges of Physicians of the United Kingdom

Working to improve the public's health

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THE PART A MEMBERSHIP EXAMINATION OF THE FACULTY OF PUBLIC HEALTH SYLLABUS

Introduction to the Part A Membership Examination of the Faculty of Public Health

The following notes are intended to assist candidates in their preparation for this examination. They should be read in conjunction with the Regulations for the examination and any other instructions or advice that may be issued by the Faculty from time to time in respect of the examination.

The Part A Syllabus

The Part A examination is intended to test candidates' knowledge and understanding of the scientific basis of public health, and their ability to apply their knowledge and skills to the practice of public health. This syllabus provides indicative guidance on the main topics that may be examined at Part A.

Part A consists of two papers: Paper I is designed primarily to test knowledge, and Paper II primarily to test skills. The knowledge part of the syllabus is broken down into five sections, which broadly relate to the structure of Paper I of the examination. The skills part of the syllabus is broken into three sections, material from any of which may be tested at any point in the skills part of the examination.

The skills tested at Part A are not the same as those tested at the OSPHE, or through the RITA / portfolio process. An ability to extract, process and present data, to criticise research evidence and to communicate in writing to a non-specialist audience, is required for Part A, rather than the more complex skills tested later. Division of material into sections is only a guide: candidates should expect questions that draw together knowledge from different sections, and should note particularly that inclusion of a subject area within one section of the syllabus does not preclude its use in a different section of the examination. Candidates should especially note that there will be sharing of subject material between Paper I and Paper II.

The level of knowledge, skill and understanding required within all sections of the syllabus is that which could reasonably be expected of a competent practitioner in public health who may aspire to attain the specialist's status. Some core data handling skills and the ability to perform core statistical techniques will be required in the examination - Sensitivity, specificity, positive and negative predictive power, numbers needed to treat, relative risk, odds ratio, attributable fraction, Standard Error and Confidence Interval (CI) of a proportion and of a difference in proportions, Chi Square for a 2 X 2 table, McNemar's test, standardisation - direct and indirect, weighted averages, CI and standard errors for means. Although many public health practitioners will not need to be able to execute some of the more complex techniques described in the syllabus, they will need to understand and interpret results from them: this level of understanding is expected from all candidates.

Future re-mapping to Faculty competencies will be done without altering content significantly.

Knowledge tested at Part A

1. Research methods appropriate to public health practice, including epidemiology, statistical methods, and other methods of enquiry including qualitative research methods

a Epidemiology: use of routine vital and health statistics to describe the distribution of disease in time and place and by person; numerators, denominators and populations at risk; time at risk; methods for summarising data; incidence and prevalence including direct and indirect standardisation, years of life lost; measures of disease burden (event-based and time-based) and population attributable risks including identification of comparison groups appropriate to Public Health; sources of variation, its measurement and control; common errors in epidemiological measurement, their effect on numerator and denominator data and their avoidance; concepts and measures of risk; the odds ratio; rate ratio and risk ratio (relative risk); association and causation; biases; confounding, interactions, methods for assessment of effect modification; strategies to allow / adjust for confounding in design and analysis; the design, applications, strengths and weaknesses of descriptive studies and ecological studies; analysis of health and disease in small areas; design, applications, strengths and weaknesses of cross-sectional, analytical studies, and intervention studies (including randomised controlled trials); intention to treat analysis; clustered data - effects on sample size and approaches to analysis; Numbers Needed to Treat (NNTs) - calculation, interpretation, advantages and disadvantages; time-trend analysis, time series designs; nested case-control studies; methods of sampling from a population; methods of allocation in intervention studies; the design of documentation for recording survey data; construction of valid questionnaires; methods for validating observational techniques; studies of disease prognosis.

Appropriate use of statistical methods in the analysis and interpretation of epidemiological studies, including life-table analysis; epidemic theory (effective and basic reproduction numbers, epidemic thresholds) and techniques for infectious disease data (construction and use of epidemic curves, generation numbers, exceptional reporting and identification of significant clusters); systematic reviews, methods for combining data from several studies, and meta-analysis; electronic bibliographical databases and their limitations; grey literature; evidence based medicine and policy; the hierarchy of research evidence - from well conducted meta-analysis down to small case series, publication bias; the Cochrane Collaboration; the ethics and etiquette of epidemiological research. Understanding of basic issues and terminology in the design, conduct, analysis and interpretation of population-based genetic association studies, including twin studies, linkage and association studies.

