



HEAT WAVE ACTION PLAN

Dr. W.G. Prasanna Kumar

**Professor, Head, Centre for Climate and
Disaster Management**

Dr.MCRHRDI, Hyderabad

What is a Heat Wave ??

- ❖ **Heat wave need not be considered till maximum temperature of a station reaches at least 40° C for Plains and at least 30° C for Hilly regions.**
- ❖ **When normal maximum temperature of a station is less than or equal to 40° C**
 - Heat Wave Departure (HWD) from normal is 5° C to 6° C
 - Severe Heat Wave Departure from normal is 7° C or more
- ❖ **When normal maximum temperature of a station is more than 40° C**
 - Heat Wave Departure from normal is 4° C to 5° C
 - Severe Heat Wave Departure from normal is 6° C or more
- ❖ **When actual maximum temperature remains 45°C or more irrespective of normal maximum temperature, heat wave should be declared.**

The Heat Action Plan

Aims -Four key strategies

Building Public Awareness and Community Outreach to communicate the risks of heat

waves and implement practices to prevent heat-related deaths and illnesses. Disseminating public messages on how to protect people against extreme heat through media outlets and informational materials such as pamphlets and advertisements on heat stress prevention. New efforts being launched as part of this year's Plan include the use of modern media such as SMS, text messages, email, radio and mobile applications such as WhatsApp. Special efforts will be made to reach vulnerable populations through inter-personal communication as well as other outreach methods.

Initiating an Early Warning System and Inter-Agency Coordination to alert residents of

predicted high and extreme temperatures. The AMC has created formal communication channels to alert governmental agencies, the Met Centre, health officials and hospitals, emergency responders, local community groups, and media outlets of forecasted extreme temperatures.

Capacity Building Among Health Care Professionals to recognize and respond to heat-

related illnesses, particularly during extreme heat events. Such trainings focus on primary medical officers and other paramedical staff, and community health staff so they can effectively prevent and manage heat-related cases so as to reduce mortality and morbidity.

Reducing Heat Exposure and Promoting Adaptive Measures by launching new efforts

including mapping of high-risk areas of the city, increasing outreach and communication on prevention methods, access to potable drinking water and cooling spaces during extreme heat days. Collaboration with non-governmental organizations is also identified as a means to expand outreach and communication with the city's most at-risk communities.

Heat Wave Alert Colour Codes

RED ALERT

Extreme Heat Alert Day

ORANGE ALERT

Heat Alert Day

YELLOW ALERT

Hot Day

WHITE

No Alert

**TEMPERATURE FORECAST
TRIGGERS ISSUANCE OF HEAT ALERT
OR HEAT WARNING**

Gujarat State Disaster
Mgmt Authority
notified

Gujarat State Surveil-
lance Unit of IDSM
notified

AMC Nodal Officer
CALLS HEAT ALERT
as an Intervention

AMC Press Liaison
notified: Media
outreach begins

TV, Print,
Radio
alerts

Posters
&
Pamphlets

Promote
Heat Hotline

Alert mobile
phone companies
to send text msg

via email,
with phone
call or fax to
verify

Non-Governmental Groups

PHFI/IIPH, 108 workers, AIDMI (All-India Di-
saster Mitigation Institute), Community
health groups, and others to help reach the
heat-vulnerable

Hospital

Link workers
Hospitals/ERs
Health center
workers

Labour

Provide water,
shade to
workers and
alter work shifts to
cooler hours

Water

Provide water
tankers to slum
dwellers and
limit non-essential
water use

Torrent
Power

Maintain
power to
critical
facilities/
vulnerable
groups

Transport
Officer

Provide bus
stops as sites
of shade &
water
distribution

Religious
groups/
Library board

Temples and
libraries as
cooling
centers

School
Board

Information to
school students
and potential
change in summer
holiday schedule

Parks, Zoo,
Swimming

Extend
hours

Community Groups and Individuals:

- Lead child-friendly educational preventative trainings and distribute heat protection materials at local schools. For example, potentially design a “Teach the Teachers” workshop designed to equip teachers with knowledge with heat protection tips and materials that they can disseminate in classrooms on heat protection, and activities that can engage students on health dangers of extreme heat.
- Conduct training workshops and outreach sessions with community groups and mobilizers such as Mahila Arogya Samiti, Self-Employed Women's Association (SEWA), ASHA workers, *aanganwadis*, and municipal councils to help inform and get vulnerable communities more actively involved. Incorporate other sectors such as higher education, non-profits, and community leaders to increase reach to communities.
- Encourage individuals’ discussion of the early signs of heat exhaustion with their local doctor or Urban Health Centre.
- Inform fellow community members about how to keep cool and protect oneself from heat.

