

## **REPORT OF DATA ANALYSIS WORKSHOP: 31<sup>ST</sup> MAY- 2<sup>ND</sup> JUNE 2004 AT THE TASO HEADQUATERS IN MULAGO.**

### **INTRODUCTION:**

Uganda Society for Health Scientists is a Research Society registered as a non - governmental organization in 1999. Its mission is to play a leading role in improving the health conditions of Ugandans through advancing and seeking discoveries and inventions. The AITRP at CWRU supports and promotes the development of USHS. Since its inception, USHS is involved in activities to achieve its objectives like annual and scientific meetings, journal clubs and scientific lectures, developmental grants as well as conducting research methods and writing skills workshops.

Uganda Society for Health Scientists (USHS) organized a data analysis workshop on May 31<sup>st</sup> – 2<sup>nd</sup> June 2004 to target students on Masters Program in Public Health, Medicine, and Environmental Health who are in their final stages of writing their research projects. Three PhD students also attended the workshop. This was the 5<sup>th</sup> of a series of workshops on Research methods organized by the Uganda Society for Health Scientists (USHS).

The workshop was opened by Dr. Margret Muganwa; the Vice Chairperson of the Society. She welcomed the participants and outlined the objectives and major activities of the Society. She hoped that the members would benefit from the workshop and promised that the Society would in future organize such workshops for its members.

### **Acknowledgement:**

USHS extends a vote of thanks to the funders; AIDS International Training and Research Program (AITRP) at Case Western Reserve University and the Forgarty Center at the National Institutes of Health (NIH). We also thank the facilitators for accepting to take part and giving their time in their busy schedules to enrich the knowledge of the upcoming researchers.

We thank the participants for their active participation. We hope the knowledge attained will be translated into successful research projects.

### **Objectives of the workshop:**

- 1- To equip participants with skills to analyze data
- 2- To introduce participants to statistical computer software packages for analyzing quantitative data.
- 3- To introduce participants to qualitative data analysis both manual and with the use a software.
- 4- To equip participants with statistical interpretation and report writing skills.

**EXECUTIVE SUMMARY:**

The data analysis workshop, which was held between May 31<sup>st</sup> – 2<sup>nd</sup> June 2004, was a continuation of the 4<sup>th</sup> workshop held on Nov. 19<sup>th</sup> –20<sup>th</sup> 2003. The target group were people who were in advanced stages of writing their research projects. The workshop was attended by 25 participants and was held at TASO Mulago.

The workshop which was a three-day event introduced participants to:

- Basic Concepts of Statistics
- Basic quantitative data analysis software (Cascade Experiential Training)
- Qualitative data analysis,
- Aspects of data management,
- Thinking through data analysis plan,
- Univariate analysis,
- Bivariate analysis
- Multi variate analysis.

Participants conducted evaluation at the end of every day. Participants were grateful to USHS for holding this workshop. They recommended to the Society to organize a report-writing workshop before the end of June so as to enable MPH students who are to appear for viva to defend their research projects. Participants and facilitators proposed that that the Society should regularly organize workshops on Basic statistics as applied to research which is a fundamental to data management and data analysis. However Mr. Simon Kasasa revealed that Institute of Public Health is in the final stages of organizing such courses at a fee.

**Expectation of the participants:**

- 1- Acquire knowledge and analyze data using the computer
- 2- Know how to link / present data both quantitatively and qualitatively
- 3- To be able to draw a roc curve (PhD student)

**FACILTATORS:**

- |                       |              |                                 |
|-----------------------|--------------|---------------------------------|
| 1- Mr. Simon Kasasa   | Lecturer     | IPH                             |
| 2- Mr. Lwanga J.B.    | Statician    | Child Health Development Center |
| 3- Mrs. Jayne Byakika | Board member | USHS                            |
| 4- Mr.Lynne Atuyambe  | Lecturer     | IPH                             |

**Participants:**

- |                             |  |
|-----------------------------|--|
| 1. Ms. Nampima Kakonge Eva  | Student Tutor – Mulago Hospital                |
| 2. Ms. Kakayi Wakabala      | Student tutor- Mulago Hospital                 |
| 3. Dr. Sheba Nakajuggo      | MPH Student                                    |
| 4. Dr. Anne Nakanwagi       | MPH Student                                    |
| 5. Ms. Teopista Nakyanzi    | MU-JHU Community Liaison                       |
| 6. Dr. Paul Bakaki          | MUJ-HU Research Collaboration                  |
| 7. Dr. Dan Kaye             | Makerere University                            |
| 8. Dr. Joshua Tugumisisrize | Department of Psychiatry – Makerere University |
| 9. Dr. Barbara Kirunda      | MUIPH  |

