

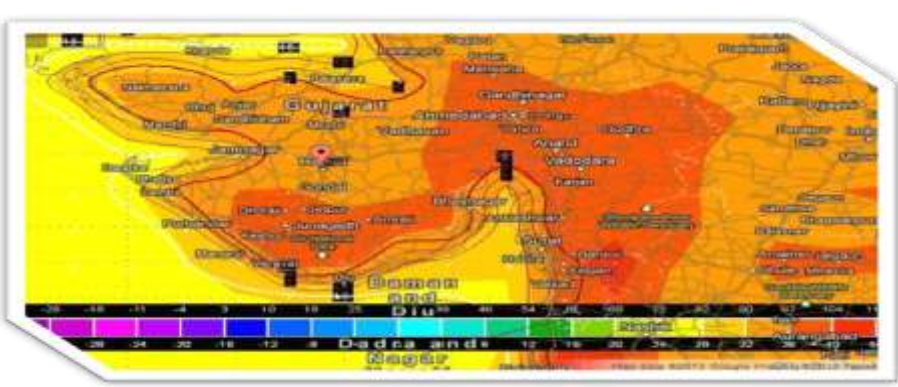


# HEAT WAVE



## HEAT WAVE ACTION PLAN

2024



**VADODARA MUNICIPAL CORPORATION**

**FIRE AND EMERGENCY SERVICES**

**GUJARAT STATE DISASTER MANAGEMENT AUTHORITY**

## **Message**

National Disaster Management Authority encompasses the Heat Wave Action Plan in all States to mitigate any loss due to heat wave. This plan aims to provide a framework for implementation, coordination and evaluation of extreme heat response activities in cities/town in India that reduces the negative impact of extreme heat. The Plan's primary objective is to alert that population at risk of heat-related illness in places where extreme heat either exist or are imminent, and to take appropriate precautions which are at high risk. Preventive heat management and the administrative action need to be taken by the concerned ministries/ department are enumerated. All cities can learn from their experience and develop a plan to deal with Heat Wave. Similarly Vadodara Municipal Corporation has been releases do's and don'ts related to heat wave alert as well as the action plan for the city.

Many States are affected during the Heat Wave season, such as State of Andhra Pradesh, Telangana, Odhisa, Gujarat, Rajasthan, Madhya Pradesh, Uttar Pradesh Vidarbha region of Maharashtra, Bihar, Jharkhand and Delhi.

This plan intended to mobilize individuals and communities to help protect their neighbors, relatives, friends and themselves against avoidable health problems during spells of very hot weather. Broadcast media and alerting agencies may also find this plan useful. Severe and extended heat waves can also cause the disruption to general, social and economic services. For this reason, Government agencies will have critical role to play in preparing and responding to heat waves at a local level, working closely with health and other related departments on long term strategic plan.

I hope this plan will work as mitigative measures for the city and help us out in disaster need. During any heat Wave this plan will help you out as disaster mechanism.

## **FOREWORD**

As a climate change intensifies, disruption to traditional global atmospheric circulation system, such as the jet stream in the earth atmosphere, as expected across the planet leading to more frequent and intense extreme climate events. In particular, smaller differences in temperature between the poles and the equator can show the jet stream, leading to a buildup of high or low pressure weather system, resulting in more persistent hot-dry extreme in mid- latitudes. As average global temperatures rise, so too does the probability of more extreme hot temperature anomalies, resulting in earlier, longer and more frequent heat waves. Heatwaves now pose a recurring challenge on all inhabited continents and generates an increasing range of threats to human lives and well-being, particularly in cities where built environments magnify heat exposures.

Heat wave can be defined as Silent Hazard and extreme heat can lead to dangerous, even deadly, health consequences, including heat stress and heat stroke. Impact of rising temperatures and increasing frequency, duration and intensity of hot spells poses challenge to human safety and sustainability. As our country is prone to much disastrous condition in the past and losing of many lives in every distressful condition similarly heat stroke leads to maximum death of humans as well as animals.

