

**Directorate of Municipal Administration, Chennai-5.**

**Guidelines for prevention of Dengue and Mosquito elimination:-**

The existing guidelines for prevention of dengue and elimination of mosquitoes have been updated and compiled, as follows:-

1. **Two types of Plan:** For prevention of dengue and elimination of mosquitoes two types of Plan are to be implemented in ULBs:

- A. Regular plan - Plan of "Unit of 300 Household (HH) or Lesser":

- B. Plan for Emergency

**A. Regular plan-** "Plan of Unit of 300 Household (HH) or Lesser":

Regular plan - Plan of "Unit of 300 Household (HH) or Lesser" consists of the following three essential steps:

- a) Fixation of "Primary Responsible Person"
- b) Formation of Zonal teams
- c) Formation of Three level Supervision

**a) Fixation of "Primary Responsible Person"**

1. Prepare a detailed proceedings dividing the wards of the ULB's into 300 HH (or even lesser, if possible) and to appoint a person as "Primary Responsible Person" to cover these HH in a 6 day cycle. "The "Primary Responsible Person" allotted for each 300 HH or lesser" will carry out vector control activities for Dengue daily in the Afternoon (2.30 pm to 4 pm).

- I. The "Primary Responsible Person" can be selected from regular sanitary workers or outsourced sanitary workers or any voluntary SHG

- II. The Plan of "Unit of 300 Household (HH) or Lesser" can be supported by NGOs such as Rotary, Lions, and IMA etc., by providing Man power, Materials, monetary incentives, etc



- iii. Under Corporate sector Responsibility, The Industries/ Private Hospitals in the ULBs can be involved in the plan of "Unit of 300 Household(HH) or Lesser" effectively by adopting areas permanently and by providing Man power, Materials, monetary incentives, etc
- iv. Elected representatives of the Concerned area should be involved in all aspects of Plan of "Unit of 300 Household (HH) or Lesser". It is considered as very essential aspect of the plan.
- v. Note: ULBs shall reassess the requirement of Sanitary Workers as per G.O.No.101, and for shortfall in manpower, could send proposals to get orders of Director of Municipal Administration for engaging them by outsourcing as soon as possible.
2. The "Primary Responsible Person" allotted should cover 50 HH or lesser per day on the basis of plan and the allotted 300 HH or lesser should be covered in a 6 day cycle.
3. The "Primary Responsible Person" should be trained in all aspects of vector control activities including IEC, Source reduction, Abate application and fogging especially for Dengue.
4. Fixing area wise responsibility to concerned "Primary Responsible Person" allotted is essential.

**b) Formation of Zonal teams:**

- One zonal team / 6000HH to be formed for the purpose of "Super check"(Super check is explained in point no.3)
- Team should consists of all services of ULB such as Public health, Engineering, Revenue, Town planning staffs , etc
- List of zones and list of teams to be prepared.
- The teams should monitor the allotted areas as "Super check" and reports should be submitted to concerned commissioners on daily basis.



- Fixing area wise responsibility to concerned team is essential.
- Meetings to be conducted with the elected representatives of people in the ULBs to discuss and involve them in implementing the above said action plans of Plan of "Unit of 300 Household (HH)" and zonal teams.
- NGOs such as Rotary, Lions, IMA, Industries, Private Hospitals in the ULBs can be involved in the Formation of Zonal teams effectively by adopting areas and by providing Man power, Materials, monetary incentives, etc.

**c) Formation of Three level Supervision:**

- **1<sup>st</sup> level:** sanitary worker supervisors (SWS) for the area in which SWS is regularly attached the duties.
- **2<sup>nd</sup> level:** Sanitary Inspectors (Sis) for the area in which Sis is regularly attached the duties.
- **3<sup>rd</sup> level:** Super check by Zonal team Members
- Reports should be submitted as consolidated reports as **Daily report** to commissioner of concerned ULBs

The prescribed format for Plan of "Unit of 300 Household (HH) or Lesser", Check list for three level supervision and Weekly Consolidation report of Super check at Corporation/ Municipality are enclosed as Annexure-I, II & III.

