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Department of Health Services

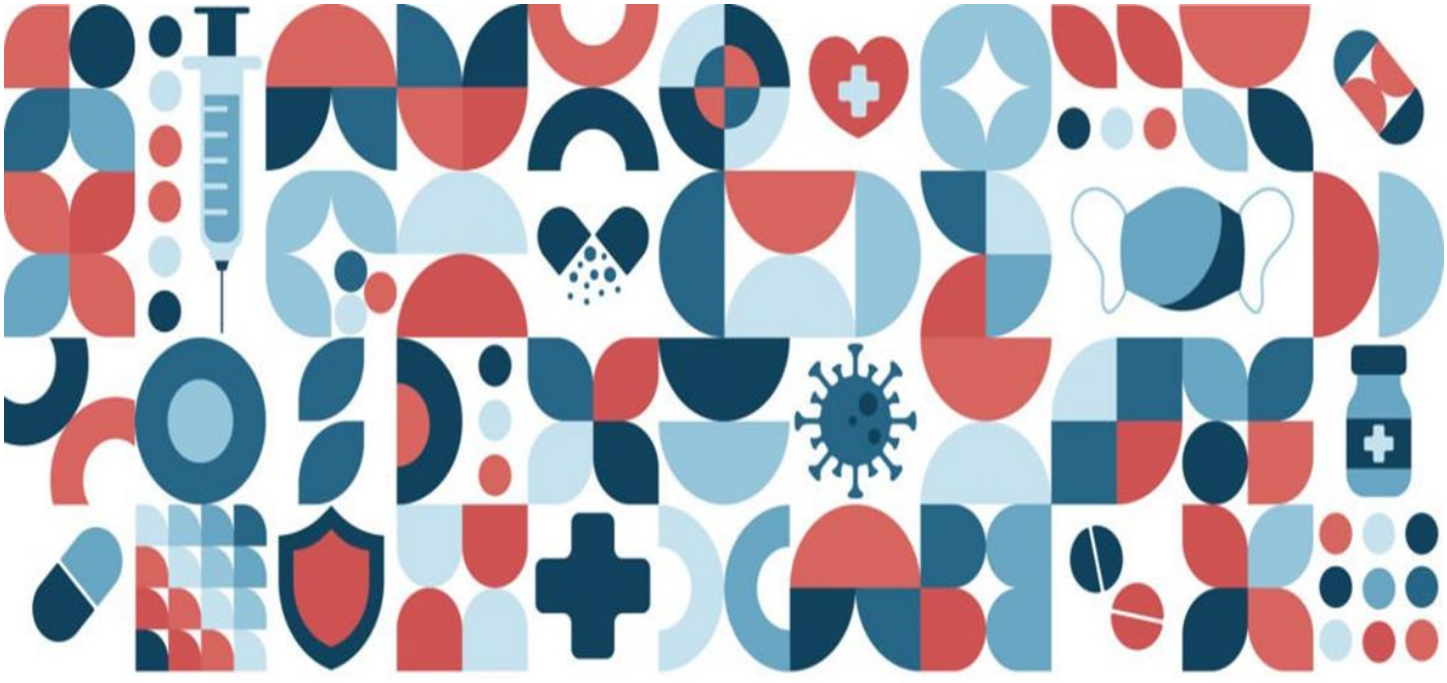
May 2026

Department of Health and Family Welfare
Government of Kerala
www.health.kerala.gov.in

KERALA.HEALTH

PANDEMIC MANAGEMENT PLAN

Ernakulam District
2026



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 up to 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 'Health System". The outbreak of diseases is common across the world. But the important thing that stands out is public awareness, their advisory-abiding behaviour, accessing hospital and getting diagnosed. That is the reason that outbreaks of Nipah or MPox are detected early and scientifically managed without any hassle.

Public health emergencies and pandemics remind us that health systems must remain prepared, responsive, and closely connected with the community. The recent experiences of the COVID-19 pandemic and various other communicable disease outbreaks especially involving newer pathogens have shown that timely preparedness, a coordinated response, and strong community participation are essential to the reduction of health risks and protection of lives. Kerala Health has managed COVID in exemplary ways with the involvement of people and all the line departments. Following the COVID pandemic, all international and national organizations have worked on preparedness and published guidelines, books, and papers. But the most important question one should ask "Have we learned our lessons?" and "In what way these learning we have put to practice managing future health emergencies?"

It is with this thought process of "WHAT IS NEXT?", a series of meetings were taken with Senior Medical Officers at the State level and district level of Directorate of Health Services. All officers of Medical Colleges and other stakeholders were also oriented to prepare the Pandemic Management Plans. Series of workshops were conducted in the districts to further follow up works done by the district teams.

The concept of 'Learning by Doing' was put to practice. NHM has deployed Epidemiologists in all Block FHCs. It was important to build their capacity to ensure day to day involvement in analysis and giving inputs for taking control and mitigation activities. Alappuzha district took the challenge and prepared a template. Dr Dileep and team took wholehearted efforts to work on this task. The prepared template was validated and sent to all concerned.

Later the district officers conducted series of capacity building meetings with all health as well as line departments functionaries. They submitted the first draft and conducted a workshop in which few plans of Panchayath, Block and major institutions in the Districts such as General Hospital, District Hospital and Medical Colleges were presented. Post discussions and getting feedback the district team fine-tuned the Plans. As Alappuzha district completed all Panchayaths and District Plans in depth, they were made into a 'Learning Site'. Another concept of capacity building was put to practice. All the key officers of the respective districts were sent to Alappuzha in two batches to understand the method with which the Pandemic Preparedness Plans should be prepared. This exposure and interactions were very useful as most of the officers realised the importance of doing such planning.

The state level resource team comprising of Dr Mahesh N, Dr Ajan M J, Dr Harikumar S, Dr Bijoy E, Dr Dileepkumar S R and others supported the district teams and all the districts

prepared the Pandemic Management Plans. Dr Vinay Goyal then SMD NHM and Mr Rahul Sharma present SMD NHM provided their leadership to facilitate plans preparations.

Simultaneously this initiative was discussed with Digital University of Kerala, and they were engaged to develop Kerala Pandemic Management System. This system envisages an end-to-end solution for pandemic management. This will make things easy for the field workers and all functionaries at the health institutions to update the information. As we go forward, it is envisaged that HOEC shall work as Hub and information flow will be from Kerala Pandemic Management System, IDSP, IHIP, SDMA and other information sources to HOEC at the time of any disaster/ health emergency.

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 eight 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.

I would like to highlight here that these plans are not only at the state and district level but up to the Panchayath level. We first oriented and coordinated work on the Panchayath Pandemic Preparedness Plans. These plans were collated to make Block Plans. At the same time District teams worked on the District Pandemic Plans be taking the details from Panchayath Plans as well as the assets available at the district. This has made our Grama Panchayat/Municipality/Corporation equipped to effectively prevent, detect, and respond to public health emergencies.

The plan serves as a framework for coordinated action involving the Health Department and other line departments, organisations, volunteers and other stakeholders at the local self-government level. The plans follow a One Health approach, recognizing the close relationship between human health, animal health, and the environment in the emergence and spread of diseases. Strengthening disease surveillance, infection prevention and control measures, environmental sanitation, risk communication, and community awareness are all important components of local preparedness.

We incorporated surge preparedness plans which can be adopted quickly during a public health emergency. Particular attention was also given to vulnerable populations including the elderly, children, persons with disabilities, individuals with chronic illnesses, and socially disadvantaged groups who may face greater risks during emergencies. Early reporting, community engagement, and coordinated interdepartmental action are critical for minimizing the impact of outbreaks and ensuring continuity of essential health services.

Kerala Health has taken this initiative for the last six months; there are hundreds of officers involved in preparing and completing such a huge task. Therefore, the design of the book is also done in a different way. It was decided that the officers who hands on worked on

this project should be mentioned prominently. As this is a unique milestone achieved by Kerala Health, the sincerely working officers' names are put on the cover itself.

These tasks would not have been possible without the support of the state resource officers' team of Dr Vinay Goyal, Mr Rahul Sharma, Dr Mahesh, Dr Ajan, Dr Dileepkumar, Dr Harikumar, Dr Ravindran, and many others. I appreciate their untiring efforts and patience for agreeing to do additional things which I pushed to them in the last minutes.

I sincerely appreciate the efforts of one and all and I am confident that Kerala Health team is having capability and will to take up any challenge and excel in their endeavours.

Dr Rajan N Khobragade IAS
Addl Chief Secretary
Health and Family Welfare Dept.
Government of Kerala

Message

When we look at public health through an operational lens, it becomes clear that managing a crisis is as much about robust architecture as it is about public health interventions. A successful response relies on the strength of our systems: seamless data flows, efficient resource deployment and reliable communication networks.

The COVID-19 pandemic was an inflection point for public health systems worldwide. It exposed vulnerabilities, tested our capacity to respond under pressure, and reinforced the irreplaceable value of preparedness. As we move forward, it is imperative that the lessons we learnt from that experience are institutionalised and embedded into the very fabric of how our districts plan, coordinate, and respond to health emergencies.

This District Pandemic Preparedness Plan represents a significant milestone in our collective journey toward building resilient and responsive public health systems across the State. It is the outcome of sustained collaboration, ground-level insight, and an unwavering commitment shared by every member of our health team. From an administrative perspective, this plan is the blueprint that translates vital epidemiological data into actionable workflows on the ground. It ensures that our infrastructure, logistics, and human resources are perfectly synchronized, enabling our medical teams to deliver care without delay.

This Plan has been designed to serve as a practical, actionable guide for our health teams. It outlines clear roles and responsibilities, establishes robust surveillance and early warning mechanisms, streamlines supply chain and logistics frameworks, and ensures that our health workforce is trained, equipped, and supported to respond to emergencies. A preparedness plan is only as strong as the systems that sustain it, and this document reflects our shared commitment to building those systems with care and rigour.

I place on record my sincere appreciation for the district health team and all other stakeholders whose knowledge and commitment have shaped this framework. Their dedication to public health service is a source of great strength for us. I also call upon them to internalise this plan, champion its implementation, and treat preparedness not as a mandate from above, but as a professional and moral obligation to the communities we serve. Together, we have the capacity and the responsibility to ensure that no community in our State is caught unprepared.

Rahul Krishna Sharma IAS

State Mission Director

National Health Mission

Message

At the heart of an effective public health response is a simple truth: - a strong healthcare system doesn't just react to a crisis—it anticipates and prepares for it. Our true readiness is measured by how quickly and empathetically we can turn complex medical strategies into organized care on the ground.

Our District Pandemic Preparedness plans serve as a clinical and tactical guide. They bridge the gap between public health data and reality, turning data into clear action plans for our frontline workers. This ensures that everyone from Family Health Centres to major hospitals operates with complete clarity and a shared purpose.

A pandemic requires a balance of science and human compassion. While we look at data, trends, and logistics to plan our resources, our ultimate focus remains on the people and families behind those numbers. Ensuring clinical readiness, securing medical supply chains, and maintaining unbroken communication networks are the pillars that allow our medical teams to respond to emergencies and save lives.

I want to express my deepest gratitude to our public health workforce; your dedication is the foundation of our resilience. In particular, I thank the DMO, DPM, district program officers, medical officers, public health staff, and every member of the health team who worked tirelessly to bring this plan to life. By embedding these strategies into our daily work, we are doing more than just preparing for a future crisis—we are actively safeguarding the health, dignity, and future of our communities.

Let us continue to lead with science, serve with empathy, and strengthen our collective resilience.

Dr Reena K J
Director of Health Services

Message

The Ernakulam District Pandemic Management Plan is a comprehensive framework designed to ensure a coordinated, agile, and effective response to infectious disease outbreaks. Ernakulam, as the industrial and commercial hub of Kerala with a high population density and international connectivity through Cochin International Airport, faces unique vulnerabilities that necessitate a robust preparedness strategy.

Lessons from previous health crises, including the 2019 Nipah outbreak in Ernakulam and the prolonged COVID-19 pandemic, have underscored the importance of proactive planning rather than reactive management. This plan moves beyond immediate emergency response to focus on long-term health system resilience, community surveillance, and the integration of digital health technologies.

This plan is formulated under the Disaster Management Act, 2005, and aligns with the guidelines issued by the Directorate of Health Services (DHS) Kerala and the Ministry of Health and Family Welfare.

The District Administration remains committed to safeguarding the health and well-being of every citizen. This document is a living guide, intended to be updated regularly as new epidemiological data and technological advancements emerge, ensuring Ernakulam remains prepared for any future biological challenge.

The formulation of this comprehensive strategy is the result of collective wisdom and the tireless dedication of our district's health fraternity. I extend my profound gratitude to the most respected Additional Chief Secretary Dr Rajan N Khobragade, IAS & District Collector Smt:Priyanka.G, IAS, for the continuous guidance for materialising this novel initiative.

I may extend my extreme pleasure to our District Surveillance Officer, whose persistent alertness remains our first line of defence, and to the Deputy DMOs and District Level Program Officers for their strategic oversight and technical expertise in drafting these protocols. My sincere thanks go to the Superintendents of our Major Hospitals, the Block Medical Officers (BMOs), You are the anchors who translate complex policy into life-saving action at the point of care. Our true strength lies in our field-level warriors. I commend the Health Supervisors, Epidemiologists, Health Inspectors, and Junior Health Inspectors for their precision in contact tracing and environmental health. My deepest appreciation goes to our Public Health Nurses (PHN), Junior Public Health Nurses (JPHN), and Mid-Level Service Providers (MLSP), whose grassroots connection with the community is the backbone of our public health delivery. I also recognise the vital role of our Data Managers and the entire administrative Health Team of , whose work behind the scenes ensures that our decisions are driven by accurate, real-time evidence. We are deeply indebted to the District Disaster Management Authority (DDMA) for their administrative leadership during crises. A special word of thanks is reserved for the Local Self-Government Department (LSGD) and other line departments.

Its effective implementation will enhance district-level readiness, reduce morbidity and mortality, and minimise socio-economic disruption, thereby strengthening the resilience of Ernakulam against future pandemics and public health emergencies.

Dr Shahir Sha R
District Medical Officer(health)
Ernakulam

EXECUTIVE SUMMARY

Pandemics are large-scale outbreaks of infectious disease that can greatly increase morbidity and mortality over a wide geographic area and cause significant economic, social, and political disruption. Evidence suggests that the likelihood of pandemics has increased over the past century because of increased global travel and integration, urbanization, changes in land use, and greater exploitation of the natural environment.

These trends likely will continue and will intensify. Significant policy attention has focused on the need to identify and limit emerging outbreaks that might lead to pandemics and to expand and sustain investment to build preparedness and health capacity

The international community has made progress toward preparing for and mitigating the impacts of pandemics. The 2020 COVID 19 pandemic and growing concerns about the threat led many countries to devise pandemic plans.

Despite these improvements, significant gaps and challenges exist in global pandemic preparedness. Progress toward meeting the HR has been uneven, and many countries have been unable to meet basic requirements for compliance.

Multiple outbreaks, notably the 2020, COVID 19 epidemic, have exposed gaps related to the timely detection of disease, availability of basic care, tracing of contacts, quarantine and isolation procedures, and preparedness outside the health sector, including coordination and response mobilization These gaps are especially evident in resource-limited settings and have posed challenges during relatively localized epidemics, with dire implications for what may happen during a full-fledged global pandemic.

Pandemics can cause significant, widespread increases in morbidity and mortality and have disproportionately higher mortality impacts. Pandemics can cause economic damage through multiple channels, including short-term fiscal shocks and longer-term negative shocks to economic growth. Individual behavioural changes, such as fear-induced aversion to workplaces and other public gathering places are a primary cause of negative shocks to economic growth during pandemics.

Some pandemic mitigation measures can cause significant social and economic disruption. In countries with weak institutions and legacies of political instability, pandemics can increase political stresses and tensions. In these contexts, outbreak response measures such as quarantines have sparked violence and tension between states and citizens.

1.

List of Contributors	
Sl. No	**Contributors**
1	Dr Shahir Sha, DMO (H), Alappuzha
2	Dr Sajith John, Aardram Nodal Officer
3	Dr Preceline George, DPM, NHM
4	Dr Arathy, Block Epidemiologist
5	Anju, Block Epidemiologist
6	Superintendents of Major hospitals
7	Medical Officers in charge of FHC, BFHC, CHCs
8	Other members of Ernakulam district health team

LIST OF ABBREVIATIONS

BMO	Block Medical Officer
IDSP	Integrated Disease surveillance Program
DSO	District Surveillance Officer
DDMA	District Disaster Management Agency
CD	Communicable Disease
NCD	Non-Communicable Disease
RCH	Reproductive child health
HEOC	Health Emergency Operation Center
ICMR	Indian Council For Medical Research

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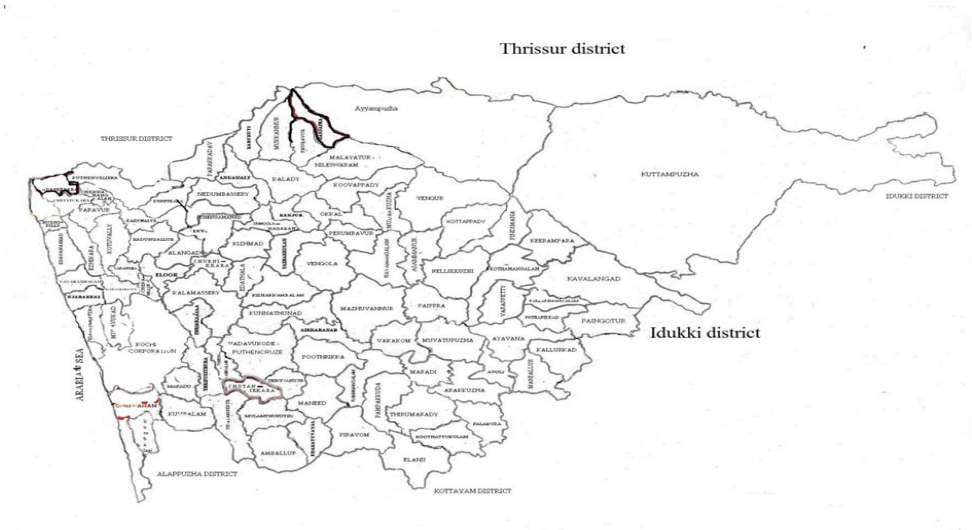
INTRODUCTION

BACKGROUND

The pandemic preparedness planning in Ernakulam district is built on a foundation of decentralized governance and prior experience with public health crises and natural disasters. The district's response, particularly during the COVID-19 pandemic, utilized a multi-layered strategy that integrated government health institutions, private sector partnerships, and volunteer networks.

District at a glance



Geographical boundaries with political map (based on latest delimitation)

Baseline data

District Profile -Ernakulam	Number
Latitude	9.98164 N
Longitude	76.29988 E
Total population	32,82,388
Area	3063 sq KM
Altitude	The City of Ernakulam is situated in the Ernakulam District of Central Kerala in India. Ernakulam is located at9.98°N 76.28°E. It has an average elevation of 4 m (13 ft).
Mean Sea Level	The lowest elevation of nearly Mean Sea Level (MSL) is noticed in the western coastal area and the highest elevation of 534 metres above MSL is at Sulu Medu
Highest Point	Anamudi :2695 meters (88,42 ft)
Lowest point	Willingdon Island :0 meters equal to sea level
Forest area	8,123 Hectares
Mountain ranges /major Hill	Ayyappanmudi , Myladumpara ,soolam hill, pooyamkutty , Bhoothathankettu ,Anamudi, Thattekkad,
male population	16,19,557
female population	16,62,831
children age (0-6 years)	304,242
scheduled caste	2,68,411
scheduled tribe	16,559
urban: rural population ratio	2.13:1
bpl population	10,23,216 members in 3,21,012 families
extremely poor population	8628 members in 5650 families
child sex ratio	961
sex ratio	1024
Density of population	1070/sq m
rate of growth of –population	5.69
per capita income	Rs.94392
literacy rate	94
literacy rate male	96.11
literacy rate	92.07
No.of Revenue Blocks	14
No. of Corporation	1 (Cochin)
No. of Municipalities	13
No. of Taluks	7
No. of Parliament constituencies	4
No. of Assembly constituencies	14
No. of Revenue villages	127
No. of Block Panchayath	14
No. of Grama Panchayath	82
No of Health block	19
Coastal Area	Njarakkal,Kochi,Vadakkekkara,Elamkunnappuzha,Kumbalangi, Varapuzha,Udayamperur,Kottuvally,Pallippuram,Kuzhippilly,Kadamakkudy,Kumbalam,Maradu,Mulavukad,Edavannakkadu, Chellanam, Chendamangalam,Nayarambalam
Tribal Area	Kuttampuzha
Migrant Population	1,27,621
Total bed bound patients	10847
Total home bound patients	15791

District Profile -Ernakulam	Number
Maternal Mortality Rate(in 1,00,000)	10.80
Infant Mortality Rate (in 1000)	3.17
No of ASHA workers	2266
No of Transgenders	181
No of Differently abled (above 40%)	16126
No of Elderly persons Male	222773
No of Elderly person Female	215766
No of Elderly care centres	118
No of children below six years	178318
No of disordered persons	4938
No of people staying alone	14961
No of Pregnant Woman	24619
No of fishermen	74274
No of Elderly Clubs	518

Taluk Division

Divisions	Houses	Population	Migrants	Wells	Hot spots	Ed. Institutions	Hosp pvt/govt.
Paravur	102472	466452	1245	105242	7	148	7/9
Aluva	132367	506226	8424	82042	18	123	3/8
Kunnathunad	111842	572504	11785	71245	8	178	8/10
Muvattupuzha	83184	394949	25473	51514	15	235	4/6
Kochi	125501	575696	15457	65471	14	101	18/114
Kanayannur	212045	861406	10847	95454	8	654	6/8
Kotha mangalam	58442	238403	12450	36145	6	358	5/6

LSG division

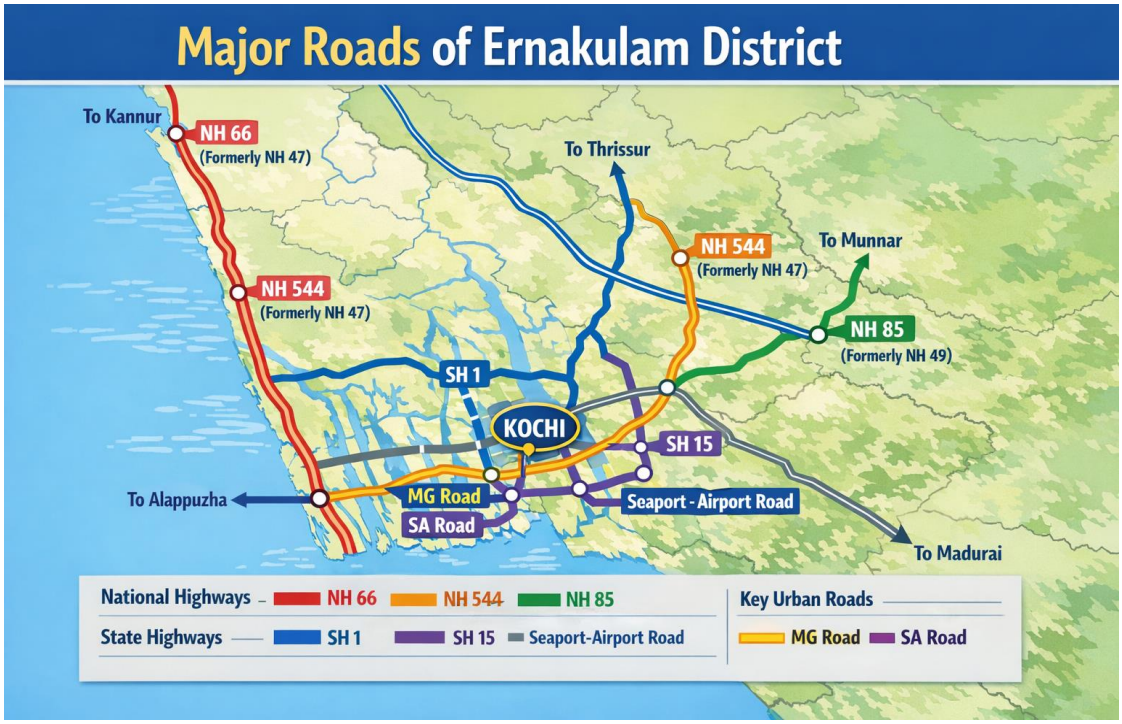
Ward	Houses	Population	Migrants	Wells	Hot spots	Ed. Institutions	Hosp pvt/govt.
82	411458	1048025	201471	23457	124	1547	114/164

Risk stratification among LSGs in the context of Communicable diseases and hazards

Communicable diseases including Dengue Leptospirosis and Hepatitis A are higher in Kochi Corporation area ..Last 5 year data shows, Thrikkakara, Kalamassery, Municipalities have higher number of cases and outbreaks .Edathala, Keezhmad, Choornikkara and Vazhakkulam Gramapanchayths were hotspots of dengue in last 3 year.

