DEPARTMENT OF MICROBIOLOGY
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HOSPITAL INFECTION CONTROL POLICY AND GUIDELINES 2026-2027

Government Medical College (GMC) Handwara
District Kupwara, Jammu and Kashmir
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Approved by: Principal GMC Handwara

DOCUMENT CONTROL AND APPROVAL

Prepared by: Hospital Infection Control Committee (HICC)
Reviewed by: HOD Micribiology
Approved by: Principal GMC Handwara

This document is in accordance with:

- National Guidelines for Infection Prevention and Control in Healthcare Facilities (MoHFW, 2020)[1]
- NABH Hospital Accreditation Standards, 6th Edition (January 2025)[2]
- ICMR Hospital Infection Control Guidelines (2017)[3]
- Bio-Medical Waste Management Rules, 2016[4]
- National Action Plan on Antimicrobial Resistance (AMR), 2017-2021[5]

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1. INTRODUCTION AND PURPOSE

1.1 Background

Healthcare-associated infections (HAIs) are infections that patients acquire during the course of receiving treatment for medical or surgical conditions in healthcare facilities[1]. HAIs represent a major public health problem affecting patient safety, healthcare quality, and contributing to antimicrobial resistance (AMR). This policy document establishes a comprehensive infection prevention and control (IPC) framework for Government Medical College Handwara to minimize the risk of transmission of infectious agents among patients, healthcare workers, visitors, and the community.

1.2 Purpose

The primary purpose of this policy is to:

- Establish standardized infection prevention and control practices across all departments and units
- Reduce the incidence of healthcare-associated infections
- Protect patients, healthcare workers, visitors, and the community from infectious diseases
- Ensure compliance with national guidelines and accreditation standards
- Promote antimicrobial stewardship and combat antimicrobial resistance
- Create a culture of safety and quality in healthcare delivery

1.3 Vision and Mission

Vision: To achieve zero preventable healthcare-associated infections through evidence-based practices and continuous quality improvement.

Mission: To implement comprehensive infection prevention and control measures that ensure patient safety, healthcare worker protection, and environmental safety while maintaining the highest standards of clinical care.

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2. SCOPE AND APPLICATION

2.1 Applicability

This policy applies to:

- All clinical and non-clinical departments within GMC Handwara
- All healthcare workers including doctors, nurses, paramedical staff, technicians, housekeeping staff, and support staff
- All patient care areas including inpatient units, outpatient departments, operation theaters, intensive care units, emergency department, diagnostic services, and ancillary services
- All visitors, contractors, and vendors entering hospital premises
- All medical, nursing, and allied health students undergoing training

2.2 Coverage

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This policy covers all aspects of infection prevention and control including:

- Standard and transmission-based precautions
- Hand hygiene and respiratory hygiene
- Use of personal protective equipment
- Safe injection practices and sharps management
- Sterilization, disinfection, and cleaning procedures
- Management of biomedical waste
- Surveillance of healthcare-associated infections
- Management of infectious disease outbreaks
- Occupational exposure management
- Antimicrobial stewardship

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3. POLICY STATEMENT

GMC Handwara is committed to providing safe, quality healthcare services by implementing evidence-based infection prevention and control practices. The hospital recognizes that prevention and control of infections is a fundamental responsibility of all healthcare workers and requires a coordinated, multidisciplinary approach.

3.1 Core Principles

1. **Patient Safety First:** Prevention of HAIs is essential to patient safety and quality care
2. **Evidence-Based Practice:** IPC practices shall be based on current scientific evidence and national guidelines[1][2]
3. **Universal Application:** Standard precautions shall be applied to all patients at all times regardless of suspected or confirmed infection status
4. **Risk Assessment:** Regular assessment of infection risks and implementation of appropriate preventive measures
5. **Continuous Improvement:** Ongoing monitoring, audit, feedback, and quality improvement initiatives
6. **Education and Training:** Mandatory IPC training for all healthcare workers
7. **Accountability:** Clear roles and responsibilities for infection prevention and control
8. **Resource Allocation:** Adequate allocation of human resources, infrastructure, and materials for effective IPC implementation

4. ORGANIZATIONAL STRUCTURE FOR INFECTION CONTROL

4.1 Hospital Infection Control Committee (HICC)

The Hospital Infection Control Committee is the apex body responsible for planning, implementing, and monitoring the infection control program[1][2].

Composition:

- Principal GMC Handwara (Chairperson)
- HOD Microbiology (Coordinator)
- Medical Superintendent (Member Secretary)
- Microbiologist- Hospital Infection Control Officer
- Representative from Medicine, Surgery, Pediatrics, Obstetrics and Gynecology
- Nursing Superintendent
- Hospital Administrator
- Pharmacist
- Biomedical Waste Management Coordinator
- Maintenance Engineer
- Representative from Hospital Housekeeping

Responsibilities:

1. Develop, review, and update infection control policies and procedures
2. Oversee implementation of IPC program across all departments
3. Review surveillance data and recommend corrective actions
4. Investigate outbreaks and implement control measures
5. Approve antibiotic policy and monitor antimicrobial usage
6. Ensure adequate resources for infection control activities
7. Coordinate training programs for healthcare workers
8. Conduct regular audits and quality improvement initiatives
9. Report to hospital management and regulatory authorities

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Meeting Schedule: Monthly meetings with additional emergency meetings as required. Meeting minutes shall be documented and circulated to all members.

4.2 Infection Control Team

The Infection Control Team is responsible for day-to-day implementation of the IPC program[2].

Team Members:

- Hospital Infection Control Officer (Doctor with training in infection control)
- Infection Control Nurses (minimum 1 per 250 beds)
- Microbiologist/Laboratory focal point
- Infection Control Link Nurses from each clinical department

Key Functions:

1. Conduct surveillance of healthcare-associated infections
2. Perform regular rounds of patient care areas
3. Provide bedside teaching and mentoring
4. Investigate infection clusters and outbreaks
5. Audit compliance with IPC practices
6. Coordinate with departments on IPC issues
7. Maintain IPC records and databases
8. Prepare monthly and annual reports

4.3 Infection Control Link Nurses

Each clinical department shall designate Infection Control Link Nurses to serve as IPC champions[2].

Responsibilities:

- Act as liaison between the infection control team and department staff
- Promote compliance with IPC practices in their respective areas
- Report potential infections and outbreaks promptly
- Participate in IPC audits and improvement initiatives
- Attend regular meetings and training sessions
- Disseminate IPC information to department staff

4.4 Antimicrobial Stewardship Committee

A dedicated committee to promote rational use of antimicrobials and combat antimicrobial resistance[5].

