NATIONAL HEALTHCARE ASSOCIATED INFECTIONS SURVEILLANCE & RESPONSE STRATEGIC PLAN

2025-2030

National Institute of Health
Ministry of National Health Services, Regulations & Coordination

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Message by the Director General Health,

Ministry of National Health Services, Regulations & Coordination

It is with great commitment that I present the National Healthcare-Associated Infection Surveillance and Response Strategic Plan 2025–2030, developed through collaborative efforts to strengthen Pakistan's capacity to respond to healthcare-associated infections. The Ministry of National Health Services, Regulations & Coordination, through its mandate of policy leadership, regulatory oversight, and inter-provincial coordination, remains committed to safeguarding patient safety and strengthening the resilience of our health system.

This plan provides a unified framework to standardize surveillance, improve reporting, and enhance infection prevention and control practices across all levels of care. Its successful implementation will not only reduce the burden of healthcare-associated infections but also contribute to containing antimicrobial resistance and advancing Pakistan's health security.

I commend the tireless efforts of our technical teams, provincial health departments, and development partners who contributed to this important initiative. The Ministry will continue to provide the enabling policy environment, guidance, and coordination necessary to achieve the vision set forth in this plan for safer and higher-quality healthcare in Pakistan.

Prof. Dr. Ayesha Isani Majeed
Director General Health
Ministry of National Health Services, Regulations and Coordination
Islamabad

Message by the CEO, NIH

On behalf of the National Institute of Health, Ministry of National Health Services, Regulations and Coordination, I am delighted to introduce this important strategic initiative, which represents a collective step forward in strengthening the country's capacity to detect, monitor and respond to infections acquired within healthcare settings.

This plan aligns closely with the NIH mandate under IHR-2005 to advance diagnostics, surveillance, outbreak response and workforce development in the field of infection prevention and control. The NIH stands ready to deploy its expertise, infrastructure and partnerships to contribute to the successful implementation of the national plan. Through our laboratories, epidemiological teams and training programmes, we will support the generation of reliable data, continuous monitoring, capacity building and the translation of findings into actionable public health measures.

I am confident that with the engagement of all stakeholders, including Provincial Health Departments, healthcare facilities, relevant government & non-government agencies and development partners, the vision articulated in this document can be achieved.

Together we shall build a resilient surveillance architecture, support safer health care delivery and safeguard the health of Pakistan's population.

I extend my sincere gratitude to the national and provincial health ministries and departments, experts, and our development partners whose technical and financial support has been invaluable in shaping this document in line with both national priorities and global best practices.

Dr. Muhammad Salman
Chief Executive Officer
National Institute of Health
Islamabad

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Moreover, the Fleming Fund has also provided two full-time consultants to the NIH IPC team and assisted in drafting the first version and subsequently facilitated final review through a consultative workshop.

Abbreviations

- **AMR** – Antimicrobial Resistance
- **BSI** – Bloodstream Infection
- **CAUTI** – Catheter-Associated Urinary Tract Infection
- **CLABSI** – Central Line-Associated Bloodstream Infection
- **DHIS-2** – District Health Information Software 2
- **ECDC** – European Centre for Disease Prevention and Control
- **EU/EEA** – European Union / European Economic Area
- **HAI** – Healthcare-Associated Infection
- **HCWs** – Health Care Workers
- **HCF** – Health Care Facility
- **HR** – Human Resource
- **ICT** – Information and Communication Technology
- **IDSR** – Integrated Disease Surveillance and Response
- **IPC** – Infection Prevention and Control
- **IPCAF** – Infection Prevention and Control Assessment Framework
- **IHR-2005** – International Health Regulations, 2005
- **JEE** – Joint External Evaluation
- **LMICs** – Low- and Middle-Income Countries
- **MoNHSR&C** – Ministry of National Health Services, Regulations and
- **M&E** – Monitoring and Evaluation
- **NIH** – National Institute of Health
- **PAHO** – Pan American Health Organization
- **PPHL** – Provincial Public Health Laboratory
- **SOPs** – Standard Operating Procedures
- **SSI** – Surgical Site Infection
- **TWG** – Technical Working Group
- **UTI** – Urinary Tract Infection
- **VAE** – Ventilator-Associated Event
- **VAP** – Ventilator-Associated Pneumonia
- **WASH** – Water, Sanitation, and Hygiene
- **WHO** – World Health Organization

Executive Summary

Healthcare-Associated Infections (HAIs) remain one of the most serious challenges to patient safety, healthcare quality, and public health security in Pakistan. These infections extend hospital stays, increase healthcare costs, contribute to the rise of antimicrobial resistance, and cause avoidable illness and death. While progress has been achieved through the development of national Infection Prevention and Control guidelines and the establishment of committees at federal and provincial levels, the absence of a standardized national surveillance system continues to hinder the country's ability to effectively monitor, prevent, and respond to HAIs.

The National HAI Surveillance and Response Strategic Plan 2025–2030 has been developed by the National Institute of Health, Ministry of National Health Services, Regulations and Coordination with the provincial health departments, relevant stakeholders, and development partners. It provides a comprehensive framework for building a sustainable, integrated, and resilient system for HAI surveillance across Pakistan. The plan is aligned with the World Health Organization's core components for IPC and the International Health Regulations (2005), and it responds directly to recommendations made in the Joint External Evaluation of 2023.

The vision of the plan is to create a resilient health system that is capable of preventing, preparing for, detecting, and responding in a timely manner to healthcare-associated infections, thereby ensuring safe and high-quality healthcare for all citizens. Its mission is to establish and strengthen surveillance systems through multisectoral collaboration, continuous capacity building, and the application of technological innovation.

The strategy emphasizes strengthening governance and leadership, enhancing the capacity of healthcare facilities and laboratories, developing human resources through structured training and certification, and improving information and communication technologies including automated solutions for real-time data management. It also seeks to integrate HAI surveillance with antimicrobial resistance monitoring, laboratory networks, and the Integrated Disease Surveillance and Response system, while ensuring effective supervision, monitoring, and evaluation. In parallel, the plan underscores the importance of stakeholder engagement and collaboration to guarantee sustainability and ownership at every level of the health system.

