REPORT

Report on participation of the ICMR International Fellow (ICMR-IF) in Training/Research abroad.

1. Name and designation of ICMR- IF : Dr. Gayatri Vishwakarma

2. Address : Rajiv Gandhi Cancer Institute & Research Centre (RGCIRC), Sector 5, Rohini, New Delhi

3. Frontline area of research in which training/research was carried out : Complex Surveys (Analysis of DHS Data sets), Survival Analysis and Meta-Analysis

4. Name & address of Professor and host institute : Prof. Karan P Singh
Chair, Department of Epidemiology & Biostatistics
School of Community and Rural Health
The University of Texas Health Science Center at Tyler
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5. Duration of fellowship : 3 Months

6. Highlights of work conducted :

   i) Technique/expertise acquired:

   - Multilevel models (MLMs) for categorical data using PROC GLIMMIX
   - Application of the approach (Mehta and Pocock, Statistics in Medicine, 2011) in the use of adaptive clinical trial design in clinical trials
   - Data management and data analysis for Large-Scale Surveys like Demographic & Health Surveys (DHS, USAID) using SAS 9.4
   - Various techniques addressing issues in Survival analysis
   - Various methods for Meta-Analysis of case-control studies

   ii) Research results, including any papers, prepared/submitted for publication:

   Multilevel models (MLMs) are commonly used in social and health sciences where data are typically hierarchical in nature. However, the frequently used hierarchical linear models (HLMs) are appropriate only when the outcome of interest is normally distributed. When

outcomes are not normally distributed (binary, categorical, ordinal), a transformation and an appropriate error distribution for the response variable needs to be incorporated into the model. Therefore, hierarchical generalized linear models (HGLMs) need to be used. I learnt the use of PROC GLIMMIX for analysis of DHS data on Ethiopia for HIV stigma, and a manuscript is in progress.

Also I understood on how to analyze survival data with competing risks. I learned analysis from an old study data set to understand the theory of competing risk which is concerned with the assessment of a specific risk in the presence of other risks. This example was based on two kidney problems (1). Age at first kidney failure and (2). Residual survival time following the failure of first kidney. Two methods on the treatments (i.e. dialysis and transplant) were utilized for analysis and results were compared with those obtained using Freund's Model.

Meta-analysis of case-control studies conducted on breast cancer in India was performed.

Publications:

1. Meta-Analysis of Case-control studies conducted in India on Breast Cancer Risk Factors (under submission, March 2018). Abstract submitted for American Public Health Association conference 2018.
2. Association and Trends of External Stigmatizing Attitude and Knowledge on HIV in Ethiopia: A Multilevel Model approach (under submission, March 2018).

Seminars/Lectures:

1. Research Faculty Seminar (Weekly)
2. UTHSCT Writing Accountability Group (Weekly)
3. Give Guest Lectures to MPH students on
    a. Survival Analysis
    b. Rural Health in India
    c. Sample Size calculation

iii) Proposed utilization of the experience in India:

- I will apply the Multilevel modeling on nationally representative longitudinal study like NHFS, population-based cancer registry data and hospital-based cancer registry data.
- Meta-Analysis will be performed on other type of cancers such as prostate, colon and leukemia.

Signature of ICMR-IF