Composition:

- Clinical Microbiologist (Chairperson)
- Infectious Disease Specialist/Physician
- Clinical Pharmacologist/Pharmacist
- Representatives from major clinical departments
- Infection Control Officer

Responsibilities:

- Develop and update institutional antibiotic policy
- Monitor antibiotic consumption and resistance patterns
- Implement antibiotic audit and feedback mechanisms
- Promote evidence-based prescribing practices
- Provide antimicrobial consultation services

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5. CORE COMPONENTS OF INFECTION PREVENTION AND CONTROL

As per WHO and national guidelines, the following core components shall be implemented[1]:

5.1 IPC Program at Facility Level

- Dedicated IPC team with clearly defined roles and responsibilities
- Written IPC plan with objectives, strategies, and timelines
- Integration of IPC into hospital quality and patient safety initiatives
- Regular reporting to hospital leadership and governing body

5.2 Evidence-Based Guidelines

- Development of facility-specific IPC policies based on national guidelines

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- Standard operating procedures (SOPs) for all IPC activities
- Regular review and updating of guidelines based on new evidence
- Easy accessibility of guidelines to all healthcare workers

5.3 Education and Training

- Mandatory IPC orientation for all new employees
- Annual refresher training for all healthcare workers
- Specialized training for high-risk areas (ICU, OT, dialysis)
- Competency assessment and documentation
- Continuous medical education programs on IPC topics

5.4 HAI Surveillance

- Systematic collection, analysis, and interpretation of infection data
- Priority surveillance for device-associated infections and surgical site infections
- Regular feedback of surveillance data to healthcare workers
- Benchmarking against national and international standards

5.5 Multimodal Strategies

- System change (ensuring necessary infrastructure and supplies)
- Training and education
- Monitoring and feedback
- Communication and engagement
- Culture change initiatives

5.6 Monitoring and Audit

- Regular audits of IPC practices (hand hygiene, PPE use, environmental cleaning)
- Process and outcome monitoring
- Timely feedback to departments and individuals
- Implementation of corrective and preventive actions

5.7 Workload, Staffing and Bed Occupancy

- Maintaining appropriate nurse-patient ratios

- Monitoring bed occupancy rates (Ideally less than 85%)
- Ensuring adequate staffing during peak periods
- Preventing overcrowding in patient care areas

5.8 Built Environment and Equipment

- Design and maintenance of facilities to support IPC practices
- Adequate handwashing stations and alcohol-based hand rub dispensers
- Appropriate ventilation systems in high-risk areas
- Availability of sterilization and disinfection equipment
- Proper storage facilities for clean and sterile supplies

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6. STANDARD PRECAUTIONS

Standard precautions are the minimum infection prevention practices that apply to all patient care, regardless of suspected or confirmed infection status[1][2]. All healthcare workers shall implement standard precautions at all times.

6.1 Components of Standard Precautions

1. **Hand Hygiene**
   - Most important measure to prevent transmission of infections
   - Mandatory before and after every patient contact
   - Detailed protocol provided in Section 8
2. **Personal Protective Equipment (PPE)**
   - Appropriate selection and use based on anticipated exposure
   - Gloves, gowns, masks, eye protection
   - Detailed protocol provided in Section 9
3. **Respiratory Hygiene and Cough Etiquette**
   - Cover nose and mouth when coughing or sneezing
   - Use of tissues and immediate disposal
   - Hand hygiene after contact with respiratory secretions
   - Provision of masks for patients with respiratory symptoms
   - Spatial separation of symptomatic patients (minimum 1 meter)
4. **Safe Injection Practices**
   - Use of sterile, single-use disposable needles and syringes
   - Never recap needles using two-handed technique
   - Immediate disposal in puncture-proof sharps containers

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   - Use of safety-engineered devices where available
   - Single-dose vials preferred over multi-dose vials
5. **Sharps Safety**
   - Sharps containers at point of use
   - Containers filled only to 3/4 capacity
   - Never pass sharps from hand to hand
   - No recapping, bending, or breaking of needles
   - Safe handling of scalpels and other sharp instruments
6. **Environmental Cleaning**
   - Regular cleaning and disinfection of patient care areas
   - Enhanced cleaning of high-touch surfaces
   - Appropriate use of hospital-grade disinfectants
   - Detailed protocol provided in Section 11
7. **Linen Management**
   - Safe handling of soiled linen to prevent contamination
   - Use of leak-proof bags for transportation
   - Segregation of linen from biomedical waste
   - Laundering at appropriate temperatures
8. **Patient Placement**
   - Risk assessment for patient accommodation
   - Prioritization of single rooms for high-risk patients
   - Cohorting of patients with same infection when necessary
   - Adequate spacing between beds (minimum 1 meter)
9. **Aseptic Technique**
   - Maintained during invasive procedures
   - Use of sterile equipment and supplies
   - Maintenance of sterile fields
   - Appropriate preparation of patient's skin

6.2 Implementation Guidelines

- Standard precautions shall be applied uniformly to all patients
- Risk assessment before each patient interaction to determine appropriate precautions
- Compliance monitoring through regular audits
- Immediate availability of necessary supplies and equipment
- Education and training on proper techniques

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7. TRANSMISSION-BASED PRECAUTIONS

Transmission-based precautions are additional infection prevention measures for patients known or suspected to be infected with highly transmissible or epidemiologically important pathogens[1]. These are used in addition to standard precautions.

7.1 Contact Precautions

Indications:

- Infections spread by direct or indirect contact
- Multi-drug resistant organisms (MDRO) including MRSA, VRE, ESBL, CRE
- Clostridium difficile infection
- Scabies, pediculosis
- Draining wounds or abscesses not contained by dressing

Requirements:

1. **Patient Placement:**
   - Single room preferred
   - Cohorting with same infection if single room unavailable
   - Dedicated equipment for patient use
2. **PPE:**
   - Gloves upon entry to patient room
   - Gown if substantial contact with patient or environment anticipated
   - Remove PPE before leaving patient room
3. **Patient Transport:**
   - Limited to essential purposes only
   - Notify receiving area in advance
   - Cover or contain infected areas during transport
4. **Equipment:**
   - Dedicated or disposable equipment
   - If shared, clean and disinfect between patients
   - Stethoscopes, thermometers, BP cuffs dedicated to patient
5. **Environmental Cleaning:**
   - Enhanced frequency of cleaning
   - Use of appropriate disinfectants effective against pathogens
   - Daily cleaning of high-touch surfaces

7.2 Droplet Precautions

Indications:

- Infections spread through respiratory droplets (larger than 5 microns)

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- Influenza, COVID-19 (combined with contact), pertussis
- Meningococcal disease, mumps, rubella
- Invasive group A streptococcus

Requirements:

1. **Patient Placement:**
   - Single room preferred
   - Cohorting with same infection acceptable
   - Maintain spatial separation of minimum 1 meter between beds
2. **PPE:**
   - Surgical/medical mask upon entry within 1 meter of patient
   - Eye protection if risk of splash to face
   - Gloves and gown if contact with patient or environment
3. **Patient Transport:**
   - Patient wears surgical mask during transport
   - Notify receiving area in advance
4. **Duration:**
   - Continue until patient is no longer infectious
   - As per specific pathogen guidelines

7.3 Airborne Precautions

Indications:

- Infections spread through airborne transmission (particles less than 5 microns)
- Tuberculosis (pulmonary or laryngeal)
- Measles, varicella (chickenpox), disseminated zoster
- Other emerging airborne infections as identified

Requirements:

1. **Patient Placement:**
   - Airborne infection isolation room (AIIR) with negative pressure
   - Minimum 12 air changes per hour
   - Air exhausted directly outside or through HEPA filtration
   - Door kept closed at all times
   - Anteroom if available
2. **PPE:**
   - N95 respirator or equivalent before room entry
   - Fit-testing of N95 respirators for all healthcare workers
   - Eye protection, gloves, and gown as per standard precautions

3. **Patient Transport:**
   - Limited to essential purposes only
   - Patient wears surgical mask during transport
   - Notify receiving area in advance
4. **Duration:**
   - For tuberculosis: Until patient has received adequate treatment and has clinical improvement
   - For measles/varicella: Duration of illness plus immunocompromised period

7.4 Signage and Communication

- Clearly visible signs at patient room entrance indicating precautions required
- Signage in local languages (Urdu/English)
- Documentation in patient medical records
- Communication to all healthcare workers involved in patient care
- Notification to ancillary services (radiology, laboratory, etc.)

7.5 Discontinuation of Precautions

- Based on resolution of symptoms and negative laboratory tests as appropriate
- As per specific pathogen guidelines
- Decision made by infection control team in consultation with treating physician
- Documentation in medical record

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8. HAND HYGIENE PROTOCOL

Hand hygiene is the single most important measure to prevent healthcare-associated infections[1][2][6]. Compliance with hand hygiene is mandatory for all healthcare workers, patients, and visitors.