**B. Plan for Emergency**

- In every ULB, Disease affected areas/ Hot spots/ Vulnerable areas should be listed out based on previous records (at least 3 years) and Mapping should be done for vulnerable areas.
- Hot spots also derived from & plan for Emergency to be planned based on surveillance of fever cases from



1.Private/ Government Hospitals	Assessment of
2.Government/ Private Laboratories	Entomological Indices
3.Field surveillance	
4.Deputy Director of Health Services office	

- Ward wise line list of fever cases to be prepared and used for organizing control measures.

**\*Surveillance of fever cases & Assessment of Entomological Indices:**

- Assessment of Entomological Indices should be done primarily for Hot spots

**Team for Surveillance and assessment:**

For the purpose of Surveillance of fever cases and assessment of Indices, selected efficient primary responsible persons/ DBCs, 1<sup>st</sup> and 2<sup>nd</sup> level supervisors, staffs of Health centers including AYUSH such as UHN, SHN, etc can be utilized.

**Supervisors for Surveillance and assessment:**

Medical officers of health centers including AYUSH along with Sanitary Inspectors can be fixed as supervisors for the Task of Surveillance of fever cases & Assessment of Entomological Indices.

**Preparing Micro plan:**

Meeting of the supervisors for the Task of Surveillance & Assessment of Indices with district public health officials especially concerned Entomologists should be conducted by comm

arrive a micro plan for uninterrupted surveillance of Indices to cover all areas including Hot spots. The plan should be communicated to this office.

**Coordinator for Surveillance and assessment:**

The Entomologist concerned can be fixed as the coordinator of Surveillance of fever cases & Assessment of Indices with the consent of concerned DDHS.

check" and  
s on daily



- For surveillance of fever cases:

Ward wise/ Street wise Fever Information volunteer groups can be formed with the involvement of SHGs/ NGOs.

- c. Construction sites in the UIP should be listed out. Mapping of construction sites should be done and should be given special concentration.

d. Plan for Emergency should be implemented at Hot spots and in the areas wherever **upsurge of fever cases** occurs or **Alarming Indices level**

e. Under the plan of Emergency, the following Consistent **combined approach activities** -in and around the area affected to be carried out simultaneously till the end of Emergency situation:

- i. **Engaging DBCs on the basis of need**
- ii. **Anti mosquito-Indoor/ Outdoor fogging,**
- iii. **Anti larval work-Source reduction & Abate application,**
- iv. **Mass cleaning works,**
- v. **All methods of IEC**
- vi. **Effective Solid and Liquid Waste Management**
- vii. **Involvement of Elected Representatives/ Volunteers - SHG, Students.**
- viii. **Surveillance of fever cases and Assessment of Entomological Indices**
- ix. **Special Medical Camps**
- x. **Nilavembu kudineer distribution**
- xi. **Application Nylon Nets/ mosquito nets/ Jut bags around vent pipes of septic tanks (to prevent nuisance mosquito breeding)**
- xii. **Involvement of Public health officials**
- xiii. **Uninterrupted effective supervision and etc.,**



## **2. Information, Education & Communication activities:**

### **1. At Educational Institutes:**

- Educational Institutes especially Schools should be the main focus of IEC
- Colorful attractive Banners and posters to be erected in the schools
- Exercise of students on source reduction- by teachers, Oath taking, etc can be performed periodically.
- Issuing Sanitation Certificate to educational Institutes on the performance of periodical IEC on Dengue at concerned educational Institutes can be adopted

### **2) At Field**

- Hot spots given priority
- Regulation: In case of repeated occurrences of breeding sources in House Holds which have been given through IEC properly and repeatedly
  - Notices under Public Health Act can be issued
  - Making penal charges may be done
  - Necessary legal actions Invoked by Urban Local Bodies in order to bring discipline.
- Involvement NGOs such as IMA, Exnora, Lions club, Rotary club, other locally operated social organizations and Commercial Establishments, Industries, Private Hospitals should be promoted for effective IEC. This will help to reach the people in-depth.
- Involvement of elected representative of people is also essential one.
- The council meetings, other official meetings/events, etc can be utilized to create awareness regarding Dengue and other disease prevention regularly and repeatedly



- The following are the types of IEC which can be performed at ULBs based on the need;

