

**POSTGRADUATE INSTITUTE OF MEDICINE**  
**UNIVERSITY OF COLOMBO**

**MD (COMMUNITY MEDICINE/COMMUNITY DENTISTRY)**  
**THEORY EXAMINATION – JUNE 2023**

**PAPER I**

**Date :- 1<sup>st</sup> June 2023**

**Time:- 10.00 a.m. – 12.00 noon**

Answer **all four (04)** questions.

Answer each question in a separate book.

1.

1.1. Table 1 shows a series of incidence rates of cancer “X” by age and calendar year.

Table 1: Cases of cancer “X” per 100,000 population by age and calendar year

Age (years)	1950	1955	1960	1965	1970	1975	1980	1985
20-24	10	15	22	30	33	37	41	44
25-29	8	17	20	24	29	38	40	43
30-34	5	12	22	25	28	35	42	45
35-39	3	12	15	26	30	32	39	42
40-44	2	10	17	19	28	32	39	42
45-49	2	12	15	18	21	33	40	42
50-54	2	10	16	20	25	32	42	44
55-59	2	15	17	19	22	27	43	44

1.1.1. When observing the incidence rates by age at any given year, it is likely that advancing age is not related to an increase in the incidence of cancer “X”.

Comment on this observation. (30 marks)

1.1.2. Discuss the usefulness of prevalence data in chronic diseases. (20 marks)

1.2. A research study has revealed an association between birth order and Down syndrome.

1.2.1. Describe the effect of maternal age on the above association. (20 marks)

1.2.2. Outline the measures that you would take to minimise the effect mentioned in 1.2.1. (30 marks)

2.

- 2.1. A case control study was conducted to determine the association between coronary heart disease and high fat diet. Results are shown in Table 2.

Table 2: Association between coronary heart disease and high fat diet according to sex

Exposure	Males		Females	
	Cases	Controls	Cases	Controls
High fat diet	50	70	40	60
Low fat diet	30	70	20	100

The researchers believe that the sex of the patient could have influenced the association studied. Conduct an appropriate analysis to determine the influence of sex on the association between coronary heart disease and high fat diet. Interpret your findings. (40 marks)

- 2.2. Hospital data show that about 30% of patients presenting with acute febrile illness are diagnosed as dengue fever. The NS-1 antigen test is used as a diagnostic test for dengue fever. According to the manufacturers, this test has a sensitivity of 84% and a specificity of 98%.

2.2.1. Explain the term 'likelihood ratio of a diagnostic test'. (10 marks)

2.2.2. Calculate the likelihood ratio of a positive test and the likelihood ratio of a negative test for NS-1 antigen test. (30 marks)

2.2.3. Using the Fagan's nomogram (Figure 1), calculate and interpret the post-test probability of dengue fever among patients with:

(a) a positive NS-1 antigen test. (10 marks)

(b) a negative NS-1 antigen test (10 marks)