- ☀️ Drink water, chaas, and other liquids (no soft drinks)
- ☀️ Stay out of the sun
- ☀️ Find a place to cool down
- ☀️ Wear light clothing
- ☀️ Check in with friends & family

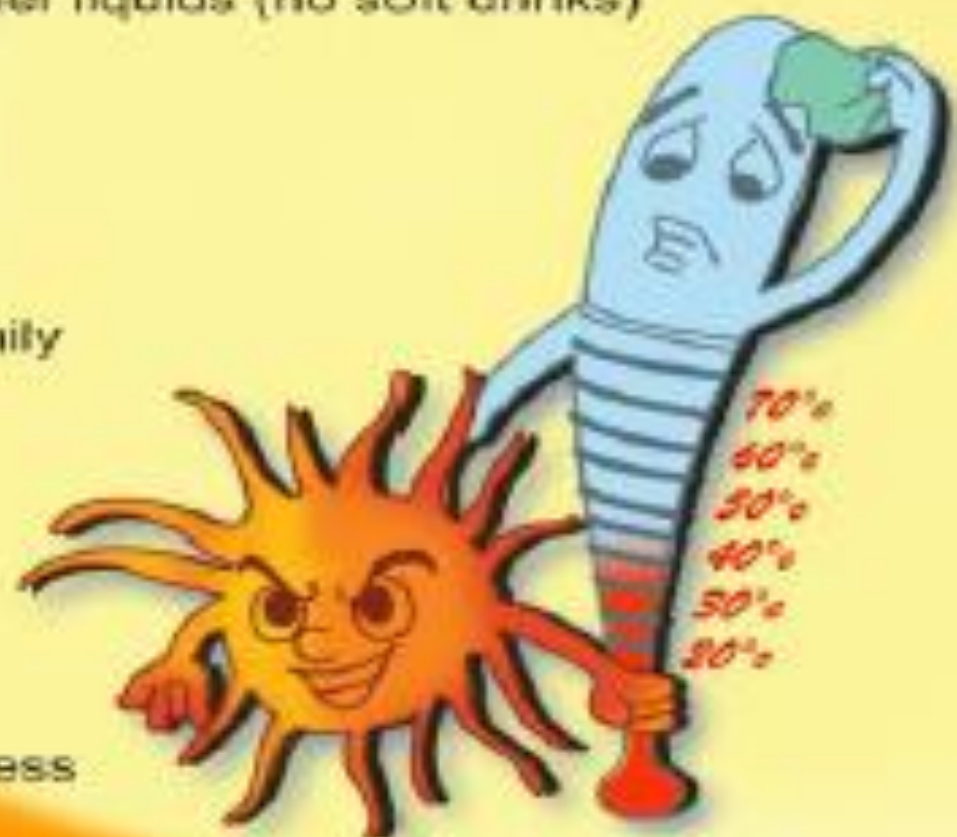
**DRINK
MORE
WATER**



- ☀️ Drink water, chasas, and other liquids (no soft drinks)
- ☀️ Stay out of the sun
- ☀️ Find a place to cool down
- ☀️ Wear light clothing
- ☀️ Check in with friends & family

Symptoms to watch for:

- ☀️ Heat rash or cramps
- ☀️ Heavy sweating and weakness
- ☀️ Headache and nausea
- ☀️ Lack of sweating despite the heat
- ☀️ Red, hot, and dry skin
- ☀️ Muscle weakness or cramps
- ☀️ Nausea and vomiting



DRINK MORE WATER

People at high risk: children, elders, and pregnant women

Symptoms & Precautions for Heat Wave Illness

NOT FEELING WELL?

Heat illnesses occur when your body cannot cool off. These illnesses are treatable, but require *IMMEDIATE* attention.

Illness	Symptoms	Actions
Heat cramps	Muscle cramps in abdominal area or extremities. Can be accompanied by heavy sweating and mild nausea.	Move to a cool or shaded place. Apply firm pressure to muscle. Gently stretch the muscle, follow with gentle massage. Drink water or chaas.
Heat exhaustion	Heavy sweating, fainting, vomiting, cold, clammy skin, dizziness, headache, nausea, weakness.	Move to cool or shaded place. Loosen clothes, and apply cold cloths. Sip water slowly. Heat exhaustion can lead to heat stroke. If symptoms worsen, dial 108 .
Heat stroke (This is an emergency.)	Hot red, dry skin, rapid pulse, high fever, loss of alertness and confusion, unconsciousness, rapid breathing.	Dial 108. Wrap victim in cool sheets. Bring to cooled or shaded space.