Recognizing the resource limitations, fragmented data systems, and weak enforcement of IPC practices in many facilities, the plan also identifies clear opportunities such as the availability of national IPC guidelines, support from international partners, and the expansion of digital platforms like DHIS-2. Through phased implementation, defined responsibilities, and sustained commitment from national, provincial/regional, district and facility levels, this strategic plan aims to significantly reduce the burden of HAIs, safeguard antimicrobial effectiveness, and strengthen the resilience of the health system.

By 2030, the implementation of this plan envisions Pakistan among those countries with a fully functional, standardized, and sustainable national HAI surveillance system. It is both a call to action and a declaration of commitment to place patient safety, infection prevention, and health system resilience at the forefront of the national health agenda.

1. Introduction

Healthcare-associated infections (HAIs), previously referred to as “nosocomial” or “hospital” infections, occur during a patient's care in a hospital or other healthcare facilities (HCF) but were not present or incubating at the time of admission. Healthcare-associated infections also include occupational infections among healthcare providers. Surveillance definitions of HAIs use standardized criteria, including clinical, microbiological, and radiological evidence, along with a specified time frame (usually 48 hours after admission) to identify and report infections(1).

Healthcare-associated infections result in prolonged hospital stays, long-term disability, increased microbial resistance to antimicrobials, and additional costs for both healthcare systems and patients, including preventable deaths. Infection prevention and control measures play a critical role in reducing the spread of resistant pathogens, contributing to the containment of antimicrobial resistance (AMR)[1,2].

1.1. Types of Healthcare-Associated Infections

Some common types of HAIs are as follows

Device-Associated Infections	Non-Device-Associated Infection	Procedure Related HAI
An infection associated with invasive devices used as part of their care, to treat patients and to help them recover, such as central venous lines, mechanical ventilators and urinary catheters. **These infections are often serious, even life-threatening. Include:** ▪ **CLABSI: Central line-associated bloodstream infection** ▪ **CAUTI; Catheter-associated urinary tract infection** ▪ **VAP: Ventilator-associated pneumonia** ▪ **VAE: Ventilator Associated Event** ▪ **Dialysis events in an outpatient dialysis center.**	Healthcare-associated infection is not related to any device. For example: ▪ BSI; Bloodstream Infection ▪ UTI; Urinary Tract Infection ▪ Pneumonia	SSI: Surgical site infections

1.2 Burden of Healthcare-Associated Infections

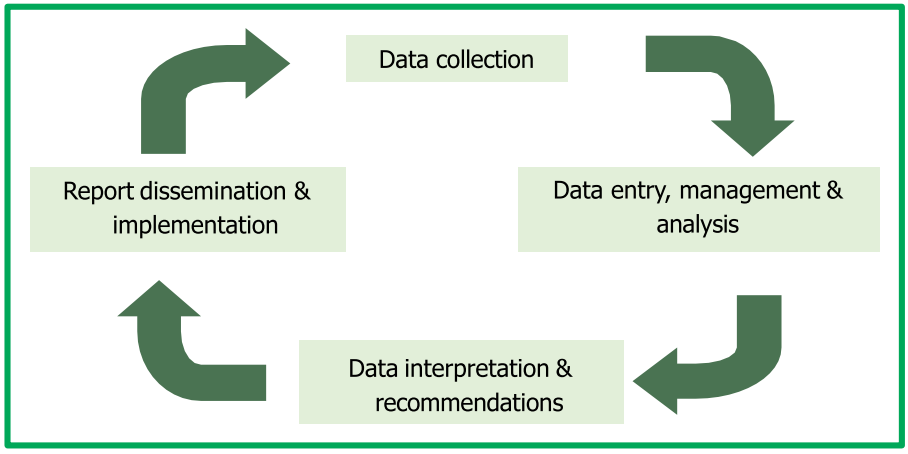
Some common types of HAIs are as follows:

HAIs are a growing public health issue worldwide, as reports from the World Health Organization (WHO) and other agencies show a rising endemic burden of HAIs and antimicrobial-resistant infections, affecting healthcare systems in all countries [(2)]. HAIs are one of the most common adverse events in healthcare delivery, impacting morbidity, mortality, and quality of life. On average, 7% of patients in developed countries and 10% in developing countries acquire at least one HAI, causing a significant economic burden on society [(3)]. Healthcare-associated infections are largely preventable through effective infection prevention and control (IPC) measures [(2,3)].

Recent reviews and studies on the frequency of HAI reported that the pooled prevalence of HAI was estimated to be 12.9% in the WHO South-East Asia Region, 9.7% in the WHO Western Pacific Region [(3,4)], 12.5% in the WHO Eastern Mediterranean Region, 27% in the WHO African Region, 8% in 28 European Union/European Economic Area (EU/EEA) countries and three Western Balkan countries, 7.9% in Canada, 9.6% in the WHO Region of the Americas, 3.2% in the United States of America (USA), and. In intensive care units, up to 30% of patients can be affected by HAI, with an incidence that can be two to 20 times higher in LMICs than in high-income countries, particularly among neonates. Approximately one in four (23.6%) of all hospital-treated sepsis cases are HAIs and almost one-half (48.7%) of all cases of sepsis with organ dysfunction treated in adult ICUs are estimated to be acquired in the hospital. The European Centre for Disease Control and Prevention estimated that the burden of the six most frequent HAI was calculated to be twice the burden of 32 other infectious diseases altogether in terms of disability and premature mortality. Global estimates of HAI frequency are hindered by underreporting, poor data quality, and a lack of standardized methods and protocols, resulting in a scarcity of reliable data, particularly in LMICs[(2,3,4,5,6,7)]

1.3. Healthcare-Associated Infections Surveillance System

Surveillance is defined as the “ongoing systematic collection, analysis, and interpretation of health data essential to the planning, implementation, and evaluation of public health practice.



