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**Department of Medical Education
Government of Kerala**

May 2026

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Department of Health and Family Welfare
Government of Kerala
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**Govt. Medical College
Kollam**



**Pandemic Management Plan
2026**

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Message



Kerala Health has consistently recognised that pandemic preparedness is no longer a standalone activity limited to the health sector, but an essential component of public safety, governance resilience, and sustainable development. The experiences of NIPAH outbreaks, COVID-19 pandemic, emerging zoonotic threats, climate-sensitive diseases, and increasing global interconnectedness have clearly demonstrated that future public health emergencies require continuous preparedness, rapid response systems, and strong institutional coordination. In this context, the preparation of comprehensive Pandemic Preparedness Plans by the Department of Health and Family Welfare marks an important landmark towards strengthening Kerala's health security framework.

Today, pandemic management plans must be viewed through the broader lens of the One Health approach, which recognises the interconnectedness of human health, animal health, environmental systems, and ecological balance. Emerging infections are increasingly influenced by environmental degradation, climate variability, urbanisation, migration, and changing human-animal interactions. Therefore, effective preparedness requires coordinated action not only from the Health and Family Welfare Department, but also from departments including Animal Husbandry, Forests, Local Self Government, Disaster Management, Revenue, Education, Transport, Police, Water Resources, and Civil Supplies. Such interdepartmental convergence is critical for surveillance, risk communication, outbreak containment, logistics management, and continuity of essential services during emergencies.

Kerala has always demonstrated exemplary leadership in responding to public health challenges through timely action, scientific decision-making, community participation, and decentralised governance. The integration of pandemic management with disaster management systems further strengthens our capacity to respond to multiple emergencies simultaneously, including outbreaks occurring during floods, heat waves, or other natural disasters. The development of structured protocols, surveillance mechanisms, escalation frameworks, surge planning systems, infection prevention strategies, and institutional coordination models reflects the state's commitment to building a resilient and future-ready health system.

I am informed that Keralam is the only state where the pandemic preparedness plans have been prepared to such a depth right from the Panchayath level to District

and at institutional level upto Medical Colleges. I place on record my sincere appreciation to all those who worked on this endeavour. The dedication, technical expertise, and coordinated efforts demonstrated by the state and district teams are truly commendable. I am confident that these plans will further strengthen Kerala's capacity to effectively prevent, detect, and respond to future public health emergencies while ensuring the safety and wellbeing of our people.

Shri. K Muraleedharan

Minister for Health and Family Welfare and Devasom,
Government of Kerala



Foreword

Kerala Health has been taking efforts to strengthen the Medical Education. Out of various initiatives such as documentation on Medical College developments giving all the details, preparation of Fact Sheets of DME and MCH giving information regarding the outputs and outcomes, Standard treatment protocol, standardization of the units in the Medical Colleges, one more initiative was taken regarding preparedness for health emergencies such as communicable diseases which could transform into an epidemic/ pandemic. COVID has taught us many lessons. But the moot question is, “What learnings have we taken away from the Pandemic, and its aftermath?” Have we understood those learnings and worked on developing the systems for future scenarios?

And now, I say with immense pride that through Kerala Health, every Medical College has excellent pandemic management plans in place.

This preparation of pandemic management plans started with the thought of “What new systems do we need to develop across the State?” The Director of Medical Education and senior Doctors from Community Medicine and other Departments took up the challenge of preparation of plans. An elaborate process was followed by conducting state level meetings. Dr Aravind was asked to prepare a template for the Medical Colleges Plans. That template was validated in the state meeting and shared to all the Government Medical Colleges in the State. After that step, a workshop was conducted at Ernakulam Medical College involving all the teams from Medical Colleges as well as from Apex Cancer Centres. Post this workshop, all the institutions took a series of meetings at their level and completed this commendable work.

It is noteworthy to mention here that after Alappuzha, Thrissur also prepared a comprehensive Pandemic management Plan and Festival management Plan. Unfortunately, during this year's Thrissur Pooram preparations, there was a massive fire accident, but the Thrissur MCH team put the Management Protocol in practice and in a short span of time within 8 minutes, they took care of the fire disaster victims and provided exemplary services. While they were handling the incident, thanks to timely preparation and awareness, they were handling hundreds of emergencies not relating to the disaster during that period. This has clearly demonstrated to all that well-prepared planning and capacity building is the key to mitigating problems.

The Kerala Health program has to keep up with changing times, and so, along with the aforementioned initiatives, we discussed with the Digital University of Kerala

(DuK) to develop Kerala Pandemic Management System. This system envisages end-to-end solution for pandemic management. This will make things easy for the functionaries in the health institutions as well as the field functionaries to update the information. Once the pandemic management plans and Festival management plans are done, the teams will begin developing plans for calamities, other disasters and major accidents.

We are also planning mock drills so as to build the capacities of various teams. This way all the Medical Colleges teams will be well trained to manage any eventuality.

I am confident that all Medical Colleges shall institutionalize updating of plans on a yearly basis, skill building, analysis of any emergency handled and based on the analysis do modifications in the plans. This way it will be a dynamic plan of the Medical College.

For any Health System it is very important to have a system to handle any health emergency, and it is with sense of pride one can say that with the coordinated team work, this huge work was done in exemplary way. It also demonstrates that with shared vision and having 'thinking teams' at state, institution and field level can work on many challenges and deliver results. Therefore, these officers who worked on this project hands-on are mentioned right on the cover page! It is a big achievement for the Kerala Health to lay the foundation of Pandemic Management upon which further developments can be easily done.

I wholeheartedly appreciate the work done by one and all for preparing Pandemic Management Plans.

I am confident that all our Medical Colleges will become centre of excellence and earn recognition for their works. I wish all the success for the future endeavours.

Dr Rajan Khobragade IAS

Additional Chief Secretary
Health & Family Welfare and
AYUSH Department
Govt of Kerala.



