Vol 4 | Issue 4 | October - December | 2024

FIELD ACTION REPORT

FROM STORM TO SAFETY: PUBLIC HEALTH SUCCESS MEASURES IN MANAGING CYCLONE FENGAL

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ABSTRACT

INTRODUCTION : Cyclone Fengal, which struck Tamil Nadu and Puducherry on November 30, 2024, highlighted the critical connection between natural disasters and public health. With wind speeds of 70–90 km/h and heavy rainfall, the cyclone severely impacted 14 districts, particularly Tiruvannamalai, Villupuram, Krishnagiri, and Cuddalore resulting in 12 fatalities, significant property damage, and widespread flooding. Proactive public health measures mitigated the disaster's immediate and long-term effects.cThe Tamil Nadu government implemented a comprehensive disaster management strategy, emphasizing preparedness, disease surveillance, and rapid response. Key initiatives included advisory teams, district-level control rooms, and task-specific units for medical aid, vector control, and water quality management. Enhanced disease surveillance enabled the early detection and prevention of outbreaks like Acute Diarrheal Disease (ADD).cFrom December 1 to 13, 2024, over 7,870 medical camps provided care to more than 423,000 beneficiaries in the most affected districts. Mobile medical units delivered critical services, including minor ailment treatment, disease detection, and antenatal care for high-risk pregnancies. Vector control activities and water quality management through chlorination minimized the risks of mosquito-borne and waterborne diseases. Choropleth mapping and trend analysis guided resources to high-risk zones, while public awareness campaigns and chemoprophylaxis further strengthened the response. This coordinated, data-driven approach underscores the importance of scalable disaster management strategies to safeguard public health and build resilience in vulnerable regions.

KEYWORDS : Cyclone Fengal, Disaster Preparedness, Public Health Interventions, Disease Surveillance

INTRODUCTION

Cyclones and floods are natural disasters that often occur in tandem, particularly in coastal regions. These cyclones can lead to flooding, both due to the direct impact of intense rainfall and the overflow of rivers and seas caused by the storm surge. Flooding exacerbates the destruction caused by cyclones, displacing communities, damaging infrastructure, and leading to loss of life. The combination of high winds and water can make these disasters devastating, highlighting the importance of early warning systems, preparedness, and resilient infrastructure to reduce the impact of such events.

Tamil Nadu, located along the south-eastern coast of India, is highly susceptible to cyclones due to its proximity to the Bay of Bengal, a region prone to frequent cyclonic activity. Cyclones in the state generally occur during the pre-monsoon period (April to June) and the post-monsoon season (October to December), with the northeast monsoon season being particularly critical for the formation and impact of these storms.[1,2,3] The devastating 2015 flood was a critical event for Chennai, with rainfall exceeding significantly above normal in just a few days and claiming 420 deaths state wide and widespread destruction of property. Cyclone Gaja, a severe storm, struck Tamil Nadu on November 16, 2018, causing widespread damage. Originating in the Bay of Bengal, it made landfall near Vedaranyam in Nagapattinam district with winds up to 120 km/h, impacting several districts and disrupting lives, infrastructure, and livelihoods. The disaster highlighted the vulnerability of coastal regions. Cyclone Michaung, in early December 2023 brought heavy rainfall to Tamil Nadu, particularly affecting Chennai, which recorded 46 cm of rainfall over two days (December 3-4), causing widespread flooding extending to the southern Tamil Nadu, including Tenkasi, Tirunelveli, Thoothukudi, and Kanyakumari, on December 17. These areas experienced up to 93 cm of rainfall in Kayalpattinam, Thoothukudi, over two days (December 17-18), intensifying the impact of the cyclone.[4]

Cyclone Fengal, which made landfall on November 30, 2024, with wind speeds of 70 to 90 km/h,

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caused widespread devastation across Tamil Nadu and Puducherry, leading to significant loss of life and property. The cyclone affected 14 districts in Tamil Nadu, including Tiruvannamalai, Villupuram, Krishnagiri, Kallakurichi, Cuddalore, Ramanathapuram, Dharmapuri, Tiruvallur, Chengalpattu, Kancheepuram, Ranipet, Tirupathur, Vellore, Coimbatore, and Nilgiris, with the most severe impact felt in Tiruvannamalai, Villupuram, Krishnagiri, and Cuddalore. Intense rainfall persisted from November 30 to December 2, 2024. This was particularly notable in Uthangarai and Pochampalli in Krishnagiri. The cyclone claimed at least 12 lives in Tamil Nadu, including seven from a landslide in Tiruvannamalai and three from electrocution in Chennai. The deluge inundated over 129,000 hectares of crops, with 80,520 hectares of standing crops in Villupuram severely impacted. Additionally, 26 State Highways suffered damage, prompting immediate restoration efforts. While the coastal areas were largely protected due to precautionary measures, 4,906 people were relocated to 67 relief centres over two days, highlighting the swift and effective emergency response to the crisis.[5,6,7]