Surveillance for HAIs can be used to describe the burden of HAIs, identify high-risk populations and procedures, and evaluate the impact of targeted infection prevention and control (IPC) interventions. HAI surveillance is a core component of both facility and national IPC programs worldwide.

Implementing continuous surveillance for healthcare-associated infections (HAIs) is resource-intensive and poses significant challenges in low- and middle-income countries due to limited human resources, laboratory capacity, and technical expertise.

1.4. Rationale

During the past few years, the Ministry of National Health Services, Regulations and Coordination, in collaboration with provincial health departments and stakeholders, has invested a lot of effort in scaling up infection prevention activities in health care facilities. Accordingly, several promising gains have been achieved. However, there are still several components of IPC, such as surveillance for HAIs, implementation of multimodal strategies and prevention of antimicrobial resistance, that have not yet been adequately addressed. Moreover, the emerging threats of the emergence of pandemic diseases subjects the country to having an organized and standardized IPC approach that will effectively prevent and control HAIs and decrease AMR. To ensure effective prevention and control of HAIs, surveillance systems require standardization, including uniform procedures for case identification, application of case definitions, and reporting. Without standardization, accurately interpreting changes in HAI rates becomes difficult, potentially masking or misrepresenting actual trends in infection incidence.

Under the International Health Regulations 2005 (IHR-2005), as per the Joint External Evaluation (3rd Edition), countries need to have strong, effective infection prevention and control (IPC) programmes that enable safe health care and essential services delivery, and prevention and control of healthcare-associated infections (HAIs). It is critical to initially ensure that at least the minimum WHO requirements for IPC are in place, both at the national and facility level, and to gradually progress to the full achievement of all requirements within the WHO IPC core components recommendations. The global action plan and monitoring framework on IPC, 2024–2030 target is to increase the proportion of countries with a national surveillance system for HAIs and related AMR to: 30% by 2026 50% by 2028 >80% by 2030[(2)].

Pakistan's healthcare landscape is characterized by a large and diverse population exceeding 220 million people, presenting a massive demand for healthcare services. This vast population is spread across varied geographic regions, with a pronounced divide between urban centers and rural or remote areas. Urban hospitals and clinics often face overcrowding due to high patient volumes, while rural healthcare facilities frequently suffer from inadequate infrastructure, limited medical supplies, and a shortage of trained healthcare professionals.

These disparities pose significant challenges to effective infection control and the management of Healthcare-Associated Infections (HAIs). In many rural and under-resourced settings, basic infection prevention measures, such as hand hygiene, sterilization of medical equipment, and proper waste disposal, may be inconsistently applied or unavailable altogether. Overburdened healthcare workers have limited diagnostic capabilities, and insufficient surveillance systems further complicate the timely identification and containment of HAIs.

The COVID-19 pandemic has further highlighted vulnerabilities within the healthcare system, reinforcing the critical need for robust infection prevention, control measures, and timely surveillance to prevent outbreaks and safeguard public health. The pandemic experience also emphasized the importance of integrating IPC and HAI surveillance into routine healthcare delivery to enhance preparedness and response capabilities for both endemic and emerging infectious diseases.

Recognizing these challenges, the National Institute of Health, Ministry of National Health Services, Regulations and Coordination (MoNHSR&C), in coordination with provincial health departments, development partners and other stakeholders, has developed a five-year (2025-2030) National Healthcare-Associated Infection Surveillance Strategic Plan. This strategic plan outlines a structured and phased approach with clear goals and objectives to establish a comprehensive, standardized, and sustainable HAI surveillance system across all levels in Pakistan.

This National HAI Surveillance Plan serves as a critical foundation for improving patient safety and healthcare quality in Pakistan. It responds directly to the gaps identified in previous assessments, including the Joint External Evaluation (JEE) under the International Health Regulations (IHR), which underscored the absence of a coordinated national strategy and surveillance system for HAIs.

1.5. Scope

The National HAIs Surveillance Plan 2025-2030 will apply to all federal and provincial teaching hospitals, primary and secondary health care facilities and as well as all private and other health care facilities providing health care and health care-related services. In addition, all healthcare and healthcare-related facility managers and staff should use these strategies to improve their HAIs surveillance.

2. Vision & Mission

2.1. Vision

A resilient Pakistan health care setting capable of preventing, preparing for, detecting and timely responding to healthcare-associated infections by providing safe and high-quality healthcare.

2.2. Mission

Our mission is to establish/strengthen a sustainable healthcare-associated infections surveillance system at all levels through fostering multisectoral, multidisciplinary collaborations, continuous capacity building and innovations. Ultimately, to prevent and reduce the risk of HAIs and respond/manage HAIs outbreaks for the well-being of patients, HCWs and the community.

3. Core Principals

To achieve its mission toward realizing its vision, HAIs prevention and control through a surveillance system is driven by the following guiding principles:

3.1 Intersectoral Collaboration

The National HAIs surveillance strategy fosters discussions and knowledge exchange with all public and private stakeholders and partners supporting the IPC strengthening in the country, understanding the gaps and requirements.

3.2 Country-driven solutions and ownership

The strategic plan will provide a supportive, practical framework for action; it will need to be adapted and owned by provinces. Pakistan's healthcare system operates within a federal structure, where provinces have the autonomy to design and implement HAI surveillance programs suited to local needs. However, strong federal support is crucial to ensure uniformity and cohesion. The federal government provides technical assistance, develops national policies and guidelines, coordinates efforts across provinces, and ensures equitable distribution of resources, empowering provinces to scale up HAI surveillance and effective detection of infections.

3.3 People-oriented approach

It is centered on the needs of people, patients, health and care workers, families and visitors when accessing care, while considering their perspectives and contributions as participants in, and beneficiaries of health care delivery, and also respecting social preferences. Awareness campaigns are vital to empower communities to adopt preventive behaviors. Additionally, ensuring that healthcare systems are designed to be responsive, with coordinated care and continuous monitoring, fosters a culture of safety and resilience, enabling long-term reduction of HAIs.

