

# Statistical Analysis of Count Data

## Course Overview

The workshop will introduce count data, understanding assumptions, assessing fit of the model and interpreting model parameters and associated statistics. We will cover modern approaches to analyzing count data including Poisson regression, Negative Binomial regression, Generalized Poisson model, Zero-inflated and Zero Truncated Poisson and Negative Binomial models. The workshop is intended for practicing researchers who wishes to analyze count data. The course will be mostly non-technical with lecture and some hands-on analysis. The lecture analyses will be demonstrated using STATA software.

## Learning Objectives:

1. *Gain understanding of count data and its characteristics*
2. *Learn about different count data models (Poisson, Negative Binomial, Generalized Poisson, ZIP and ZINB models).*
3. *Hone skills in comprehension and evaluation of statistical methods for count used in articles data from important studies in public health and medicine*

**Participants:** Maximum 20 participants.

The course is open for practicing researcher who wishes to model count data with following backgrounds biostatistics or statistics, epidemiology, medicine, dental and public health. Prerequisite for this workshop is general competency in understanding of multivariable linear regression and logistic regression models.

Application: You can apply by sending an email to the below mentioned email ID followed by the payment of fees.

♦ demand draft (DD) drawn in favour of St. John's Research Institute, Bangalore or  
by NEFT [beneficiary name: St. John's Research Institute; bank name: Bank of Baroda; beneficiary's bank A/c #: 05210100024920; branch: John Nagar, St. John's Medical College, Koramangala, Bangalore-560034; IFSC code: BARB0STJOHN (5th digit zero)]

**Course fee:** Rs. 5000/- per participant (excludes travel and incidentals)

**Date:** Tuesday, June 7, 2016 (One day)

**Venue-** Biorepository conference hall, St. John's Research Institute, Bangalore - 560034

## Course Faculty:

Dr. Shankar Viswanathan, DrPH, MSc  
Assistant Professor, Division of Biostatistics  
Department of Epidemiology and Population Health  
Albert Einstein College of Medicine,  
Bronx, New York, USA

## Course Co-ordinator

Dr.Tinku Thomas PhD  
 Associate Professor  
 Division of Epidemiology and Biostatistics  
 St. John's Research Institute  
 Koramangala  
 Bangalore – 560034  
 Email: [tinku.sarah@sjri.res.in](mailto:tinku.sarah@sjri.res.in) For further details visit: [www.sjri.res.in](http://www.sjri.res.in),

	Title of session	Details of topics to be covered	
9:00-9:45	<i>Introduction to count data</i>	<ul style="list-style-type: none"> <li>○ What are counts</li> <li>○ Design of studies that generate count data</li> <li>○ Some real life examples</li> </ul>	Lecture format
9:45-10:30	<i>Poisson regression</i>	<ul style="list-style-type: none"> <li>○ Poisson regression</li> <li>○ Understanding model assumption</li> <li>○ Violations of assumptions: over- or under-dispersion</li> <li>○ Interpreting model coefficients and associated statistics</li> </ul>	Lecture format
10:30-10.45	Tea Break		
10:45-11:30	<i>Testing overdispersion and assessing fit of the data</i>	<ul style="list-style-type: none"> <li>○ Overdispersion issues</li> <li>○ Testing for overdispersion</li> <li>○ Methods to handle overdispersion</li> <li>○ Model Diagnostics</li> <li>○ Model selection</li> </ul>	Lecture format
11:30-12.30	<i>Practical Exercises using STATA and Q &amp; A session</i>		Participant interaction & discussion
12:30-1:30	Lunch		
1:30-2:30	<i>Negative Binomial regression</i>	<ul style="list-style-type: none"> <li>○ Different Negative Binomial (NB) models</li> <li>○ Assumptions and further tests</li> </ul>	Lecture format
2:30-3:30	<i>Problems with zeros</i>	<ul style="list-style-type: none"> <li>○ Counts without and with excess zeros</li> <li>○ Zero Truncated Poisson (ZTP) models</li> <li>○ Zero Truncated Negative Binomial (ZTNB) models</li> <li>○ Zero Inflated Poisson (ZIP) models</li> <li>○ Zero Inflated Negative Binomial (ZINB) models</li> </ul>	Lecture format
3:30-3.45	Tea Break		
3:45-4:15	<i>Practical Exercise using STATA and Q &amp; A session</i>		Participant interaction & discussion
4:15-5.00	<i>Generalized Poisson model and overview of advanced models</i>	<ul style="list-style-type: none"> <li>○ Underdispersion issues</li> <li>○ Fitting Generalized Poisson model</li> <li>○ Discussion on longitudinal and cluster count data</li> </ul>	Lecture format

**Statistical analysis of count data**  
**St. John's Research Institute, Bangalore 560034**  
**1 day Workshop – 7<sup>th</sup> June, 2016**



**Registration Form**

<b>Name of the Participant &amp;</b> Designation	
<b>Name of the Institution</b>	
Telephone/ mobile number	
Email address	
Reason for interest in the workshop	

**Important notes on registration:**

1. You can apply by sending filled application by email to the below mentioned email ID
2. Please pay Rs 5000/- as registration while submitting the filled in application form. The fees can be paid as
  - a) demand draft (DD) drawn in favour of St. John's Research Institute, Bangalore or
  - b) by NEFT [beneficiary name: St. John's Research Institute; bank name: Bank of Baroda; beneficiary's bank A/c #: 05210100024920; branch: John Nagar, St. John's Medical College, Koramangala, Bangalore-560034; IFSC code: BARBOSTJOHN (5th digit zero)]
3. A separate registration form needs to be filled for each participant
4. Lunch and Snacks will be provided

**Contact for further enquiry:**

Division of Epidemiology & Biostatistics  
St. John's Research Institute  
Bangalore – 560034  
Contact Number: 080 – 49467029 / 49467036

**Note:**

Please submit the filled registration form to this: [newbio@sjri.res.in](mailto:newbio@sjri.res.in)

Filled form should be submitted by 30<sup>th</sup> May, 2016.