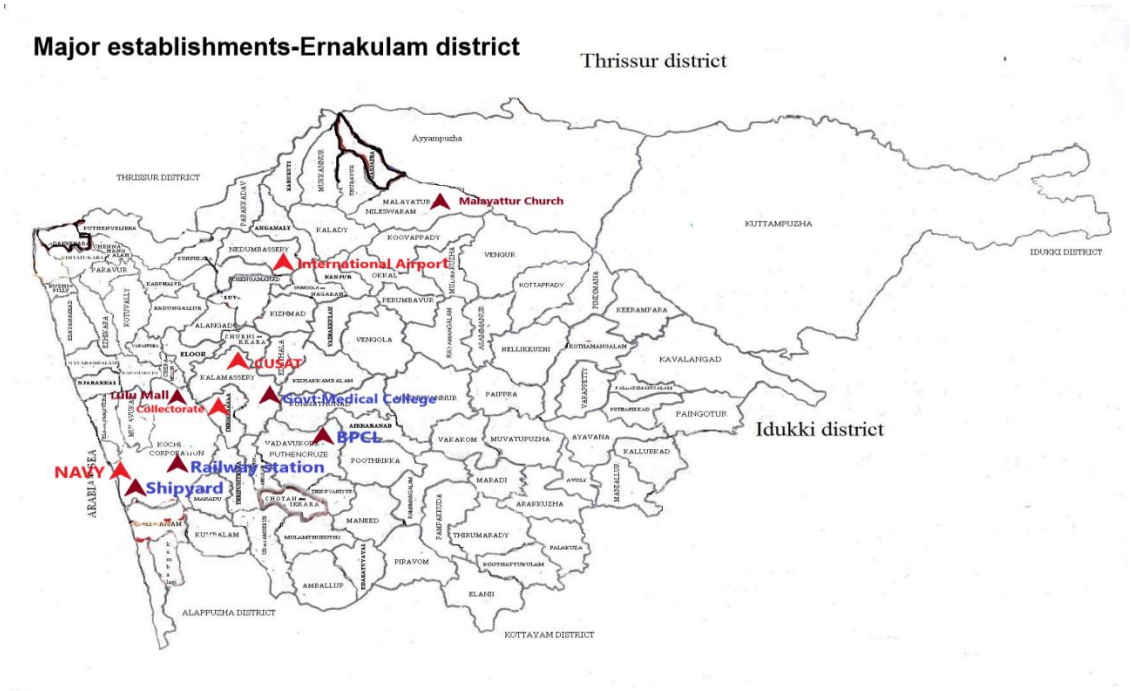
Major Roads/rivers

Major roads in Ernakulum district include the key National Highways NH 66 (formerly 47), NH 544 (formerly 47), and NH 85 (formerly 49), which connect Kochi to the rest of India. Vital state highways include SH 1 (Main Central Road), SH 15, and the Seaport-Airport Road. Key urban arteries in Kochi are MG Road and SA Road



The major rivers in Ernakulam district, Kerala, are the Periyar and the Muvattupuzha, along with branches of the Chalakudy River. The Periyar is the longest river in Kerala, flowing through most taluks, while the Muvattupuzha River is formed by three streams and flows into the Vaikom backwaters

Major establishments with geospatial mapping



Ernakulam district, the commercial hub of Kerala, hosts major industrial, administrative, and technological establishments, including the Cochin Port, Cochin Shipyard Ltd., and Info Park, Kakkanad. Key sectors are driven by BPCL Kochi Refineries, FACT, Southern Naval Command, and the Cochin International Airport (CIAL). It is also a major center for IT, chemical industries, and retail, featuring Lulu Mall.

Occupational groups, socio-cultural groups, migration & mobility patterns

Key groups include manufacturing and industrial workers (shipbuilding, chemicals), service sector professionals (IT, education), and a large segment of informal, migrant labourers. The district also has significant agricultural, fishing, and trade-related employment, with a notable shift towards non-agricultural jobs.

Key groups include cultural centres like Cochin Cultural Centre and Don Bosco Cultural Centre, community bodies such as the Nair Service Society, and initiatives like the Kerala History Association

The in-migration pattern of Ernakulam is throwing quite a different perspective to the migration discourse as the purpose of migration is increasingly diverse across different strata of the population. The major challenge to the civic authorities is to manage the diverse set of demands for public services and facilities. The demand for various resources including land, water and electricity is becoming an issue. Apart from that, in order to maintain the harmonic life of the district in terms of health and sanitation, the civic authority needs to have an intensive and long-term planning in sewage, drainage and solid waste management.

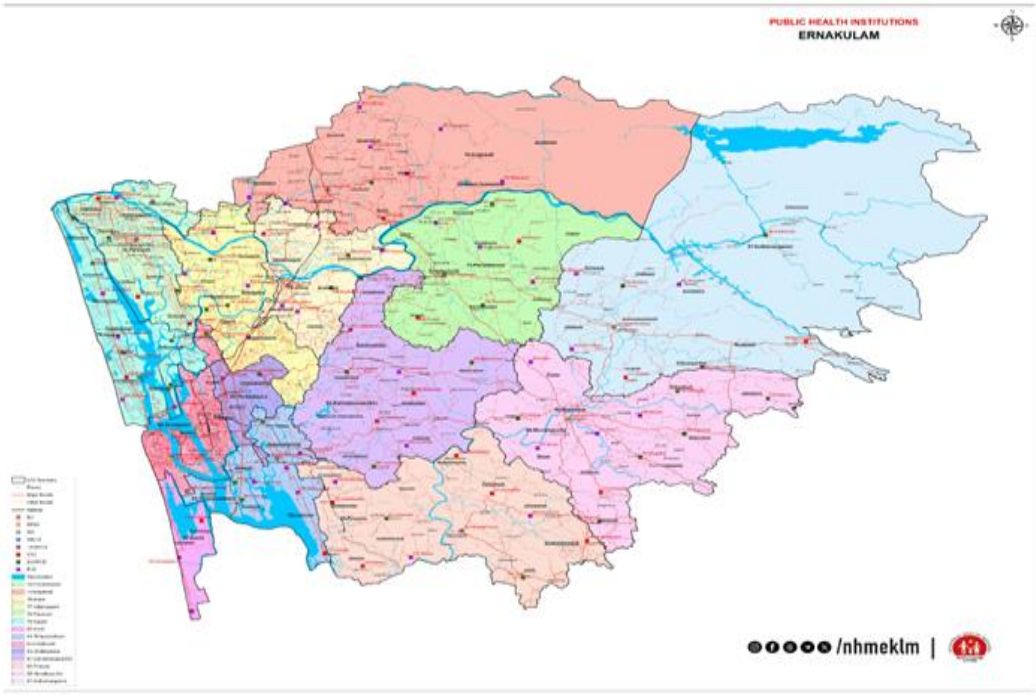
Disease trend 2021 to 2025

Disease	2021	2022	2023	2024	2025	Trend(Increasing/ Stable/Decreasing)
Dengue	2665	6584	15889	13534	7373	Decreasing in 2025
Leptospirosis	674	706	588	720	657	Decreasing in 2025
Hepatitis A	42	50	190	1589	2634	Increasing
Malaria	41	41	82	142	161	Increasing
Scrub Typhus	1	16	8	10	34	Increasing
Typhoid	51	118	154	122	376	Increasing
H1N1	1	12	412	817	327	Increasing
H3N2	0	0	21	69	447	Increasing
ADD	24869	43692	40985	46393	43797	Decreasing
Mumps	0	4		2	709	Increasing
Measles	5	8	124	51	14	Decreasing
Hepatitis B	376	406	255	260	6	Decreasing
Hepatitis C	128	118	80	87	4	Decreasing
Tuberculosis	2388	2346	2607	2467	2298	Decreasing
Leprosy	36	41	18	44	22	Decreasing
COVID-19	616904	123721	119756	1253	2274	Decreasing

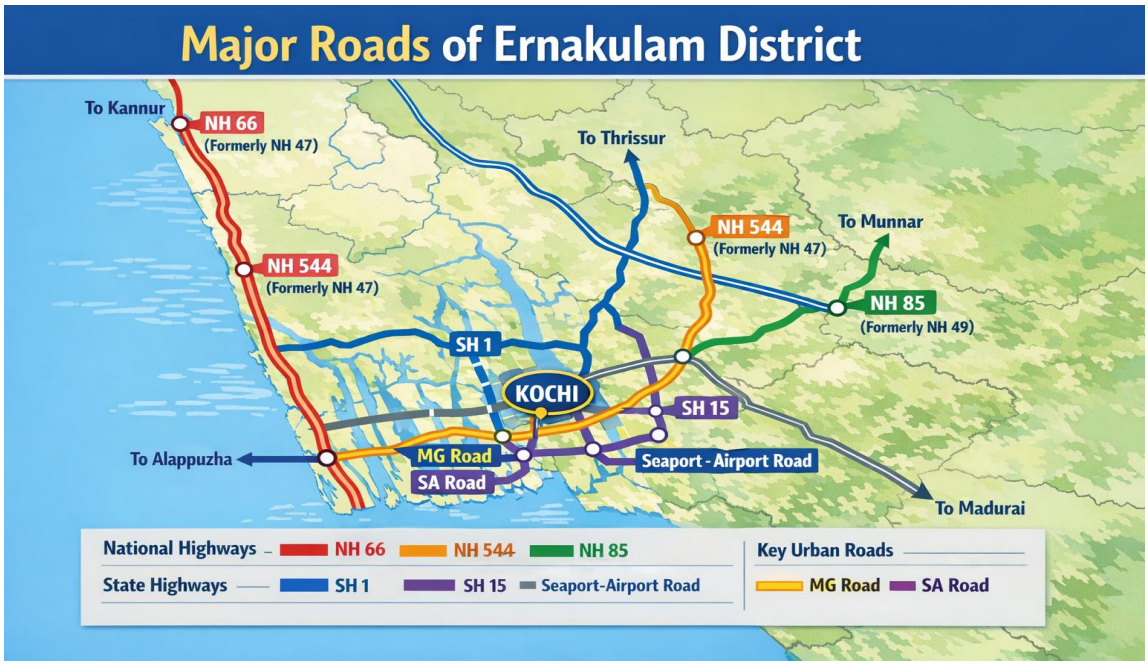
MAPS - LSG-BASED (MENTION SOURCE ALSO)

1. Geographical boundaries - ward boundaries map

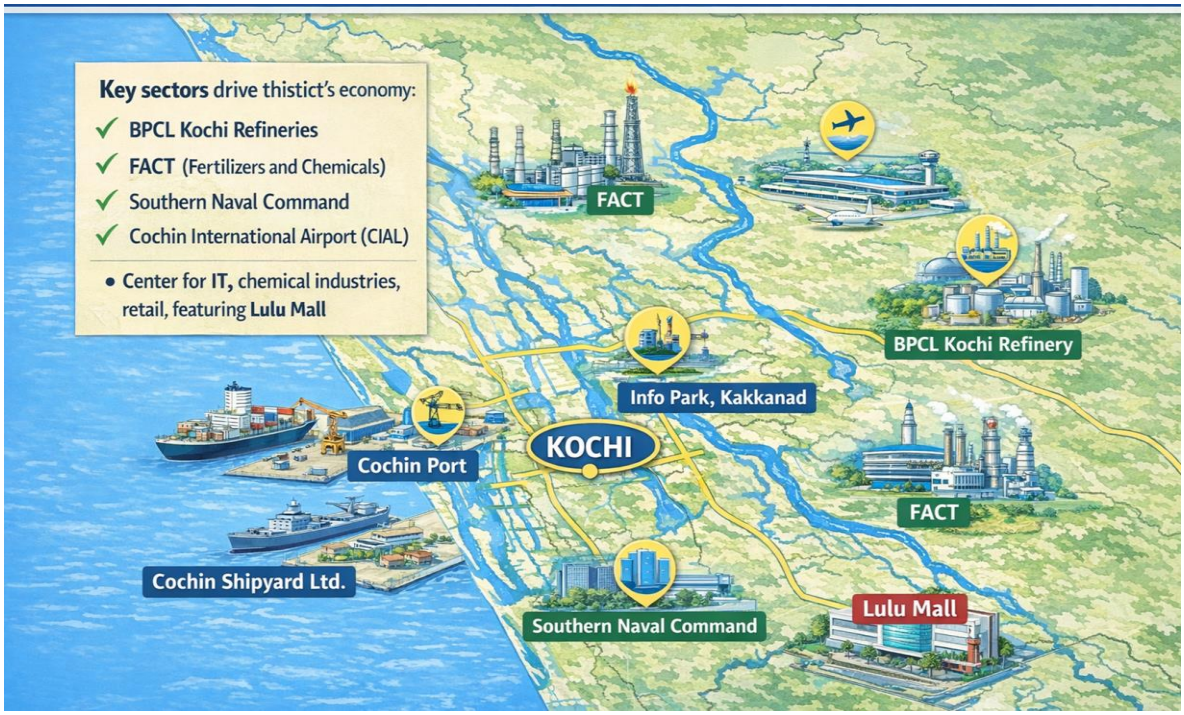
2. Health infrastructure map



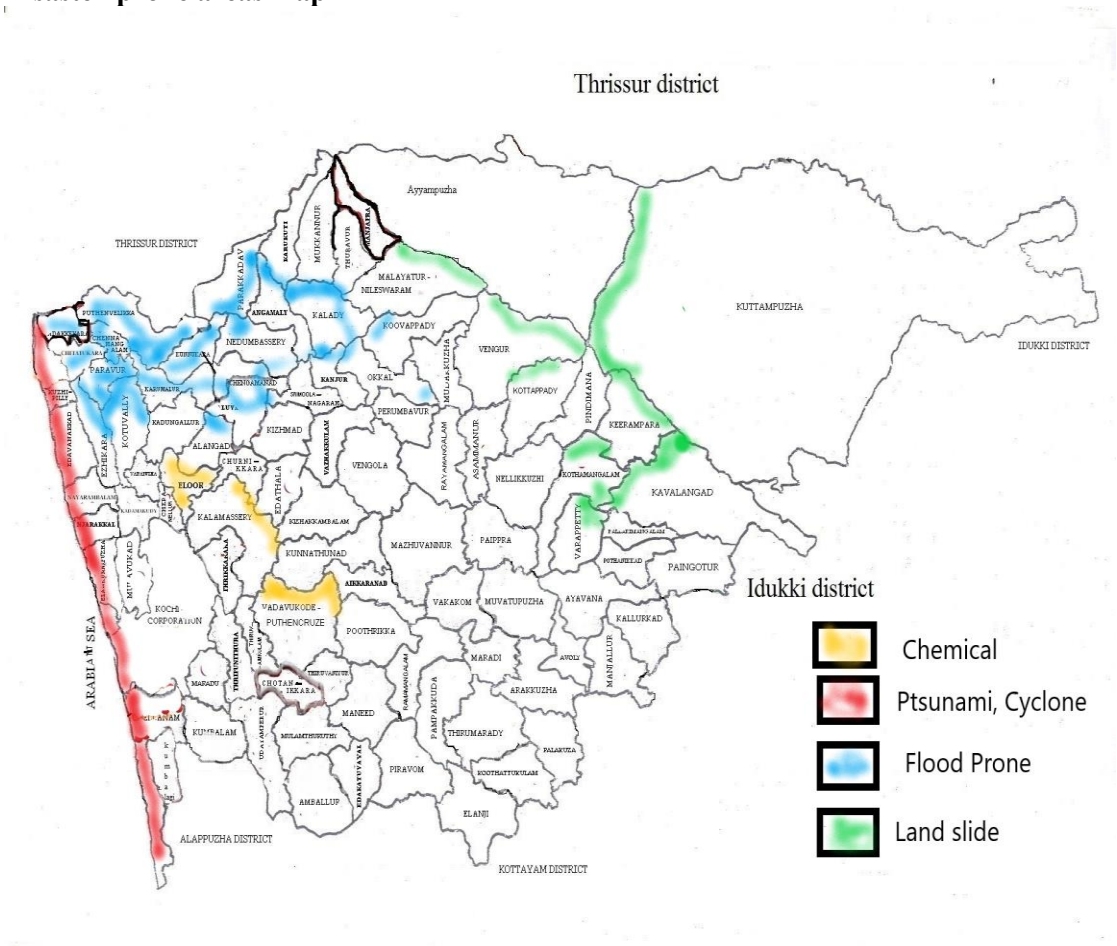
3. Roads and rivers map



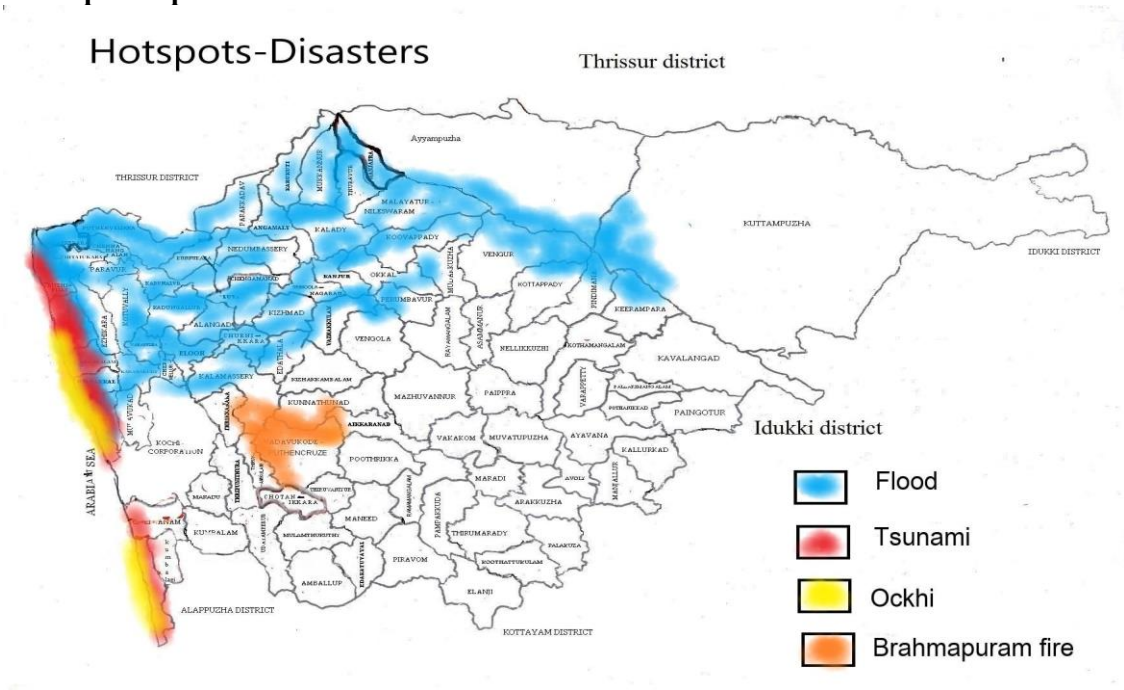
4. Major establishments map



5. **Disaster-prone areas map**



6.**Hotspot map - CD & Disasters**



GENERAL PROFILE OF THE DISTRICT

BACKGROUND OF THE DISTRICT

TABLE 1: BACKGROUND OF DISTRICT	
Description	**Details**
Name of district	Ernakulam
Number of LSGs	82 Panchayat 1 Corporation 1 Municipality
Total area (sq. km)	3,068
Population(Projected)	3,282,388
Population density	1069 persons/sq km
Terrain (coastal/low-lying/backwaters/foothills, etc.)	3068 sq Kilometres
Number of rivers passing through DISTRICT	3
Number of water bodies in the DISTRICT	4416
Number of educational institutions	1251 (including Govt,aided,unaided,cbse,icsecolleges(,private and public)
Factories / small-scale industries	166384

TABLE 1: BACKGROUND OF DISTRICT	
Description	**Details**
Flood-prone wards and LSGs	Alangad,North parur,
Landslide-prone wards and LSGs	Kuttampuzha, Neryamangalam, Kothamangalam
Death Management and Disposal Facilities (mortuaries/crematorium, including electric)	25 Crematorium in different areas of Ernakulam district
Auditoriums/Marriage halls/convention centres/community halls	178-Auditorioum

DEMOGRAPHIC AND VULNERABLE POPULATION

Understanding the demographic composition and vulnerable population groups is essential for pandemic preparedness. Children, elderly, economically deprived families, migrant workers, and socially vulnerable groups are at increased risk during public health emergencies due to higher exposure, limited access to services, and dependency on public systems.

Description	**Details (in numbers)**
DEMOGRAPHIC PROFILE	
Total population	3,282,388
Male	1,619,557
Female	1,662,831
Transgender	181
Children under 5	189735
Adolescent	142551
Elderly (>60)	No of Elderly persons Male -222773 No of Elderly person Female-215766
SOCIAL/LIVELIHOOD VULNERABILITY	
Previous EPEP family	5650
BPL family	10,23,216 members in 3,21,012 families
Tribal communities	16

Description		Details (in numbers)
DEMOGRAPHIC PROFILE		
Migration	Immigrant	602541
	Emigrant	136012
Socio economically deprived		
Fisher folk		19425274274
SC Community		268411268411
ST community		1655916559

CLINICAL VULNERABILITY

Certain population groups need priority healthcare & are at higher risk of severe illness, complications, and mortality during pandemics. Patients with chronic diseases, those requiring regular medical care, and individuals with mobility or functional limitations face challenges in accessing timely care during emergencies. Mapping these groups helps in prioritising continuity of treatment, medicine stock planning, oxygen support, referral transport, and targeted home-based care.

Description	Details in numbers
Pregnant women	21356
Lactating mothers	31716
Bedbound patients	15853
Patients under palliative care other than bedbound	18247
Patients on Haemodialysis	665
Patients on CAPD	207
Cancer patients (currently on treatment)	10123476
Haemophilic patients	263
Mentally challenged	1088
Differently abled	16126
Diabetic patients	61999
Hypertensive patients	79120
TB patients	1484

Major Festivals & Events specific to the district(with the possibility of a public gathering)

Sl. No.	Name of festival	Month detailing the periodicity
1	Kanjoor St: Sebastian Church feast	January
2	Thirvairanikulam Temple Nadathurakkal,	January
3.	Chottanikkara Makam Thozhal	January
4	Kaniramattom Uroos	January
5.	Aluva Shivarathri Mahadeva temple	February
6.	Edapally St:George Church feast	May
7	Vallarpadam Beselikka	September
8.	Malayattoor St: Thomas Church Pilgrimage	March -April
9	Fort Kochi-new year program	Dec-Jan
10	Kochi Biennale	Dec- Mar

NOTE: A detailed list of festivals and events across different Local Self-Government Institutions with potential for large public gatherings is provided in the Annexure. This information will assist district authorities in planning crowd management, disease surveillance, and public health interventions during high-risk periods.

INFRASTRUCTURE & RESOURCE INVENTORY

HEALTH FACILITY DIRECTORY & BASIC CAPACITY IN THE DISTRICT

This section provides an overview of the healthcare infrastructure available within the DISTRICT area. It outlines the distribution and basic capacity of health facilities that form the backbone of service delivery during routine times and public health emergencies.

Family Health Centres (FHCs) and Community Health Centres (CHCs) generally function as the first point of contact for the community, providing essential outpatient and inpatient services. General Hospitals (GH) and Medical College Hospitals (MCH), where accessible, serve as the main referral centres for advanced diagnostics, specialist care, and critical services during public health emergencies. This inventory helps identify existing strengths, gaps, and potential surge capacity that can be mobilised during a pandemic or disaster.

Maintaining an updated inventory of these facilities enables health authorities to - Assess geographic distribution and service coverage - Identify infrastructure and human resource gaps - Estimate available bed strength, ICU capacity, and oxygen availability Plan for surge capacity, including expansion of isolation wards and critical care units - Coordinate referral pathways effectively. Such systematic mapping of healthcare infrastructure strengthens preparedness, facilitates evidence-based planning, and enhances the district's capacity to respond efficiently during pandemics, outbreaks, and other public health emergencies.

Overview of Public Healthcare Infrastructure in Ernakulam

The district health system consists of a network of public and private healthcare facilities that collectively provide preventive, promotive, curative, and emergency healthcare services. These facilities operate at multiple levels, including primary, secondary, and tertiary care institutions. Public health facilities form the backbone of the district health system and provide accessible and affordable healthcare services to the community. These institutions play a central role in disease surveillance, immunisation programs, maternal and child health services, and emergency response during outbreaks.

Care Level	Type of Facility	Rural	Urban	Total
Primary	Health & Wellness Centre (HWC) / Janakeeya Arogyakendram(JAK)	372	39	411
	Family Health Centre (FHC)	54	9	63
	Urban Health & Wellness Centre (UHWC)	0	63	63
	Urban Family Health Centre (UFHC)	0	15	15
	Mobile Units	4	0	4
Secondary	Community Health Centre (CHC)	22	1	23
	CHC/PHC Converted to FHC	71	6	77
	Taluk Hospital (TH)	2	4	6
	Taluk Head Quarters Hospital (THQH)	0	5	5
Tertiary	District Hospital (DH)	0	1	1
	General Hospital (GH)	0	2	2
	Women & Children Hospital (W&C)	0	1	1
Specialized	District TB Centre	0	1	1
	MCH (Maternal & Child Health)	0	0	0

This table provides a consolidated overview of public healthcare institutions operating across different levels of care in the district. The distribution of healthcare institutions also reflects the district's focus on decentralised service delivery. With a strong base of primary care facilities supported by secondary and tertiary institutions, the public health system is capable of delivering preventive, promotive, curative, and emergency services. This network plays a crucial role in strengthening routine healthcare delivery as well as supporting preparedness and response during disease outbreaks and other public health emergencies.

Directory of Public Healthcare Institutions

Maintaining a detailed directory of healthcare institutions is essential for operational planning, referral coordination, and emergency response. The following list provides the names and locations of major public healthcare facilities functioning within the district.