Message

The health system of Kerala is defined by a mindset of proactive vigilance, a compassionate attitude toward the most vulnerable, and a historic legacy of resilience in the face of public health crises. Our motto for preparedness is simple: to be prepared and proactive is to safeguard the stability and prosperity of our people. This Pandemic Preparedness Plan is not just a technical manual; it is a shared commitment fuelled by the lessons learned from our past encounters with Nipah and COVID-19. These experiences have taught us that rapid mobilization and early detection are our most effective tools in preventing a public health emergency of international concern.

We have designed this strategy to be agile, moving from routine care to emergency surge levels based on real-time data such as ICU occupancy, staff availability, and disease epidemiology. By utilizing advanced diagnostic tools and regional surveillance cells, we aim to identify threats early, ensuring that life-saving interventions begin the moment a patient reaches our doors. Central to this plan is the safety of our workforce; we are committed to providing the training, equipment, and psychological support necessary to prevent burnout and ensure no healthcare worker faces these challenges alone.

Even in the height of a pandemic, our mission to provide essential care for mothers, children, and emergency cases will not waver. Through seamless coordination with district authorities and the private sector, we are building a networked response that maximizes resources for the benefit of every citizen. I am deeply grateful to the faculty and staff whose expertise shaped this document, and I am confident that by following these protocols, we will continue to lead with competence and compassion.

Dr. K. V. Viswanathan

Director of Medical Education
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1. Introduction & Contextual Analysis

1.1 Background & Purpose

Pandemics pose a significant threat to public health, healthcare systems, and medical education. Government Medical College, Kollam (GMC Kollam), as a tertiary care teaching hospital and academic institution, has a critical role in prevention, preparedness, response, and recovery during pandemics. In this era of emerging and re-emerging infections, pandemic preparedness is very essential, not only as a treatment facility, but also as a training, coordination and surveillance hub during pandemics.

The purpose of this Pandemic Preparedness Plan is to: Ensure early detection and effective response to pandemics, Protect patients, healthcare workers, students, and staff, Maintain essential healthcare and academic services, Coordinate with district, state, and national health authorities.

1.2 Institutional Geography

Government Medical College Kollam is located in **Kollam**, providing tertiary care services to Kollam district and adjoining regions. Its geographical positioning enhances accessibility during public health emergencies and facilitates rapid patient transport.

City Center:

The institution is situated approximately **22-24 km** from the central areas of Kollam, ensuring high patient inflow and urban accessibility.

Railway Connectivity:

Located about **22-24 km** from **Kollam Junction Railway Station**, one of the major railway stations in Kerala, enabling inter-district and interstate patient movement.

Air Connectivity:

Approximately **40-45 km** from **Trivandrum International Airport**, facilitating national and international connectivity, which is critical during pandemics involving imported infections.

Road Accessibility:

The hospital is well connected via major state highways and roads, allowing:

- Rapid ambulance movement
- Efficient referral transport from peripheral health facilities

1.3 District-Specific Risk Profile

Kollam District presents unique epidemiological risks:

Environmental Risks:

- Seasonal flooding and waterlogging → Increased risk of
 - Leptospirosis
 - Dengue

Population Risks:

- Migrant labor influx → Increased susceptibility to:
 - Malaria
 - Respiratory infections including influenza-like illnesses

Health System Risks:

- Overcrowding in tertiary care settings
- Potential for nosocomial outbreaks

1.4 Scope & Objectives

Scope:

- Covers preparedness, response, recovery, and mitigation phases
- Applies to all departments, including clinical, diagnostic, academic and administrative units

Objectives:

- To establish a structured pandemic response system
- To develop trained human resource in the district for action at community level for early detection and prevention of transmission

- To detect early warning signs and predict outbreaks
- To give technical support to district team in preparedness and outbreak control
- Research work as part of preparedness and action
- To strengthen infection prevention and control (IPC)
- To ensure uninterrupted essential healthcare services
- To ensure timely triage and appropriate care
- To protect healthcare workers and students
- To ensure effective communication and coordination
- To facilitate efficient use of limited resources
- To facilitate rapid recovery and post-pandemic evaluation

2. Governance & Command Structure

2.1 Pandemic Preparedness & Response Committee (PPRC)

Chairperson: Principal

Vice Chairperson: Medical Superintendent

Responsibilities:

- Strategic decision-making
- Activation of emergency response protocols
- Liaison with state and district authorities
- Resource allocation and crisis communication

2.2 Multidisciplinary Team

A coordinated multidisciplinary team will function under PPRC:

Clinical Departments:

- General Medicine: Case management & triage
- Pulmonary Medicine: Respiratory care & ICU support
- Paediatrics: Child-specific protocols

Diagnostic & Support Services:

- Microbiology: Laboratory confirmation, surveillance
- HICC (Hospital Infection Control Committee): Infection prevention protocols
- Nursing Superintendent: Workforce deployment & training
- Biomedical Engineering: Equipment maintenance (ventilators, oxygen supply)

Special Units:

- Oxygen War Room: Monitoring supply and demand
- Pharmacy: Drug stock management
- Public Relations Officer (PRO): Risk communication

2.3 Outbreak Monitoring Unit (OMU)

A dedicated **Outbreak Monitoring Unit (OMU)** will be established.

Functions:

- Real-time surveillance of infectious diseases
- Identification of **emerging and re-emerging infections**
- Syndromic surveillance and case clustering
- Coordination with IDSP (Integrated Disease Surveillance Programme)

Diagnostic Capacity:

- Multiplex PCR platforms for rapid pathogen detection
- Daily data reporting and trend analysis

Triage System:

- Separate fever clinic and screening zones
- Color-coded triage for severity classification

2.4 Institutional Medical Board

Composition:

- Principal, Medical Superintendent, Heads of Departments from Medicine, Paediatrics, Pulmonology, Microbiology, Community Medicine, Anaesthesiology / Critical Care, Radiology, Nursing Superintendent and Administrative Officer.

Functions:

- Standardization of **clinical treatment protocols**
- Decision-making on:
 - ICU admission criteria
 - Use of antivirals, antibiotics, and supportive therapy
- Discharge policies and follow-up guidelines
- Mortality audits and clinical review

3. Situational Analysis and Resource Mapping

3.1 Infrastructure Audit:

- Comparison of existing vs. required IP/OP blocks, negative pressure rooms, and dedicated infectious disease blocks.