Beyond physical destruction, flooding has significant public health implications. Floodwaters frequently disrupt essential services such as water supply, sanitation, and healthcare access, leading to outbreaks of communicable diseases. Contaminated water sources contribute to waterborne diseases like diarrhoea and cholera, while overcrowded relief centres heighten the risk of airborne illnesses such as Influenza and Pneumonia. Additionally, stagnant floodwaters create ideal conditions for mosquito breeding, triggering vector-borne diseases like dengue and malaria. These public health challenges emphasize the critical role of an effective healthcare system in preventing and managing disease outbreaks during and after flooding events.[8]

This article explores Tamil Nadu's response to the 2024 floods, focusing on public health measures and disaster preparedness strategies. By documenting the experiences of the state and its districts, the paper aims to provide insights into effective flood management practices, highlighting the importance of integrating health interventions into broader disaster resilience frameworks.

Public Health Interventions:

Several Public Health Interventions were implemented to address impending potential outbreaks following a disaster, including:

1. Proactive Preparedness ahead of Cyclone Fengal
2. Timely communication and response to Cyclone Fengal alert
3. Establishment of State-level advisory and monitoring Team
4. Establishment of District control room at the district level
5. Reactivation of the dedicated Helpline for emergency support
6. Risk assessment and stratification of affected blocks in the flood affected districts
7. Deployment of Task-Specific Teams for Post-Flood Public Health Management
8. Disease surveillance and outbreak prevention

1. Proactive Preparedness ahead of Cyclone Fengal

With the onset of the Northeast monsoon, a comprehensive "Assessment of Health Facilities" was carried out across 14 coastal districts to strengthen emergency preparedness and disaster response mechanisms. This included evaluating the capacity and readiness of existing healthcare infrastructure to manage potential crises, such as floods and disease outbreaks. Alternate health facilities were identified and strategically mapped to provide seamless healthcare services in areas where Primary Health Centres (PHCs) were likely to be affected by flooding.

2. Timely Communication and Response to Cyclone Fengal Alert

Once the weather alert for Cyclone Fengal was issued by the Regional Meteorological Centre, India Meteorological Department (IMD), Chennai the information was promptly communicated from the State Headquarters to the Districts. Immediate action was taken to notify and alert the concerned districts, ensuring all relevant authorities, including the State and District Disaster Management Authorities, State Disaster Response Force, Police and Fire Departments, Municipal Administration, and the Rural and Panchayat Raj Department, were kept informed and mobilized without delay. This swift communication enabled the districts to initiate appropriate preparedness measures, including monitoring, evacuations, and deployment of resources, to mitigate the impact of the cyclone and safeguard public safety

3. Establishment of State-Level Advisory and Monitoring Team

To effectively manage and address the health challenges posed by the Fengal Cyclone, a State-Level Advisory and Monitoring Team was established. This team, comprising the Director, Additional Directors, and Joint Directors of Public Health and Preventive Medicine, was tasked with providing strategic guidance and on-ground support. Key responsibilities included coordinating health interventions through District Health Officers, overseeing medical camps, monitoring potential disease outbreaks,

ensuring water chlorination, implementing vector control measures, maintaining the availability of medical supplies, and addressing other public health concerns in affected areas. The State team collaborated closely with District authorities to facilitate timely communication and swift responses, significantly mitigating the cyclone's health impact on the population. The Director, along with the Additional and Joint Directors, conducted daily review meetings from the state headquarters with the District Health Officers (DHOs) of the most affected districts. These meetings aimed to assess the situation comprehensively and address the specific needs and requirements of each district. Additionally, in response to the cyclone, funds were requested from the State Disaster Management Authority, Tamil Nadu and National Health Mission, Tamil Nadu.

4. Establishment of District Control Room at the District level

The District administration constituted the District Control Room under the chairmanship of the District Collector and comprising key stakeholder departments in Flood rescue and recovery activities such as Revenue, Health, Police, Electricity and Water Boards, in close coordination with the State Disaster Response Force. The Directorate of Public Health and Preventive Medicine swiftly implemented Epidemic prevention and control measures. The District Emergency Operation Centre, Public Health Control Room, and 104/108 medical helplines were activated. On December 1, 2024, District Control Room was set up at the respective District Collector Offices to coordinate various flood related rescue and recovery operations, with the Public Health Team primarily monitoring the diseases incidence in the flood-affected areas. Field activities were coordinated, including data collection from Mobile Medical Units, Static Camps, and the Integrated Health Information Platform (IHIP).

5. Reactivation of the Dedicated Helpline for Emergency Support

A District Public Health Control Room was set up in all flood-affected districts within the District Collectors' Office, comprising officials from key departments, including Health, Municipalities/Corporations, Electricity, Fire and Safety, Police, Public Works, and Highways. The existing Disaster helpline (1077) was reactivated, with extensive publicity through media channels to ensure prompt assistance. Managed by the District Disaster Team, the helpline received calls from the public, and the relevant officials were promptly notified to take appropriate action. Additionally, the team gathered information on critical needs such as electricity restoration, waterlogging issues, and food distribution.