Precautions.....

HERE IS HOW YOU CAN PROTECT FROM THE HEAT:

PREPARATION

- Be aware of heat illnesses
- Insure you have a functioning fan or access to shade
- Locate parks, pools or other areas with shade or air-conditioning access
- Create a plan of action with neighbors
- Subscribe to the emergency SMS system
- Drink water, lemonade or chaas
- Use air-conditioning, fans or shade to stay cool

DURING HEAT WAVES

- Stay out of the sun
- Avoid physical activity during peak hours
- Wear loose-fitting, light-colored clothing

COOLING CENTERS

- Use the Bus Rapid Transit System to travel to public pools, shelters, and shaded parks.
- Consult www.egovamc.com for maps of locations and operating hours

Clinical Entity	Age Range	Setting	Cardinal Symptoms	Cardinal Signs	Pertinent Negatives	Prognosis
Heat rash	All, but frequently children	Hot environment; +/- insulating clothing or swaddling	Itchy rash with small red bumps at pores in setting of heat exposure; bumps can sometimes be filled with clear or white fluid	Diffuse maculopapular rash, occasionally pustular, at hair follicles; pruritic	Not focally distributed like a contact dermatitis; not confluent patchy; not petechial	Full recovery with elimination of exposure and supportive care
Heat cramps	All	Hot environment, typically with exertion, +/- insulating clothing	Painful spasms of large and frequently used muscle groups	Uncomfortable appearance, may have difficulty fully extending affected limbs/joints	No contaminated wounds/tetanus exposure; no seizure activity	Full recovery with elimination of exposure and supportive care
Heat exhaustion	All	Hot environment; +/- exertion; +/- insulating clothing or swaddling	Feeling overheated, lightheaded, exhausted and weak, unsteady, nauseated, sweaty and thirsty, inability to continue activities	Sweaty/diaphoretic; flushed skin; hot skin; normal core temperature; +/- dazed, +/- generalized weakness, slight disorientation	No coincidental signs and symptoms of infection; no focal weakness; no aphasia/dysarthria; no overdose history	Full recovery with elimination of exposure and supportive care; progression if continued exposure