b Statistical methods: elementary probability theory; methods for the quantification of uncertainty; estimation of confidence intervals; independence of events; conditional probability; standard statistical distributions (e.g. Normal, Poisson and binomial) and their uses; sampling distributions; principles of making inferences from a sample to a population; measures of location and dispersion and their appropriate uses; graphical methods in statistics; hypothesis testing; type I and II errors; problems of multiple comparisons; parametric and non-parametric tests for comparing two or more groups; sample size and statistical power; regression and correlation; the appropriate use, objectives, and value of

multiple linear regression, multiple logistic regression, principles of life-tables and Cox regression. Comparisons of survival rates; heterogeneity; funnel plots; the role of Bayes' theorem.

c Approaches to the assessment of health care needs, utilisation and outcomes, and the evaluation of health and health care: the uses of epidemiology and other methods in defining health service needs and in policy development; participatory needs assessment; formulation and interpretation of measures of utilisation and performance; measures of supply and demand; study design for assessing effectiveness, efficiency and acceptability of services including measures of structure, process, service quality, and outcome of health care; measures of health status, quality of life and health care; population health outcome indicators; deprivation measures; principles of evaluation, including quality assessment and quality assurance; equity in health care; clinical audit; confidential enquiry processes; the use of Delphi methods; economic evaluation (see also 4.d); appropriateness and adequacy of services and their acceptability to consumers and providers; epidemiological basis for preventive strategies; health and environmental impact assessment.

d The principles of qualitative methods including semi-structured and in-depth interviewing, focus groups, action research, participant observation, and their contribution to public health research and policy; their appropriate use, analysis and presentation; the ethical issues which may arise; validity, reliability and generalisability; common errors and their avoidance; strengths and weaknesses.

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

a Epidemiological paradigms: programming, life-course, and adult risk factor approaches.

b Epidemiology of 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, with particular reference to those that are potentially preventable, or require the planned provision of health services at individual, community and structural levels, or are otherwise of particular public concern, for example mental health.

c Diagnosis and Screening: principles, methods, applications and organisation of screening for early detection, prevention, treatment and control of disease; statistical aspects of screening tests, including knowledge of and ability to calculate, sensitivity, specificity, positive and negative predictive values, and the use of ROC curves; differences between screening and - diagnostic tests, case finding; likelihood ratios; pre and post test probability; ethical economic, legal and social aspects of screening; the principles of informed choice; planning, operation and evaluation of screening programmes; the evidence basis needed for developing screening policies and implementing screening programmes, including established programmes such as breast and cervix and those currently in development, being piloted or subject to major research activity, current examples (amongst others) being colon cancer, chlamydia screening and certain antenatal / neonatal screening tests; ethical, social and legal implications of a genetic screening test.

d Genetics: elementary human genetics; inherited causes of disease in populations; basic genomic concepts including patterns of inheritance, penetrance, genotype/phenotype differences, polygenetic disorders, gene-environment interactions and the role of genes in health and disease; aetiology, distribution and control of disease in relatives; elementary molecular biology as related to genetic epidemiology and microbiology.

e Health and social behaviour: principles of nutrition, nutritional surveillance and assessment in specific populations including its short and long term effects; the influence of malnutrition in disease aetiology, pregnancy, and in growth and development; markers of nutritional status, nutrition and food; the basis for nutritional interventions and assessment of their impact; social, behavioural and other determinants of the choice of diet; Dietary Reference Values (DRVs), current dietary goals, recommendations, guidelines and the evidence for them; the effects on health of different diets (e.g. "Western" diet), physical activity, alcohol, drugs, smoking, sexual behaviour, and sun exposure. Combating complex problems using a wide range of approaches, including health service interventions and broader cultural interventions.

f Environment: environmental determinants of disease; risk and hazard; the effects of global warming and climate change; principles of sustainability; the health problems associated with poor housing and home conditions, inadequate water supplies and sanitation; methods for monitoring and control of environmental hazards (including food and water safety, atmospheric pollution and other toxic hazards, noise, and ionising and electromagnetic radiation); the use of legislation in environmental control; appreciation of factors affecting health and safety at work (including the control of substances hazardous to health); occupation and health; transport policies and health impact assessment for environmental pollution; chemical incident management.

g Communicable disease: definitions (incubation, communicability and latent period; susceptibility, immunity, and herd immunity); surveillance - national and international -, its evaluation and use; methods of control; the design, evaluation, and management of immunisation programmes; choices in developing an immunisation strategy; outline the steps in outbreak investigation including the use of relevant epidemiological methods; knowledge of natural history, clinical presentation, methods of diagnosis and control of infections of local and international Public Health importance (including emerging diseases and those with consequences for effective control); organisation of infection control; a basic understanding of the biological basis, strengths and weaknesses of routine and reference microbiological techniques (see also 2d); international aspects of communicable disease control including Port Health.