Sl No	Facility Category	Name of the Institution	Sanctioned bed	Rural/ Urban	LSG / Local Body
1	GH	GH Moovattupuzha	266	U	Muvattupuzha
2	GH	GH Ernakulam	783	U	Kochi Corporation
3	DH	DH Aluva	217	U	Aluva
4	THQ	THQH North Paravur	155	U	North Paravur
5	THQ	THQH Kothamangalam	173	U	Kothamangalam
6	THQ	THQH Perumbavoor	216	U	Perumbavur
7	THQ	THQH Thrippunithura	146	U	Thrippunithura
8	THQ	THQH Kochi	240	U	Kochi Coproration
9	W&C	W &C Mattancherry	132	U	Kochi Corporation
10	CHC	CHC Mulanthuruthy	32	R	Kochi Coproration
11	CHC	CHC Malayidamthuruthu	24	R	Malayidamthuruth
12	CHC	CHC Kadayiruppu	50	R	Kadayiruppu
13	CHC	CHC Palarimangalam	24	R	Palarimangalam
14	CHC	CHC Varapuzha	12	R	Varapuzha
15	CHC	CHC Kumbalangi	22	R	Kumbalangi
16	CHC	CHC Pandappilly	24	R	Arakkuzha
17	CHC	CHC Koothattukulam	90	R	Koothattukulam
18	CHC	CHC Poothotta	46	R	Poothotta
19	CHC	CHC Moothakunnam	68	R	Vadakkekara
20	CHC	CHC Keechery	24	R	Keechery
21	CHC	CHC Malipuram	31	R	Malipuram
22	CHC	CHC Kalady	30	R	Kalady
23	CHC	CHC Varapetty	24	R	Varapetty
24	CHC	CHC Ramamangalam	60	R	Ramamangalam
25	CHC	CHC Pampakuda	16	R	Pampakuda
26	CHC	CHC Vengoor	30	R	Vengoor
27	CHC	CHC Vengola	40	R	Vengola
28	CHC	CHC Ezhikkara	6	R	Ezhikkara
29	CHC	CHC Vadavucode	50	R	Vadavucode

Sl No	Facility Category	Name of the Institution	Sanctioned bed	Rural/ Urban	LSG / Local Body
30	CHC	CHC Chengamanad	14	R	Chengamanad
31	FHC	FHC Neriyamangalam	24	R	Neriyamangalam
32	FHC	FHC Edappally	34	R	Edappally
33	FHC	FHC Alangad	0	R	Alangad
34	FHC	FHC Malayattoor	0	R	Malayattoor
35	FHC	FHC Cheruvattoor	0	R	Nellikuzhy
36	FHC	FHC Keezhmadu	24	R	Keezhmadu
37	FHC	FHC Pindimana	24	R	Pindimana
38	FHC	FHC Eroor	0	R	Eroor
39	FHC	FHC Okkal	0	R	Okkal
40	FHC	FHC Udayamperur	0	R	Udayamperur
41	FHC	FHC Arakkunnam	24	R	Arakkunnam
42	FHC	FHC Avoly	0	R	Avoly
43	FHC	FHC Choornikkara	0	R	Choornikkara
44	FHC	FHC Thiruvankulam	0	R	Thrippunithura
45	FHC	FHC Mudakuzha	0	R	Mudakuzha
46	FHC	FHC Manjapra	0	R	Manjapra
47	FHC	FHC Eloor	0	R	Eloor
48	FHC	FHC Panangadu	24	R	Kumbalam
49	FHC	FHC Paipra	0	R	Paipra
50	FHC	FHC Thirumaradi	0	R	Thirumaradi
51	FHC	FHC Munambam	60	R	Munambam
52	FHC	FHC Kottapady	4	R	Kottapady
53	FHC	FHC Punnekkad	4	R	Keermapara
54	FHC	FHC Ayyampuzha	0	R	Ayyampuzha
55	FHC	FHC Chittattukara	24	R	Chittattukara
56	FHC	FHC Edathala	0	R	Edathala
57	FHC	FHC Nayarambalam	0	R	Nayarambalam
58	FHC	FHC Chellanam	0	R	Chellanam
59	FHC	FHC Valakam	24	R	Valakam
60	FHC	FHC Cheranalloor	0	R	Cheranalloor
61	FHC	FHC Gothuruth	10	R	Chendamangalam
62	FHC	FHC Palakuzha	24	R	Palakuzha
63	FHC	FHC Kakkanadu	24	R	Thrikkakara
64	FHC	FHC Manjalloor	24	R	Manjalloor
65	FHC	FHC Karumalloor	24	R	Karumalloor
66	FHC	FHC Vazhakulam	20	R	Vazhakulam
67	FHC	FHC Parakadavu	4	R	Parakadavu
68	FHC	FHC Edavannakkadu	0	R	Edavannakkadu
69	FHC	FHC Kandakadavu	0	R	Chellanam
70	FHC	FHC Nettoor	24	R	Maradu
71	FHC	FHC Thuravoor	40	R	Thuravoor
72	FHC	FHC Pothanicaud	35	R	Pothanicaud
74	FHC	FHC Kuttampuzha	0	R	Kuttampuzha
75	FHC	FHC Kadavoor	30	R	Paingottur
76	FHC	FHC Ayyampilly	51	R	Kuzhupilly
78	FHC	FHC Thiruvaniyoor	24	R	Thiruvaniyoor
79	FHC	FHC Kumarapuram	26	R	Kunnathunad

Sl No	Facility Category	Name of the Institution	Sanctioned bed	Rural/ Urban	LSG / Local Body
80	FHC	FHC Mazhuvannoor	24	R	Mazhuvannoor
81	FHC	FHC Kodanadu	24	R	Kodanadu
52	FHC	FHC Binanipuram	24	R	Kadungallur
83	FHC	FHC Rayamangalam	24	R	Rayamangalam
84	FHC	FHC Mulavukad	24	R	Mulavukad
85	FHC	FHC Koonamavu	50	R	Kottuvally
86	FHC	FHC Chowara	32	R	sreemoolanagaram

PRIVATE HEALTH CARE FACILITIES

Private healthcare institutions contribute significantly to the healthcare delivery system in the district by providing additional treatment capacity, specialised services, and diagnostic facilities. During public health emergencies, coordination with private sector facilities becomes essential for expanding healthcare capacity and managing increased patient load.

Sl No	Facility Name	Type of hospital	Total Bed	ICU beds	LSG / Local Body
1	vijaya kumara menon hospital	Hospital with IP care	40	3	Thrippunithura
2	Medical Trust Hospital	Multy speciality	287	50	Kochi Corporation
3	Sabine Hospital	Hospital with IP care	47	49	Muvattupuzha
4	Lakshmi EKM	Hospital with IP care	200	36	Kochi Corporation
5	Vimala hospital	Hospital with IP care	12	5	Kanjoor
6	Apollo Adulux	Multy speciality	156	53	Karukutty
7	Guardian Angel Peace Mission Centre	Hospital with IP care	21	0	Angamaly
8	Sree narayana institute of medical sciences	Hospital with IP care	182	15	Kuunukara
9	Akshaya	Hospital with IP care	0	0	Kochi Corporation
10	B&B memorial	Hospital with IP care	5	24	Thrikkakara
11	Santhi clinic & hospital	Hospital with IP care	20	0	North Paravur
12	Sangeeth	Hospital with IP care	14	2	Kochi Corporation
13	Carmel Hospital	Hospital with IP care	52	3	Aluva
14	Devamatha Hospital	Hospital with IP care	38	13	Koothattukulam
15	PS mission	Hospital with IP care	69	6	Maradu

Sl No	Facility Name	Type of hospital	Total Bed	ICU beds	LSG / Local Body
16	St Joseph's	Hospital with IP care	90	20	Eloor
17	MOSC Medical College Hospital, Kolenchery	Multi-speciality	150	148	Poothrika
18	Lakeshore hospital& Research Centre Ltd	Multi-speciality	182	80	Maradu
19	Little Flower Hospital and Research Centre,Angamaly	Multi-speciality	136	80	Angamaly
20	MVJM HOSPITAL	Hospital with IP care	170	0	
21	kinder hospital	Hospital with IP care	48	10	Kalamassery
22	Lourdes Hospital, & Medical Sciences and Research	Multi-speciality	181	50	Kochi corporation
23	AP Varkey Mission	Hospital with IP care	31	3	Arakkunnam
24	Holy cross hospital pattimattom	Hospital with IP care	1	0	Kunnathunad
25	Najath hospital	Hospital with IP care	13	4	Aluva
26	Fathima Hospital	Hospital with IP care	20	5	Kochi Corporation
27	ESI UdyogamandaL	Hospital with IP care	76	10	Eloor
28	S N Mission hospital	Hospital with IP care	4	0	Perumbavur
29	K M K hospital	Hospital with IP care	24	0	North Paravur
30	Silverline Hospital	Hospital with IP care	12	2	Kochi Corporation
31	Devi Pvt Ltd	Hospital with IP care	44	5	Thrippunithura
32	ESI Hospital Ernakulam	Hospital with IP care	8	0	Kochi Corporation
33	PMM hospital	Hospital with IP care	12	0	Kalady
34	Ann Mary Joachim hospital	Hospital with IP care	9	0	Kochi Corporation
35	Joannes psycho-medical centre	Hospital with IP care	52	0	Kothamangalam
36	Nirmala Medical Centre	Hospital with IP care	18	0	Muvattupuzha
37	KAROTHUKUZHI HOSPITAL	Hospital with IP care	5	4	Aluva

Sl No	Facility Name	Type of hospital	Total Bed	ICU beds	LSG / Local Body
38	Cimar Cochin (A Unit Of Edappal Hospital Pvt Ltd)	Hospital with IP care	18	0	Kalamssery
39	MAGJ HOSPITAL MOOKKANNOOR	Hospital with IP care	51	4	Mookkannur
40	MAJ Edappilly	Hospital with IP care	39	10	Kochi Corporation
41	CA Aluva Desom	Hospital with IP care	4	2	Sreemoolanagaram
42	Mediheaven hospital	Hospital with IP care	10	0	Aluva
43	Jishy hospital	Hospital with IP care	8	0	Kochi Coporation
44	mar baselios medical mission hospital	Multy speciality	186	49	Kothamangalam
45	JMP Medical centre	Hospital with IP care	4	5	Piravom
46	Kristu Jayanthi hospital	Hospital with IP care	4	0	Elankunnaouzha
47	Don Bosco hospital	Hospital with IP care	10	10	North Paravur
48	St:Thomas hospital	Hospital with IP care	11	0	Muvattupuzha
49	Samaritan hospital, pazhanganad	Hospital with IP care	14	8	Kizhakkambalam
50	Anwar Memorial Hospital	Hospital with IP care	0	0	Aluva
51	Nedumchalil Trust Hospital Muvattupuzha	Hospital with IP care	40	0	Muvattupuzha
52	sree sudheendra medical mission	Hospital with IP care	29	12	Kochi Corporation
53	MCS Hospital	Hospital with IP care	11	4	Muvattupuzha
54	Vathiyayath	Hospital with IP care	0	5	Perumbavur
55	Amrita institute of medical sciences	Multy speciality	440	150	CHeranellur
56	SDTTA Hospital	Hospital with IP care	3	0	Chottanikkara
57	Aster Medicity	Multy speciality	50	58	Cheranellur
58	v g saraf hospital pvt ltd	Hospital with IP care	17	3	Kochi corporation
59	chaithanya hospital	Hospital with IP care	6	0	North Paravur

Sl No	Facility Name	Type of hospital	Total Bed	ICU beds	LSG / Local Body
60	Polakulath Narayanan Renai Medicity	Multy speciality	135	14	Kochi corporation
61	Sanjoe Hospital	Hospital with IP care	22	24	Aluva
62	Ernakulam Medical Centre	Multy speciality	96	17	Kochi Corporation
63	Krishna Hospital	Hospital with IP care	0	5	Aluva
64	Jacobs hospital	Hospital with IP care	3	3	Kochi Corporation
65	MMaddona Hospital Research	Hospital with IP care	2	3	Angamaly
66	Gautham hospital	Hospital with IP care	2	11	Kochi Corporation
67	Rajagiri hospital	Multy speciality	22	115	Edathala
68	Sunrise hospital	Multy speciality	47	22	Thrikkakara
69	Lisie Hospital	Multy speciality	154	80	Kochi Corporation
70	varma hospital	Hospital with IP care	0	0	Thrippunithura
71	KG hospital Angamaly	Hospital with IP care	4	0	Angamaly
72	dr. kunhalus nursing home	Hospital with IP care	0	2	Kochi Coporation
74	St. George Hospital Vazhakulam	Hospital with IP care	6	1	Vazhakkulam

PRIVATE CLINICS

Private clinics are an essential part of pandemic preparedness, as they are often the first place people seek care when symptoms begin. In many communities, private clinics manage a significant share of outpatient visits and therefore play a critical role in early case detection, timely referrals, and disease surveillance. Having an up-to-date understanding of where these clinics are located, the services they provide, and how they are linked to the public health system helps ensure that no cases are missed during an outbreak. It also allows health authorities to engage private practitioners more effectively for reporting, risk communication, and coordinated response, strengthening the overall capacity of the health system to manage public health emergencies.

HEALTHCARE EDUCATION & TRAINING INSTITUTIONS

This section tracks the educational infrastructure available, which is vital for human resource planning in the health sector.

Category of Institution	Govt	Private	AYUSH	Total
Medical Colleges	1	3	2	6
Nursing Colleges	1	15	0	16

Category of Institution	Govt	Private	AYUSH	Total
Dental Colleges	0	4	0	4
Para-medical / Allied Health	0	12	0	12
Pharmacy Colleges	0	20	0	20

Role in Capacity Building and Emergency Preparedness Healthcare training institutions also support the district health system through various training and capacity-building activities. These include programs on infection prevention and control, emergency clinical care, surveillance, and outbreak response. During pandemics and disaster situations, students, interns, and faculty members from these institutions can be mobilised to assist in surveillance activities, community awareness campaigns, vaccination programs, and clinical support services under appropriate supervision.

SPECIALISED SERVICES & EMERGENCY INVENTORY

This section provides a detailed view of the specialized medical resources available to the community, focusing on emergency response and critical care capabilities. This table tracks the vital assets required for managing severe illnesses and emergencies across the Government, Private, and AYUSH sectors.

Item	Govt	Private	AYUSH	Total
Hospital beds	2789	11312	434	14535
Oxygen-generating systems(Y/N)	Yes	Yes	No	2
Oxygen-supported beds(Numbers)	166	3894	0	4060
Ventilator-supported beds	215	182	0	397
ICU beds	531	1745	0	2276
Burns units	1	5	0	6
Blood centres	2	18	0	20
BLS ambulances	42	58	0	100
ALS ambulances	3	18	0	21
Dialysis facilities	11	41	0	52
Dispensaries	1	0	17	18
Medical store	116			
Industrial establishments(**Medium-scale industries/small-scale industries**	12166736	80124	110	80246

Item	Govt	Private	AYUSH	Total
establishments to whom we can depend in a worst-case scenario)				

OXYGEN & DIAGNOSTIC CAPACITY

Monitoring **oxygen and diagnostic capacity** is a critical component of public health preparedness, ensuring that the DISTRICT can handle both chronic care and sudden surges in respiratory or infectious diseases.

Oxygen and Diagnostic Capacity in Major Government Hospitals in Ernakulam

Name of Health Facility	Oxygen generating System (Y/N)	Backup Oxygen Source (Y/N)	Diagnostic Facilities Available(Y/N)				
			Lab	**USG**	**X ray**	**CT/MRI**	**RTPCR**
Govt Medical College	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
GH Ermakulam	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**N**
GH Muvattupuzha	**Y**	**Y**	**Y**	**Y**	**Y**	**N**	**N**
DH Aluva	**N**	**Y**	**Y**	**Y**	**Y**	**N**	**N**
W&C	**N**	**Y**	**Y**	**Y**	**N**	**N**	**N**
THQH Angamaly	**N**	**Y**	**Y**	**Y**	**Y**	**N**	**N**
THQH Thrippunithura	**N**	**Y**	**Y**	**N**	**Y**	**N**	**N**
THQH Fort Kochi	**N**	**Y**	**Y**	**N**	**Y**	**N**	**N**
THQH Paravur	**N**	**Y**	**Y**	**Y**	**Y**	**N**	**N**
THQH Kothamangalam	**N**	**Y**	**Y**	**Y**	**Y**	**N**	**N**
Total	**3**	**10**	**10**	**8**	**9**	**2**	**1**

The table indicates that most secondary and tertiary care facilities in the district have access to laboratory and basic imaging services, while advanced imaging such as CT/MRI is available only in select higher-level institutions. The current distribution of life-support and diagnostic assets highlights the district's readiness for high-acuity respiratory outbreaks.50% of the major government referral centres (MCH, GH, DH , W&C) are equipped with functional oxygen-generating systems (PSA Plants). ll listed facilities (100%) maintain a Backup Oxygen Source. Strengthening oxygen infrastructure and expanding diagnostic capacity remain important components of health system preparedness, particularly during pandemics and other large-scale respiratory disease outbreaks.

DIAGNOSTICS FACILITY MAPPING AT THE DISTRICT LEVEL

The diagnostic capacity of the district represents the "intelligence network" of our healthcare system. The speed and accuracy of disease identification depend entirely on the distribution and technical level of these facilities.

Item	Govt	Private	AYUSH	Total
General labs	121	1042	44	1207
Microbiology labs	13	502	0	505
RT-PCR labs	21	177	0	179
USG units	14	176	0	190
CT/MRI units	20	37	0	39
Research labs	00	11	1	2
Labs of other departments that can be repurposed	01	0	0	1

LABORATORY IDENTIFICATION & BASIC DETAILS

Sl. No.	Name of Laboratory	Ownership (Govt / Private / Academic)	Address	24×7 Services (Yes/No)	NABL / Govt Approved (Yes/No)
1	Microbiology Lab,Govt:Medical College	Govt	Govt:Medical College.Kalamssery	No	Yes
2	DDRC Agillus	Private	M.G. Road (Opp. Maharaja's Ground	No	Yes
3	Metropolis	Private	41/2796F, North Square Bldg, Paramara Rd (Near Town Hall)	No	No
4	Dr Lal Path labs	Private	Thampy Building, 2nd Floor, MG Road, Opposite Maharaja's College Ground Metro Station, Ernakulam - 682011.	Yes	Yes
5	Medivision	Private	Medivision House, Sreekandath Road, Ravipuram, Kochi, Kerala - 682016.	Yes	Yes

SOCIAL AND COMMUNITY INFRASTRUCTURE FOR THE SURGE PLAN

This table serves as our **logistics and shelter inventory.** By mapping these locations, we can quickly identify where to house displaced citizens, where to set up temporary medical clinics, and how to manage the deceased with dignity during a crisis.

Category	Total Count	Est. Capacity (Persons)	Contact details
Anganwadis	2858	412414280	
Schools	1373	14783274600	DDE-0484-2422210
Colleges	176210	422515000	
Medical colleges (Govt/Private)	1/3	842/2160	GMC Principal 0484-2754443
Nursing colleges (Govt/Private)	**2/21**	**4050**	
Dental colleges (Govt/Private)	**0/5**	**2415**	
Paramedical institutes (Govt/Private)	**1/7**	**1004**	
Community halls	**1128**	**5487**	
Auditoriums	**178**	**3406**	
Religious buildings	**125410**	**8412**	
Destitute homes	**214**	**1245**	
Elderly homes	**106**	**412**	
DISTRICT owned other buildings	**104214**	**1345**	
Mortuary	**1025**		
Crematorium	**25**		

*refer annexure 1 for contact details

HUMAN RESOURCES

This section focuses on the **human capital** available within the DISTRICT. In any emergency—be it a pandemic, flood, or industrial accident—infrastructure is only as effective as the people operating it.

MEDICAL & CLINICAL PERSONNEL

This table tracks the "Frontline" providers responsible for diagnosis, treatment, and clinical management. Narrative sentence: eg., "Total health workforce: 450 personnel, with 60% in government facilities serving as primary surge capacity." A detailed directory with the contact numbers of all workers is maintained (**Annexure in 1**).

Cadre	Govt (No.)	Private (No.)	Total
Doctors—Modern Medicine	584 (Administrative cadre-19, general cadre-357, speciality-204, super speciality 4)	4100	4684
Doctors – AYUSH	295296	314	610
Doctors – Veterinary	141	98	239
Doctors – Dental	23	1448	1471
Nursing officers	1025	15452	16477
Lab technicians	119	4154	4273
Optometrist	34	1346	1380
Pharmacists	221	11243	11467
Psychologists	4	217	221
Counsellors	104	1344	1448

PUBLIC HEALTH & FIELD-LEVEL WORKFORCE

These individuals are the backbone of surveillance, maternal-child health, and decentralized care.

Cadre	Health services	Municipal common services	Total
HS (Health Supervisors)	14	12	26
HI (Health Inspectors)	62	32	94
LHS (Lady Health Supervisor)	12	0	12
LHI (Lady Health Inspectors)	42	0	42
JPHN (Jr Public Health Nurses)	373	0	373

Cadre	Health services	Municipal common services	Total
JHI (Jr Health Inspectors)	269	84	353
MLSP (Mid-Level Service Providers)	383	0	383
Palliative Nurses	primary nurses-123 secondary nurses-36	194	353
RBSK Nurses	82	0	82
PRO	31(19 blocks+11 major+1)	0	
Epidemiologist	14	0	14
Data Manager	14	0	14

COMMUNITY & SUPPORT CADRE

This group represents the surge capacity of the DISTRICT—people who can be called upon for logistics, rescue, and specialized support.

Cadre	Number
ASHA Workers	2222
AWW (Anganwadi Workers)	2858
Emergency Medical Volunteers (Trained)	15616
Kudumbashree	389740
MNREGS	3.79 LAKHS
Purusha Swayam Sahaya Sangham	287
Ex-Servicemen	13269
Retired Police Officers	4895
NCC/NSS Volunteers	8200
Red Cross volunteers	276

COMMUNITY ORGANIZATIONS

This section details the presence of community-based organisations (CBOs), non-governmental organisations (NGOs), faith-based organisations (FBOs), Kudumbashree Self-Help Groups (SHGs), and Ayalkootams within the Local Self-Government Institution (DISTRICT). These groups enhance grassroots mobilization, resource distribution, and support networks crucial for pandemic response and community resilience.

Category	**Total Count**
NGOs	286239
Religious based organizations	870158
Foreign based organizations	14
Sports Club/youth clubs	241
Kudumbashree SHGs	10258
Ayalkootams	15392
Political organizations	142
Residential organizations	214

ADMINISTRATIVE & EMERGENCY SERVICES

This section outlines the availability of key non-health emergency support services and infrastructure within the DISTRICT, which are essential for effective pandemic preparedness and response. These facilities support law enforcement, disaster response, water supply, logistics, mobility, and community-level interventions during public health emergencies.

Category	Total Count	Contact details
Police Stations	27 CITY+ 35 RURAL	
Fire & Rescue Stations	18	Gandhi Nagar (Main Station): 0484-2205550 Club Road (Marine Drive: 0484-2355101 Mattancherry: 0484-2225555 Thrikkakara: 0484-2423100
Water Pumping Points	CITY 6-100 MLD ALUVA -300MLD	KWA Aluva:0484-2623206
Public Distribution System (PDS)	1243	

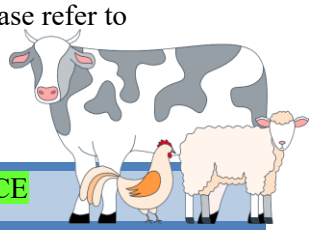
INFORMATION REGARDING RESOURCES

The availability of essential transport and support resources plays a quiet but critical role in saving lives. Equipment such as ambulances, mobile mortuaries, amphibian ambulances, and motorized boats ensures that patients, samples, and healthcare teams can move swiftly—even in flooded, remote, or difficult terrains. Heavy vehicles like JCBs, cranes, tractors, and torus lorries support logistics, waste

management, emergency infrastructure, and rapid conversion of spaces into care or isolation facilities. Taxis, four-wheel-drive vehicles, and trucks help maintain continuity of essential services, reach vulnerable populations, and support home-based care and supply delivery.

Means of transportation	Total Count
JCB	4123
Crane	124
Heavy Trucks	784
Tractor	3125
Ambulances	1245
Mobile mortuaries	2447
Boats	321
Taxi service	8477

Note: For specific details regarding vehicle owners and contact information, please refer to **Annexure [X]**.



ONE HEALTH & ENVIRONMENTAL SURVEILLANCE

The One Health method integrates environmental, animal, and human health to enable proactive pandemic preparedness. Panchayat-level surveillance needs to be improved to detect and treat zoonotic and environmentally transmitted diseases early. Surveillance is strengthened through systematic assessment of animal populations, veterinary infrastructure, poultry and slaughter facilities, intersectoral coordination, and specialised tools, such as GIS-based avian influenza seasonality mapping from previous outbreaks to enable predictive alerts and ward-specific sampling to support effective pandemic preparedness in high-risk areas like Udayamperoor, Ramamangalam, Chellanam.

ANIMAL & BIRD POPULATION

Mapping animal and bird populations at the Panchayat level is essential for identifying and prioritising zoonotic disease hazards such as rabies, avian influenza (H5N1), leptospirosis, anthrax, and Nipah-like spillover events. Risk classification, targeted surveillance, vaccination planning, and early epidemic detection made feasible by comprehensive population mapping all enhance One Health-based pandemic preparedness.

Category	Item	Estimated Population
Animal Population	Livestock Cattle /Goats/ Buffalo)	108061/ 126599 10029
	Pet Animals (Dogs/Cats)	90304/412

Category	Item	Estimated Population
	Stray Dog Population	14164
	Pig Farms (Number of heads)	5723
	Small Units (Sheep / Goats – clustered)	10441
Bird Population	Poultry Units (Birds)	0
	Poultry- (FOWL)	3803343
	Wild/Migratory Birds (Observed)	1240
	Crow Mortality Events (Reported)	No

The main risk of zoonotic diseases in **_Ernakulam district** is concentrated in **LSGs**, which is explained by the high density of pig farms, cattle congregation areas, and poultry units. The stray dog population in **market areas, fish landing sites, and bus stations** remains a substantial challenge for rabies surveillance and bite prevention. There is a considerable risk of avian influenza introduction and amplification during **November - December** due to the seasonal presence of migratory and resident water birds near **ponds/canals/rivers/backwaters/paddy fields**. Clusters of pig farms and animal shelters vulnerable to flooding further raise the risk of leptospirosis and other zoonoses mediated by the environment, especially during monsoon floods.

VETERINARY INFRASTRUCTURE

Veterinary institutions are a core pillar of One Health surveillance, enabling early detection of zoonotic diseases through vaccination, investigation of unusual animal illnesses or deaths, sample collection, and timely outbreak reporting. A well-mapped and responsive veterinary network strengthens coordination with human health and DISTRICT systems, ensuring rapid response during zoonotic events and pandemics.