As per NDMA Guideline Heat Wave action plan 2024-25 aims to facilitate the stakeholders in preparing a Heat Wave Management plan by providing insight into the heat related illness and the necessary mitigative and response actions to be undertaken. It would also help in mobilization and co-ordination of various departments, individuals and communities to focus on heat reduction aspects to help and protect their neighbors, friends, relatives and themselves against avoidable health problems during spell of very hot weather.

## **PREFACE**

It is expected that extreme heat waves will become more common worldwide because of rising average global temperature. Since the beginning of the 21st century, this has increased by nearly a degree Centigrade. This weather pattern, coupled with the El-Nino effect, is increasing the temperatures in Asia. Further, high humidity compounds the effects of the temperatures being felt by human beings.

Extreme heat can lead to dangerous, even deadly, consequences, including heat stress and heatstroke. India is also vulnerable to the impacts of climate change. Experts have been warning that the rising temperatures will lead to more floods, heat-waves, storms, rising sea levels and unpredictable farm yields. There is evidence that climate change is causing increase in extreme weather events as well as severity and frequency of natural disasters. Deforestation is also adding to the environmental instability and contributing to global warming and climate change. There has been an increasing trend of heat-wave in India over the past several years whereby several cities in India have been severely affected. Heat wave killed about 3000 people in 1998 and more than 2000 in 2002. Heat wave caused over 2000 deaths in 1998 in Odisha and more than 1200 deaths in 2002 in southern India. Approximately 2000 people died in the heat wave of 2015. Heat wave also caused death of cattle and wildlife besides affecting animals in various zoos in India.

The increased occurrences and severity of heat-wave is a wake-up call for all agencies to take necessary action for prevention, preparedness and community outreach to save the lives of the general public, livestock and wild life.

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# **CHAPTER 01**

## **INTRODUCTION**

India, with approximately 1.35 billion people is the second most populous country in the world with considerably high levels of population density. India is among the worst disaster prone countries of the world. As per 2011 census, 31% of India's population live in urban areas and 69% live in rural areas. The trend shows that the number of persons living in urban areas will continue to grow at a faster rate than the population in the rural areas due to migration and increasing urbanization.

The World Meteorological Organization century, this is directly affecting the communities; (WMO) statements on global climate during 2011 and 2012 indicate that the global temperatures are continuing to increase.

Heat -waves are projected to increase in number, intensity and duration over the most land area in the 21st undermining their livelihoods through gradual, insidious changes in temperature and rainfall patterns, and resulting in increased frequency and intensity of hazards such as floods, cyclones, droughts, unseasonal rains and hailstorms, causing extensive damage to crops and agro-rural economy. Heat wave is a period of abnormally high temperatures, more than the normal maximum temperature that occurs during the pre-monsoon (April to June) summer season. Heat –waves typically occur between March to June, and in some rare cases even extend till July. Heat waves are more frequent over the Indo-Gangetic plains of India. On an average, 5- 6 heat wave events occur every year over the northern parts of the country.

The most notable temperatures have been over Phalodi (West Rajasthan): 47.0°C on 1<sup>st</sup> May, Brmapuri (Vidarbha): 46.4°C on 9<sup>th</sup> May, Chandrapur (Vidarbha):47.8°C on 19<sup>th</sup> May, Ganganaga (Rjasthan); 48.7°C on 29<sup>th</sup> May and Churu (Rajasthan): 49.7°C on 1<sup>st</sup> June 2018. The extreme temperatures combined with high humidity and resultant atmospheric conditions adversely affect

people living in these regions leading to physiological stress, sometimes even death. This unusual and uncomfortable hot weather can impact human and animal health and also cause major disruption in community infrastructure such as power supply, public transport and other essential services.

Heat wave is also called a “silent disaster” as it develops slowly and kills and injures humans and animals nationwide. Higher daily peak temperatures of longer duration and more intense heat waves are becoming increasingly frequent globally due to climate change.