6. Risk Assessment and Stratification of Affected Blocks in the flood affected districts

Following an assessment of the damage by the Revenue Department, Mobile Medical Teams were strategically deployed to areas with the most severe impact for disease surveillance. Among the 14 affected districts, Tiruvannamalai (including Cheyyar), Villupuram, Krishnagiri, and Cuddalore were particularly hard-hit. Within these four districts, 14 blocks were identified as the most severely impacted. The teams monitored the number of illnesses reported at the Medical camps, and based on this data, the affected areas were categorized by their risk of disease outbreaks. These high-risk blocks were placed under continuous surveillance to monitor for any potential outbreaks.

7. Deployment of Task-Specific Teams for Post-Flood Public Health Management

The Directorate of Public Health and Preventive Medicine appointed personnel in the cadre of Additional Directors and Joint Directors of Public Health and Preventive Medicine to oversee the district public health activities and supervise the monitoring of medical camps, vector control, and chlorination activities. Additionally, officials in the cadre of District Health Officers were tasked with monitoring field activities. They promptly organized and provided all necessary logistics within 1-2 days. Their responsibilities encompassed overseeing all medical camps, vector control efforts, and chlorination activities. Virtual Coordination Meetings were conducted on daily basis with block teams for issuing necessary instructions regarding post flood disease control measures. The data analysed for identifying clusters of ADD/AFI/ARI helped in planning of camps in the affected sites. The daily coordination meeting also enabled the district public health team to be aware of ongoing field difficulties and solving the logistics issues, wherever necessary.

The block teams contributed insights for planning outbreak prevention activities in the subsequent days and prioritizing high-risk areas based on available reports. Furthermore, the field monitoring team ensured the administration of chemoprophylaxis to vulnerable populations in flood-affected regions and distribution of Non-Communicable Disease (NCD) drugs to beneficiaries through medical teams. To address specific needs, task-specific teams were formed, including flood response teams, vector control teams, and water analysis teams. These teams were allocated specific functions, and based on their reported data, the District Authorities promptly initiated epidemic prevention and disease control measures.

7.1 Flood Response Medical teams:

With the onset of the North East monsoon, and the anticipated rise in rainfall and diseases such as vector-borne illnesses, Acute Respiratory Infections (ARI), fever, leptospirosis, diarrheal diseases, typhoid, and dysentery, 1,000 special monsoon medical camps were established across the state to support affected communities. These camps, which began on October 15, 2024, are still operational, continuing to provide essential healthcare throughout the monsoon period. As of December 22, 2024, a total of 79,765 camps have been conducted, serving 42,21,823 beneficiaries. In the 14 districts affected by Cyclone Fengal, the number of medical camps was increased based on risk stratification and specific needs.

The flood response Medical teams comprised a Medical Mobile Unit consisting of one Medical Officer, one Staff Nurse/ Pharmacist, one Health Inspector, and a dedicated driver, each equipped with their own Medical Mobile Unit vehicle. These teams were instructed to carry essential medications for disease control and prevention. In addition to the existing Medical Mobile Teams, more teams were mobilized from nearby districts and deployed in the flood affected blocks.

At the medical camp, several measures were implemented:

i) Socio-demographic details of patients were documented.

ii) Treatment for minor ailments.

iii) Patients presenting with fever had their blood samples collected for serologic tests to detect diseases such as complete blood count, Leptospirosis, Dengue, Malaria.

iv) Cases of Acute Diarrheal Diseases (ADD) requiring stool sample collection for Cholera/typhoid/Hepatitis A and E investigation was done.

v) **Chemoprophylaxis** - Food handlers / health care workers were provided with chemoprophylaxis, including Doxycycline 200 mg, Metronidazole 400 mg, and Albendazole 400 mg. Additionally, individuals in high-risk areas received Doxycycline 200 mg / Azithromycin 500mg tablets as Chemoprophylaxis and children received chemoprophylaxis as per the weight.

vi) **Injury** management included administering TT (Tetanus Toxoid) injections at the campsite, along with wound cleaning and minor dressing.

vii) **Antenatal Care** - As a precautionary measure for the cyclone, all high-risk mothers (near EDD) were transferred to CEMONC centres a day before the cyclone. Additionally, pregnant women in hard-to-reach areas were moved to safer PHC/CHC facilities. Daily visits by VHNs were conducted to monitor antenatal mothers, addressing any concerns. Mobile medical camps also visited ANC patients at the campsites, and high-risk cases were referred to higher-level centres for further care.

viii) **Non – Communicable Diseases** - Monitored the health status of Non-communicable disease patients, those in need of palliative care, and ensure compliance with medication refills for patients with non-communicable diseases including Injection Insulin. Medications were given to NCD patients, even for persons taking treatment in private sector. Drugs were diverted from non-flood affected areas depending on the demand.

ix) **Follow-up** calls were conducted for patients seen at the medical camps, with specific attention given to monitoring and mapping cases of fever, acute diarrheal disease (ADD), acute respiratory infections, skin diseases, and injuries to identify any clustering trends.