Facility Type	Name of Facility	Ownership Govt / Pvt	Location(Ward No)
Veterinary Dispensary	Veterinary dispensary	Govt 82/4	In different local bodies
Veterinary Hospital / Polyclinic	Veterinary hospital /Polyclinic	Govt23/5	In different local bodies
Private Veterinary Clinics	Clinics	Pvt-102	In different local bodies
Mobile / Emergency Vet Service (incl. night services)	Night service	Govt 9	In different local bodies
Pet Homes / Animal Shelters	1.Dhyan foundation Animal shelter 2.Animal rescue service	Pvt-12	In different local bodies
Slaughterhouse-linked Veterinary Inspection Unit	0	0	0

VETERINARY DOCTORS & WORKFORCE

Early detection, diagnosis, reporting, and reaction to animal illness epidemics depend on the availability and accessibility of qualified veterinary specialists. By identifying unusual animal morbidity or mortality promptly, collecting samples promptly, and coordinating efficiently with human health and DISTRICT systems—especially during zoonotic outbreaks and pandemic-prone situations—a clearly defined veterinary workforce enhances One Health surveillance.

Category	Number Available	Type (Govt/Pvt)
Government Veterinary Doctors	123	Govt
Private Veterinary Doctors	18	Pvt
Livestock Inspectors	203	Govt
Para-veterinary Staff / Attenders	118	Govt
Contract / On-call Veterinary Support (if any)	Doctors-15 drivers-14	contract basis

HIGH-RISK INTERFACE POINTS (SURVEILLANCE SITES)

High-risk interface points for zoonotic disease surveillance in Ernakulam district include *wetland–livestock–human contact zones, backyard poultry farms, cattle sheds near water bodies, fish markets, and areas of high human–animal interaction such as community slaughter points and migratory bird congregation sites*. These are the primary surveillance sites where zoonotic spillover risks are elevated.

Type of Habitat	Type of High risk interface
Wetlands & Backwaters	Avian influenza transmission among ducks and cranes, The chance of Dengue ,Chikungunya and West Nile fever will be high in these areas.Leptospirosis cases are more reported from this type of habitat.
Backyard Poultry Farms	Avian influenza risk for farmers will be high
Cattle Sheds near Water Bodies	Chance of leptospirosis to fishermen and farmers
Fish & Meat Markets	Rodent population will be high .so chances of leptospirosis will be high Butchers and customers are frequently exposed to animal blood, offal, and urine during the cutting process. so, these groups are high risk for zoonotic diseases.
Community Slaughter Sites	Spread of Zoonotic diseases
Migratory Bird Congregation Areas	Presence of infected migratory birds is also lead to Avian influenza / Westmile and Japanese Encephalitis
Rodent-Infested Grain Storage	Rodent infested grain storage will lead to zoonotic diseases like leptospirosis

ENVIRONMENTAL RISK MAPPING

Environmental risk mapping identifies monsoon- and flood-prone hotspots for vector-borne (dengue, chikungunya) and waterborne (leptospirosis, diarrhoea) diseases, as well as zoonotic diseases, in Kerala's wetlands. Systematic surveillance supports early warnings, targeted interventions, and Panchayat pandemic preparedness.

Waterborne exposure: Flood-prone areas and stagnant water bodies facilitate *leptospira survival*, raising leptospirosis risk

Flood prone areas of the district include Aluva,Puthanvelikkara,karumalloor,North paravur,Alangad,Kottuvally,Ezhikkara,vadakkekara,Chittatukara,Kuzhuppilly,Edavanakkad,Nayaram abalam,Njarakkal,Elankunnapuzha,Pallipuram,Mulavukad,Muvapptupzha,Kalady,Nedumassery.,Kanjoor,Ankamaly,Ayyampuzha,Manjapra,Malayattur,Thuravur,Chengamanad,Kunnukara,Parakkadavu. All areas had highly affected in 2018 flood. So, precautions for leptospirosis is needed to avoid rise in the cases.Doxy prophylaxis should be strengthened prior to flood period and proper IECs should circulate in all areas

Traditional practices: 3 major harbours present in the Ernakulam district. Thoppumpady harbour, Munambam Fishing harbour and Vypin Fishing harbour. Fishes and other notable locations include Matsyafed aquaculture sites in Malippuram, and smaller landing points under development by the Kerala government to support local, artisanal fishermen. Small fish markets and slaughterhouses are operating in each every LSGDs.

Risk Factor	Key Locations	Risk Level
Entry of new pathogens	Point of EntryKochi International Airport and seaport, Kochi	High
Flood-prone areas	Aluva,Puthanvelikkara, karumalloor, North paravur,Alangad,Kottuvally,Ezhikkara,vadakkekara,Chittatukara,Kuzhuppilly,Edavanakkad,Nayaramabalam,Njarakkal,Elankunnapuzha,Pallipuram,Mulavukad,Muvapptupzha,Kalady,Nedumassery.,Kanjoor,Ankamaly,Ayyampuzha,Manjapra,Malayattur,Thuravur,Chengamanad,Kunnukara,Parakkadavu	High
Water bodies/wetlands	Aluva,Kuttampuzha,Vengur,Varappuzha,Nayarambalam,	High
Solid waste accumulation	Brahmapuram	High
Rodent infestation zones	Kochi Corporation	High
Industrial effluent discharge	Eloor,Edayar and Kadungallur	High
Construction sites / abandoned buildings	Th, Kochi Corporation	High
Poor drainage/blocked canals	Kochi corporation	High
Drinking water source contamination risk	Aluva KWA (Periyar River) Mattanchery, Kalvathy	Medium

DISEASE SEASONALITY MAPPING

1, **Flooding & waterlogging** → amplifies leptospirosis, malaria, diarrheal diseases. Leptospirosis increases in urban areas in the monsoon season and the seasonality changes in the last few years. Because of high rain in September- October month the cases and deaths increased in Urban and rural packets·

2, Migratory bird influx (Nov–Feb) → The risk of avian influenza in border areas of Ernakulam including Chellanam gramapanchayth(Kattiparambhu) Which is bordering panchayat of Alleppey,Udayamperoor Gramapanchayath also a bordering area for 2024 Kottayam district.Duck

population also higher in these areas. Recently In,2026 Avian outbreak reported from Ramamangalam of Ernakulam District .Death reported among Heron(crane) and it was notified to Veterinary department .Influx of migratory birds higher in coastal sides of Edavanakad,Kuzhuppilly,Nayarambalam,Elankunnapuzha and Ezhikkara,Karumallor areas.

Mosquito breeding cycles → Monsoon (June – September): This is the most active breeding period due to the proliferation of water-holding containers. Species like Aedes albopictus (the primary vector for Dengue and Chikungunya) see a marked rise in larval indices during this time. The rise of cases will be constant,if rain occur throughout the year.

Post-Monsoon (October – December): Larval and adult mosquito diversity often remains high or even increases during this phase. In urban areas of Ernakulam, *Aedes* larval indices (such as the Breteau Index) have shown a significant upward trend during the post-monsoon season.
Dry Season/Winter (January – February): While breeding generally drops, certain species like *Culex* can reach alarming densities (up to 83 mosquitoes per hour) by January due to reduced rainfall and high humidity in Kochi's climate

Disease	Peak Risk Season	High-Risk Locations	Surveillance Focus
Avian Influenza	Nov-Jan	Udayaperoor Chellanam Ramamnagalam	mass deaths of birds from this area should be notified and surveillance continued in peak season
Leptospirosis	June -July September – October	Kochi Corporation Aluva. Kadamakkudy, Varappuzha ,Thrippunithura ,Mazhuvannur	Promotion of Self-protective equipment for agricultural labours, Dairy farmers, MNREG workers, Cleaning workers Doxy prophylaxis for All HRGs
Dengue/Chikungunya	May to August	Kochi Corporation Edathala,Choornikkara, Kalamssery. Thrikkakara	Strengthen weekly dry days, home based source eliminations, Fogging ISS. Increase in vector density is strictly followed. Proper vector study followed by Mass source elimination can bring down the cases
Acute Diarrheal Diseases	February to July May	Western kochi	Addressing leakage of water distributing pipes issues in war foot manner, IECs for drinking boiled water leakage issues properly managed.
Rabies	All seasonJan to dec	All LSGDsAll areas	Proper vaccination and wound washing IECs among general public/Migrant for rabies Prophylaxis to be improved
Anthrax (rare)	Jan to dec	Ayyampuzha Kuttampuzha	Sensitization for

Unscientic Agricultural practices sometimes lead to Zoonotic and water borne diseases

One of the reasons for increasing the number of leptospirosis is due to the unscientific practices in agricultural fields. Agricultural labours without self-protective equipment (proper gloves and gumboots) may contract this disease. Contaminated water/soil urinated with rodents in paddy fields/agricultural lands is always a risk factor for humans.

Workers often stand in stagnant water or mud while cleaning drains, canals, and ponds. The risk of getting leptospirosis is approximately 6.5 times higher for those working while standing in water.

Barefoot Labour: In many rural areas, workers perform tasks barefoot or with open footwear, allowing bacteria in animal urine to enter through small cuts, abrasions, or even sodden skin.

VULNERABILITY MAPPING

Vulnerability mapping pinpoints high-risk populations, occupations, and areas exposed via environment, livelihoods, socioeconomics, and poor service access. Paired with environmental/seasonality mapping, it enables risk-based surveillance, targeted actions, and optimal resource use in One Health and pandemic planning.

EPIDEMIOLOGICAL TRENDS (2021–2025)

Disease surveillance is the systematic collection, analysis, and interpretation of health data for planning, implementation, and evaluation of public health practice. This section presents the disease surveillance profile of the DISTRICT based on routine reporting systems and outbreak investigations to identify priority diseases, seasonal patterns, and emerging public health threats.

Vector borne diseases dengue, malaria, West Nile fever, scrub typhus has increased in the district in the last 5 years .Environmental Factors: High population density, rapid urbanization, and extreme weather events (heavy rain) contribute to outbreaks. Breeding Sites: *Aedes* mosquitoes thrive in artificial containers, tires, and water collected for agriculture. Control Measures: The National Vector Borne Disease Control Programme (NVBDCP) is implemented, focusing on surveillance, laboratory diagnostics (via 30+ Sentinel Surveillance Hospitals), and community-level sanitation.Trends- Dengue cases show a generally increasing trend over the last decade, with major spikes in 2024.

Malaria cases also increased in last 5 year due to high flow of migrants to the district for construction

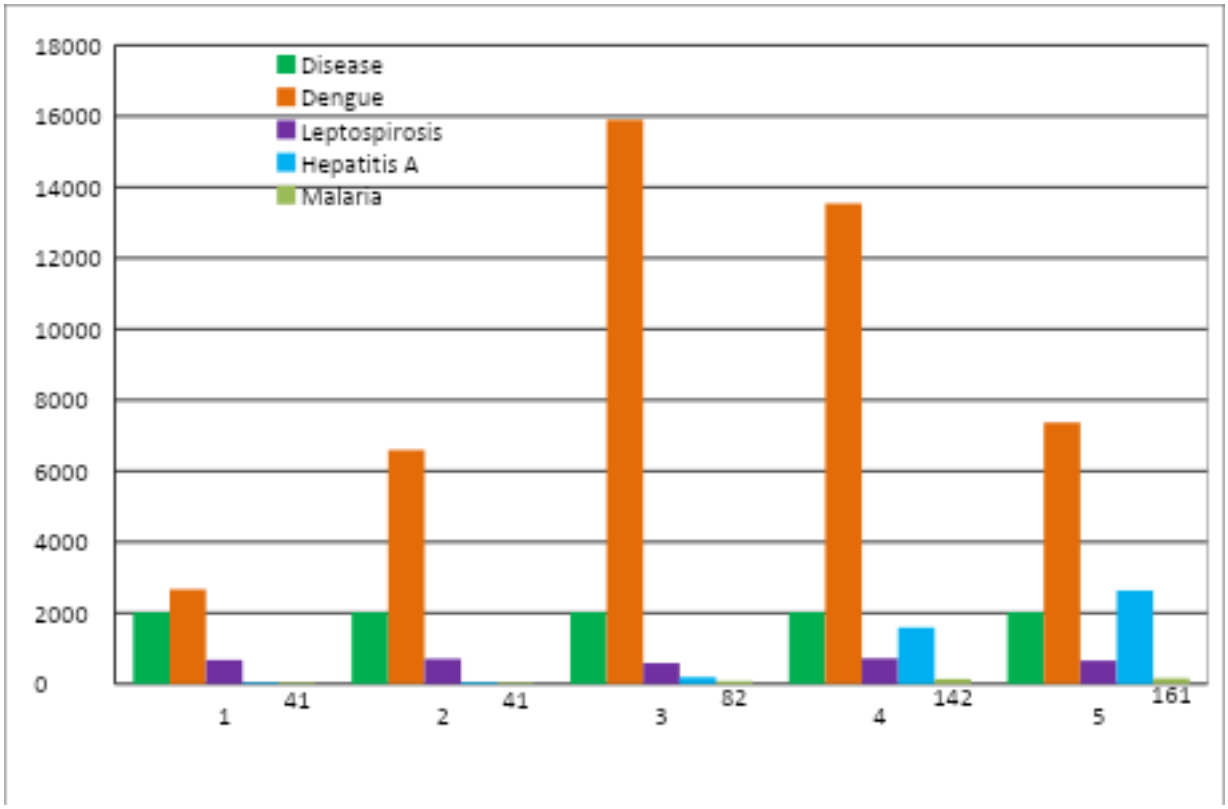
DISEASE BURDEN AMONG HUMAN BEINGS(LAST 5 YEARS)

Analysis of disease-wise data for the last five years helps identify persistent public health problems, emerging diseases, and changes in disease burden. This information supports prioritisation of prevention, preparedness, and response activities at the Panchayat level.

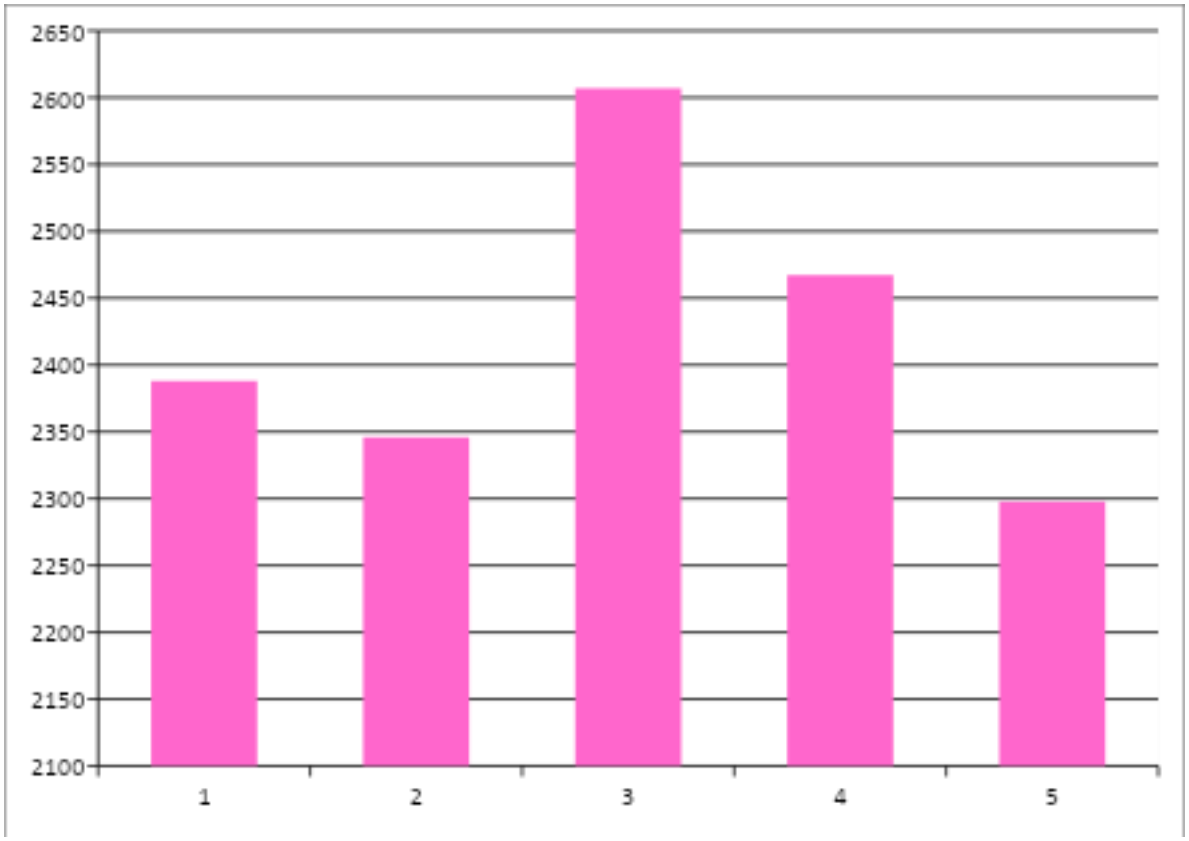
Disease	2021	2022	2023	2024	2025	Trend (Increasing/ Stable/Decreasing)
Dengue	2665	6584	15889	13534	7373	Decreasing
Leptospirosis	674	706	588	720	657	Decreasing
Hepatitis A	42	50	190	1589	2634	Increasing
Malaria	41	41	82	142	161	Increasing
Scrub Typhus	1	16	8	10	34	Increasing
Typhoid	51	118	154	122	376	Increasing
H1N1	1	12	412	817	327	Decreasing
H3N2	0	0	21	69	447	Increasing
ADD	24869	43692	40985	46393	43797	Decreasing

Disease	2021	2022	2023	2024	2025	Trend (Increasing/ Stable/Decreasing)
Mumps	2	4	31	327	709	increasing
Measles	5	8	124	51	14	decreasing
Hepatitis B	376	406	255	260	6	decreasing
Hepatitis C	128	118	80	87	4	decreasing
Tuberculosis	2346	2607	2467	2497	2298	Increasing trend
Leprosy	3636	4141	1818	4444	2222	decreasing trend
COVID-19	616904	123721	119756	1253	2274	Decreasing

Year wise distribution Dengue, Lepto, Hep A & Malaria-2021 to 2025



Year wise distribution of tuberculosis -2021 to 2025


2650
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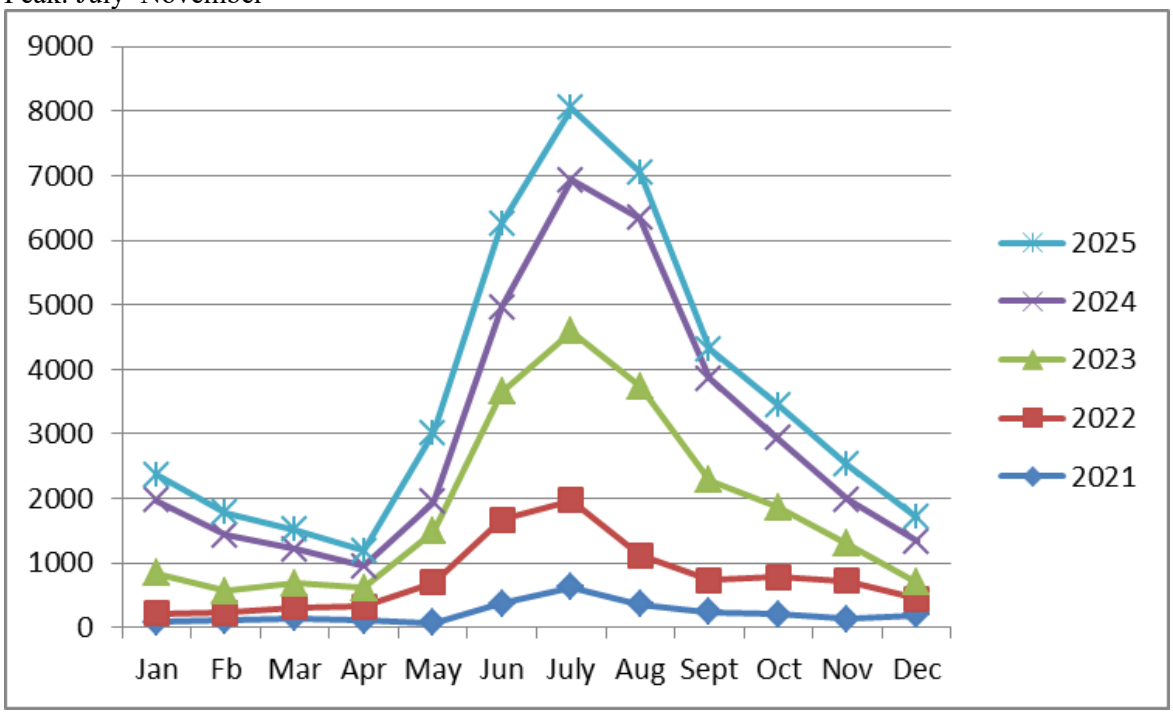
SEASONAL TREND ANALYSIS

Communicable diseases including Dengue Leptospirosis and Hepatitis A are higher in Kochi Corporation area. Last 5 year data shows, Thrikkakara, Kalamassery, Municipalities have higher number of cases and outbreaks .Edathala, Keezhmad, Choornikkara and Vazhakkulam Gramapanchayths are hotspots of dengue in last 3 year.

DENGUE

Dengue is a major seasonal vector-borne disease strongly associated with rainfall, water stagnation, and increased mosquito breeding during the monsoon period. Seasonality of dengue shows there are 2 peaks of the cases in the year. The highest peak of the cases in the month of June and October and November.

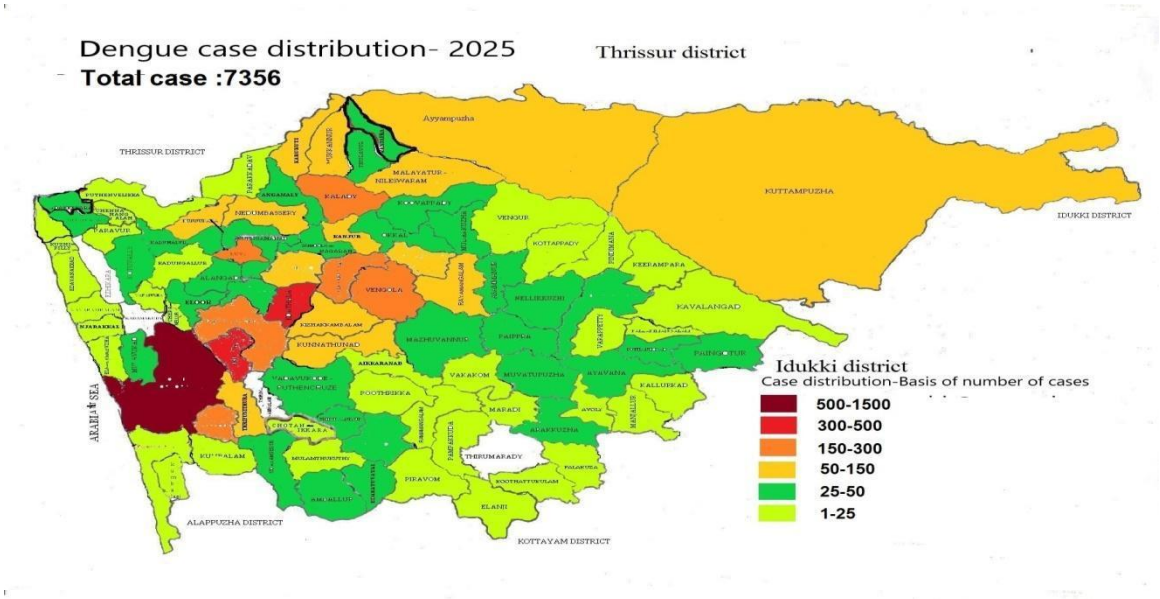
Peak: July–November

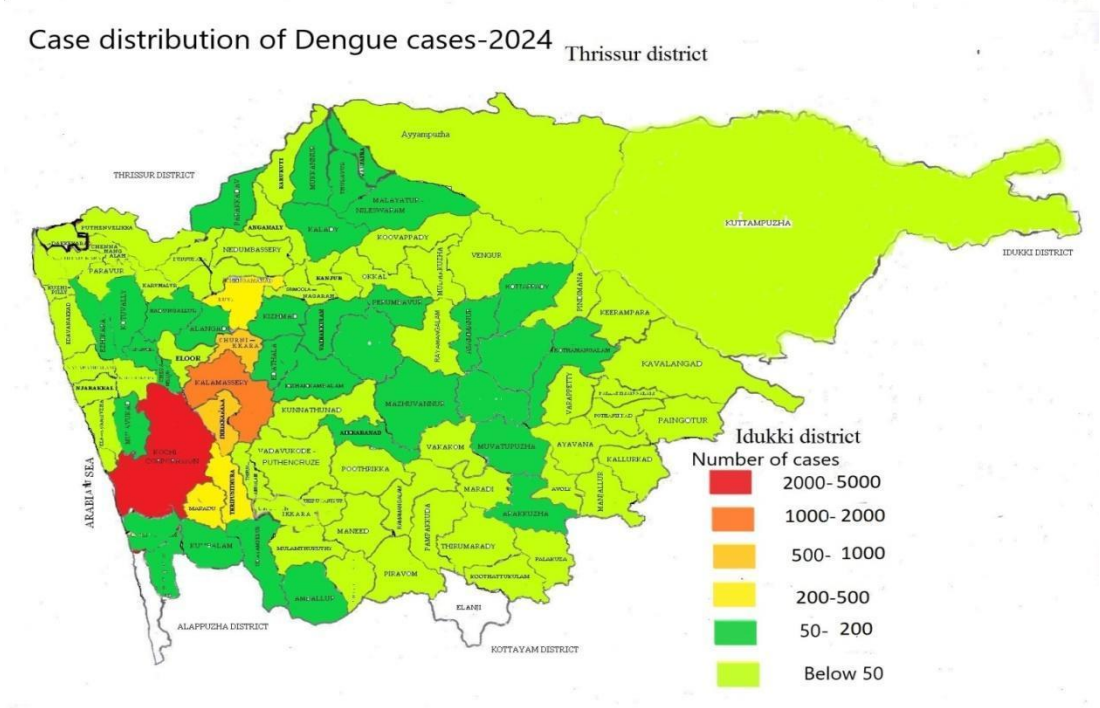


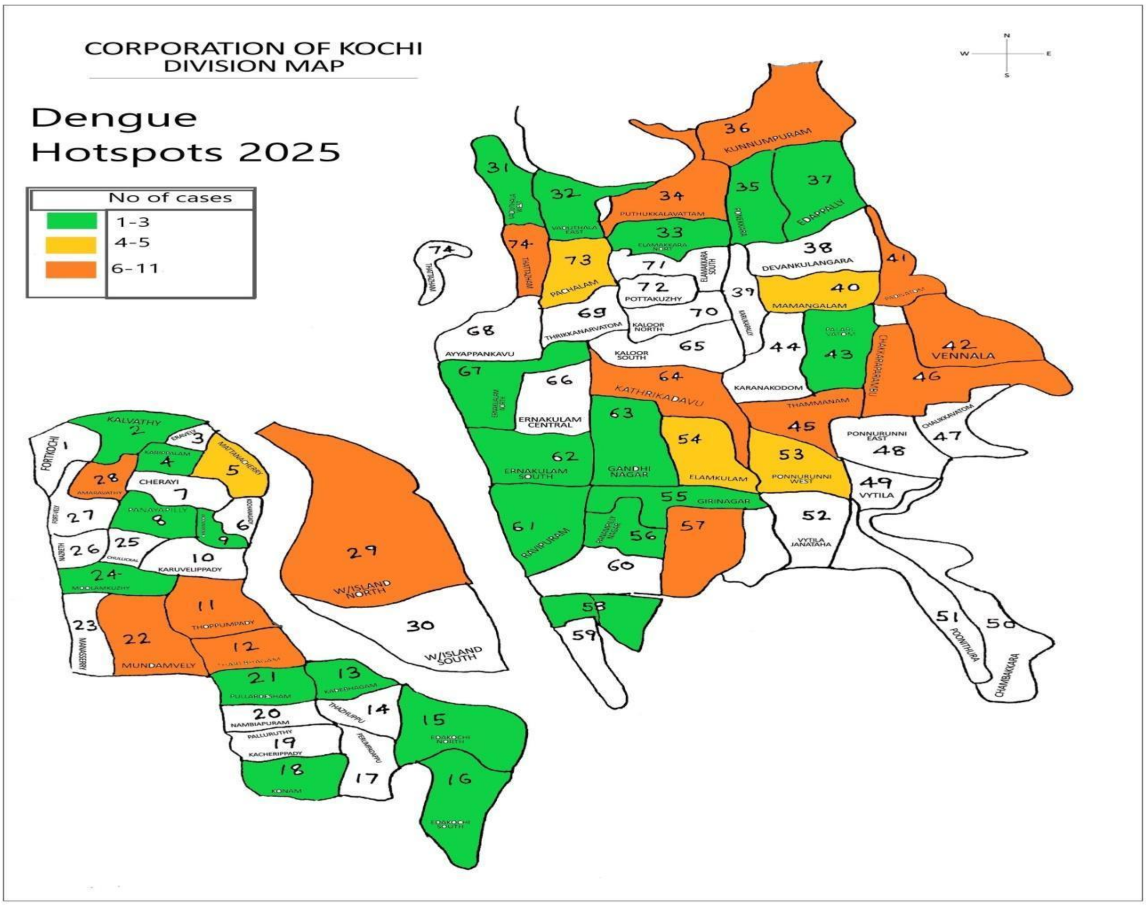
Dengue – LSG-wise Yearly Distribution (2021–2025)