3.4 Accountability and Transparency

Processes to develop national strategies for health services should ensure accountability through defining clear roles and responsibilities at all levels, from national leadership to healthcare workers. Establishing performance indicators and regular audits ensures adherence to infection control protocols. Transparency in data collection and reporting fosters trust, encourages compliance with standards, and allows for continuous improvements.

3.5 Sustainability

Sustainability is the ability to maintain and strengthen processes over time at all levels of the health system, ensuring that efforts to reduce healthcare-associated infections (HAIs) are continuously supported and results remain measurable through dedicated funding for essential commodities, training, and capacity-building.

3.6 Evidence-informed

This strategy is based on scientific evidence related to the effectiveness of HAIs surveillance and requirements as per the WHO minimum requirements and the global action plan and monitoring framework on IPC.

3.7 Resilience and Emergency Preparedness

The healthcare system must be resilient enough to continue HAI surveillance during emergencies, such as disease outbreaks or natural disasters. This requires flexible surveillance protocols, built-in redundancies, and emergency preparedness plans that incorporate infection control measures. Protecting healthcare workers and patients during crises is essential, and sustainable domestic financing is necessary to ensure the continuity of IPC activities even during emergencies, reinforcing overall health system resilience

3.8 Use of Technology and Innovation

Harnessing technology is vital for transforming HAI surveillance. The adoption of digital platforms for real-time data entry, AI-driven analytics for predictive insights, and cloud-based platforms for expanding surveillance reach enhances the efficiency and accuracy of infection control. By integrating these technologies into Pakistan's healthcare system, the government can better predict infection trends, allocate resources effectively, and improve response times, thus advancing overall public health management.

4. SWOT Analysis

Pakistan's health care facilities face significant challenges in infection prevention and control (IPC), exposing patients to high risks of healthcare-associated infections (HAIs), which are estimated to affect 20-25% of hospital admissions. Although the country has made important strides by developing national IPC guidelines (2020), a strategic IPC framework (2021), and establishing multisectoral IPC committees at national and provincial levels, the implementation of these policies remains inconsistent and limited in scope.

Key strengths include the existence of a national IPC program that meets WHO minimum requirements, training initiatives accelerated during the COVID-19 pandemic, and the development of IPC focal points and some sentinel sites. Several tertiary care hospitals have IPC plans and structures in place, with IPC orientation and standardized training modules available for healthcare workers. However, major gaps persist:

- IPC program implementation is patchy and unsystematic, especially at secondary and primary care levels.
- There is weak ownership and engagement at provincial and hospital levels.
- Surveillance of HAIs is largely absent nationally, limited to a few private hospitals.
- Infrastructure for safe environments, including adequate water, sanitation, hygiene (WASH), and sterilization services, is inadequate.
- Monitoring IPC practices, such as hand hygiene, is lacking.
- Resources, dedicated staff, and budgets for IPC programs are insufficient.

According to the Joint External Evaluation (JEE) report (May 2023), Pakistan must prioritize the following actions to enhance IPC and reduce healthcare-associated infections (HAIs)[8]:

1. **Establish Dedicated IPC Programs:** Allocate dedicated staff and budgets at all levels, national, provincial, and health facility, and monitor program implementation rigorously.
2. **Implement IPC and WASH Standards:** Enforce national standards for water, sanitation, hygiene, isolation, and sterilization services to ensure safe healthcare environments.
3. **Develop HAI Surveillance:** Create a national surveillance system for healthcare-associated infections, including antimicrobial-resistant pathogens, and standardize methodologies.
4. **Enhance Training and Capacity Building:** Scale up standardized IPC training across all healthcare worker cadres and sustain gains made during the COVID-19 pandemic.
5. **Strengthen Regulatory Oversight and Accountability:** Improve enforcement mechanisms to ensure compliance with IPC practices and reduce unsafe injection and infusion procedures.
6. **Promote Multisectoral Coordination:** Extending IPC Measures to Veterinary and Agricultural Sectors
7. **Effective Infection Prevention and Control (IPC)** is not confined solely to human healthcare settings; it requires a multisectoral approach that includes veterinary and agricultural sectors. In Pakistan, where agriculture and livestock contribute significantly to the economy and livelihood of millions, integrating IPC measures across these sectors is critical to mitigating infection risks and combating the growing threat of antimicrobial resistance (AMR).

Strengths	Weaknesses
1. Focus on Infection Prevention & Control due to the COVID-19 Pandemic 2. Piloting of HAI has already started in a few hospitals 3. Skilled healthcare workforce available on the provincial level to conduct HAI activities 4. Microbiological Laboratories are available in many tertiary care hospitals across the country 5. International support is available from partner agencies to conduct HAI surveillance and prevention 6. Availability of National Guidelines on Infection Prevention and Control 7. Surveillance dashboard and data center available at the national level to support HAI Surveillance	1. Lack of a functional and dedicated IPC directorate at the national and provincial level 2. Resource Constraints to start innovative activities. Lack of a dedicated budget for IPC on the national/Provincial level 3. Data quality issues from health facilities 4. Limited Lab strengthening 5. Lack of awareness of the healthcare workforce on HAI and its prevention 6. Different HMIS systems in provinces and a lack of coordination 7. Resistance and sensitivity in reporting of HAI from the clinical department

Opportunities	Threats
1. Current second JEE report recommending starting HAI surveillance 2. Funding support from international organizations is available to start HAI prevention 3. Availability of National IPC Guidelines 4. Availability of the National IPC Technical working group, having provincial participation, to start HAI Surveillance 5. DHIS-2 implemented on the national level 6. Availability of global best practices toward HAI prevention and surveillance	1. Economic Challenges to fund new activities of HAI surveillance 2. Political instability may affect the successful implementation of HAI activities 3. Data Privacy concerns 4. Resistance from Healthcare facilities 5. Poor healthcare infrastructure 6. Lack of stronger monitoring and evaluation programs at the provincial level