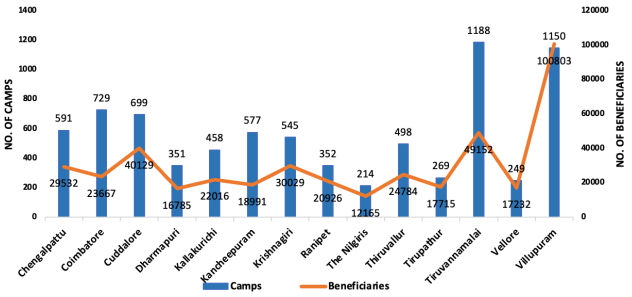


Figure 1: Distribution of Medical Camps and Beneficiaries in the fourteen Cyclone Fengal-affected Districts of Tamil Nadu between December 1 and 13, 2024

In the 14 flood affected districts, between1st and 13th December, 7,870 medical camps were conducted with 4, 23,926 beneficiaries. 3,914 fever cases, 40,898 ARI cases and 412 ADD cases were treated during the period.

7.2 Vector control teams were deputed with Regional Entomology teams along with Senior and Junior Entomologists to oversee vector control activities in the flood affected areas.

Vector control activities included:

i) Source reduction efforts targeted the elimination of mosquito breeding habitats by ensuring the proper disposal or removal of open containers that could collect water. Additionally, areas of artificial water stagnation, both indoors and outdoors, were addressed. These actions played a pivotal role in breaking the mosquito breeding cycle.

ii) For anti-larval control, Temephos - larvicide, was applied to water containers that could not be emptied or drained. This step effectively targeted mosquito larvae, preventing their development into adults.

iii) To control adult mosquito populations, both indoor and

outdoor fogging operations were conducted. Indoor spaces were treated with Pyrethrum-based fogging, which is known for its effectiveness against adult mosquitoes in enclosed areas. Outdoor fogging utilized Technical Malathion, a potent chemical for large-scale vector control.

iv) Due to a limited availability of fogging machines, resources were strategically deployed from various districts to maximize coverage and ensure effective implementation of the fogging operations. This coordinated effort was integral to minimizing mosquito populations and reducing the risk of vector-borne diseases.

v) Oil balls, made of sawdust or hay soaked in used oil and wrapped in jute cloth, are dropped into stagnant waters. The oil forms a film on the water surface, blocking oxygen supply to mosquito larvae and preventing breeding. Additionally, bleaching powder balls are used in stagnant waters to prevent Leptospirosis.

vi) Areas with increased House Index were analysed by the District team and focussed for intensified control measures.

Table 1: Deployment of Task specific teams to the most flood affected districts of Tamil Nadu between December 1 and 13, 2024

District	Vector control-Regional Entomologist Teams	Vector control-Senior/Junior Entomologist Teams	Chief Water Analyst Teams	Chlorination teams
Tiruvannamalai (Including Cheyyar)	1	10	2	74
Villupuram	1	17	1	18
Krishnagiri	1	1	1	40
Cuddalore	0	3	0	4
Total	3	31	4	136

7.3 Water Analysis team:

Water Analyst teams were deployed to flood-affected areas to assess the water distribution system alongside local body officials and the Tamil Nadu Water Supply and Drainage (TWAD) Board. They identified waterline leakages and ensured the cleaning of Overhead Tanks (OHTs) before resuming regular water supply. Temporary water supply through tanker lorries and tractors was chlorinated at the outset, teams thoroughly checked water sources to ensure safety and quality. They had coordinated with local panchayat members and BDO for chlorinated water supply. They also,

i) Reported drinking water pipe leakages and unsanitary supply to the District Authorities with follow-ups.

ii) Monitored chlorination levels and devised action plans for chlorination in affected areas.

iii) Tested water quality in supply tanks and private sources for contamination, ensuring proper chlorination.

iv) Collected water samples from taps, hand pumps, overhead tanks, and portable sources to test residual chlorine levels.

v) Prioritized water sampling in flood-affected areas with acute diarrheal disease (ADD) or fever cases.

vi) Sent water samples for bacteriological analysis to detect contamination.

vii) Chlorinated water sources under supervision of Chief Water Analyst team.

viii) Inspected water-supplying lorries for rust or debris and ensured proper chlorination.

A total of 8,912 water sources were inspected by the team for adequate chlorination during the control measure activities, and 7272 (81.6%) sources were found to be adequately chlorinated in the 14 Fengal cyclone affected districts. Appropriate measures were taken to chlorinate the water sources with nil chlorination.

