NATIONAL HEALTHCARE ASSOCIATED INFECTIONS SURVEILLANCE & RESPONSE IMPLEMENTATION GUIDELINES

2025

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 gives me great satisfaction to present the National HAIs Surveillance and Response Implementation Guidelines 2025, a milestone document aimed at strengthening patient safety and infection prevention across Pakistan. Healthcare-associated infections remain a major challenge for health systems globally, and our country is no exception. HAIs impact on morbidity, mortality, and healthcare costs highlights the urgent need for a structured and standardized national response.

These guidelines provide a comprehensive framework to establish, operationalize, and sustain surveillance for priority healthcare-associated infections across healthcare facilities. Developed through technical expertise, consultative workshops, and alignment with WHO's global IPC strategy and the International Health Regulations, they represent a unified approach to addressing this critical public health priority.

The Ministry of National Health Services, Regulations and Coordination, together with our provincial counterparts, remains committed to ensuring that these guidelines are effectively implemented, supported by robust governance, capacity building, and monitoring systems. By generating reliable data, guiding corrective action, and fostering accountability, we can significantly reduce the burden of preventable infections, improve patient outcomes, and strengthen public trust in our healthcare system.

I commend all stakeholders, experts, and partners who contributed to the development of this important document, and I call upon healthcare professionals at every level to adopt these guidelines as a collective step towards safer, stronger, and more resilient 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

I take great pride in presenting the National Healthcare-Associated Infections Surveillance and Response Implementation Guidelines 2025. The development of these guidelines reflects the tireless efforts of the National Institute of Health, Ministry of National Health Services, Regulations and Coordination, provincial health departments, relevant stakeholders, subject matter experts and development partners.

Healthcare-associated infections and antimicrobial resistance represent an ever-growing threat to patient safety and health security. These guidelines are designed to address this challenge by equipping healthcare facilities with standardized surveillance tools, protocols, and governance mechanisms. Built on international best practices, including the WHO Practical Surveillance handbook 2024, the WHO's IPC frameworks and the Global IPC Strategy 2023, providing practical pathways to strengthen facility-based and system-wide capacity for early detection, reporting, and response.

The NIH, as the national public health institute, is deeply committed to leading technical support, capacity building, and monitoring to ensure effective implementation of these guidelines. Through digital innovations such as DHIS-2 integration, strengthened laboratory systems, and data-driven decision-making, we envision a future where reliable surveillance informs action, prevents avoidable infections, and safeguards lives.

I extend my appreciation to the technical experts, consultative groups, and partners whose contributions were invaluable in shaping this document. I am confident that with collective ownership and consistent application, these guidelines will serve as a cornerstone for improving infection prevention and control, advancing patient safety, and achieving a healthier Pakistan.

Dr. Muhammad Salman
Chief Executive Officer
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Abbreviations and Acronyms

- **ADP –** Annual Development Plan
- **AKU –** Aga Khan University
- **AMR –** Antimicrobial Resistance
- **BSI –** Bloodstream Infection
- **CAUTI –** Catheter-Associated Urinary Tract Infection
- **CDC –** Centers for Disease Control and Prevention
- **CLABSI –** Central Line-Associated Bloodstream Infection
- **CT –** Computed Tomography
- **CVC –** Central Venous Catheter
- **DHIS-2 –** District Health Information Software 2
- **DM –** Diabetes Mellitus
- **ECDC –** European Centre for Disease Prevention and Control
- **EEA –** European Economic Area
- **EU –** European Union
- **HAI –** Healthcare-Associated Infection
- **HR –** Human Resources
- **ICU –** Intensive Care Unit
- **IDSR –** Integrated Disease Surveillance and Response
- **IEC –** Information, Education and Communication
- **IHR –** International Health Regulations
- **INICC –** International Nosocomial Infection Control Consortium
- **IPC –** Infection Prevention and Control
- **IPCAF –** Infection Prevention and Control Assessment Framework
- **IT –** Information Technology
- **JEE –** Joint External Evaluation
- **MR –** Medical Record
- **NAPHS –** National Action Plan for Health Security
- **NHDC –** National Health Data Center
- **NIH –** National Institute of Health
- **PNM –** Pneumonia
- **PPE –** Personal Protective Equipment
- **PSDP –** Public Sector Development Program
- **SSI –** Surgical Site Infection
- **TWG –** Technical Working Group
- **UTI –** Urinary Tract Infection
- **VAP –** Ventilator-Associated Pneumonia
- **WASH –** Water, Sanitation and Hygiene
- **WHO –** World Health Organization

1. Introduction

Health care-associated infections (HAIs) remain among the most frequent adverse events in clinical care and pose a major global public health challenge, with far-reaching consequences for morbidity, mortality, and overall quality of life. Evidence indicates that approximately 7% of patients in high-income countries and up to 15% in low- and middle-income countries acquire at least one HAI during hospitalization[1]. Beyond their clinical toll, HAIs imposes a substantial economic burden on societies and health systems. The World Health Organization (WHO) and other international bodies have consistently highlighted the growing endemicity of HAIs and antimicrobial resistance, which continue to compromise patient safety across all health systems, regardless of resource level. Importantly, a significant proportion of these infections are preventable through the consistent application of robust infection prevention and control (IPC) measures.

A health care-associated infection (HAI) is generally defined as an infection that arises in a patient during the course of receiving care in a hospital or other health care facility, and which was neither present nor incubating at the time of admission [2]. The most common types of health care-associated infections (HAIs) include urinary tract infections, often linked to the use of indwelling catheters; bloodstream infections, particularly central line-associated bloodstream infections (CLABSI); ventilator-associated pneumonia (VAP) in patients requiring mechanical ventilation; and surgical site infections (SSI) following operative procedures.

1.1. Burden of Healthcare-Associated Infections (HAIs)

Recent reviews and studies highlight the significant global burden of health care-associated infections (HAIs), with pooled prevalence estimates of 12.9% in the WHO South-East Asia Region, 9.7% in the Western Pacific Region, 12.5% in the Eastern Mediterranean Region, and as high as 27% in the African Region [3]. In comparison, prevalence rates were reported at 8.0% across 28 EU/EEA countries and three Western Balkan states, 9.6% in the Region of the Americas, 3.2% in the United States, and 7.9% in Canada [3]. The impact is particularly severe in intensive care units, where up to 30% of patients may be affected, and incidence rates can be two to twenty times higher in low- and middle-income countries than in high-income settings, especially among neonates [3,4]. It is estimated that nearly one in four hospital-treated sepsis cases (23.6%) are attributable to HAIs, while almost half (48.7%) of adult ICU sepsis cases with organ dysfunction originate within hospitals [1,5]. According to the European Centre for Disease Prevention and Control, the burden of the six most common HAIs is approximately double that of 32 other infectious diseases combined, when measured in terms of disability and premature mortality [6]. However, global estimates of HAIs remain constrained by underreporting, poor data quality, and the absence of standardized methodologies, challenges that are particularly pronounced in low- and middle-income countries.

1.2. WHO Guidelines for HAIs Surveillance

In 2016, the World Health Organization (WHO) issued evidence-based guidelines on the core components of infection prevention and control (IPC) programs at both national and acute healthcare facility levels [7]. These guidelines aim to support countries in establishing effective IPC systems to reduce the transmission of health care-associated infections (HAIs) and combat antimicrobial resistance (AMR). A key emphasis is placed on Core Component 4: HAIs

Surveillance, which strongly recommends the establishment of national surveillance programmes and networks with timely data feedback mechanisms for monitoring, benchmarking, and ultimately reducing the burden of HAIs and AMR

1.3. WHO Global IPC Strategy and Action Plan 2023–2030

At the 76th World Health Assembly in May 2023, WHO presented and adopted its first global IPC strategy, envisioning that "by 2030, everyone accessing or providing health care is safe from associated infections" [8]. The strategy emphasizes strengthening IPC programs across all levels of care, including acute, long-term, primary, secondary, and tertiary care, in both public and private sectors. Among its eight strategic directions, the fifth, data for action, highlights the central role of HAIs surveillance in guiding IPC improvements. Building on this, WHO developed a Global IPC Action Plan and Monitoring Framework (2024–2030) [8], endorsed at the 77th World Health Assembly, which operationalizes these strategic directions through defined actions, indicators, and targets. Central to this framework is the establishment of national HAIs and AMR strategic plans and surveillance systems as essential drivers of patient safety and health system resilience.

1.4. Pakistan's Joint External Evaluation 2023

The recent Pakistan Joint External Evaluation (JEE) 2023 reflected no capacity for Surveillance of HAIs, with a score of 1 out of 5 [9]. Pakistan lacks an HAIs surveillance programme or strategic plan, including AMR and outbreak-prone pathogens. However, limited HAIs surveillance is undertaken in some private hospitals and through small-scale public sector pilots, and a few high-quality microbiology laboratories exist mainly in the private sector; these efforts remain fragmented. To advance, Pakistan needs a comprehensive national strategic plan on HAIs, incorporating standardized case definitions, priority pathogen lists, and surveillance methodologies.

1.5. Rationale

The National Institute of Health, Ministry of National Health Services, Regulations and Coordination, Pakistan, has developed the National HAIs Surveillance Implementation Guidelines, aligned with the WHO Practical Handbook on HAIs Surveillance (2024). These guidelines are designed to generate reliable data for the timely detection, analysis, and response to HAIs, thereby enhancing patient safety and contributing to the containment of antimicrobial resistance.

The HAIs Implementation Guidelines focus on case-based surveillance of device-associated and surgical site infections, such as catheter-associated urinary tract infection (CAUTI), central-line-associated bloodstream infection (CLABSI), ventilator-associated pneumonia (VAP), and surgical site infection (SSI), alongside laboratory-based surveillance of multidrug-resistant organisms. HAIs Surveillance System designed in DHIS-2 and hosted at the National Health Data Center (NHDC) NIH, with interoperability with the Integrated Disease Surveillance and Response (IDSR) system, the HAIs Surveillance system incorporates auto-diagnosis algorithms using WHO case definitions to ensure standardized detection. Furthermore, it leverages web and mobile-based platforms for real-time reporting, supported by paper-based mechanisms to accommodate facilities operating in offline settings.

1.6. Purpose

The purpose of the HAIs Surveillance Implementation Guidelines 2025 is to provide a standardized, practical guide for the establishment, operation, and strengthening of HAIs surveillance across healthcare facilities in Pakistan. These guidelines serve as a reference tool for health care workers, IPC focal persons, microbiology laboratories, and policymakers to ensure that surveillance activities are consistent, evidence-based, and aligned with national and international standards.

1.7. Objectives

The following are the objectives of the National HAIs Surveillance Implementation Guidelines 2025:

- To define standardized case definitions and reporting formats for HAIs surveillance in line with WHO and global recommendations.
- To outline clear roles and responsibilities for healthcare facilities, provincial, and national stakeholders involved in surveillance.
- To provide step-by-step guidance on data collection, reporting, analysis, interpretation, and feedback mechanisms.
- To promote uniformity and comparability of data across healthcare facilities and provinces for evidence-based decision-making.
- To support capacity building by guiding training, mentorship, and supervision of staff involved in HAIs surveillance.
- To embed principles of data authorization to dedicated IPC teams, data privacy, patient confidentiality, and ethical use of information into routine practice and accountability.
- To serve as a practical tool for monitoring, evaluation, and continuous improvement of the HAIs surveillance system.

2. Methodology for HAIs surveillance

2.1. Healthcare-Associated Infection Surveillance

Surveillance of health care-associated infections (HAIs) at national, provincial/regional, district and facility levels is a systematic and continuous process involving the collection, consolidation, analysis, interpretation, and feedback of data on HAIs. The aim is to measure the burden, detect trends, identify outbreaks, inform infection prevention and control (IPC) actions, compliance, support benchmarking and comparison across settings.

2.1.1. Types of Surveillance

HAIs Surveillance Implementation Guidelines will cover the following types of Surveillance.

2.1.1.1 Patient Based Surveillance

Patient based surveillance will include demographic information, clinical information, laboratory and radiological findings. It will estimate the frequency of HAIs and will assess the IPC risk factors. This type of surveillance provides useful epidemiological data to be used for developing IPC strategies for best practices.

2.1.1.2. Laboratory Based Surveillance

A laboratory-based surveillance means that infection identification is based solely on positive laboratory findings from the patient's clinical specimens (blood, urine, swab, sputum, etc.). This type of surveillance describes the pathogens and their resistance pattern detected by the hospital laboratory and can help identify the most frequently isolated pathogens in inpatients and the extent of AMR within the health care facility.

2.2. Prioritization of HAIs

HAIs Surveillance will cover the following Infections:

2.2.1. Device-associated HAIs

Several studies suggest that device-associated infections account for about 40-60% of all healthcare-associated infections (HAIs) in many hospital settings [10]. A phased approach starting with device-associated HAIs surveillance is considered the correct and globally recommended methodological approach, especially in countries like Pakistan that are building systems from limited capacity.

2.2.1.1 Catheter-Associated Urinary Tract Infection (CAUTI)

Urinary tract infections (UTIs), most often caused by E. coli but also by pathogens like Klebsiella and Pseudomonas, are the most common healthcare-associated infection, with 75% linked to catheter use (CAUTI). Risk is heightened by poor IPC practices such as prolonged or improper catheter care, as well as patient factors like female sex, old age, chronic illness, and immunosuppression. An international study across 45 countries found an incidence of 3.16 CAUTI per 1000 catheter days in ICUs, highlighting CAUTI as the top HAIs prevention priority [11].

2.2.1.2. Central-Line Associated Blood Stream Infection (CLABSI)

Bloodstream infections (BSIs) occur when pathogens enter the bloodstream, often leading to sepsis or septic shock. They are frequently associated with intravascular devices, especially central lines (CLABSI), or spread from other infection sites. ICU patients are at higher risk due to severe illness, prolonged stay, or immunosuppression. Globally, ICU-acquired BSI affects 5–7% of admissions, with an incidence of 5.3 CLABSI per 1000 central line days, while in Africa, prevalence reaches a median of 20%, making BSI the second key HAIs priority [12].

2.2.1.3. Ventilator-Associated Pneumonia (VAP)

Respiratory tract infections are a leading HAI, particularly in ICUs, where over one-quarter of patients are affected. Ventilator-associated pneumonia (VAP) is the most frequent, with rates ranging from 1–2.5 per 1000 ventilator-days in the USA to over 18 in European and Asian hospitals. Globally, a multicountry study estimated 11.47 ventilator-associated events per 1000 ventilator-days [13]. VAP carries high morbidity and about 10% attributable mortality, making it a major HAIs priority [13].

2.2.2. Surgical Site Infections (SSIs)

Surgical site infections (SSIs) are common post-surgical complications, ranging from superficial wound infections to deep organ or implant-related cases. Risk factors include patient conditions like age, obesity, and immunosuppression, and procedure-related issues such as long surgeries or poor aseptic practices. SSI increases hospital stays by about 10 days, raises surgical costs by up to 400%, and accounts for 11% of general surgical cases globally and 41.6% of HAIs in Africa, making them a major burden on patient outcomes[14,15]. The HAIs Surveillance guidelines will cover the following SSIs during the first phase; moreover, tertiary care hospitals can also cater to other SSIs based on their capacity:

2.2.2.1. Cesarean Sections

The rate of surgical site infection (SSI) after C-section in LMICs is substantially high, with reports suggesting ranges up to 9-24 % or even higher in some settings; in Pakistan, one study found SSIs complicating up to 24.3 % of C-sections. [16]

2.2.2.2. Appendicectomies

In low- and middle-income countries (LMICs), surgical site infections (SSIs) following appendectomy remain a significant challenge and have been documented at markedly higher rates than in high-income settings. A systematic review of studies in LMICs found an overall pooled SSI incidence of approximately 17.9 per 100 open appendectomies (95 % CI 10.4-25.3) and 8.8 per 100 laparoscopic appendectomies (95 % CI 4.5-13.2). [17]

2.3. Case Definitions of Priority HAIs

2.3.1. Catheter-Associated Urinary Tract Infections (CAUTI)

2.3.1.1. Microbiologically confirmed symptomatic UTI (UTI-A)

Patient has at least one of the following signs or symptoms with no other recognized cause: fever (>38°C); **OR** urinary urgency; **OR** increased urinary frequency; **OR** dysuria; **OR** flank pain; **OR** supra-pubic pain; **OR** suprapubic tenderness; **AND** a positive urine culture ($\geq 10^5$ microorganisms per mL of urine with no more than two species of microorganisms).

2.3.1.2. Not microbiologically confirmed symptomatic UTI (UTI-B)

Patient has at least two of the following signs or symptoms with no other recognized cause: fever (>38°C); **OR** urinary urgency; **OR** increased urinary frequency; **OR** dysuria; **OR** flank pain; **OR** supra-pubic pain; **OR** suprapubic tenderness; **AND** at least one of the following findings: positive dipstick for leukocyte esterase and/or nitrate; **OR** pyuria with ≥ 10 white blood cell (WBC)/mL or ≥ 3 WBC/high-power field of unspun urine; **OR** microorganisms seen on Gram stain of unspun urine; **OR** at least two urine cultures with repeated isolation of the same uropathogen (Gram-negative bacteria or Staphylococcus saprophyticus) with $\geq 10^2$ colonies/mL urine in non-voided specimens; **OR** $\leq 10^5$ colonies/mL of a single uropathogen (Gram-negative bacteria or S. saprophyticus) in a patient being treated with an effective antimicrobial agent for a UTI.