- Printed Materials
  - Hand Bills
  - Posters
  - Banners
  - Stickers- Door to Door
- IEC through DBCs -Door to Door
- IEC through workers of ULBs
- IEC through Students of Educational Institutes
- Mass IECs at Vulnerable areas
- Auto Announcement
- Video Display -With the IEC material supplied by DPH&PM
- Street Plays
- Rally
  - Involving Schools/ Colleges
  - Involving Women Self Groups
  - Involving Local Bodies, Exnora, Lions club, Rotary club, Locally operated social organizations
- IEC at religious spots such as Mosque ,Churches, etc
- Pledges
  - Oath taking at Educational Institutes
  - Oath taking at Council of ULBs
  - Oath taking at Community
- IEC through
  - Local FM
  - Local TV channels
  - Local News Papers
- IEC at Medical Camps
- IEC at Government/ Private Hospitals/ Hotels, etc

### 3. Distribution of Nilavembu kudineer:

- NGOs & other Donors may be promoted for procurement and distribution of Nilavembu



- Plan should be prepared to provide Nilavembu extract to all school children for 5 continuous days covers once in an interval of 60 days time at 15 ml each.
- Hot spots/Vulnerable areas to be covered with distribution of Nilvembu in the pattern of ring immunization. The dosage for adults- 15 ml twice daily.
- Churches/Mosques/Temples can be involved in Nilavembu Distribution along with IEC at the time of gatherings.

4. Assessment of requirement of Chemicals such as pyrethrum, Abate etc and Equipments such as fogging machines, sprayers can be done based on the Norms, as follows:-

- Adulticide
  - For every 10 lakhs population 1000 litres of Pyrethrum 2% Extract is required for 1 round of fogging operation
  - Atleast 3 month's buffer stock of insecticide should be maintained at any point of time.
- Larvicide
  - For every 10 lakhs population 500 liters of Temephos is required for 1 year period.
  - Atleast 3 month's buffer stock of insecticide should be maintained at any point of time.
- Norms for Fogging Machines:
  - Indoor Fog Machines – 1/5000 Populations.
  - Outdoor Fog Machines – 1/20,000 Populations.
  - Vehicle Mounted Fog Machines – 1/1,00,000 Populations



5. Training for anti dengue and anti mosquito measures for all Human resources:

- Capacity building- Trainings and reorientation trainings should be a continuous process.
- All the human resource involved should be trained in
  - all aspects of dengue and mosquito control thoroughly including correct dosage/ correct method of application of abate
  - Surveillance of fever cases
  - Knowledge on Entomological Indices including assessment methods.

Indices	Parameters
<b>House Index</b> = No. of Houses Infested / No. of Houses Inspected*100	(>10% - High risk ; <1% - Low risk)
<b>Breteau Index</b> = No. of positive containers / No. of Houses Inspected*100	(>50% - High risk ; <5% - Low risk)
<b>container Index</b> = No. of positive containers / No. of containers Inspected*100	--

- The supervisors along with workers for fogging operation can be trained the methods of Indoor & outdoor fogging such as preparation of House Hold for fogging, Timing of fogging, Importance of wind flow, speed of vehicle, etc..
- If privatization is done for Solid waste management, the workers under privatization should also be trained and involved in source reduction activities.



- Training for Elected representatives, NGOS, SHG, etc also should be carried out regularly.
- District public health officials may be requested and involved in training purpose.

6. Exclusive training for Three level supervisors:

The supervisors should be trained in the following aspects for effective supervision:

• Physical verification of teams:

- a. Structure and composition of team should be verified as per plan such as Number of persons involved/ No. of Males / No. of Female/ No. of Young/ No. of Old aged/ No. of Regular & No. of outsourced workers
- b. Team should consist of mixture of the above mentioned personnel so that it will help the team to gain faith of the House Holds and to get into the houses easily.

• Team should be verified the equipments for Anti-Larval work:

- a. Regular workers in uniforms
- b. ID cards (Temporary/ Permanent), if provided
- c. Torch Light
- d. Raw & Diluted chemicals, Syringe
- e. Measurement cup,
- f. Bleaching powder
- g. Necessary Forms,
- h. Stir etc

• Verification of the following step by step procedures carried out by a team at House Holds:

- a. Primary Responsible person or DBC should check for water storage containers for breeding of larvae.



