

January-June MPH (One Health) Final Examination-2018  
Chittagong Veterinary and Animal Sciences University  
Institute of One Health  
Course: Outbreak Investigation and Surveillance (Practical)  
Course code: OIS-601  
Total Marks: 20; Allocated Time: 2 hours

Answer any Two (2) questions from the followings (each question allocated equal marks):

**Scenario 1:**

Nipah virus (NiV) is considered as highly pathogenic virus with the ability to cause devastating morbidity and mortality in human populations. This disease frequently causes outbreak and has become one of the most alarming threats of the public health in Bangladesh. It is therefore important to conduct comprehensive investigation Nipah with the aim prevention and control of human causality.

The behaviour of the dynamics of NiV infections has been illustrated as follows: The NiV can cause human infection through raw date palm sap consumption, which can then make human-to-human transmission of infection. In background history NiV was first detected in Bangladesh in 2001. It was also identified in India for the first time in 2001 and then in 2007. Unfortunately, 11 (eleven) outbreaks have already occurred in Bangladesh since the first detection of NiV in 2001, with highly mortality rate an estimated 80% in an average and 100% in some cases. The most alarming fact is that almost every year in winter (December to March), the deadly NiV strikes in the north and western regions of Bangladesh. Until at the end of 2008, about 14 districts of Bangladesh were affected by NiV outbreaks, which at the end of 2013, have been expanded to more than 22 districts of north-western and central regions of Bangladesh.

**Question-1 (Based on scenario-1):** How will you collect information on NiV from community? Make standard format of questionnaire with necessary questions that help you gather maximum information. What will be the control strategies of NiV?

**Scenario 2:**

During August 2009–October 2010, a multidisciplinary team investigated 14 outbreaks of animal and human anthrax in Bangladesh to identify the etiology, pathway of transmission, and social, behavioral, and cultural factors that led to these outbreaks. The team identified 140 animal cases of anthrax and 273 human cases of cutaneous anthrax. Ninety one percent of persons in whom cutaneous anthrax developed had history of butchering sick animals, handling raw meat, contact with animal skin, or were present at slaughtering sites. Each year, *Bacillus anthracis* of identical genotypes were isolated from animal and human cases.

Inadequate livestock vaccination coverage, lack of awareness of the risk of anthrax transmission from animal to humans, social norms and poverty contributed to these outbreaks. Addressing these challenges and adopting a joint animal and human health approach could contribute to detecting and preventing such outbreaks in the future.

**Question-2 (Based on scenario-2):** How will you investigate Anthrax outbreak? What are the PPEs required during Anthrax outbreak investigation?

**Question-3:** Briefly describe the steps of an original research article.

# Masters in Public Health (One Health) Final Examination, 2018

Course Title: Food Safety and Risk Assessment (Practical)

Marks: 20

Time: 1 hour

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1. What is a Standard Operating Procedure (SOP)? How to Write a Standard Operating Procedure? 2+3
  2. Mention the color change in following tests for adulterants: 5
    - i. For metanil yellow in turmeric powder
    - ii. For sugar in honey
    - iii. For urea presence in Milk
    - iv. For mashed potato in Ghee
    - v. For vanaspati in Ghee
  3. How can you check Tea leaves purity at home? 5
  4. Why is adulteration done in food? How do you check vanaspati in ghee? 2+3

**Chittagong Veterinary and Animal Sciences University**

**One Health Institute**

**Masters in Public Health (MPH)**

**January-June Semester Final Examination 2018**

**Course title: Extended Epidemiology and Research Methodology (Practical)**

**Code: ERM-601**

**Full marks: 20, Time: 1 hour**

(Figures in the right margin indicate full marks. Answer any 4 questions from the following)

1. A study looking at breast cancer in women compared cases with non-cases, and found that 25/100 cases did not use calcium supplements compared with 75/100 of the non-cases. 5
- Develop a table to display the data.
  - Calculate the odds of exposure in cases and non-cases.
  - Calculate the odds ratio using the cross-product ratio.

2. In a prospective study the following data were found, calculate the appropriate risk. 5

	CHD	NO CHD	Total
Smoker	84	2914	3000
Non Smoker	87	4913	5000

3. Estimate the Odds Ratio from the data given below and interpret the result. 5

Smoking status	CHD		Total
	CHD present	CHD absent	
Smoker	12	88	100
Non smoker	09	391	400
total	21	479	500

4. Imagine that the incidence of a zoonotic disease is compared in two cities, one with inadequate disease surveillance (A), the other with effective disease surveillance (B). In the city with inadequate disease surveillance, there were 50 cases in a population of 100,000 and in the other city, 10 cases in a population of 100,000. 5

- What is the relative risk of the disease in the city with inadequate disease surveillance (A)?
- What is the relative risk of the disease in the city with effective disease surveillance (B)?