Ward	Dengue – LSG-wise Yearly Distribution					
	2021	2022	2023	2024	2025	Total
Kochi Corporation	1198	3029	5004	4806	1175	15212
Edathala	33	71	350	388	282	1124
Kalamassery	142	280	1141	1251	313	3127
Thrikkakara	112	495	1081	725	481	2895
Choornikkara	38	118	527	477	125	1285
Thrippunithura	45	99	406	309	188	1047
Aluva	43	125	203	239	144	754
Angamaly	83	149	213	109	117	671
Perumbavur	11	112	223	90	177	613
Keezhmad	18	57	198	140	195	608

Dengue hotspot Map



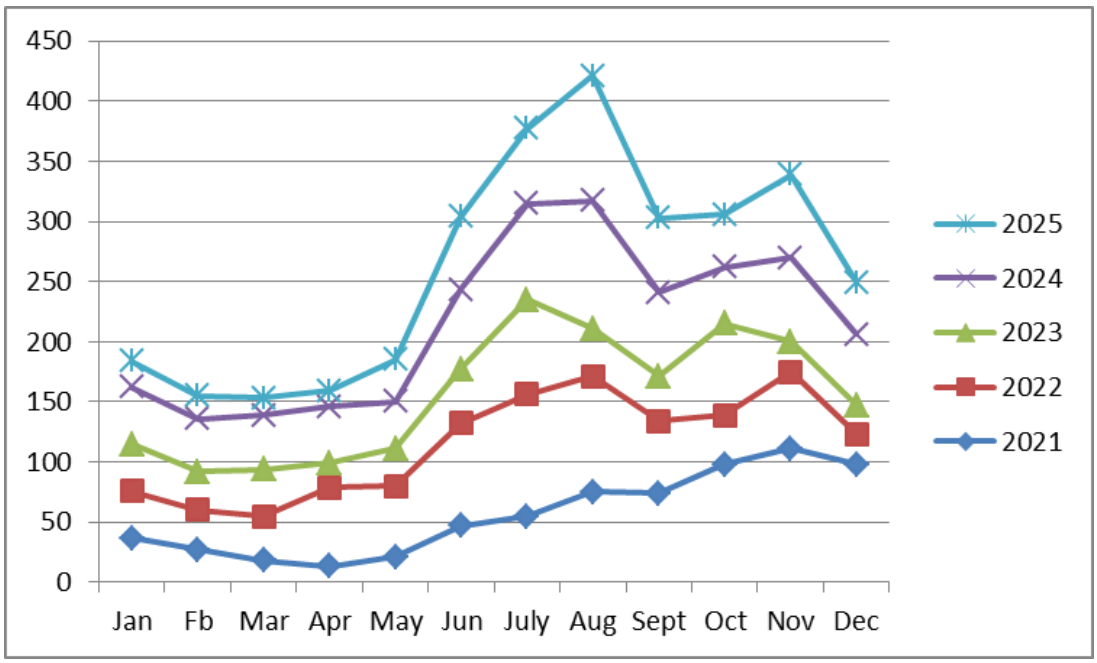




LEPTOSPIROSIS

Leptospirosis cases are closely linked to monsoon rains, flooding, and occupational exposure, particularly in low-lying and waterlogged areas.

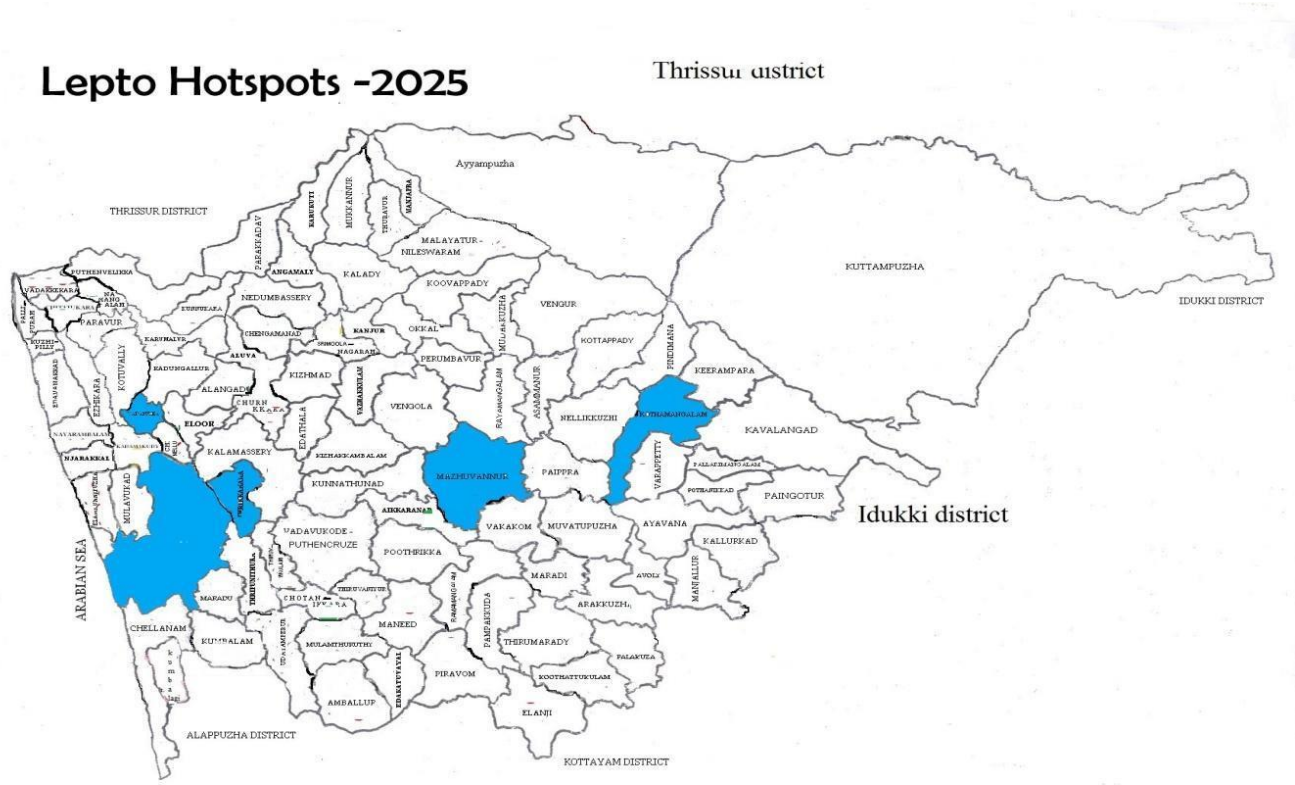
Peak: June - August



LEPTOSPIROSIS – LSG-WISE YEARLY DISTRIBUTION (2021–2025)

LSGD	Leptospirosis – LSG-wise Yearly Distribution					
	2021	2022	2023	2024	2025	Total
Kochi Corporation	65	90	73	112	101	**441**
Kunnathunad	15	39	14	15	14	**97**
Vengur	16	18	8	14	15	**71**
kalady	20	19	10	8	14	**71**
vengola	13	10	13	15	17	**68**
Thrikkakara	9	17	15	15	19	**75**
Thrippunithura	10	10	17	18	16	**71**

Leptospirosis Hotspots 2025



VIRAL HEPATITIS - A

Hepatitis A cases are commonly associated with unsafe drinking water, food contamination, and breakdowns in sanitation, often presenting as clusters or outbreaks.

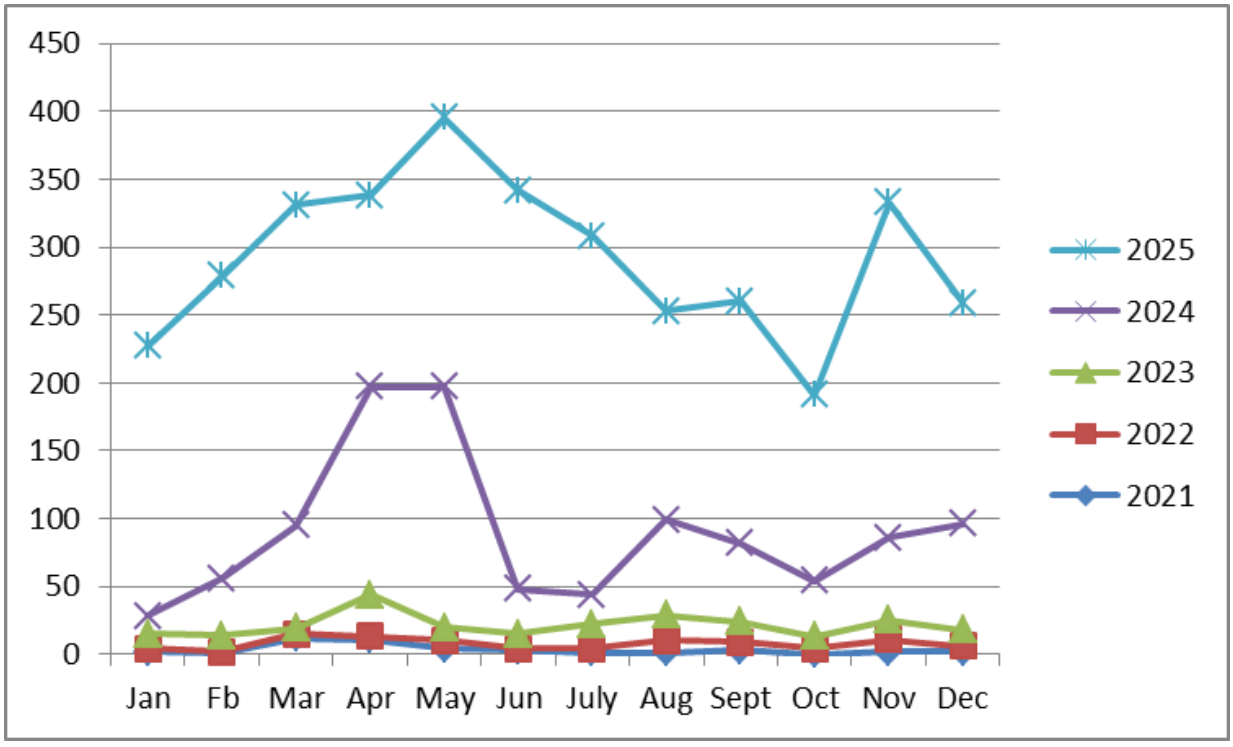
Peak: October - December

HEPATITIS A – LSG-WISE YEARLY DISTRIBUTION (2021–2025)

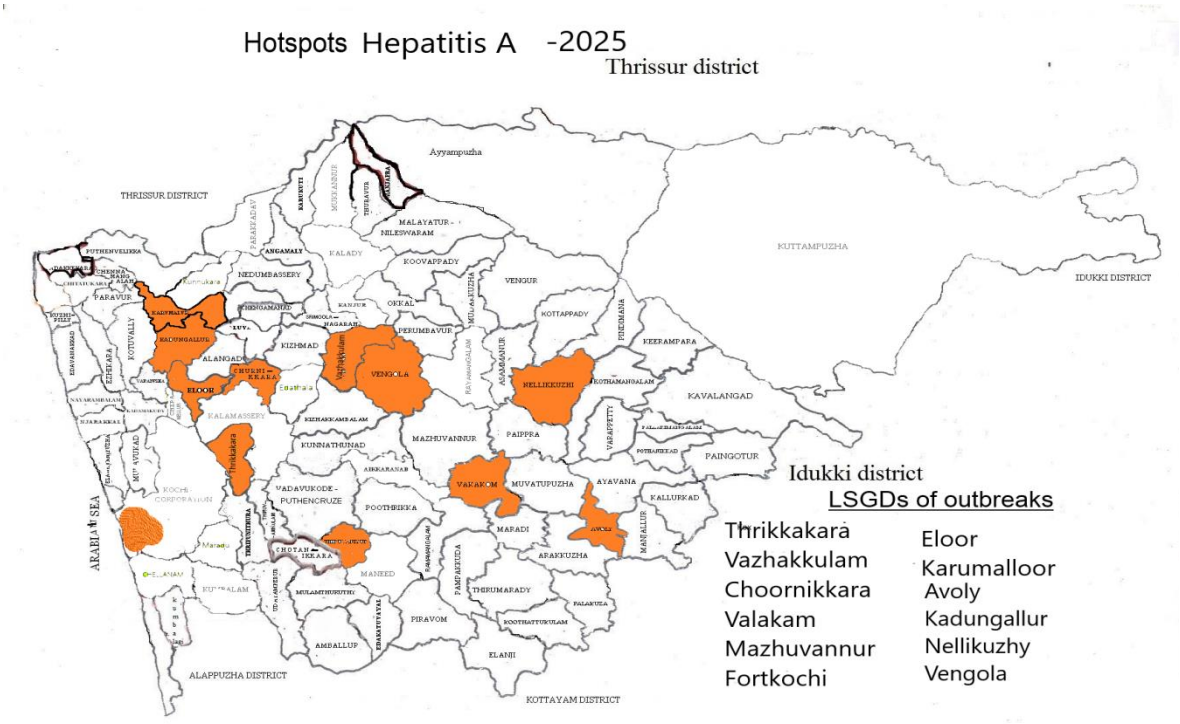
LSG	Hep A – LSG-wise Yearly Distribution					
	2021	2022	2023	2024	2025	Total
Kochi Corporation	2	2	24	234	502	764
Kalamassery	2	1	23	148	201	375
Thrikkakara	2	5	10	125	180	322

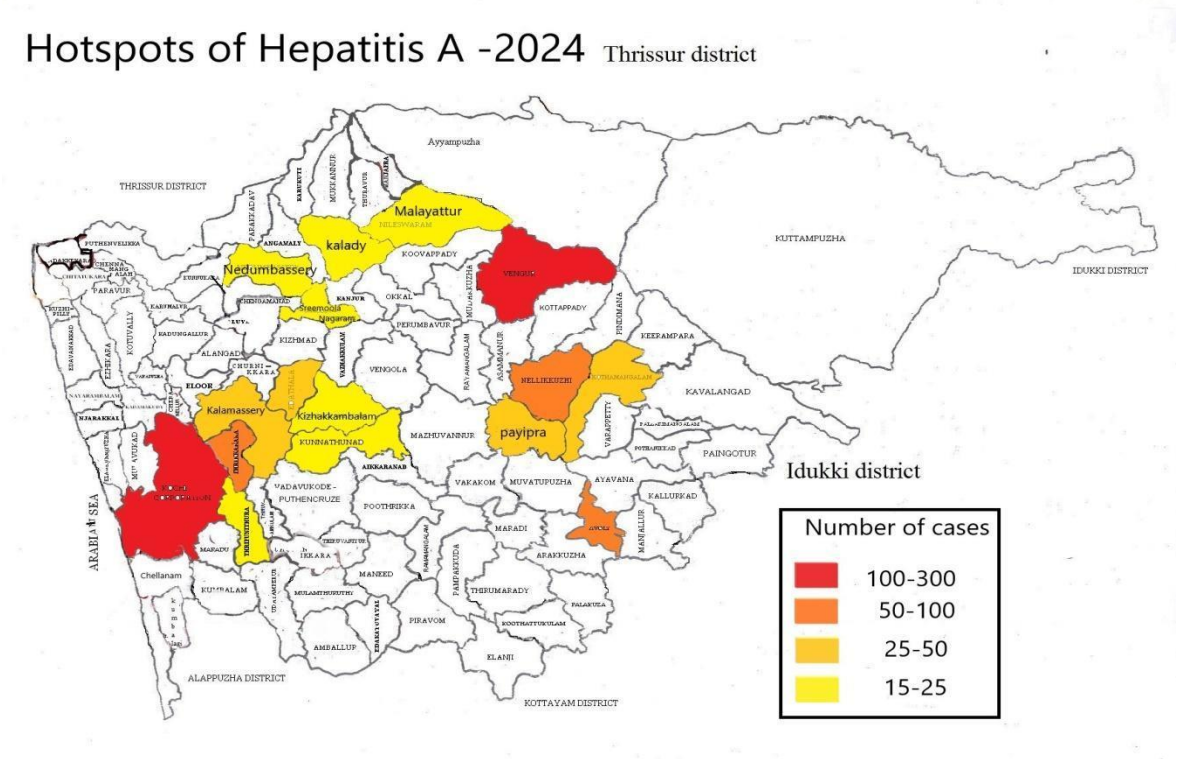
Vengur	1	0	1	247	9	258
kadungallur	0	0	11	32	160	203
Edathala	1	1	3	24	107	136
Nellikuzhy	0	1	1	57	48	107
Choornikkara	0	0	1	10	84	95
Payipra	0	3	1	30	17	51

Line graph of seasonality of Hepatitis A cases-2021 to 2025



Hepatitis A spot Map


Hotspots Hepatitis A -2025
Thrissur district
Ayyampuzha
THRISSUR DISTRICT
MALAYATUR - NILESWARAM
KALADY
KOOVAPPADY
NEDUMBASSERY
VENGUR
KUTTAMPUZHA
IDUKKI DISTRICT
PARAVUR
KADUNGALLUR
KIZHMAD
ALANGAD
ELOOR
VENGOLA
PERUMBAVUR
KOTTAPPADY
NELLIKUZHI
KEERAMPARA
KAVALANGAD
KALAMASSERY
KUNNATHUNAD
MAZHUVANNUR
PAIPPRA
PAINGOTUR
Thrikkakara
VAKAKOM
MUVATUPUZHA
AYAVANA
Idukki district
LSGDs of outbreaks
Thrikkakara
Vazhakkulam
Choornikkara
Valakam
Mazhuvannur
Fortkochi
Eloor
Karumalloor
Avoly
Kadungallur
Nellikuzhy
Vengola
ARABIAN SEA
ALAPPUZHA DISTRICT
KOTTAYAM DISTRICT


Hotspots of Hepatitis A -2024 Thrissur district
Ayyampuzha
THRISSUR DISTRICT
Malayattur
kalady
Nedumbassery
KOOVAPPADY
KUTTAMPUZHA
IDUKKI DISTRICT
Sreemoola Nagaram
KOTTAPPADY
KEERAMPARA
KAVALANGAD
Kalamassery
Kizhakkambalam
payipra
PAINGOTUR
Idukki district
Number of cases
100-300
50-100
25-50
15-25
ARABIAN SEA
ALAPPUZHA DISTRICT
KOTTAYAM DISTRICT

OUTCOME-BASED TREND ANALYSIS- 2025

TRANSMISSION TREND- 2025

For effective management of public health issues, it is important to track the trend of disease transmission mode. It helps identify the population or place at high risk that can be used to predict outbreaks and implement targeted interventions as quickly as possible. Understanding these kinds of trends enables authorities to allocate resources efficiently and change the strategies adequately based on the trend that follows.

Mode of Transmission	No. of cases	No. of Deaths
Vector Borne Diseases	7588	21
Water Borne Diseases	46653	10
Air Borne Diseases	3799	2
Blood Borne Diseases	289	0
Food Borne Diseases	403	2

VECTOR-BORNE DISEASE

Disease	No. of Cases	No. of Deaths
Dengue	7356	20
Malaria	163	1
Chikungunya	1	0

WATER BORNE DISEASE

Disease	No. of Cases	No. of Deaths
Cholera	1	0
Typhoid	376	0
Hep- A	2634	10
Dysentery	0	0
Amoebiasis	0	0
E- Coli infections	0	0

AIR BORNE DISEASE

Disease	No. of Cases	No. of Deaths
Influenza	1747	1
H1N1	327	0
TB	2513	247
Chickenpox	2729	2
Measles	14	0
Covid-19	2402	15

Pertussis	0	0
Mumps	709	0

BLOOD-BORNE DISEASE

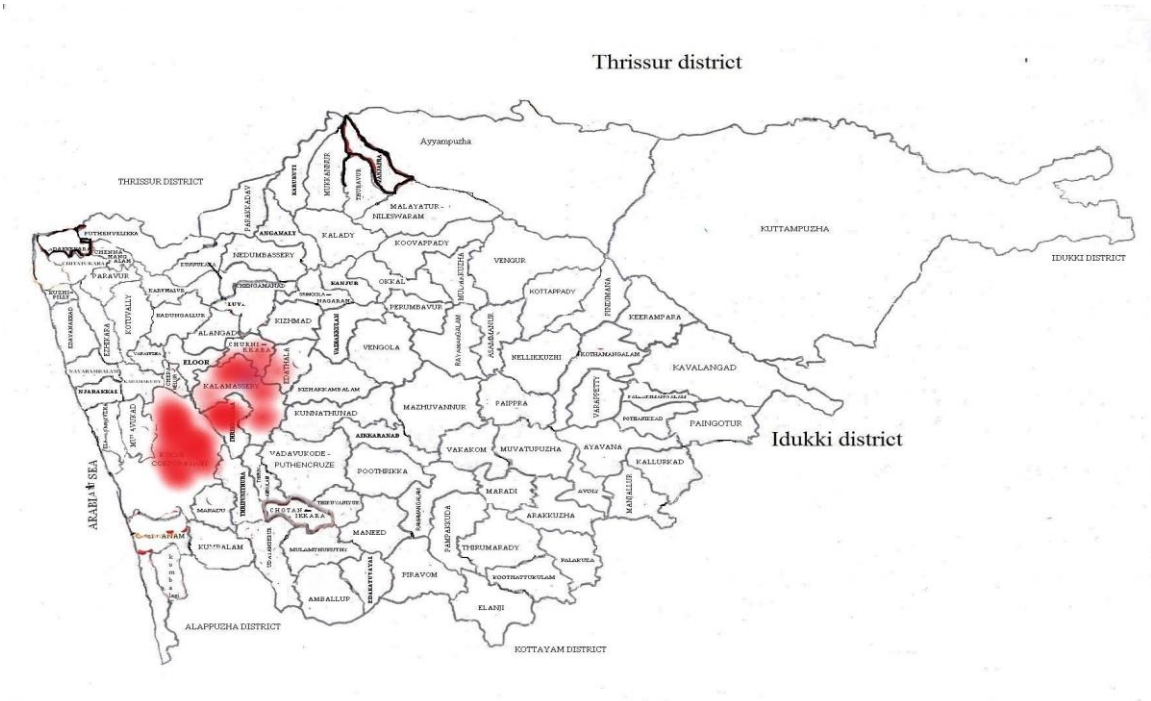
Disease	No. of Cases	No of deaths
AIDS	213	18
Hep- B	184	0
Hep- C	105	0

ZOONOTIC DISEASE

Disease	No. of Cases	No. of Deaths
Rabies	2	2
Leptospirosis	626	43
Avian influenza	0	0
West nile	0	0
Anthrax	0	0
Nipah	0	0
Scrub Typhus	14	0

INTEGRATED DISEASE HOTSPOT MAP (2021–2025)

Map of LSGDs with high burden of disease-2021 to 2025



Most affected LSGIs

LSG Name	Dengue Total (2021-25)	Leptospirosis Total (2021-25)	Hepatitis A Total (2021-25)	Mumps (2021-25)	ADD (2021-25)	Total Cases
Kochi Corporation	15212	441	764	84	1244	17745
Thrikkakara	2895	75	322	108	1355	4755
Kalamassery	3127	48	375	32	1448	5030
Edathala	1124	17	124	62	2114	3441
Choornikkara	1047	14	185	113	2114	3473

By overlaying five years of data, we have identified 5'Red Zone' Wards. These are wards where at least two different categories of diseases (e.g., Dengue and Lepto) recurred in consecutive years. Kochi corporation is categorized as the **Highest Priority Hotspot** due to its combination of flood vulnerability and high vector density. Future health infrastructure, such as the proposed **R.O plants at Kochi corporation** should be prioritized.