2.3.1.3. Not microbiologically confirmed symptomatic UTI (UTI-C)

Patient has at least three of the following signs or symptoms with no other recognized cause: fever (>38°C); **OR** urinary urgency; **OR** increased urinary frequency; **OR** dysuria; **OR** flank pain; **OR** supra-pubic pain; **OR** suprapubic tenderness; **AND** clinician diagnosis of a UTI **OR** clinician institutes therapy for a UTI.

2.3.1.4. Catheter-associated UTI (CAUTI)

UTI-A **OR** UTI-B **OR** UTI-C definitions; **AND** Patient had an indwelling urinary catheter in place for more than 2 consecutive days and removed not more than two days before meeting the definition of UTI-A, UTI-B, or UTI-C

2.3.2. Central-Line Associated Blood Stream Infections (CLABSI)

2.3.2.1. Confirmed BSI (BSI-A1)

One positive blood culture for a recognized pathogen. It excludes common skin commensals such as coagulase-negative staphylococci, Micrococcus sp., Propionibacterium acnes, Bacillus sp., Corynebacterium sp.

2.3.2.2. Confirmed BSI (BSI-A2)

Patient has at least one of the following signs or symptoms: fever (> 38°C) **OR** chills **OR** hypotension (systolic pressure ≤ 90 mmHg); **AND** two positive blood cultures for a common skin commensal(s) (from two separate blood samples) within 48 hours. Common skin contaminants include coagulase-negative staphylococci, Micrococcus sp., Propionibacterium acnes, Bacillus sp., Corynebacterium sp.

2.3.2.3. Suspected BSI (BSI-B)

Patient has at least one of the following signs or symptoms: fever (> 38°C) **OR** chills **OR** hypotension (systolic pressure ≤ 90 mmHg); **AND** treatment for infection is instituted (that is, on the day of sample collection, physician documentation of antimicrobial treatment for suspected infection); **AND** one positive blood culture for a common skin commensal(s). Common skin contaminants include coagulase-negative staphylococci, Micrococcus sp., Propionibacterium acnes, Bacillus sp., Corynebacterium sp.

2.3.2.4. Central vascular catheter-associated BSI (CVC-BSI)

BSI-A1 **OR** BSI-A2 **OR** BSI-B definition met **AND** Patient had a central vascular catheter in place for more than 2 consecutive days and removed not more than two days before meeting the definition of BSI-A1 **OR** BSI-A2 **OR** BSI-B.

2.3.3. Ventilator-Associated Pneumonia

2.3.3.1. Microbiologically confirmed PNM (PNM-A)

Patient has at least two of the following: fever (>38°C); **OR** cough; **OR** purulent sputum; **OR** tachypnoea (respiratory rate >20 bpm); **OR** worsening gas exchange (SpO2<94% or decrease from baseline of >3%, new or increased need for supplemental O2); **OR** documented auscultation indicative of pneumonia; **OR** compatible findings such as “crackles” or “bronchial breath sounds”; **AND** chest X-ray **OR** computed tomography (CT) scan suggestive of pneumonia; **AND** microorganisms isolated from any positive microbiology from the respiratory sample (quantitative or non-quantitative, including serology, antigen in urine, etc.); **AND**/**OR** blood culture.

2.3.3.2. Radiologically confirmed PNM (PNM-B)

Patient has at least two of the following: fever (>38°C); **OR** cough; **OR** purulent sputum; **OR** tachypnoea (respiratory rate > 20 bpm); **OR** worsening gas exchange (SpO2<94% or decrease from baseline of >3%, new or increased need for supplemental O2); **OR** documented auscultation indicative of pneumonia; **OR** compatible findings such as “crackles” or “bronchial breath sounds”; **AND** chest X-ray **OR** CT scan suggestive of pneumonia.

2.3.3.3. Clinical PNM (PNM-C)

Patient has at least three of the following: fever (>38°C); **OR** cough; **OR** purulent sputum; **OR** tachypnoea (respiratory rate > 20 bpm); **OR** worsening gas exchange (SpO2<94% or decrease from baseline of >3% or new or increased need for supplemental O2); **OR** documented auscultation indicative of pneumonia; **OR** compatible findings such as "crackles" or "bronchial breath sounds".

2.3.3.4. Ventilator-associated pneumonia (VAP)

PNM-A **OR** PNM-B **OR** PNM-C; **AND** Patient had a mechanical ventilation/intubation in place for more than 2 consecutive days and removed not more than two days before meeting the definition of PNM-A OR PNM-B OR PNM-C.

2.3.4. Surgical site infection(s) (SSI)

2.3.4.1. SSI type A (SSI-A)

Postoperative patients within 30 days following a surgical procedure with evidence of SSI based on microbiology (for positive culture); **OR** radiology (suggestive of infection); **OR** histopathologic criteria (for abscess or similar findings). Stratify by depth if the following information is available:

a) superficial: **AND** infection involves only the skin and subcutaneous tissue of the incision;

b) deep incisional: **AND** infection involves deep soft tissue (for example, fascia, muscle) of the incision;

c) organ/space: **AND** infection involves any part of the anatomy (for example, organs and spaces) other than the incision that was opened or manipulated during a surgical procedure.

2.3.4.2. SSI type B (SSI-B)

Postoperative patients within 30 days following a surgical procedure with reopening of the wound for suspected infection **OR** abscess (or similar findings) found during direct examination **OR** during reoperation (for deep and organ/space SSI). Stratify by depth if the following information is available:

a) superficial: **AND** infection involves only the skin and subcutaneous tissue of the incision;

b) deep incisional: **AND** infection involves deep soft tissue (for example, fascia, muscle) of the incision;

c) organ/space: **AND** infection involves any part of the anatomy (for example, organs and spaces) other than the incision that was opened or manipulated during a surgical procedure.

2.3.4.3. SSI type C (SSI-C)

Postoperative patients within 30 days following a surgical procedure with evidence of purulent discharge at the incision or surgical site. Stratify by depth if the following information is available:

a) superficial: **AND** infection involves only the skin and subcutaneous tissue of the incision;

b) deep incisional: **AND** infection involves deep soft tissue (for example, fascia, muscle) of the incision;

c) organ/space: **AND** infection involves any part of the anatomy (for example, organs and spaces) other than the incision that was opened or manipulated during a surgical procedure.

2.3.4.4. SSI type D (SSI-D)

Postoperative patient within 30 days following a surgical procedure; **AND a** diagnosis of an SSI is made by the surgeon or attending physician or designee.

2.4. Governance Structure of HAIs Surveillance

2.4.1. National and Provincial Levels

The National Institute of Health (NIH), Ministry of National Health Services, Regulation and Coordination, Pakistan, being the National IPC Focal Point, will serve as the federal technical lead for HAIs Surveillance in coordination with National and Provincial Health Departments, IPC Focal Persons, Steering Committees and Technical Working Groups. The detailed Terms of Reference (ToRs) of National and Provincial IPC Focal Persons, Steering Committees, and Technical Working Groups are provided in **Annexure A**. At the national and provincial levels, HAIs surveillance implementation aligned with the National HAIs Surveillance Strategy 2025-2030 will be overseen by the IPC Focal Persons, IPC Steering Committees, and Technical Working Groups. These personnel and bodies will provide oversight and guidance to hospital and district IPC programs, ensuring surveillance implementation, data validation, analysis, and corrective actions in line with their defined ToRs.

A multi-sectoral and multi-disciplinary coordination mechanism will be established and referred to as working or acting together effectively for the rational and efficient use of available but limited resources. Coordination involves information sharing, joint planning, monitoring and evaluation in order to provide accurate, consistent and relevant data and information to policymakers and stakeholders at national, provincial, district and hospital levels. Moreover, these personnel and bodies will work to harmonize different methods, software, data collection forms, standards and case definitions in order to prevent inconsistent information and to maximize efforts among disease prevention and control programmes and stakeholders.

2.4.2. Tertiary Healthcare Facility Level

At the facility level, HAIs surveillance will be embedded within hospital IPC programs. Each hospital is required to notify a multi-disciplinary IPC Committee, IPC Team and IPC Focal Person. The IPC Focal Person, IPC team and IPC Committee will ensure that HAIs surveillance is implemented across all wards, designate HAIs Surveillance Focal Persons in each ward/department, validate entries, data analysis and take corrective response measures.

2.5. Data Types and Data Collection Tool

2.5.1. Data Types

The following types of data will be collected under the HAIs Surveillance System:

2.5.1.1. Demographic Information

The case-based demographic information will include Full name, MR /CNIC number, age, gender, department/Ward, date of admission, contact number and primary cause of admission.

2.5.1.2. Clinical Information

The case-based clinical information will include signs and symptoms, details of device insertion/removal (for total device days and days of surgery), including IPC insertion care bundles, comorbidities and antimicrobial therapy details.

2.5.1.3. Laboratory and Radiological Information

The case-based laboratory and radiological information will include the type of sample, date of sample collection, number of samples collected, pathogens identified, antibiotic susceptibility and details of radiological tests indicative of HAIs.

2.5.2. Data Collection Tools

The HAIs Surveillance system will include the following two types of data collection tools:

2.5.2.1. Digital Data Collection Tool

National Institute of Health, Ministry of National Health Services, Regulation and Coordination, Pakistan, in collaboration with provincial health departments, relevant stakeholders, development partners and subject matter experts, has developed a digital data collection tool for HAIs surveillance using the DHIS-2 platform. The digital data collection tool (DHIS-2) is available with both a web and a mobile-based application on the Google Play Store. The data entry can be done in both online and offline modes. The digital data collection tool includes detailed forms for CAUTI, CLABSI, VAP, SSI and Laboratory and is piloted and tested. The manual of the digital HAIs Surveillance tool is attached in **Annexure B.**

DHIS-2 (District Health Information Software 2) is a widely adopted, open-source platform for managing health data, used in over 80 countries to support health information systems. It is an open-source and customizable platform with the ability to integrate demographic, clinical, laboratory, and radiological data into standardized dashboards for analysis and reporting. Its interoperability with other platforms, such as IDSR and being hosted at the National Health Data Center, enhances its security, data management and sharing. For sustainability, NHDC is fully equipped to provide any IT support without any maintenance and service resulting in any financial implications. The detailed forms of the digital data collection tool are provided in **Annexure B**. The data will be collected and entered from the patient case sheet/file using digital tools and will be updated daily till the case is closed/discharged.

2.5.2.2. Paper based data collection Tool

In hard-to-reach areas and facilities with low or unreliable internet connectivity, paper-based data collection tools will serve as an essential backbone for HAIs surveillance. Standardized case reporting forms for CAUTI, CLABSI, VAP, SSI and Laboratory will be provided to ensure uniform documentation of demographic, clinical, laboratory, and radiological information. These tools have been developed for ease of use by frontline health workers, with clear types of variables as per requirements. Completed forms will be compiled and submitted to the Healthcare Facility IPC FPs, where the data can be validated and entered into the digital system. The details of paper-based data collection tools are provided in **Annexure-C**

2.6. Data Collection and Data Flow

2.6.1. Data Collection

For device-associated infections (CAUTI, CLABSI, and VAP), surveillance will begin at the point of device insertion. At this stage, demographic details, insertion information, and adherence to insertion care bundles will be documented. Care bundle compliance will initially be recorded on standardized paper-based forms by an observer during the insertion procedure and stored in the patient's file. The ward/unit HAIs Surveillance Focal Person will subsequently transfer this information into the digital surveillance tool. Case-based surveillance will remain active

throughout the patient's hospital stay, with continuous updates on clinical progress, laboratory results, radiological findings, and treatment interventions. The data entry process will be formally closed upon the patient's discharge.

For surgical site infections (SSIs), designated/notified data reporting personnel from surgical ICUs, General Surgery, Gynecology and Obstetrics ward and their outpatient departments (OPDs) will capture perioperative and postoperative infection-related information. This data will be directly entered into the dedicated SSI module of the digital HAIs surveillance tool. The data entry process will be formally closed on the 30th day following the surgical procedure.

The laboratory personnel nominated for HAIs surveillance will be responsible for documenting microbiological findings. They will utilize a laboratory-based surveillance tool to record culture and sensitivity results, ensuring that only confirmed positive results are uploaded into the HAIs laboratory-based surveillance system.

In facilities with connectivity limitations, HAIs Surveillance Focal Persons will rely on paper-based tools to capture patient-level data during hospitalization. Once the devices are removed and the patient is discharged, the paper-based forms will be completed and submitted to the facility IPC Focal Person. These will then be validated and transcribed into the digital system once connectivity is restored, ensuring data completeness and continuity.

This blended approach of real-time digital entry supported by paper-based backups guarantees inclusivity of all tertiary HCFs in the surveillance system, minimizes data loss, and promotes timely detection, validation, and response to HAIs cases.

2.6.2. Data Collection Sites

The selection of Health Care-Associated Infections (HAIs) surveillance sites within a hospital is a critical process that must be guided by both epidemiological priorities and international best practices. Global recommendations, such as those of the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC), emphasize a strategic approach to site selection to ensure representativeness, efficiency, and reliability of data.

Priority is generally given to high-risk and high-burden clinical areas such as intensive care units (ICUs), surgical wards, transplant and medical wards, where the prevalence of device-associated infections and antimicrobial resistance tends to be highest. Additionally, stepwise expansion from sentinel wards to broader hospital coverage is recommended to balance feasibility with comprehensiveness.

The chosen sites should also reflect the hospital's patient case burden and local epidemiology, ensuring that the data generated can inform both facility-level infection prevention strategies and provincial or national surveillance systems. Selection must consider operational realities, including staffing capacity, laboratory support, and availability of digital tools for real-time data capture. By aligning site selection with global frameworks such as the WHO's Core Components for Infection Prevention and Control and the Global Action Plan on Antimicrobial Resistance, hospitals can establish surveillance systems that not only provide accurate local insights but also contribute to regional and global comparative data, strengthening overall health security.

The subject matter experts from National. Provinces, Healthcare facilities and development partners recommended the following priority clinical areas during the first phase of the HAIs Surveillance. Hospitals can enhance their HAIs Surveillance to other clinical areas as per their capacity:

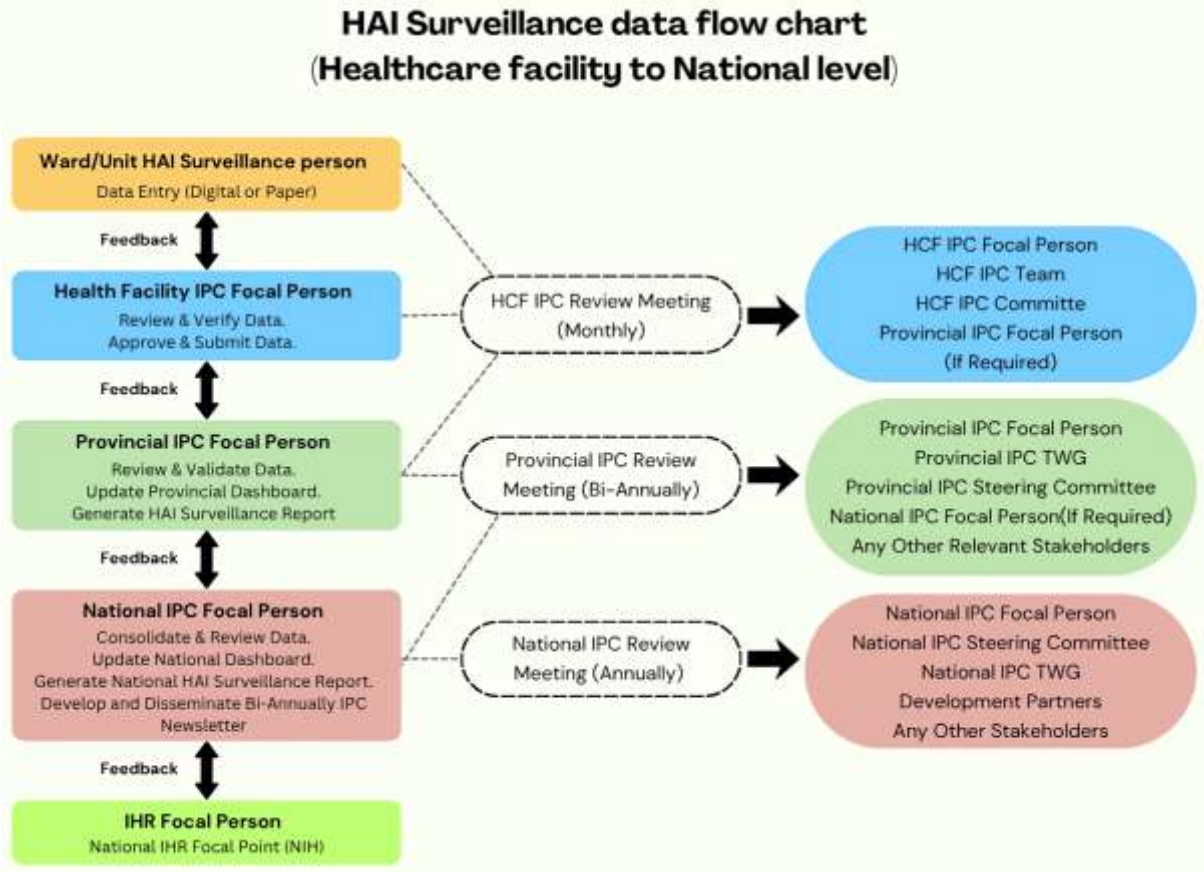
1. Medical Intensive Care Units
2. Surgical Intensive Care Units
3. General Surgery Wards
4. Gynecology and Obstetrics
5. Relevant Outpatient Departments

2.6.3. Data Flow

The HAIs surveillance data flow chart illustrates the structured reporting and feedback mechanisms from the healthcare facility levels up to provincial and national levels. It highlights the roles and responsibilities of IPC focal persons at each tier, the regular review meetings for data validation and decision-making, and the generation of HAIs and antibiogram reports.