India too is feeling the impact of climate change in terms of increased instances of heat wave with each passing year. Importantly, the adverse impact of heat wave are preventable by educating the public on the preventive actions, following the Do's and Don'ts , reporting early to health facilities and timely diagnosis and treatment



## **CHAPTER 02**

### **INTRODUCTION TO HEAT WAVE**

#### **2.1 Heat wave Climatology:**

As spring marching in to replace winters the maximum temperature in India shows a rising trend after the winter solstice, starting from southern parts then central India, and then northern states. Heat wave is considered if maximum temperature of a station reaches at least 40°C or more for Plains and at least 30°C or more for Hilly regions. Qualitatively, heat wave is a condition of air temperature which becomes fatal to human body when exposed. Quantitatively, it is defined based on the temperature thresholds over a region in terms of actual temperature or its departure from normal. In certain countries it is defined in term of the heat index based on temperature and humidity or based on extreme percentile of the temperature.

#### **2.2 Objective of Heat wave:**

Heat-wave is a condition of atmospheric temperature that leads to physiological stress, which sometimes can claim human life. Heat-wave is defined as the condition where maximum temperature at a grid point is 3°C or more than the normal temperature, consecutively for 3 days or more. World Meteorological Organization defines a heat wave as five or more consecutive days during which the daily maximum temperature exceeds the average maximum temperature by five degrees Celsius. If the maximum temperature of any place continues to be more than **45° C** consecutively for two days, it is called a heat wave condition.

There will be no harm to the human body if the environmental temperature remains at 37° C. Whenever the environmental temperature increases above 37° C, the human body starts gaining heat from the atmosphere. If humidity is high, a person can suffer from heat stress disorders even with the temperature at 37°C or 38°C. To calculate the effect of humidity we can use Heat Index Values. The Heat Index is a measure of how hot it really feels when relative humidity is factored in with the actual air temperature. As an example, if the air temperature is 34°C and the relative humidity is 75%, the heat

index--how hot it feels is 49°C. The same effect is reached at just 31°C when the relative humidity is 100 %. The temperature vs humidity chart is placed and the temperature actually felt.

**Table 1: Temperature/ Humidity Index**

Relative Humidity %	Temperature °C																
	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
40	27	28	29	30	31	32	34	35	37	39	41	43	46	48	51	54	57
45	27	28	29	30	32	33	35	37	39	41	43	46	49	51	54	57	
50	27	28	30	31	33	35	36	38	41	43	46	49	52	55	58		
55	28	29	30	32	34	36	38	40	43	46	48	52	54	58			
60	28	29	31	33	35	37	40	42	45	48	51	55	59				
65	28	30	32	34	36	39	41	44	48	51	55	59					
70	29	31	33	35	38	40	43	47	50	54	58						
75	29	31	34	36	39	42	46	49	53	58							
80	30	32	35	38	41	44	48	52	57								
85	30	33	36	39	43	47	51	55									
90	31	34	37	41	45	49	54										
95	31	35	38	42	47	51	57										
100	32	36	40	44	49	56											
Caution		Extreme Caution		Danger		Extreme Danger											

Source: Calculated °F to °C from NOAA's National Weather Service

(A) Based on Departure from Normal

- Heat Wave: Departure from normal is 4.5°C to 6.4°C
- Severe Heat Wave: Departure from normal is >6.4°C

(B) Based on Actual Maximum Temperature (for plains only)

- Heat Wave: When actual maximum temperature  $\geq 45^{\circ}\text{C}$
- Severe Heat Wave: When actual maximum temperature  $\geq 47^{\circ}\text{C}$

To declare a heat wave, the above criteria should be met at least at two stations in a Meteorological sub-division for at least two consecutive days. A heat wave will be declared on the second day.