8. Disease surveillance and Outbreak prevention

The expected surge in diseases following the floods, includes vector-borne diseases such as dengue, chikungunya, and malaria, along with influenza, pneumonia, and waterborne illnesses like cholera, dysentery, gastroenteritis, typhoid, hepatitis A, and leptospirosis, were closely monitored. Daily trend analysis of reported diseases helped identify vulnerable populations, prioritize high-risk areas, and plan targeted healthcare interventions for the following day.

i) **ADD (Acute Diarrhoeal Diseases) case approach** – Whenever ADD cases were reported, a clear history was first taken to differentiate food borne from water borne ADDs.

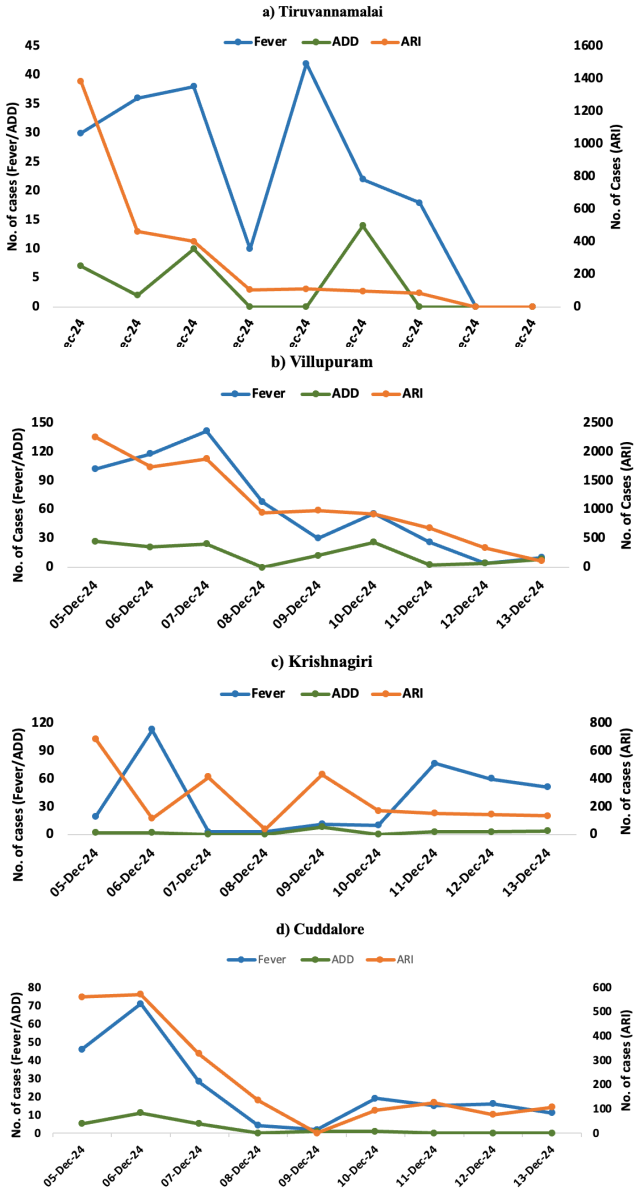
- **Food Borne** – Food samples were collected wherever available, advised to dispose the suspected food and treat the cases symptomatically in case of cluster.
- **Water Borne** – The affected areas were checked for pipeline leakages and the issues identified were rectified. Alternate chlorinated drinking water supply was given through tanker Lorries. Super chlorination was done at all operational water sources and storage sites to ensure adequate chlorination at household and community levels. Disinfection activities were carried out in and around the households of affected individuals.

All symptomatic patients were treated and Chemoprophylaxis was given to all those who shared the suspected water source. IEC regarding Handwashing and boiling of drinking water was done regularly in all affected areas. Water analyst teams were deployed to visit all affected areas for strict monitoring of water quality.

ii) **Acute Febrile Illnesses/ Fever and Acute Respiratory Illnesses (ARI)** - After active case search, clusters were identified to provide symptomatic management to patients,

and blood samples from these febrile patients were transported to the District Public Health Lab through Integrated Essential Laboratory Services (IELS). Flu like symptoms were managed with T. Oseltamivir and necessary prophylaxis was given to close contacts. Source reduction for vector control, along with fogging and anti-larval measures were implemented in necessary areas.

The four districts most severely impacted—Tiruvannamalai (including Cheyyar), Villupuram, Krishnagiri, and Cuddalore—were placed under intensified surveillance. Disease surveillance data was collected from both the medical camps and the Integrated Health Information Platform (IHIP portal) to assess the actual burden of diseases reported during this period. Trend analysis of these diseases helped identify potential outbreaks early, allowing for timely public health interventions and the implementation of appropriate measures.



