Qualifying Examination

for Doctor of Philosophy (Epidemiology and Biostatistics)

Date: 21 August 2020

(Duration: 09.00 – 16.00; Total score: 100)

*Students can use books or internet. Communication with anybody else is strictly prohibited.*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**Part A: Epidemiology** (30 scores)

**Based on the attached article, please answer the following questions:**

1) What is the main conclusion of this paper? (2 scores)

2). What is the magnitude of effect that the author used for answering the primary research question? If there was none or inappropriately reported, please specify what should be reported for the research question? (8 scores)

3). What are biases that could make the results invalid? Please specify name and roles of each bias, i.e., the conclusion could be distorted in what way and by what mechanism. (10 scores)

4). Please summarize in one paragraph of less than 10 lines the main points that will improve the quality of this paper- pretending you are writing a letter to the editor of this journal regarding this paper. (10 scores)

**Part B: Biostatistics** (30 scores)

**Based on the data set with a description attached at the end of this material, please answer the following questions:**

5). Plan for data analysis: Please provide a dummy table, the table without number being presented, that is the main finding to answer the research question for this study. (10 scores)

6). Please provide Stata or R commands (Stata do file or R scripts) to obtain the results for the dummy table you’ve provided. (10 scores)

7). Please summarize results as an abstract. Note that this must be presented with real results obtained from your own analysis. (10 scores)

**Part C: Dissertation in brief** (40 scores)

**Based on your own dissertation, please answer the following questions:**

8) Summarize your dissertation in one paragraph of no more than 300 words (2 scores)

9). How to improve external and internal validity of the study? Please select only the main paper to answer this question. (8 scores)

10) Describe all possible alternative statistical methods that could be efficiently applied to your main paper as well as their advantages and disadvantages and justify why the one you selected is the best choice. (10 scores)

11) What is the main weakness of your thesis and how it affects the main conclusion? (10 scores)

12) What is/are the impact(s) that would be expected from the findings of your thesis? (10 scores)

Attachment

**Antibiotic prophylaxis in abdominal hysterectomy: a randomized, double-blinded controlled trial.**

**Study objectives**: To determine the efficacy of Cephazolin and Ampicilin as the antibiotic prophylaxis for abdominal hysterectomy patients.

**Data description:**

ATB "1= Placebo; 2=Ampicilin; 3= Cephazolin"

POFM "Post-operative febrile morbidity 1=Yes; 0=No"

AGE "Age (years)"

WEIGHT "Weight (Kgs)"

HEIGHT "Height (Cms)"

HOSSTAY "Hospital stay (Days)"

ANEMIA "Anemia 1=No 2=Yes"

SURGEON "Surgeon 1=Dr A 2=Dr B"

BLOODTX "Blood transfusion 1=No 2=Yes"

TIME "Duration of the operation (minutes)"

**Example of the data:**

**atb pofm age weight height hosstay anemia surgeon bloodtx time**1 0 39 60 155 7 1 2 1 105

1 0 30 50 151 8 1 1 1 30

1 0 43 54 149 9 1 1 1 75

- - - Some records were omitted - - -

3 0 49 50 150 8 1 1 1 75

3 0 43 61 151 14 1 2 1 90

3 0 51 64 146 7 1 2 1 150

**Data file:** ATB.DTA

\*\*\*\*\*\*\*\*Good luck \*\*\*\*\*\*\*\*