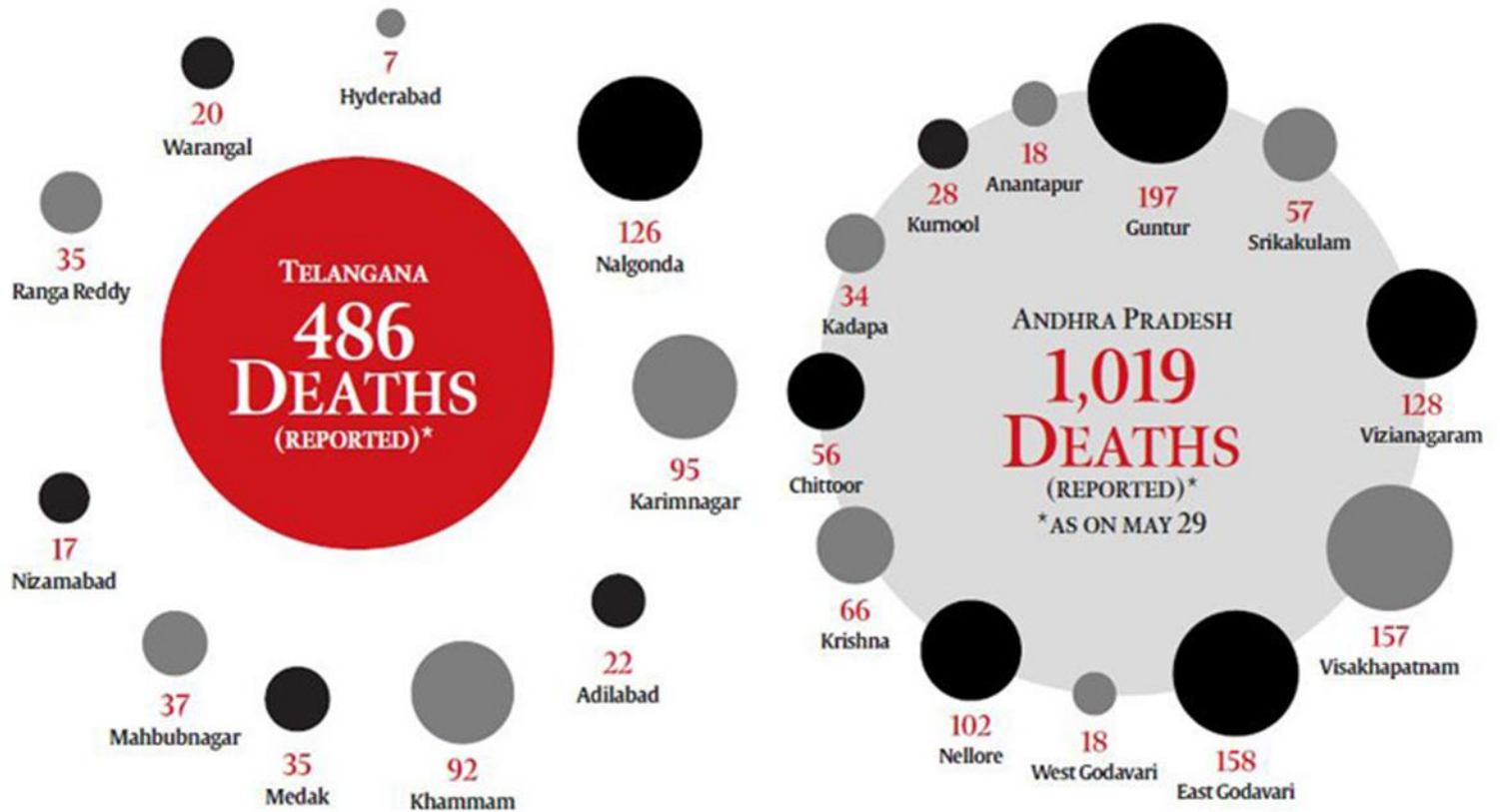
Heat Illness - Typical Presentations

Clinical Entity	Age Range	Setting	Cardinal Symptoms	Cardinal Signs	Pertinent Negatives	Prognosis
Heat syncope	Typically adults	Hot environment; +/- exertion; +/- insulating clothing or swaddling	Feeling hot and weak; lightheadedness followed by brief loss of consciousness	Brief, generalized loss of consciousness in hot setting, short period of disorientation if any	No seizure activity, no loss of bowel or bladder continence, no focal weakness, no aphasia/dysarthria	Full recovery with elimination of exposure and supportive care; progression if continued exposure
Heat stroke	All	Hot environment; +/- exertion; +/- insulating clothing or swaddling	Severe overheating; profound weakness; disorientation, obtundation, seizures, or other altered mental status	Flushed, dry skin (not always), core temp $\geq 40^{\circ}\text{C}$; altered mental status with disorientation, possibly delirium, coma, seizures; tachycardia; +/- hypotension	No coincidental signs and symptoms of infection; no focal weakness; no aphasia/dysarthria; no overdose history	25-50% mortality even with aggressive care; significant morbidity if survive

