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INDIAN COUNCIL OF  
MEDICAL RESEARCH

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Rajendra Memorial National  
Institute of Health Research



# RAJENDRA MEMORIAL NATIONAL INSTITUTE OF HEALTH RESEARCH

Department of Health Research, Ministry of Health & Family Welfare, Govt of India

&

## INSTITUTE OF APPLIED STATISTICS, KANPUR

A Statistical Training & Research Institute

*Launched*

One-Month Online Certificate Programme on

# Systematic Review & Meta-Analysis



01 September to 30 September, 2026



Live Session : 06:00 PM to 07:00 PM

*Under*

## DR. PADAM SINGH RESEARCH & DEVELOPMENT SCHEME

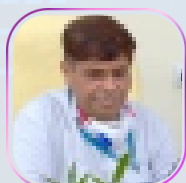
### Patron



#### Dr. Rajiv Bahl

Secretary to Government of India  
Department of Health Research  
&  
Director General  
Indian Council of Medical Research (ICMR)  
New Delhi

### Convener



#### Dr. Krishna Pandey Organizing President

MBBS (Hons. Patna), MD (General Medicine)  
Director & Scientist-G  
ICMR-RM NIHR, Patna  
&  
Outstanding Professor  
Faculty of Medical Research  
Academy of Scientific and Innovative  
Research (AcSIR)



#### Dr. Ashok Bhardwaj Chairperson

**Dr. Padam Singh R&D Scheme**  
Professor Emeritus  
MM Medical College & Hospital, Solan.  
Former Professor and Head  
Dept. of Community Medicine,  
Medical Colleges at Shimla, Kangra at  
Tanda and Hamirpur, H.P.



#### Dr. Niyamat Ali Siddiqui Organizing Secretary

Scientist-F (Dy. Director), & Head,  
Department of Biostatistics &  
Computing, ICMR, Govt. of India  
&  
Associate Professor  
Faculty of Medical Research,  
Academy of Scientific and Innovative  
Research (AcSIR)



#### Er. Amit Tiwari Joint Organizing Secretary & Programme Coordinator

Head, Dept. of Information Technology  
&  
In-charge, RD Cell  
Institute of Applied Statistics  
Kanpur, Uttar Pradesh



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# One-Month Online Certificate Programme on **SYSTEMATIC REVIEW & META-ANALYSIS**



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## ABOUT CERTIFICATE PROGRAMME ON SYSTEMATIC REVIEW & META-ANALYSIS

The One-Month Online Certificate Programme on “Systematic Review and Meta-Analysis” is designed to equip participants with a strong foundation in evidence-based research methods. The programme provides a step-by-step understanding of the systematic review process, from formulating precise research questions and conducting comprehensive literature searches to evaluating study quality, minimizing bias, and performing meta-analyses. Through expert-led sessions, practical examples, and structured guidelines, participants will develop the skills necessary to produce high-quality, transparent, and reproducible systematic reviews and meta-analyses, which are essential for informed decision-making in healthcare, public health, and social sciences.

## OBJECTIVE

The primary objective of this programme is to develop participants' competencies in planning, conducting, and reporting high-quality systematic reviews and meta-analyses. The course aims to provide a clear understanding of evidence synthesis methods, equipping learners with the skills to frame structured research questions, perform comprehensive literature searches, assess the risk of bias, apply appropriate meta-analytic techniques, and prepare manuscripts for publication in scientific journals. The programme is designed to promote critical thinking, methodological rigor, and transparency in research, empowering professionals to contribute meaningfully to evidence-based practice and policy-making.

## WHO SHOULD ATTEND ?

**Academicians, Faculties and Research Scholars, Students of Medical/Paramedical Science who are interested in learning Systematic Review & Meta-Analysis.**

## WHY JOIN THIS COURSE?

- **Boost Your Research Skills:**
- **Master International Standards**
- **Work with Real-World Tools**
- **Enhance Academic and Career Prospects**

## TOOLS AND SOFTWARE YOU WILL LEARN

- RevMan Web (Free via Cochrane Account)
- Rayyan (Web-Based, Free)
- EndNote / Zotero / Mendeley
- PubMed / DOAJ / OpenGrey
- GRADEpro GDT (Free web tool)
- R (with 'meta', 'metafor' packages)
- Microsoft Excel / Google Sheets

