

Health Research: Theoretical and Practical Training for Health Professionals

By Dr Fakir Amirul Islam

Training Objectives To deliver a series of online lectures and practical tasks, especially for Health Professionals. This training program introduces learners to key concepts in (i) modern epidemiology, and (ii) application of appropriate research designs and analytical techniques to conduct high-quality research in public health domains. The training program develops learners' capability in (iii) measuring diseases and quantifies the factors associated with disease outcomes, (iv) critically assessing health-related reports, (v) conduct an appropriate literature review, (vi) develop research proposals using appropriate research methodology, (vii) write scientific reports and manuscripts, and (viii) be able to conduct their own research projects at a small scale.

Outline of the Training Program

The program is comprised with six independent modules. The Modules are:

1. Epidemiology
2. Research methodology
3. Common Statistical Techniques in Analysing Health related data
4. Literature review and proposal writing
5. Writing a Scientific Manuscript by analysing a practical dataset
6. Design and conduct your own project

Experience and Biography of Dr Fakir Amirul Islam

Experience

2014–: Senior Lecturer and Research Director • Faculty of Health, Arts and Design, Swinburne University of Technology

2005–2013: Senior Research Fellow • Faculty of Medicine, The University of Melbourne

2003–2004: Research Fellow • Faculty of Health & Medicine, The University of WA

2001–2002: Research Scientist, IMCB, National University of Singapore

2013- : Founder, Organisation for Rural Community Development (ORCD), www.orcdbd.org

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Biography:

Dr Fakir M Amirul Islam is a senior academic staff in the School of Health Science who has recently completed his tenure as the Departmental Research Director. His teaching and research area is in Epidemiology and Biostatistics. Dr Islam experienced in multiple research domains, with the major research strength in diabetes and its complications. His specific research interest over the past 20 years has been in risk prediction and study of associations of risk factors including genetic factors with disease outcomes. Since 2012, he has been leading a number of projects including diabetic retinopathy screening program, screening for vision impairment in school children in Bangladesh. An additional focus of his research is on psychometric evaluation of psychological distress and quality of life measuring tools and Health Literacy. The long-term goal for all his work is the development of screening programs for early detection of chronic diseases, the establishment of appropriate intervention programs and health services for the people living in rural and remote areas.

Dr Islam has been very productive in publishing articles. He has more than 180 publications and more 90% are published in top two quintiles including the publications in *Journal of the American College of Cardiology* (Impact factor (IF)=18.64), *Diabetes Care* (IF=15.27), *Annals of Neurology* (Impact Factor, IF =11.91) and *Ophthalmology* (IF 7.73). His publications are widely cited with 7155 of total citations and h-index 51 and i10 index 85 (google scholar). He is an academic editor of one of the mostly cited open access journals “PLOS One (Impact factor (IF) 3.23)” and a section editor of another international journal “Eye (IF 2.87)”. Dr Islam teaches mostly at post-graduate levels and supervise PhD students. Currently he is supervising six PhD students. Dr Islam collaborates and conduct research with several world class researchers, including researchers at Swinburne University of Technology, The University of Melbourne, University of Bonn in Germany and University of Osaka in Japan.

Dr Islam has founded a non-government organisation, the Organisation for Rural Community Development (ORCD) (www.orcdbd.org) to provide health service and to conduct high quality research. Under the ORCD, Dr Islam has established a Technical College.

The training program is comprised with six independent training modules.

Topics covered in each module:

Module 1: Epidemiology: Four months

1. Concept of Epidemiology
2. Measuring disease
3. Morbidity and Mortality
4. Prevention and early detection of disease
5. Screening and diagnosis
6. Surveillance
7. Bias and Confounding
8. Causality
9. Outbreak

Module 2: Research methodology [open to Health and other disciplines]: Two months

1. Study design
2. Cross-sectional and cohort studies
3. Community trials, Randomised Control Trails and Clinical Trials
4. CONSORT reporting for different types of studies
5. Case-control study
6. Analysis of contingency Table
7. Systematic Review and Meta analysis-basic

Module 3: Common Statistical Techniques in analysing health related data: Four Months

1. Basic statistics
2. Distribution of data
3. Test of hypothesis and comparisons of means
4. Test for proportions
5. Correlation and regression (continuous outcome)
6. Modelling binary outcome variables (logistic regression)
7. Survival analysis
8. Sample size calculation
9. Systematic Review and Meta analysis-Advanced

Module 4: Literature review and proposal writing: Three months

1. Formulate research questions and hypotheses in a specific research context
2. Distinguish between different data collection strategies and research designs in a specific research context
3. Formulate directions of future investigations
4. Critical thinking to identify research questions, hypothesis and objectives
5. Writing literature review, research proposal and ethics application

Module 5: Writing a Scientific Manuscript by analysing a practical data set: Three months

A dataset will be given to analyse and to write your own manuscript.

Abstract

Introduction

Materials and Methods

Results

Discussions and Conclusions

Referencing

Module 6: Design and conduct your own research, either cross-sectional or intervention programs: Six months

Pre-requisite or co-requisite

Modules 1 and 3 could be taken simultaneously

Modules 2 and 4 could be taken simultaneously after completing modules 1 & 3.

Module 5: Modules 1-4 are pre-requisite

Modules 5 and 6 could be taken simultaneously

Teaching and Learning Structures

- This training employs a fully online structure. All students will be expected to:
- Attend 90-120 minutes face-to-face learning via Zoom
- The participants will have opportunities to ask questions
- They are expected to post comments and questions on discussion board to discuss with other participants. The unsolved questions will be answered within 72 hours.
- The lectures will be recorded for them who miss to participate any sessions.
- Lecture notes will be provided before the weeks begin.
- Attend or view the recording of the online class;
- All weekly materials can be found on ORCD website which will be password protected

Weekly online lecture per module will be held on Friday and/or Saturday. Maximum of two modules can be launched at a time.

Online Discussions: Participants are encouraged to use the discussions on discussion board to introduce themselves, make general comments, ask questions about the content. It would be ideal if they use these discussions rather than directly emailing the trainer about the general content of the learning modules, as then all participants

will be able to benefit from the responses and this helps to create a classroom environment.

Assessment: At the end of each module, a lengthy take home assignment will be given for assessment.

Requirements: [Computer access and Internet](#)

Cost involved:

First four lectures are free. If the participants find this program, its delivery and contents are useful, they are expected to enrol in any number of modules. However, the modules are inter-related. Enrolment is their volunteer decision. Course fee will be announced later. There will have a minimum threshold but the maximum will depend on your generous contribution to a non-profit organisation.

Additional information:

The ORCD is a non-government and non-profit organisation. **The ORCD's establishment is for multi-purpose.** For example

Education sector: Provide skill-based quality education.

Long-term goal: The ORCD has established a Business Management Institute (BMI) (vocational) with a long-term plan is to establish a multi-disciplinary large institute to provide different skill-based training

Health sector: Promote and improve rural healthcare programs especially through providing health education and cost-effective health and service delivery through specialists doctors, and conducting high quality research.

Long-term goal: The ORCD aims to establish a community hospital and a rural health research institute as the long-term goal.

The objectives of this training program:

- ① I wish people get benefit from this training program.
- ② The training fees will be fully utilised for Education, Health and Well-being for general people