The data on healthcare-associated infections (HAIs) will be collected from selected wards and departments using the digital HAIs Surveillance Tool by notified data reporting personnel, validated at the facility level by the Healthcare IPC Focal Person, and then shared with the Provincial IPC Focal Person for further review before submission to the National IPC Focal Person. The National IPC Focal Person will analyze the consolidated data and share it with the IHR Focal Point when required.

To ensure accountability and timely response, the Healthcare facility IPC Focal Person will convene monthly IPC review meetings with the hospital IPC team, Committee, Surveillance Focal Person, and other stakeholders, while the Provincial IPC Focal Person will organize bi-annual review meetings with the Provincial IPC Steering Committee, Technical Working Group, and partners. At the national level, annual review meetings involving the National IPC Steering Committee, Technical Working Group and development partners will be held to monitor progress and recommend corrective measures.



Additionally, the National IPC Focal Person, in coordination with Provincial IPC Focal Persons, will develop and disseminate a bi-annual IPC Newsletter to all stakeholders, thereby strengthening communication, knowledge sharing, and system-wide alignment.

2.7. Data Analysis

Health Care-Associated Infections (HAIs) surveillance data analysis will generate actionable evidence that strengthens patient safety and infection prevention systems. Through systematic analysis, the burden and trends of HAIs across selected wards, departments, and patient populations can be identified, enabling the early detection of outbreaks and clusters of HAIs, including resistant organisms.

The data analysis will provide critical findings to evaluate the effectiveness of implemented IPC interventions, including hand hygiene programs, and device-care IPC bundles, ensuring that preventive measures are continuously refined.

By providing insight into the distribution of infections and associated pathogens, surveillance data support antimicrobial stewardship efforts and inform rational antibiotic policies. Furthermore, it guides administrators and health authorities in allocating resources, prioritizing high-risk areas, and benchmarking performance both within the hospital and across comparable facilities nationally.

Ultimately, the systematic analysis of HAIs data underpins evidence-based decision-making, informs policy and planning, and enhances accountability through transparent reporting, thereby fostering a culture of continuous improvement in quality of care and health security.

2.7.1. Important Calculations

Based on WHO case definitions, the DHIS-2-based HAIs Surveillance system will detect the HAIs automatically and will also calculate the device-associated incidence density and time series analysis. The following important calculations are recommended:

Indicator	Formula	Interpretation
Incidence Proportion	(Number of patients who developed HAI Total number of patients admitted) × 100	% of admitted patients who acquired HAI
Incidence Density	(Number of patients who developed a HAI ÷ Total patient admission days) × 1000	HAIs incidence density per 1,000 patient admission days
CAUTI Incidence Rate	(Number of CAUTI cases ÷ Total catheter insertion days) × 1000	CAUTI incidence rate per 1,000 catheter insertion days
CLABSI Incidence Rate	(Number of CLABSI cases ÷ Total central line insertion days) × 1000	CLABSI incidence rate per 1,000 central line insertion days
VAP Incidence Rate	(Number of VAP cases ÷ Total ventilator insertion days) × 1000	VAP incidence rate per 1,000 ventilator insertion days
SSI Percentage	(Number of SSI cases ÷ Total surgical procedures) × 100	SSI rate per 100 surgical procedures
Device Utilization Ratio (DUR)	(Device-days ÷ Patient-days)	Device utilization ratio

Indicator	Formula	Interpretation
MDRO Proportion	(Number of resistant isolates ÷ Total isolates of same organism) × 100	Antimicrobial resistance rate (%)
Insertion Bundle Compliance	(Number of cases with full bundle adherence ÷ Total applicable cases) × 100	Bundle compliance rate (%)
Reporting Completeness	(Number of reports submitted ÷ Number of expected reports) × 100	Proportion of reports actually submitted against the total reports expected (%)
Reporting Timeliness	(Reports submitted on time ÷ Expected reports) × 100	Reports submitted on time out of total expected (%)

Other important analytic approaches are provided below:

Dashboard Component	Description
Facility Dashboard	Shows weekly incidence density rates, device utilization, and bundle compliance for each ward.
Provincial Dashboard	Aggregated weekly incidence density rates.
National Dashboard	Consolidated view across the country; shows time series analysis of HAIs province-wise trends.

2.8. Response to detected HAIs

Once an HAI case is identified through surveillance and confirmed according to the WHO case definitions, a structured and timely response must be initiated to ensure containment, patient safety, and IPC system improvement. The following steps are recommended for an efficient response:

Step 1: Immediate Notification
The Healthcare facility IPC Focal Person will notify/discuss the HAI Positive case with the Hospital IPC team and Committee.

Step 2: Rapid Assessment and Isolation
The IPC Focal Person and IPC Team, with the relevant In-charge of the concerned ward/department and microbiology laboratory, will determine the need for transmission-based precautions, patient isolation, or cohorting. (Isolation for MDROs as per the National Guidelines).

Step 3: Root Cause Investigation
The hospital IPC Committee conducts a focused investigation within 24 hours: review of care bundles, device practices, hand hygiene compliance, and identification of possible sources (e.g., contaminated equipment, environment).

Step 4: Immediate Control Measures
The following immediate control measures are recommended:

- Strengthen hand hygiene and HAIs Prevention bundle compliance.
- Conduct targeted environmental cleaning and disinfection.

- Temporarily restrict elective procedures in the affected unit, if necessary, in consultation with relevant stakeholders.

Step 5: Reporting to District/Provincial IPC Focal Person
The Hospital IPC Focal Person, Team and Committee will develop a short report and can submit it to the District/Provincial IPC Focal Person, if required.

Step 6: Provincial / National Support
Provincial IPC Units may deploy a rapid response team for field investigation if requested by the Healthcare Facility. Moreover, the national IPC Focal Person can provide technical guidance, assistance with advanced laboratory testing, and coordination if requested by the province.

Step 7: Feedback and Follow-up
Findings and corrective actions are documented and shared with the selected clinical areas (ward/departments) and lessons learned can be fed into training and future prevention measures.

2.9. Data Privacy and Security

HAIs surveillance System using DHIS-2 will ensure that data privacy and security at all levels, including collection, storage, analysis and dissemination. Patient confidentiality must be safeguarded at all stages of the data cycle, beginning with anonymization of individual-level data wherever possible, and strict role-based access controls to ensure that only authorized personnel can view or edit records. Data transmitted from healthcare facilities to provincial and national servers should be encrypted to prevent unauthorized interception, and secure login protocols must be enforced for all users.

Furthermore, all health care staff involved in data handling must be sensitized and trained on ethical obligations regarding patient confidentiality, recognizing that misuse or accidental disclosure can erode public trust in the surveillance system. By embedding these privacy and security measures within the DHIS-2 framework, the Health Department can ensure both compliance with international norms and protection of patients' rights while maintaining the integrity and reliability of surveillance data.

Key Principles for Data Privacy & Security in HAIs Surveillance (DHIS-2 Platform)

- **Confidentiality**: Protect all patient-identifiable information through anonymization or de-identification before sharing across levels.
- **Role-Based Access**: Limit access to sensitive data strictly to authorized staff based on defined responsibilities.
- **Encryption**: Ensure all data transmitted from health facilities to provincial and national servers is encrypted to prevent unauthorized interception.
- **Audit Trails**: Maintain logs of all data entry, access, and modifications for accountability and traceability.
- **Standardization at all Levels**: Apply uniform privacy and security protocols across provinces to ensure consistency within Pakistan's federated health system.
- **Capacity Building**: Train all staff engaged in surveillance data handling on ethical and legal responsibilities related to patient privacy.
- **Policy Compliance**: Align all practices with national health information governance frameworks and international standards (e.g., WHO guidance).

3. Communication and Feedback

Effective communication and coordination of HAIs surveillance data are critical to ensure that collected information translates into actions. At the national level, NIH and MoNHSR&C will lead the dissemination of standardized reports through bi-annual review meetings. At the facility level, IPC Team will generate regular bi-weekly ward and hospital specific HAIs Surveillance reports, present findings in the bi-weekly review meetings, and share updates and meeting recommendations with all relevant staff.

Timely feedback supports rapid corrective action, reinforces successes, and motivates healthcare workers. Coordination between facility, provincial, and national levels ensures a two-way flow of information/feedback, supportive supervision, and a collaborative environment where best practices and challenges are shared to foster continuous improvement and accountability.

4. Capacity Building for HAIs Surveillance

The NIH and MoNHSR&C, in collaboration with Provincial Health Departments, relevant stakeholders, and development partners, will develop a cadre of 200 master trainers on IPC and HAIs surveillance across the country. These master trainers will cascade their expertise to approximately 3,000 healthcare professionals in 100 tertiary-level healthcare facilities, ensuring wide coverage and a standardized approach to IPC and HAIs surveillance practices. To sustain these gains, there is a critical need for regular, facility-based capacity-building initiatives, using standardized national training materials and incorporating e-learning modules to facilitate continuous professional development.

Global recommendations emphasize the importance of embedding IPC training into pre-service and in-service curricula, establishing a system of refresher training, and linking capacity-building efforts with accreditation, licensure, and hospital quality improvement frameworks. It is therefore recommended that healthcare facilities institutionalize IPC and HAIs surveillance training as part of their mandatory continuing education programs, supported by periodic assessments and supervision. Furthermore, digital platforms and e-learning modules should be expanded to ensure equitable access for healthcare professionals across all provinces, including remote and underserved areas. Aligning with WHO's global IPC minimum requirements and AMR containment targets, Pakistan should also establish mechanisms to monitor training effectiveness, ensure accountability, and promote a culture of lifelong learning. This will help build a resilient workforce capable of sustaining high-quality IPC and HAIs surveillance practices, contributing to national health security and global commitments under the International Health Regulations (IHR 2005).

5. Monitoring and Evaluation

Monitoring and evaluation (M&E) of HAIs surveillance will be conducted at both national and facility levels to ensure reliability, accountability, and continuous improvement. At the national level, the National IPC Focal Person, Technical Working Group and Steering Committee will oversee system performance, focusing on completeness, timeliness, and accuracy of data, while aligning surveillance with health security, AMR containment, and IPC priorities.

At the facility level, Hospital IPC Focal Person, Teams and Committee will ensure monthly validation of case-based and laboratory entries, monitor bundle compliance and hand hygiene practices, and implement corrective actions, with additional verification and supportive supervision provided through provincial IPC Focal Person, Technical Working Group and Steering Committee. Facility best practices emphasize regular reviews, audits, immediate feedback to staff, and fostering a non-punitive reporting culture, while linking M&E outcomes to hospital quality improvement and accreditation processes. For Monitoring & Evaluation of HAIs Surveillance related indicators and frequencies, please follow the National IPC M&E Framework.

6. Conclusion and Way Forward

The National HAIs Surveillance and Response Implementation Guidelines, Pakistan 2025 represent a landmark step in strengthening infection prevention and patient safety. By embedding HAIs surveillance within DHIS2 and aligning it with IDSR, Pakistan is building a resilient, evidence-driven system that will help reduce preventable infections and combat antimicrobial resistance (AMR). The long-term success of this system depends on sustained capacity building, allocation of dedicated resources, integration of surveillance into hospital performance and accreditation standards and regular monitoring and revision of these guidelines to address emerging needs. These guidelines also reaffirm Pakistan's commitment to global health security by harmonizing HAIs surveillance with international best practices under IPC and AMR containment. With sustained leadership, provincial engagement, and strong partnerships, Pakistan is moving towards a healthcare system that is safer, more reliable, and resilient against infectious disease threats.

7. Annexures

Annexure A: Terms of Reference (ToRs):

National and Provincial IPC Focal Persons, Steering Committee (SC), and Technical Working Group (TWG)

1. Proposed ToRs of National IPC Focal Person

Functional Area	Terms of Reference (TORs)
1. **Policy Implementation & Leadership**	• Translate strategic and policy directives of the Steering Committee into actionable technical guidance through the TWG and provincial counterparts. • Providing technical and managerial leadership for the continuous strengthening of IPC systems nationwide. • Serve as the principal liaison between the National and Provincial IPC Units/programs, ensuring coherence in policy implementation and technical guidance.
2. **Harmonization of IPC Standards, Guidelines & Technical Documents**	• Facilitating harmonization of IPC policies, guidelines, and interventions across provinces and healthcare levels. • Supervise the development, updating, and dissemination of national IPC documents, including guidelines, SOPs, surveillance protocols, and training materials, in collaboration with the TWGs.
3. **Coordination**	• Coordinating and consolidating inputs from provincial IPC Units and partner organizations to inform national planning and decision-making. • Facilitate communication and coordination among national and provincial ensuring consistent implementation of IPC policies and timely upward and downward flow of information. • Oversee and manage operations of the National IPC Unit, including coordination with provinces, relevant stakeholders, partner agencies, and oversight of programmatic and administrative activities. • Coordinate national response and guidance during outbreaks or public health emergencies, ensuring timely dissemination of IPC recommendations and mobilization of technical support. • Provide secretarial and technical support to the National IPC Steering Committee, including preparation of agendas, technical briefs, progress reports, and follow-up on decisions and action points.

4. **IPC, HAIs and AMR Surveillance System Strengthening**	• Design, operationalize, and continuously improve the national IPC, HAIs and AMR surveillance system, ensuring standardized protocols, tools, and quality data collection across provinces and healthcare facilities. • Review national IPC, HAIs and AMR surveillance data, operational research findings, and outbreak reports, and translate them into actionable technical recommendations for decision-makers. • Provide technical guidance during outbreaks or emerging public health threats by developing context-specific IPC protocols and recommendations for containment.
5. **IPC Program Performance Monitoring and Reporting**	• Monitoring national IPC performance indicators and supporting timely reporting and accountability mechanisms. • Monitor national IPC performance, review key indicators, and prepare consolidated quarterly and annual reports for submission to the Steering Committee and relevant national authorities.
6. **Advocacy and Strategic Engagement for Sustainability**	• Representing the National IPC Program in intersectoral and international forums on IPC and antimicrobial resistance (AMR). • Represent the National IPC Program in national and international forums, technical committees, and coordination platforms related to infection prevention, AMR containment, WASH, and patient safety. • Lead IPC advocacy and resource mobilization efforts, engaging government, donors, and development partners to secure sustainable funding for IPC activities at all levels.
7. **Capacity Building, Training & Workforce Development**	• Provide strategic oversight into the development of national IPC training and capacity-building initiatives, ensuring alignment with recommended standards and harmonized implementation across provinces.
8. **One Health Approach**	• Promote intersectoral collaboration and ensure integration of IPC within One Health, AMR, and emergency preparedness frameworks. • Identify and recommend innovations in digital health, surveillance systems, and monitoring tools to strengthen IPC governance, reporting, and accountability mechanisms.

2. Proposed Terms of Reference (ToRs) for the National IPC Steering Committee

Functional Area	Terms of Reference (TORs)
1. **Governance, Strategic Direction and Policy Alignment**	• Provide high-level advisory and oversight functions to guide the strategic direction, governance, and implementation of the National IPC Program. • Ensure full alignment of the National IPC Program with the National IPC Strategy, standard operating procedures (SOPs), WHO IPC Core Components, International Health Regulations (IHR-2005), and other relevant global and national commitments. • Review, approve, and oversee the rollout of key national IPC guiding documents.
2. **IPC Standardization, Implementation oversight and Coordination**	• Facilitate the dissemination and uniform implementation of standardized IPC policies, SOPs, and interventions across all levels of healthcare, primary, secondary, tertiary, and private sector facilities. • Engage, coordinate, and maintain partnerships with federal, provincial, and district health authorities, regulatory bodies, professional associations, academia, facility managers, and development partners to strengthen IPC implementation. • Endorse and recommend innovative approaches, digital solutions, and best practices to improve IPC compliance, surveillance, and overall program performance across healthcare facilities.
3. **Financing and Resource Mobilization**	• Advocate for dedicated and sustainable IPC financing by mobilizing government resources, engaging in the private sector, and fostering support from donors and international development partners.
4. **IPC, HAIs and AMR Surveillance System Strengthening**	• Design, operationalize, and continuously improve the national IPC, HAIs and AMR surveillance system, ensuring standardized protocols, tools, and quality data collection across the country
5. **Capacity Building and Workforce Strengthening**	• Provide strategic guidance for national IPC capacity-building initiatives, including standardization of training curricula, competency frameworks, and continuous professional development programs for healthcare workers across all levels. • Oversee, support, and promote the implementation of IPC training programs, including ToT, facility-based training, and refresher courses, to ensure uniform strengthening of IPC competencies nationwide.