8.1 WHO Five Moments for Hand Hygiene

Hand hygiene shall be performed at the following moments[6]:

1. **Before touching a patient**
   - Before any direct patient contact
   - Before examining patient
   - Before putting on gloves for patient care

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2. **Before clean/aseptic procedure**
   - Before handling invasive devices
   - Before preparing medications
   - Before wound care
   - Before inserting IV lines, urinary catheters
   - Before any invasive procedure
3. **After body fluid exposure risk**
   - After contact with blood, body fluids, mucous membranes
   - After removing gloves following patient contact
   - After handling specimens
4. **After touching a patient**
   - After any direct patient contact
   - After examining patient
   - After removing gloves
5. **After touching patient surroundings**
   - After contact with patient's immediate environment
   - After touching bed rails, bedside table, equipment
   - After changing bed linen

8.2 Hand Hygiene Methods

Two methods are approved for hand hygiene:

8.2.1 Alcohol-Based Hand Rub (ABHR)

Preferred method for routine hand hygiene when hands are not visibly soiled.

Procedure:

1. Apply adequate amount (3-5 ml) of ABHR to cover all hand surfaces
2. Rub hands together covering all surfaces:
   - Palm to palm
   - Right palm over left dorsum and vice versa
   - Palm to palm with fingers interlaced
   - Back of fingers to opposing palms with fingers interlocked
   - Rotational rubbing of right thumb clasped in left palm and vice versa
   - Rotational rubbing backwards and forwards with clasped fingers of right hand in left palm and vice versa
3. Continue until hands are dry (approximately 20-30 seconds)
4. Do not rinse or wipe hands

Specifications:

- Alcohol content 60-80% (ethanol or Isopropanol)
- Contains emollients to prevent skin dryness
- Available at all points of care

8.2.2 Handwashing with Soap and Water

Required when:

- Hands are visibly soiled or contaminated
- After contact with Clostridium difficile or spore-forming organisms
- After using toilet
- Before eating

Procedure:

1. Wet hands with clean running water
2. Apply adequate amount of soap
3. Rub hands together creating lather, covering all surfaces (as described above)
4. Continue for minimum 40-60 seconds
5. Rinse thoroughly under running water
6. Dry completely using single-use towel
7. Use towel to turn off tap

8.3 Surgical Hand Preparation

Required before surgical procedures:

1. Remove jewelry and watches
2. Pre-wash hands and forearms with soap and water
3. Clean under nails using nail pick
4. Apply surgical scrub or ABHR
5. Scrub hands, wrists, and forearms up to elbows
6. Duration: 2-5 minutes for first case, 2-3 minutes for subsequent cases
7. Dry with sterile towel
8. Don sterile gloves

8.4 Infrastructure Requirements

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- Handwashing sinks in all patient care areas
- ABHR dispensers at all points of care (room entrance, bedside, procedure areas)
- Pocket-sized ABHR bottles for mobile healthcare workers
- Adequate supply of soap, paper towels, nail picks
- Sinks designed to prevent splashing and contamination
- Elbow/foot/sensor-operated taps preferred

8.5 Hand Care

- Healthcare workers should maintain healthy skin
- Use of hand lotions/creams encouraged to prevent dermatitis
- Report skin problems to occupational health
- Artificial nails, nail polish, and jewelry discouraged
- Keep nails short and clean

8.6 Glove Use

- Gloves do not replace hand hygiene
- Hand hygiene required before donning and after removing gloves
- Change gloves between different patients
- Change gloves during patient care if moving from contaminated to clean site
- Remove gloves after task completion

8.7 Monitoring and Audit

- Regular observation of hand hygiene compliance
- Target compliance rate: Greater than 80%
- Feedback provided to departments and individuals
- ABHR consumption monitoring as proxy indicator
- Annual hand hygiene campaigns and awareness activities

9. PERSONAL PROTECTIVE EQUIPMENT (PPE)

Personal Protective Equipment (PPE) provides a physical barrier between healthcare workers and infectious agents[1][2]. Appropriate selection and use of PPE is essential for prevention of occupational exposures.

9.1 Types of PPE

PPE Type	Purpose	Indications
Gloves	Hand protection	All patient contact, contact with body fluids
Gowns/Aprons	Body protection	Risk of contamination of clothing/skin
Surgical Masks	Protection from droplets	Droplet precautions, surgical procedures
N95 Respirators	Airborne protection	Airborne precautions, aerosol procedures
Eye Protection	Eye/face protection	Risk of splash to face
Face Shields	Complete face protection	High risk procedures, combined protection
Shoe Covers	Foot protection	Operating theaters, isolation areas
Head Covers	Hair protection	Operating theaters, sterile procedures

Table 1: Types and uses of Personal Protective Equipment

9.2 Selection of PPE

Selection based on:

- Type of anticipated exposure (contact, droplet, airborne)
- Nature of patient interaction
- Risk assessment for specific task
- Standard vs. transmission-based precautions required

9.3 Donning (Putting On) PPE

Sequence:

1. Perform hand hygiene
2. Put on gown (tie at neck and waist)
3. Put on mask or respirator (fit securely)
4. Put on eye protection if required

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5. Put on gloves (extend over gown cuffs)

9.4 Doffing (Removing) PPE

Critical principle: Remove PPE carefully to avoid self-contamination.

Sequence:

1. Remove gloves (peel off from inside, roll into ball)
2. Perform hand hygiene
3. Remove gown (unfasten ties, peel away from body, roll inside out)
4. Perform hand hygiene
5. Remove eye protection (handle by headband or earpieces)
6. Remove mask/respirator (handle by ties/straps only)
7. Perform hand hygiene

9.5 Special Considerations

9.5.1 N95 Respirators

- Fit-testing mandatory for all users
- Seal-check performed each time before use
- Not to be used if facial hair interferes with seal
- Single use preferred; extended use protocols during shortages
- Storage in clean, dry place between uses
- Discard if damaged, soiled, or difficult to breathe through

9.5.2 Gloves

- Non-sterile gloves for routine patient care
- Sterile gloves for invasive procedures
- Appropriate size for proper fit
- Changed between patients and tasks
- Do not wash or reuse disposable gloves

9.6 Supply and Availability

- PPE available at all points of care

- Various sizes stocked to ensure proper fit
- Buffer stock maintained for emergencies
- Regular monitoring of consumption and stock levels
- Just-in-time procurement system

9.7 Training

- Demonstration of proper donning and doffing techniques
- Competency assessment and documentation
- Regular refresher training
- Visual aids and posters at PPE stations

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10. STERILIZATION AND DISINFECTION

Proper sterilization and disinfection of medical devices, instruments, and equipment is essential to prevent transmission of pathogens[1][7].

10.1 Classification of Medical Devices

Based on Spaulding Classification:

Category	Definition	Required Processing
Critical	Devices that enter sterile tissue or vascular system	Sterilization
Semi-Critical	Devices that contact mucous membranes or non-intact skin	High-level disinfection or sterilization
Non-Critical	Devices that contact intact skin only	Low-level disinfection

Table 2: Spaulding classification and processing requirements

10.2 Sterilization Methods

10.2.1 Steam Sterilization (Autoclaving)

Preferred method for heat and moisture-stable items.

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Parameters:

- Pressure: 15 psi (1.05 kg/cm²)
- Temperature: 121°C for 30 minutes or 134°C for 18 minutes
- Cooling: Allow items to cool before removal

Process:

1. Clean and decontaminate items thoroughly
2. Inspect for damage or defects
3. Wrap in appropriate sterilization wrap or place in pouches
4. Load autoclave without overcrowding
5. Place chemical indicators inside each pack
6. Run sterilization cycle as per manufacturer instructions
7. Verify physical parameters (time, temperature, pressure)
8. Check chemical indicators for color change
9. Record cycle details in log book
10. Store sterile items in clean, dry area

10.2.2 Ethylene Oxide (ETO) Sterilization

For heat-sensitive items (plastics, electronics, fiber-optic instruments).