Domain	Existing Infrastructure (What We Have)	Identified Gaps	Action Required
Hospital Buildings	Separate OP & IP blocks	No fully earmarked pandemic block	Earmark Ward 3 & 4 exclusively during pandemics
Inpatient Beds	549 total beds (9 wards functional + pay wards (21 rooms))	Limited surge isolation beds	Convert Ward 4 into full isolation ward
Oxygen Beds	314 oxygen beds	Oxygen surge planning not mapped	Oxygen mapping & cylinder augmentation
ICUs	7 ICUs (5 functional), 40 beds	Limited functional ICU beds during surge	Operationalize all ICUs + surge ICU
Ventilators	38 available, 21 functional	Non-functional ventilators	Repair & AMC activation
Fever ICU	6-bed Fever ICU	Limited capacity for severe cases	Expand using HDU/ICU beds
Operation Theatres	2 functional OTs	No negative-pressure OT	Temporary conversion of EOT near Casualty
Patient Monitors	25 monitors (19 functional)	Missing ECG leads, SpO ₂ probes	Procure accessories to

			make all monitors functional
HFNC	9 units available	Not currently in use	Training & commissioning
PPE & N95	Previously trained staff	PPE & N95 out of stock	Emergency procurement & buffer stock
Ambulances	2 ambulances	Limited during surge	Networking with district ambulance services

3.2 Human Resource Pool

Sl No	Category	Sanctioned	Present	Gaps	Mobilization Strategy
1	Faculty (Clinical)	Professor :11 Associate professor:37 Assistant professor:88	10 34 71	1 3 17	Call back from leave; redeploy from non-critical depts.
2	Residents (SR/ Academic JR/ NAJR)	SR: 38 NAJR:38 ACADEMIC JR:38	48 32 37		Recruit additional temporary doctors through HDS/schemes.

3	Nursing Staff (Permanent)	Nursing Superintendent Grade 1 :1 Superintendent Grade 2: 3 Head Nurse :12 Staff Nurse Gr:2 :120	1 2 12 117	0 1 0 3	Shift-based duty (6-8 hr shifts); cancel all leave.
4	Nursing Staff (Contract)	Contract staff : 28			Recruitment of emergency temporary nursing staff.
5	ICU/Transplant Trained Nurses	Limited			Prioritize for Level 3 (Crisis) ICU surge.
6	Nursing Assistants	20	20	0	Deploy for high-touch surface cleaning and food delivery.
7	Hospital Attendants (Gr 1 & 2)	20	19 1		Training on 1% hypochlorite use and trolley disinfection.
8	Kudumbasree / Cleaning Staff				Focus on waste management and

					environmental cleaning.
9	Ancillary (Lab, Rad, Pharm)	21	21	0	Maintain a standby duty roster for 24/7 coverage.
10	Security & Transport Staff	5	4	1	Lead "Red Channel" movement and patient data entry.
11	Volunteer / Reserve Pool				Identify retired HCWs and those in non-clinical roles.

3.3 Equipment & Logistics:

- Inventory for ventilators, HFNCs, oxygen beds, LMO capacity (KL), and PPE buffer stocks.

Category	Current Status (Available)	Gaps Identified	Action Required
Ventilators	38 total	Only 21 functional	Repair & AMC activation for non-functional ventilators
ICU Beds	40 beds (5 ICUs functional)	Limited surge ICU capacity	Operationalize all ICUs and create surge ICU

Patient Monitors	25 available	Only 19 functional due to missing ECG leads & SpO ₂ probes	Procure accessories to make all monitors functional
Infusion Pumps	19 available	Insufficient during surge	Additional procurement / redistribution
Syringe Pumps	19 available	Limited for ICU surge	Procure additional units
HFNC Units	9 available	Not commissioned / not in use	Training & activation
NIV Units	20 disposable NIV	Limited for prolonged surge	Buffer stock planning
Oxygen Supply	3 KL Liquid oxygen plant + oxygen manifold +pressure swing adsorption plant+ ward oxygen beds	Oxygen surge mapping inadequate	Oxygen mapping, cylinder augmentation
Portable X-ray	1 functional unit	Limited coverage during surge	Plan shared use / additional unit
ECG Machines	2 available	Limited for pandemic wards	Redistribution or additional procurement
Pulse Oximeters	3 finger oximeters	Inadequate for screening & wards	Procure additional oximeters

Ambu Bags	Available	Insufficient for surge	Procure additional units
Ambulances	2 ambulances	Insufficient for surge referrals	Networking with district ambulance services
PPE Kits	Nil in stock	Critical shortage	Emergency procurement & buffer stock
N95 Masks	Nil in stock	Critical shortage	Immediate procurement
Biomedical Waste Mgmt	BMW officer & system in place	Increased load during pandemic	Additional BMW bags, transport & contracts

4. Graduated Response Framework (Three-Tier Model)

4.1 Escalation Triggers:

Defined based on:

- Epidemiological trends (ILI/SARI surveillance, IHIP data)
- Increase in suspected/confirmed cases
- ICU occupancy and bed availability
- Oxygen demand and ventilator utilization
- Staff absenteeism and workforce exhaustion
- OP load and hospital surge indicators

4.2 Tier 1 – Conventional (Best Case):

Standard facility standards, minor staff adjustments, and full maintenance of elective services.

Operational Goal: Maintain standard of care without dilution of expertise while maximizing routine elective services.