h Principles and practice of health promotion: collective and individual responsibilities for health, both physical and mental; interaction between, genetics and the environment (including social, political, economic, physical and personal factors) as determinants of health, including mental health; ideological dilemmas and policy assumptions underlying different approaches to health promotion; the prevention paradox; health education and other methods of influencing personal life-styles which affect health; appropriate settings for health promotion (e.g. schools, the workplace); the value of models in explaining and predicting health-related behaviour; risk behaviour in health and the effect of interventions in influencing health related behaviour in professionals, patients

and the public; theory and practice of communication with regard to health education; the role of legislative, fiscal and other social policy measures in the promotion of health; methods of development and implementation of health promotion programmes; community development methods; partnerships; evaluation of health promotion, public health or public policy interventions; international initiatives in health promotion; opportunities for learning from international experience.

i Disease prevention, models of behaviour change: evaluation of preventative actions, including the evidence base for early interventions on children and families, support for social and emotional development; understanding of pre-determinants of health including the effect of social cohesion on health outcomes; an understanding of social marketing; involvement of the general public in health programs and their effects on health care; concepts of deprivation and its effect on health of children and adults; the benefits and means of community development, including the roles and cultures of partner organisations such as local authorities; health impact assessment of social and other policies; the role of strategic partnerships and the added value of organisations working together; the role of target setting, e.g. public service agreements, local authority agreements.

3. Health information

a Populations: conduct of censuses; collection of routine and ad hoc data; demography; important regional and international differences in populations, in respect of age, sex, occupation, social class, ethnicity and other characteristics; methods of population estimation and projection; life-tables and their demographic applications; population projections; the effect on population structure of fertility, mortality and migration; historical changes in population size and structure and factors underlying them; the significance of demographic changes for the health of the population and its need for health and related services; policies to address population growth nationally and internationally.

b Sickness and health: sources of routine mortality and morbidity data, including primary care data, and how they are collected and published at international, national, regional and district levels; biases and artifacts in population data; the International Classification of Diseases and other methods of classification of disease and medical care; rates and ratios used to measure health status including geographical, occupational, social class and other socio-demographic variations; routine notification and registration systems for births, deaths and specific diseases, including cancer and other morbidity registers; pharmacoepidemiology, including use of prescribing and Pharmacy sales data; pharmacovigilance; data linkage within and across datasets.

c Applications: Use of information for health service planning and evaluation; specification and uses of information systems; common measures of health service provision and usage; the uses of mathematical modelling techniques in health service planning; indices of needs for and outcome of services; the strengths, uses, interpretation and limitations of routine health information; use of information technology in the processing and analysis of health services information and in support of the provision of health care.

4. Medical Sociology, Social Policy, and Health Economics

a Concepts of health and illness and aetiology of illness: the theoretical perspectives and methods of enquiry of the sciences concerned with human behaviour; illness as a social role; concepts of primary and secondary deviance; stigma and how to tackle it; disability and handicap; social and structural iatrogenesis; role of medicine in society; explanations for various social patterns and experiences of illness (including differences of gender, ethnicity, employment status, age and social stratification); the role of social, cultural, psychological and family relationship factors in the aetiology of illness and disease; social capital and social epidemiology.

b Health care: different approaches to health care (including self-care, family care, community care, self-help groups); hospitals as social institutions; professions, professionalisation and professional conflicts; the role of clinical autonomy in the provision of health care; behaviour in response to illness and treatments; psychology of decision-making in health behaviour.

c Equality, equity and policy: concepts of need and social justice; priorities and rationing; balancing equity and efficiency; consumerism and community participation; public access to information; user and carer involvement in service planning; problems of policy implementation; principal approaches to policy formation; appreciation of concepts of power, interests and ideology; inequalities in the distribution of health and health care and its access, including inequalities relating to social class, gender, culture and ethnicity, and their causes; migration, and the health effects of international trade; international influences on health and social policy; critical analysis of investment in health improvement, and the part played by economic development and global organisations

d Health economics: principles of health economics (including the notions of scarcity, supply and demand, marginal analysis, distinctions between need and demand, opportunity cost, margins, efficiency and equity); assessing performance; financial resource allocation; systems of health and social care and the role of incentives to achieve desired end-points; techniques of economic appraisal (including cost-effectiveness analysis and modelling, cost-utility analysis, option appraisal and cost-benefit analysis, the measurement of health benefits in terms of QALYs and related measures); marginal analysis; decision analysis; the role of economic evaluation and priority setting in health care decision making including the cost effectiveness of Public Health, and Public Health interventions and involvement.

