

# **Surveillance of Healthcare - Associated Infections**

**Purva Mathur**

May, 2023

# Background

- **Healthcare associated infections:**
  - Huge Magnitude (LMICs)
  - Avoidable mortality, Morbidity
  - Length of stay
  - Cost
  - AMR
- **HAIs:** Often caused by **multi-drug resistant pathogens**; difficult to treat
  - Broad spectrum antimicrobial coverage for these infections further augments the problem of AMR.

- Surveillance of HAIs and implementation of prioritized preventive measures: **extremely beneficial.**
- **Most developed nations have National Systems for HAI surveillance.**
- **Reporting of HAI rates is mandatory in these nations and is often considered a quality indicator for a hospital.**

# Indian Scenario

- Lacuna
  - Systematic network of surveillance of HAIs, despite the high numbers of HAIs and huge burden of AMR.
  - With a population of over 1.3 billion (17.5% of global population) and extremely high rates of MDR organisms, India carries a major responsibility to control the spread of AMR.

# HAI-IPC Network

- This network is being technically coordinated jointly by the **AIIMS, New Delhi-ICMR-CDC**.
- **NCDC**: Medical Colleges
- **NHSRC**: District Hospitals
- **Voluntary participation**

# New Sites

- All AIIMS
- State level Medical colleges
- Private Hospitals and Nursing homes
- District Hospitals

## Scaling up

- Started: 2015
- 5 sites
- 13 Sites
- Scaled up to 20
- Almost 100 sites now

# BSI Case Distribution

## May, 2017 to November, 2022

<b>Patient Days</b>	<b>21,64,738</b>
<b>Central Line Days</b>	<b>6,93,794</b>
<b>CLABSI</b>	<b>6,509 (47.0%)</b>
<b>NON- CLABSI</b>	<b>4,987 (36.0%)</b>
<b>Secondary BSI</b>	<b>2,336 (16.9%)</b>

<b>Total BSI Rate</b>	<b>6.39</b>
<b>CLABSI Rate</b>	<b>9.38</b>
<b>NON-CLABSI Rate</b>	<b>2.30</b>
<b>Sec. BSI Rate</b>	<b>1.08</b>

**Total: 13,832**



# UTI Case Distribution

May, 2017 to November, 2022

Patient Days	21,64,738
Urinary Catheter Days	12,24,412
CAUTI	3,740 (92.51%)
NON- CAUTI	302 (7.49%)

Total UTI Rate	1.87
CAUTI Rate	3.05
NON-CAUTI Rate	0.14

**Total: 4,042**

# Health-care-associated bloodstream and urinary tract infections in a network of hospitals in India: a multicentre, hospital-based, prospective surveillance study

Purva Mathur\*, Paul Malpiedi\*, Kamini Walia, Padmini Srikantiah, Sunil Gupta, Ayush Lohiya, Arunaloke Chakrabarti, Pallab Ray, Manisha Biswal, Neelam Taneja, Priscilla Rupali, Veeraraghavan Balaji, Camilla Rodrigues, Vijaya Lakshmi Nag, Vibhor Tak, Vimala Venkatesh, Chiranjay Mukhopadhyay, Vijayshri Deotale, Kanne Padmaja, Chand Wattal, Sanjay Bhattacharya, Tadepalli Karuna, Bijayini Behera, Sanjeev Singh, Reema Nath, Raja Ray, Sujata Baveja, Bashir A Fomda, Khumanthem Sulochana Devi, Padma Das, Neeta Khandelwal, Prachi Verma, Prithwis Bhattacharyya, Rajni Gaiind, Lata Kapoor, Neil Gupta, Aditya Sharma, Daniel VanderEnde, Valan Siromany, Kayla Laserson, Randeep Guleria, on behalf of the Indian Healthcare Associated Infection Surveillance Network collaborators†

## Summary

**Background** Health-care-associated infections (HAIs) cause significant morbidity and mortality globally, including in low-income and middle-income countries (LMICs). Networks of hospitals implementing standardised HAI surveillance can provide valuable data on HAI burden, and identify and monitor HAI prevention gaps. Hospitals in many LMICs use HAI case definitions developed for higher-resourced settings, which require human resources and laboratory and imaging tests that are often not available.