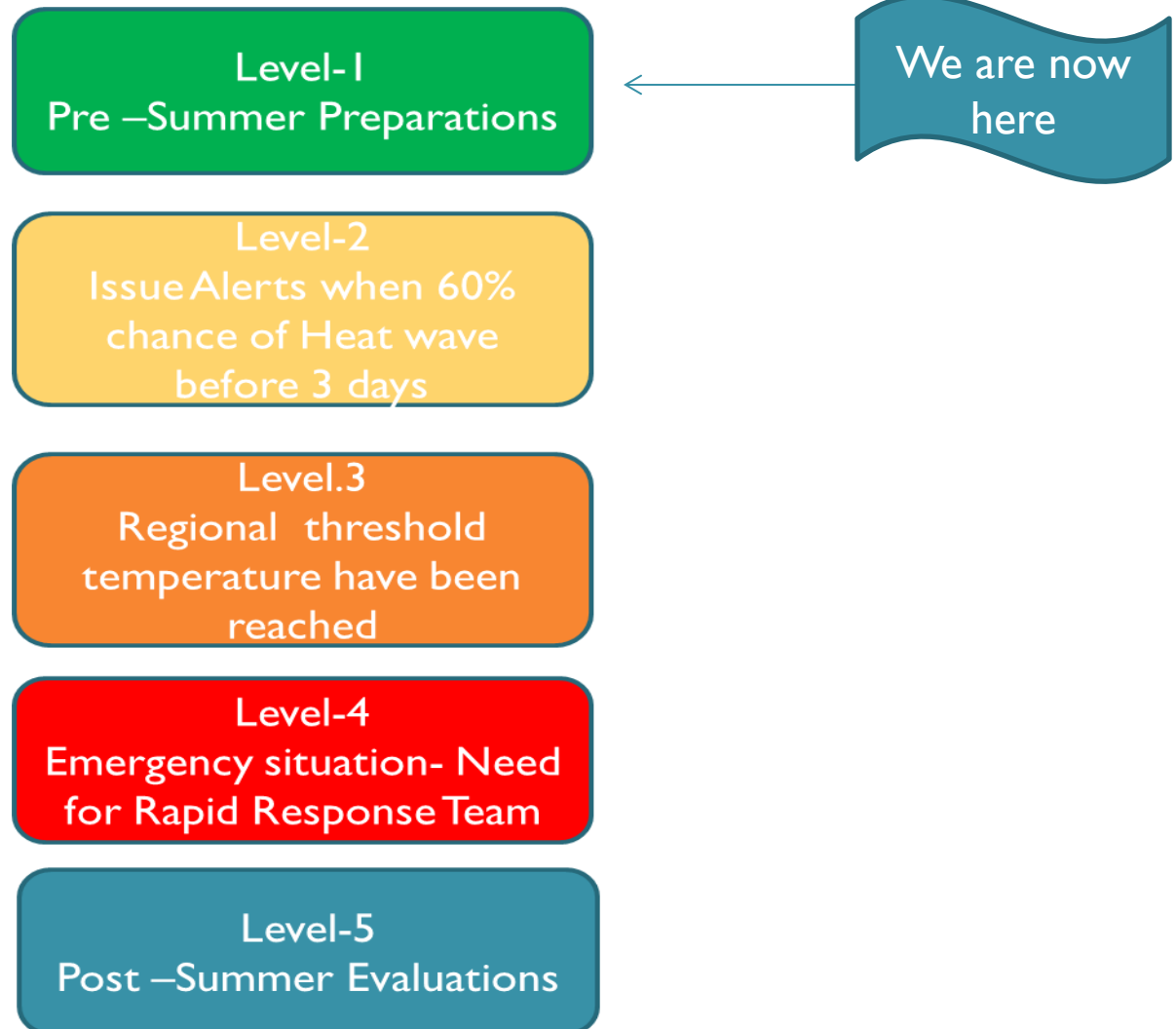
Heat Illness - Case Definitions

Clinical Entity	Case Definition
Heat rash	Diffuse, pruritic, maculopapular or vesicular rash in the setting of heat exposure, often with insulating clothing or swaddling.
Heat cramps	Painful contractions of frequently used muscle groups in the setting of heat exposure, often with exertion
Heat exhaustion	Syndrome of generalized weakness and or exhaustion, often with lightheadedness, limiting functioning in a hot environment, without history of recent infection. May or may not be exertional.
Heat syncope	Brief loss of consciousness in the setting of heat exposure without evidence of seizure activity, stroke, or medication overdose.
Heat stroke	Altered mental status (including disorientation, delirium, seizure, obtundation) with elevated core body temperature $\geq 40^{\circ}\text{C}$ in the setting of heat exposure, without signs of stroke, history of infection, or signs of medication overdose. May or may not be exertional.

Heat Wave Death –AP and TG-2015



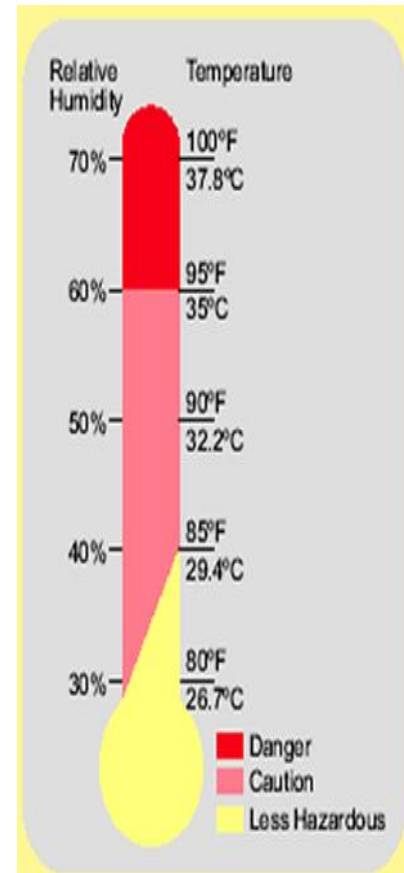
Heat Wave : Actions to be taken at Various Level



Nodal Officer: Pre-Summer



- Designate departmental contact point
- Re engage key agencies to facilitate communications
- schedule monthly meetings
- Establish heat mortality tracking system and update datasets
- Establish Heat Action webpage
- Educate school children and send home age-appropriate pamphlets about the heat season
- Create list of high-risk areas of city heat-wise



Nodal Officer: During Heat Event



Contact point person in each department must announce heat event at least before seven days

- Maintain contact with department points of contact for updates on conditions
- Ensure staff presence and availability of supplies with each department – including distributing fresh drinking water
- Communicate locations of emergency facilities and cooling centres /shaded areas with each department
- Monitor heat alert and increase level when severe forecast →