Trigger Points	Institutional Action Points
Cases: No confirmed local cases OR sporadic imported cases without local transmission.	Surveillance: Activate ILI/SARI screening at entry points and mandatory IHIP reporting.
Admission: Baseline hospital and ICU admission levels $\leq$ 70%	Infrastructure: Identify "Red Channel" entry points and start planning for expansion of oxygen beds and ICUs by 20% . Ward 3 and Ward 4 can be made functional for pandemic crisis

	Ward 3 – OP, Swab taking and observation Ward 4 – dedicated isolation ward 6 bedded Fever ICU will be utilized for critical management Route maps and signages EOT adjacent to Casualty can be converted to Negative-pressure OT in crisis.
Staffing: Absenteeism <10%.	Training and Human Resource Development During the pandemic times, ICU requires 1 MO, 1 JR, 1 HS, 1 SNO, 1 staff nurse / 3 patients with 4 shifts per day. In wards, 1 MO, 1 JR, 1 HS, 1 SNO, 2 staff nurse for 40 patients in 3 shifts per day. Severe staff shortage at present, so we need to recruit additional temporary nursing staffs and doctors to manage the crisis wither through HDS or schemes. Reinforcements training of doctors, nurses, paramedical, housekeeping on IPC, PPE donning & doffing will be conducted. Mock drills and simulation exercises will be planned
Logistics: PPE and drug supply days >30.	Logistics: Maintain buffer stock and monitor usage. Assess and enhance centralized/decentralized Liquid Medical Oxygen (LMO) to full reserve capacity.

4.3 Tier 2 – Contingency (Moderate Case):

Containment Activation of surge annexes, prioritizing/pausing electives, and adaptive staffing.

Operational Goal: Adapt space, staff, and supplies to maintain care functionally equivalent to standard care.

Trigger Points	Institutional Action Points
Cases: Confirmed local transmission and rising suspected cases in OP/IP departments.	Hospital Reorganization: Dedicated Pandemic OPD in WARD 3 Isolation wards at Ward 4 HDU's can be made operation in Wards 13 and 14 9 bedded ICU will be made operational to equip the patients in phase II. Barricaded triage entry
ICU Occupancy: 70–90%.	Clinical Operations: Regulate non-pandemic care and pause/reduce non-urgent elective surgeries. Redistribution of non-pandemic inpatients to taluk/private hospitals
District Load: Hospital admissions due to the pandemic reaching 10% of total district admissions. Staffing: Absenteeism 10-20%	HR Strategy: Implement shift-based duties (6–8 hours) and deploy float pools or tiered staffing models.

Logistics: PPE supply days 7-29; ventilator/O2 constraints beginning.	Logistics: Fill 100% of oxygen reserve capacity and look for potential sources of capacity enhancement.
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4.4 Tier 3 – Crisis (Worst Case):

Activation of Crisis Standards of Care (CSC), extreme resource scarcity, and use of non-traditional spaces.

Operational Goal: Maximize population benefit under extreme resource scarcity; activation of Crisis Standards of Care (CSC).

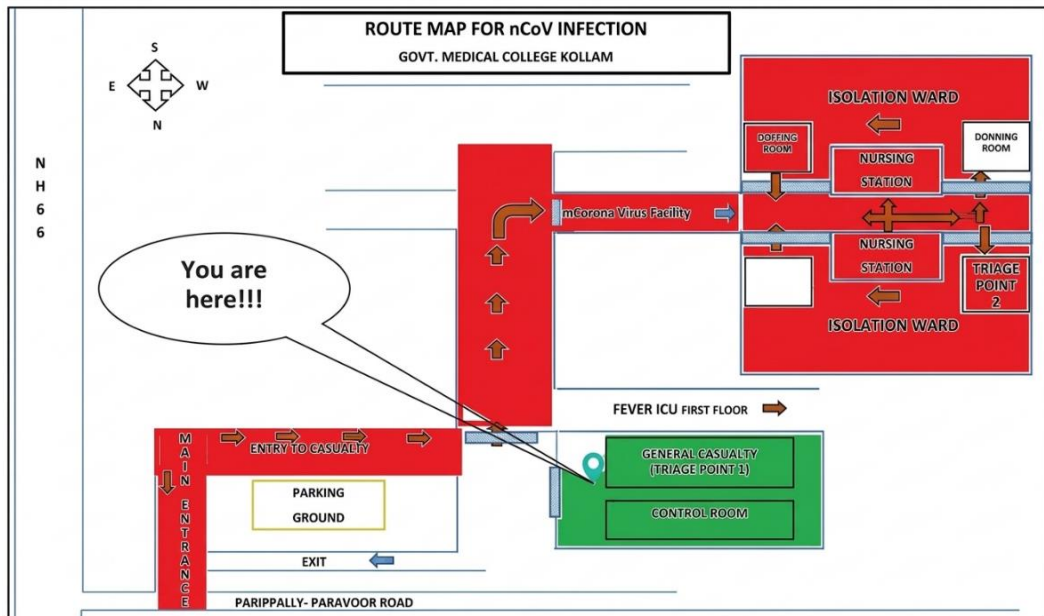
Trigger Points	Institutional Action Points
Cases: Surge in confirmed admissions; OP load crosses the threshold level.	OP/IP Reorganization: Stop general OP services; convert waiting or non-patient areas into makeshift wards. Classification of patients: Not suspect, Suspect stable, suspect unstable, Confirmed mild / moderate / severe Dedicated suspect and confirmed wards Surge bed capacity planning
ICU Occupancy: >90% (System Overwhelmed).	Critical Care: Activate earmarked pandemic beds in private institutions for government-referred patients. Separate ICUs for: Suspect unstable, Confirmed unstable and Step-down care Ethical triage principles