### **2.3 Heat wave in India and Vadodara:**

Extreme positive departures from the normal maximum temperature result in a heat wave during the summer season. The rising maximum temperature during the pre-monsoon months continues till June and in rare cases till July, over the northwestern parts of the country. In recent years, heat wave casualties have increased. Abnormally high temperatures were observed during April –June during 2010 to 2016 across the country. In India the heat wave took 3028 lives in 1998 and more than 2000 lives in 2002. In Odisha, heat wave caused 2042 deaths in 1998 and more than 1200 deaths in 2002 in southern India. In India heat-wave caused 24,223 deaths since 1992 to 2015 at various states (Table 2.2 Heat wave also caused death of wildlife, birds, poultry in states and most of the zoos in India. **Vadodara Municipal Corporation** having **Zero Death** in last 10 years on span according to VMC Health department reports. As precaution and awareness has been done widely to avoid such Criticality in Vadodara Municipal Corporations.

**Table 02: No of Death due to heat wave in past years in India**

<b>Sr. No</b>	<b>Year Details</b>	<b>Recorded deaths caused by heat waves</b>	<b>Sr. No</b>	<b>Year Details</b>	<b>Recorded deaths caused by heat waves</b>
01	1992	612	17	2008	616
02	1993	631	18	2009	1071
03	1994	773	19	2010	1274
04	1995	1677	20	2011	793
05	1996	434	21	2012	1247
06	1997	393	22	2013	1216
07	1998	3058	23	2014	1677
08	1999	628	24	2015	2040
09	2000	534	25	2016	700
10	2001	505	26	2017	375
11	2002	720	27	2018	33
12	2003	807	28	2019	498
13	2004	756	29	2020	2
14	2005	1075	30	2021	374
15	2006	612	31	2022	2227
16	2007	932	32	2023	-

**Source: NDMA Heat wave Death details**

## **2.4 Rational for Heat wave Action Plan (HAP):**

Many states are affected during the Heat wave season, such as State of Andhra Pradesh, Telangana, Odisha, Gujarat, Rajasthan, Madhya Pradesh, UttarPradesh, Vidarbha region of Maharashtra, Bihar, Jharkhand and Delhi.

In 2015, daily maximum temperature exceeded the average maximum temperature by more than 6°C to 8°C, which resulted in death of 2422 people in India due to heat-wave.

However, it is likely that the death figure is much higher as heat related illness is often recorded inaccurately and figures from rural areas are hard to attain. The combination of exceptional heat stress and a predominantly rural population makes India, vulnerable to heat waves. Vegetable vendors, auto repair mechanics, cab drivers, construction workers, police personnel, road side kiosk operators and mostly weaker sections of the society have to work in the extreme heat to make their ends meet and are extremely vulnerable to the adverse

Impacts of heat waves such as dehydration, heat and sun strokes. Therefore, it is not surprising that these workers, homeless people and the elderly constitute the majority of heat wave casualties in India.

It is time to devise a national level strategy and plan to combat this disaster. A comprehensive heat preparedness and response requires involvement from not only government authorities but also non-governmental organizations and civil society. The local authorities should carry out a vulnerability assessment in order to identify these areas.

## **2.5 Indian Scenario Heat wave effect (Year 2024):**

A new update from the World Meteorological Organization suggests that global temperatures between the years 2023 and 2027 may rise to over 1.5°C above pre-industrial levels for at least one year. Experts warn of harsher heat waves and their increased frequency in India in the years mentioned in the WMO update, especially in 2024.

A recent UN report has suggested that the next five years could be the hottest on record as global temperatures rise above the 1.5-degree Celsius limit. The new update released by World Meteorological Organization (WMO) discusses the upcoming El Nino, combined with heat-trapping greenhouse gases, which will result in global temperatures between the years 2023 and 2027 rise to

over 1.5°C above pre-industrial levels for at least one year.