10. Dr. Sakur Moses	Mulago Hospital
11. Mr. James Semakula	Department of Pharmacy
12. Ms. Nakato Rebecca	
13. Mr. Johnie Ntubanga	Concave International Limited
14. Mr. Fred Kayongo	Concave International Limited
15. Dr. Kakoza Mwesigye	Department of Pediatrics Mulago Hospital
16. Mr. Kibuka Grace	Volunteer USHS
17. Dr. Patrick Okello	MUIPH (MPH)
18. Mr. George Kibumba	Department of Pharmacy
19. Ms. Ahugira Hellen	Department of Nursing
20. Mr. James Semakula	
22. Dr. Nyakojo Fram	MUIPH
23. Ms. Odella Filder Monica	Nursing Division – Mulago Hospital
24. Mr. Turyahebwa Anthony	Program Officer USHS
25. Miss Isabella Achokotho	Administrator USHS
26. Miss Cissy Namakula	Office assistant USHS
27. Dr. Margaret Muganwa	Vice Chair person USHS.

### **TOPICS COVERED:**

#### **Biostatistics Review:**

By Mr. Simon Kasasa

Learning objectives:

- 1- Distinguish types of hypothesis
- 2- Describe hypothesis testing process
- 3- Explain hypothesis testing errors
- 4- Solve hypothesis testing problem

#### **Inferential statistics:**

- 1- Sampling distribution
- 2- Estimation
- 3- Hypothesis testing

#### **Basic concepts:**

- 1- A variable
- 2- Types of variables
- 3- Population
- 4- Sample
- 5- A statistic
- 6- A parameter

#### **Statistical methods:**

- 1- Descriptive statistics
- 2- Inferential statistics

#### **Hypothesis testing process:**

- 1- What is a hypothesis?
- 2- Null hypothesis
- 3- Alternative hypothesis
- 4- Identifying a hypothesis in a problem
- 5- Identifying hypotheses

- 6- Level of significance
- 7- Two tailed test – finding critical z values
- 8- Two tailed test – Rejection regions
- 9- Z test statistic
- 10- Errors in making decisions

**One Population tests- Numerical data:**

- 1- Two tailed z- test for the mean
- 2- Two tailed z- test solution
- 3- Two z-test using p-values
- 4- Two tailed z - test finding p-value

**One –tailed z- test for mean**

- 1- Alternative hypothesis points to rejection, region
- 2- One tailed test example

**One sample Tests with numerical data:**

t – test for Mean

**Hypothesis Testing with categorical data proportions:**

- 1- Proportions
- 2- Categorical data
- 3- Sampling distribution of proportions
- 4- Standardizing sampling distribution of proportions
- 5- One sample z - test for proportion.

**QUALITATIVE DATA ANALYSIS:**

By Mr. Lynn Atuyambe

**Objectives:**

- 1- Outline principles of qualitative data analysis
- 2- Describe qualitative data analysis process
- 3- Analysis qualitative methods

**Definition of some concepts in qualitative methods:**

- 1- Focus group discussion
- 2- Key informant interviews
- 3- In depth interviews
- 4- Narratives

**Qualitative data analysis:**

- 1- Characteristics of qualitative data analysis
- 2- Principles of qualitative analysis
- 3- Basic steps in qualitative data analysis
- 4- 14 stages of qualitative data analysis
- 5- Developing themes
- 6- The Master Sheet analysis technique
- 7- Concluding remarks

**Professional Data Management:**

By Mr. John Baptist Lwanga

**Qualitative data analysis software**

- 1- Qualitative electronic data management

- 2- EZ Text 3.06c
- 3- NUD\*IST 6.0
- 4- AskSam3.0+
- 5- EZ Text 3.06c – details

#### **ANALYSIS OF THE EVALUATION BY PARTICIPANTS:**

Activity /item	Average	Good	Excellent
Venue	13%	60%	25%
Food	21%	71%	7%
Administrative support	07%	50%	43%
Responsiveness of the organizers	07%	44%	50%
Basic concepts to statistics		67%	33%
Introduction to quantitative data analysis		77%	23%
Evaluation of the day's activity	07%	71%	21%
Introduction to qualitative data analysis	07%	71%	21%

#### **Additional comments:**

- More discussions are required
- Include file management analysis
- Keep time especially at the beginning of the workshop
- More time is needed to explain certain things that are not in the workshop
- Questions due to time factor should come at the end of the session
- Give more time to lectures
- More discussions on qualitative analysis
- Improve on food and keep time
- Adjust for different levels
- Workshop needs more time like 1 week
- More practical sessions needed on own participants' laptop
- Exercises for take home should be emphasized
- More individual tasks should be encouraged
- Divide people in levels of experience and training
- Highly practical – good approach
- Facilitators were really good
- Facilitators were very few
- Facilitators were very speedy
- Best workshop ever attended
- Appreciates the workshop's contribution to the dissertations' completion
- More time for Basic Statistics

**Recommended time for the next workshop:** Last week in June