**Certificate Workshop on Biostatistics: A report**

India International Center, New Delhi

January 13-14, 2020

**Highlights and summary of the workshop**

1. *20 participants* engaged in small group discussions and exercises
2. Lead Facilitators associated with *Johns Hopkins Bloomberg School* of Public Health
3. *Class Dataset* generated by participants themselves
4. *No-profit no-loss* arrangement of generated funds, all collections spent on workshop
5. Participants provided with *video content* for introduction and future ready reference
6. Participants provided with a *printed workshop book* including workshop presentations, exercises, reading material and video content reference
7. Participants from heterogeneous subjects and at different stages in career
8. A *special humanities session*
9. Workshop *supported by Stata Inc USA* (provided free access to Version 16.0)

**Workshop report**

*Workshop objectives*

A workshop on Biostatistics was conducted at the India International Center (Annexe) at New Delhi on the January 13-14, 2020. The workshop invited a limited number (20) of medical teachers engaged as regular faculty at medical schools in and around Delhi to participate in the two-day hands-on workshop with the following objectives,

1. To understand how to record data for easier analysis
2. To gain independence in executing exploratory and basic analysis on previously collected data
3. To improve communication with biostatistical specialists when approaching for assistance

*Workshop sessions*

A total of 20 medical teachers in different stages of their career (Assistant Professors to Senior Full Professors) participated in this two day meeting which covered basic statistical analysis in eight different sessions, namely,

1. Study design (Ashish Goel, Vikrant Mittal, Manoj Singh)
2. Sample size (Alden Gross)
3. Exploratory data analysis (Krishna D Rao, Atul Aravindakshan)
4. Tables and figures (Alden Gross, Tung Pham)
5. Tests of hypothesis (t-test and chi-square test) (Alden Gross, Linna Li)
6. Correlation and regression (Ashish Goel, Arnold Onana, Youssef Farag)
7. Reliability and validity (Alden Gross, Linh Bui)
8. Confounding and bias (Sreenivas V, Youssef Farag)
9. ROC Analysis (Karen Bandeen-Roche)

*Workshop sessions and content*

The sessions were held in person as contact programs at the venue. In addition, video content was generated and made available to all participants (including those who could not attend)

Video content created for the purpose of the workshop was made available to participants and was opened for public viewing on YouTube channel. Participants received didactic instruction in each session and were asked to engage in group exercises.

*Workshop facilitators*

The following facilitators participated in the workshop and provided instruction and exercises to the participants in deliberations over two days

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| **Facilitators in person** | **Video content** |
| Dr Alden Gross (Center for ageing)Dr Krishna Rao (Dept of International Health)Dr Ashish Goel (UCMS, Delhi)Dr Vikrant Mittal (Oasis Health, Delhi)Dr Sreenivas V (AIIMS, Delhi)Dr Manoj Singh (National Univ, Australia)Dr Nitish Dogra (IIHMR, Delhi) | Dr Karen Bandeen-Roche (Prof and Chair, Biostatistics)Dr Youssef Farag (PhD, 2019)Dr Atul Aravindakshan (USA, MPH 17)Dr Arnold Onana (USA, MPH 17)Dr Linna Li (Canada, MPH 17)Dr Linh Bui (Vietnam, MPH 17)Dr Tung Pham (Vietnam, MPH 17)Dr Arun Sharma (UCMS, Delhi) |

*Invited humanities session*

A special session was held on the second day where a young poetess was invited to recite to the participants during lunch to disengage from hardcore statistics and engage with real life at a deeper level

*Workshop Dataset*

The dataset used for the examples and exercises during the workshop was created by the participants themselves by filling in their details, hobbies, preferences on a google document. Since the participants had themselves answered each of the variables included in the data set, they were intuitively familiar with the dataset and this made understanding easier and faster.

*Workshop participants*

The following participants attended the workshop on two days,

1. Dr Manish Soneja (AIIMS, Delhi)
2. Dr Bhavna Dhingra (AIIMS, Bhopal)
3. Dr Richa Mittal (Safdarjang Hosp, Delhi)
4. Dr Anand Thawait, (MMIMSR, Ambala)
5. Dr Anil Kumar (LHMC, Delhi)
6. Dr Anupa Prasad (RIMS, Ranchi)
7. Dr Sumita Halder (UCMS, Delhi)
8. Dr Seema Kapoor (MAMC, Delhi)
9. Dr Mughda Tapdiya (Syneos Health)
10. Dr Navneet Kaur (UCMS, Delhi)
11. Dr Paromita Dutta (MAMC, Delhi)
12. Dr Puneet Gupta (Superspecialty Hospital, Delhi)
13. Dr Srimanta Sahu (RML Hospital, Delhi)
14. Dr Subhash Whankatte (Aditya Birla Memorial Hospital, Delhi)
15. Dr Udit Narang (MMIMSR, Ambala)
16. Dr Vinod Gautam (Safdarjang Hospital, Delhi)
17. Dr Vishal Gosavi (Rio Tinto)
18. Dr Aarti (PGIMER, Rohtak)
19. Dr Kamal Singh (PGIMER, Rohtak)
20. Dr Naganath N Prem (Jaslok Hospital, Mumbai)
21. Dr Piyush Jain (RML Hospital, Delhi)
22. Dr Avinash Lomash (MAMC, Delhi)
23. Ms Kamakshi Bansal (UCMS, Delhi)
24. Ms Atmaja Swadia (University of Delhi)
25. Dr Raji Kurumkattil (Army Hospital, Delhi – could not attend)
26. Dr Parul Jain (MAMC, Delhi – could not attend)

*Organizers*

The workshop was organized by collaboration of the Association of Gerontology (India) with the Research Wing, Student Chapter and the Journal of the Indian Academy of Geriatrics.

*Acknowledgements*

The workshop was supported by the Johns Hopkins Bloomberg School of Public Health. The workshop was also supported by Stata Inc USA, who provided complementary access for the latest version of Stata for all participants for the duration of the workshop

**Future workshops planned**

A felt need for similar workshops was established during this workshop. The participants requested further similar workshops on the same subject and also expressed interest in other workshops in different areas of publication, analysis and design

*Write your own paper*

A workshop targeted to post-graduate students soon after completion of their dissertation. The participants (limited number) come with their own dataset and develop a paper over four days at an intensive off-station in-house program under individual supervision and instruction from experienced faculty working in close coordination

*Analyze your own data*

A workshop targeted to post-graduate and doctoral students who have completed their data collection but are looking for guidance for analysis. Participants come for a one-day workshop with their data and analyse their own dataset with a deeper understanding of the analysis process. Participants work on Stata and prepare a do file for analysis

*Design your own research*

A workshop targeted to faculty members from medical institutions. The participants (limited number) would come with an idea and over one day sessions will receive instruction on developing the protocol for their study. Focus areas would be a) structure of the research question; b) defining the aims and objectives; c) choosing the study design; d) identifying the ethical concerns; e) calculating the sample size; f) developing an analytical plan.

*Advanced biostatistics*

Different workshops on advanced biostatistics will focus on a) regression analysis; b) ROC analysis and diagnostic tests; c) GLM; d) Systematic review and meta-analysis