

**A STUDY ON ANTIMICROBIAL RESISTANCE SURVEILLANCE SYSTEMS IN
SELECTED PUBLIC AND PRIVATE HOSPITAL IN JAIPUR, RAJASTHAN**

Dissertation Submitted to



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for the partial fulfillment for the award of the degree of

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by

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SYNOPSIS

Title: A Study on Antimicrobial Resistance Surveillance Systems in selected public and private hospital in Jaipur, Rajasthan.

Introduction:

The widespread spread of antimicrobial resistance (AMR) poses a significant threat to infection control worldwide¹. AMR could result in 10 million deaths annually by 2050 if it is not controlled, this would risk the benefits of modern medicine². Drug-resistant infections are rapidly increasing³.

In India, growing resistance to antibiotics has been documented in both community and hospital settings⁴. Surveillance plays a vital role in understanding resistance trends, guiding antimicrobial use, detecting new patterns, and supporting public health action⁵.

Despite national efforts under programs like National Centre for Disease Control (NCDC)’s AMR Surveillance Network, Rajasthan’s surveillance system faces challenges in data completeness, coordination, and feedback mechanisms. This study aims to assess and improve the utility of AMR surveillance systems in Rajasthan

Research Question:

What are the key strengths and weaknesses of current antimicrobial resistance surveillance systems in Rajasthan, and how can these systems be improved to provide more effective and timely data for informing interventions and policies to combat AMR.

Objectives:

- To study timeliness, completeness, and data quality of AMR data reported under AMR surveillance network.
- To identify gaps and challenges in current AMR surveillance practices, including data collection, analysis, and dissemination.
- To assess the utilization of AMR surveillance data in informing clinical practice and public health decision-making.

- To propose evidence-based recommendations for strengthening AMR surveillance systems to improve their effectiveness in guiding AMR containment strategies.

Hypothesis:

- H1: The implementation of standardized, electronic data capture systems will significantly improve the timeliness and completeness of AMR surveillance data compared to traditional, manual methods.
- H2: Enhanced feedback mechanisms between surveillance systems and healthcare providers will lead to improved utilization of AMR data in guiding antimicrobial prescribing practices.

Materials AND Methods:

- **Study Design:** Study design will be cross sectional in healthcare facilities along with qualitative interviews of key stakeholders involved.
- **Sample Size:** 3-5 healthcare facilities.
- **Setting:** Government and private healthcare facilities in Jaipur.
- **Study Population:**
 - **Inclusion Criteria:** Healthcare providers involved in antimicrobial prescribing and infection control.
 - **Exclusion Criteria:** Primary care clinics without on-site laboratory facilities.
- **Study Tools:** A structured questionnaire to assess AMR surveillance practices.
- **Duration of Study:** 10th March”2025 to 31st May”2025.
- **Sampling Technique:** Purposive sampling of key informants with expertise in AMR surveillance
- **Data Collection Procedure:** Data will be extracted from hospital information systems and the national/state AMR surveillance database and interviews will be conducted face-to-face.

Operational Definitions:

- Timeliness of reporting is the number of days from bacterial identification to reporting to the central surveillance system.
- Data completeness defined as the percentage of required data fields populated in AMR reports.
- Data quality defined as the accuracy and reliability of reported AMR data, assessed through internal and external quality control measures, and Utilization of AMR data defined as the frequency and manner in which AMR data are used to inform antimicrobial prescribing guidelines and infection control practices.

Data Analysis Plan:

Excel will be used to analyse quantitative data. Descriptive statistics (frequencies, means, standard deviations) will be used to summarize the data.

Ethical Considerations:

Administrative approvals will be obtained from the directorate of medical and health services as results of this study will benefit department. Informed consent will be obtained from all study participants. All data will be anonymized and stored securely to ensure the privacy and confidentiality of the participants. Access to data will be restricted to the research team.

Implications of Research:

This research will provide valuable insights into the current status of AMR surveillance systems. The findings will identify areas for improvement, leading to more effective and timely AMR data. This, in turn, will support better-informed decision-making regarding antimicrobial use, infection control strategies, and public health interventions aimed at combating AMR.

References:

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