## **CHAPTER 03**

### **PREPARING A HEAT WAVE ACTION PLAN**

#### **3.1 Heat-wave and Disaster Management:**

Section 2 (d) of the Disaster Management Act 2005 defines “disaster” as a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man-made causes, and is of such a magnitude to be beyond the coping capacity of the affected area. Heat-wave has not been notified as a disaster by Government of India yet. But the data of the casualties it has been causing suggests that it is time that the various stakeholders realize the damaging repercussions that heat wave can cause to the health of humans and animals. Heat wave is not notified in the list of twelve disasters eligible for relief under National/ State Disaster Response Fund norms.

However, a State Government may use up to 10 per cent of the funds available under the SDRF for providing immediate relief to the victims of natural disasters that they consider being disasters “within the local context in the State and which are not included in the notified list of disasters of the Ministry of Home Affairs subject to the condition that the State Government has listed the State specific natural disasters and notified clear and transparent norms and guidelines for such disasters with the approval of the State Authority.”

#### **3.2 Past experience on Heat-wave plan Implementation:**

Ahmedabad was among the first city to prepare a Heat wave Action Plan in 2015. This plan provides a framework for other Indian cities to emulate and help protect their citizens from the extreme heat. The Heat Wave Action Plan of Ahmedabad concluded that Smart Cities are Heat wave Safe Cities. The following are key lesson learnt from Ahmedabad Heat Wave Action Plan:

- Recognize Heat Wave as a major Health Risk.
- Map out the 'High Risk' Communities.
- Setting up of 'Public Cooling Places'.
- Issue Heat wave alerts through different media.

### **3.3 Purpose of Heat-wave Action Plan:**

The Heat-Wave Action plan aims to provide a framework for implementation, coordination and evaluation of extreme heat response activities in cities/town in India that reduces the negative impact of extreme heat. The Plan's primary objective is to alert those populations at risk of heat-related illness in places where extreme heat conditions either exist or are imminent, and to take appropriate precautions, which are at high risk. Preventive heat management and the administrative action need to be taken by the concerned ministries/departments are enumerated. All cities can learn from their experience and develop a plan to deal with Heat wave in their specific cities/town and thus reduce the negative health impacts of extreme Heat. In addition the State Governments should also prepare a comprehensive plan to combat Heat wave. Similarly Vadodara Municipal Corporation has been releases do and don'ts related to heat wave alert as well as the action plan for the city.

### **3.4 Built Environment:**

The impact of Heat wave and Urban Heat Island (UHI) altogether affects the human health, energy consumption and environment. In long term measures, these factors should be incorporated in urban planning and design policies or proposal to minimize the heat stress risk.

#### **City level medium/long term measures:**

- Identification and evaluation of factors leading to disproportionate increase in temperature within the city.
- Generating a heat wave risk and vulnerability map for developing a strategic mitigation action plan.
- Mapping hotspots within the city and integrating them in vulnerability assessment.
- Measures to reduce temperature in these hot spots by developing vertical gardens, small parks with a water fountain etc. must be developed.
- Coordination with different research and educational institution for built environment assessment.
- Adhering to building codes in the city.

## **CHAPTER 04**

### **STRATEGIES TO IMPLEMENT HEAT WAVE ACTION PLAN**

#### **4.1 Key strategies on Heat wave plan Implementation:**

The heat-wave action plan is intended to mobilize individuals and communities to help protect their neighbors, friends, relatives, and themselves against avoidable health problems during spells of very hot weather. Broadcast media and alerting agencies may also find this plan useful. Severe and extended heat-waves can also cause disruption to general, social and economic services. For this reason, Government agencies will have a critical role to play in preparing and responding to heat-waves at a local level, working closely with health and other related departments on long term strategic plan.

- ***Establish Early Warning System and Inter-Agency Coordination*** to alert residents on predicted high and extreme temperatures. Who will do what, when, and how is made clear to individuals and units of key departments, especially for health.
- ***Capacity building / training programme*** for health care professionals at local level to recognize and respond to heat-related illnesses, particularly during extreme heat events. These training programmes should focus on medical officers, paramedical staff and community health staff so that they can effectively prevent and manage heat-related medical issues to reduce mortality and morbidity.
- ***Individuals, community groups, and the media*** are also essential in fighting the effects of extreme heat. Individuals can take specific preventative steps to protect themselves, their families, and their communities from harmful heat waves including
  - Talking with their doctor or Health Centre about early signs of heat wave
  - Limiting heavy work during extreme heat
  - Drinking water
  - Staying out of the sun
  - Wearing light clothing
  - Checking on neighbors

-Informing their fellow community members about how to keep cool and protect themselves from heat.