Parameters:

- Temperature: 30-60°C
- Exposure time: 1-6 hours depending on load
- Humidity: 30-80%
- Aeration required after sterilization (8-12 hours)

10.2.3 Hydrogen Peroxide Plasma Sterilization

For moisture-sensitive items.

Features:

- Low-temperature process (45-50°C)
- Short cycle time (approximately 45-75 minutes)
- No toxic residue, no aeration required

- Cannot sterilize cellulose-based materials

10.3 High-Level Disinfection (HLD)

For semi-critical items that cannot be sterilized.

Methods:

1. **Chemical Disinfection:**
   - 2% Glutaraldehyde for 20-30 minutes
   - 0.55% Orthophthalaldehyde (OPA) for 12 minutes
   - Items must be cleaned before disinfection
   - Complete immersion in disinfectant
   - Rinse with sterile water after disinfection
   - Dry with sterile cloth
2. **Boiling:**
   - Boil in water for 20 minutes after water reaches boiling point
   - Used for emergency situations when other methods unavailable
   - Less reliable than chemical HLD

10.4 Disinfection Levels

Level	Agents	Uses
High	Glutaraldehyde, OPA	Semi-critical items
Intermediate	Alcohol (70-90%), Phenolics	Non-critical equipment, surfaces
Low	Quaternary ammonium compounds	Environmental surfaces

Table 3: Levels of disinfection and applications

10.5 Central Sterile Supply Department (CSSD)

Zoning:

1. **Decontamination Area (Dirty Zone):**
   - Receipt of used instruments
   - Initial cleaning and decontamination
   - PPE required for all staff
2. **Preparation and Packing Area (Clean Zone):**- Inspection of cleaned items
   - Assembly and packaging
   - Labeling with sterilization date and expiry

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3. **Sterilization Area:**
   - Autoclaves and other sterilization equipment
   - Loading and unloading of sterilizers
4. **Sterile Storage Area:**
   - Storage of sterile supplies
   - Controlled access
   - Clean, dry, well-ventilated
   - Items arranged by expiry date (FIFO)

10.6 Quality Assurance in Sterilization

10.6.1 Physical Monitoring

- Check time, temperature, and pressure for each cycle
- Review printouts or digital records
- Document in sterilization log

10.6.2 Chemical Indicators

- Class 1: Process indicators (tape on outside of packs)
- Class 5: Integrating indicators (inside packs)
- Check for appropriate color change
- Do not use items if indicator has not changed

10.6.3 Biological Indicators

- Most reliable method of sterilization monitoring
- Geobacillus stearothermophilus for steam sterilization
- Weekly testing for routine loads
- Every load for implantable items
- Positive result indicates sterilization failure
- Quarantine all items from suspected failed load

10.6.4 Bowie-Dick Test

- Daily test for pre-vacuum steam sterilizers
- Detects air leaks and inadequate air removal
- Performed before first load of the day

10.7 Shelf Life of Sterile Items

- Event-related rather than time-related
- Items remain sterile until packaging is compromised
- Check packaging integrity before use
- Typical shelf life: 6 months to 1 year depending on packaging
- Label with sterilization date and department

10.8 Single-Use Devices

- Devices labeled "single-use" or "disposable" shall not be reprocessed
- Reprocessing of single-use devices is prohibited
- Safe disposal as per biomedical waste rules

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11. ENVIRONMENTAL CLEANING AND WASTE MANAGEMENT

11.1 Environmental Cleaning

Clean hospital environment reduces transmission of pathogens[1][2].

11.1.1 Cleaning Schedules

Area	Frequency
Patient rooms	Daily and after discharge
Operating theaters	After each case and daily terminal cleaning
ICU	Twice daily and after patient discharge
Corridors and waiting areas	Twice daily
Toilets	Three times daily
High-touch surfaces	Multiple times daily

Table 4: Environmental cleaning schedule

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11.1.2 Cleaning Methods

Routine Cleaning:

- Use of detergent and water for general cleaning
- Clean from cleanest to dirtiest areas
- Clean from top to bottom
- Use of color-coded mops and cloths to prevent cross-contamination:
  - Red: Toilets and bathrooms
  - Yellow: Isolation areas and contaminated zones
  - Green: General patient areas
  - Blue: Low-risk areas (offices, corridors)

Disinfection:

- 1:100 dilution of 5% sodium hypochlorite (500 ppm) for routine disinfection
- 1:10 dilution (5000 ppm) for blood/body fluid spills
- Hospital-grade disinfectants for equipment and surfaces
- Contact time as per manufacturer recommendations

11.1.3 High-Touch Surfaces

Cleaned and disinfected multiple times daily:

- Bed rails and over-bed tables
- Door handles and light switches
- Call buttons and telephones
- IV poles and medical equipment
- Countertops and workstations
- Computer keyboards and tablets

11.1.4 Terminal Cleaning

After patient discharge or transfer:

1. Remove all used items and disposables
2. Clean and disinfect all surfaces
3. Clean from ceiling to floor
4. Replace curtains if contaminated

5. Air the room before admitting new patient
6. Minimum 1 hour before next admission

11.2 Biomedical Waste Management

As per Bio-Medical Waste Management Rules, 2016[4].

11.2.1 Waste Categories and Segregation

Category	Waste Type	Container Color	Treatment
Yellow	Infectious waste, anatomical waste, soiled items	Yellow bag	Incineration
Red	Contaminated recyclable waste (tubes, catheters)	Red bag	Autoclaving and disposal
White	Sharps (needles, syringes, blades)	White puncture-proof container	Autoclaving and disposal/shredding
Blue	Glassware, metallic implants	Blue bag	Autoclaving and disposal

Table 5: Biomedical waste categories and segregation

11.2.2 Segregation Principles

- Segregate waste at point of generation
- Use appropriate color-coded containers
- Fill containers only to 3/4 capacity
- Label with date, department, and category
- Seal bags securely before transport
- Never mix different categories

11.2.3 Sharps Management

- Puncture-proof containers at every point of use
- Immediately dispose of sharps after use
- Never recap needles using two hands
- Do not overfill containers (maximum 3/4 full)

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- Seal and label before transport
- Temporary storage in designated secure area

11.2.4 Chemical Waste

- Segregate liquid chemical waste at source
- Pre-treatment or neutralization before disposal
- Follow specific protocols for cytotoxic/radioactive waste
- Coordinate with pharmacy and laboratory

11.2.5 Storage and Transport

- Dedicated storage area for biomedical waste
- Separate from general waste storage
- Covered, well-ventilated, secured area
- Daily collection and transport to treatment facility
- Covered trolleys for internal transport
- Designated routes and timings

11.2.6 Training and Compliance

- Mandatory training for all staff on waste segregation
- Regular audits of segregation practices
- Display of waste segregation guidelines
- Reporting of occupational exposures
- Compliance with statutory requirements

11.3 Linen Management

- Separate soiled linen from biomedical waste
- Use leak-proof bags for transport
- Do not sort or rinse linen in patient areas
- Laundering at temperature minimum 70°C for 25 minutes
- Use of appropriate detergents and disinfectants
- Clean linen stored in clean, dry area
- Separate storage for soiled and clean linen

11.4 Spill Management

11.4.1 Blood/Body Fluid Spills

1. Wear appropriate PPE (gloves, gown, mask)
2. Isolate the area
3. Cover spill with absorbent material
4. Apply disinfectant (1:10 bleach solution)
5. Allow contact time (10 minutes)
6. Clean up with disposable materials
7. Dispose of waste as infectious waste
8. Clean and disinfect reusable equipment
9. Perform hand hygiene

11.4.2 Chemical Spills

- Follow specific protocols for chemical type
- Use spill kits where available
- Ensure adequate ventilation
- Report major spills to safety officer
- Document incident

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12. HEALTHCARE ASSOCIATED INFECTIONS (HAI) SURVEILLANCE

Surveillance is essential for detecting infections, identifying risk factors, and monitoring effectiveness of control measures[1][2].