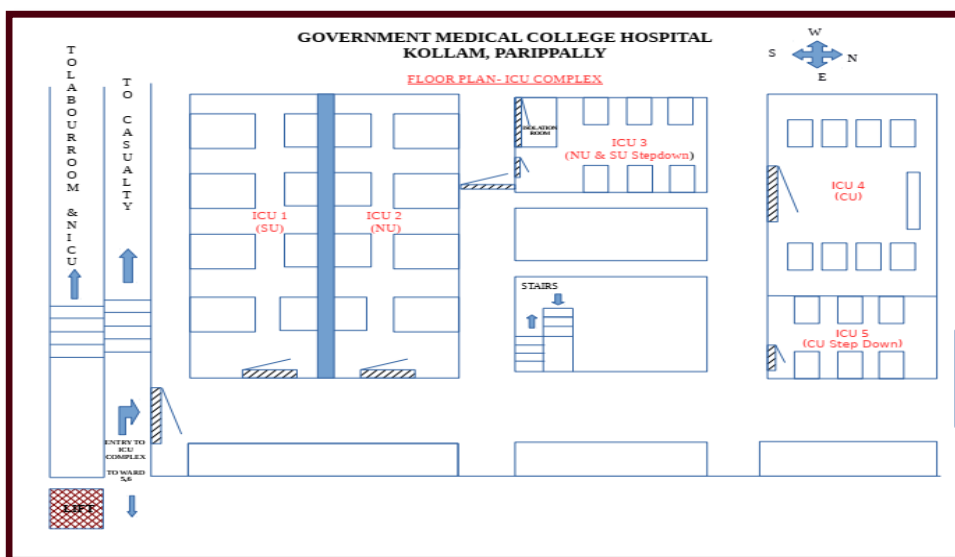
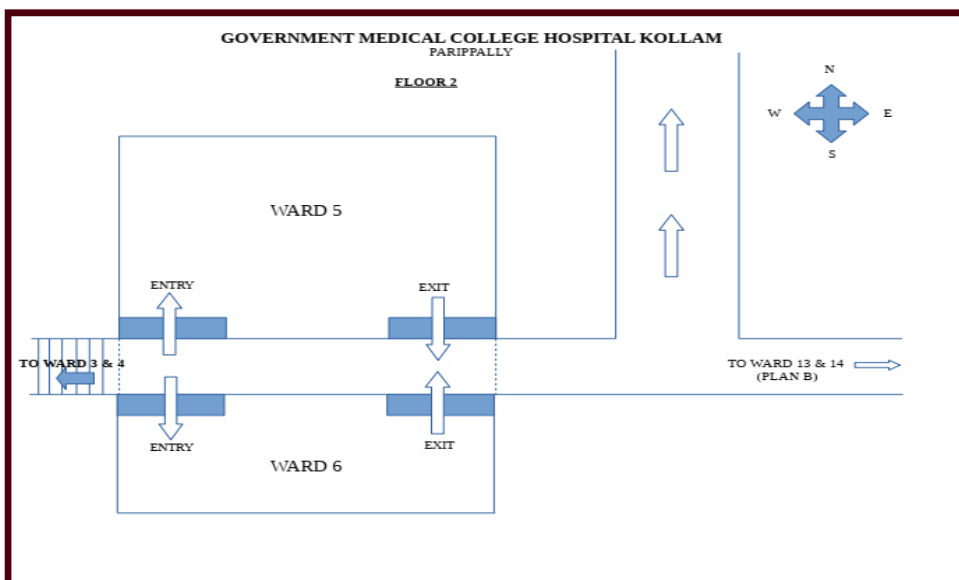
	Palliative care support Critical Care Block of our institution is currently under construction, which can be utilized if needed.
District Load: Pandemic admissions reaching 25% of total hospital admissions in the district.	Services: Switch to emergency non-pandemic care only; discharge all stable/recovering patients. Trauma, dialysis, antenatal, neonatal services continued Dedicated OT and labour room Transit ICU in casualty
Staffing: Absenteeism >20%.	HR Strategy: Large-scale recruitment of temporary staff; redeployment of non-clinical/academic staff to clinical work.
Logistics: PPE supply <7 days; spare ventilator capacity <10%.	Networking: Full district ICU pooling and activation of field hospitals/CSLTCs.

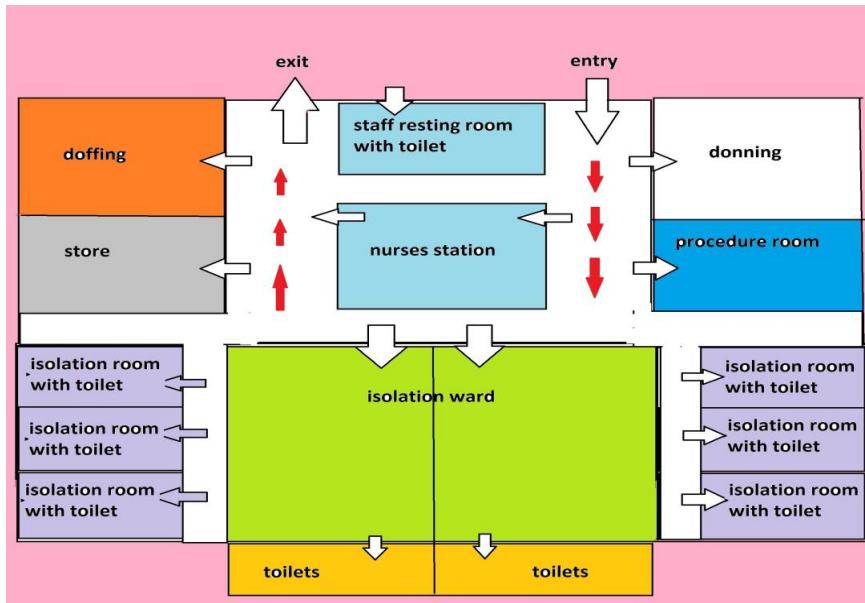
5. Operational Standard Operating Procedures (SOPs)

5.1 Triage & Red Channel Protocol

- Establish screening area at entry point with trained personnel
- Implement dual-stream triage system:
 - Green zone → non-infectious patients
 - Red zone → suspected/confirmed infectious patients







- Screen for: Symptoms (fever, cough, breathlessness)
- Travel and contact history
- Ensure clear signage and physical barriers between zones
- Maintain minimum 1-2meter distance between patients
- Provide separate waiting areas and isolation spaces
- Designate dedicated transport routes, corridors, and elevators
- Separate entry/exit points
- Use dedicated trolleys/wheelchairs for infected patients
- Disinfect transport equipment with 1% sodium hypochlorite after each use
- Restrict patient movement; ensure masked transport
- Maintain triage registers and surveillance records
- Ensure healthcare workers follow: Hand hygiene (WHO 5 moments) and appropriate PPE use.