1. **Establish Dedicated IPC Programs:** Allocate dedicated staff and budgets at all levels, national, provincial, and health facility, and monitor program implementation rigorously.
2. **Implement IPC and WASH Standards:** Enforce national standards for water, sanitation, hygiene, isolation, and sterilization services to ensure safe healthcare environments.
3. **Develop HAI Surveillance:** Create a national surveillance system for healthcare-associated infections, including antimicrobial-resistant pathogens, and standardize methodologies.
4. **Enhance Training and Capacity Building:** Scale up standardized IPC training across all healthcare worker cadres and sustain gains made during the COVID-19 pandemic.
5. **Strengthen Regulatory Oversight and Accountability:** Improve enforcement mechanisms to ensure compliance with IPC practices and reduce unsafe injection and infusion procedures.
6. **Promote Multisectoral Coordination:** Extending IPC Measures to Veterinary and Agricultural Sectors
7. **Effective Infection Prevention and Control (IPC)** is not confined solely to human healthcare settings; it requires a multisectoral approach that includes veterinary and agricultural sectors. In Pakistan, where agriculture and livestock contribute significantly to the economy and livelihood of millions, integrating IPC measures across these sectors is critical to mitigating infection risks and combating the growing threat of antimicrobial resistance (AMR).

5. Strategic Objectives

Objective 1: To strengthen the governance, leadership and coordination for the implementation of sustainable and Standardized Healthcare-associated Infections (HAIs) surveillance and response system in Pakistan

Rationale: Effective governance, strong leadership, and coordinated efforts are the foundation of any successful public health initiative, particularly in controlling Healthcare-Associated Infections (HAIs).

Focus Areas

- Advocacy, Strengthen leadership & multi-sectoral coordination between relevant partners and public and private stakeholders at all levels
- Establishment/Notification of national, provincial/regional IPC units/cells with clear objectives, functions, and scope of responsibilities, including HAI Surveillance
- Notify/Update multi-sectoral / multi-disciplinary IPC steering committees, Technical Working Groups (TWG) and IPC Focal Persons at the National, Provincial/Regional and district level with clear roles, responsibilities and authority
- Notify/Update multi-disciplinary IPC committees, IPC teams and IPC Focal Persons at the Tertiary level healthcare facilities with clear roles, responsibilities and authority
- Continue to strengthen the HAIs surveillance system through implementation and monitoring of the HAIs surveillance Strategy
- Development and implementation of the HAIs surveillance guideline with roles and responsibilities
- To advocate for the availability of sustainable funds for the surveillance of HAIs

Objective 2: To strengthen National and Provincial/ Regional capacity for early detection, complete recording, timely reporting, regular analysis and prompt feedback of healthcare-associated infections at all levels

Rationale: In Pakistan, the capacity to identify, report and respond to HAIs promptly remains limited due to fragmented surveillance systems, inconsistent data collection, and inadequate communication channels between healthcare facilities and public health authorities. There is a need at both national and sub-national levels to ensure that healthcare facilities can accurately detect and record HAIs in real-time. Standardized surveillance will enable the creation of reliable datasets essential for understanding infection patterns and identifying outbreaks.

Focus Areas

- Prioritization of the HAIs and accordingly identification of high-risk areas in the healthcare facilities for reporting
- Development/adoption of National HAI Surveillance and Response implementation guide, including data reporting protocol, digital data reporting tools for early detection, reporting and accuracy
- Identification/notification of adequate and designated Human Resources in high-risk areas for reporting and capacity building

- To ensure standardized HAIs surveillance system implementation across the healthcare system of the country
- To estimate the burden of HAIs in healthcare facilities using recommended rates, ratios and time series analysis
- To provide data for monitoring and evaluation of the impact of IPC interventions
- To disseminate HAIs surveillance results to be used by HCWs and Decision makers at all levels
- To strengthen the capacity of HCF IPC team and IPC FP for the timely detection, response and containment of HAI outbreaks
- To standardize HAI outbreak investigation for timely corrective measures at healthcare facilities through the development of Investigation SOPs aligned with the National HAI Surveillance Implementation Guidelines
- To develop a standardized HAI data flow mechanism across all levels of the health system for consistency and accountability
- To establish a mechanism of adequate capacity building for HAI data collection, analysis and report writing

Objective 3: To strengthen National and Provincial / Regional Public Health/ clinical laboratories capacities to confirm and report healthcare-associated infections

Rationale: Accurate and timely laboratory confirmation is a cornerstone of effective surveillance, diagnosis, and management of Healthcare-Associated Infections. In Pakistan, many public health and clinical laboratories, especially at subnational levels, face challenges such as limited infrastructure, equipment, a shortage of skilled personnel, and inconsistent quality assurance practices. These limitations hinder the ability to reliably detect and confirm HAIs, leading to underreporting, delayed responses, and inadequate infection control measures.

Focus Areas

- Identification of the gaps in the microbiological diagnostics capacity
- Upgrade laboratory infrastructure with facilities for microbiological diagnostics for HAIs
- Capacity building program for laboratory personnel in diagnostic techniques
- Provision of sufficient and continuous supplies for the diagnostics of HAIs
- Establishment of a sample collection and transportation system for microbiological and non-microbiological
- Establish networks linking National, Provincial, District and HCF level Laboratories to facilitate confirmatory testing.
- Foster partnerships with international labs and organizations for technical assistance
- Ensure an external and internal quality assessment system for public health and clinical laboratories

Objective 4: To develop sustainable HR capacity for HAIs surveillance at federal, provincial levels, districts and health care facility level through regular capacity building and training

Rationale: A skilled and adequately trained workforce is the backbone of an effective Healthcare-Associated Infections surveillance system. In Pakistan, gaps in human resource capacity, including shortages of trained infection control personnel, epidemiologists, data managers, and laboratory staff, hamper the timely detection, reporting, and management of HAIs. Without sustained investment in capacity building, surveillance efforts risk being inconsistent, incomplete, and ultimately ineffective. Developing sustainable HR capacity across all administrative levels ensures that personnel involved in HAIs surveillance have the knowledge, skills, and motivation necessary to carry out their roles proficiently.