12.1 Objectives of HAI Surveillance

- Detect and quantify healthcare-associated infections
- Identify high-risk areas and populations
- Detect outbreaks early
- Evaluate effectiveness of prevention measures

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- Provide data for quality improvement initiatives
- Benchmark against national and international standards

12.2 Priority Surveillance Targets

12.2.1 Device-Associated Infections

1. **Central Line-Associated Bloodstream Infection (CLABSI)**
   - Definition: Laboratory-confirmed bloodstream infection in patient with central line
   - Rate calculation: Number of CLABSI per 1000 central line days
   - Target rate: Less than 2 per 1000 device days
2. **Catheter-Associated Urinary Tract Infection (CAUTI)**
   - Definition: UTI in patient with indwelling urinary catheter
   - Rate calculation: Number of CAUTI per 1000 catheter days
   - Target rate: Less than 5 per 1000 device days
3. **Ventilator-Associated Pneumonia (VAP)**
   - Definition: Pneumonia in patient on mechanical ventilation greater than 48 hours
   - Rate calculation: Number of VAP per 1000 ventilator days
   - Target rate: Less than 3 per 1000 device days

12.2.2 Surgical Site Infections (SSI)

- Definition: Infection occurring within 30 days (or 90 days for implant surgery) after surgical procedure
- Classification: Superficial incisional, deep incisional, organ/space
- Rate calculation: Number of SSI per 100 surgical procedures
- Target rate: Less than 5% for clean surgeries

12.2.3 Other HAIs

- Hospital-acquired pneumonia (non-ventilator)
- Primary bloodstream infections
- Gastrointestinal infections
- Skin and soft tissue infections

12.3 Surveillance Methods

12.3.1 Prospective Active Surveillance

- Daily rounds by infection control team

- Review of patient charts and laboratory reports
- Direct observation and examination of patients
- Discussion with clinical staff

12.3.2 Laboratory-Based Surveillance

- Review of positive culture reports
- Tracking of multi-drug resistant organisms
- Alert system for unusual or resistant pathogens

12.3.3 Targeted Surveillance

- Focus on high-risk areas (ICU, NICU, dialysis)
- Surveillance of specific procedures
- Outbreak investigation

12.4 Data Collection and Analysis

- Use of standardized case definitions
- Numerator: Number of infections
- Denominator: Patient days or device days
- Stratification by ward, procedure, pathogen
- Statistical analysis of trends
- Comparison with baseline data

12.5 Reporting and Feedback

- Monthly reports to HICC and hospital leadership
- Quarterly reports to clinical departments
- Annual summary report
- Graphical presentation of data (trend charts)
- Benchmarking with similar institutions
- Identification of areas requiring intervention

12.6 Alert Organisms

Immediate reporting to infection control team:

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- Methicillin-resistant Staphylococcus aureus (MRSA)
- Vancomycin-resistant Enterococcus (VRE)
- Extended-spectrum beta-lactamase (ESBL) producing organisms
- Carbapenem-resistant Enterobacteriaceae (CRE)
- Multi-drug resistant Acinetobacter and Pseudomonas
- Clostridium difficile
- Tuberculosis
- Unusual or highly resistant pathogens

12.7 Outbreak Investigation

Outbreak Definition: Increase in infections above baseline level.

Investigation Steps:

1. Verify the diagnosis and outbreak existence
2. Establish case definition
3. Identify and count cases (line listing)
4. Perform descriptive epidemiology (time, place, person)
5. Develop hypothesis about source and mode of transmission
6. Implement control measures
7. Environmental and microbiological investigation as needed
8. Evaluate effectiveness of control measures
9. Document and report findings

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13. ANTIMICROBIAL STEWARDSHIP PROGRAM

Antimicrobial stewardship (AMS) promotes the appropriate use of antimicrobials to improve patient outcomes, reduce resistance, and decrease healthcare costs[5][8].

13.1 Goals of AMS Program

- Optimize antimicrobial therapy for individual patients
- Minimize unintended consequences (resistance, toxicity, cost)
- Reduce healthcare-associated infections caused by resistant organisms

- Ensure cost-effective therapy
- Preserve efficacy of existing antimicrobials

13.2 Core Elements of AMS

13.2.1 Leadership Commitment

- Hospital administration support for AMS activities
- Adequate resources allocated (personnel, information technology)
- AMS integrated into hospital quality and patient safety programs
- Regular reporting to hospital leadership

13.2.2 Accountability

- Antimicrobial Stewardship Committee with defined responsibilities
- Single physician leader responsible for program outcomes
- Pharmacist leader for implementation of interventions

13.2.3 Drug Expertise

- Clinical pharmacist with infectious diseases training
- Infectious disease physician or microbiologist
- Access to infectious diseases consultation services

13.2.4 Action

- Implementation of evidence-based interventions
- Prospective audit and feedback
- Formulary restriction and preauthorization
- Antimicrobial time-outs and reassessments
- Dose optimization based on pharmacokinetics
- Streamlining and de-escalation based on culture results
- Intravenous to oral conversion when appropriate

13.2.5 Tracking

- Monitoring of antimicrobial consumption (DDD per 100 patient days)
- Tracking of resistance patterns (institutional antibiogram)

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- Measurement of process and outcome indicators
- Documentation of interventions and acceptance rates

13.2.6 Reporting

- Regular reporting of consumption and resistance data
- Feedback to prescribers on appropriateness of prescribing
- Communication of AMS activities to hospital staff
- Presentation at quality improvement meetings

13.2.7 Education

- Educational programs for prescribers on appropriate antimicrobial use
- Antimicrobial prescribing guidelines
- Academic detailing and case-based learning
- Patient education on appropriate antimicrobial use

13.3 Antimicrobial Policy

13.3.1 Formulary Management

- Hospital antibiotic formulary developed and regularly updated
- Classification of antibiotics:
  - Open: Freely available for use
  - Restricted: Require approval from specified authority
  - Reserved: For specific indications only with specialist approval

13.3.2 Empirical Treatment Guidelines

Developed for common infections based on:

- Local antimicrobial resistance patterns
- Site of infection
- Severity of illness
- Patient-specific factors (allergies, renal function)
- Hospital vs. community-acquired infection

Common scenarios covered:

- Community-acquired pneumonia

- Hospital-acquired pneumonia
- Urinary tract infections
- Intra-abdominal infections
- Skin and soft tissue infections
- Bloodstream infections/sepsis
- Meningitis
- Surgical prophylaxis

13.3.3 Surgical Antibiotic Prophylaxis

- Antibiotic given within 60 minutes before incision
- Appropriate antibiotic selection based on surgery type
- Single dose for most procedures
- Redosing if procedure longer than 3-4 hours or significant blood loss
- Discontinuation within 24 hours for most procedures

13.4 Antibiogram

Annual institutional antibiogram prepared showing:

- Percentage susceptibility of common pathogens to various antibiotics
- Separate data for ICU and non-ICU areas
- Minimum 30 isolates per pathogen-antibiotic combination
- Used to guide empirical therapy
- Shared with all clinical departments

13.5 Antimicrobial Audits

- Regular audits of antimicrobial prescribing
- Point prevalence surveys (quarterly)
- Assessment of appropriateness:
  - Indication
  - Choice of antibiotic
  - Dose and route
  - Duration
  - Documentation
- Feedback provided to prescribers

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- Corrective actions implemented

13.6 Antimicrobial Prescribing Best Practices

1. **Take appropriate cultures before starting antibiotics** (when feasible)
2. **Start appropriate empirical therapy** based on guidelines
3. **Document indication, dose, and duration** in medical record
4. **Review therapy at 48-72 hours** (antimicrobial time-out)
5. **De-escalate** based on culture results and clinical improvement
6. **Optimize dose** based on pharmacokinetics and patient factors
7. **Switch from IV to oral** when clinically appropriate
8. **Define stop/review date** at initiation
9. **Avoid prolonged durations** without clear indication
10. **Educate patients** about appropriate antimicrobial use

14. OCCUPATIONAL HEALTH AND SAFETY

Protection of healthcare workers from occupational infections is a critical component of infection control[1][2].