6. **One Health Approach for IPC**	• Platform for information sharing; promote and advance the One Health approach by ensuring cross-sectoral coordination between human, animal, and environmental health stakeholders, with emphasis on AMR prevention and containment.
7. **Regular IPC Program Monitoring and Review**	• Monitor progress and accountability of IPC interventions through regular review of national indicators, benchmarks, and reports, ensuring timely corrective measures where needed. • Recognize, highlight, and promote programmatic achievements in IPC to sustain political, institutional, and public commitment at all levels.
8. **Research and Development**	• Provide strategic and technical guidance for operational research and special studies, including national HAIs prevalence surveys, IPC cost-effectiveness evaluations, and implementation research to strengthen evidence-based policy and programming.

3. Proposed ToRs of National IPC Technical Working Group

Functional Area	Terms of Reference (TORs)
1. **Technical Expertise for Policy and Standards Development**	• Provide specialized technical expertise and evidence-based recommendations to support the Steering Committee in shaping IPC policies, strategies, and standards. • Develop, adapt, and periodically update national IPC guiding documents.
2. **Coordination**	• Ensure technical coordination with provincial IPC TWGs and focal persons, providing harmonized support for IPC implementation. • Coordination to recommend, validate, and advise on the adoption of innovative technologies, digital tools, and research-based solutions to improve IPC monitoring, compliance, and overall program effectiveness.
3. **IPC, HAIs and AMR Surveillance System Strengthening**	• Design, operationalize, and continuously improve the national IPC, HAIs and AMR surveillance system, ensuring standardized protocols, tools, and quality data collection across provinces and healthcare facilities. • Review national IPC, HAIs and AMR surveillance data, operational research findings, and outbreak reports, and translate them into actionable technical recommendations for decision-makers. • Provide technical guidance during outbreaks or emerging public health threats by developing context-specific IPC protocols and recommendations for containment.
4. **Technical Support for Regular IPC Assessments and Reviews**	• Facilitate regular IPC technical reviews and assessments to identify systemic and operational gaps and propose corrective strategies for program strengthening.

5. **Cross-Sectoral Technical Integration and Information Sharing**	• Support the integration of IPC with AMR containment, WASH, patient safety, and One Health initiatives by providing cross-sectoral technical advice. • Facilitate knowledge exchange by documenting and disseminating best practices, lessons learned, and innovative approaches from provinces and facilities for wider replication.
6. **Capacity Building, Training and Workforce Mentorship**	• Serve as national master trainers for IPC by designing, conducting, and supporting Training-of-Trainers (ToTs), and mentoring provincial and facility-level IPC focal persons and teams.
7. **Costing, Resource Needs and Sustainability Planning**	• Provide technical input on costing, resource requirements, and operational needs for IPC Program • Assist the Steering Committee in reviewing resource gaps and proposing technically sound solutions to strengthen long-term IPC program sustainability.

4. Proposed ToRs of the Provincial IPC Focal Person

5. Proposed ToRs of Provincial IPC Steering Committee

Functional Area	Terms of Reference (TORs)
1. **Governance, Strategic Direction & Policy Alignment**	• Provide provincial-level advisory and oversight functions to guide the strategic direction, governance, and implementation of the IPC Program across all districts and healthcare facilities within the province. • Ensure full alignment of the Provincial IPC Program with the National IPC Strategy, provincial health policies, WHO IPC Core Components, and International Health Regulations (IHR-2005). • Review, adapt, and approve provincial IPC frameworks, guidelines, training curricula, and operational plans in accordance with national standards and provincial health priorities.
2. **IPC Standardization, Implementation oversight and Coordination**	• Facilitate the dissemination and standardized implementation of IPC policies, SOPs, and interventions across tertiary, secondary, and primary healthcare facilities in both public and private sectors. • Engage, coordinate and strengthen partnerships among provincial health authorities, district health offices, healthcare institutions, academia, and development partners to support effective IPC implementation.
3. **Financing and Resource Mobilization**	• Advocate for dedicated and sustainable IPC resources within the provincial Annual Development Plan (ADP) and ensure IPC priorities are integrated into health sector plans and PC-1s.
4. **IPC, HAIs and AMR Surveillance System Strengthening**	• Design, operationalize, and continuously improve the national IPC, HAIs and AMR surveillance system, ensuring standardized protocols, tools, and quality data collection across the province.

5. **Capacity Building and Workforce Strengthening**	• Endorse and recommend innovative capacity building initiatives, practices and digital tools to improve IPC compliance, surveillance quality, and overall program performance in healthcare facilities.
6. **One Health Approach for IPC**	• Promote the One Health approach by fostering collaboration between human, animal, and environmental health sectors, emphasizing AMR containment and infection prevention.
7. **Regular IPC Program Monitoring and Review**	• Monitor provincial IPC performance through periodic review of indicators, surveillance data, and district reports, ensuring accountability and timely corrective measures. • Recognize and highlight provincial IPC achievements to maintain political commitment and administrative support at all levels of the health system.
8. **Research and Development**	• Support and guide operational research, outbreak investigations, and special studies (e.g., provincial HAIs prevalence surveys or IPC audits) to inform data-driven policy and practice.

6. Proposed ToRs of Provincial IPC Technical Working Group

Functional Area	Terms of Reference (TORs)
1. **Technical Expertise for Policy and Standards Development**	• Provide technical expertise and evidence-based recommendations to the Provincial IPC Steering Committee and Unit for effective implementation and improvement of the Provincial IPC Program. • Develop, adapt, and periodically update provincial IPC guidelines, SOPs, and training materials in line with national IPC strategy, WHO Core Components, and local healthcare system needs.
2. **Coordination**	• Ensure technical coordination with district and HCF IPC Units, providing harmonized support for IPC implementation. • Coordination to recommend, validate, and advise on the adoption of innovative technologies, digital tools, and research-based solutions to improve IPC monitoring, compliance, and overall program effectiveness aligned with the National IPC recommendations.
3. **IPC, HAIs and AMR Surveillance System Strengthening**	• Implementation and continuous improvement of the provincial IPC, HAIs and AMR surveillance system, ensuring the use of standardized tools, accurate data collection, and timely reporting from healthcare facilities. • Review provincial IPC, HAIs and AMR surveillance data, outbreak reports, and research findings, translating evidence into practical recommendations for district and facility-level actions aligned with the National recommendations.

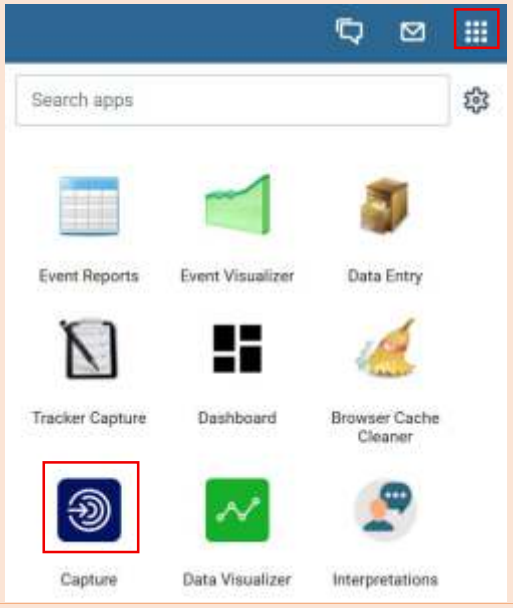
4. **Technical Support for Regular IPC Assessments and Reviews**	• Conduct regular provincial-level IPC performance reviews (e.g., IPCAF assessments, surveillance data validation, and field audits) to identify programmatic gaps and recommend corrective measures. • Develop and disseminate technical tools such as job aids, supervision checklists, audit forms, and training modules to strengthen IPC capacity across hospitals, districts, and primary healthcare facilities in coordination with all relevant stakeholders.
5. **Cross-Sectoral Technical Integration and Information Sharing**	• Facilitate the exchange of knowledge and best practices by documenting provincial experiences, success stories, and lessons learned for replication across districts and facilities. • Promote intersectoral collaboration and the integration of IPC with AMR containment, WASH, and One Health activities, ensuring cross-sectoral coordination and shared accountability.
	• Provide rapid technical guidance and protocols during outbreaks, emergencies, or infection clusters within the province, ensuring harmonized and timely IPC responses.
6. **Capacity Building, Training and Workforce Mentorship**	• Act as provincial master trainers by conducting and supporting Training-of-Trainers (ToTs), cascade training, and mentorship programs for district and hospital IPC focal persons and teams.
7. **Costing, Resource Needs and Sustainability Planning**	• Provide technical input on costing, resource requirements, and operational needs for IPC Program • Assist the Steering Committee in reviewing resource gaps and proposing technically sound solutions to strengthen long-term IPC program sustainability.

Annexure B: User Manual for HAIs Digital Surveillance in DHIS-2

STEP-BY-STEP INSTRUCTIONS FOR HAIs DATA ENTRY

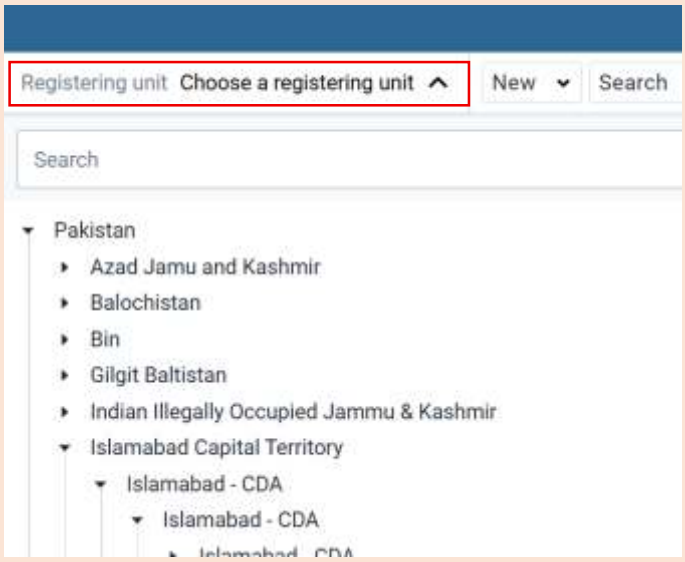
Step 1: Log in to DHIS2 (https://dhis2.nih.org.pk)

(For Creating DHIS2 Login/For any amendments, contact provincial focal person or email at fedsd@nih.org.pk)

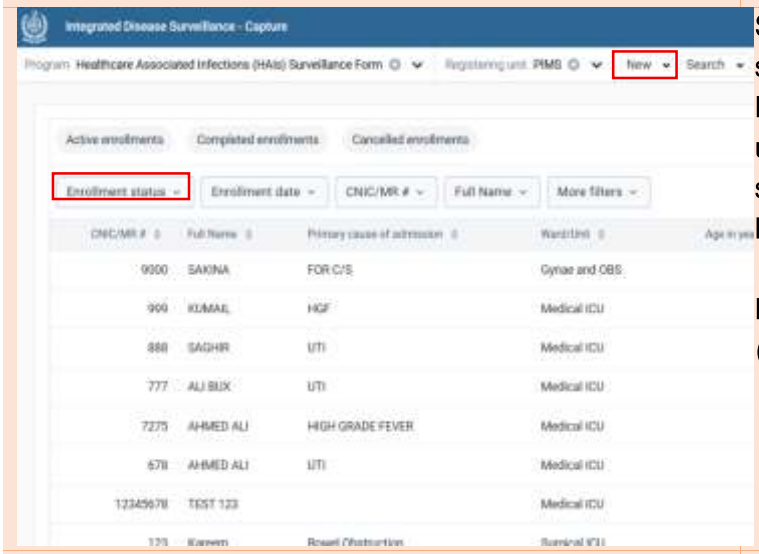


Step 2: To start the data entry process, click on the nine dots on the top right and select Capture from the menu

Step 3: Choose Program (Healthcare Associated Infections (HAIs) Surveillance Form)

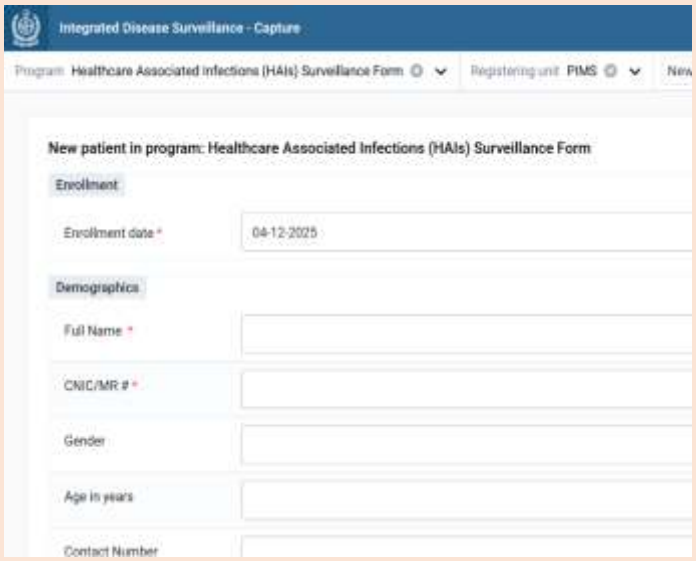


Step 4: In the column of Organization Unit, select your designated health facility from the drop-down



Step 5: For an existing patient, select Patient (CNIC/MR or Full Name visible) from the linelist under Enrollment Status (as shown in the red rectangular box).

For new patients, click on new (Top right, red square box).



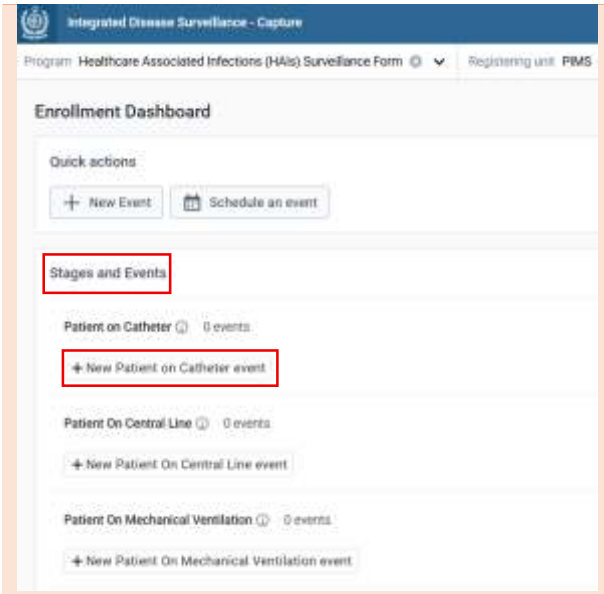
Step 6: Under "Enrollment":

- Enter the admission date in the format dd/mm/yyyy.

Under "Demographics":

- Enter the Full Name of the patient.
- Enter CNIC/MR Number.
- Choose Gender from the dropdown.
- Enter Date of Birth.
- Enter Age in Years.
- Provide Contact Number.
- Select Ward/Unit of admission.
- Enter the Primary cause of admission.

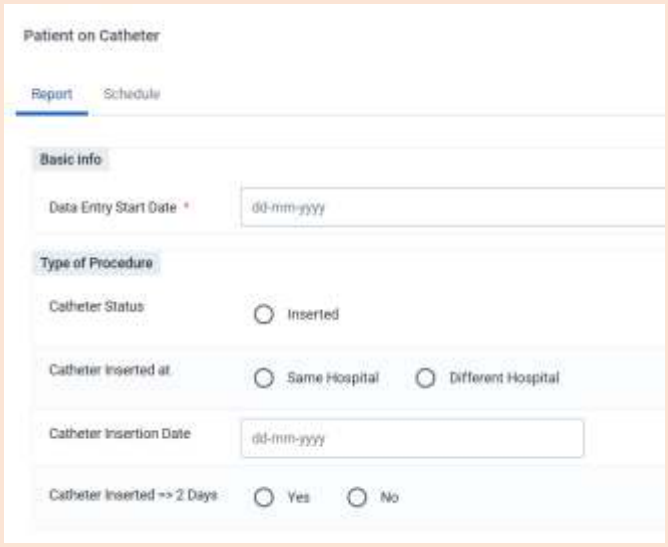
CAUTI, CLABSI, VAP and SSI are set on default and do not need to be entered manually



Step 7: Choose the patient's device under the "Stages and Events", based on the patient's device's data to be entered.

If one patient is with multiple devices attached, click on "+ New patient on catheter/central line/Mechanical Ventilation event" as required.

CAUTI DATA ENTRY FORM



Step 1: On the patient's Catheter section, ensure you are on the Report tab (not Schedule).

Step 2: Fill in Basic Information
Enter the Data Entry Start Date in the format dd-mm-yyyy (mandatory field).

Step 3: Enter Type of Procedure Details

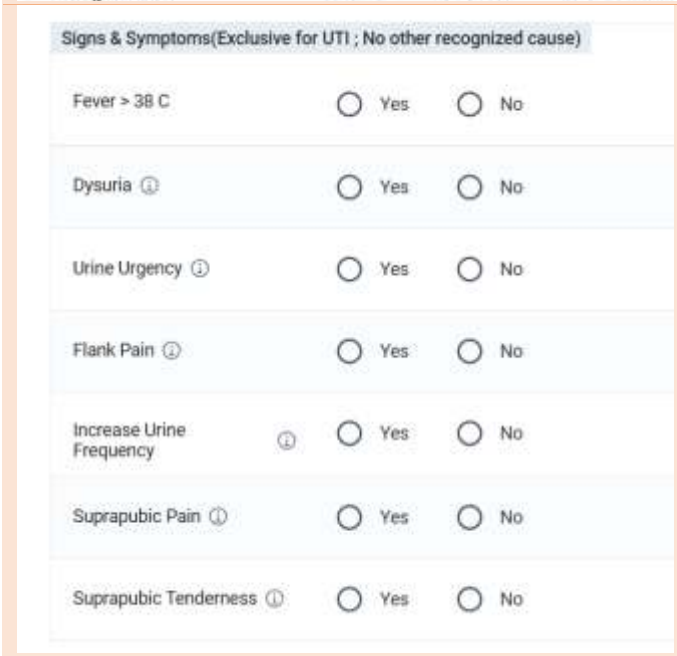
- Catheter Status: Select Inserted if a catheter is in place.
- Catheter inserted at: Location where the procedure was performed: Same Hospital or Different Hospital (a facility from where the patient has arrived). If different, kindly specify Public or Private (to be shown once you select Different Hospital.
- Provide the Catheter Insertion Date (dd-mm-yyyy).
- Catheter Inserted ≥ 2 Days → Select Yes or No as appropriate.