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10: e1317–25

See [Comment](#) page e1222

For the Hindi translation of the abstract see [Online](#) for appendix 1

\*Lead first author

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Infection Control & Hospital Epidemiology

## Surveillance of Healthcare-Associated Bloodstream and Urinary Tract Infections in a National Level Network of Indian Hospitals

Published online by Cambridge University Press: 02 November 2020

Purva Mathur, Paul Malpiedi, Kamini Walia, Rajesh Malhotra, Padmini Srikantiah, Omika Katoch, Sonal Katyai, Surbhi Khurana, Mahesh Chandra Misra and Sunil Gupta ...Show all authors

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राजेश भूषण, आईएएस  
सचिव

RAJESH BHUSHAN, IAS  
SECRETARY



भारत सरकार  
स्वास्थ्य एवं परिवार कल्याण विभाग  
स्वास्थ्य एवं परिवार कल्याण मंत्रालय  
Government of India  
Department of Health and Family Welfare  
Ministry of Health and Family Welfare

D.O. No. Z.28015/01/2020-EMR  
21<sup>st</sup> May 2021

*Dear Chief Secretary,*

There were few reports of secondary bacterial and opportunistic fungal infections like Mucormycosis during the first peak of the COVID-19 pandemic. However, with large number of COVID-19 cases being reported across the country during the second peak, these secondary infections including opportunistic infections have amplified significantly and Mucormycosis has emerged as an area of concern. This highlights the need for infection prevention and control as well as sanitation and hygiene in healthcare settings.

2. Accordingly, the following activities needs to be undertaken to ensure that there is robust infection prevention and control practices in Covid hospitals and other health facilities:

- i) Establish/activate the Hospital Infection Control Committee with the head of the institution or an administrator as the chairperson.
- ii) Designate an infection prevention and control nodal officer – preferably a microbiologist or senior infection control nurse.
- iii) Prepare and implement the Infection Prevention Control (IPC) Programme in the hospital/health facilities, as per the guidance given in National Guidelines for Infection and Control in Healthcare Facilities (available at [https://www.mohfw.gov.in/pdf/National%20Guidelines%20for%20IPC%20in%20HCF%20-%20final\(1\).pdf](https://www.mohfw.gov.in/pdf/National%20Guidelines%20for%20IPC%20in%20HCF%20-%20final(1).pdf)). This involves the following key components of:
  - a. Infection prevention and control manual
  - b. Guidelines on antimicrobial use and management
  - c. Educational programmes and strategies
  - d. Risk assessment and risk management
  - e. Planning, monitoring, audit and feedback
  - f. Implementation strategies
- iv) Emphasise and strengthen procedures and practices for IPC. In the context of COVID-19,
  - a. Standard precautions are to be applied all across the hospital/health facility
  - b. Transmission-based precautions need heightened focus on droplet, airborne and contact precautions from the perspective of protecting healthcare workers and ensuring patient safety.
- v) Improve the environment and facilitate:
  - a. Ventilation with focus on fresh air and natural ventilation wherever control systems with requisite air changes are not available.
  - b. Cleaning, disinfection and sanitation of the hospital environment and frequently touched surfaces, with recommended disinfectants like 1% sodium hypochlorite or 70% alcohol.
  - c. Safe water and food to prevent water or food borne diseases in hospital settings

.....contd/-

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: 2 :