5. In an area population with 2500, 250 were diagnosed as type 2 Diabetes at the beginning of the survey. The remaining non diseases persons were followed up and 50 developed new cases of diabetes mellitus over two years of observation. What is the Prevalence and Incidence of type 2 Diabetes among the study subjects during survey? 5

**Chittagong Veterinary and Animal Sciences University**  
**One Health Institute**  
**Masters in Public Health (MPH)**  
**January-June Semester Final Examination 2018**  
**Course title: Extended Epidemiology and Research Methodology (Theory)**  
**Code: ERM-601**  
**Full marks: 40, Time: 2 hours**

(Figures in the right margin indicate full marks. Answer any 4 questions from the following)

1. a. What do you understand by 'concept of cause' in epidemiology? Explain necessary and sufficient cause. 5  
b. Discuss the Hill's criteria for causal inference. 5
2. a. What is cohort? How will you design a cohort study? 6  
b. Write down the differences between case-control and cohort studies. 4
3. a. What is screening of diseases? What is the role of lead time in screening? Write the criteria for a standard screening test. 6  
b. Define carrier. What are the elements required to form a carrier state? 4
4. a. What are the characteristics of a true experimental study? Outline the design of a RCT? 6  
b. Short note: a) Mass screening b) Recall bias 4
5. a. Discuss on Attributable Risk and Odd Ratio . 5  
b. Define and compare incidence & prevalence. 5

# Chittagong Veterinary and Animal Sciences University

MPH in One Health

January-June Semester, 2018

**Subject: Zoonoses and Emerging Infectious Disease**

Course Code: EIDs

Total Marks: 40 Time: 2 Hours

(Figures in the right margin Indicate full marks, Answer any four question)

- |   |   |   |     |
|---|---|---|-----|
| 1 | a | What is emerging & remerging infection?   | 2.0 |
|   | b | What are the emerging & remerging infections of Bangladesh?                                   | 3.0 |
|   | c | What are the issues, challenges & one health approach to prevent these infections?            | 5.0 |
| 2 | a | What are the viruses causing arthritis?   | 3.0 |
|   | b | Compare & contrast between Dengue fever & Chikungunya fever.                                  | 4.0 |
|   | c | What are the outbreak responses for Chikungunya infection?                                    | 3.0 |
| 3 | a | Define Encephalitis, Encephalopathy & Acute Encephalitis Syndrome                             | 3.0 |
|   | b | What are the virus causing Encephalitis & common causes of encephalitis in Bangladesh?        | 3.0 |
|   | c | Mention the diagnostic tests for encephalitis.  | 4.0 |
| 4 | a | What are the corona virus causing human diseases?   | 3.0 |
|   | b | Mention the case definition of MERS-co-Virus.   | 3.0 |
|   | c | What are the infection prevention & control (IPCS) measure to be taken for respiratory virus? | 4.0 |
| 5 | a | Discuss control measure of Rabies.  | 5.0 |
|   | b | Rabies is a disease where One Health conception fits well: Explain the statement              | 5.0 |

**Chittagong Veterinary and Animal Sciences University**

**One Health Institute**

**Masters in Public Health**

**January-June Semester, 2018**

**Course Title: Food Safety and Risk Assessment**

**Course Code: FSR-601      Total Marks: 40      Time: 2 hours**

**(Figures in the right margin indicate full marks; answer any four questions)**

1. a) What do you mean by risk analysis in food? What are the essential characteristics of risk analysis? Why are these essential? 1+2+2
- b) Draw the Codex risk analysis framework and explain the four key steps of risk assessment for food safety. 2+3
2. a) "Risk management model should be flexible"- give your opinion on the statement with sample model. Enumerate the eight general principles of food safety risk management. 3+2
- b) What is food safety risk communication and why is it important? Mention activities those should draw attention in considering the strategies for risk communication. 2+3
3. a) Illustrate the basic tasks in a food additive safety assessment. 3
- b) Define the following terms: 3  
    Food Safety, Critical Limit, Deviation
- c) Differentiate between Critical Point (CP) and Critical Control Point (CCP). 2
4. a) Why do we use HACCP in food industry? Write down the benefits of applying HACCP in a food industry. 2.5+2.5
- b) Discuss the hazards those could happen during food preparation and storage. 2.5+2.5
5. a) Draw the flow diagram of Critical Control Points (CCP) associated from raw materials receipt to final food product of a food industry. 5
- b) Draw the flow chart of the logic sequence for the application of HACCP. 5

Semester Binal  
January-June MPH (One Health) ~~First Mid-term~~ Examination-2018  
Institute of One Health  
Chittagong Veterinary and Animal Sciences University  
Course Title: Outbreak Investigation and Surveillance (Theory)  
Course code: OIS-601  
Total Marks: 40; Allocated time: 2 hours

Answer any **Five (5)** questions from the followings:

- Q1. What do you mean by outbreak investigation? State the goals of outbreak investigation. 8.0
- Q2. Write down the steps of an outbreak investigation. How will you prepare for fieldwork during infectious disease outbreak? 8.0
- Q3. Write down the advantages and disadvantages of questionnaire survey of a disease. As an example, make standard questionnaire for infectious disease investigation. 8.0
- Q4. Define and classify surveillance. Differentiate surveillance from monitoring and survey. 8.0
- Q5. Differentiate public health surveillance from animal health surveillance. Describe the public health surveillance system. 8.0
- Q6. Briefly describe the steps of an original research article. 8.0

**Chittagong Veterinary and Animal Sciences University**  
**One Health Institute**  
**Masters in Public Health (MPH)**  
**January-June Semester Final Examination 2018**  
**Course title: Fundamentals of Public Health**  
**Code: FPH-601**  
**Full marks: 40, Time: 2 hours**

(Figures in the right margin indicate full marks. Answer any 5 questions from the following)

1. a. State the mission of public health and one health. 4  
b. Classify health determinants. 4
2. a. Explain concept and practices of public health in context of Bangladesh. 5  
b. Mention the modern public health system. 3
3. a. Mention the scopes and opportunities of public health in terms of one health. 4  
b. Explain various levels of prevention with examples. 4
4. a. Narrate history and development of public health in post independence era of Bangladesh. 5  
b. Write down the core disciplines of public health. 3
5. a. Draw and label societal ecological model of public health. 5  
b. Describe the various levels of prevention of public health with example. 3
6. a. Describe public health networks in Bangladesh. 4  
b. Mention 10 essential services for public health. 4



**Chittagong Veterinary and Animal Sciences University**  
**MS in Public Health Final Examination 2018**  
**Subject: Biostatistics (Theory)**  
**Code: BST-601**

**Full Marks: 40**

**Time: 2 hours**

**Answer any 4 from the following questions:**

1. i. Extract an example of one qualitative, one discrete and one continuous variable. 3
- ii. Discuss the measures of central tendency. 4
- iii. 'CV is better than SD' – defend this statement. 3
  
2. i. Derive the procedure of testing a population mean with a specific value. 4
- ii. Given a sample of 40 cows with an arithmetic mean for lactation milk yield of 3500 kg. Does this herd belong to a population with a mean of 3000 kg and standard deviation of 800 kg? ( Use 5% level of significance) 6

3. i. Define types of error. What is power of test? Write the 't' statistic in case of small samples with equal variances. 4
- ii. Two groups of male students were given two different diets to determine the increase in body weight. At the end of the experiment the body weights were calculated. The mean and variance are given below: 6

	Feed A	Feed B
Mean	5.7	6.1
Variance	0.25	0.55
size	100	90

Which feed will increase the body weight of students at 5% level of significance?

4. i. Discuss Binomial and Normal distribution elaborately. 5
- ii. Differentiate between regression and correlation. 5

5. A study was made to determine the relation between weekly advertising expenditure and sales of a drug in your field and the data recorded are: 10

Expenditure (in tk)	40	20	25	20	30	50	40	20	50
Sales (in tk)	385	400	395	365	475	440	490	420	560

Draw a Scatter Diagram and fit the regression line to predict weekly sales from advertising expenditures.

Can we perform simple correlation using this data? If yes, then how?

**Chittagong Veterinary and Animal Sciences University**  
**MS in Public Health Final Examination 2018**  
**Subject: Biostatistics (Practical)**  
**Code: BST-601**

**Full Marks: 20**

**Time: 2 hours**

**Answer the following questions:**

1. The following data refer to the sample of weights of the nurses in a hospital

5+5=10

78, 71, 75, 65, 67, 63, 72, 61, 58, 65, 62, 51, 50, 45, 52, 65, 48, 55, 43, 77, 46, 48, 57, 59, 68, 45, 71, 76, 65, 45, 61, 68, 65, 52, 51, 50, 45, 52, 65, 48, 45,

- i. Obtain all measures of central tendency from the above data.
- ii. Find any two absolute measures of dispersion from the data with necessary comments.

2. You are given a data set of the following patients of a hospital of their smoking status and lung ailment.

10

<b>Smoking status</b>	<b>Lung ailment</b>
Smoker	Yes
Non smoker	Yes
Smoker	Yes
Smoker	Yes
Smoker	No
Smoker	Yes
Smoker	Yes
Non smoker	Yes
Non smoker	No
Non smoker	No
Smoker	Yes
Non smoker	No
Non smoker	Yes
Non smoker	No
Smoker	Yes
Smoker	Yes
Non smoker	Yes
Smoker	No
Smoker	Yes
Smoker	No
Smoker	Yes
Smoker	No
Non smoker	Yes
Non smoker	No
Non smoker	No
Smoker	Yes
Non smoker	No
Non smoker	Yes
Non smoker	No
Smoker	No

Does Smoking have a significant contribution to lung ailment? Test at 5% level of significance.