14.1 Immunization of Healthcare Workers

Mandatory Immunizations:

Vaccine	Schedule
Hepatitis B	3 doses (0, 1, 6 months) + titer check
Tetanus-Diphtheria	Booster every 10 years
Measles-Mumps-Rubella (MMR)	2 doses (if not immune)
Varicella	2 doses (if not immune or no history of chickenpox)
Influenza	Annual vaccination
COVID-19	As per national guidelines

Table 6: Recommended immunizations for healthcare workers

Recommended Immunizations:

- Tuberculosis screening (Tuberculin skin test or IGRA) at baseline and annually for high-risk workers
- Pneumococcal vaccine for healthcare workers with risk factors
- Hepatitis A for workers in specific high-risk areas

14.2 Pre-Placement Evaluation

- Complete medical history
- Vaccination history and status
- Tuberculosis screening
- Baseline serology for vaccine-preventable diseases
- Assessment of fitness for specific duties
- Documentation in personal health record

14.3 Occupational Exposure Management

14.3.1 Blood and Body Fluid Exposure

Immediate Actions:

1. Wash exposed area immediately with soap and water (for skin)
2. Flush eyes or mucous membranes with water or saline
3. Report to supervisor and occupational health immediately
4. Do not delay initial care

Post-Exposure Management:

1. Risk assessment:
   - Type of exposure (percutaneous, mucous membrane, non-intact skin)
   - Source patient HIV, HBV, HCV status
   - Volume and type of fluid
   - Severity of injury
2. Source patient testing:
   - HIV, HBV, HCV with informed consent
   - Rapid testing if possible
3. Exposed worker baseline testing:
   - HIV, HBV, HCV serology
   - Repeat testing at 6 weeks, 3 months, 6 months

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4. Post-Exposure Prophylaxis (PEP):
   - **HIV PEP:** Start within 2 hours (up to 72 hours), continue for 28 days
   - **HBV PEP:** Hepatitis B immunoglobulin and/or vaccine based on vaccination status
   - **HCV:** No PEP available; monitoring and early treatment if seroconversion

Documentation:

- Incident report form
- Exposure circumstances
- Source patient information
- Treatment provided
- Follow-up plan
- Workers' compensation claim if applicable

14.3.2 Tuberculosis Exposure

- Contact investigation for close contacts of infectious TB patient
- Tuberculin skin test or IGRA at baseline and 8-12 weeks post-exposure
- Chest X-ray if symptoms or positive test
- Treatment of latent TB infection if indicated
- Work restrictions until cleared by occupational health

14.3.3 Airborne Pathogen Exposure (Measles, Varicella, COVID-19)

- Assessment of immunity status
- Post-exposure prophylaxis (vaccines or immunoglobulin) if non-immune
- Work restrictions based on specific pathogen
- Monitoring for symptoms
- Prompt reporting of illness

14.4 Work Restrictions for Healthcare Workers

Healthcare workers with certain infections shall be restricted or excluded from work:

Condition	Work Restriction
Respiratory infections	Exclude until symptoms resolve, minimum 24 hours after fever resolution
Gastroenteritis	Exclude until 48 hours after symptom resolution

Active tuberculosis	Exclude until non-infectious (3 negative sputum samples)
Varicella (chickenpox)	Exclude until all lesions crusted
Herpes zoster (shingles)	Cover lesions; exclude if lesions cannot be covered
Conjunctivitis	Exclude if purulent discharge
Draining skin lesions	Cover; exclude if cannot be covered

Table 7: Work restrictions for healthcare workers with infections

14.5 Employee Health Services

- Confidential health services for all employees
- Easy access to occupational health physician/nurse
- Prompt evaluation and management of occupational exposures
- Fitness for duty evaluations
- Counseling and support services
- Maintenance of health records (separate from personnel files)

14.6 Personal Protective Equipment for Workers

- Adequate supply of appropriate PPE
- Training on proper use
- N95 fit-testing for all workers requiring respirators
- No cost to employees
- Enforcement of PPE use

14.7 Safe Work Practices

- No eating, drinking, smoking in patient care areas
- No storage of food in clinical refrigerators
- Immediate reporting of occupational exposures
- Compliance with standard and transmission-based precautions
- Use of safety-engineered devices
- Proper disposal of sharps

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15. OUTBREAK INVESTIGATION AND MANAGEMENT

An outbreak is defined as an increase in infections above the expected baseline level[1]. Prompt detection and response is critical to control spread.

15.1 Outbreak Recognition

Indicators of possible outbreak:

- Clustering of similar infections in time or place
- Increase in infection rate above baseline
- Unusual pathogen or resistance pattern
- Single case of highly contagious or unusual infection
- Linkage to common source (procedure, device, personnel)

15.2 Outbreak Investigation Steps

1. **Verify the Outbreak**
   - Confirm diagnosis of cases
   - Compare with baseline data
   - Rule out pseudo-outbreak (laboratory contamination, surveillance artifact)
2. **Establish Case Definition**
   - Clinical criteria
   - Laboratory criteria
   - Time period
   - Location/population
3. **Case Finding and Line Listing**
   - Active search for additional cases
   - Create line list with key variables:
   - Patient identifiers
   - Date of onset
   - Location
   - Symptoms/diagnosis
   - Exposures
   - Laboratory results
4. **Descriptive Epidemiology**
   - Describe outbreak by time (epidemic curve), place (spot map), and person (attack rates)

- Identify common exposures or risk factors
- Generate hypotheses about source and transmission

5. **Implement Control Measures**
   - Do not delay control measures while investigation continues
   - Enhanced infection control precautions
   - Cohorting of cases and contacts
   - Restriction of admissions if necessary
   - Environmental cleaning and disinfection
   - Review and reinforce hand hygiene
   - Staff education and awareness
6. **Environmental and Laboratory Investigation**
   - Environmental cultures (if indicated)
   - Molecular typing of isolates
   - Product testing (if device/product implicated)
   - Evaluation of sterilization/disinfection processes
7. **Develop and Test Hypothesis**
   - Analytical studies (case-control or cohort) if needed
   - Identify source and mode of transmission
8. **Evaluate Control Measures**
   - Continue surveillance
   - Monitor for new cases
   - Assess effectiveness of interventions
   - Declare outbreak over when no new cases for 2 incubation periods
9. **Documentation and Communication**
   - Detailed outbreak investigation report
   - Communication with staff, patients, families
   - Notification to regulatory authorities
   - Lessons learned and preventive recommendations

15.3 Control Measures by Transmission Mode

15.3.1 Contact Transmission

- Contact precautions for all cases and colonized patients
- Cohorting of patients with same organism
- Dedicated equipment and staff
- Enhanced environmental cleaning
- Screening of contacts
- Hand hygiene audits and feedback