Focus Areas

- Conduct training needs assessments across the National, Provincial, District, and Healthcare Facility levels
- Develop and roll out a standardized HAI surveillance training curriculum
- To develop and implement certification programs for IPC and HAI Surveillance professionals and epidemiologists
- Establish a sufficient number of master trainers for IPC and HAIs surveillance
- Development of a training roster facility-wise and organize regular refresher training, workshops, and e-learning modules on HAIs
- Establish mentorship and supervision frameworks for newly trained staff
- Establish a roster of IPC and HAI-trained professionals at all levels
- Monitor training impact through competency assessments and performance indicators

Objective 5: To strengthen the Information and Communication Technology (ICT) infrastructure, including Artificial Intelligence-based solutions for improved data flow, data management, data analytics and data dissemination for action

Rationale: Efficient and timely management of healthcare data is critical for effective surveillance and control of Healthcare-Associated Infections (HAIs). In Pakistan, fragmented and often manual data systems contribute to delays, inaccuracies, and underutilization of vital infection surveillance information. Strengthening ICT infrastructure is essential to streamline data collection, ensure real-time reporting, and facilitate robust analysis that can guide rapid decision-making. Integrating Artificial Intelligence (AI) and advanced data analytics into HAI surveillance offers transformative potential. AI can enhance the detection of infection trends, predict outbreaks, and identify patterns that might otherwise be missed by conventional methods

Focus Areas

- Development/adoption of a sustainable national HAIs surveillance electronic platform with interoperability across health facilities and labs
- Incorporate automation-supported analytics tools for syndromic detection, outbreak prediction and time series analysis
- Train users at all levels on ICT tools and data use for decision-making
- Develop mobile applications for remote data collection and reporting
- Establish dashboards for real-time data visualization accessible to stakeholders

Objective 6: To efficiently integrate HAIs surveillance system with AMR, Laboratory and IDSR at the national and sub-national levels

Rationale: Healthcare-Associated Infections (HAIs) are closely linked with antimicrobial resistance (AMR), laboratory diagnostics, and broader infectious disease surveillance systems. In Pakistan, these systems have traditionally operated in silos, leading to fragmented data, duplicated efforts, and suboptimal responses. Efficient integration of HAI surveillance with AMR monitoring, laboratory networks, and the Integrated Disease Surveillance and Response (IDSR) framework is essential for creating a comprehensive, coordinated, and responsive public health system.

Focus Areas

- To integrate HAIs surveillance, AMR surveillance and IDSRs multiple using standardized data collections and transmission system (e.g., utilizing DHIS-2) at national, provincial and district levels
- Facilitate data sharing agreements and inter-system linkages
- Develop joint training and capacity-building programs emphasizing integration
- Create multidisciplinary teams to analyze combined data sets for comprehensive public health actions

Objective 7: To strengthen the supervision, monitoring and evaluation system for the HAIs surveillance system

Rationale: A robust supervision, monitoring, and evaluation system is critical to ensure the effectiveness, quality, and sustainability of Healthcare-Associated Infections (HAIs) surveillance programs. In Pakistan, weaknesses in oversight and inconsistent monitoring have limited the ability to assess the performance of HAI surveillance activities comprehensively. Without systematic M&E, it becomes difficult to identify gaps, measure progress, and implement timely corrective actions.

Focus Areas

- Develop M&E Framework with clear indicators for surveillance quality, timeliness, and impact
- Assign dedicated supervisory teams at National, Provincial, District and Healthcare Facility levels
- Conduct regular supportive supervision visits and data quality audits
- Implement routine feedback mechanisms in facilities based on M&E findings

Objective 8: To build healthcare stakeholder coordination/collaborative approaches for the implementation of HAIs surveillance and response

Rationale: Effective surveillance and response to Healthcare-Associated Infections (HAIs) require coordinated efforts among diverse healthcare stakeholders, including government agencies, healthcare providers, laboratory networks, public health authorities, professional bodies, and community representatives. In Pakistan, fragmented communication and lack of collaboration have often resulted in duplication of efforts, gaps in information sharing, and inconsistent implementation of infection control measures. Building strong coordination and collaboration mechanisms ensures alignment of goals, sharing of resources, and unified strategies across sectors and administrative levels. Stakeholder engagement fosters ownership, accountability, and commitment to surveillance activities, which are crucial for sustained success. Collaborative approaches facilitate rapid information exchange during

outbreaks, enabling timely responses and containment measures. They also support joint training programs, harmonized policies, and integrated monitoring systems, enhancing overall system efficiency.

Focus Areas

- Map all relevant stakeholders, including government bodies, the private sector, and others supporting IPC
- Establish multi-stakeholder forums for regular communication
- Engage community and patient advocacy groups to promote infection prevention awareness
- Coordinate joint outbreak investigations and response drills
- Facilitate resource sharing and collaborative research initiatives

6. Strategic Priorities

Coordination and Governance

- National HAI Surveillance Committee oversight.
- Regional focal points and technical working groups

Surveillance Infrastructure

- Standardized HAI definitions and reporting tools.
- Data management systems with electronic capabilities.
- Strengthened microbiology laboratories with quality control

Human Resource Development

- Training curricula and materials for HAI surveillance and IPC.
- Ongoing capacity-building initiatives.

Data Collection and Analysis

- Routine hospital-based surveillance of priority areas
- Periodic point prevalence surveys.

Feedback and Response

- Timely data reporting to health facilities and policymakers.
- Infection control audits and performance reviews.
- Protocols for outbreak investigation and response.