The media plays an essential awareness-building role by sharing news about health threats, and increases public protection by running ads and providing local resources information.

While summer is defined as spanning March, April, and May, Gujarat's hottest temperatures can run from March through June, with temperatures generally peaking in May and warm days through November.

Across India, higher daily peak temperatures and longer, more intense heat waves are becoming increasingly frequent globally due to climate change; thus the deadly extreme heat events already impacting Vadodara are expected to increase in intensity, length, and frequency in the coming decade.

- ***Public Awareness and community outreach*** Disseminating public awareness messages on how to protect against the extreme heat-wave through print, electronic and social media and Information, Education and Communication (IEC) materials such as pamphlets, posters and advertisements and Television Commercials (TVCs) on Do's and Don'ts and treatment measures for heat related illnesses.
- ***Collaboration with non-government and civil society:*** Collaboration with non- governmental organizations and civil society organizations to improve bus stands, building temporary shelters, wherever necessary, improved water delivery systems in public areas and other innovative measures to tackle Heat wave conditions.



## **4.2 Early Warning & Communications**

### **4.2.1 Indicators of heat-wave:**

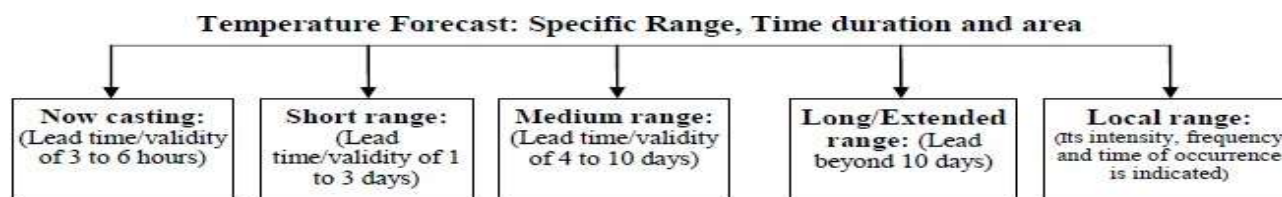
Early warning systems can enhance the preparedness of decision-makers and their readiness to harness favorable weather conditions. Early warning systems for natural hazards is based both on sound scientific and technical knowledge. In response to the devastating mortality and morbidity of recent heat-wave events, many countries have introduced heat- wave early warning systems. Heat-wave early warnings are designed to reduce the avoidable human health consequences from heat-waves through timely notification of prevention measures to vulnerable populations.

### **4.2.2 Forecast and Issuance of Heat Alert or Heat Warning:**

#### **India Meteorological Department (IMD):**

The IMD is mandated to meteorological observations and provides current and forecast meteorological information for optimum operation of weather-sensitive activities. It provides warning against severe weather phenomena like tropical cyclones, dust storms, heavy rains and snow, cold and heat waves etc. It also provides real time data and weather prediction of maximum temperature, Heat-wave warning, Heat-alert for the vulnerable cities/rural area of the severity and frequency. IMD issues forecasts and warning for all weather related hazards in short to medium range (valid for the next five days) every five day as a part of its multi-hazard early warning system. These warning, updated four times a day, are available at <https://www.imd.gov.in/pages/allindiawxfcbulletin.php>.