Source: IHIP portal and Medical Camp Google sheet report

Figure 2: Trend analysis of Fever, ADD and ARI in the four most Cyclone Fengal affected Districts of Tamil Nadu between December 1 and 13, 2024

Choropleth mapping served as a useful tool to visualize and analyze the spatial distribution of data to understand the disease prevalence. It helped track the geographical spread of diseases, identify hotspots, and prioritize interventions in high-risk areas.

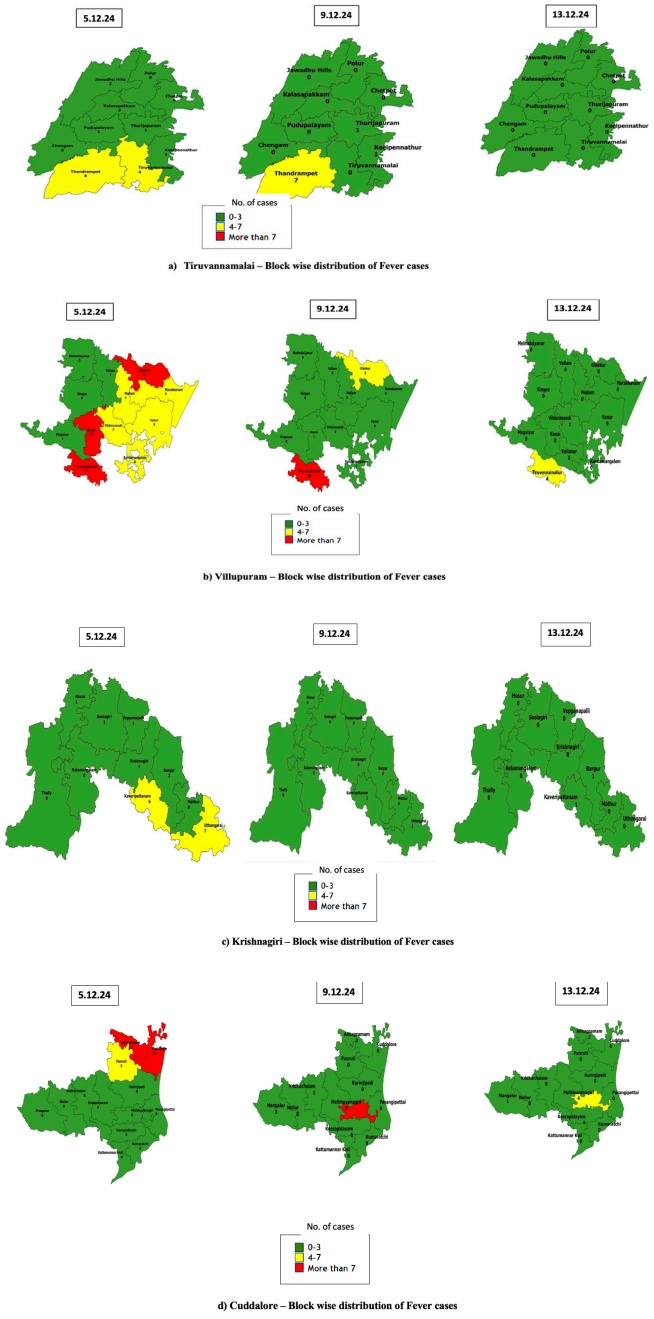


Figure 3: Choropleth mapping of Fever cases in the 4 most Cyclone Fengal affected Districts of Tamil Nadu between December 1 and 13, 2024