Sustainability

- Advocacy to ensure the availability of sustainable funds for supplies and other requirements

7. Strategic Delivery Plan 2025-2030

Strategic Objectives	Deliverables	Means of verification	Timeline	Responsibility
Objective 1: To strengthen the governance, leadership and coordination for the implementation of sustainable and Standardized Healthcare-associated Infections (HAIs) surveillance and response system in Pakistan	Advocacy, Strengthen leadership & multi-sectoral coordination between relevant partners and public and private stakeholders at all levels	• Minutes of meeting, HAI policy documents, and records of capacity building, workshops, seminars and webinars endorsed by relevant stakeholders	2025-2030	• MoNHSR&C • Provincial Health Ministries • NIH • Provincial Health Departments • Development Partners
	Establishment/Notification of national, provincial/regional IPC units/cells with clear objectives, functions, and scope of responsibilities, including HAI Surveillance	• Notifications of IPC Units/cells at all levels	2025	• MoNHSR&C • NIH • Provincial Health Departments
	Notify/Update multi-sectoral / multi-disciplinary IPC steering committees, Technical Working Groups (TWG) and IPC Focal Persons at the National, Provincial/Regional and district level with clear roles, responsibilities and authority	• Notifications of IPC Steering Committees, Technical Working Groups and IPC Focal Persons at National, Provincial/Regional and District Levels	2025	• MoNHSR&C • NIH • Provincial Health Departments
	Notify/Update multi-disciplinary IPC committees, IPC teams and IPC Focal Persons at the Tertiary level healthcare facilities with clear roles, responsibilities and authority	• Notifications of IPC Committees, IPC teams and IPC Focal Persons at Tertiary level healthcare facilities	2025	• MoNHSR&C • NIH • Provincial Health Departments • Hospital administrations

Strategic Objectives	Deliverables	Means of verification	Timeline	Responsibility
	Continue to strengthen the HAIs surveillance system through implementation and monitoring of the HAIs surveillance Strategy	• Copies of the updated HAIs strategy in health care facilities disseminated	2025	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • · Development Partners
	Development and implementation of the HAIs surveillance guideline with roles and responsibilities	• Copies of the updated HAIs surveillance guideline in health care facilities disseminated	2025	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • · Development Partners
	To advocate for the availability of sustainable funds for the surveillance of HAIs	• Evidence of budget allocation for IPC/HAI Surveillance activities	Yearly	• MoNHSR&C • M/o Finance Department • NIH • Provincial Health Departments • P&D Department • IPC SCs and TWGs (All Levels)

Strategic Objectives	Deliverables	Means of verification	Timeline	Responsibility
Objective 2: To strengthen National and Provincial/ Regional capacity for early detection, complete recording, timely reporting, regular analysis and prompt feedback of healthcare-associated infections at all levels	Prioritization of the HAIs and high-risk areas in the healthcare facilities for HAI Surveillance	• List of priority HAIs • List of High-Risk Areas in HCFs	2025	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • · Development Partners
	Development/adoption of National HAI Surveillance and Response implementation guide, including data reporting protocol, digital data reporting tools for early detection, reporting and accuracy	• The HAIs Surveillance implementation guide developed and disseminated to all HCFs	2025	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	Identification/notification of adequate and designated Human Resources in high-risk areas for reporting and capacity building	• HAIs surveillance staff are notified and trained at each healthcare facility	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	To ensure standardized HAIs surveillance system implementation across the healthcare system of the country	• HCFs wise data reports	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Hosp Administration • Development Partners
	To estimate the burden of HAIs in healthcare facilities using recommended rates, ratios and time series analysis	• HAIs data analysis reports at HCFs	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels)
	To provide data for monitoring and evaluation of the impact of IPC interventions	• Data sharing mechanism established at all levels Audit tools	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels)

Strategic Objectives	Deliverables	Means of verification	Timeline	Responsibility
	To disseminate HAIs surveillance results to be used by HCWs and Decision makers at all levels	• HAIs monthly reports are developed at HCFs and shared with the relevant stakeholders	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	To strengthen the capacity of HCF IPC team and IPC FP for the timely detection, response and containment of HAI outbreaks	• Notification orders of HCF IPC Team and FP and response reports	2025-2030	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Hosp Administration & IPC FPs • Development Partners
	To standardize HAI outbreak investigation for timely corrective measures at healthcare facilities through the development of Investigation SOPs aligned with the National HAI Surveillance Implementation Guidelines	• Standardized HAI Investigation forms and SOPs developed	2025-2026	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	To develop a standardized HAI data flow mechanism across all levels of the health system for consistency and accountability	• Approved data flow mechanism	2025-2026	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	To establish a mechanism of adequate capacity building for HAI data collection, analysis and report writing	• Number of Healthcare Professionals trained	2025-2030	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	To conduct an annual point prevalence survey at the HCF level	• Reports of the point prevalence survey facility-wise	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners

Strategic Objectives	Deliverables	Means of verification	Timeline	Responsibility
Objective 3: To strengthen National and Provincial / Regional Public Health/ clinical laboratories capacities to confirm and report healthcare-associated infections	Identification of the gaps in the microbiological diagnostics capacity	• Mapping of laboratories and gaps assessment reports using standardized tools	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • I/C PPHL • Development Partners
	Upgrade laboratory infrastructure with facilities for microbiological diagnostics for HAIs	• List of laboratories upgraded with diagnostic capacity	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • I/C PPHL • Development Partners
	Capacity building program for laboratory personnel in diagnostic techniques	• Training report from healthcare facilities	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • I/C PPHL • Hosp Administration • Development Partners
	Provision of sufficient and continuous supplies for the diagnostics of HAIs	• Standardized list of supplies provided	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • I/C PPHL • Development Partners
	Establishment of a sample collection and transportation system for microbiological and non-microbiological	• Sample collection and transportation guide available	2025-26	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • I/C PPHL • Development Partners

Strategic Objectives	Deliverables	Means of verification	Timeline	Responsibility
	Establish networks linking National, Provincial, District and HCF level Laboratories to facilitate confirmatory testing.	• Lab-based surveillance reports	2025-27	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • I/C PPHL • Development Partners
	Foster partnerships with international labs and organizations for technical assistance	• Reports of training/ assistance	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • I/C PPHL • Development Partners
	Ensure an external and internal quality assessment system for public health and clinical laboratories	• Results of quality assurance reports	Quarterly / Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • I/C PPHL • Development Partners