Nodal Officer: Post-Summer Evaluation



- ❖ Review quantitative and qualitative data for process evaluation and improvements
- ❖ Call meeting for annual evaluation of heat plan with key agency leaders and community partners
- ❖ Post revised heat action plan online for stakeholders

Medical Officers: Pre – Summer



- Adopt heat-focused examination materials
- Get additional hospitals and ambulances ready
- Update surveillance protocols and programs, including to
 - track daily heat-related data
- Establish more clinician education
- Continue to train medical officers and paramedics

Medical Officers: During Heat Event



- Adopt heat-illness related treatment and prevention protocols
- Equip hospitals with additional materials
- Deploy all medical staff to be on duty
- Keep emergency ward ready
- Monitor water borne diseases, malaria and dengue
- Keep stock of small reusable ice packs to apply to PULSE areas
- Report heat stroke patients to AMC daily
- Expedite recording of cause of death certificates



Ice Cubes for Prickly Heat



Equipment

Medication

Bandages

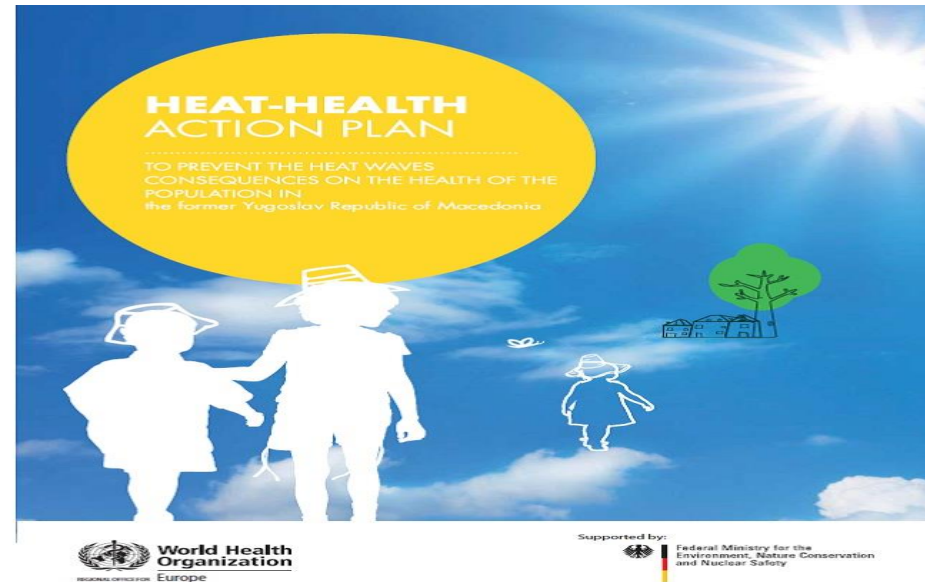
ADAM.



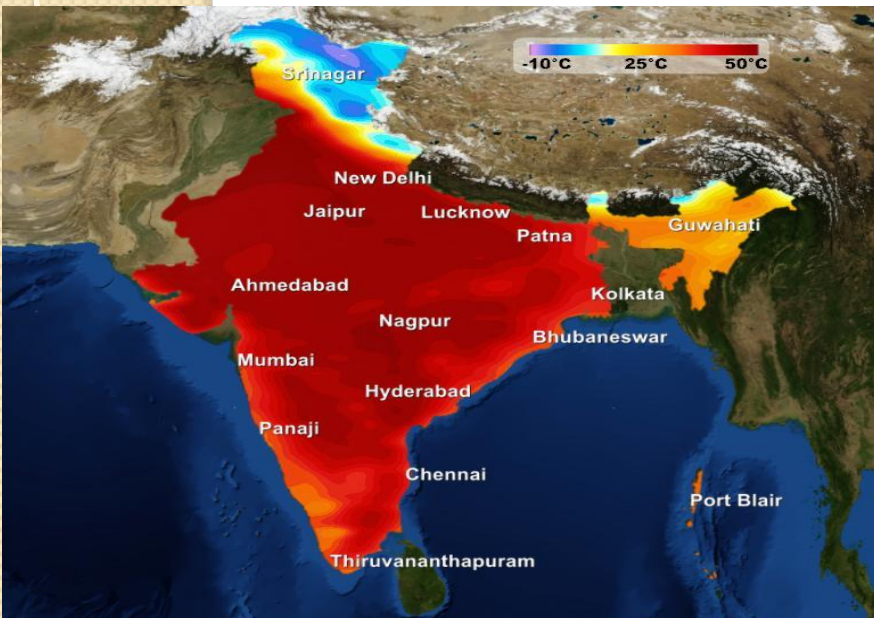
Medical Officers: Post-summer Evaluation