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15.3.2 Droplet Transmission

- Droplet precautions for all cases
- Respiratory hygiene and cough etiquette
- Spatial separation of patients
- Restriction of visitors
- Vaccination of susceptible contacts (if vaccine available)

15.3.3 Airborne Transmission

- Airborne precautions for all cases
- Negative pressure isolation rooms
- N95 respirators for all entering rooms
- Evaluation and restriction of susceptible contacts
- Post-exposure prophylaxis if available

15.3.4 Common Source

- Identification and elimination of source
- Product recall if contaminated product
- Review of sterilization/disinfection processes
- Evaluation of water systems (if waterborne)
- Environmental remediation

15.4 Communication During Outbreaks

- **Internal:** Prompt communication to all relevant staff, daily updates to leadership, staff meetings for questions and concerns
- **Patients and Families:** Transparent communication about outbreak and control measures, addressing concerns, providing reassurance
- **External:** Notification to health authorities as required, media communication through designated spokesperson, collaboration with public health

15.5 Documentation

- Detailed investigation report including:
  - Background and outbreak description
  - Methods and case definition

- Findings (descriptive and analytical)
- Control measures implemented
- Outcome and lessons learned
- Recommendations for prevention

- Sharing of report with HICC, hospital leadership, and relevant authorities
- Incorporation of lessons into policy revisions

16. EDUCATION AND TRAINING

Continuous education and training is essential for maintaining competency in infection prevention and control practices[1][2].

16.1 Mandatory Training Programs

16.1.1 Orientation for New Employees

Duration: Minimum 2 hours

Content:

- Introduction to hospital IPC program
- Standard and transmission-based precautions
- Hand hygiene technique and WHO 5 moments
- Use of personal protective equipment
- Safe injection practices and sharps safety
- Biomedical waste segregation
- Occupational exposure prevention and reporting
- Employee health requirements

Method: Didactic session, video demonstration, return demonstration, competency assessment

16.1.2 Annual Refresher Training

Duration: Minimum 1 hour annually

Content:

- Review of IPC policies

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- Updates on new guidelines or procedures
- HAI surveillance data and trends
- Recent outbreaks and lessons learned
- Focus on areas with low compliance
- Case-based learning

16.1.3 Specialized Training

For high-risk areas (ICU, OT, dialysis, NICU):

- Device-associated infection prevention (CLABSI, CAUTI, VAP)
- Aseptic technique for invasive procedures
- Care bundles and checklists
- Antimicrobial stewardship
- Outbreak management

Duration: Minimum 4 hours annually

16.2 Training Methods

- Classroom lectures and presentations
- Hands-on workshops and skill stations
- Video demonstrations
- E-learning modules
- Bedside teaching and mentoring
- Simulation exercises
- Case discussions
- Posters and visual aids
- Departmental in-service programs

16.3 Competency Assessment

- Pre and post-tests for knowledge assessment
- Return demonstration for skills (hand hygiene, PPE donning/doffing)
- Direct observation using checklists
- Documentation of competency achievement

- Remedial training for those not meeting standards
- Re-assessment annually or after policy changes

16.4 Continuing Education

- Monthly infection control updates at departmental meetings
- Quarterly newsletters on IPC topics
- Journal clubs for review of new evidence
- Attendance at conferences and workshops
- Webinars and online courses
- Certification programs for IC nurses and physicians

16.5 Patient and Family Education

- Hand hygiene education for patients and visitors
- Respiratory etiquette
- Antimicrobial stewardship (appropriate use, adherence)
- Disease-specific education for patients in isolation
- Educational materials in local languages
- Video displays in waiting areas

16.6 Documentation

- Attendance registers for all training sessions
- Competency assessment records
- Training certificates issued
- Individual training files maintained
- Annual training reports to HICC

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17. MONITORING, AUDIT AND FEEDBACK

Regular monitoring and audit of IPC practices is essential to identify gaps and drive improvement[1][2].

17.1 Process Indicators

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Monitored regularly to assess compliance with IPC practices:

Indicator	Target	Frequency
Hand hygiene compliance	Greater than 80%	Monthly
PPE use compliance	Greater than 90%	Monthly
Antimicrobial prescribing appropriateness	Greater than 80%	Quarterly
Surgical antibiotic prophylaxis timing	Greater than 90%	Monthly
Central line insertion bundle compliance	100%	Monthly
Urinary catheter insertion bundle compliance	100%	Monthly
Ventilator bundle compliance	Greater than 95%	Monthly
Biomedical waste segregation compliance	Greater than 90%	Monthly
Environmental cleaning compliance	Greater than 90%	Monthly

Table 8: Process indicators for IPC monitoring

17.2 Outcome Indicators

- Healthcare-associated infection rates (overall and by type)
- Device-associated infection rates (CLABSI, CAUTI, VAP)
- Surgical site infection rates by procedure type
- Multi-drug resistant organism rates
- Antimicrobial consumption (DDD per 100 patient days)
- Occupational exposures and infections
- Compliance with immunization requirements

17.3 Audit Methods

17.3.1 Direct Observation

- Observation of actual practice at point of care
- Standardized observation forms and checklists
- Trained observers (IC team, link nurses)
- Unobtrusive observation to minimize Hawthorne effect
- Minimum 100 observations per audit

- Feedback provided on the spot when appropriate

17.3.2 Medical Record Review

- Review of documentation in patient charts
- Assessment of compliance with protocols
- Evaluation of antimicrobial prescribing
- Identification of infections and complications
- Use of standardized data collection forms

17.3.3 Environmental Audits

- Inspection of patient care areas
- Assessment of cleanliness and organization
- Availability of hand hygiene supplies
- Proper storage of clean and sterile items
- Segregation of clean and dirty areas
- Biomedical waste management compliance
- Use of standardized checklists

17.3.4 Product/Supply Audits

- Monitoring of consumption (ABHR, gloves, disinfectants)
- Stock availability at point of care
- Expiry date checking
- Proper storage conditions

17.4 Audit Frequency

- Hand hygiene: Monthly observations, quarterly in-depth audits
- Environmental cleaning: Monthly audits
- Biomedical waste: Weekly spot checks
- PPE compliance: Monthly observations
- Device care bundles: Continuous monitoring
- Antimicrobial prescribing: Quarterly point prevalence surveys
- Overall IPC practices: Comprehensive annual audit

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17.5 Feedback Mechanisms

- Immediate verbal feedback during observations
- Monthly departmental reports with data and trends
- Display of unit-specific data on dashboards
- Individual feedback for significant non-compliance
- Recognition and rewards for high-performing units
- Discussion at HICC meetings
- Incorporation into performance evaluations

17.6 Quality Improvement Initiatives

- Root cause analysis for serious events
- Plan-Do-Study-Act (PDSA) cycles for improvement
- Implementation of care bundles
- Multidisciplinary quality improvement teams
- Benchmarking against best practices
- Sharing of successful interventions

17.7 Benchmarking

- Internal benchmarking: Comparison between departments/units
- External benchmarking: Comparison with similar hospitals
- National benchmarking: Participation in national surveillance networks
- International benchmarking: Comparison with published standards
- Use of benchmarking data for goal setting

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18. RESPONSIBILITIES

18.1 Hospital Management and Administration

- Demonstrate leadership commitment to infection prevention and control
- Allocate adequate resources (human, financial, infrastructural)
- Support infection control committee and team

- Ensure IPC is integrated into organizational priorities
- Review IPC reports and approve action plans
- Hold departments accountable for IPC performance
- Facilitate a culture of safety and quality

18.2 Hospital Infection Control Committee (HICC)

- Develop and regularly update IPC policies and guidelines
- Oversee implementation of IPC program
- Review surveillance data and recommend interventions
- Investigate outbreaks and serious infections
- Approve antimicrobial policy and monitor usage
- Coordinate education and training activities
- Conduct audits and quality improvement initiatives
- Report to hospital management and regulatory authorities