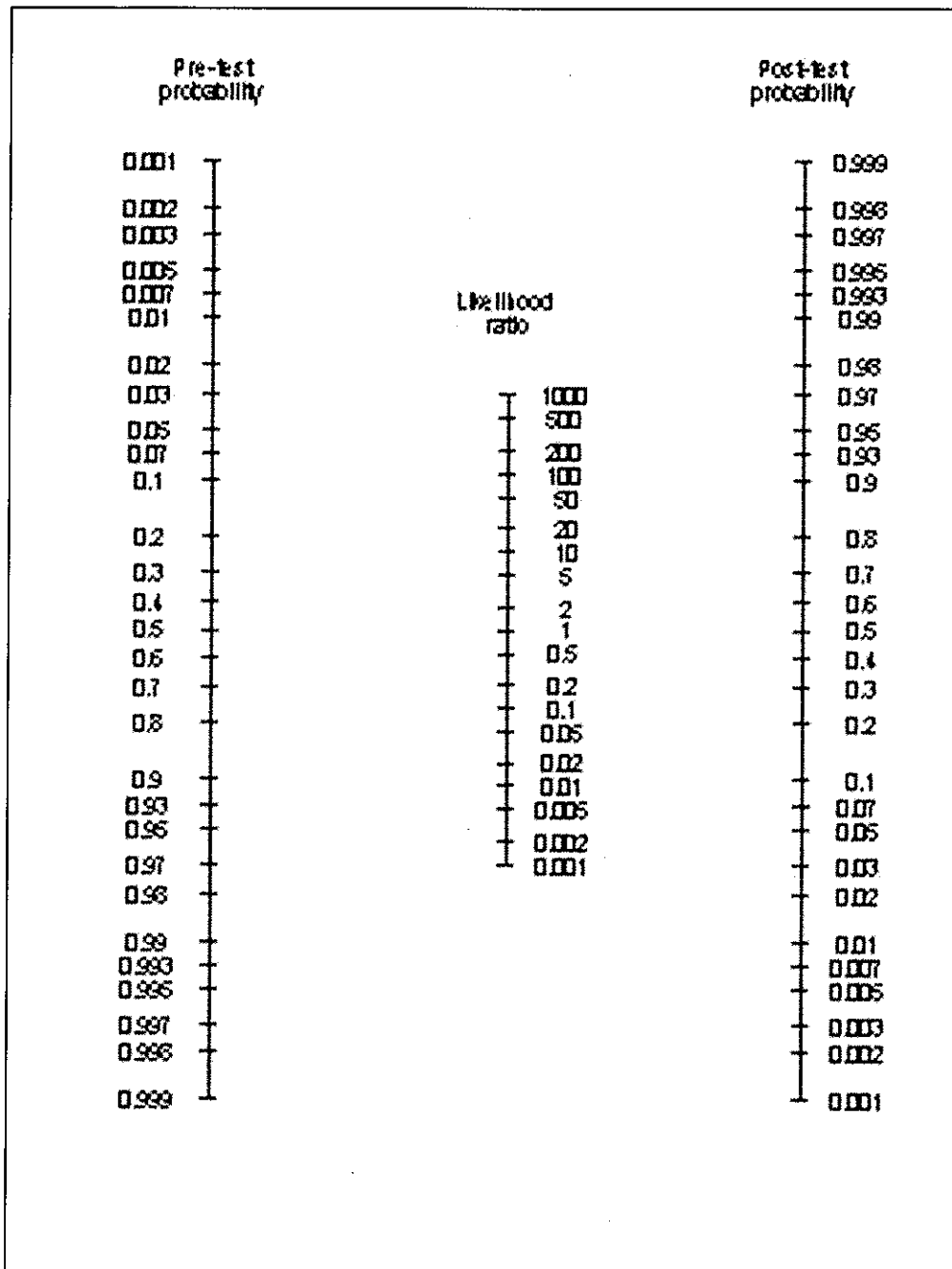


Figure 1: Fagan's normogram

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3. A cluster randomized trial was conducted to assess the effectiveness of a behavioural intervention for prevention of dengue fever in a district. The primary outcome was the overall practices on dengue prevention at 3 months after the intervention. Results are summarized in Table 3.

Table 3: Comparison of the overall practices on prevention of dengue fever between intervention and control groups at 3 months after the intervention

Overall Practices	Group		Crude OR (95% CI)	AOR (95% CI)
	Intervention	Control		
	n (%)	n (%)		
Adequate	106 (63.5%)	57 (34.3%)	3.3 (2.1 – 5.2)	4.5 (2.7 – 7.5)
Inadequate	61 (36.5%)	109 (65.7%)	$p < 0.001$	$p < 0.001$
Total	167 (100%)	166 (100%)		