ASSESSING CORE CAPACITIES

1. ASSESSING CORE CAPACITIES

Ernakulam's pandemic preparedness is built on seven core capacities. The district's position as Kerala's commercial capital — with Cochin Port (IHR Point of Entry), 5–7 lakh migrant workers, major industrial zones, island panchayats, and three medical colleges — demands especially robust planning across all capacity areas.

Core Capacity	Ernakulam Assets	Status	Gap / Action
Surveillance	76 PHCs, 14 Block PHCs, DSU at DMO, IHIP/IDSP, 3,500+ ASHAs, Cochin Port surveillance	Functional	Strengthen private lab reporting; CBS for island panchayats
Laboratory	GMC Kalamassery (BSL-2), District PHLab, Amrita, Aster, Aster, Lisie Hospital	Functional	Reduce TAT to <24 hrs; increase RT-PCR capacity
Clinical Surge	GMC ., GH Ernakulam, 5 Taluk Hospitals, Amrita, Aster, KIMS, Lakeshore (~400 ICU, ~200 ventilators)	Partly Ready	Activate LTC/CFLTC; formalise MOU with private hospitals
Supply Chain	KMSCL Ernakulam depot, FACT Udyogamandal (sanitiser), Kalamassery Industrial Area (PPE), Kudumbashree SHGs	Functional	Rate contracts; buffer stock at all 18 Block PHCs
Risk Communication	PRD Ernakulam, DISHA 0471-2552056, Arogyakeralam app, Kochi Metro screens	Functional	Multilingual IEC for 5–7 lakh migrant workers
Logistics	EMRI 108 (40+ ambulances), KSRTC, 100+ private ambulances, DDMA vehicles	Functional	Last-mile boat transport for island panchayats

Social Support	50,000+ Kudumbashree NHGs, 15,000+ NSS, 300+ Arogya Sena, Red Cross Ernakulam	Strong	Formalise skill-based roster; activate protocol

1.1 Mapping of Existing Plans and Committees

All existing committees, plans, and coordination platforms are mapped below to ensure clear roles, no duplication, and smooth escalation from ward level to district. Existing COVID-19 protocols have been adapted and simplified for Malayalam-language use at field level.

Committee Harmonisation — LDMC to Pandemic Task Force

LDMC Position	Pandemic Task Force Role	Reporting Line
LSG President / Panchayat President	Chairperson – Pandemic Task Force	District Collector
Vice President / Health Committee Chair	Vice Chairperson	Chairperson
LSG Secretary	Incident Coordinator	Chairperson
Medical Officer (PHC / CHC / Taluk Hospital)	Technical Lead – Public Health	DMO Ernakulam
Health Inspector	Surveillance & Field Operations Lead	Medical Officer
Junior Health Inspector / JPHN	Field Surveillance & CBS Monitor	Health Inspector
ICDS Supervisor	Vulnerable Population Coordinator	Medical Officer
Kudumbashree CDS Chairperson	Community Mobilisation Lead	LSG President
Ward Members / Councillors	Ward-Level Response Coordinators	LSG President
Police Station Representative	Enforcement & Security Coordinator	Superintendent of Police
Veterinary Officer	Zoonotic Disease Monitoring Lead	District AHO

HEOC Signal Flow — Ward Level to District HEOC

COMMUNITY
ASHA / Anganwadi Worker / Ward Volunteer — Detects unusual illness, death cluster, or animal mortality

▼

PHC LEVEL
JHI / JPHN / Medical Officer — Verification and case recording (76 PHCs + 14 Block PHCs, Ernakulam)

▼

BLOCK / TALUK LEVEL
Block Medical Officer — Data compilation and verification (14 Blocks / 7 Taluks, Ernakulam)

▼

DISTRICT SURVEILLANCE UNIT (DSU)
District Surveillance Officer, DMO Office, Ernakulam — IDSP/IHIP entry, situation report

▼

DISTRICT HEOC — ERNAKULAM COLLECTORATE
District Collector + DMO — Emergency activation | RRT deployment | Resource mobilisation

SOP Adaptation & Resource Sharing Agreements

SOP / Agreement	Responsible
Dead body management (infectious disease)	DMO Ernakulam Technical Assistants
Home quarantine monitoring protocol	Health Inspector
PPE donning and doffing protocol	Infection Control Officer, GMC
Sample collection & triple-layer packing	DSO Ernakulam
Ambulance decontamination protocol	EMRI Ernakulam
MOU: ambulance sharing with neighbouring LSGs	Block Medical Officers
MOU: overflow beds with private hospitals	DMO + Hospital Superintendents

1.2 Assessment of Core Capacities

The following data tables provide a verified, Ernakulam-specific assessment of each core capacity — from clinical triage pathways to oxygen suppliers, laboratory network, and 30-day stock levels.

Clinical Triage Plan — Patient Pathway

HOME ISOLATION — MILD

SpO_2 ≥94% | No comorbidities | Monitored by ASHA + JHI | DISHA: 0471-2552056

▼

LTC / SLTC — MILD TO MODERATE

Community Halls, Schools, Hostels (pre-identified per ward) | 300–500 activated surge beds

▼

SECONDARY CARE — MODERATE

GH Ernakulam | Taluk Hospitals: Aluva, Muvattupuzha, North Paravur, Kothamangalam, Perumbavoor (~800 govt. beds)

▼

TERTIARY / CRITICAL CARE

GMC Kalamassery | Amrita AIMS | Aster Medcity | KIMS | Lakeshore | PVS (~400 ICU + ~200 ventilators)

Oxygen & Life Support Log — Ernakulam District

Facility	Category	O_2 Beds	ICU	Ventilators	PSA Plant
GMC Kalamassery	Tertiary Govt.	250+	60+	40+	Yes — 1,000 LPM
Amrita AIMS, Kochi	Tertiary Private	200+	80+	60+	Yes
Aster Medcity, Cheranalloor	Tertiary Private	150+	50+	30+	Yes
KIMS Hospital,	Private	100+	30+	15+	Partial
Lakeshore Hospital, Maradu	Private	120+	40+	20+	No
General Hospital, Ernakulam	Secondary Govt.	120+	20+	10+	No
Taluk Hospitals (5 nos.)	Secondary Govt.	50–60 each	6–10 each	3–5 each	No
LTC / Community Facilities	Isolation / LTC	300+ (activated)	—	—	No

> ***Oxygen Suppliers within 20 km:*** *Inox Air Products (Kalamassery) | BOC Gases / Linde (Willingdon Island) | FACT Udyogamandal (emergency industrial O_2) | KSIDC PSA Plant (Kalamassery) | Blue Cross Medical Gases (Edapally)*

Laboratory Logistics — Sample Collection, Transport & Testing Capacity

Sl	Collection Point	Responsible Officer	Collection Time	Transport Mode	Destination Lab
1	76 PHCs + 14 Block PHCs	Medical Officer / JHI	9:00–11:00 AM	Cold-chain box (District Surveillance Vehicle)	GMC Kalamassery Lab / District PHLab
2	Taluk Hospitals (5 nos.)	Microbiologist / Lab Technician	9:00 AM–12:00 PM	Dedicated govt. courier	GMC Kalamassery Lab
3	Private Hospitals (Amrita, Aster, KIMS, Lakeshore, PVS)	Hospital Lab Technician	10:00 AM–12:00 PM	Approved diagnostic courier	Own lab / District PHLab
4	Fever Clinics / Mobile Units / Screening Checkpoints	Rapid Response Team	8:00–10:00 AM	Ambulance / Health Dept. vehicle	GMC Kalamassery / District PHLab

Lab / Collection Point	Type	Daily Capacity	TAT Target	Responsible
GMC Kalamassery Laboratory	RT-PCR / RAT / WGS (BSL-2)	~2,500 samples/day	≤24 hrs	District Lab Coordinator
District Public Health Laboratory	RAT / Surveillance	~500 samples/day	Same day	Public Health Lab staff
Amrita AIMS Lab	RT-PCR / Molecular	~600 samples/day	≤24 hrs	AIMS Lab In-charge
Aster Medcity Lab	RT-PCR / Advanced Molecular	~500 samples/day	≤24 hrs	Aster Lab In-charge
DDRC / Neuberg / Metropolis (combined)	RT-PCR / RAT	~800/day combined	≤24 hrs	Private lab technicians
76 PHCs + 14 Block PHCs	Sample collection points	Daily collection 9–11 AM	Transport same day	Medical Officer / JHI
NIV Reference Lab (Alappuzha / Pune)	WGS / Confirmatory	Variable	≤48 hrs	Via state channel

Sample Transport: *Cold-chain box via District Surveillance Vehicle | Dedicated transport 9–11 AM from all PHCs | Triple-layer biohazard packing | 2 dedicated transport vehicles for DSU Ernakulam*

30-Day Minimum Stock Level (MSL) — Ernakulam District

Category	Item	30-Day Min. Stock	Re-Order Level	Storage Point
Essential Medicines	Paracetamol tablets	15,000 tablets	5,000	District Medical Store
Essential Medicines	Antibiotics (Amoxicillin / Azithromycin)	8,000 courses	2,500	District Store + Hospitals
Essential Medicines	IV Fluids (NS / RL)	3,000 units	1,000	District Hospital + Taluk Hospitals
Essential Medicines	Oxygen cylinders (backup)	500 cylinders	150	GMC + GH + Taluk Hospitals
PPE	N95 Masks	8,000 units	2,500	Central PPE Store, Ernakulam
PPE	Surgical Masks	30,000 units	10,000	Hospitals + PHCs
PPE	Disposable Gloves	80,000 pairs	25,000	All facilities
PPE	Full PPE Kits	2,500 units	750	Isolation wards
Infection Control	Hand Sanitisers + Disinfectant	1,500 bottles / 800 L	500 / 250	All facilities / Hospitals
Diagnostics	RAT Kits + VTM Kits	5,000 + 8,000 units	1,500 / 2,500	PHLab + PHCs / District Store

Replenishment: *Primary: KMSCL Ernakulam depot. Emergency: DMO authorised local procurement when stock <15-day threshold. Backup suppliers: Neethi Shops, Karunya Medical Shops, local vendors empanelled at LSG level.*

Trained Volunteer Force — Skill-Based Database

Category	Organisation	Key Skills	Numbers	Deployment Role
Community Health	Kudumbashree Mission, Ernakulam	Outreach, food prep, essential supply distribution	50,000+ NHG members	Quarantine support, home delivery, community kitchens
Health Support	Arogya Sena (Kerala Health Mission)	Basic nursing, patient support, health awareness	300+	Assist hospitals and isolation centres
Disaster Response	NDRF-trained community volunteers	Emergency rescue, logistics, crowd management	100+	Emergency operations and logistics
Data Management	NSS / NCC / Infopark IT youth	Data entry, surveillance reporting, helpline ops	200+	District Control Room; IHIP data management

Transport	Drivers' associations, auto unions	Driving, ambulance support, supply delivery	150+	Medical transport and supply chain
Community Kitchen	Women SHGs (Kudumbashree)	Cooking, food distribution	500+	Isolation centres and relief camps

1.3 Build & Organise Critical Capacities

Building critical capacities requires systematic strengthening of surveillance, laboratory systems, community engagement, and vaccination infrastructure. The following combined table covers all key activities with responsibilities and monitoring indicators.

Activity	Responsible	Frequency	Monitoring Indicator
Strengthen IDSP/IHIP Surveillance from PHCs, private hospitals, labs, LSGs	DSO / District Epidemiologist/ Block Medical Officers	Continuous	% institutions reporting regularly
Regular IDSP review meetings (district + block levels)	DSO Ernakulam/District Epidemiologist	Monthly (District); Fortnightly (Block)	Meetings held vs. planned; action taken reports
Linelist of non-reporting institutions (public, private, labs, LSGD)	DSU / Taluk Surveillance Units	Monthly	No. of non-reporting institutions identified
Lab turnaround time (TAT) monitoring	GMC Lab / District PHLab	Daily (outbreak)	TAT ≤24 hrs priority; ≤48 hrs confirmatory
Ward-level ILI cluster and mortality alert SOPs	Health Inspector / JPHN	Continuous	No. of alerts generated; response time <6 hrs
Community-based surveillance (CBS) — ward volunteer network	ASHA / Anganwadi / Ward Volunteers	Weekly report; immediate for events	CBS reports received; events detected by community
Vaccination coverage — ward-wise, antigen-wise monitoring	Block Medical Officers	Monthly	Coverage %; cold chain compliance; wastage rate
Cold chain integrity — ILR audits, temperature logs	Cold Chain Technician / Block MO	Monthly audit; daily logging	Cold chain failure rate; stock-out frequency
Risk communication — RRT, Kudumbashree, One Health engagement	Medical Officer + ASHA	Ongoing; intensify during alerts	Community meetings held; rumours corrected
Community level meetings — Ayalkoottam, WHSNC, JAS, MASI	Ward Member + ASHA + HI	Monthly (normal); weekly (alert)	Meetings held; issues reported to health system

Vulnerable Group	Examples — Ernakulam	Key Risks	Measures	Responsible
High-density settlements	Mattancherry, Fort Kochi, Vypeen Island, Perumbavoor migrant areas	Overcrowding, rapid spread	Active surveillance, fever camps, sanitation drives, early case detection	Health Dept, LSGD, ASHAs
Migrant clusters	Kalamassery Industrial Area, Aluva Perumbavur, Kochi construction sites (~2–3 lakh migrants)	Shared living, language barriers, limited healthcare access	Cluster mapping, health screening, multilingual IEC (5 languages)	Health, Labour Dept, LSGD
Major workplaces	Infopark (~70,000 IT workers), Cochin Port, FACT, Cochin Refineries, fish processing units	Workplace clusters	IPC protocols, employee screening, symptomatic isolation	Health, Labour, Industries, Port Authority
Institutions	Old age homes, orphanages, college hostels, Ernakulam Central Jail	Cluster outbreaks	IPC guidelines, health monitoring, vaccination campaigns	Health, Education, Social Justice
High-risk panchayats	Mulavukadu, Pallippuram, Kumbalam, Kadamakudy (island panchayats — COVID burden)	Limited road access, island geography	Priority CBS, hazard mapping, RRTs, targeted vaccination	District Admin, Health, LSGD
Coastal & fishing communities	Munambam, Chellanam, Kumbalangi fishing hamlets	Limited transport, zoonotic risk	Boat-based health camps, Fisheries Dept. coordination	Health, Fisheries, Coast Guard

. GOVERNANCE & STRUCTURE

Pandemic governance in Ernakulam is structured across five tiers from the District Collector down to ward-level volunteers. The Public Health Emergency & Pandemic Task Force under

DDMA integrates health, revenue, LSG, police, animal husbandry, ICDS, education, transport, and uniquely for Ernakulam — the Cochin Port Authority.

2.1 Governance Hierarchy

DISTRICT — DDMA Ernakulam
Public Health Emergency & Pandemic Task Force | District Collector (Chair), DMO, Police, Revenue, LSGD, Animal Husbandry, ICDS, Education, Transport, Cochin Port Authority

▼

TALUK / BLOCK — Taluk Disaster Management Committee
Tahsildar (Chair) | Block Medical Officer | Police | LSG Representatives | 7 Taluks + 14 Blocks

▼

PANCHAYAT / MUNICIPAL — Arogya Jagratha Samithi
LSG President (Chair) | MO PHC (Convenor) | Health Inspector | ICDS Supervisor | Kudumbashree | 152 Panchayats + 14 Municipalities + Kochi Corporation

▼

WARD — Ward Health & Sanitation Committee
Ward Member | ASHA Worker | JHI / JPHN | Anganwadi Worker | Arogya Sena Volunteers

▼

COMMUNITY
Kudumbashree NHGs | Youth Clubs | Resident Associations | NGOs | SHGs

2.2 Panchayat Responsibility Matrix — Arogya Jagratha Samithi

Function	Lead	Supporting Members	Key Activities
Surveillance & Case Detection	JHI / ASHA	CBS volunteers	Symptom reporting, line listing, report to Block PHC
Home Isolation Monitoring	JPHN	ASHA, Ward Volunteers	Daily follow-up; teleconsultation via DISHA helpline
Contact Tracing	Medical Officer PHC	Health staff, volunteers	Identify + monitor contacts 14 days: update IHIP
Quarantine Management	Panchayat Secretary	Health Dept.	Operationalise facilities; ensure water/sanitation/power
Risk Communication (IEC)	Medical Officer	Kudumbashree, Ward Members	Campaigns + multilingual IEC for migrant workers
Essential Support Services	Panchayat Committee	Kudumbashree Units	Food, medicines, supplies to quarantined households

Sanitation & Waste	Health Inspector	Haritha Karma Sena	BMWM handling; sanitation drives; WASH measures
Vulnerable Population Support	ICDS Supervisor	Anganwadi Workers	Support elderly, pregnant women, dialysis patients

2.3 Planning Principles & Legal Framework

All response actions are guided by equity, gender sensitivity, human rights, inclusiveness, coherence, and compliance with International Health Regulations (IHR 2005). Ernakulam's designation as an IHR Point of Entry through Cochin Port adds specific legal obligations for international health surveillance.

Principle	Application — Ernakulam	Legal / Policy Basis
Equity	Fair access for all — including island communities, migrants, fishing villages	Epidemic Diseases Act 1897; Kerala Public Health Act
Inclusiveness	Participation of elderly, migrants, disabled, island communities	DM Act 2005; Kerala Panchayati Raj Act
IHR Compliance	Cochin Port as Point of Entry — Port Health Officer coordinates with National IHR Focal Point	IHR 2005; MoH notification
Data Sharing	IDSP/IHIP data protocols; inter-hospital data sharing (GMC and district system)	Clinical Establishments Act; IDSP guidelines
Emergency Procurement	LSG procurement without 30-day tender during State of Emergency	Kerala Municipality / Panchayati Raj Act emergency powers
Technical Advisory	GMC Kalamassery expert committee | IMA Ernakulam Chapter | IAP Ernakulam	State Health Dept. advisory framework

3. SURVEILLANCE & LABORATORY SYSTEMS

Ernakulam's integrated surveillance system combines five types of surveillance under IDSP/IHIP, with One Health linkages to veterinary and environmental health. Special provisions exist for Cochin Port (IHR Point of Entry), industrial clusters in Eloor/Kalamassery, and island panchayats with limited connectivity.

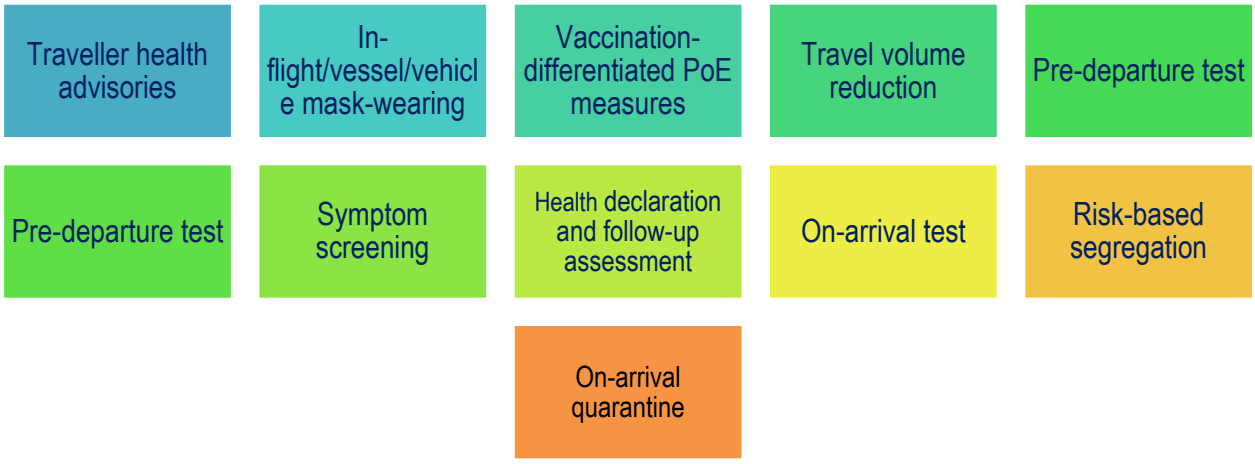
3.1 Surveillance — Data Sources, Event Triggers & Reporting

Surveillance Type	Sources — Ernakulam	Reporting Mechanism
Indicator-Based (IBS)	76 PHCs + 19 Block PHCs + GH + Taluk Hospitals + GMC + private hospitals — daily syndromic data (fever, ILI, SARI)	Daily S/P/L forms via IHIP to DSU Ernakulam
Event-Based (EBS)	School absenteeism, pharmacy sales surge, workplace clusters, social media, Cochin Port health reports	Immediate to DSU; verified within 24 hrs by RRT
Community-Based (CBS)	3,500+ ASHAs + 3,800+ AWWs + 50,000+ Kudumbashree; special CBS for island panchayats and migrant clusters	Weekly reports; immediate for events via JHI/JPHN
Sentinel Surveillance	GMC Kalamassery + 4 Taluk Hospitals as sentinel sites; influenza sentinel at GMC	Weekly reports to state / national surveillance units
Laboratory Surveillance	GMC Kalamassery Lab (RT-PCR, BSL-2) + District PHLab + 5 private labs	Daily lab report to DSU; positive cases by phone within 4 hrs

Event-Based Surveillance Triggers — Ernakulam

Trigger Event	Threshold	Ernakulam-Specific Context
Fever / ILI cluster	≥5 cases same ward within 7 days	Dense urban areas: Mattancherry, Aluva, Vypeen Island
School absenteeism spike	>20% absenteeism ≥3 days	600+ govt./aided schools; PTA nodal person as reporter
Pharmacy sales surge	2× increase over baseline in 7 days	Commercial areas: MG Road, Mattancherry market, Aluva
Workplace illness cluster	≥3 employees, same symptoms	Infopark (~70,000 workers), Kalamassery Industrial Area, Cochin Port
Unusual animal deaths	Any cluster — poultry/domestic/wild birds	Aluva, Kothamangalam poultry zones; Eloor backwater area
Port / ship arrival alert	Any symptomatic passenger or crew	Cochin Port: all international vessels — mandatory health declaration
Migrant worker cluster	≥5 cases same worksite / dormitory	Construction sites + factory dormitories, Perumbavoor, Aluva

Point of Entry Measures



3.2 Laboratory Strengthening — Key Strategies

Strategy	Actions — Ernakulam	Target
Expand Lab Network	Coordinate GMC Kalamassery, District PHLab, Amrita, Aster, DDRC, Neuberg; district lab hub at GMC	All 14 blocks linked to lab with <24-hr TAT
Sample Collection & Transport	Standardise protocols at all 76 PHCs; VTM kits + cold chain; 2 dedicated DSU transport vehicles	Daily sample transport from all blocks to GMC/PHLab
Reduce TAT	Target ≤24 hrs priority, ≤48 hrs confirmatory; real-time IHIP reporting	>90% samples reported within 24 hrs during outbreak
Quality Assurance & Biosafety	BSL-2 compliance at GMC Kalamassery; periodic training for lab personnel; internal + external QA	Zero BSL violations; annual external QA audit

Genomic Surveillance	Genomic sequencing for novel pathogens at NIV; PIED cell at GMC for variant surveillance	All VOC/VOI cases sequenced within 7 days of detection

4. COMMUNITY PROTECTION & COMMUNICATION

Community protection combines infection prevention, vaccination, PPE distribution, social welfare, and essential services continuity. Ernakulam's multilingual population and diverse geography demand a multi-channel, multi-language communication strategy — with special attention to Cochin Port travellers, island panchayats, and the large migrant workforce.

4.1 Protection Mechanisms

Area	Actions — Ernakulam
Infection Prevention	Handwashing promotion at all public facilities | Mask usage in hospitals, markets, Kochi Metro, KSRTC | Disinfection of public transport and community spaces | Physical distancing in dense areas
Vaccination	Mass drives across 152 Panchayats + 14 Municipalities | Mobile units for island panchayats (Kadamakudy, Vallarpadam, Mulavukadu) | Institutional camps at Infopark (~70,000 workers) and Kalamassery Industrial Area | CoWIN tracking; target low-coverage wards
PPE Distribution	PPE to all frontline workers at GMC, GH, Taluk Hospitals, 76 PHCs | Train ASHAs and Kudumbashree on PPE use | Pre-positioned at 14 Block PHCs; KMSCL depot as primary source
Social Welfare	Food via 2,000+ PDS ration shops | 500+ Kudumbashree community kitchens during lockdown | Psychosocial support via DMHP Ernakulam + GMC Psychiatry | Cash transfer and shelter support through LSG
Essential Services	Healthcare 24×7 (GMC, GH, EMRI 108) | Water: KWA Ernakulam uninterrupted | Power: KSEB backup for all health facilities | Food: Civil Supplies emergency procurement | Banking: digital promotion via Kochi fintech

4.2 Risk Communication — Channels and Strategy

Channel	Responsible	Contact	Frequency
District PA system / all 96 LSGs	District Collector / LSG Presidents	0484-2362280	Daily during pandemic
Social Media (Facebook, Instagram, WhatsApp, Twitter, Telegram)	District Mass Media Wing / PRD Officer, Ernakulam	—	Daily
Local TV / Kairali People / Asianet Kochi	PRD Officer, Ernakulam	—	Daily — 6 PM health bulletin
Kochi Metro Screens / KSRTC Digital Boards	District Information Officer	—	Continuous during outbreak

Print Media (Mathrubhumi, Manorama, The Hindu Kochi)	PRD Officer	—	Press brief 7 PM daily
Multilingual IEC (Malayalam, English, Hindi, Bengali, Tamil, Odia, Assamese)	Medical Officer + DIO	—	Monthly; surge printing during outbreak
DISHA Helpline	DISHA Call Centre	0471-2552056	24×7
District Pandemic Helpline	District Control Room	0484-2823300	24×7 during pandemic

Rumour Tracking: Designated volunteer per block monitors WhatsApp groups and social media daily. Official clarification issued within 4 hours via all channels. Police Cyber Cell activated for malicious misinformation under IT Act.