While the nurse is performing the procedure, the observer is going to fill this section.

In order to proceed with IPC Bundles, the user has to check the option inserted in the catheter status.

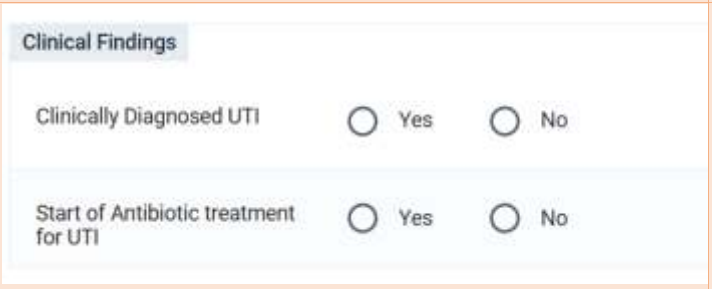
IPC Bundle Status
Check 'Yes' for at least one question in order to complete the HAIs IPC Bundle Entry. Once you have filled out the bundle checklist than select “Yes” in IPC Bundle status.

For each item below, check 'Yes' if the action has been performed, 'No' if it hasn't, or 'Unknown' if you don't know.



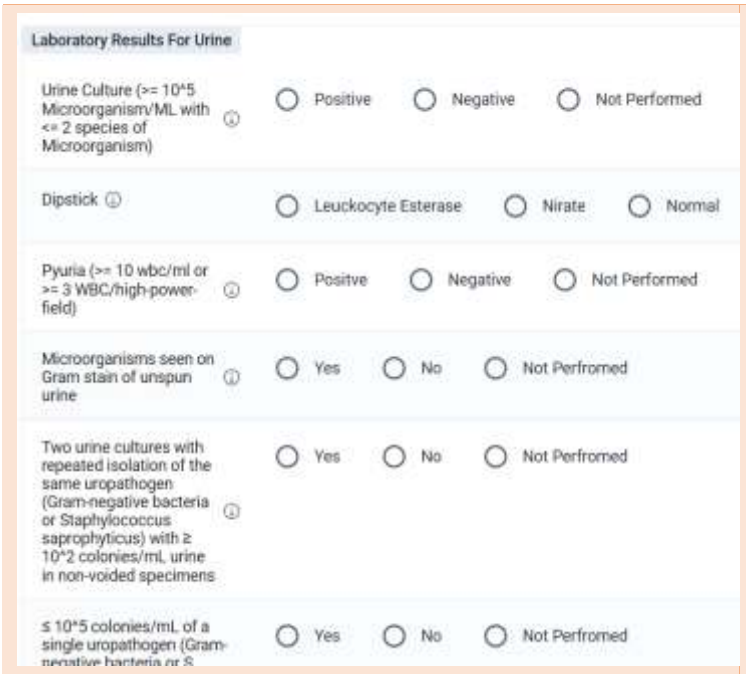
Step 4: Record Symptoms (Exclusive for UTI – No Other Recognized Cause)

For each listed symptom, choose Yes or No.

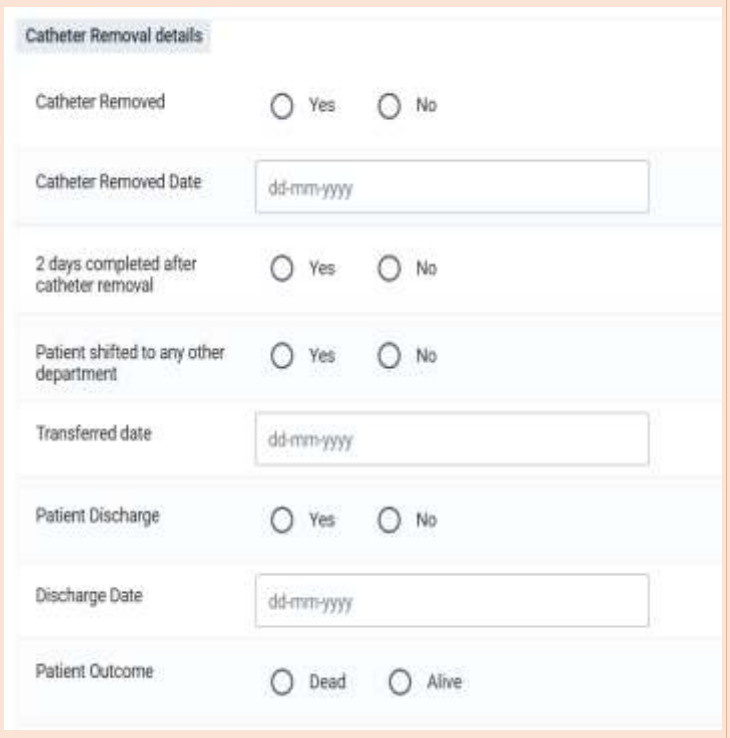


Step 5: Clinical Findings
In the Clinical Findings section:

- Select Yes or No for Clinically Diagnosed UTI.
- Select Yes or No for Start of Antibiotic Treatment for UTI.



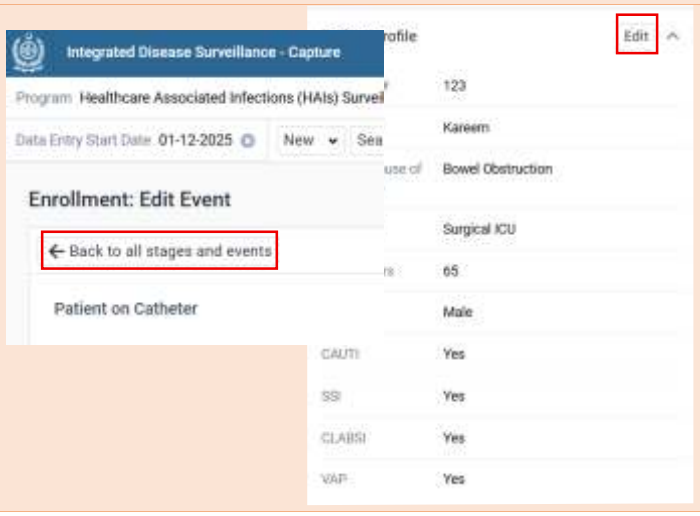
Step 6: Laboratory Results for Urine

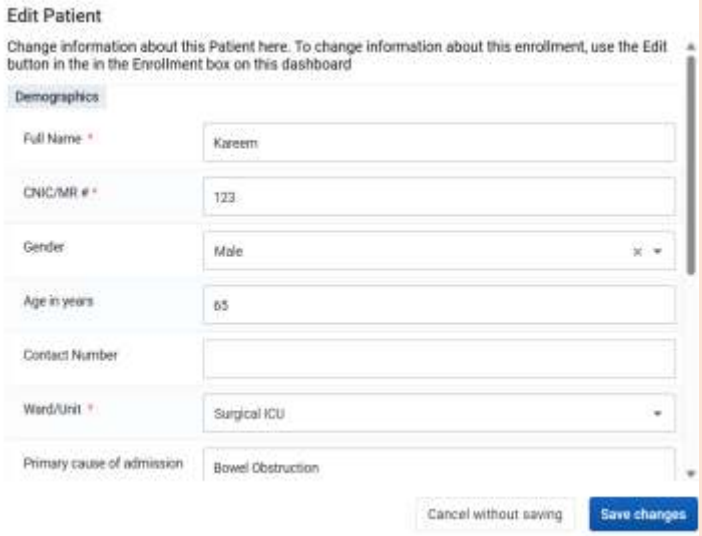


Catheter Removal Details

- Catheter Removed: Select Yes if the catheter has been removed. Select No if the catheter is still in place.
- Catheter Removed Date: Enter the date of catheter removal.
- 2 Days Completed After Catheter Removal: Select Yes if 48 hours have passed after removal. Select No if less than 48 hours.
- Patient Shifted to Any Other Department: Select Yes if the patient has been transferred. Select No if the patient remains in the same department.
- Transferred Date: If transferred, enter the date in dd-mm-yyyy format.
- Patient Discharge: Select Yes if the patient has been discharged. Select No if still admitted.
- Discharge Date: If discharged, enter the discharge date in dd-mm-yyyy format.
- Patient Outcome: Select Alive if the patient survived. Select Dead if the patient expires.
- CAUTI HAIs Diagnosis: System will auto-diagnose (the result of the diagnosis will be auto-displayed in the diagnosis field.) Record the date of diagnosis in dd-mm-yyyy format.

Click Write note to add any additional remarks, observations, or relevant

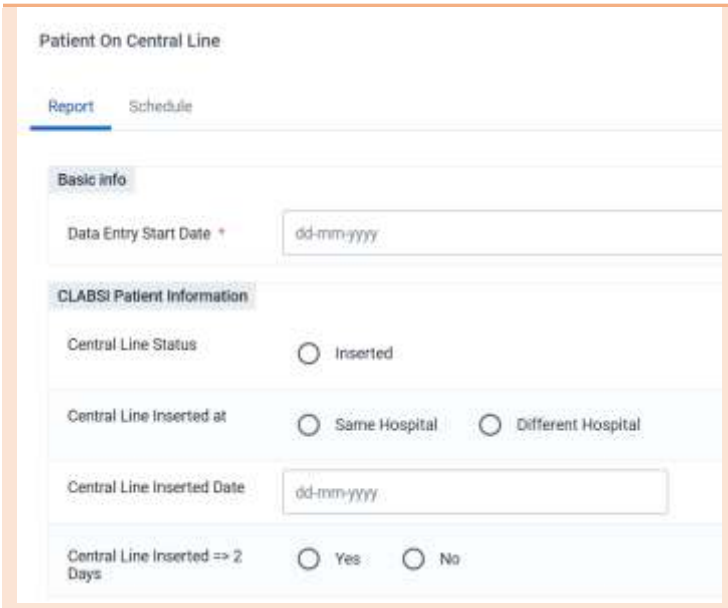
	details regarding the patient's catheter status, discharge, or diagnosis. Final Steps • Select Complete to finalize the form. • If the case is active, select Save with
 	Once the diagnosis is made, the system will automatically display and update the diagnosis field.
	Once the diagnosis is made, the user will select Back to all stages option. On the right-side user will click on edit in profile next to the three dots and click on save changes. This action will auto-update the main line list.



Gender	CAUTI	SSI	CLABSI
Female	Yes	Yes	No
	Yes	No	No
Male	Yes	Yes	Yes
Male	Yes	Yes	Yes
Female	Yes	No	No
	Yes	Yes	Yes

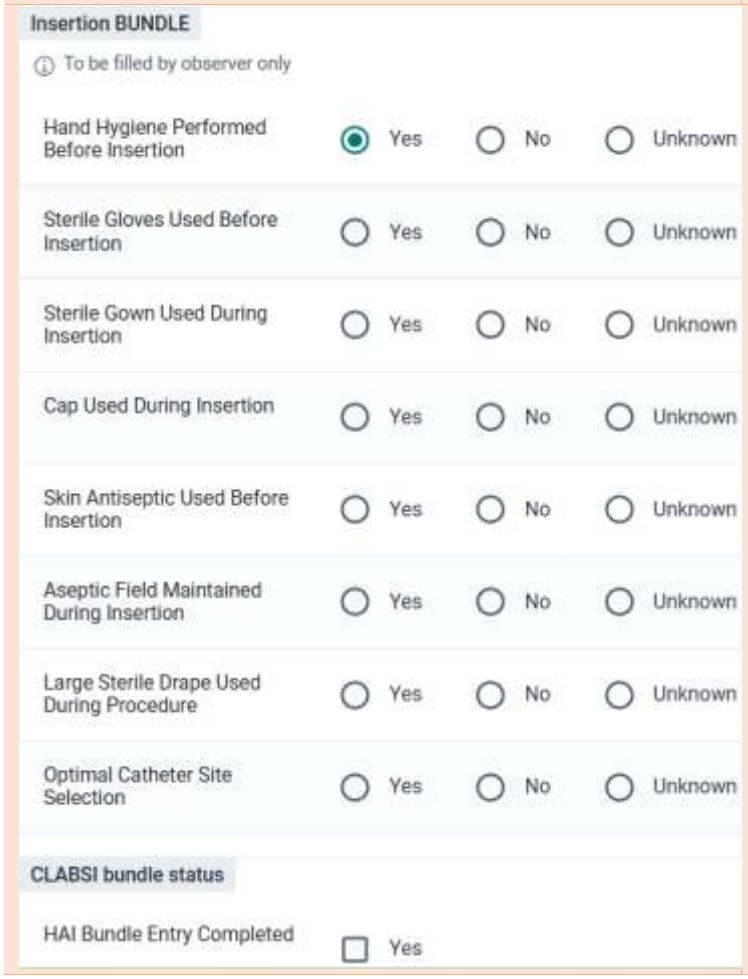
Once the diagnosis is made, the user will select Back to all stages option. On the right-side user will click three dots next to the profile and click on save changes.
This action will auto-update the main line list.

CENTRAL LINE DATA ENTRY FORM



Basic Information:
Enter the Data Entry Start Date in dd-mm-yyyy format.
CLABSI Patient Information

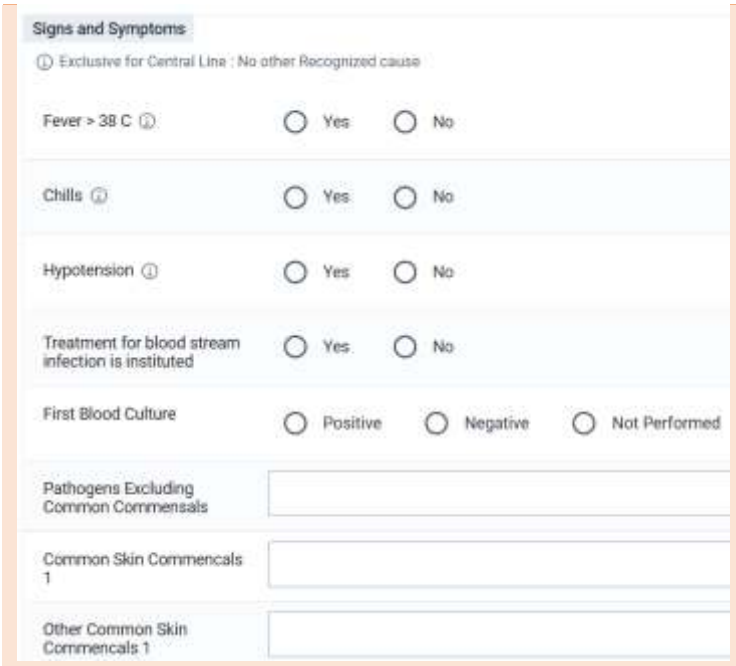
- Record the Central Line Status by selecting Inserted.
- Check if the line was put in at the Same Hospital or a Different Hospital.
- Check if that hospital was Private or Public.
- Enter the Central Line Inserted Date (dd-mm-yyyy).
- Indicate whether the Central Line has been in place for more than 2 days by selecting Yes or No.



While the nurse is performing the procedure, the observer is going to fill this section.
In order to proceed with IPC Bundles, the user must check the option inserted in the Central Line status.

IPC Bundle Status
Check 'Yes' for at least one question in order to complete the HAIs IPC Bundle Entry. Once you have filled out the bundle checklist than select “Yes” in IPC Bundle status.

For each item below, check 'Yes' if the action has been performed, 'No' if it hasn't, or 'Unknown' if you don't know.



Signs and Symptoms:

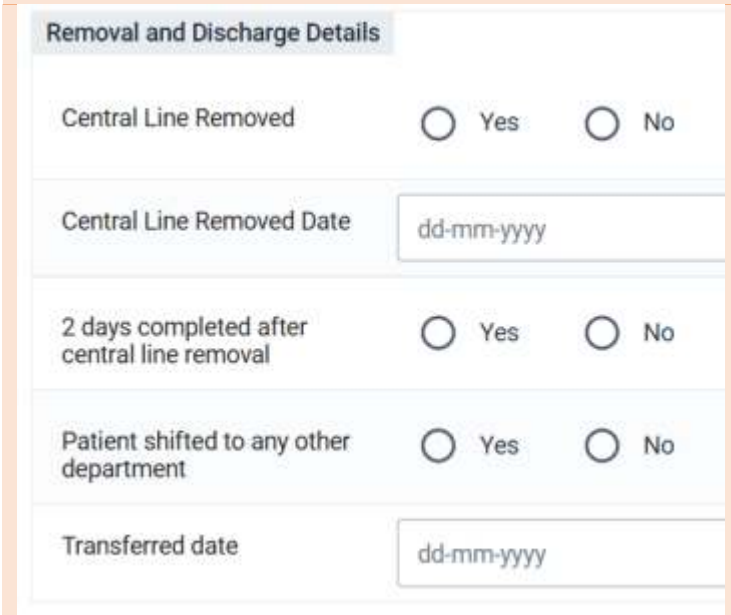
- Select Yes or No for Fever > 38°C. Select Yes or No for Chills. Select Yes or No for Hypotension. Select Yes or No if treatment for bloodstream infection has been instituted.