5.2 Patient Care Equipment

- Categorize equipment:
 - Critical → Sterilization (autoclaving)
 - Semi-critical → High-level disinfection
 - Non-critical → Cleaning + low-level disinfection
- Use dedicated equipment for infectious patients whenever possible
- Reusable equipment: Must be cleaned → disinfected → sterilized before reuse
- Follow standard reprocessing protocols (CSSD guidelines)
 - Heat-stable items → autoclaving
 - Heat-sensitive items → chemical disinfection (e.g., glutaraldehyde)
- Equipment contaminated with blood/body fluids: Decontaminate before handling
- Stethoscopes, BP cuffs, monitors: Clean between patients (70% alcohol)
- Ensure: Proper labelling and tracking, Avoid sharing without disinfection
- Staff involved in reprocessing: Must wear gloves, masks, gowns, eye protection
- Equipment sent for repair: Must be pre-cleaned and disinfected

5.3 Infection Prevention & Control (IPC)

- Follow standard precautions for all patients: Hand hygiene, PPE use, Respiratory hygiene
- Implement transmission-based precautions: Contact, Droplet, Airborne
- Ensure the availability of handwashing stations/ABHR.
- Proper PPE supply and usage training.
- Conducted regular training on donning & doffing.
- Infection control rounds and audits will be conducted on daily basis.

- Educate staff on: Modes of transmission, Safe injection practices and Waste management.
- Prevent sharps injury: Usage of puncture-proof containers and avoid recapping needles.
- Maintain: Spill management protocols (0.5–1% hypochlorite)
- Provide: Post-exposure prophylaxis (PEP) services
- Monitor: Staff exposure, vaccination status
- Compliance with the latest manual from GMC Kollam IPC guidelines.

5.4 Environmental & Engineering Controls

- Maintain adequate ventilation systems.
- Usage of HEPA filters (remove $\geq 99.97\%$ particles $\geq 0.3 \mu\text{m}$) is under consideration.
- Ensure negative pressure rooms for airborne infections.
- Maintain ≥ 12 Air Changes per Hour (ACH) in AIIRs.
- Maintain airflow: Clean $\rightarrow$ contaminated areas.
- Avoid recirculation of contaminated air.
- Regular maintenance of HVAC systems.
- Environmental cleaning: Use 0.5% hypochlorite routinely.
- Clean: High-touch surfaces frequently.
- Floors using wet mopping (no dry sweeping) and always use three-bucket system for cleaning.
- Ensure: Daily cleaning schedule.
- Avoid: Fogging for routine cleaning.
- Maintain: Pest control, Proper waste disposal systems.

5.5 Makeshift Isolation Enclosures

- Currently beds are arranged in cubicles can be used for isolation purposes.
- Partitioned wards present.
- Ensure: Adequate spacing between beds and good ventilation.
- Usage of Natural ventilation or exhaust fans
- Provide: Hand hygiene stations
- PPE availability will be ensured in all wards.
- Implement: Zoning (clean vs contaminated areas)
- Monitor: Infection spread within enclosure
- Used for surge capacity during outbreaks

5.6 COVID/Pandemic Operation Theatre

- Designate separate OT for infectious patients.
- Convert HVAC to: 100% fresh air (once-through system)
- Install: Independent exhaust systems
- Maintain: Proper air pressure (preferably negative pressure for COVID OT). Had planned to convert emergency OT at casualty area for negative OT.
- Limit: Number of staff inside OT
- Ensure: Full PPE for OT staff
- Follow: Strict aseptic and sterilization protocols
- Clean OT: Before, between, and after procedures
- Use: 0.5% hypochlorite / approved disinfectants
- Allow: Adequate air exchange time between cases

6. Specialized Service Guidelines

6.1 Dialysis Units

- Screen patients regularly (e.g., every 10 days) and testing of staffs will be conducted.
- Maintain: Separate areas for infected patients
- Disinfect: Dialysis machines and surfaces after each use
- Ensure: Adequate spacing between patients
- Staff: Use appropriate PPE (gloves, masks, face shields)
- Maintain: Water quality monitoring
- Schedule patients to: Avoid overcrowding and cross infection.

6.2 Management of Deceased

- Safe handling of deceased is essential to prevent infection spread.
- Standard precautions will be followed during handling.
- Plug: Nose, mouth, and other orifices to prevent fluid leakage.
- Place body in: Leak-proof bag disinfected with 1% sodium hypochlorite solution.
- Minimal handling and transport by following precautions.
- Usage of designated transport routes
- Will provide family counselling to follow Government guidelines for burial/cremation. Always ensures dignity and respect for deceased.

6.3 Maternal & Child Health

- Ensures safe delivery practices.
- Developed clear admission and transfer protocols.
- Manage: Infected mother and newborn carefully.
- Maintain infection prevention during delivery and neonatal care.

- Follow the safe Breastfeeding practices.
- Isolation/cohorting if needed depending on infection status.
- Monitoring of mother and neonate continuously.

7. Logistics & Ancillary Services

7.1 Supply Chain Management

- Ensures uninterrupted availability of essential supplies.
- Implement: Real-time inventory tracking systems.
- Maintenance of Buffer stock of PPE, N95 masks, drugs, oxygen and other consumables.
- Coordinate with: Procurement agencies like KMSCL.
- Monitor the consumption trends to avoid shortages.

7.2 Linen & Laundry

In order to prevent infection transmission through contaminated linen:

- Collect soiled linen in leak-proof bags.
- Decontaminate linen using 0.5% hypochlorite before washing.
- Maintain: Separate clean and dirty areas.
- Adequate ventilation in laundry is ensured.
- Trained to avoid shaking linen (prevents aerosol spread)
- Staff will be directed and trained to use PPE during laundry management.

7.3 Biomedical Waste Management

- Wastes are segregated at source.
- Double-layered yellow bags will be used for infectious waste.
- Label: COVID/infectious waste as “X Waste”.
- Separate records will be maintained for waste generation and disposal.
- Follows national Biomedical Waste Management Rules.
- Safe transport and disposal will be ensured.

7.4 Support Services

- Coordinate dietary services with LSGD.

- Provide: Psychological support via psychiatry department.
- Social workers will be engaged for patient and family assistance.
- Will address Mental health, nutrition, social needs.