4.3 Travel & Trade Risk Communication — Ernakulam

Entry Point	Protocol
Cochin Port (IHR Point of Entry)	Port Health Officer: mandatory health inspection of all international vessels | Ship Sanitation Certificate verification | Crew + passenger screening | Coordinate with District HEOC for positive cases
Cochin International Airport (CIAL)	Mandatory health declaration for international arrivals | Thermal scan + symptom questionnaire | APHO coordination | RAT/RT-PCR for high-risk country passengers
Railway Stations (Ernakulam Junction, Town)	Screening desks during outbreak | Railway Health Unit coordination | Travellers from affected states: symptom inquiry and referral
KSRTC Bus Stands (Central + Aluva)	Thermal scanning during outbreak | Crew health declaration | Transport Dept. coordination

6. CLINICAL CARE & ESSENTIAL SERVICES

Clinical care involves scaling facilities, maintaining diagnostics, managing cases at appropriate levels, and running telemedicine. Essential services continuity ensures that dialysis, TB/ART treatment, maternal care, and mental health services are never interrupted — even during peak pandemic response.

5.1 Clinical Care & IPC Standards

Domain	Responsible — Ernakulam	Key Actions
Scaling Facilities	DMO + Hospital Superintendents	Expand beds; activate LTC/CFLTC; MOU with private hospitals (Amrita, Aster, KIMS, Lakeshore, PVS)
Diagnostics	DMO + District Lab Coordinator (GMC)	Ensure daily testing volume; maintain reagents; monitor TAT; escalate if TAT >24 hrs

Case Management	DMO + Senior Clinician Committee (GMC + IMA Ernakulam)	Protocol adherence; weekly mortality audit; clinical guidance to all Taluk Hospitals
Telemedicine	DMO + District Health IT (Infopark support)	24×7 via DISHA helpline + Arogyakeralam app; tele-OPD for mild cases
Safe Burials	DMO + Public Health Inspector + LSG	Enforce infectious burial protocols; coordinate with clergy and funeral services
Waste Management	DMO + Infection Control Team + KSPCB	BMWM compliance at all facilities; KSPCB notifications

TRIAGE, COHORTING AND IPC — STANDARDS

IPC Component	Standard — Ernakulam	Monitoring
Cohorting Zones	GREEN (Non-infectious) | YELLOW (Suspected/Triage) | RED (Confirmed Infectious) — all facilities	Daily safety walk checklist by Medical Officer
Triage Checklist (≤3 min)	(1) Respiratory Rate | (2) SpO_2 | (3) Fever/Symptoms | (4) Travel/Contact history | (5) Comorbidities	Triage form with timestamp
On-Site Mentoring	GMC Kalamassery specialists → Taluk Hospitals → Block PHCs — monthly shadow training for ventilator use, PPE donning	Monthly training roster
IPC Compliance (Daily Safety Walk)	Hand hygiene ✓ | Waste segregation ✓ | Surface cleaning ✓ | PPE availability ✓ | Isolation zone integrity ✓	Printed checklist filed daily by facility in-charge
HCW Prophylaxis	Regular health monitoring | Vaccination status updated | DMHP mental health support | 8-hr rotation shifts during surge	Weekly HCW health monitoring form

5.2 ESSENTIAL SERVICES CONTINUITY

Service	Continuity Measures — Ernakulam	Responsible
Dialysis	~800 regular patients listed ward wise | Map all 15 dialysis centres | Panchayat transport support | Staggered appointments | Alternate: GMC + Amrita for overflow	DMO + LSG Presidents
TB Treatment	~2,500 active TB patients | Uninterrupted DOTS supply via ASHAs + PHC distribution | Multi-month dispensing during lockdown	RNTCP Coordinator + Block MOs
HIV / ART	ART Centre at GMC Kalamassery | Multi-month dispensing | Transport support for refill visits	NACO Coordinator + GMC

Diabetes / Hypertension	Patient lists at each PHC | Medicine refill schedules | Teleconsultation via DISHA	PHC Medical Officers + JPHN
Cancer Treatment	Coordinate chemo/radiotherapy: GMC, Amrita, Aster Medcity | Emergency transport | No-interruption policy	DMO + Hospital Superintendents
Mental Health	DMHP Ernakulam + GMC Psychiatry 24×7 | DISHA helpline | Tele-counselling for quarantined persons	DMHP Coordinator + GMC Psychiatry
Water Supply	Kerala Water Authority Ernakulam 24×7 | Chlorination protocols | Tanker for affected areas	KWA, Ernakulam
Food Supply	2,000+ PDS ration shops | Civil Supplies emergency procurement | Kudumbashree community kitchens	Civil Supplies Officer + LSGs

6. HEALTH SYSTEM SURGE

Surge planning covers bed expansion, oxygen availability, specialised care, transport, and community facility conversion. Ernakulam's private sector — Amrita, Aster, KIMS, Lakeshore, PVS — provides a significant surge buffer, but requires pre-planned coordination and formal MOUs to activate rapidly.

6.1 Gap Analysis — Beds, Oxygen, Critical Care

Area	Current Capacity	Surge Requirement (Peak)	Gap	Action
General Hospital Beds	~4,500 (govt. + private)	Up to 5,000 at peak	~500 beds	Community facility conversion; LTC activation
Oxygen-Supported Beds	~1,300 combined	~600 (5% of 12,000 active cases needing O_2)	Minimal if private hospitals engaged	PSA upgrade at GMC; private hospital MOU
ICU Beds	~400 combined	~180 (1.5% of peak cases)	Minimal	Activate MOU: Amrita, Aster, KIMS, Lakeshore
Ventilators	~200 combined	~60 (0.5% of peak)	Minimal	Functional audit; eliminate repair backlog
Oxygen LPM Capacity	~4,000 LPM (PSA + liquid)	~4,800 LPM (600 pts × 8 LPM avg)	~800 LPM shortfall	PSA upgrade at GMC; Inox Air + FACT emergency supply

6.2 Surge Bed Expansion — Community Facilities

Pre-identified community facilities will be converted to LTC/CFLTC isolation centres when hospital capacity reaches 70%. All facilities have separate entry/exit points, basic water/sanitation/power, and designated nodal persons.

Facility	Type	Location	Beds	Nodal Person	Contact

Rajagiri College Campus	College hostel / campus	Kalamassery	200		
Bharat Mata College	College building	Thrikkakara	150		
LuLu Convention Centre (MOU req.)	Convention Centre	Edapally	500		
YMCA Hall	Community Hall	Ernakulam town	100		
Town Hall, Kochi Corporation	Municipal Hall	MG Road area	150		
Aluva Youth League Hall	Community Hall	Aluva	80		
Muvattupuzha Govt. College	College building	Muvattupuzha	120		
Perumbavoor Market Complex	LSGD Market building	Perumbavoor	100		
North Paravur Community Hall	Community Hall	North Paravur	80		
Govt. Guest House, Ernakulam	Guest House	Ernakulam town	50		

7. SUPPLIES AND LOGISTICS

Pre-positioning, consumption norms, local production capacity, and supply chain contingency planning are the four pillars of Ernakulam's logistics strategy. The district's industrial base — FACT (ethanol), Kalamassery garment units (PPE), KSDPL (sanitisers), and 600+ Kudumbashree SHGs (masks) — provides a significant local production buffer.

Component	Action — Ernakulam	Responsible
Consumption Norms	Per-Patient Per-Day: PPE kit — 2/isolation patient | N95 — 1/HCW/day | Hand sanitiser — 50 ml/HCW/day | IV fluid — 2 units/moderate patient/day	DMO + District Logistics Team
Local MSME / SHG Registry	Pre-certify 600+ Kudumbashree SHGs (masks) | FACT (ethanol) | KSDPL (sanitisers) | Kalamassery garment units (PPE coveralls) | Minimum capacity verified	District Industries Centre + DMO
Home-Care Kits	Pre-packed: 10 paracetamols + 5 surgical masks + 1 thermometer + 1 pulse oximeter + IEC card (Malayalam) | Dispatched within 24 hrs of positive case	LSG Secretary + ASHA + Community Volunteer
Emergency Procurement	LSG can procure from local vendors without 30-day tender under State of Emergency | Joint authorisation: DMO + LSG Secretary	LSG Secretary + DMO + District Legal Cell
Contingency Routing Maps	Plan B routes for all 14 blocks if primary roads blocked (lockdown / Periyar flooding) | Boat routes for island panchayats | Updated annually	District Administration + Health Dept.

Rate Contracts (Framework Agreements)	Pre-signed 12–24-month price agreements with ≥3 PPE vendors, ≥2 oxygen suppliers (Inox Air + BOC), medicine suppliers | Anti-price-escalation clauses	District Procurement Committee + DMO
Digital Inventory Ledger	Mobile-friendly one-page stock tracker | One-click entry for incoming/outgoing | Auto-alert when stock hits 25% of capacity | Integrated with District HEOC dashboard	District Health IT Coordinator (Infopark support)
Last-Mile Network	100+ Kudumbashree 2-wheeler volunteers per block for narrow lanes and island communities | Boat transport for Kadamakudy, Vallarpadam, Mulavukadu | Formal ID cards + safety kits	Panchayat + Community Volunteers + ASHAs

7.1 Supply Chain Flow — Ernakulam

NATIONAL / STATE — KMSCL HQ / State Medical Store
HLL Life care | GoI Emergency Stockpile

▼

DISTRICT — KMSCL Ernakulam Depot + District Medical Store
LOCAL PRODUCTION: FACT (ethanol) | KSDPL (sanitisers) | Kalamassery garment units (PPE) | Kudumbashree SHGs (masks)

▼

19 BLOCK PHC EMERGENCY STORES
Aluva, Angamaly, Kanayannur, Kochi, Kothamangalam, Kunnathunad, Muvattupuzha, Paravur blocks

▼

76 PHCs + 82 Panchayats + 14 Municipalities
ASHA Home-Care Kit distribution | Quarantine centre supplies

▼

LAST MILE — HOUSEHOLDS
Kudumbashree / ASHA 2-wheeler delivery | Boat transport for island panchayats

7. PREPAREDNESS AND RESPONSE PROTOCOL AT DISTRICT LEVEL

This section describes the full operational framework for Ernakulam District once a pandemic is declared. All actions follow a One Health approach integrating human, animal, and environmental health surveillance.

8.1 One Health Committee — Ernakulam

The One Health Committee coordinates human, animal, and environmental health. In Ernakulam, this is especially critical given Cochin Port (imported infections), Aluva/Kothamangalam poultry sector (avian influenza), Eloor industrial zone (chemical mimic of disease), and backwater fishing communities (zoonotic risk).

Sl	Designation	Department	Role	Contact
1	District Collector	Ernakulam District Administration	Chairperson	
2	District Medical Officer (Health)	Health Department, Ernakulam	Member Secretary	0484-2362400
3	District Animal Husbandry Officer	Animal Husbandry	Member	
4	Deputy Director, Panchayats	LSGD, Ernakulam	Member	
5	District Agriculture Officer	Agriculture Department	Member	
6	District Fisheries Officer	Fisheries Department	Member	
7	District Forest Officer	Forest Department	Member	
8	District Food Safety Officer	Food Safety Department	Member	
9	District Surveillance Officer	Health Dept. / IDSP	Member	
10	District NKKP2 Nodal Officer	Health Department	Member / Convener	
11	Port Health Officer, Cochin Port	MoH / Cochin Port Authority	Member (Ernakulam-specific)	0484-2666868
12	Civil Society + Line Depts.	Police, Education, ICDS, DDMA, Transport	Members	

> **Meeting Schedule:** Quarterly (normal) | Weekly (outbreak alert) | Daily (pandemic phase) — at District Control Room, Ernakulam Collectorate

8.2 Pandemic Response Workforce

Team	Composition	Key Responsibilities	Team Leader
Surveillance & Contact Tracing	HI, JHI, JPHN, ASHAs, Volunteers	Case detection, contact listing, home visits, IHIP/IDSP reporting	Health Inspector (HI)

Case Management	Doctors, Nurses, MLSP, Palliative Nurses	Patient care, clinical triage, referral to appropriate care level	Medical Officer
Quarantine & Isolation	LSG staff, Volunteers	Facility management, home isolation monitoring	Junior Health Inspector (JHI)
Psychosocial Support	Counsellors, Social Workers, DMHP staff	Mental health support, counselling, address anxiety and stigma	Counsellor / DMHP Officer
Logistics & Supply Chain	LSG staff, Storekeepers, Drivers	PPE, medicines, oxygen, transport, biomedical waste	Ward Member
Communication Team	Ward members, Kudumbashree, Youth clubs, AWW workers, SHGs	IEC, community meetings, multilingual communication for migrants	Medical Officer in charge
Transportation	KSRTC, Educational buses, private vehicles (MOU)	Patient/staff transport, supply distribution, island panchayat boat transport	Health Inspector
Media Surveillance	Medical Officers at institution + district level	Monitor media; coordinate official responses; daily media brief	District Medical Officer
Intersectoral Coordination	DMO + Medical Officer at LSG	Coordinate health, police, LSGD, Cochin Port for pandemic response	DMO / DSO
Collaborative Surveillance	DSO + PIED Cell (GMC) + Medical Officer	One Health: human, animal, environmental; Cochin Port integration	District Surveillance Officer

9. ACTIVITIES BEFORE AND DURING PANDEMIC

PHASE 1 — ALERT / PREPARATION

During the alert phase, Ernakulam activates enhanced syndromic surveillance, verifies logistics and stock levels, pre-identifies quarantine facilities, launches risk communication, and updates vulnerable group line-lists. The One Health Committee meets weekly during alert.

9.1 SURVEILLANCE & REPORTING + LOGISTICS STOCK CHECK

Action	Responsible	Timeline / Trigger
Activate enhanced syndromic surveillance for fever, ILI, SARI, unusual clusters	DSO + Block Medical Officers	Immediately on alert
Event-based triggers: school absenteeism, pharmacy sales, Cochin Port reports, workplace clusters	DSO + HI per block	Continuous monitoring; report within 24 hrs

Zoonotic surveillance: unusual animal deaths notified to Veterinary Officer + One Health Committee	LSGD + Veterinary Officer	Within 24 hrs of detection
Identify and empanel local vendors; define emergency procurement mechanisms	LSG Secretary + DMO	Before pandemic season (March annually)
Pre-identify secure storage locations; maintain stock registers	Block Medical Officer + LSG Secretary	Ongoing; verify at alert
Designate Nodal Officer for Logistics at each LSG and Block PHC	DMO Ernakulam	Standing designation; reviewed annually
Rapid stock verification — achieve minimum buffer stock (see Section 1.2 MSL table)	Block Medical Officer + PHC MO	Quarterly + at any alert
Finalise emergency transport: identify vehicles and drivers	LSG Secretary + KSRTC + EMRI	Before pandemic season

Quarantine and Isolation Facility Identification

Sl	Facility Name	Type	Ward / Location	Beds	Water / Sanitation / Power	Nodal Person	Contact
1	(Enter school name)	School — Govt.	(Ward No.)	___	✓ / ✓ / ✓		
2	(Enter hall name)	Community Hall	(Ward No.)	___	✓ / ✓ / ✓		
3	(Enter hostel name)	Hostel / College	(Ward No.)	___	✓ / ✓ / ✓		
4	(Alternate site)	—	—	—	—		

9.3 Risk Communication & Vulnerable Group Protection

Activity	Target Group	Channel — Ernakulam	Responsible
Early warning messages on symptoms, preventive measures, reporting mechanisms	General public + tourists (Kochi is a tourist city)	IEC boards at hospitals, KSRTC stations, Kochi Metro, Cochin Port, markets	Medical Officer + DIO

Sensitise elected representatives + community leaders	152 Panchayat Presidents + 14 Municipal Chairpersons	DDMA meetings + LSG presidents' conference	District Collector + DMO
Rumour tracking and misinformation response	Social media users	WhatsApp group monitoring, Facebook, local news portals	Media Surveillance volunteer per block
Targeted IEC for migrants (multilingual)	Migrant workers (~5–7 lakh in Ernakulam)	Multilingual posters (Bengali, Hindi, Tamil, Odia, Assamese); factory PA systems	Labour Dept. + DIO + Health Dept.
Ward-level community sensitisation (Ayalkoottam, WHSNC, JAS, MASI)	Ward residents	Grama Sabhas, neighbourhood group meetings	Ward Member + ASHA

PHASE 2 — ACTIVE RESPONSE

During active response, the District HEOC at Ernakulam Collectorate operates 24×7 with 19 functional teams. Screening checkpoints are activated at all major transport hubs. Daily monitoring indicators are tracked and acted upon.

9.4 SCREENING CHECKPOINTS — ERNAKULAM

Location	Type	Staff	Screening Method	Reporting Authority
Ernakulam Junction / Town Railway	Major Railway Hub	1 JHI + 1 ASHA + Railway Health Inspector	Thermal scan + symptom questionnaire + swab for suspects	DSO / Control Room
KSRTC Central Bus Stand	Road Transport Hub	1 JHI + 1 ASHA + 1 health volunteer	Thermal scan + symptom inquiry + RDT if indicated	Surveillance Nodal Officer
Cochin Port — Passenger Terminal	International Port (IHR PoE)	Port Health Officer + 1 JHI + 1 Nurse	Health declaration + thermal scan + RT-PCR (high-risk countries)	Port Health Officer + DSO
Boat Jetties (Vypeen, Marine Drive, Varapuzha)	Water transport	1 JHI + 1 ASHA + male volunteers	Thermal scan + swab for suspects	Surveillance Nodal Officer
Market Entries (Mattancherry, Aluva market)	Dense Market	1 JHI + 1 ASHA + 1 volunteer	Thermal scan + symptom inquiry	Surveillance Nodal Officer
Perumbavoor / Kalamassery Industrial Zones	Migrant Worker Area	2 JHI + 2 ASHA + male volunteers	Thermal scan + multilingual symptom inquiry + RDT for clusters	Block Medical Officer

> **Standard Protocol:** *Temperature screening → visible symptom observation → travel/exposure history inquiry → suspects referred to nearest PHC/FHC for evaluation and testing as per prevailing guidelines.*

9.5 Pandemic Control Room — Ernakulam

The Pandemic Control Room at Ernakulam Collectorate serves as the central nerve centre for real-time coordination, data aggregation, and decision-making. It operates on seven functional pillars with 19 operational teams, all reporting to the District Collector and DMO.

Pillar / Team	Function	Key Activity — Ernakulam
Rapid Response Team (RRT)	Immediate field intervention	Case investigation, contact tracing, cluster containment across all 14 blocks
Surveillance Team	Hospital, field, and lab surveillance	Daily hospital monitoring + 28-day follow-up for home isolation contacts; DSO liaison
Data Management & Analytics	Surveillance data + situation reports	Maintain Ernakulam pandemic dashboard via IHIP; district-specific Google Sheets with auto-consolidation
HR Management	Workforce management	Daily HR data of isolation facilities; no category shortage; state communication if needed
Lab / Sample Tracing Team	Diagnostic coordination + sample tracking	Monitor all samples sent to NIV Pune / NIV Alappuzha / GMC Lab; daily results reporting to District Collector and DMO
24×7 Call Centre	Public queries, medical guidance, logistics coordination	Helplines: 0484-2823300 (District) | 0471-2552056 (DISHA) | 108 (EMRI) | Linkage with DISHA system
Material Management	Inventory monitoring and supply chain	Daily stock registers: opening stock → distribution → balance for all items at all institutions
Infrastructure & Isolation Facility Mgmt.	Facility readiness and monitoring	Isolation ward status at all facilities; bed count; infection control; BMWM compliance
Transportation & Ambulance	Patient and supply transport	24×7 ambulance availability; vehicle log: Vehicle No. → Driver → From → To → Post-trip sanitisation
IEC / BCC & Media Management	Public communication	Press note + press brief + social media content — daily; media spokesperson function for DMO
Media Surveillance	Misinformation monitoring	Daily social media scan; misinformation log; Police Cyber Cell referral for malicious content
Interdepartmental Coordination	Multi-sector coordination	Regular connections: LSGD, Animal Husbandry, Tourism, Police, Kudumbashree, Suchitwa Mission, Infopark

Community Volunteer Coordination	Grassroots support	Food kit management for quarantined households; Kudumbashree coordination; contacts + addresses database
Psychological Support	Mental health support	DMHP Ernakulam + GMC Psychiatry; field team for post-traumatic stress; tele-counselling via DISHA
Private Hospital Surveillance	Private sector monitoring	Compile data from Amrita, Aster, KIMS, Lakeshore, PVS, 200+ private clinics; identify missed contacts
Documentation Team	Record-keeping and communication	Meetings documented; decisions communicated; SOPs disseminated; daily activity report compiled
Finance & Budgeting	Financial management	Fund requirements forecasted; SDRF, NHM, DDMA, CSR pooling; timely administrative sanctions
Welfare Committee	Social protection	Food kits, cash support, shelter for quarantined/affected households; CSO coordination
Expert Study Coordination	Research and expert visits	Facilitate expert agency visits with approved letters; briefings to Principal Secretary

CONTROL ROOM MANDATES

Mandate	Detail
Operating Hours	24×7 | Floor managers on 8-hour rotation | No food inside Control Room
Access	Authorised personnel only | Identity proof mandatory | In/out movement in logbook
Meetings	Morning and evening review | Critical appraisal of all team activities | Minutes recorded | Decisions communicated within 2 hours
Communication	All sub-teams use dedicated email | Single window: documentation team | Media ONLY via Media Management Team
Daily Schedule	Health bulletin: 6 PM | Departmental coordination: 6 PM | Press briefing: 7 PM
IT Usage	Google Workspace tools | Infopark IT support | All communications documented | Dynamic district-specific dashboards

9.6 DAILY MONITORING INDICATORS & ALERT THRESHOLDS

Indicator Category	Indicators Tracked	Red Flag Trigger	Immediate Action — Ernakulam
Epidemiological	New cases, Total active cases, TPR, CFR	TPR >5% in any ward | Sudden CFR spike	Increase testing; activate additional RRTs; escalate to DMO
Surveillance	Home quarantine count, High-risk contacts, ILI/SARI clusters, Travellers, Animal	≥5 linked cases one location | Unusual animal cluster	Micro-containment zone; One Health RRT; active case search

	deaths, Excess mortality		
Port / Industrial (Ernakulam-specific)	Symptomatic ship crew, Airport arrivals, Industrial cluster illness	Any positive case at Cochin Port / CIAL	Port Health Officer protocol; trace all contacts; mandatory institutional quarantine
Lab	Testing volume, TAT, Positivity rate	TAT >24 hrs | Positivity >5% ward-level	Activate private labs (DDRC, Neuberg, Metropolis) for surge; address GMC Lab bottleneck
Hospital	Oxygen bed occupancy, ICU occupancy, Ventilator availability	>80% oxygen bed occupancy any hospital	Activate CFLTC; notify Amrita, Aster for overflow; escalate to DMO
Mortality	Home deaths, Brought-in-Dead (BID), Excess deaths	Sudden BID spike at any hospital	Audit deaths; verbal autopsy; active case search in affected panchayat
WGS / Variant	VOC / VOI detection	Any VOC/VOI at GMC Kalamassery / NIV	Strict micro-containment; update clinical protocols; notify state HEOC

9.7 Coordination, Supply Chain & NGO/CSR Collaboration

To Whom	What to Report	Frequency	Nodal Person
Block PHC	Complete Situation Report (cases, quarantine, beds, deaths)	Daily	Medical Officer, LSG/PHC
District IDSP Unit	Outbreaks / clusters / unusual events (>5 cases same ward)	Immediate	District Surveillance Officer
Port Health Officer, Cochin Port	Disease signal from vessels or airport travellers	As required	Port Health Officer: 0484-2666868
Veterinary Officer	Animal health events / zoonotic alerts	As required	District AHO
State Cell (DHS Kerala)	District Situation Report	Daily	DMO Ernakulam: 0484-2362400

Resource	Source	Contact — Ernakulam
PPE Kits / Masks / Gloves	KMSCL Ernakulam + Local Vendors (Kalamassery Industrial Area, Kudumbashree SHGs)	KMSCL Depot
Oxygen Cylinders / Concentrators	KMSCL + Inox Air Products (Kalamassery) + BOC Gases (Willingdon Island)	Inox: Kalamassery | BOC: Willingdon Island
Medicines / Antivirals	KMSCL Ernakulam + Neethi Medical Shops + Karunya Shops	KMSCL + Neethi Shops

Test Kits (RTPCR / Rapid)	KMSCL / GMC Kalamassery Lab	GMC Lab Coordinator

NGO / CSR Partner	Type	Support Offered — Ernakulam	Contact
IMA Ernakulam Chapter	Professional Body	Private doctor coordination; clinical protocols; surge staffing	
Infopark / SmartCity (CSR)	Corporate	IT infrastructure, digital dashboards, telemedicine, call centre backup	Infopark CSR Nodal Officer
Cochin Port Trust (CSR)	Govt./Corporate	Medical equipment, PPE, oxygen concentrators, food kits	Port Trust Medical Officer
FACT / Cochin Refineries (CSR)	PSU	Sanitiser base (ethanol), industrial oxygen, transport support	FACT CSR Officer
Red Cross / NSS / NCC	Voluntary	Volunteer mobilisation, blood supply, first aid, logistics	
Kudumbashree Mission	State Mission	Community kitchens, PPE production, last-mile delivery, food kits	CDS Chairpersons, block-wise

PHASE 3 — SURGE CAPACITY

Phase 3 activates when case load causes rapid increase, test positivity exceeds threshold, or health facilities approach saturation. Community facilities are converted to isolation centres, private hospital MOUs are activated, and state HR surge is requested.