Record First Blood Culture results by selecting Positive, Negative, or Not Performed. (If applicable, specify):

- Pathogens Excluding Common Commensals (from the dropdown). Common Skin Commensals 1 (from the dropdown). Other Common Skin Commensals 1 (from the dropdown).

Record Second Blood Culture results (if performed within 48 48hrs of blood culture 1) by selecting Positive, Negative, or Not Performed. (If applicable, specify):

- Pathogens Excluding Common Commensals 2 (from the dropdown). Common Skin Commensals 2 (from the dropdown). Other Common Skin Commensals 2 (from the dropdown)

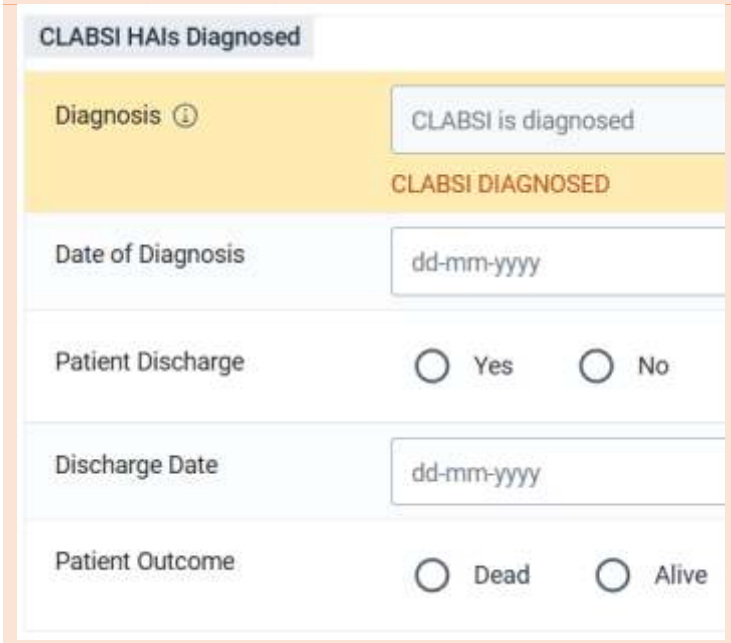
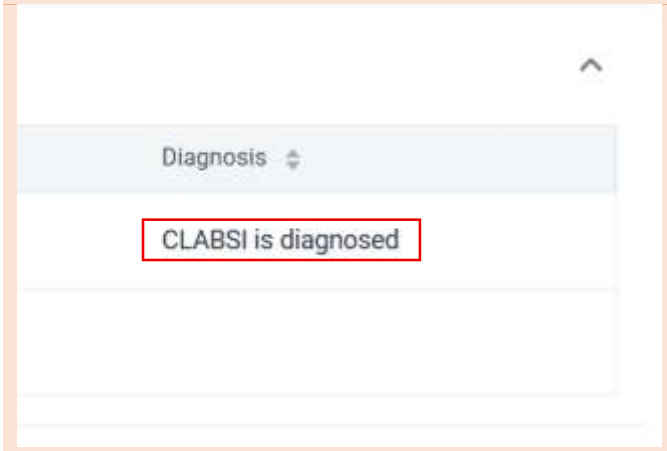
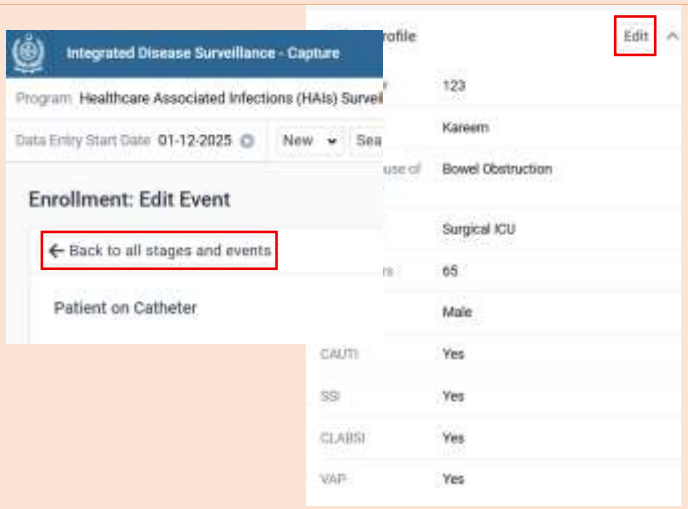


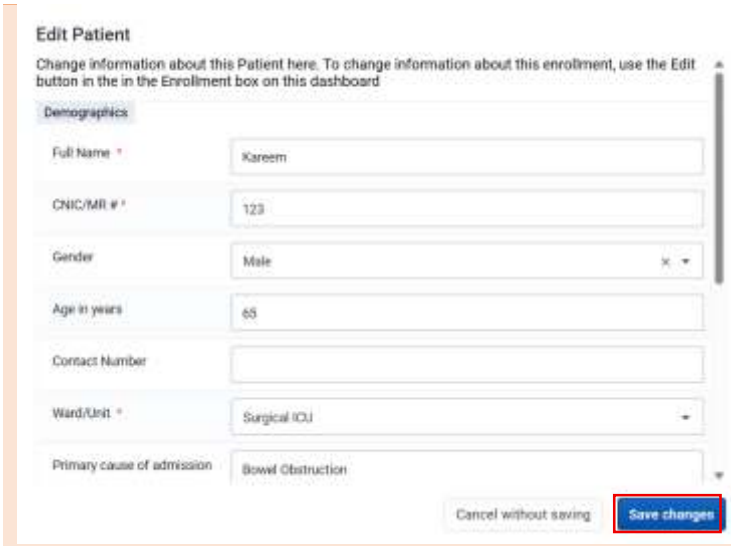
Removal and Discharge Details
Central Line Removed: Select Yes if the central line has been removed. Select No if the central line is still in place.

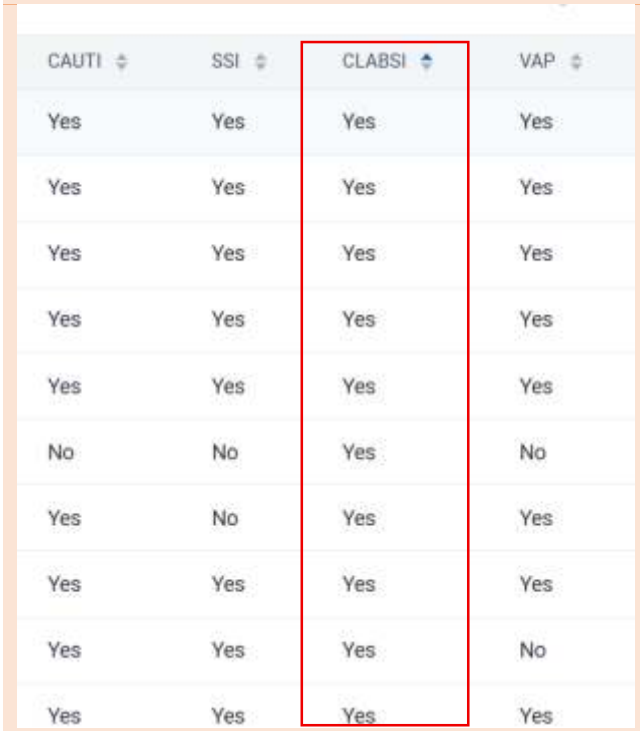
Central Line Removed Date: Enter the date when the central line was removed in dd-mm-yyyy format.

Two Days Completed After Central Line Removal: Select Yes if 48 hours have passed since removal. Select No if less than 48 hours have passed.

Patient Shifted to Any Other Department: Select Yes if the patient has been transferred. Select No if the patient remains in the same department.

	Transferred Date: If the patient is transferred, enter the transfer date in dd-mm-yyyy format.
	CLABSI HAIs Diagnosis • System will auto-diagnose (the result of the diagnosis will be auto-displayed in the diagnosis field). • Record the Date of Diagnosis in dd-mm-yyyy format. • Indicate whether the Patient has been discharged by selecting Yes or No. • If Yes, enter the Discharge Date in dd-mm-yyyy format. • Record the Patient Outcome by selecting Dead or Alive.
	Once the diagnosis is made, the system will automatically display and update the diagnosis field.
	Once the diagnosis is made, the user will select Back to all stages option. On the right-side user will click three dots next to the profile and click on save changes. This action will auto-update the main line list.

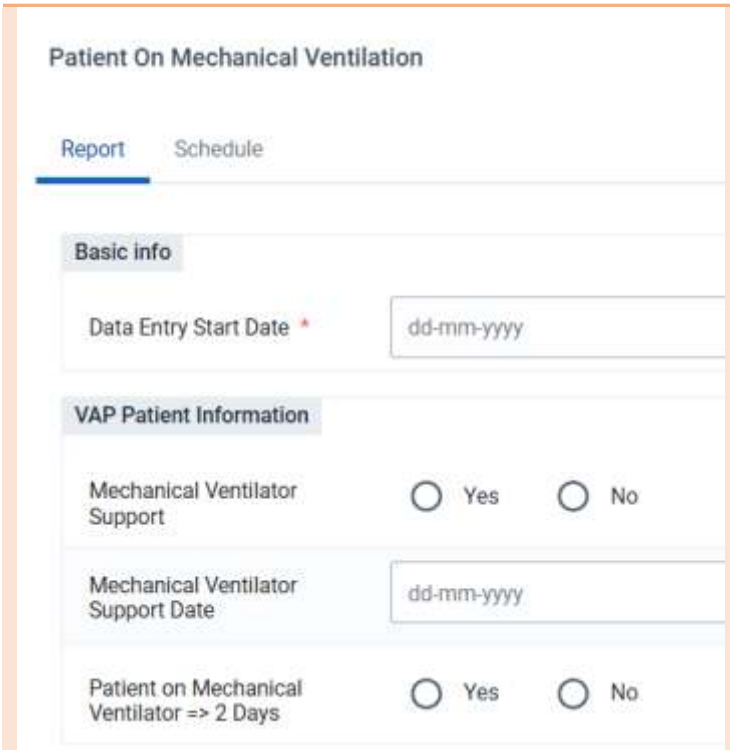




CAUTI	SSI	CLABSI	VAP
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
No	No	Yes	No
Yes	No	Yes	Yes
Yes	Yes	Yes	Yes
Yes	Yes	Yes	No
Yes	Yes	Yes	Yes

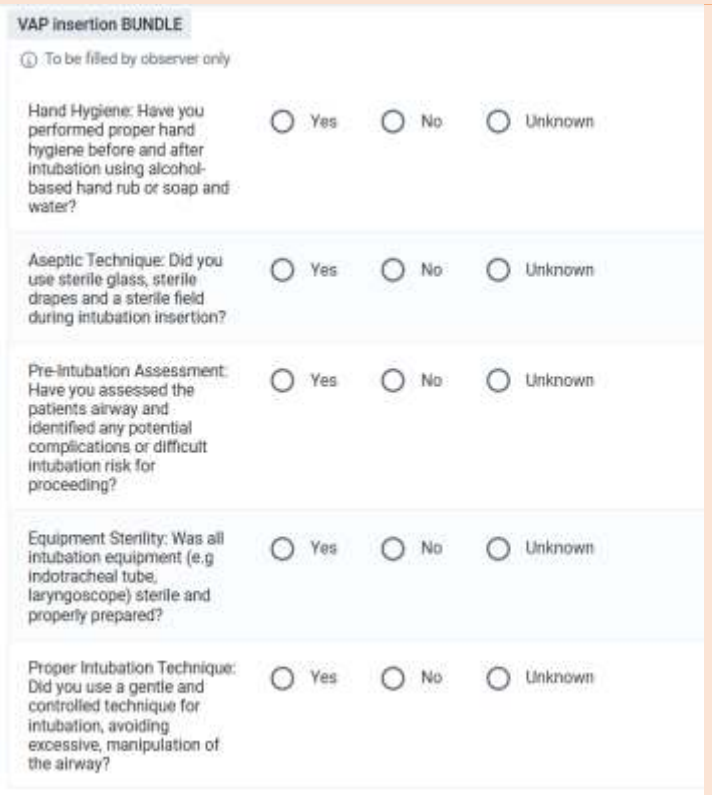
Once the diagnosis is made, the user will select Back to all stages option. On the right-side user will click three dots next to the profile and click on save changes. This action will auto-update the main line list.

VAP DATA ENTRY FORM



Patient On Mechanical Ventilation Form

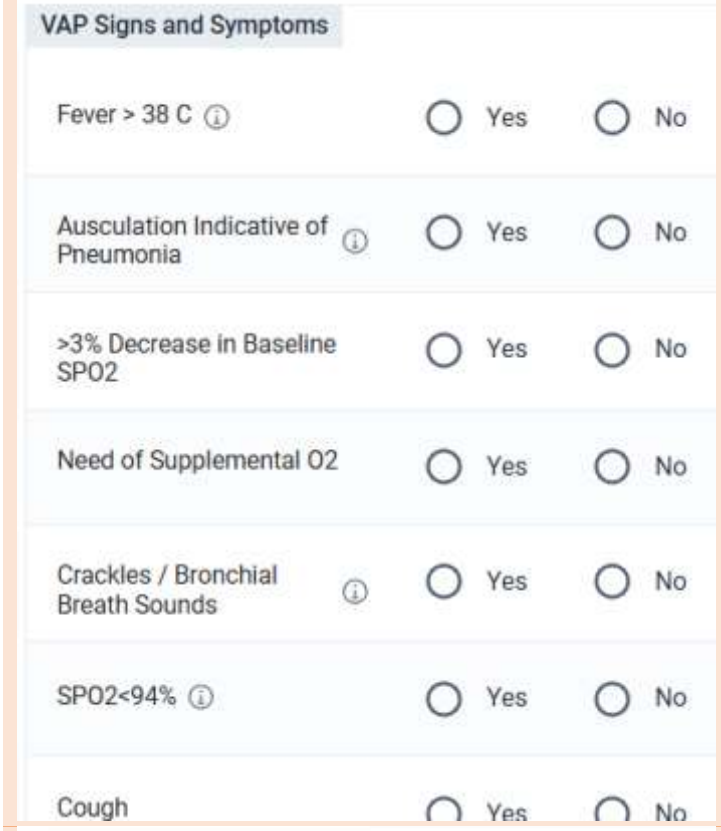
- Enter the Data Entry Start Date.
- Select 'Yes' for Mechanical Ventilator Support if the patient is on a ventilator. This will open the VAP IPC Bundle form.
- If you select 'Yes', enter the Mechanical Ventilator Support Date.
- Indicate if the patient has been on the ventilator for more than 2 days.



While the nurse is performing the procedure, the observer is going to fill this section.
In order to proceed with IPC Bundles, the user has to check “Yes” in Mechanical Ventilator support.

IPC Bundle Status
Check 'Yes' for at least one question in order to complete the HAIs IPC Bundle Entry. Once you have filled out the bundle checklist than select “Yes” in IPC Bundle status.

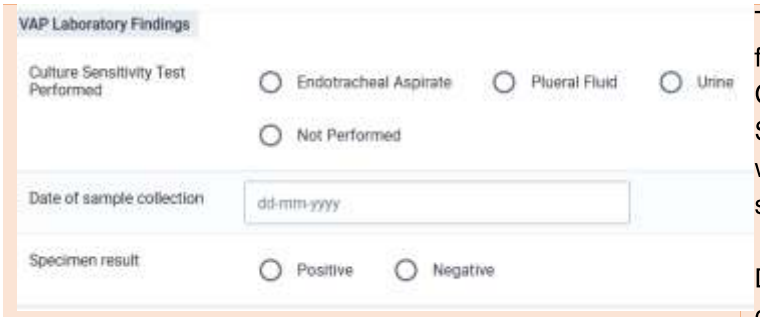
For each item below, check 'Yes' if the action has been performed, 'No' if it hasn't, or 'Unknown' if you don't know.

