香港社會醫學學院
HONG KONG COLLEGE OF COMMUNITY MEDICINE
founder College of the Hong Kong Academy of Medicine
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ADMINISTRATIVE MEDICINE

Part I Examination

Wednesday 1 June 2022

10:30 – 13:00 (2½ hours)

Paper IA

Candidates must answer all parts of this questions

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.
Weighting of marks for each part of the question is shown in parenthesis.

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1. a. Describe the procedure of conducting intention to treatment [ITT] analysis in a randomized trial. (3 marks)

   b. State the benefits of using ITT analysis. (4 marks)

   c. How may ITT analysis impact the trial effect size? (3 marks)

QUESTION CONTINUES

2. A retrospective study was done to identify the risk factors for the fatality of COVID-19. Cases were recruited in the Hubei Province of China and being followed up for investigation. **Table 1** below shows the results of the final model using a Cox regression model.

Table 1: Cox regression model for predictors* of fatality

Predictors	**Hazard Ratio (95% C.I.)**	**P-value**
Sex (Male)	1.31 (1.15, 1.50)	<0.01
Age group (Ref: < 45 years)		
45 – 60 years	2.35 (1.73, 3.21)	<0.001
≥ 60 years	7.32 (5.42, 9.89)	<0.001
Comorbidity		
Hypertension (Ref: No)	1.29 (1.13, 1.47)	<0.001
Diabetes (Ref: No)	1.27 (1.06, 1.51)	<0.01
Kidney disease (Ref: No)	1.53 (1.13, 2.07)	<0.01
Liver disease (Ref: No)	1.08 (0.51, 2.27)	>0.05
Cardiovascular disease (Ref: No)	1.51 (1.28, 1.77)	<0.001
Respiratory disease (Ref: No)	1.23 (0.95, 1.59)	>0.05
Clinical Symptoms		
Fever (Ref: No)	1.03 (0.88, 1.21)	>0.05
Fatigue (Ref: No)	0.95 (0.85, 1.08)	>0.05
Dyspnea (Ref: No)	1.10 (0.96, 1.25)	<0.10
Laboratory Testing		
Lymphocytes (Ref: 0.8 – 4 x 10^9/L)		
< 0.8 x 10^9/L	1.26 (1.06, 1.50)	<0.01
> 4 x 10^9/L	1.23 (0.77, 1.97)	>0.05
Goodness-of-fit		
C statistic	0.93	

*Only selected predictors are shown in the table above.

(Source: Ran Wu et al. Predictive Model and Risk Factors for Case Fatality of COVID-19: A Cohort of 21,392 Cases in Hubei, China. The Innovation, Volume 1, Issue 2, 2020, 100022, ISSN 2666-6758,)

QUESTION CONTINUES

a. A Kaplan-Meier curve can also be used to estimate the survivorship. Suggest ONE limitation of a Kaplan-Meier curve when compared to a Cox regression model. (1 mark)

b. What is hazard ratio? Interpret the hazard ratio of kidney disease and comment on its significance. (4 marks)

c. What is C statistic? Comment on the goodness-of-fit of the above model based on the C statistic. (2 marks)

d. Do you think stepwise selection method was applied in this regression model? State your reason. Also name TWO other variable selection methods in building a regression model. (3 marks)

QUESTION CONTINUES

3. As a result of the Covid-19 pandemic over the past 2+ years, social distancing measures, including intermittent school closures, have been applied in Hong Kong for extended periods, with less mobility and increased use of IT for learning and social support.

   For our local children, these restrictions on mobility and face to face learning have had both physical and socio-psychological effects.

   a. List at least THREE groups of children, most vulnerable to the impact of these restrictions? (2 marks)

   b. Provide TWO examples, with background explanations, for the physical impacts of these restrictions. (2 marks)

   c. List at least THREE examples of the socio- psychological impacts of these restrictions, with precipitating factors, and possible improvement measures. (6 marks)

QUESTION CONTINUES

4. Polypharmacy in older adults is a significant problem leading to poor health outcomes and inefficient use of healthcare resources. It is a complex problem and is not solely attributable to inappropriate prescribing but also to changes in the benefits and risk profiles of medications with time. Medications can become inappropriate for a given patient even if they were previously appropriate.

   a. Describe TWO common causes of polypharmacy. (1 mark)

   b. What features of the healthcare system contribute to the issue of polypharmacy? Please name FIVE, include at least one which is specific to the Hong Kong healthcare system. (5 marks)

   c. Outline TWO interventions and policy recommendations to reduce polypharmacy. (4 marks)

QUESTION CONTINUES

5. An 82-year-old recently widowed man with multiple late stage medical comorbidities is approaching end of life in a private hospital, and is being treated by his son who is an intensivist there. He is currently confused and is being aggressively treated by his son despite mentioning to another doctor his wish to be "let go" when he was perfectly lucid.

   a. Name THREE ethical and legal issues that need to be considered in this situation? (3 marks)

   b. What are the issues with doctors treating immediate family members? (2 marks)

   c. What would be the benefits of a Clinical Ethics Committee in this situation? (2 marks)

   d. How should a CEC be structured? (1 mark)

   e. Why would the hospital Research Ethics Committee not be able to do the job in this situation? (2 marks)

QUESTION CONTINUES

6. Hong Kong has a segmented healthcare system of public and private provision and financing. The public-provider system which is heavily subsidised from general government revenues with very modest user fees, accounts for 80% of total hospital admissions and 28% of all out-patient consultations. In contrast the private-provider system caters for 20% of total hospital admissions and 71% of out-patient consultations and is primarily funded by out-of-pocket payments from users with private health insurance contributing 14% of revenues. In a Census and Statistics Thematic Household Survey of Hong Kong residents, 24.7% of persons aged 65 and above use public out-patient care and 56.5% use private out-patient care, with 11.7% using both. In contrast, individuals with chronic disease, 81.6% use public out-patient care, 59% continue to use private out-patient care with 44.7% using both.

With an ageing population and the associated increase in prevalence of chronic diseases in the context of rising healthcare costs, it is projected the demands for subsidised healthcare will escalate.

QUESTION CONTINUES

Question:

There has been political pressure to address the inadequate access to primary out-patient care particularly for patients needing ongoing care for chronic diseases. The Hospital Authority (HA) has been engaging private practitioners to provide chronic disease management for 39,700 patients with stable hypertension and diabetes with an annual expenditure of $89,306,000 in a public-private partnership (PPP). The Government is proposing to increase the funding to $300,000,000 annually for an expanded PPP program for chronic disease management in the primary care setting.

How would you go about in formulating the policy to expand the PPP program? This should include:

i. details of the design of the program, how the program would be staged, the population groups that would be covered; (3 marks)

QUESTION CONTINUES

ii. inputs required, the outputs and outcomes to be expected, mechanisms for ensuring quality, monitoring and evaluation;
(3 marks)

iii. the stakeholders that should be engaged and the mechanisms for engagement. (4 marks)

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