**Note: The majority of tools used in this course are free and open-source; some are free to access with registration or available as trial versions with limited features and for a limited time. Full walkthroughs and hands-on demonstrations will be provided—Basic of R, R-Studio, Spreadsheet, Powerpoint skills needed.**

## Contact For Any Query ?



**Er. Amit Tiwari**

**Joint Organizing Secretary  
& Programme Coordinator**  
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**rdcell@iasdcs.com**

## REGISTRATION FEE:

**2000/- INR Per Participant**

- **E-Certificates will be provided to all the participants.**
- **Access to Recorded Session and PDF Notes will be provided.**

## REGISTRATION:

For registration, please visit  
our official website (click link):  
[www.iasdcs.com](http://www.iasdcs.com)

**OR**

**SCAN QR CODE** →

Institute of Applied Statistics



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## DURATION OF THE PROGRAMME

01 September to 30 September, 2026



## SCHEDULE AND TIMINGS

06:00 - 07:00 PM (as per schedule)

## SESSIONS OFFERED ON PLATFORMS



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[www.rmnihr.org.in](http://www.rmnihr.org.in), [www.rmrim.org.in](http://www.rmrim.org.in)

01 September, 2026 (Tuesday) : Inaugural of The Programme

WEEK 01: FOUNDATIONS AND QUESTION FORMULATION

Session 01

02 Sep., 2026

**Foundation and Introduction to Systematic Reviews:**

- Narrative Review vs. Systematic Review vs. Meta-Analysis
- Purpose and importance in clinical/public health decision-making
- Demo: Tour of open-source platforms to be used (Zotero, Mendeley, Rayyan, RevMan Web)



Session 02

03 Sep., 2026

**Understanding Meta-Analysis:**

- Concept, effect size, weights, confidence intervals
- Demo: Forest plot interpretations
- Software Hands-on: Intro to RevMan Web (visualization only)



Session 03

07 Sep., 2026

**Finding and Framing Research Ideas:**

- Gap identification, prioritizing clinical/public health needs
- Hands-on Activity: Explore PROSPERO to examine registered protocols



Session 04

08 Sep., 2026

**PICO Framework and Scope Refinement:**

- PICO/PECO model + types of questions (diagnostic, prognostic, etc.)
- Exercise: Practice framing 3 PICO questions using shared worksheet



Session 05

09 Sep., 2026

**Analytic Frameworks and Logic Models:**

- Visual pathways from exposure to outcome
- Hands-on Activity: Build a logic model using Google Slides or Draw.io



WEEK 02: LITERATURE SEARCH AND STUDY SELECTION

Session 06

10 Sep., 2026

**Principles of Systematic Searching:**

- Boolean logic, truncation, wildcards
- Live Demo: PubMed, DOAJ keyword and subject heading searches



Session 07

11 Sep., 2026

**Databases and Grey Literature:**

- PubMed, DOAJ, Scopus (open access), OpenGrey
- Hands-on: Construct search strings for grey literature (theses, abstracts)



Session 08

14 Sep., 2026

**Developing a Search Strategy**

- Phrase searching, proximity searching
- Hands-on Workshop: Build and test a search strategy on PubMed



Session 09

15 Sep., 2026

**Screening & PRISMA Flow**

- Removing duplicates, Title and abstract screening process
- Hands-on: Rayyan platform for title/abstract screening
- Hands-on: PRISMA Flow Diagram with MS PowerPoint/Google Slides



Session 10

16 Sep., 2026

**Defining Inclusion and Exclusion Criteria**

- Based on PICO, study types, language, publication year
- Hands-on: Create and pilot test inclusion/exclusion criteria using sample abstracts in Rayyan



## WEEK 03: BIAS, QUALITY, AND DATA EXTRACTION

### Session 11 17 Sep., 2026

#### Understanding Bias in Systematic Reviews/Meta Analysis:

- Bias in original studies vs. SR/MA process
- Examples: Selection, attrition, reporting bias
- Introduction to quality assessment tools



### Session 12 18 Sep., 2026

#### Selection Bias:

- Causes, examples, impact
- Sampling bias and loss to follow-up
- Case Activity: Identify selection bias in sample studies



