



**MEDICAL EDUCATION CENTRE FOR RESEARCH
INNOVATION & TRAINING
(MECRIT), KGUMSB,
11001-Thimphu**

COURSE BRIEF
**Bhutan's Structured & Mentoring Approach to Research
Training [BSMART]**

1. Brief course overview

The BSMART course is an adapted version of SORT-IT (Structured Operational Research and Training Initiative of the International Union Against Tuberculosis & Lung Diseases, the UNION & Médecins Sans Frontières (MSF) International) model of the operational research capacity building, to suit Bhutan's local context.

This operational research (OR) training program intends to orient, build and/or enhance research capacity of researcher(s) to undertake OR mainly to improve evidence based planning and decisions for the health care system.

Notwithstanding, it also anticipates to imparting skills and techniques for undertaking the entire research process from conceptualization of research proposal to publication and dissemination of findings.

2. Purpose

To develop the practical skills for conducting operational research and publishing and dissemination of the findings through seminar or conference presentations.

3. Course curriculum and expected outputs

The course is composed of four practical modules conducted over a period of 8-10 months at the Medical Education Centre for Research Innovation & Training (MECRIT), Khesar Gyalpo University of Medical Sciences of Bhutan (KGUMSB), Thimphu, as follows:

Module 1: Research questions and protocol development / 05 - 11 July 2021, ONLINE (Tentative)

The purpose of this seven-day module is to develop a thorough understanding amongst participants about what OR is all about and to ensure that a draft research protocol is produced at the end of course module. The teaching will be through lectures, discussions, exercises and use of completed and published operational research. Most importantly, the participants will actually develop their research questions and written protocols during the week with the support of the facilitators.

Since this OR course is intended specifically for the KGUMSB faculty involving medical professionals who have limited liberty to call-off duty for a longer period; thus, the 1st module will be conducted **online** in the fashion of webinars/video conferences. In addition, LMS such as **Moodle** will be used as a platform to access all course contents and resources. Prior to actual course commencement, there will be an online **pre-test** for all the selected participants to assess their level of understanding broadly on the medical/health research, research methods and data analysis (statistical competence), ethics, among others.

The 2nd module course will follow-suit after the successful completion of the 1st module. Towards the end of 2nd module, similar **post-test** will be conducted to assess and draw comparisons on the level of understanding among participants before and after course to obtain realistic picture or basis for further improvements in the BSMART course structure.

Brief content overview

- ✓ Introduction to Operational research (OR)
- ✓ Developing research protocols
- ✓ Research terminology - Patients and data
- ✓ Asking the right research questions
- ✓ Research Hypotheses (if any)
- ✓ Simple analysis
- ✓ Aims and Objectives
- ✓ Reference management
- ✓ Ethics

Key deliverable Output-1: Draft study protocol written by each participant.

Module 2: Data management and Analysis-I / 12 - 18 JULY 2021, Paro (Tentative)

The purpose of this module is to ensure that participants understand the importance of good data quality, data management and have the skills to produce an efficient electronic data entry form, based on principles adaptable to their specific needs.

Brief content overview

- ✓ Importance of good data and data management
- ✓ Designing an efficient data entry instrument (EpiData - Hands-on)
- ✓ Making an efficient computer data entry questionnaire
- ✓ Entering and validating data entry
- ✓ Producing relevant analysis results in tabular form
- ✓ Applying the knowledge to specific needs of individual participants (plenary sessions)
- ✓ Introduction to data analysis (using SPSS/STATA/R/EpiData-Analysis)
- ✓ Exercises

Key deliverable Output-2: Draft instrument for electronic data entry for each participant.

Module 3: Data Analysis-II using - STATA/SPSS/R/EpiData-Analysis / 12 - 18 April 2022, Punakha (Tentative)

In general, the SORT-IT OR course consists of three (3) modules only. The SORT-IT considers or accepts only candidates with Master's degree or someone with proven past research experiences, which may not be applicable for the BSMART application selection criteria.

Therefore, additional module is included in the BSMART as an expanded module based on module-3 of the former. The main purpose of this module is to ensure that participants understand the concept and techniques of quantitative (mostly) data analysis.

In this module, participants will learn how to use STATA/SPSS/R/EpiData-Analysis (based on the individual participant's skills, experiences and interest on the use of statistical packages) for data analysis, plan for data analysis, manage and analyse data. At the end of the modules all participants should have completed the analysis and generated all tables and figures. Series of lab-exercises and assignments will be followed after every concept or theory sessions.

Brief content overview

- ✓ Data types and Levels of measurement
- ✓ Describing data (Univariate Statistics - including tables, graphical representations, summary statistics)
- ✓ Measures of Dispersion
- ✓ Relationships between 2 variables (Bivariate Analysis- t-test, f-test, chi-square, correlation)
 - Bivariate tests using discrete data
 - Bivariate tests using discrete data and continuous data
 - Equality of variances
 - Bivariate tests using continuous data
- ✓ Regression review
- ✓ Simple linear regression
- ✓ Logistic Regression
- ✓ Ordinal and Multinomial Logistic Regression (Multivariate Analysis)
- ✓ Regression and transformations
 - Testing for violations of assumptions (Linearity, Normality, Homoscedasticity & Multicollinearity)
 - Log transformation
 - Quadratic transformation
- ✓ Factor Analysis
- ✓ Survival Analysis
- ✓ Multiple Classification Analysis - if time permits
- ✓ Exercises

Output: Understood, completed the analysis and generated all tables and figures by each participant.