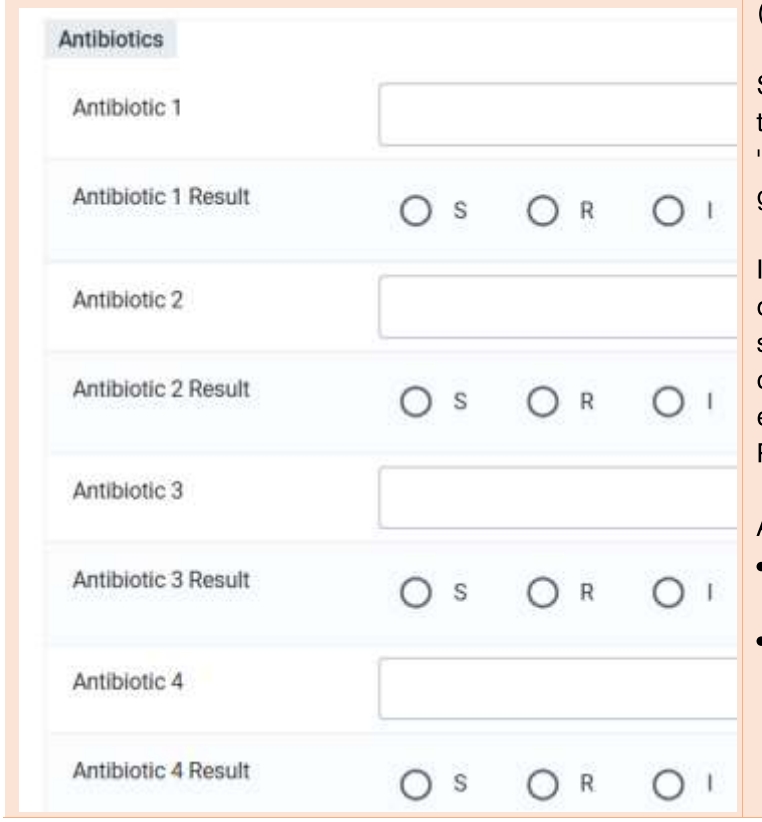


For each item, check 'Yes' or 'No' to indicate if the patient is exhibiting the sign or symptom.

Radiological Test Performed: Select 'Yes' if a chest x-ray or CT scan was done. If not, select 'No.'

- X-ray: Check 'Yes' if a chest x-ray was performed.
- CT Scan: Check 'Yes' if a CT scan was performed.





This section documents lab results from patient samples.
Culture Sensitivity Test Performed: Select the type of specimen that was collected. If no test was done, select 'Not Performed'.

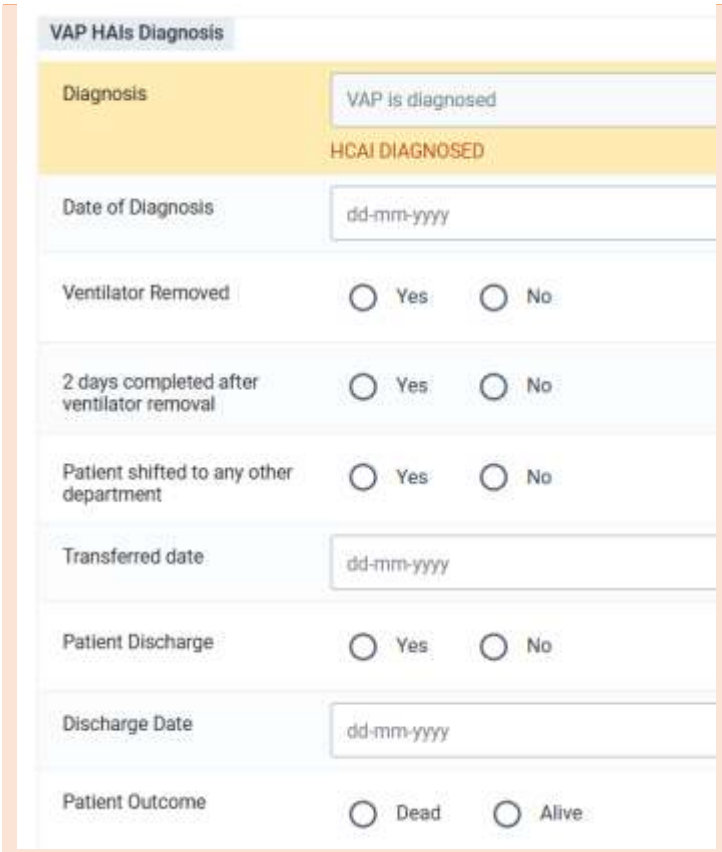
Date of sample collection: Write the date the specimen was collected (dd-mm-yyyy).

Specimen Result: Check 'Positive' if the culture grew a pathogen. Check 'Negative' if the culture showed no growth.

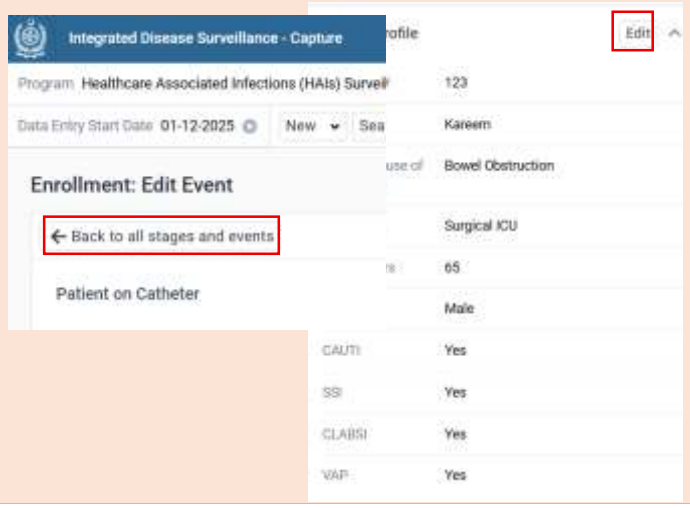
If Positive, the Pathogen Type drop-down will open and select the specific pathogen identified from the culture. If not available on the list, enter the details in the other Pathogen box.

Antibiotic 1 to 6:

- Select each antibiotic that was tested against the pathogen.
- For each antibiotic, check the result: 'S' (Sensitive), 'R' (Resistant), or 'I' (Intermediate).

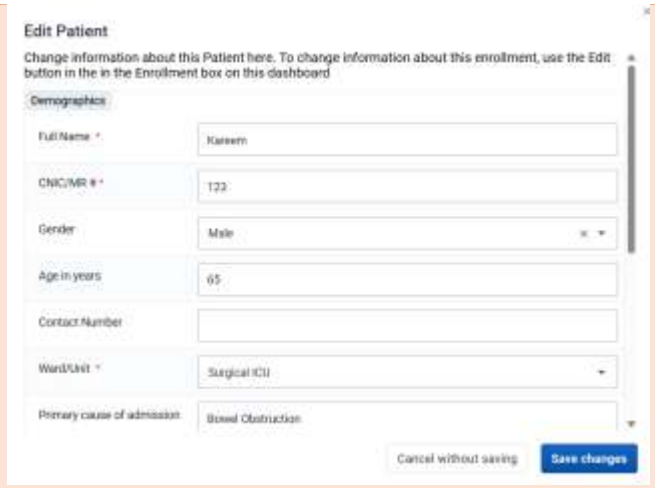


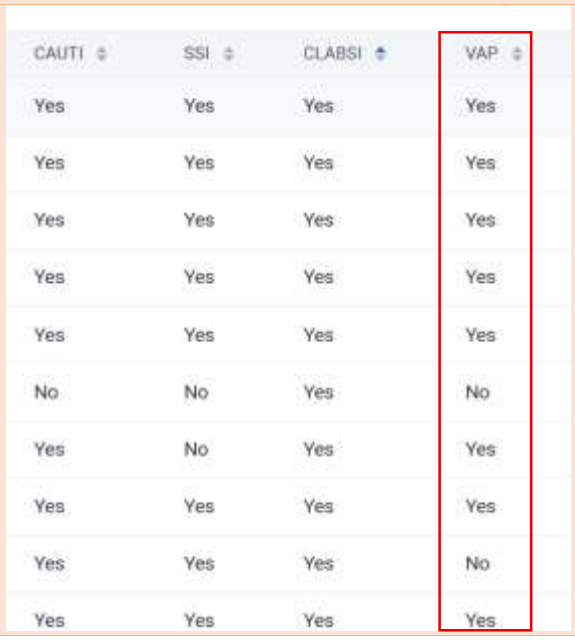
Once the diagnosis is made, the system will automatically display and update the diagnosis field.



Once the diagnosis is made, the user will select Back to all stages option. On the right-side user will click Edit next to the three dots in the profile section and click on Save Changes.

This action will auto-update the main line list.



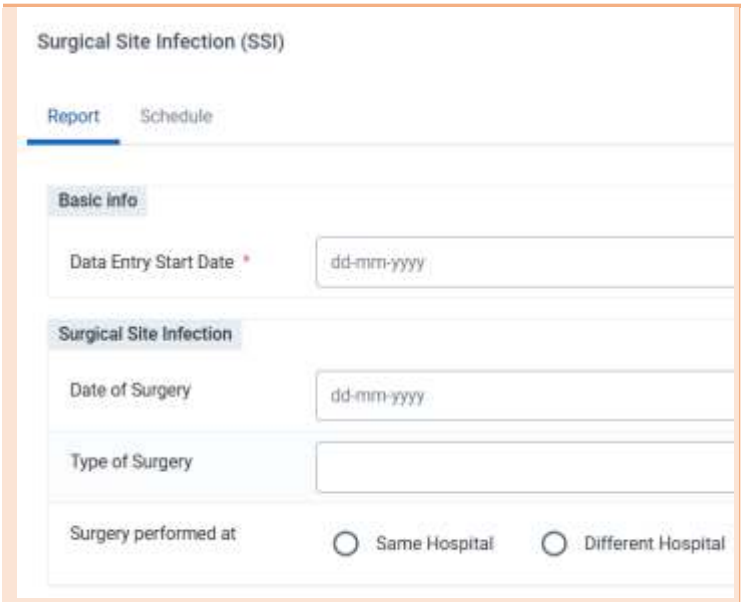


CAUTI	SSI	CLABSI	VAP
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
No	No	Yes	No
Yes	No	Yes	Yes
Yes	Yes	Yes	Yes
Yes	Yes	Yes	No
Yes	Yes	Yes	Yes

Once the diagnosis is made, the user will select Back to all stages option. On the right-side user will click three dots next to the profile and click on save changes.

This action will auto-update the main line list.

SSI DATA ENTRY FORM



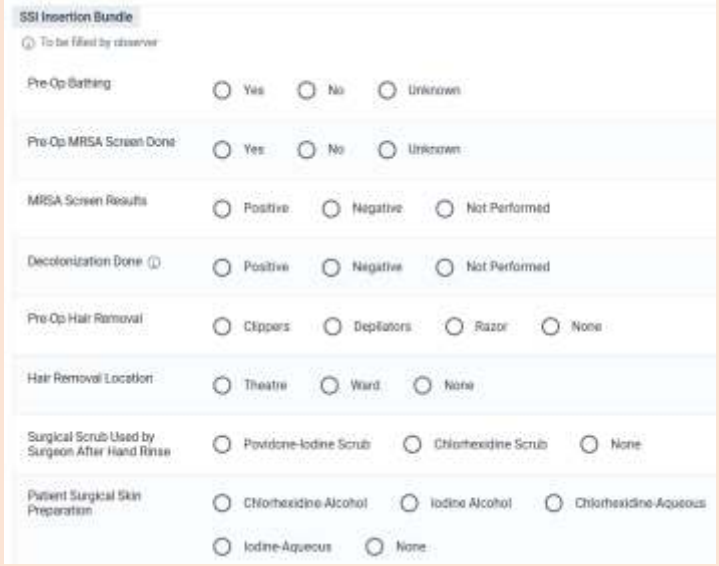
Basic Info

- Data Entry Start Date: Record the start date of data entry in dd-mm-yyyy format.

Surgery Details

- Date of Surgery: Enter the date the patient's surgery was performed in dd-mm-yyyy format.
- Type of Surgery: Provide a brief description of the surgical procedure.
- Surgery performed at: Select 'Same Hospital' if the surgery was performed at your facility, or 'Different Hospital' if it was performed elsewhere.

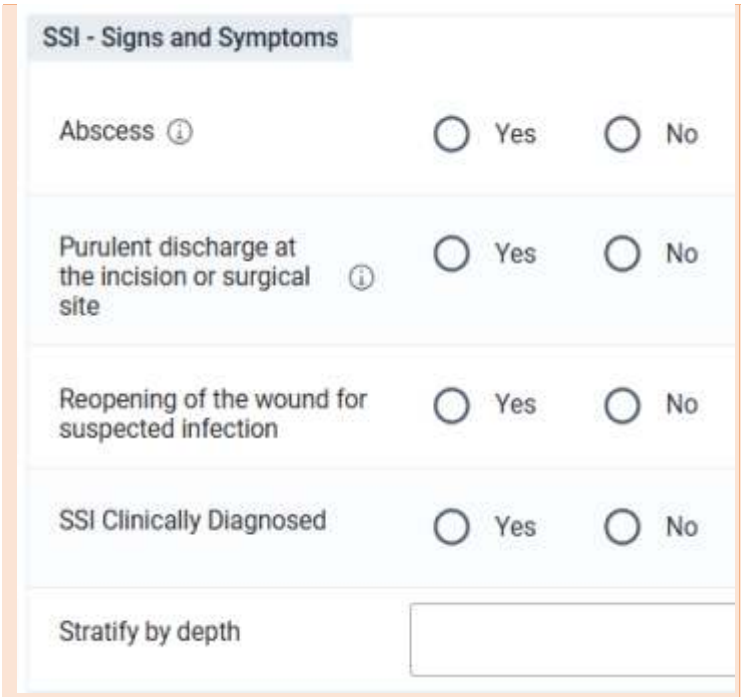
Surgery Status:
Check Yes if the surgery was performed within ≤30 days.



While the nurse is performing the procedure, the observer is going to fill this section.
in order to proceed with IPC Bundles, the user has to select the option of the same hospital where in surgery was performed.

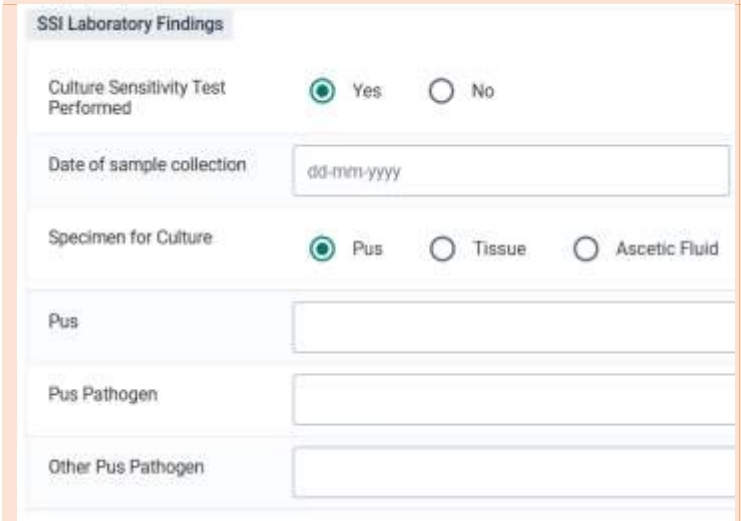
IPC Bundle Status
Check 'Yes' for at least one question in order to complete the HAIs IPC Bundle Entry. Once you have filled out the bundle checklist than select “Yes” in IPC Bundle status.

For each item below, check 'Yes' if the action has been performed, 'No' if it hasn't, or 'Unknown' if you don't know.



SSI - Signs and Symptoms

- Abscess: Select 'Yes' if a collection of pus is present at the surgical site.
- Purulent discharge at the incision or surgical site: Select 'Yes' if there is pus draining from the incision.
- Reopening of the wound for suspected infection: Select 'Yes' if the wound was reopened by a surgeon due to a suspected infection.
- SSI Clinically Diagnosed: Select 'Yes' if a healthcare professional has made a clinical diagnosis of an SSI.
- Stratify by depth: Use the dropdown menu to classify the SSI by its depth (e.g., superficial, deep incisional, organ/space).



SSI Laboratory Findings

Culture Sensitivity Test Performed:

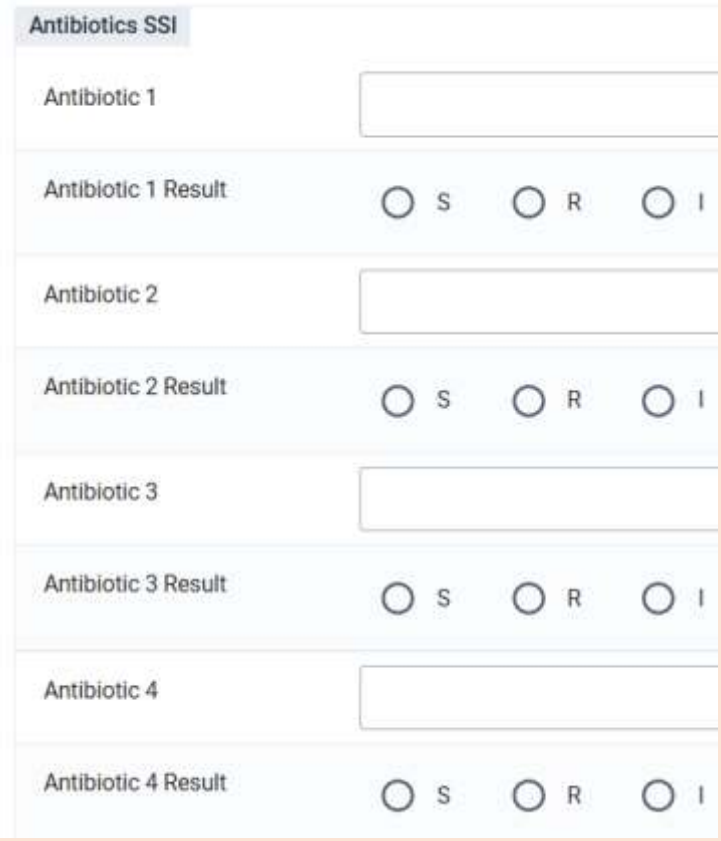
- Select 'Yes' if a culture was performed, otherwise select 'No'.