### Session 13 21 Sep., 2026

#### Information and Analysis Bias:

- Misclassification (Information bias), Reporting bias, Publication bias
- Bias in data extraction and analysis phase
- Hands-on: Funnel plot interpretation using R (via metafor)



### Session 14 22 Sep., 2026

#### Risk of Bias Assessment Tools:

- Tools: Newcastle-Ottawa Scale (observational studies) & Cochrane Risk of Bias Tool (RCTs)
- Hands-on: Risk of Bias evaluation on sample studies
- Visualization: robvis web app for bias plots

### Session 15 23 Sep., 2026

#### Reporting Guidelines and Standards:

- PRISMA 2020/ MOOSE/ PROSPERO
- Hands-on: Register a mock review
- Checklist Practice: PRISMA checklist filled using a sample article



## WEEK 04: SYNTHESIS, META-ANALYSIS & MANUSCRIPT WRITING

### Session 16 24 Sep., 2026

#### Qualitative Synthesis and Thematic Summary:

- When meta-analysis is not possible, Methods of qualitative synthesis
- Hands-on: Create summary tables and thematic matrix using Google Sheets



Google Sheets

### Session 17 25 Sep., 2026

#### Planning a Meta-Analysis:

- Steps in planning: protocol, effect measures, heterogeneity assessment
- Hands-on: Calculation using R (intro to meta/metafor packages)
- Worksheet: Choosing the right model for study types



Cochrane  
RevMan

### Session 18 28 Sep., 2026

#### Fixed and Random Effects Models:

- Fixed-effect model: assumptions, calculations
- Random-effects model: when to use, DerSimonian-Laird method
- Hands-on: RevMan Web for importing data and generating forest plots

### Session 19 29 Sep., 2026

#### Interpreting Results and Exploring Heterogeneity:

- Heterogeneity tests ( $I^2$ , Cochran's Q), subgroup/meta-regression
- Hands-on: Use R to create forest plots, funnel plots
- GRADE: Hands-on grading evidence using GRADEpro GDT



### Session 20 30 Sep., 2026

#### Manuscript Writing & Reporting:

- Writing IMRAD sections, citations, integrating PRISMA
- Hands-on: Zotero/Mendeley for managing references
- Template: Use structured format for manuscript with tables and PRISMA integration



3<sup>rd</sup> to 4<sup>th</sup> October, 2026 : Online Assessment Test



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## ABOUT ORGANIZERS:

### Rajendra Memorial National Institute of Health Research (RMNIHR), Patna

Rajendra Memorial National Institute of Health Research (RMNIHR), Agamkuan, Patna is one of the Institutes of Indian Council of Medical Research, New Delhi an autonomous body of Ministry of Health and Family Welfare, Govt. of India.

RMNIHR is mandated by Indian Council of Medical Research to provide scientific understanding and technology needed to support the fight against leishmaniasis. RMNIHR strives for integrity, quality and relevance of its research by constantly improving its scientific activities through external peer review and extramural funding.



### Institute of Applied Statistics (IAS), Kanpur, Uttar Pradesh

The Institute of Applied Statistics is a premier institution dedicated to building human resource capacity in Statistics through specialized training and multidisciplinary research. It conducts training programmes across the country and regularly organizes International, National, State, and Institutional level workshops for researchers and academicians.

The Institute's mission is to develop skilled professionals to meet emerging research challenges. It offers short- and medium-term programmes, develops need-based training modules in collaboration with experts, and provides consultation to government and private sectors in training design, survey implementation, and research activities.

## CERTIFICATE PROGRAMME HIGHLIGHTS

- ✓ Comprehensive live sessions on Systematic Review & Meta Analysis.
- ✓ Expert-led hands-on sessions and daily query discussions at the end of each session of the programme to address doubts with experts.
- ✓ Online Assessment Tests at the end of the programme for E-Certification.
- ✓ Online Quiz for revision of the topics learned.
- ✓ Study material in the form of PDFs will be shared with all registered participants of the programme.
- ✓ All registered participants will receive an e-certificate after completion of the programme on their registered email ID.
- ✓ Access to all recorded sessions of the programme for revision purposes.
- ✓ Opportunity to network with researchers and professionals.



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