Module 4: Writing a scientific paper / 19 - 25 April 2022, Punakha (Tentative)

The purpose of this seven-day module is to help participants use the results of their scientific papers and turn it into a draft article for submission for publication. How to deal with on-line submission and editors' and reviewers' comments will also be covered

Brief content overview

- ✓ LaTeX - text maker for content and type setting for journal papers
- ✓ Learn the principles of writing a scientific paper in a step by step manner
- ✓ During the module, write a draft paper
- ✓ Learn how to deal with online submission and peer review

Output: Draft manuscript to be submitted to a scientific journal.

3. Selection criteria for successful applicants

Applicants must satisfy the following strict selection criteria:

- a) Be a core KGUMSB faculty or staff either from the University's 3 faculties including OOP or affiliated institutions and training hospitals, who are actively involved in the functions of KGUMSB;
- b) Provide written commitment to attend all four modules of the training course, return to their programme or faculty/institution after the course and implement course knowledge at programme level;
- c) Provide a written statement from the coordination/ operations or relevant authority attesting to the investment of resources and granting permission to have time and opportunity to carry out operational research;
- d) Provide a written statement from a mentor (if available) describing how they know the candidate and how they propose to provide support to complete the course successfully;
- e) **Outline a half page of text that:** a) describes a problem that the candidate has identified within a given program/faculty and b) formulation of a research question that is proposed to be developed into an operational research project. *Please note that the research questions using routine programme data (such as treatment card/ registers/ DHIS2-HMIS, etc.) are preferred as prospective studies are unlikely to fit into the time-line (6-9 months) and expected outputs of the course.*
- f) Have a MBBS/MD, Bachelors in Public Health (BPH) or Masters in Public Health (MPH) or equivalent, or a strong recommendation.;
- g) Be fluent in written and spoken English;
- h) Be computer literate;
- i) Ability to mobilize the funding required to carry out operational research, if required;
- j) Preference will be given to those applicants with research topic on National Health Research Priority List (draft) and to those who have the fund secured or to those whose research doesn't require fund.

**Nurses/technicians and data analysts who are actively involved in teaching (as a faculty) and who meet the above criteria are strongly encouraged to apply.*

4. Approach to training

- This is a **target-oriented training** with defined milestones and expected outputs. Failure to fulfil the expected outputs linked to each module will mean that the candidate does not return for the next module.
- Participants go through the whole research process and complete the course with a defined **product**.

5. What does the participant gain?

- ✓ Practical skills for undertaking the entire operational research process from concept to publication;
- ✓ The experience of learning and sharing knowledge within a team of motivated participants and talented facilitators in operational research (who act as mentors) from different faculties and institutions. Facilitation is currently provided by a selected group of facilitators from the KGUMSB, the JDWNRH and/or affiliated institutions;
- ✓ An opportunity to excel and gain visibility in operational research and to prepare for increased research responsibilities/leadership in their faculty or institution;
- ✓ Possibility of submitting published papers in the peer-reviewed journals (such as BHJ, among others);
- ✓ Participants are strongly encouraged to help train and eventually lead others (as mentors) to maximise long term capacity development and impact. The philosophy used is “**see one, do one, teach one**”.

6. What does the KGUMSB or the participant’s organisation or institution gain?

- ✓ A person who is well trained in operational research and can help the program or institution undertake relevant operational research to identify challenges and improve programme performance in a sustainable manner;
- ✓ This will be a “pioneering initiative” giving rationale for a *career opportunity* development, including the possibility of pursuing a Masters by Research and/or MD/PhD in the field of operational research. The approach will strongly complement “innovation” within routine operations and contribute to critical reflection on program orientation and its impact over time;
- ✓ The initiative would also foster faculty and/or *medical staff-retention* and attract qualified staff and reduce turn-over which hampers continuity of research initiatives.

7. Sponsorship

The TCP-JICA financial support to KGUMSB will be a source of funding for this BSMART course modules. A total of 12 candidates (KGUMSB faculty & staff) will be selected and the organizer will bear the DSA/TA for all successful applicants as per the JICA or COS 2018 or RGOB norms & rules, wherever applicable.

8. Follow-up:

In between the modules 2 and 3, candidates will return to their respective faculty/institutes/programme to continue their routine duty and in addition collect the data pertaining to their operational research projects. Participants will be contacted periodically in between the modules and after the completion of the training/workshop to determine their accomplishments and targeted milestones. Facilitators/mentors will be available to provide advice upon request.

9. Application dateline: **20th May, 2021**

For any queries, please contact **Tshering JAMTSHO** at:
tj@kgumsb.edu.bt [+975-17631262] OR **Cheku Wangchuk** at:
cheki123@kgumsb.edu.bt [+975-77431073].