> **Activation Threshold:** *TPR >10% sustained for 3 days OR any hospital >80% oxygen bed occupancy OR state/national emergency declaration*

See Section 6.2 for the full list of community facilities pre-identified for conversion (Rajagiri College, Bharat Mata College, LuLu Convention Centre, YMCA Hall, Town Hall, and 6 others — combined surge capacity: ~1,330 beds).

10. RECOVERY AND REHABILITATION

Recovery begins once transmission is controlled. It focuses on restoring health services, addressing psychosocial impacts, rehabilitating livelihoods, strengthening systems, and updating the preparedness plan based on lessons learned.

Recovery Component	District / Health System	Panchayat / Municipality	Ward / Community

Damage & Impact Assessment	Lead district-wide assessment; compile morbidity, mortality, economic data	Consolidate local data; identify affected families	Ward volunteers and ASHAs identify affected households
Restoration of Health Services	Resume GMC, GH, Taluk Hospital services; restore elective procedures; ensure medicine supply	Reopen PHC/CHC services; inform community about availability	Assist households in accessing services
Psychosocial & Mental Health	Deploy DMHP Ernakulam + GMC Psychiatry; tele-counselling via DISHA	Community counselling sessions; outreach clinics	ASHA/teachers identify persons needing support
Livelihood Restoration	Employment exchange + Kudumbashree MSME linkage; fishing community support	SHGs, local enterprises, employment initiatives	Community support networks for vulnerable families
Environmental Cleanup	BMWM guidelines; Eloor industrial zone + Periyar basin water quality checks	Sanitation campaigns; waste management	Volunteer-led cleanliness drives; WASH practices
Disease Surveillance (Recovery)	IDSP/IHIP reporting; monitor resurgence; leptospirosis vigilance if post-flood	PHC/lab/hospital reporting maintained	CBS via ASHAs and ward volunteers
Documentation & AAR	Formal After-Action Review within 30 days; compile district report; update this PPP	Provide operational data and feedback	Community feedback through Town Hall / digital platform

11. COMMUNICATION STRATEGIES

Effective communication is the backbone of pandemic response. Ernakulam's diverse population — urban IT professionals, coastal fishermen, 5–7 lakh migrant workers, island communities, and elderly rural residents — requires a multi-channel, multilingual, and community-led approach. Ward-level RRTs, Grama Sabhas, and vulnerability groups actively participate in preparing and executing the pandemic plan.

Strategy	Details — Ernakulam
Ward-level RRTs + Grama Sabhas	Active participation in pandemic plan preparation and execution; identify unique local issues (prevention, preparedness, response, recovery)
Local Community Leaders	Ward members, Panchayat Presidents, religious leaders (mosques, churches, temples), teachers, and NGO heads as trusted messengers
Special Trained Informers	Kudumbashree members trained as health informers in migrant worker hostels, island panchayats, and old age homes
Multilingual Workers	Designate ASHA/health volunteers for Bengali, Hindi, Tamil, Odia, and Assamese communities in Ernakulam's migrant worker belts
NGOs + Resident Associations	Engage RWAs in Kochi city; coordinate with NGOs for resource mobilisation and community support
Simple Public Reporting System	IHIP app (snap-pic reporting) | WhatsApp to ward health volunteer | District helpline: 0484-2823300
Home Isolation Monitoring	Trained Kudumbashree + ward volunteers monitor home isolation households daily; report to ASHA

Benefit	Description
Sustainability	Locally owned solutions last longer; communities maintain preparedness without continuous external support
Faster Response	Local networks detect cases 24+ hrs faster than facility-based systems; quicker containment
Trust & Collaboration	Builds community-government trust; essential for high public cooperation during restrictions

. CAPACITY BUILDING & TRAINING PLAN

Pandemics require skilled human resources across all sectors. Ernakulam's training plan is seasonal, aligned with the district's disease calendar, and uses cascade training through Master Trainers. The Infopark/SmartCity IT sector supports digital training platforms, while GMC Kalamassery serves as the primary clinical training hub.

Target Groups and Training Topics

Target Group	Key Training Topics	Training Mode
Doctors (Govt. + Private — IMA Ernakulam)	Clinical management | Surge triage | IPC | Notifiable disease reporting | Telemedicine	Workshop at GMC Kalamassery; online modules
Nurses & Paramedical Staff	IPC | PPE donning/doffing | Isolation nursing | Sample collection	Hands-on at GMC + Block PHCs; skill stations
Lab Technicians	Sample collection | VTM packing | Biosafety | RT-PCR protocol | TAT monitoring	GMC Lab / District PHLab; practical sessions
ASHA Workers (3,500+)	CBS protocols | IHIP app data entry | Symptom recognition | Home isolation monitoring	Block PHC-wise cascade training (14 venues); WhatsApp-based modules
Anganwadi Workers (3,800+)	Vulnerable population identification | Nutrition during pandemic | IEC dissemination	ICDS Supdt. office per block; peer learning
Line Dept. Staff (Police, KSRTC, Civil Supplies)	Containment zone enforcement | Essential services during lockdown | IPC basics	Collectorate venue; tabletop exercises
LSGD Representatives	Arogya Jagratha Samithi activation | LTC management | LDMC functions	Block-wise training venues; simulation exercises
Port Health Officials + Industrial Health Officers (Ernakulam-specific)	IHR protocols | Port health surveillance | Workplace IPC | Traveller screening	Cochin Port Health Office + Infopark Convention Centre

12.2 Seasonal Training Schedule — Ernakulam

Activity	Jan–Mar (Cool)	Apr–Jun (Hot)	Jul–Sep (Monsoon/Flood)	Oct–Dec (Post-Monsoon)
Priority Disease Events	ILI, Dengue	Heat illness, Hepatitis A (coastal areas)	Avian influenza (Aluva), Dengue, Leptospirosis (Periyar basin)	Leptospirosis, Dengue,
HCW Training Focus	IPC, PPE, Respiratory syndrome	Heat emergency, WASH, Hep A management	Flood + disease dual hazard; Leptospirosis; Avian influenza	NCD surge; rehabilitation
Public Training Focus	Vaccination awareness, ILI prevention	WASH, food safety, heat precautions	Flood preparedness, waterborne disease prevention	Seasonal disease awareness; booster campaigns

Mock Drill Focus	Tabletop: novel respiratory pathogen (Cochin Port scenario)	HEOC full activation drill	Flood + pandemic dual hazard drill (Periyar flood scenario)	After-Action Review + plan update exercise

12.3 Mock Drill Scenarios — Ernakulam

Scenario	Ernakulam Context	Frequency
Novel Respiratory Pathogen (Tabletop)	Novel respiratory virus detected at Cochin Port — signal from Port Health Officer, escalation to HEOC, RRT deployment; test inter-agency coordination and HEOC activation time (<6 hrs target)	Annual (January)
Flood + Pandemic Dual Hazard	Periyar river flooding coinciding with outbreak — simultaneous evacuation of island panchayats (Kadamakudy, Vallarpadam) + health response; test boat transport activation and NDRF + health team coordination	Annual (July, pre-monsoon)
HEOC Full Activation Drill	All 19 teams report to District Control Room, Collectorate; test communication protocols, reporting systems, and inter-team coordination	Semi-annual (May + November)
Migrant Worker Cluster	Disease cluster at construction site / factory dormitory in Perumbavoor — multilingual IEC deployment and Labour Dept. coordination	Annual (October)
Community Ward-Level Drill	Ward-level simulation: ASHA + Ward Volunteers + Kudumbashree + Ward Member practice home quarantine and contact tracing	Quarterly — 1 block per quarter

12.4 Monitoring & Evaluation

Outcome	Target — Ernakulam
HEOC response time from alert	<6 hours from signal detection to HEOC activation
RRT deployment time	<4 hours from HEOC activation to field deployment
PHC staff training coverage	100% PHC staff trained in CBS and IPC annually
ASHA app proficiency	100% ASHA workers proficient in IHIP app — verified annually
Vaccination coverage	>80% of all target groups vaccinated before each pandemic season
Taluk DMC functionality	All 14 Block-level Taluk Disaster Management Committees drilled annually

CONCLUSION

This Pandemic Preparedness Plan for Ernakulam District provides a concise, actionable framework tailored to the district's unique strengths and challenges. Ernakulam's assets — GMC Kalamassery, four major private tertiary hospitals, Infopark IT sector, 50,000+ Kudumbashree volunteers, and EMRI 108 ambulance network — are all integrated into a structured, phased response plan.

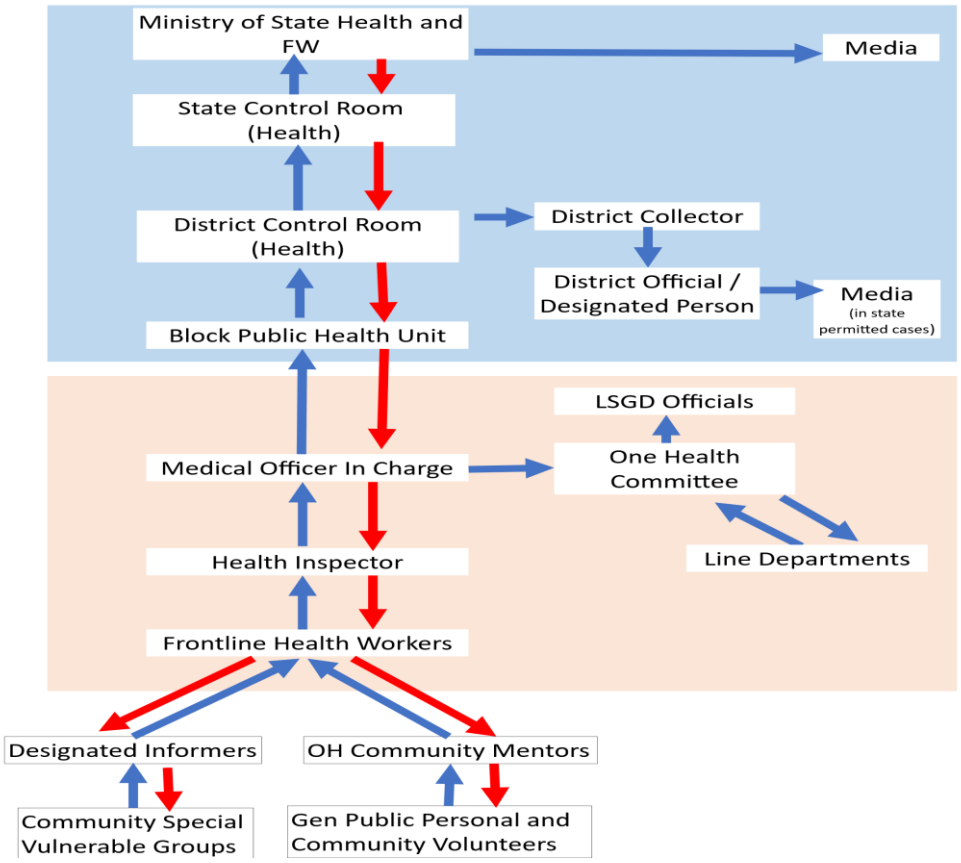
Ernakulam's specific challenges — Cochin Port as an IHR Point of Entry, 5–7 lakh migrant workers, island panchayats with limited road access, industrial zones (FACT, Cochin Refineries, Kalamassery), and the dual risk of Periyar flooding + pandemic — are addressed with dedicated protocols, pre-identified resources, and named responsible officers at every level.

RECOMMENDATIONS

Area	Recommendation — Ernakulam District
Healthcare Infrastructure	Upgrade GMC PSA oxygen plant from 1,000 to 2,000 LPM | Surge wards at all 5 Taluk Hospitals (≥20 O_2 beds each) | Formalise MOU with Amrita, Aster, KIMS, Lakeshore, PVS | Establish dedicated HEOC with 24×7 staffing at Collectorate
Community Awareness	Multilingual campaigns (7 languages) for Ernakulam's diverse population | Use Kochi Metro screens + Cochin Port digital boards for real-time advisories | Train 5,000+ Kudumbashree as ward-level health ambassadors with formal skill certification
Emergency Response	Activate District EOC at first alert — do not wait for confirmed cases | Formal Pandemic Preparedness Committees in all 152 Panchayats | Dedicated protocol for Cochin Port (IHR PoE) integrating Port Health Officer with District HEOC
Supply Chain & Food	Sign 12-month rate contracts with ≥3 PPE vendors and ≥2 oxygen suppliers before each pandemic season | Stock all 14 Block PHCs — not only district store | Formalise FACT + Cochin Refineries emergency protocol for sanitiser production
Digital Preparedness	Leverage Infopark and SmartCity IT sector for real-time pandemic dashboards (cases, beds, supply status) | Integrate IHIP with district GIS mapping | Publicise helplines widely: DISHA 0471-2552056 | District 0484-2823300 | EMRI 108
Training & Drills	Annual Periyar flood + pandemic dual hazard mock drill for all 14 blocks | Annual ASHA training on CBS + IHIP app | Special training for Port Health Officers and industrial health officers
Long-Term Resilience	2% minimum health budget for emergency preparedness in District Development Plan | District Health Emergency Fund of ₹5 crore under DDMA | Annual update of this PPP each March | Build on COVID-19 institutional memory — formalise Kudumbashree food kit system and EMRI network as permanent SOPs

COMMUNCATION PLAN FLOW CHART

LSGD >>>>> INSTITUTION >>>>>>>



ANNEXURE

MAJOR COLLEGES IN ERNAKULAM DISTRICT AREA

Adi Sankara Training College Kalady
Al- Ameen College, Edathala
Aquinas College, Edacochi
Arafa College of Arts and Science
Ave Stella Maris College, Ramamagalam, Piravom
Azharul Uloom College of Arts & Science,Aluva
Baselios Poulose II Catholicose College, Piravam
Baselios Poulose Second College, Piramadom
Bharata Mata College of Commerce & Arts, Aluva
Bharata Mata School Of Legal Studies Choondy
Bharata Matha College, Trikkakara
CET College of management Science & Technology, Airapuram
Chinmaya College of Arts, Commerce & Science, Ernakulam
Cochin Arts & Science College
Cochin College, Cochin
CPAS College Of Teacher Education Muvattupuzha
CPAS CTE Trpunithura
De Paul Institute of Science & Technology, Angamaly
Government Arts And Science College,Vypin
Government College, Manimalakunnu
Government College, Tripunithura
Govt. Sanskrit College, Thripunithura
Govt. Law College, Ernakulam,
I L M College Of Art & Science, Perumbavoor
Ilahia College of Arts and Science, Pezhakappilly P.O, Muvattupuzha
Indira Gandhi College of Arts and science, Nellikuzhi P.O, kothamangalam
Jai Bharat Arts and Science College, Vengola P.O, Perumbavoor
Kesari Arts & Science College, North Paravoor, Ernakulam
KMEA College Of Arts And Science Kuzivelippady
KMM College of Arts & Science,Chowara, Aluva
KMM College Of Arts And Science Thirkkakara
KMM COLLEGE, THRIKKAKARA , VAZHAKKALA
Maharaja`S College, Ernakulam
Mar Athanasius College, Kothamangalam, Ernakulam
Mar Elias College, Kottappady,Kothamangalam
Marthoma College for Women, Perumbavoor
Marygiri College of Arts & Science, Koothattukulam
MES College Kochi, Mundamveli, Kochi
MES College, Marampally
MES t.o. abdulla memorial college, kunnukara, aluva
Morning Star Home Science College, Angamali
Mount Carmel College Karukadom
National College for Teacher Education, Vengola
Nirmala Arts & Science College, Mulamthuruthy
Nirmala College, Muvattupuzha
Presentation College of Applied Science, Puthenvelikara, Ernakulam
Rajagiri College of Management and Applied Science, Kakkanad, kochi

Rajagiri College of Social Sciences, Kalamassery
Rajagiri Viswajyothi College of Arts & Applied Sciences
RLV College of Music and Fine Arts
Sacred Heart College,Thevara
Sahodaran Ayyappan Memorial College Of Education Poothotta
School Of Technology And Applied Science Ernakulam
SCMS SCHOOL OF ARCHITECTURE
SCMS School of Technology & Management, Muttom, Aluva
Siena College of Professional Studies, Edacochin
SME RC Municipal Building, Angamaly
SME RC,Angamaly
SNGIST Arts & Science College, Manakkapady, Karumallur. P.O, N. Paravur
SNM College Maliankara
SNM TRAINING COLLEGE Moothakunnam
Sree Narayana Guru College of arts and Science
Sree Narayana Law College, Poothotta, Ernakulam
Sree Narayana Mangalam College, Maliankara
Sree Sankara College, Kalady
SSV College, Valayanchirangara P.O, Perumbavoor
St: George college vazhakulam
St: Joseph College Of Teacher Education For Women
St:Kuriakose College Of Management and Science Kuruppampady
St Mary's College of Commerce and Management Studies, Thuruthiply
St: Thomas Arts And Science College Puthencruz
St. Albert's College, Ernakulam
St. Paul's College, Kalamassery
St. Teresa's College, Ernakulam
St.Ann's College,Angamaly
St.Peter's College, Kolencherry
St.Xavier's College for Women, Aluva
STAS, Edappally
Swamy Saswathikananda College
TEST ANJU
UC College, Aluva
University college of Applied Sciences, Edappally
Yeldo Mar Baselios College, Kothamangalam

1.6. HELPLINE NUMBERS

Service	Phone number
Ambulance	108
Fire Station	101
Disaster Management	1077 (Collectorates)
Police Station	100
Child Helpline	1098
Women Helpline	1091
Crime Stopper	1090
Dial a doctor	1056
Call Center for General Query	1961
Pink Police Patrol	1515
Citizens Call Centre	155300

Service	Phone number
Labour Minister's Helpline	155 300

BLOOD BANKS

Name	Address	Phone Number
Lake shore	Nettur,Maradu	0484- 270 1033
AIMS Kochi	Ponekkara,Cheranellur	0484 400 1234
Sunrise Hospital	Kakkanad,Seaport Airport road	07942693257
Rajagiri Hospital	Choondi, Aluva	0484 290 5000
IMA Kochi	TD Road ,Opp Maharajas College Ernakulam	0484-235 0522
Aluva blood Bank	DH Aluva, near KSRTC Bustand	0484 262 5101

ANNEXURE 1: LSG BASELINE DATA COLLECTION FORMAT

A. BASELINE DATA

Sl. No.	Indicator / Field	Baseline Data	Source / Remarks
1	Name of LSG		
2	District		
3	Block / Taluk		
4	Type of LSG (Gram Panchayat / Municipality / Corporation)		
5	Area (sq. km)		
6	No. of wards		
7	GIS boundary file available	(Yes/No)	
8	Key contact person & phone		

B. DEMOGRAPHY

Indicator / Field	Baseline Data	Source / Remarks
Total population		
Males		
Females		
Transgender population		
Age distribution (<5, 5–14, 15–59, ≥60)		

No. of households		
Population density (persons/sq.km)		
No. of migrant workers	201451	
Major occupational groups		

C. VULNERABLE POPULATIONS & SOCIAL RISKS

Sl. No.	Indicator / Field	Baseline Data (Value / Description)	Source / Remarks
1	No. of elderly (≥60)		
2	No. of persons with disability		
3	No. of bedridden persons		
4	No. of chronic disease cases (DM/HTN/COPD/CKD etc.)		
5	Pregnant women (current estimate)		
6	Children <5 years		
7	Tribal population (if any)		
8	Fisherfolk / coastal vulnerable groups (if any)		
9	Urban slums / unnotified settlements (if any)		
10	Homeless population		
11	Orphanages / old age homes (number & capacity)		

12	Hostels / prisons / shelters (number & capacity)		
13	Poverty / BPL estimate		
14	Food insecurity hotspots		
15	Any history of stigma/discrimination issues (Yes/No)		

D. HEALTH SYSTEM & SERVICE READINESS

Sl. No.	Indicator / Field	Baseline Data (Value / Description)	Source / Remarks
1	No. of health facilities in LSG (PHC/CHC/TH/DH/Private)		
2	PHC/Family Health Centre details (name, location)		
3	Subcentres / Health & Wellness Centres (number)		
4	Private clinics / hospitals (number)		
5	Labs available (public/private)		
6	Availability of ambulance services (Yes/No, number)	Yes	
7	Availability of isolation/quarantine facilities (Yes/No, details)	Yes	
8	Cold chain facilities (Yes/No, details)	Yes	
9	Stockpile space available (Yes/No)	Yes	

10	PPE / mask / sanitizer availability plan (Yes/No)	Yes	
11	Surveillance staff available (JHI/JPHN/ASHA count)		
12	Existing emergency referral pathways (Yes/No)	Yes	

E. POINTS OF ENTRY & MOBILITY

Sl. No.	Indicator / Field	Baseline Data (Value / Description)	Source / Remarks
1	Bus stands / depots (number)		
2	Railway stations (number)		
3	Boat jetties / fishing harbours (number)		
4	Ports / airports nearby (specify distance)		
5	Major highways/roads passing through		
6	Border crossings (state/district)		
7	Major markets / weekly markets		
8	Tourism hubs / major event venues		
9	Schools/colleges with hostels (number)		
10	Factories / large workplaces (number)		

F. WATER, SANITATION & HYGIENE (WASH)

Sl. No.	Indicator / Field	Baseline Data (Value / Description)	Source / Remarks
1	Major drinking water sources (piped / wells / borewells / springs)		
2	No. of public wells		
3	No. of households with piped water connection		
4	Water quality testing routine (Yes/No)		
5	Common contamination risks (flooding, salinity, industrial waste)		
6	Open defecation free status (Yes/No)		
7	Solid waste management system (Yes/No)		
8	Bio-medical waste disposal mechanism (Yes/No)		
9	No. of public toilets		
10	Handwashing stations in public places (Yes/No)		

G. Zoonotic Risks & One Health

Sl. No.	Indicator / Field	Baseline Data (Value / Description)	Source / Remarks
1	Livestock population (cattle/goats/pigs/poultry) – estimates		
2	No. of dairy farms / poultry farms / pig farms		

3	Slaughterhouses / meat shops (number)		
4	Animal markets (Yes/No, details)		
5	Veterinary dispensaries (number)		
6	History of zoonotic outbreaks (rabies, leptospirosis, avian flu etc.)		
7	Stray dog population management measures (Yes/No)		
8	Rodent infestation hotspots (Yes/No)		
9	Wetlands / waterlogged areas prone to leptospirosis		
10	Bat roosting areas / caves / fruit orchards (if any)		
11	Human-animal interface hotspots (farms near residences)		

H. CLIMATE & DISASTER RISKS (PANDEMIC AMPLIFIERS)

Sl. No.	Indicator / Field	Baseline Data (Value / Description)	Source / Remarks
1	Flood-prone wards (list)		
2	Landslide-prone wards (list)		
3	Cyclone/sea surge risk (Yes/No)	Yes	
4	Heatwave risk zones (Yes/No)	yes	
5	Waterlogging areas (list)	Yes	

6	Shelter homes / relief camps (number, capacity)		
7	Past disaster displacement history		
8	Disruption to water supply/transport common (Yes/No)		

I. CRITICAL INFRASTRUCTURE & LOGISTICS

Sl. No.	Indicator / Field	Baseline Data (Value / Description)	Source / Remarks
1	Schools (number)		
2	Anganwadis (number)		
3	Colleges (number)		
4	Community halls (number)		
5	Places of worship with large gatherings (number)		
6	Large markets / shopping areas (number)		
7	Warehouses / cold storages (number)		
8	Telecom/mobile network coverage gaps (Yes/No)		
9	Power outage frequency (high/medium/low)		
10	Availability of generators in key facilities		

J. Risk Communication & Community Networks

Sl. No.	Indicator / Field	Baseline Data (Value / Description)	Source / Remarks
1	Ward-level rapid response teams (Yes/No)	Yes	
2	Jagratha samithis / committees active (Yes/No)	Yes	
3	Kudumbashree presence and strength (number of units)	22534	
4	Volunteer network (number, coverage)		
5	Community-based surveillance mechanisms (Yes/No)	Yes	
6	IEC dissemination channels (WhatsApp groups, community radio, PA systems)	Yes	
7	Rumour tracking mechanisms (Yes/No)	Yes	
8	Languages spoken / literacy considerations		
9	Vulnerable groups communication strategy available (Yes/No)		

K. Preparedness Planning & Governance

Sl. No.	Indicator / Field	Baseline Data (Value / Description)	Source / Remarks
1	LSG emergency plan available (Yes/No)		

2	Pandemic preparedness plan available (Yes/No)		
3	Incident Command System identified (Yes/No)		
4	Rapid procurement mechanism available (Yes/No)		
5	Emergency fund available (Yes/No, amount)		
6	Past outbreak response experience (Yes/No, details)		
7	Intersectoral coordination mechanism (Health, Police, LSG, Veterinary, Education)		
8	Mock drills conducted in last 12 months (Yes/No)		
9	Training coverage for staff/volunteers (Yes/No)		

L. SURVEILLANCE & DATA SYSTEMS

Sl. No.	Indicator / Field	Baseline Data (Value / Description)	Source / Remarks
1	Digital reporting tools used (e.g., DHIS2, portals)		
2	Availability of line-listing format (Yes/No)	Yes	
3	Contact tracing team identified (Yes/No)	Yes	

4	Mapping of high-risk households available (Yes/No)	Yes	
5	Testing sample transport mechanism (Yes/No)	Yes	
6	Reporting timeline adherence (good/average/poor)	good	
7	Data sharing between departments (Yes/No)		
8	Availability of dashboard for monitoring (Yes/No)		

M. Additional Notes & Observations

Sl. No.	Indicator / Field	Baseline Data (Value / Description)	Source / Remarks
1	Key challenges perceived by LSG		
2	Top 5 high-risk wards (reason)		
3	Any unique local risks (industrial pollution, refugee camps, etc.)		
4	Recommendations for preparedness strengthening		

Contact points:

District	DMO Office	Collectorate Control Room	DISHA
Ernakulam	0484 2360802 0484 2369567	**Emergency & Disaster Control Room:** 1077 (Toll-Free) or 0484-2423513	1056