- d. Biomedical waste needs to be managed as per the CPCB guidelines available at [https://cpcb.nic.in/uploads/Projects/Bio-Medical-Waste/BMW-GUIDELINES-COVID\\_1.pdf](https://cpcb.nic.in/uploads/Projects/Bio-Medical-Waste/BMW-GUIDELINES-COVID_1.pdf)
- vi) Infection Prevention and Control practices needs to be enhanced in Intensive Care Units (ICUs) using a bundle-approach to prevent device associated infections such as ventilator associated pneumonia or catheter-associated blood stream, urinary infections etc.
- vii) Infection Prevention and control practise in the clinical laboratories and those attached to hospitals are very crucial for the safety of laboratory/hospital staff and health security of the community.
- viii) Meticulous adherence to Infection Prevention and Control while managing immunocompromised patients such as COVID-19 patients on steroid treatment, with co-morbidities (such as diabetes where good glycemc control needs to be established; the guidelines for which are available at <https://www.mohfw.gov.in/pdf/ClinicalGuidanceonDiabetesManagementatCOVID19PatientManagementFacility.pdf>).
- ix) In due course, establish surveillance of healthcare associated infections with focus on ventilator associated pneumonia, catheter-associated blood stream infection, catheter-associated urinary tract infection, surgical site infections, gastro-intestinal outbreaks. Further guidance can be taken from AIIMS HAI network; details available at <https://www.haisindia.com>
- x) Train all hospital staff to develop their skills in IPC, irrespective of their individual routine duties, in implementing procedures and protocols described in the Hospital Infection Control Manual.
- xi) A State Nodal Officer needs to be identified to monitor the implementation of infection prevention and control to provide evaluation and feedback of the IPC programme in the state.

3. The Ministry of Health and Family Welfare will provide all necessary assistance to implement the National Guidelines for Infection Prevention and Control in Healthcare Facilities.

*Harm Regards.*

Yours sincerely

(Rajesh Bhushan)

Chief Secretary / Administrator of All States and UTs



सत्यमेव जयते

# National Centre for Disease Control

(formerly National Institute of Communicable Diseases)



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## National action plan on AMR (NAP-AMR)

Back

- [National Action Plan on Antimicrobial Resistance](#)
- [Delhi Declaration on Antimicrobial Resistance](#)
- [Guidance document for developing SAPCAR](#)
  
- State action plans on AMR



# AWARD TO PUBLIC HEALTH FACILITIES KAYAKALP



## Awards Criteria

### CHAPTER - II

The awards would be distributed based on the performance of the facility on the following parameters.

- I. Hospital/Facility Upkeep
- II. Sanitation and hygiene
- III. Waste Management
- IV. Infection control.
- V. Support Services
- VI. Hygiene Promotion

Score card for the award and tools for the facility assessment are given in the Annexure 'I' and Annexure 'II' respectively.





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**STANDARDS FOR**  
**HOSPITALS**  
**APRIL 2020**



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TABLE 1. LIST OF INDICATORS FOR RANKING DISTRICT HOSPITALS<sup>2</sup>