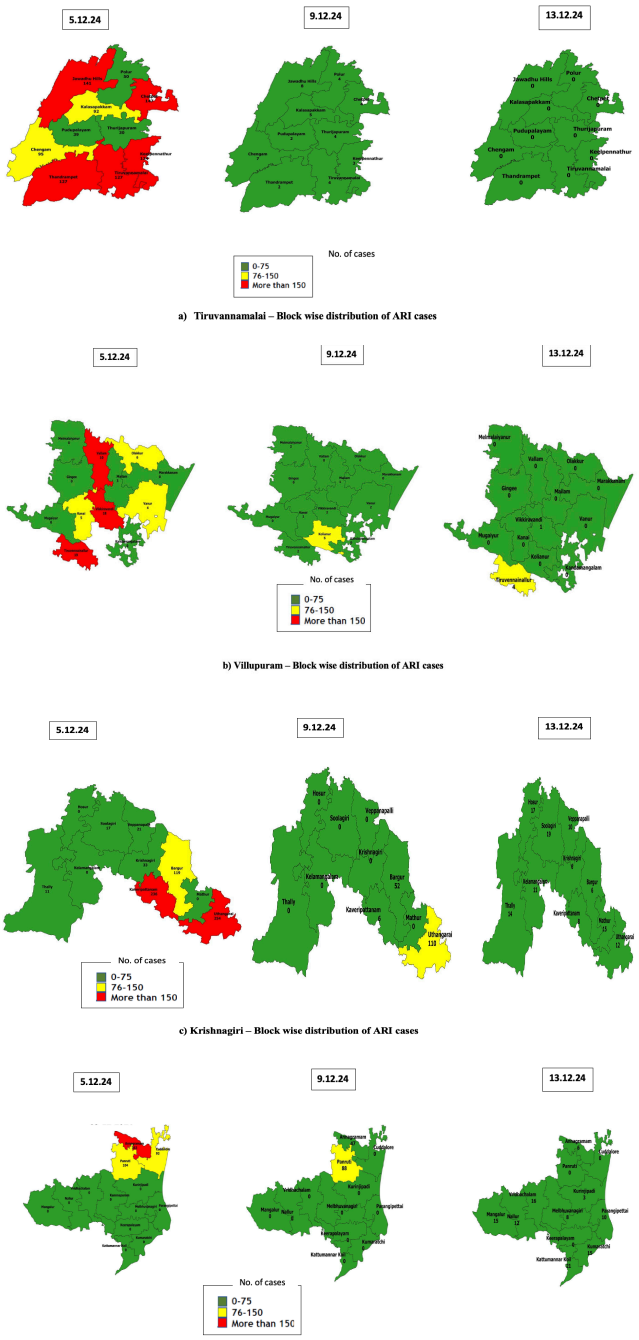
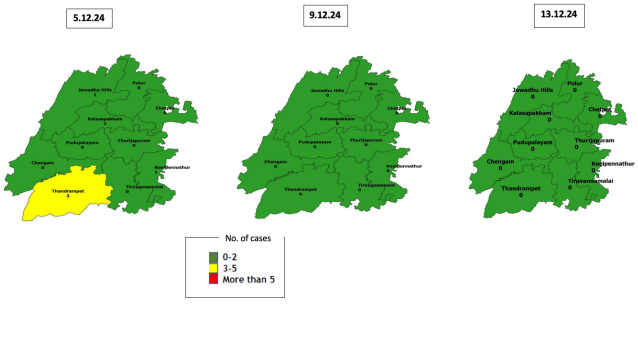


Figure 4: Choropleth mapping of ARI cases in the 4 most Cyclone Fengal affected Districts of Tamil Nadu between December 1 and 13, 2024



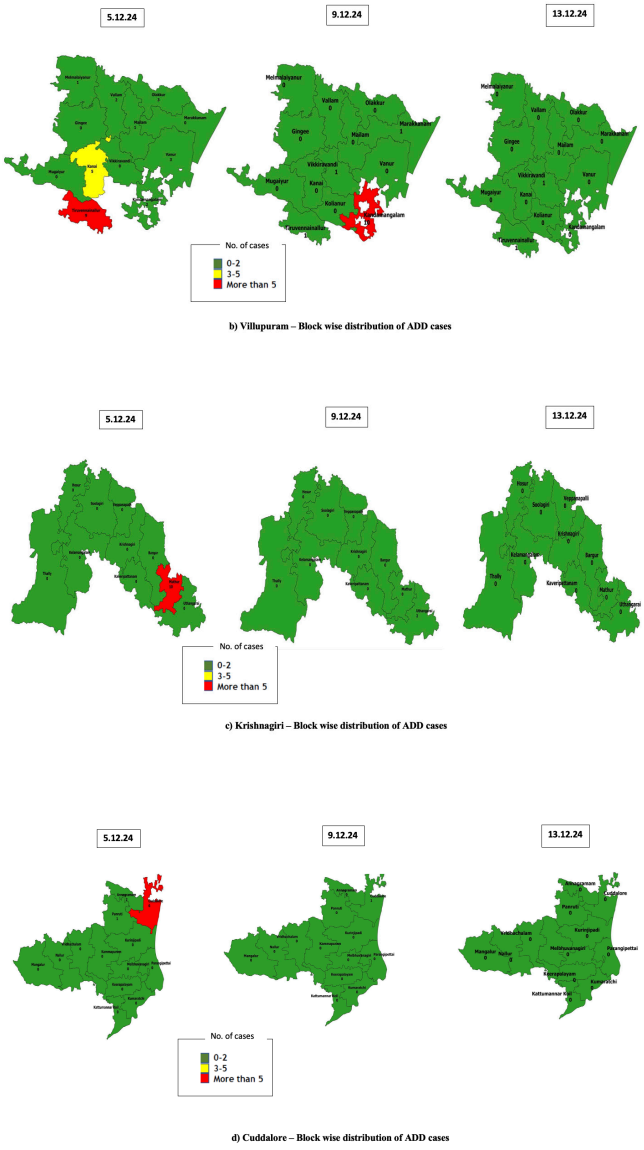


Figure 5: Choropleth mapping of ADD cases in the 4 most Cyclone Fengal affected Districts of Tamil Nadu between December 1 and 13, 2024

During the surveillance period, a single Acute Diarrheal Disease (ADD) outbreak was detected in Villupuram district, attributed to a pipeline leakage. Active surveillance enabled the identification of case clustering on Day 1 itself. Bacteriological analysis of water samples confirmed the presence of coliform organisms. The outbreak was effectively controlled within 5 days, with a total of 10 cases reported. As a result of the strict control measures implemented by the Health Department, no further outbreaks were reported in the remaining districts.