- Participate in annual evaluation of heat action plan
- Review revised heat action plan



Public Health :Pre-summer



- Identify areas that are vulnerable
- Check inventories of medical supplies in health centres
- Identify cooling centres and barriers to access them
- Community involvement for workers and trainers education



Public Health :During Heat Event



- Prepare rapid response team
- Distribute “Dos and Don’ts” to community
- Effectively send a “Don’t Panic!” message to community
- Ensure access to Medical Mobile Van in the Red Zone
- Ensure additional medical vans available

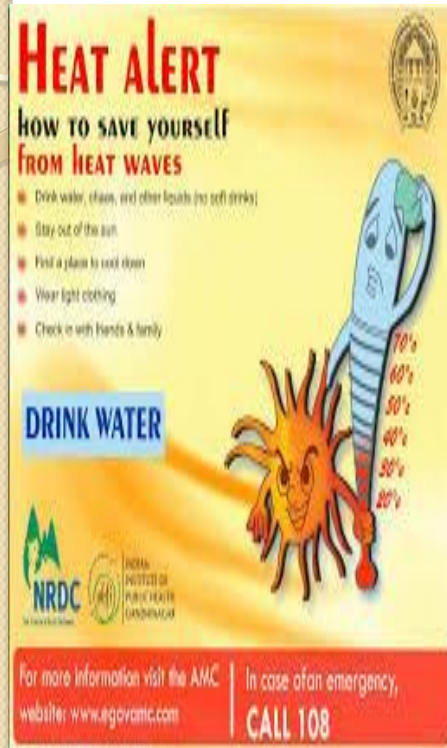


Public Health: Post-summer Evaluation

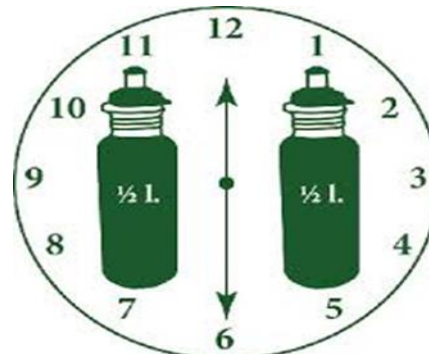
- Participate in annual evaluation of heat action plan
- Review revised heat action plan



Urban Health Centres Pre-summer



- Distribute pamphlet and other materials to community
- Sensitize link workers and community leaders
- Develop and execute school health program
- Dissemination of materials in slum communities
- Coordinate outreach efforts with other community groups,
- non-profits, and higher education



½ liter every ½ hour



Urban Health Centres: During Heat Event



- Recheck management stock
- Modify worker hours to avoid heat of day
- Visit at-risk populations for monitoring and prevention
- Communicate information on tertiary care and 108 service



Urban Health Centres: Post-summer Evaluation



- Participate in annual evaluation of heat action plan
- Review revised heat action plan

Media officers: Pre-Summer



- Secure commercial airtime slots for public service announcements
- Identify areas to post warnings and information during heat season
- Organize training for health workers and medical professionals
- Activate telephone heat hotline
- Begin placing temperature forecasts in newspapers
- Increase installed LED screens with scrolling temperature data



Media officers : During Heat Event



- Issue heat warnings in heat and electronic media
- Contact local FM radio and TV stations for announcements
- Use SMS, text and Whats App mobile messaging and
- centralized mobile databases to send warnings
- Contact BRTS and transport department to place warnings
- on buses



Media officers: Post-Summer Evaluation



- Evaluate reach of advertising to target groups and other means of communication such as social media
- Participate in annual evaluation of heat action plan
- Review revised heat action plan



Labour Department: Pre-Summer



- Heat illness orientation for factory medical officers and general practitioners
- Generate list of factory medical officers and contractors to include in heat action communications from Nodal Officer
- Communicate directly about heat season with non-factory workers
- Utilize maps of construction sites to identify more high-risk outdoor workers
- Conduct publicity campaigns during high-risk days in identified high-risk areas