- b. If larva is prevail, it should be shown to the concerned House Holds and the methods of source reduction should be demonstrated before them to make the House Holds efficient to reduce the sources themselves thereafter. The types of breeding sources also should be explained to them.
- c. If source reduction is not possible- Abate application has to be done and IEC should be given with demonstration to the House Hold to cover the water storage container properly so as to prevent entering of Mosquitoes to lay eggs inside the container.
- d. The House Holds can be recommended to store the water in few Big Barrels itself instead of storing in too many small containers. This will make the House Holds easy, simple to keep the containers properly closed.
- e. Promoting early Health seeking behavior in case of fever, Announcement of availability of treatment facilities is essential.
- f. Importance of Nilavembu kudineer may also be insisted.
- g. House Holds should be promoted to apply Nylon Nets/ mosquito nets/ jute bags around vent pipes of septic tanks and to seal the septic tanks if is broken or improper. (to prevent nuisance mosquito breeding)
- h. After the step by step proper IEC, the signature of House Holds with proper address can be obtained in a register. In case of repeated occurrences of breeding sources in House Holds which have been given through IEC properly and repeatedly, the following regulatory methods can be implemented by Urban Local Bodies in order to bring discipline.



- Notices under Public Health Act
  - Making penal charges
  - Necessary legal actions invoked
- Preparation, Dosage & Method of Abate application should be verified:

Larvicide	Genus	Dilution	Dosage	Frequency
Temephos	Aedes mosquito	2 ml in 1 litre of water	1 ml per 1 litre of stored water	Weekly

- **Note:** State wide multiple field inspections revealed that one of the major reasons for ineffective dengue control is incorrect preparation of diluted mixture /Dosage /Method of application of Abate.
- As the Primary responsible persons/DBC's are not technical persons and may be with less qualification, for the purpose of Dosage/ Method of application of Abate, the volume of common containers (the containers may vary from ULB to ULB) and dosage for those containers can be educated in a practical easy, simple way to Primary responsible persons/ DBC's.
- Physical verification of proper Fogging methods
- Physical verification of IEC- Schools/ Field
- Verification of distribution of Nilavembu & dosage

#### 7. Case Management:

- The necessary allopathic drugs should be kept ready to handle the situation
- Plan for medical camps (Allopathic / ISM) should be prepared along with district public health officials and implemented if needed.



8. Special concentration should be given to the following areas:

- Desilting of Major and minor channels should be taken up periodically in a serious manner

The storm water drains- should be cleaned

to avoid stagnation of water

- Useless water bodies and potential water-holding excavations and depressions should be eliminated by filling with soil or applying oil balls etc.,

- Vulnerable points such as

- Construction sites
- Accumulation of solid wastes in private and public vacant lands
- Abandoned buildings
- Locked houses for longer periods
- Notice under Public Health Act and Fine Implementation should be carried at the above areas to prevent dengue spread. A list of such places can be drawn out and efforts of mass cleaning to be undertaken on a war footing basis at these areas.

- Public Over Head tanks (OHT)- should be cleaned periodically

9. Periodical screening and health checkup:

- Periodical screening and health checkup of all sanitary workers including Primary responsible persons /DBC's, workers at construction sites should be carried out with proper documentation and follow up.

10. Formation of Fish Hatchery:

- Fish Hatchery should be formed in ULBs with the help of District public health officials



- Gambusia/ Guppy can be introduced in sources such as underground sumps and other suitable bigger water sources.

#### 11. Water Supply:

- Frequency of water supply should be provided with maximum possible frequency (As increasing of frequency will make the people to less water storage practices and frequent cleaning of water containers whenever they receive new water, it is considered as good passive measure for control of Dengue)
- ULBs should not keep any proposal for water supply system pending and they should send the proposals as early as possible to higher officials for further approval and actions.
- In case of Pit taps, the cement bottom can be removed so that the stagnating water will be absorbed into the earth.

#### 12. Maintenance of chlorination:

- o Benefits of chlorination:
  - Proven reduction of most bacteria and viruses in water
  - Residual protection against recontamination
  - Ease-of-use and acceptability
  - Proven reduction of diarrheal disease incidence
  - Low cost
- o Chlorination prevents at least 10 diseases given below:
  - 1] Diarrheal diseases.
  - 2] Dysentery
  - 3] Cholera.
  - 4] Typhoid Fever.
  - 5] Salmonella.
  - 6] Hepatitis A.
  - 7] Hepatitis E
  - 8] Escherichia coli 0157:H7 (E. coli)
  - 9] Campylobacter
  - 10] Giardia and Cryptosporidium, etc..
- o Effective chlorination to be ensured at the tail end point (0.2ppm) by regular and periodical examinations



(**Note:** By preventing Typhoid and water borne fever cases by proper chlorination, the projection of these fever cases as dengue cases can be avoided)

13. Involvement of other departments:

- Officials of other departments such as Public health, drug control, ICDS, Education dept. can be involved in the two types of plan and all activities for Dengue & Mosquito control.