5. Organisation and management of health care and health care programs from a Public Health perspective

(a) Understanding individuals, teams / groups and their development: Motivation, creativity and innovation in individuals, and its relationship to group and team dynamics; barriers to, and stimulation of, creativity and innovation (e.g. by brainstorming); learning with individuals from differing professional backgrounds; personal management skills (e.g. managing: time, stress, difficult people, meetings); the effective manager; principles of leadership and delegation; principles of negotiation and influencing; principles, theories and methods of effective communication (written and oral) in general, and in a

management context. Interactions between managers, doctors and others; the theoretical and practical aspects of power and authority, role and conflict; professional accountability - clinical governance, performance and appraisal; behaviour change in individuals and organisations.

(b) Understanding Organisations, their function and structure: understanding the internal and external organisational environments - evaluating internal resources and organisational capabilities; identifying and managing internal and external stakeholder interests; structuring and managing inter-organisational (network) relationships, including intersectoral work, collaborative working practices and partnerships; social networks and communities of interest; assessing the impact of Political, economic, socio-cultural, environmental and other external influences.

(c) Management and Change: understand the basic management models and theories associated with motivation and leadership and be able to apply them to practical situations and problems; critical evaluation of a range of principles and frameworks for managing change; an understanding of the issues underpinning the design and implementation of performance management against goals and objectives.

(d) Understanding the theory and process of strategy development: strategy communication and strategy implementation in relation to health care; theories of strategic planning; health service development and planning; methods of organising and funding health services and their relative merits, focusing particularly on international comparisons and their history; risk management; guideline development; integrated care pathways; public and carer consultation and involvement in health service planning; historical development of personal health services and of public health.

(e) Finance, management accounting and relevant theoretical approaches: the linkages between demographic information and health service information - its public health interpretation and relationship to financial costs; budgetary preparation, financial allocation and service commissioning; methods for audit of health care spending.

6. Skills tested at Part A

a Design and interpretation of studies: skills in the design of research studies; ability critically to evaluate published papers including the validity of the use of statistical techniques and the inferences drawn from them; ability to draw appropriate conclusions from quantitative and qualitative research.

b Data processing, presentation and interpretation: ability to sort and manipulate data, and to draw appropriate conclusions from quantitative and qualitative data.

c Communication: written presentation skills; preparation of papers for publication; preparation of material for different audiences, including expert and non-expert audiences and the media. Information handling and use of media in advising the public about health services, disease prevention (including communicable disease outbreaks and environmental hazards) and health promotion.

STRUCTURE OF THE PART A MEMBERSHIP EXAMINATION

The examination is designed to accommodate candidates from disciplines in the wider field of public health as well as candidates with experience outside the UK health service system. In setting questions, the aim is for generic questions, which, where appropriate, allow candidates to relate answers to their particular settings.

PAPER I (4 hours) (“KNOWLEDGE PAPER”)

Candidates are required to answer ten compulsory short-answer questions (which may include some internal choice) across the range of the syllabus, in order to demonstrate their knowledge of the core sciences of public health. Most questions will be of a standard format, 'write short notes on', and options within questions may incorporate additional local options where appropriate. Candidates will be requested to answer a specified number of options for each question.

SECTION A (2 1/2 hours)

Candidates are required to answer six questions covering the following subjects:

- a) Research methods, including epidemiology, statistical methods, and other methods of enquiry including qualitative research methods
- b) Disease prevention, health protection, and health promotion
- c) Health information

SECTION B (1 1/2 hours)

Candidates are required to answer four questions covering the following subjects:

- a) Medical sociology, social policy and health economics
- b) Organisation and management of health care

PAPER II (4 hours) (“SKILLS PAPER”)

This paper is designed to test candidates' public health 'knows how' and some 'shows how' skills. Candidates are required to answer the question posed in each of two sections. There is no choice of questions in either section.

SECTION A (2 1/2 hours)

Critical appraisal and commentary on material in an article from a journal and its application to a specific public health problem. The second half of the question may be phrased in general terms and allow candidates to give examples from different contexts.

SECTION B (1 1/2 hours)

This will involve the distillation of a variety of materials provided to the candidate in order to produce a summary, policy or other document aimed at a particular target individual or group. Data manipulation and interpretation may form part of this process, and candidates will be provided with a basic calculator with sufficient functions for these purposes. Candidates are neither required nor permitted to bring a different calculator into the examination.

Marking

Papers are anonymised and marked by pairs of examiners working individually. Each question will be marked by a separate pair of examiners. Candidates must pass both Paper I and Paper II separately in order to pass overall. For a more detailed explanation of the way results are determined including the 'banking' of one paper, please visit the Faculty website, http://www.fph.org.uk/exams/part_1/default.asp