18.3 Infection Control Team

- Conduct daily surveillance of healthcare-associated infections
- Perform rounds of patient care areas
- Provide consultation on IPC issues
- Investigate infection clusters and outbreaks
- Monitor compliance with IPC practices through audits
- Provide education and training to healthcare workers
- Maintain IPC databases and prepare reports
- Liaison with departments and external agencies

18.4 Department Heads

- Ensure compliance with IPC policies in their departments
- Designate infection control link nurses
- Facilitate IPC training for department staff
- Review departmental infection data and implement corrective actions
- Report IPC concerns and incidents promptly
- Support audits and quality improvement initiatives

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- Allocate departmental resources for IPC activities

18.5 All Healthcare Workers (Doctors, Nurses, Paramedical Staff)

- Comply with all IPC policies and procedures
- Practice hand hygiene at appropriate moments
- Use personal protective equipment appropriately
- Implement standard and transmission-based precautions
- Segregate biomedical waste correctly
- Report healthcare-associated infections and exposures promptly
- Participate in IPC training and education
- Maintain immunization requirements
- Serve as role models for IPC practices

18.6 Housekeeping and Support Staff

- Perform environmental cleaning as per protocols
- Use appropriate disinfectants and cleaning methods
- Follow color-coding system for cleaning equipment
- Collect and transport biomedical waste safely
- Use personal protective equipment during work
- Report maintenance issues affecting cleanliness
- Participate in IPC training

18.7 Laboratory Services

- Provide timely and accurate microbiological reports
- Alert infection control team about resistant or unusual organisms
- Maintain quality assurance in laboratory processes
- Prepare institutional antibiogram annually
- Participate in outbreak investigations
- Follow biosafety guidelines

18.8 Pharmacy

- Support antimicrobial stewardship program

- Monitor antimicrobial consumption
- Ensure availability of appropriate antimicrobials
- Provide consultation on antimicrobial selection and dosing
- Implement restrictions on specified antimicrobials
- Participate in antimicrobial audits

18.9 Maintenance and Engineering

- Maintain ventilation and water systems
- Ensure proper functioning of sterilization equipment
- Respond promptly to maintenance requests affecting IPC
- Support environmental assessments and remediation
- Participate in facility design and renovation planning

18.10 Patients and Visitors

- Practice hand hygiene when entering and leaving hospital
- Follow respiratory hygiene and cough etiquette
- Comply with visitor restrictions in isolation areas
- Report symptoms of infection to healthcare workers
- Follow discharge instructions regarding infection precautions
- Participate in infection prevention education

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19. POLICY REVIEW AND UPDATES

19.1 Review Schedule

This policy shall be reviewed:

- Annually or earlier if required
- After major outbreaks or significant incidents
- When national guidelines are updated
- When new evidence emerges requiring practice changes
- As part of accreditation preparation

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19.2 Approval Process

- Review by Hospital Infection Control Committee
- Approval by Medical Superintendent
- Dissemination to all departments
- Training on significant changes
- Documentation of version control

19.3 Version History

Version	Date	Changes Made	Approved By
1.0	27-Feb-2026	Initial document	Medical Superintendent

Table 9: Document version history

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20. CONCLUSION

This Hospital Infection Control Policy and Guidelines document provides a comprehensive framework for preventing and controlling infections at Government Medical College Handwara. Successful implementation requires commitment from all levels of the organization - from hospital leadership to frontline healthcare workers, support staff, patients, and visitors.

Infection prevention and control is not merely a set of rules to follow, but a fundamental aspect of quality healthcare delivery and patient safety. Every member of the hospital community has a role to play in protecting patients, healthcare workers, and the broader community from healthcare-associated infections.

The policies and procedures outlined in this document are based on current scientific evidence and national guidelines. However, infection prevention and control is a dynamic field, and this document will be updated as new evidence emerges and national guidelines evolve.

Through consistent application of these guidelines, ongoing surveillance and monitoring, continuous education and training, and a culture that prioritizes safety and quality, GMC Handwara is committed to achieving the goal of zero preventable healthcare-associated infections.

Together, we can make healthcare safer for everyone.

REFERENCES

[1] National Center for Disease Control, Ministry of Health and Family Welfare, Government of India. (2020). *National Guidelines for Infection Prevention and Control in Healthcare Facilities*. https://ncdc.gov.in/showfile.php?lid=431

[2] National Accreditation Board for Hospitals & Healthcare Providers (NABH). (2025). *Hospital Accreditation Standards, 6th Edition*. New Delhi: NABH.

[3] Indian Council of Medical Research. (2017). *Hospital Infection Control Guidelines*. New Delhi: ICMR. https://iamrsn.icmr.org.in/images/pdf/Hospital-Infection-control-guidelines.pdf

[4] Ministry of Environment, Forest and Climate Change, Government of India. (2016). *Bio-Medical Waste Management Rules, 2016*. The Gazette of India.

[5] Ministry of Health and Family Welfare, Government of India. (2017). *National Action Plan on Antimicrobial Resistance (NAP-AMR) 2017-2021*. New Delhi: MoHFW.

[6] World Health Organization. (2009). *WHO Guidelines on Hand Hygiene in Health Care: First Global Patient Safety Challenge Clean Care is Safer Care*. Geneva: WHO Press.

[7] National Health Systems Resource Centre, Ministry of Health and Family Welfare. (2019). *Guidelines for Central Sterile Supply Department (CSSD) and Mechanised Laundry*. New Delhi: NHSRC. https://nhsrcindia.org/sites/default/files/Guidelines-on-CSSD-and-Mechanised-Laundry.pdf

[8] Indian Council of Medical Research. (2012). *Policy Document on Antimicrobial Stewardship Practices in India. Indian Journal of Medical Research*, 136(5), 758-763.

APPENDICES

Appendix A: Forms and Checklists

- Hand Hygiene Observation Form
- Environmental Cleaning Checklist
- Central Line Insertion Bundle Checklist

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- Urinary Catheter Insertion Bundle Checklist
- Ventilator Care Bundle Checklist
- HAI Surveillance Form
- Outbreak Investigation Line List
- Occupational Exposure Report Form
- Antimicrobial Audit Form
- PPE Audit Checklist

Appendix B: Standard Operating Procedures

- Hand Hygiene Technique
- PPE Donning and Doffing Procedure
- Autoclave Operation and Monitoring
- High-Level Disinfection Procedure
- Blood/Body Fluid Spill Management
- Biomedical Waste Segregation and Disposal
- Post-Exposure Prophylaxis Protocol
- Outbreak Investigation Protocol
- Antibiotic Restriction and Approval Process

Appendix C: Contact Information

Hospital Infection Control Committee Members:

- Medical Superintendent (Chairperson): [Contact Details]
- Infection Control Officer: [Contact Details]
- Microbiologist: [Contact Details]
- Nursing Superintendent: [Contact Details]
- Hospital Administrator: [Contact Details]

Emergency Contacts:

- Infection Control Team: [24/7 Contact Number]
- Occupational Health Services: [Contact Number]
- Biomedical Waste Management: [Contact Number]

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Appendix D: Quick Reference Guides

- WHO 5 Moments for Hand Hygiene (Poster)
- Standard and Transmission-Based Precautions (Quick Guide)
- Biomedical Waste Color Coding (Visual Aid)
- Antimicrobial Guidelines for Common Infections
- Personal Protective Equipment Selection Guide

END OF DOCUMENT

Document Approval:

Prepared by:
Hospital Infection Control Committee
Date: 01/02/26

Reviewed by:
HOD Microbiology
Date: 27/02/26

Approved by: Principal GMC Handwara
Signature: _____
Date: 27 February 2026