Strategic Objectives	Deliverables	Means of verification	Timeline	Responsibility
Objective 4: To develop sustainable HR capacity for HAIs surveillance at the National, Provincial/Regional, District and HCF levels through regular capacity building and training	Conduct training needs assessments across the National, Provincial, District, and Healthcare Facility levels	• Training needs assessment reports	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	Develop and roll out a standardized HAI surveillance training curriculum	• Training curriculum developed and disseminated	2025-26	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	To develop and implement certification programs for IPC and HAI Surveillance professionals and epidemiologists	• IPC certification program	2026-27	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • District Health Department • Development Partners
	Establish a sufficient number of master trainers for IPC and HAIs surveillance	• Number of Master Trainers	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	Development of a training roster facility-wise and organize regular refresher training, workshops, and e-learning modules on HAIs	• Availability of training rosters Number of trainings conducted and number of trained staff at all levels	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	Establish mentorship and supervision frameworks for newly trained staff	• Mentorship and supervision framework developed	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • District Health Department • IPC Focal Persons • Development Partners

Strategic Objectives	Deliverables	Means of verification	Timeline	Responsibility
	Establish a roster of IPC and HAI-trained professionals at all levels	• Data available at all levels	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • IPC Focal Persons • Development Partners
	Monitor training impact through competency assessments and performance indicators	• Data of performance indicators	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners

Strategic Objectives	Deliverables	Means of verification	Timeline	Responsibility
Objective 5: To strengthen the Information and Communication Technology (ICT) infrastructure, including Artificial Intelligence-based solutions for improved data flow, data management, data analytics and data dissemination for action	Development/adoption of a sustainable national HAIs surveillance electronic platform with interoperability across health facilities and labs	• HAIs surveillance electronic platform developed	2025	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	Incorporate automation-supported analytics tools for syndromic detection, outbreak prediction and time series analysis	• System-generated reports at HCFs	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	Train users at all levels on ICT tools and data use for decision-making	• Number of trainings on ICT tools	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	Develop mobile applications for remote data collection and reporting	• Mobile application developed	2025	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	Establish dashboards for real-time data visualization accessible to stakeholders	• Dashboards developed at HCFs	2025-30	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners

Strategic Objectives	Deliverables	Means of verification	Timeline	Responsibility
Objective 6: To efficiently integrate HAIs surveillance system with AMR, Laboratory and IDSR at the national and sub-national levels	To integrate HAIs surveillance, AMR surveillance and IDSRs multiple using standardized data collections and transmission system (e.g., utilizing DHIS-2) at national, provincial and district levels	• Integration with other systems at all levels	2026-30	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	Facilitate data sharing agreements and inter-system linkages	• Data sharing agreements across stakeholders	2026-30	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • IPC Focal Persons • Development Partners
	Develop joint training and capacity-building programs emphasizing integration	• Number of trainings conducted	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • IPC Focal Persons • Hosp Administration • Development Partners
	Create multidisciplinary teams to analyze combined data sets for comprehensive public health actions	• Data reports availability at HCFs	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • IPC Focal Persons • Development Partners

Strategic Objectives	Deliverables	Means of verification	Timeline	Responsibility
Objective 7: To strengthen the supervision, monitoring and evaluation system for the HAIs surveillance system	Develop M&E Framework with clear indicators for surveillance quality, timeliness, and impact	• HAIs surveillance M & E framework developed	2028-30	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	Assign dedicated supervisory teams at National, Provincial, District and Healthcare Facility levels	• Notification of supervisory teams	2028-30	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	Conduct regular supportive supervision visits and data quality audits	• M & E visit reports	2028-30	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	Implement routine feedback mechanisms in facilities based on M&E findings	• Improvement plans developed	2030	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners

Strategic Objectives	Deliverables	Means of verification	Timeline	Responsibility
Objective 8. To build healthcare stakeholder coordination/collaborative approaches for the implementation of HAIs surveillance and response	Map all relevant stakeholders, including government bodies, the private sector, and others supporting IPC	• Stakeholders mapping report	2025-26	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	Establish multi-stakeholder forums for regular communication	• IPC Newsletter development, Regular meetings	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	Engage community and patient advocacy groups to promote infection prevention awareness	• Awareness seminars, workshops	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	Coordinate joint outbreak investigations and response drills	• Drills reports	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners
	Facilitate resource sharing and collaborative research initiatives	• Publications	Yearly	• MoNHSR&C • NIH • Provincial Health Departments • IPC SCs and TWGs (All Levels) • Development Partners

8. Conclusion

Healthcare-associated infections (HAIs) and antimicrobial resistance (AMR) remain critical challenges threatening Pakistan's healthcare system, patient safety, and public health. This strategic plan offers a clear and actionable roadmap for reducing infections, strengthening IPC systems, and combating AMR by 2030. Achieving these ambitious goals demands concerted efforts from all stakeholders.

9. For Policymakers

Your leadership is pivotal to institutionalizing IPC governance frameworks, securing sustainable financing, and enacting policies that prioritize infection prevention. Strong government commitment will ensure accountability, multisectoral coordination, and nationwide implementation of IPC standards. Investing in IPC is an investment in health system resilience, economic savings, and progress towards Pakistan's national and international health commitments.

10. For Donors and Development Partners

Strategic investments in IPC capacity building, surveillance infrastructure, and workforce development are essential for advancing Pakistan's health security and pandemic preparedness. Aligning resources with this national plan will maximize impact, foster innovation, and strengthen sustainable health outcomes. Your partnership is invaluable in bridging resource gaps and supporting evidence-based interventions that save lives.

11.For Healthcare Workers and Facility Managers

You are the frontline defenders of patient safety. Empowerment through standardized training, certification, and supportive facility environments enables you to implement best IPC practices effectively. Your active engagement and leadership in infection prevention, antimicrobial stewardship, and patient education are vital to driving culture change and improving health outcomes.

Together, through shared commitment and coordinated action, Pakistan can significantly reduce preventable infections, safeguard antimicrobial efficacy, and enhance the quality and safety of healthcare. This plan is a call to action, uniting policymakers, donors, and healthcare workers in a common purpose to protect the health of every Pakistani.

12. References

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