Date of sample collection:

- Write the date the specimen was collected in the format dd-mm-yyyy.

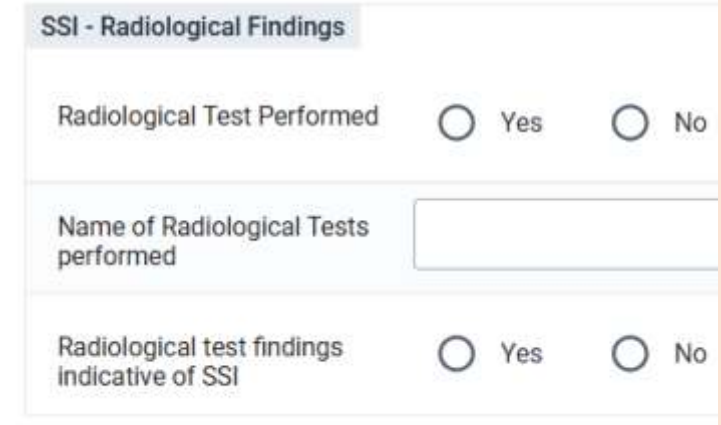
Specimen for Culture:

- Select the type of sample collected for culture from the following options: 'Pus', 'Tissue', or 'Ascetic Fluid'.
- If applicable, provide details about the sample in the provided field.
- Enter the name of the pathogen identified from the culture.



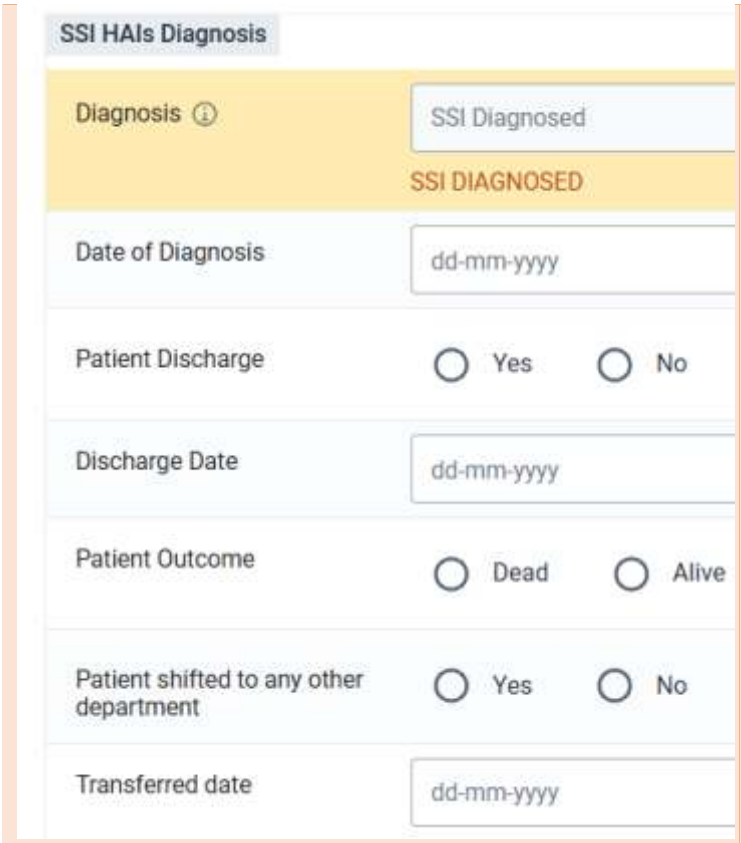
Antibiotic Results:
For each antibiotic line, select the Antibiotic name from the dropdown menu.
Select the corresponding Antibiotic Result:

- S: Susceptible
- R: Resistant
- I: Intermediate

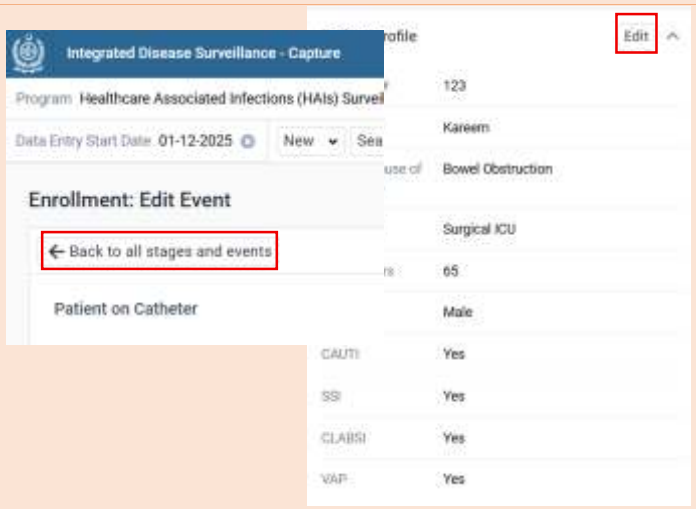


SI Radiological Findings

- Radiological Test Performed: Select 'Yes' if a radiological test was done, otherwise select 'No'.
- Name of Radiological Tests performed: If a test was performed, enter its name (e.g., X-ray, CT Scan).
- Radiological test findings indicative of SSI: Select 'Yes' if the imaging results show signs of SSI.

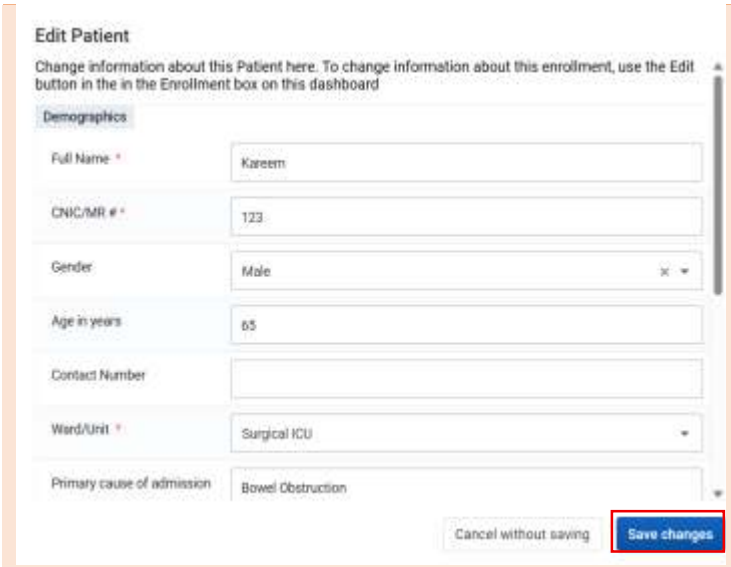


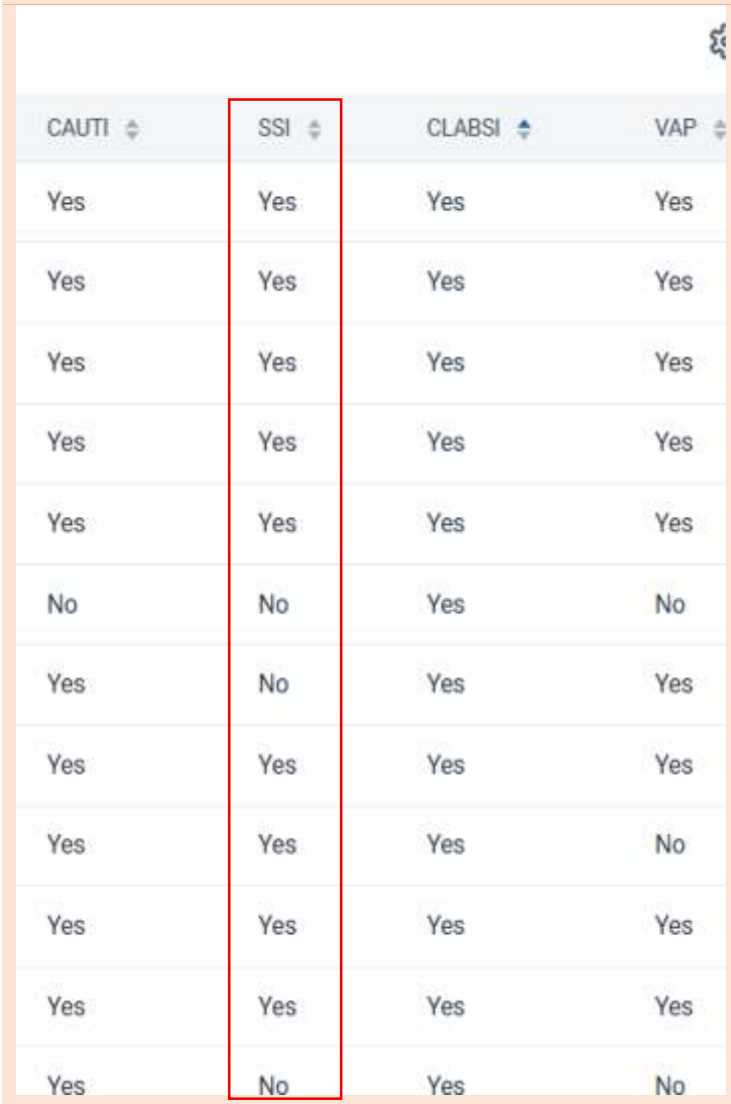
Once the diagnosis is made, the system will automatically display and update the diagnosis field.



Once the diagnosis is made, the user will select Back to all stages option. On the right-side user will click three dots next to the profile and click on save changes.

This action will auto-update the main line list.





CAUTI	SSI	CLABSI	VAP
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
No	No	Yes	No
Yes	No	Yes	Yes
Yes	Yes	Yes	Yes
Yes	Yes	Yes	No
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
Yes	No	Yes	No

Once the diagnosis is made, the user will select Back to all stages option. On the right-side user will click three dots next to the profile and click on save changes.

This action will auto-update the main line list.

Annexure C: Paper-Based Forms for HAIs Surveillance.

NATIONAL INSTITUTES OF HEALTH
ISLAMIC REPUBLIC OF PAKISTAN

HCAI SURVEILLANCE FORM (VAP/VAE)

WHO Guidelines for HCAI Diagnosis

PATIENT INFORMATION

1. CNIC/MR #	5. Department/Ward:
2. Patient Name	6. Date of Admission:
3. Date of Birth:	7. Contact No:
4. Gender:	8. Primary cause of Admission

CLINICAL INFORMATION

Mechanical Ventilator Support ☐ Yes ☐ No

Mechanical Ventilator Support Start Date

Check all that apply:

- ☐ Patient on Mechanical Ventilator ≥ Two Days
- ☐ Fever (>38° C)
- ☐ Ausculation Indicative of Pneumonia
- ☐ >3% Decrease in Baseline SPO2
- ☐ Crackales / Bronchial Breath Sounds
- ☐ Need of Supplemental O2
- ☐ Tachypnoea
- ☐ SPO2<94%
- ☐ Cough
- ☐ Purulent Sputum

TYPE OF CULTURE TEST PERFORMED

- ☐ Endotracheal Aspirate
- ☐ Plural Fluid
- ☐ Not Performed
- ☐ Urine
- ☐ Blood

If Positive Please Specify the Pathogens

RADIOLOGICAL TESTS

☐ XRAY ☐ MRI ☐ CTSCAN ☐ NOT PERFORMED

Radiological Test Indicative of Pneunomonia ☐ Yes ☐ No

MECHANICAL VENTILATOR REMOVED

☐ Yes, Date ☐ No

DISCHARGE

☐ Yes, Date ☐ No

If Discharged, Please submit form to IPC Focal Person.

Remarks by HCF IPC Focal Person/Team

NATIONAL INSTITUTES OF HEALTH
ISLAMIC REPUBLIC OF PAKISTAN

HCAI SURVEILLANCE FORM (CAUTI)

WHO Guidelines for HCAI Diagnosis

PATIENT INFORMATION

1. CNIC/MR #	5. Department/Ward:
2. Patient Name	6. Date of Admission:
3. Date of Birth:	7. Contact No:
4. Gender:	8. Primary cause of Admission

CLINICAL INFORMATION

Date of Urinary Catheter Inserted

Check all that apply:

- ☐ Urinary tract catheter in place more than 2 days
- ☐ Fever (>38° C)
- ☐ Dysuria
- ☐ Flank Pain
- ☐ Increased Urinary Frequency
- ☐ Urinary Urgency
- ☐ Suprapubic Tenderness
- ☐ Suprapubic Pain

Clinically Diagnosed UTI ☐ Yes ☐ No

Start of Antibiotic treatment for UTI ☐ Yes ☐ No

Positive Urine Culture (≥ 10^5 Microorganisms/mL with ≤ 2 species of Microorganisms) ☐ Yes ☐ No ☐ Not Performed

If Positive Please Specify the Pathogens

Dipstick Test for: ☐ Leukocyte Esterase ☐ Nitrate ☐ Not Performed

Pyuria (≥ 10 WBC/mL or ≥ 3 WBC/high-power field) ☐ Positive ☐ Negative ☐ Not Performed

Microorganisms seen on Gram stain of unspun urine ☐ Yes ☐ No ☐ Not Performed

Two Positive Urine Cultures with repeated isolation of the same Uropathogen (Gram-negative Bacteria or Staphylococcus Saprophyticus) with ≥ 10^2 colonies/mL ☐ Yes ☐ No ☐ Not Performed

Positive Urine Culture of a single Uropathogen (Gram-negative Bacteria or Staphylococcus Saprophyticus) with ≤ 10^5 colonies/mL in a patient being treated with an effective antimicrobial agent for a UTI. ☐ Yes ☐ No ☐ Not Performed

CATHETER REMOVED

☐ Yes, Date ☐ No

DISCHARGE

If Discharged, Please submit form to IPC Focal Person. ☐ Yes, Date ☐ No

Remarks by HCF IPC Focal Person/Team

NATIONAL INSTITUTES OF HEALTH
ISLAMIC REPUBLIC OF PAKISTAN

HCAI SURVEILLANCE FORM (CLABSI)

WHO Guidelines for HCAI Diagnosis

PATIENT INFORMATION

1. CNIC/MR #	5. Department/Ward:
2. Patient Name	6. Date of Admission:
3. Date of Birth:	7. Contact No:
4. Gender:	8. Primary cause of Admission

CLINICAL INFORMATION

Central Line inserted ☐ Yes, Date _____ ☐ No

Central Line in place ≥ 2 days ☐ Yes ☐ No

Fever (>38° C) ☐ Yes ☐ No

Chills ☐ Yes ☐ No

Hypotension ☐ Yes ☐ No

Treatment for bloodstream Infection ☐ Yes ☐ No

Blood Culture ☐ Positive ☐ Negative ☐ Not Performed

If Positive , Specify the Organism/Pathogens _____

If Second Blood Culture performed within 48 Hours ☐ Positive ☐ Negative ☐ Not Performed

If Positive , Specify the Organism/Pathogens _____

CENTRA LINE REMOVED

☐ Yes, Date _____ ☐ No

DISCHARGE

☐ Yes, Date _____ ☐ No

If Discharged, Please submit form to IPC Focal Person.

Remarks by HCF IPC Focal Person/Team _____

NATIONAL INSTITUTES OF HEALTH
ISLAMIC REPUBLIC OF PAKISTAN

POST SURGERY / POST DISCHARGE WOUND DRESSING NOTES FOR SURGICAL SITE INFECTION (SSI) SURVEILLANCE

WHO Guidelines for HCAI Diagnosis

PATIENT INFORMATION

1. CNIC/MR #	5. Department/Ward:
2. Patient Name	6. Date of Admission:
3. Date of Birth:	7. Contact No:
4. Gender:	8. Primary cause of Admission

CLINICAL INFORMATION

Type of surgery _____ Date of Surgery _____

Surgery performed within 30 days ☐ Yes ☐ No

Surgery performed at ☐ Same Hospital ☐ Other

Abscess ☐ Yes ☐ No

Purulent discharge at the incision or surgical site ☐ Yes ☐ No

Reopening of wound for suspected infection ☐ Yes ☐ No

SSI clinically diagnosed ☐ Yes ☐ No

TYPE OF CULTURE SENSITIVITY TEST ☐ Pus ☐ Tissue ☐ Not Performed

Test Result ☐ Positive ☐ Negative

If Positive , Specify the Pathogens

Microbiology Report of Positive Culture ☐ Yes ☐ No

Radiological Test Performed ☐ Yes ☐ No

Name of Radiological Tests Performed:

Radiological Test Findings Indicative of SSI ☐ Yes ☐ No

Histopathology Reports suggestive of

Abscess ☐ Yes ☐ No

Similar Findings (Areas of tissue that have become inflamed or infected without forming a defined abscess may also be referred to as "similar findings.")

Diagnosis of an SSI is made by the Surgeon or Attending Physician or Designee ☐ Yes ☐ No

Stratification of all SSI criteria by Depth (If done)

Superficial: Infection involves only skin and subcutaneous tissue of the incision ☐ Yes ☐ No

Deep incisional: Infection involves deep soft tissue (e.g., fascia, muscle) of the incision ☐ Yes ☐ No

Organ/space: Infection involves any part of the anatomy (e.g., organs and spaces) other than the incision ☐ Yes ☐ No

DISCHARGE ☐ Yes, Date ☐ No

If Discharged, Please submit form to IPC Focal Person.

Remarks by HCF IPC Focal Person/Team

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