Labour Department: During the Heat Season

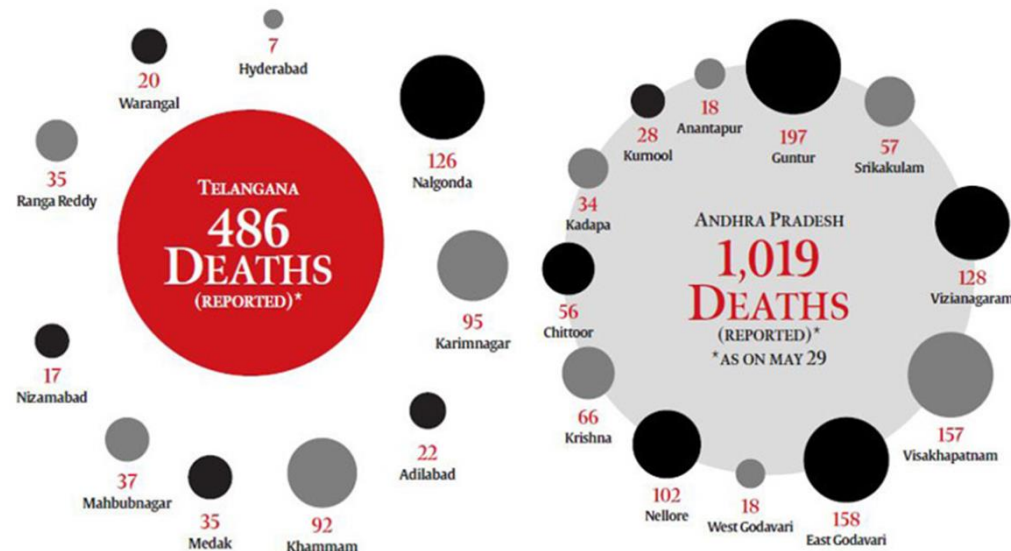


- ❖ Provide water at work sites
- ❖ Request use of A/C at factory facilities
- ❖ Extended hours at Occupational Health Centres
- ❖ Consider extended afternoon break or alternate working hours for workers

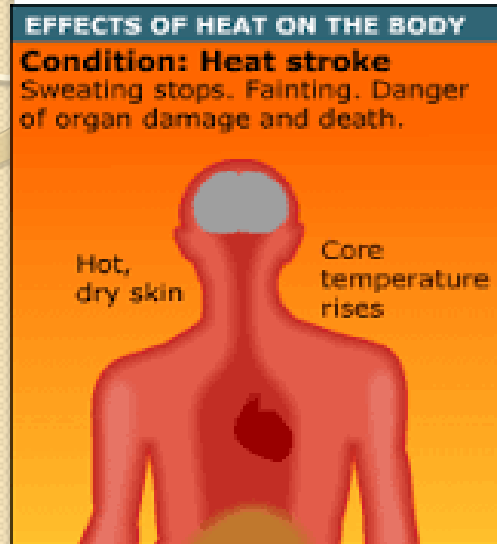


Labour Department: Post-Summer Evaluation

- Participate in annual evaluation of heat action plan
- Review revised heat action plan
- Pilot project to provide emergency ice packs and heat-illness
- prevention materials to traffic police, BRTS transit staff and construction workers



108 Emergency Service-Pre-Summer



- ❖ Prepare hand outs for paramedics about heat illness
- ❖ Create displays on ambulances to build public awareness during major Spring events
- ❖ Establish Dynamic Strategic Deployment Plan for ambulances
- ❖ Ensure adequate supply of IV fluids
- ❖ Identify at-risk areas
- ❖ Prepare SMS messages to disseminate during emergencies
- ❖ Identify media point of contact

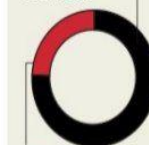


'TOLL' DOUBLES AFTER RELIEF ANNOUNCED IN ANDHRA PRADESH

ANDHRA
PRADESH

1,636

REPORTED
DEATHS



511
CONFIRMED

	R*	C**
Srikakulam	60	7
Vizianagaram	177	0
Visakhapatnam	185	94
East Godavari	192	100
West Godavari	23	23
Krishna	78	78
Guntur	233	35
Prakasam	333	53
Nellore	163	30
Chittoor	64	37
Kadapa	38	8
Kurnool	34	14
Anantapur	56	32

*Reported **Confirmed

ODISHA

115

REPORTED DEATHS



21
CONFIRMED

	R	C
Ganjam	24	3
Jajpur	17	0
Khurda	14	1
Kendrapara	8	5
Bargarh	3	3

108 Emergency Service: During the Heat Season



- Ready medicine stocks
- Keep accurate records of pre-hospital care
- Send messages to all employees alerting them of heat action plan
- Activate Dynamic Strategic Deployment Plan
- Staff surplus employees and restrict leave



108 Emergency Service: Post-Summer Evaluation



- ✚ Provide data to key agency leaders
- ✚ Participate in annual evaluation of heat action plan
- ✚ Review revised heat action plan





Thank You for Your kind Attention