The public health interventions during Cyclone Fengal showed a strong and proactive approach to managing the disaster and health challenges. The timely communication of alerts, establishment of State and District-level control

mechanisms, deployment of task-specific teams, and comprehensive disease surveillance measures played a pivotal role in safeguarding the health of affected communities. The collaborative efforts of various departments, strategic risk stratification, and the mobilization of resources ensured a seamless response to emerging health challenges.

DISCUSSION

The Public Health response to the Cyclone Fengal and floods in Tamil Nadu highlighted an integrated and systematic approach to disaster management, emphasizing early preparedness, coordinated action, and data- driven interventions. These measures ensured timely control of potential health risks and highlighted the importance of strengthening public health systems in disaster-prone areas. One of the most critical steps taken was the establishment of Advisory and Monitoring systems at both State and District levels. Such centralized structures facilitate efficient decision-making, resource allocation, and monitoring. Evidence from prior research supports the effectiveness of such command systems in disaster response. For instance, in a conference paper by Kaur et al. (2018) on disaster management during floods in Bihar highlighted the importance of command systems in ensuring timely coordination among health departments and local authorities.[9,10]

Disease surveillance played a pivotal role in the prevention and control of outbreaks. Utilizing data from medical camps and Integrated Health Information Platform (IHIP) enabled the identification of high-risk areas and trends in disease outbreaks. The National Centre for Disease Control (NCDC), New Delhi, emphasize that robust surveillance systems reduce delays in detecting and managing outbreaks, particularly for vector-borne and waterborne diseases in flood-hit regions and has been proved effective in the 2015 Chennai floods.[4,11] In the flood affected districts, measures like real-time monitoring and choropleth mapping of illnesses were instrumental in planning targeted interventions. Vector control and water quality management were crucial in preventing outbreaks of diseases like malaria, dengue, and cholera. These activities included anti-larval measures, fogging, and chlorination of water sources. A systematic review by Mohajervatan et al. (2021) underscored the necessity of such interventions in reducing the incidence of vector-borne diseases during and after floods.[12] Similar efforts in Tamil Nadu during the 2015 Chennai floods significantly reduced mosquito populations and prevented major outbreaks, as documented by Selvavinayagam et al.[13]

The formation of task-specific teams ensured the efficient execution of activities ranging from medical camps to risk stratification of affected areas. The deployment of external medical teams from neighbouring districts was crucial in providing immediate care. Research by Paterson et al. (2018) on flood responses in Southeast Asia emphasizes the importance of mobilizing multidisciplinary teams for emergency healthcare delivery.[14]

Public health communication also played a vital role, particularly in educating the population about safe hygiene practices, water purification, and disease prevention. WHO guideline on 'Communicating risk in public health emergencies' advocates that public awareness campaigns can significantly mitigate the risk of outbreaks during disasters by fostering community participation in preventive measures.[15]

Despite the success of these interventions, challenges such as network disruptions and logistical constraints during the initial days highlight the need for further investment in resilient communication and resource systems. Additionally, while Tamil Nadu's response was exemplary, it is imperative to evaluate the cost-effectiveness and scalability of such interventions for wider implementation in flood-prone areas.

LIMITATIONS

One of the limitations to note is, while analysing data for disease surveillance, we have incorporated case numbers from both the IHIP portal and the Special Medical Camps conducted across districts. It is important to note that the number of reported cases may fluctuate due to the varying frequency of camps conducted daily. To provide a clearer understanding of the disease burden and to identify trends in case reporting, we have relied on aggregate figures. These aggregate figures, while offering valuable insights, may still reflect variations influenced by the number of camps scheduled.

CONCLUSION

These Public Health interventions not only mitigated the immediate health impacts of the disaster but also demonstrated the importance of preparedness, coordination, and data-driven decision-making in minimizing potential outbreaks and ensuring community resilience in the face of future calamities. Despite the initial challenges, proactive preparedness contributed to the relatively low number of reported cases in the affected districts. Proactive preparedness, effective arrangement of logistics, protocols, and disease surveillance kept reported cases significantly low. This highlights the importance of comprehensive guidelines and ready Disaster Response Teams in mitigating impacts

and preventing outbreaks during disasters. With the growing impact of climate change on natural disasters, proactive preparation is essential. However, ensuring the availability of resources, particularly financial ones, is crucial to addressing the immediate impacts of cyclones while other necessary resources are being mobilized. A dedicated revolving fund for disaster management would ensure financial readiness, enabling swift and effective responses to mitigate cyclone impacts.

CONFLICT OF INTEREST

None

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