14. Formation of social groups:

- Social groups such as Whatsapp, etc can be formed locally involving other departments such as Public health, Food safety, ICDS, Drug control, etc and can be utilized for effective control of Dengue and mosquito control.

15. Innovative ideas

- ULBs are invited to provide innovative ideas successfully implemented such as promotion of self usage of Nochi / Neem leaves as indoor fogging measure for mosquito control so that they can be shared with other ULBs

16. Documentation and mass media:

- ULBs can document the intensive activities properly and attractively with date and time
- They can be utilized by the concerned ULBs in the mass media to reach the community effectively

17. Utilization of monthly Council meeting

- Status of disease occurrences & control can be discussed as routine subject in monthly council meetings and involvement of elected representatives can be promoted.
- Efficient involvement of elected representatives can be appreciated as an encouragement process.



18. Regular periodical review meetings:

- should be conducted at ULB level by Health officers/ Sanitary Officers. The Commissioners should be conducted at interdepartmental meeting with other departments such as Public health, Food safety, ICDS, Drug control etc.,

19. The Regional Directors should include Anti Dengue activities as a routine part of their review and inspections.

20. The following are the list of Registers to be maintained at every ULB:

- Micro plan
- Register for Human Resource including DBC/Volunteers
- Fever register-

Fever register to be maintained by collecting daily fever report from

- 1) Private/ Government Hospitals
- 2) Government/ Private Laboratories
- 3) Field surveillance

- Indices register-

- Ward wise Entomological Indices (House Index) should be calculated regularly by surveillance and they should be used for organizing control measures.
- If Entomological team/ Public Health officials of District provide any value of Entomological Indices and recommendations out of their survey in ULB, they should be used for implementing control measures.
- Vulnerable areas should be identified and given priority for control measures based on the Indices.

- Stock Registers

- i. Instruments



The instruments such as Fogging machines, Vehicles should be kept in functional status.

## II. Larvicides

Adequate larvicides such as Abate, Pyrethrum should be maintained.

- Opening/Closing balance, Quantity of daily usage, etc should be maintained.
- Register for Mass cleaning works
- Register for IEC Activities
- Register for Notice under PHA
- Register for Fine Implementation
- Register for Media complaints and activities
- Register for activities during out breaks ,if occurs
- Registers for Chlorination Monitoring
- Register for Expenditure of every vector control activity

### **In a nutshell,**

- Prepare a detailed proceedings dividing the wards of the ULB's into 300 HH (or even lesser, if possible) and to appoint a person to cover these HH in a 6 day cycle. Second, third level super check can also be included by higher level officials for 3-4 such blocks. Overall supervision to be undertaken by Commissioners, City Engineers, City Health Officers, Deputy Commissioners, Assistant Commissioners, Town Planning Officers to ensure that the plan unfolds properly in the field.
- Suitable stock of Pyrethrum and Abate to be kept ready for at least 3 months.
- Effective chlorination to be ensured at the tail end point by random sampling.

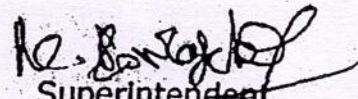



- Coverage of all school children with Nilavembu extract at 15 ml for 5 days to be done on an express mode utilize the assembly sessions of schools.
- Adequate machineries for fogging to be purchased ASAP.
- DBC workers to be employed only on need basis and not as a matter of routine.
- Mass cleaning of potentially hazardous areas to be specifically listed out and acted upon on a war footing manner.
- Medical camps (Allopathic/ ISM) to be in place.
- Hot spots to be given specific focus.

Specific registers to monitor HI/ CI/ BI to be maintained and watched periodically.

Sd/- G.Prakash,  
**Director of Municipal Administration**

// Forwarded by Order //

  
Superintendent

  
24/7/2015