OR=Odds Ratio, AOR= Adjusted Odds Ratio, CI=Confidence Interval

- 3.1. Briefly explain how you would develop a complex intervention for prevention of dengue fever. (20 marks)
- 3.2. Briefly describe the precautions to be taken in the methods of the above trial to reduce the risk of bias. (25 marks)
- 3.3. Outline the data analysis plan that was followed, to arrive at the results shown in Table 3. (25 marks)
- 3.4. Calculate another measure of effect with 95% confidence interval, using the above data. (15 marks)
- 3.5. Interpret the overall results of this study. (15 marks)
- 4.
- 4.1. A Consultant Community Physician or a Consultant in Community Dentistry is expected to perform three key functions as a specialist: health services, teaching/training and research. A consultant attached to the Ministry of Health argues that he/she is overburdened with work, hence does not need to perform the latter two functions.  
State your opinion giving justification. (50 marks)
- 4.2. A researcher is planning to conduct a randomised controlled trial (RCT) among men having sex with men (MSM) to assess the effectiveness of a newly introduced self-test kit which uses saliva to screen for HIV.  
Discuss the ethical issues that should be addressed in this RCT. (50 marks)

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**MD (COMMUNITY MEDICINE/COMMUNITY DENTISTRY) THEORY**  
**EXAMINATION – JUNE 2023**

**PAPER II**

**Date :-** 2<sup>nd</sup> June 2023

**Time:-** 9.00 a.m. – 11.00 a.m.

Answer **all four (04)** questions.

Answer each question in a separate book.

1.
  - 1.1. Briefly explain the term “Participatory Action Research”. (15 marks)
  - 1.2. “Community engagement and participation throughout the planning process of a health promotion programme are crucial for its success”.  
Outline three (03) factors to support the above statement, giving reasons. (45 marks)
  - 1.3. Discuss the importance of measuring health promotion outcomes of a health promotion programme conducted in a defined community. (40 marks)
2. Digital technology is being increasingly used in the state health system in Sri Lanka.
  - 2.1. List five (05) instances where digital health applications are implemented in the state health system. (15 marks)
  - 2.2. Discuss the benefits of digital health applications in the state health sector and challenges in implementing them. (40 marks)
  - 2.3. As a Consultant Community Physician attached to the Health Information Unit of the Ministry of Health, you have been asked to develop a national level human resource plan for the next 5 years, to support digital health in the state health sector.  
  
Briefly describe the steps you would follow when developing the human resource development plan. (45 marks)

- 3.
- 3.1. The state health system in Sri Lanka is currently facing substantial financial constraints in maintaining health services. The Government of Sri Lanka has requested the Ministry of Health to propose sustainable solutions to mitigate the present situation.
- 3.1.1. List five (05) health service components that are mainly affected by the financial constraints. (15 marks)
- 3.1.2. Describe the solutions that the Ministry of Health can propose to the government to mitigate the present situation. (35 marks)
- 3.2. As a Consultant Community Physician attached to the Non-communicable Diseases (NCD) Unit of the Ministry of Health, you have been asked to evaluate the National Policy for Prevention and Control of Chronic NCDs (the Chronic NCD Policy) which had been developed in 2010.
- 3.2.1. Describe the key areas that you would consider when evaluating the Chronic NCD Policy. (30 marks)
- 3.2.2. List four (04) outcome indicators that can be used to evaluate the Chronic NCD Policy. (20 marks)
- 4.
- 4.1. You are the Consultant Community Physician (Planning) in a Regional Director of Health Services (RDHS) area, and responsible for preparing the district procurement plan.
- 4.1.1. Describe briefly the steps you would take to prepare a procurement plan for the purchase of equipment for field antenatal clinics for the year 2024. (40 marks)
- 4.1.2. Name two (02) regulations/guidelines that have to be adhered to, when carrying out the above procurement. (10 marks)
- 4.2. A technical evaluation committee (TEC) is appointed in the procurement process of goods and services.
- 4.2.1. Describe the role of the TEC in the procurement process. (30 marks)
- 4.2.2. Outline the circumstances in which the TEC can recommend a bidder other than the lowest bidder among those who conform to the specifications. (20 marks)