**Category A:** Indicators that are largely under the control of the State

**Category B:** Indicators that are largely under the control of the District hospital

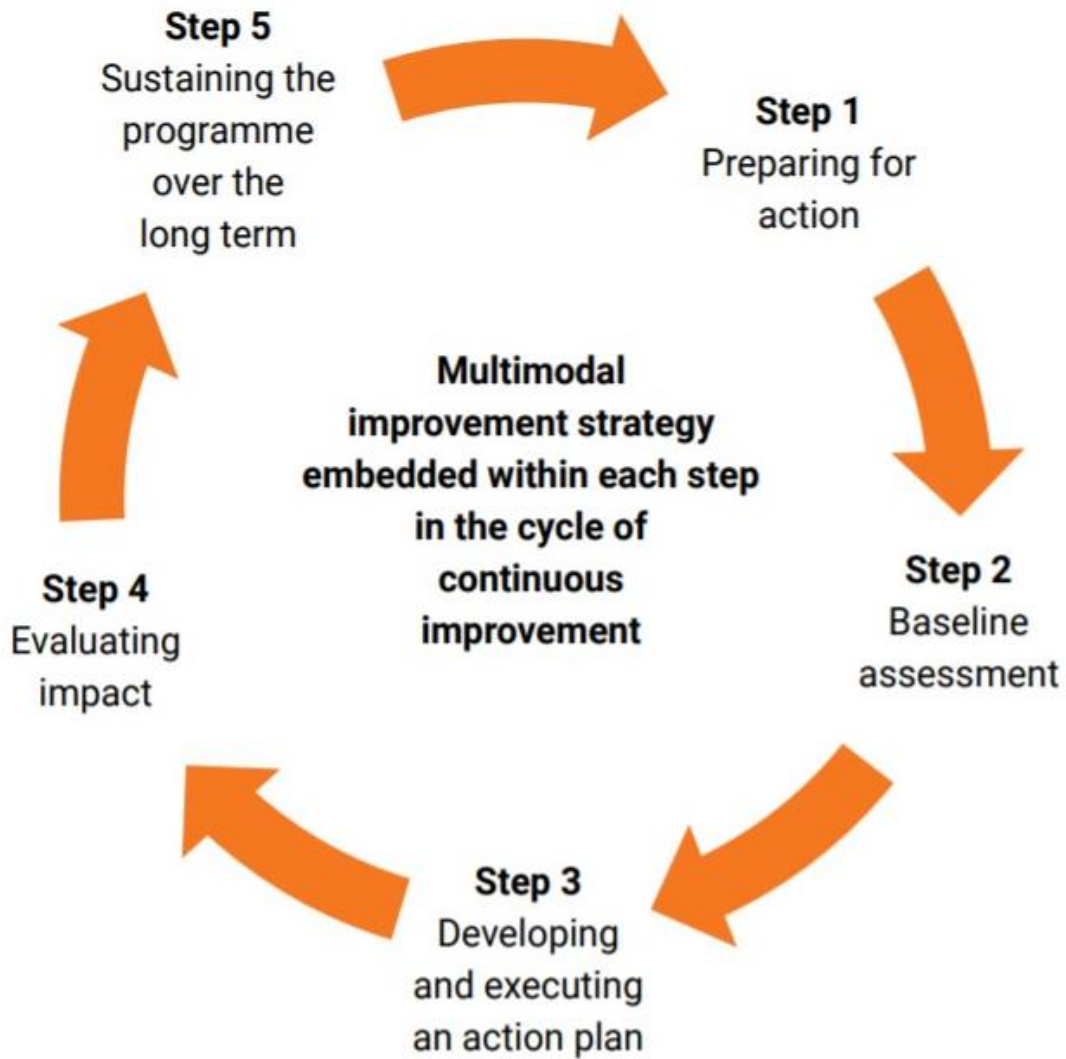
DOMAIN	WEIGHTAGE (%)	CATEGORY	INDICATORS
Structure (15%)	3	A	1. Number of functional hospital beds per 100,000 population
	3	A	2. a- Ratio of doctors in position to IPHS norm b- Ratio of staff nurses in position to IPHS norm c- Ratio of paramedical staff in position to IPHS norm
	3	B	3. Proportion of support services available
	3	A	4. Proportion of core healthcare services available
	3	A	5. Proportion of diagnostic services available
Process (10%)	5	B	6. Kayakalp score
	5	B	7. Quality score
Outputs and Outcomes (75%)	8	B	8. Number of laboratory tests per technician
	8	B	9. Stock out rate of essential drugs
	8	B	10. OPD per doctor
	9	B	11. Bed occupancy rate
	8	B	12. Surgical Productivity Index
	8	B	13. C-section rate
	8	B	14. Blood bank replacement rate
	9	B	15. Post-surgical infection rate
	9	B	16. Patient satisfaction score





# Advantages

- Part of a **larger network**
- Trainings
- Reporting & Feedback
- IPC Tools
- ~ 95% HAIs are Device associated/ SSIs:  
**IPC**
- IPC starts with Quality assured, Local, Standard, sustained surveillance data
- Accreditations
- Kaya-Kalp



# About this training

- This workshop will describe the methods used in conducting HAI surveillance in ICUs.
- All hospitals in this network are adhering to the standard surveillance case definitions and data collection and reporting procedures to ensure that the data is comparable across the network.

[www.haisindia.com](http://www.haisindia.com)  
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HAI Surveillance  
HEALTHCARE ASSOCIATED INFECTION SURVEILLANCE INDIA

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# HEALTHCARE ASSOCIATED INFECTION SURVEILLANCE IN INDIA

The project will strengthen the national capacity for surveillance of HAIs, report the magnitude & types of AMR & HAI threats affecting India. This project will also serve the need for reliable AMR data to support successful patient care.

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Type here to search

19:32  
24-06-2021

# Materials available on HAIS website

- HAI Surveillance SOPs
- Baseline assessment tools
- CLIP Tools
- Case report forms
- Database SOPs
- SSI SOP

[www.haisindia.com](http://www.haisindia.com)

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