8. Communication, Monitoring & Research

8.1 Surveillance Systems:

Surveillance activities will be carried out through integration with national platforms such as IHIP and IDSP, with mandatory reporting of ILI and SARI cases. Coordination with ICMR-approved laboratories will be ensured for timely testing and reporting. Daily data on outpatient visits, inpatient admissions, ICU occupancy, and mortality will be compiled and analysed to identify trends and detect outbreaks. Advanced tools, including AI-assisted epidemiological modelling, will be utilized to predict surges and guide preparedness planning.

8.2 Media & Risk Communication:

A designated spokesperson will be responsible for all official communication with the media and the public. Regular status reports, including updates on case numbers, bed availability, and advisories, will be disseminated. Media briefings will be conducted at designated locations and scheduled times to maintain consistency. Risk communication will focus on delivering clear and accurate information regarding preventive measures, healthcare-seeking behaviour, and safety protocols. Internal communication within the institution will be maintained through circulars, digital platforms, and regular staff briefings.

8.3 Control Room Operations:

A control room will coordinate all pandemic activities. It will manage patient referrals, maintain daily records, and prepare reports. It will also handle staff duty rosters and organize daily review meetings. The control room will respond to public queries and coordinate transport of patients and samples.

8.4 Research Collaboration:

The hospital will support research activities such as clinical trials and outcome studies. It will also work with other sectors like veterinary and environmental sciences (One Health approach). Data collected will be used for improving treatment and planning. Academic work and training will also be encouraged.

9. Recovery & De-escalation

9.1 Discharge & Back Referral:

Patients who are stable (mild or moderate cases) will be shifted to taluk or district hospitals. Proper referral and follow-up systems will be maintained. Transport will be arranged safely.

9.2 Financial Plan:

A separate emergency fund will be maintained for pandemic response. Quick procurement of PPE, medicines, and equipment will be ensured. Spending will be monitored to use resources properly.

9.3 After-Action Reviews:

After the pandemic, a review will be done to identify what worked well and what did not. Gaps will be identified and improvements will be made. Records will be maintained, and future plans will be updated based on lessons learned.

10. Index of Standard Operating Procedures (SOPS) & guidelines

10.Introduction

This chapter provides a comprehensive index and detailed description of all Standard Operating Procedures (SOPs) and institutional guidelines to be followed during pandemic preparedness and response at Government Medical College, Kollam.

The objective of these SOPs is to ensure:

- Standardization of clinical and administrative practices
- Prevention and control of infection transmission
- Safety of patients, healthcare workers, and support staff
- Optimal utilization of available resources
- Continuity of essential healthcare services

All departments and units shall strictly adhere to the protocols outlined in this chapter.

10.1 Clinical and Triage Protocols

10.1.1 Dual Stream Triage System

A dual stream triage system shall be established at all entry points of the hospital to ensure early identification and segregation of suspected infectious cases.

Procedure:

1. A dedicated triage area shall be set up at the hospital entrance with adequate barricading and signage.
2. All patients and attendants shall undergo screening including:
 - Temperature assessment
 - Symptom screening (fever, cough, breathlessness)
 - Travel and exposure history
3. Based on assessment, patients shall be categorized into:
 - Non-suspect cases

- Suspected cases (ILI/SARI)
 - Confirmed cases
4. Separate pathways shall be designated for each category to prevent cross-infection.
 5. A triage register shall be maintained for documentation and surveillance.

10.1.2 Red Channel Protocol

A dedicated “Red Channel” protocol shall be implemented for the safe movement of suspected and confirmed patients within the hospital premises.

Procedure:

1. Predefined routes including corridors and lifts shall be earmarked exclusively for infectious patient transport.
2. Prior intimation shall be given to security personnel and receiving units before patient movement.
3. Public movement along the designated route shall be temporarily restricted during transfer.
4. The patient shall be transported using a dedicated stretcher or wheelchair, with appropriate PPE worn by staff.
5. Following transfer, the route and equipment shall be disinfected using 1% sodium hypochlorite solution.

10.1.3 Patient Admission and Identification

All admitted patients shall be subjected to strict identification and documentation procedures.

Procedure:

1. Detailed registration including demographic and contact details shall be completed at admission.
2. Mandatory ID banding shall be implemented for all patients.

3. Only one bystander shall be permitted, and their details shall be recorded.
4. Details of transport vehicles shall be documented for contact tracing purposes.

10.1.4 Testing Strategy

A systematic testing strategy shall be followed in accordance with State and National guidelines.

Procedure:

1. Rapid Antigen Testing (RAT) shall be used for initial screening where indicated.
2. RT-PCR testing shall be conducted for confirmatory diagnosis.
3. High-risk groups such as dialysis patients shall undergo periodic testing at intervals of 7–10 days.
4. Healthcare workers shall be screened periodically based on exposure risk.
5. Suspected cases shall be isolated until test results are available.

10.2 Infection Prevention and Control (IPC)

10.2.1 Donning and Doffing Protocol

Strict adherence to PPE donning and doffing procedures shall be ensured.

Procedure:

1. Designated donning and doffing areas shall be established in all clinical zones.
2. The sequence for donning shall include:
 - Hand hygiene
 - Gown/coverall
 - Mask (N95)
 - Eye protection
 - Gloves
3. The sequence for doffing shall be followed as per IPC guidelines with intermittent hand hygiene.

4. Regular training and refresher sessions shall be conducted for all categories of staff including housekeeping and ambulance personnel.

10.2.2 Hand Hygiene and Respiratory Etiquette

Standard precautions shall be strictly followed by all staff and patients.

Procedure:

1. Hand hygiene shall be performed as per WHO “5 Moments of Hand Hygiene.”
2. Alcohol-based hand rubs shall be made available at all points of care.
3. Mask usage shall be mandatory within hospital premises.
4. Patients and attendants shall be educated on cough etiquette.

10.2.3 Environmental Cleaning and Disinfection

Routine and terminal cleaning protocols shall be implemented.

Procedure:

1. High-touch surfaces shall be cleaned at intervals of not more than two hours.
2. A 1% sodium hypochlorite solution shall be used for surface disinfection.
3. Terminal cleaning shall be performed after discharge or transfer of patients.
4. Cleaning staff shall use appropriate PPE during all cleaning activities.

10.2.4 Patient Care Equipment Reprocessing

All reusable medical equipment shall be reprocessed as per standard protocols.

Procedure:

1. Heat-stable equipment shall be sterilized using autoclaving.
2. Heat-sensitive equipment shall be sterilized using ETO or Sterrad systems.
3. Dedicated equipment shall be used for infectious patients wherever feasible.

10.3 Engineering and Infrastructure SOPs

10.3.1 Airborne Infection Isolation Room (AIIR) Conversion

Existing rooms shall be modified to function as AIIRs wherever required.

Procedure:

1. Return air vents shall be sealed to prevent recirculation.
2. Exhaust systems shall be installed to maintain negative pressure.
3. Air Changes per Hour (ACH) shall be maintained at ≥ 12 .
4. Regular monitoring of airflow shall be conducted.

10.3.2 Operation Theatre (OT) Modification

Dedicated operation theatre facilities shall be established for pandemic use.

Procedure:

1. A separate OT shall be designated for infectious cases.
2. The ventilation system shall be modified to ensure 100% fresh air circulation.
3. Negative pressure shall be maintained wherever feasible.
4. Entry and exit protocols shall be strictly regulated.

10.3.3 Makeshift Isolation Enclosures

Temporary infrastructure shall be developed during surge situations.

Procedure:

1. Temporary cubicles or tents shall be erected using appropriate materials.
2. HEPA filtration systems shall be installed where feasible.
3. Adequate ventilation and patient privacy shall be ensured.

10.4 Logistics and Waste Management

10.4.1 Biomedical Waste Management

Biomedical waste shall be managed as per Biomedical Waste Management Rules.

Procedure:

1. Waste shall be segregated at source using color-coded bins.
2. Infectious waste shall be disposed of in double-layered yellow bags.
3. Bags shall be labeled appropriately as infectious or pandemic-related waste.
4. Timely collection and disposal shall be ensured.

10.4.2 Linen and Laundry Management

Strict protocols shall be followed for handling contaminated linen.

Procedure:

1. Linen shall be pre-treated with 0.5% hypochlorite solution.
2. Transport shall be carried out in leak-proof containers.
3. Unnecessary handling or shaking of linen shall be avoided.

10.4.3 Oxygen Supply Management (Oxygen War Room)

A centralized monitoring system shall be established for oxygen management.

Procedure:

1. Real-time monitoring of oxygen consumption shall be carried out.
2. Adequate reserve capacity shall be maintained.
3. Supply chain coordination shall be ensured for uninterrupted availability.

10.5 Specialized and Support Service Guidelines

10.5.1 Dialysis Unit SOP

Dedicated protocols shall be followed for dialysis services.

Procedure:

1. Separate machines shall be allocated for infectious patients.
2. Dedicated tubing and consumables shall be used.
3. Strict disinfection protocols shall be followed after each session.

10.5.2 Management of Deceased

Standard protocols shall be followed for safe handling of deceased bodies.

Procedure:

1. Orifices shall be plugged to prevent leakage.
2. The body shall be placed in a leak-proof body bag.
3. External surfaces shall be disinfected using 1% hypochlorite.
4. Handling shall be minimized and conducted with PPE.

10.5.3 Psychological Support Services

Psychological support shall be provided to all stakeholders.

Procedure:

1. Counseling services shall be made available for patients and families.
2. Support systems shall be established for healthcare workers.
3. Stress and burnout management programs shall be conducted.

10.5.4 Food and Dietary Services

Nutritional support shall be ensured for all admitted patients.

Procedure:

1. Coordination shall be established with Local Self Government Departments (LSGD).
2. Timely supply of meals shall be ensured.
3. Food safety and hygiene practices shall be strictly followed.

10.5.5 Maternal and Child Health SOP

Essential maternal and child health services shall be maintained during the pandemic.

Procedure:

1. Dedicated labor rooms and operation theatres shall be designated.
2. Infection prevention measures shall be strictly implemented.

3. Neonatal care services shall continue with necessary precautions.

Index of Annexures

All the major institutions shall keep the following Annexures with all details ready at their respective institution level. The SoPs shall be updated / modified as per the research and information available regarding the respective pathogens..

1. Triage and Red channel protocol
2. Patient transport protocol during pandemics
3. SOP for Patient care equipment
4. SOP Hand hygiene
5. SOP Cough etiquette
6. Personal safety measures and PPE use
7. SOP for environmental cleaning
8. Environmental and Engineering controls
9. SOP for Makeshift Isolation enclosures
10. SOP for pandemic operation theatre
11. Guidelines for Dialysis units
12. Protocol for handling of deceased
13. Guideline on dead body management in context of COVID 19
14. SOP for Safe Linen Use
15. Biomedical Waste Management [BMW] Protocols in Isolation wards:
16. Medical Board Constitution
17. SOP for transporting a Suspect/ Confirmed case
18. CPCB Guidelines – Biomedical Waste Management
19. Mapping of laboratories
20. Infection Prevention and Control Manual-GMCH

Contact Details

Name of college	Contact Points	Contact Number
GMC Trivandrum	Information counter	4712528225
	General enquiry	4712528083
	Duty PRO	8281529159
GMC Kollam	Control Room	4742575050
GMC Konni	Control Room	4682344888
GMC Alappuzha	Control Room	4772281000
	Duty PRO	8281002947
GMC Kottayam	Control Room	9188528533
GMC Idukki	Casualty	04862232444
	Control Room	4862232555
GMC Ernakulam	Control Room	04842754000 04842751001 8075774769
	Duty PRO-	9778082825
GMC Thrissur	Control Room	04872472002 8075011853
	Duty PRO-	9383400082
GMC Manjeri	Control Room	8078253515
GMC Kozhikode	Control Room	4952350349
	Duty PRO-	9497669040
	IMCH Control room	4952350395
GMC Wayanad	Duty PRO-	8129428785
GMC Kannur	Control Room	04972882200, 8078041358
	General enquiry-	4972882100
	Duty PRO-	04972882390 9048600970
GMC Kasaragod	Control Room	8289908320