**IMD provides following range and validity of time forecast:**



### **3.3 Identification of Color Signals for Heat Alert<sup>3</sup>:**

Red Alert (Severe Condition)	Extreme Heat Alert for the Day	Normal Maximum Temp increase 6° C to more
Orange Alert (Moderate Condition)	Heat Alert Day	Normal Maximum Temp increase 4° C to 5° C
Yellow Alert (Heat-wave Warning)	Hot Day	Nearby Normal Maximum Temp.
White (Normal)	Normal Day	Below Normal Maximum Temp.

## **CHAPTER 05**

### **HEAT WAVE MECHANISIM AND DEALING WITH ILLNESS**

#### **5.1 Dealing with Heat Related Illness**

##### **5.1.1 Identification of Heat-Wave illness and recordings of casualties:**

In the past, when the Government declared ex-gratia compensation for heat-wave affected families, it was observed that some people who were aware of the provision of direct cash relief reported natural deaths as the heat wave deaths. In the event of false reporting, the following procedures can be used for verifying and ascertaining the real cause of death.

- Recorded maximum temperature on the particular time periods and place.
- Recording incidents, panchnama or others witnesses, evidence or verbal – autopsy.
- Postmortem/medical checkup report with causes.
- Local authority or Local body enquiry/verification report.
- Cases of heat exhaustion and heat stroke should be reported.

#### **5.2 Prevention of Heat Related Illness:**

Heat-related illness is largely avoidable. The most crucial point of intervention concerns the use of appropriate prevention strategies by susceptible individuals. Knowledge of effective prevention and first-aid treatment, besides an awareness of potential side-effects of prescription drugs during hot weather is crucial for physicians and pharmacists.

#### **5.3 Acclimatization:**

People at risk are those who have come from a cooler climate to a hot climate. When such visitors arrive during the heat wave season, they should be advised not to move out in open for a period of one week till the body is acclimatized to heat and should drink plenty of water. Acclimatization is achieved by gradual exposure to the hot environment during heat wave.

**Table No 03: Symptoms and First Aid for various Heat Disorders**

<b>Heat Disorder</b>	<b>Symptoms</b>	<b>First Aid</b>
<b>Sunburn</b>	Skin redness and pain, possible swelling, blisters, fever, headaches.	Take a shower, using soap, to remove oils that may block pores preventing the body from cooling naturally. If blisters occur, apply dry, sterile dressings and get Medical attention.
<b>Heat Cramps</b>	Painful spasms usually in leg and abdominal muscles or extremities. Heavy sweating.	Move to cool or shaded place. Apply firm pressure on cramping muscles or gentle massage to relieve spasm. Give sips of water. If nausea occurs, discontinue.
<b>Heat Exhaustion</b>	Heavy sweating, weakness, skin cold, pale, headache and clammy. Weak pulse. Normal temperature possible. Fainting, vomiting.	Clothing. Apply cool, wet cloth. Fan or move victim to air-conditioned place. Give sips of water slowly and If nausea occurs, discontinue. If vomiting occurs, seek immediate medical attention. Or call 108 and 102 for Ambulance.
<b>Heat Stroke (Sun Stroke)</b>	High body temperature (106°F). Hot, dry skin. Rapid, strong pulse. Possible unconsciousness. Victim will likely not sweat.	Heat stroke is a severe medical emergency. Call 108 and 102 for Ambulance for emergency medical Services or takes the victim to a roles immediately. Delay can be fatal. Move victim to a cooler environment. Try a cool bath or sponging to reduce body temperature. Use extreme caution. Remove clothing. Use fans and/or air conditioners. DO NOT GIVE FLUIDS.

**The past few summers have shown that the risk of heat illness from high temperatures is one of the most serious challenges to the safety and health of peoples. This action plan guide you plan how to prevent heat illness among you and provide training to our citizens.**

Heat illness can be a matter of life and death. Workers die from heat stroke every summer and every death is preventable.

- When heat stroke doesn't kill immediately, it can shut down major body organs causing acute heart, liver, kidney and muscle damage, nervous system problems, and blood disorders.
- Having a serious injury or death occur
- People suffering from heat exhaustion are at greater risk for accidents, since they are less alert and can be confused.

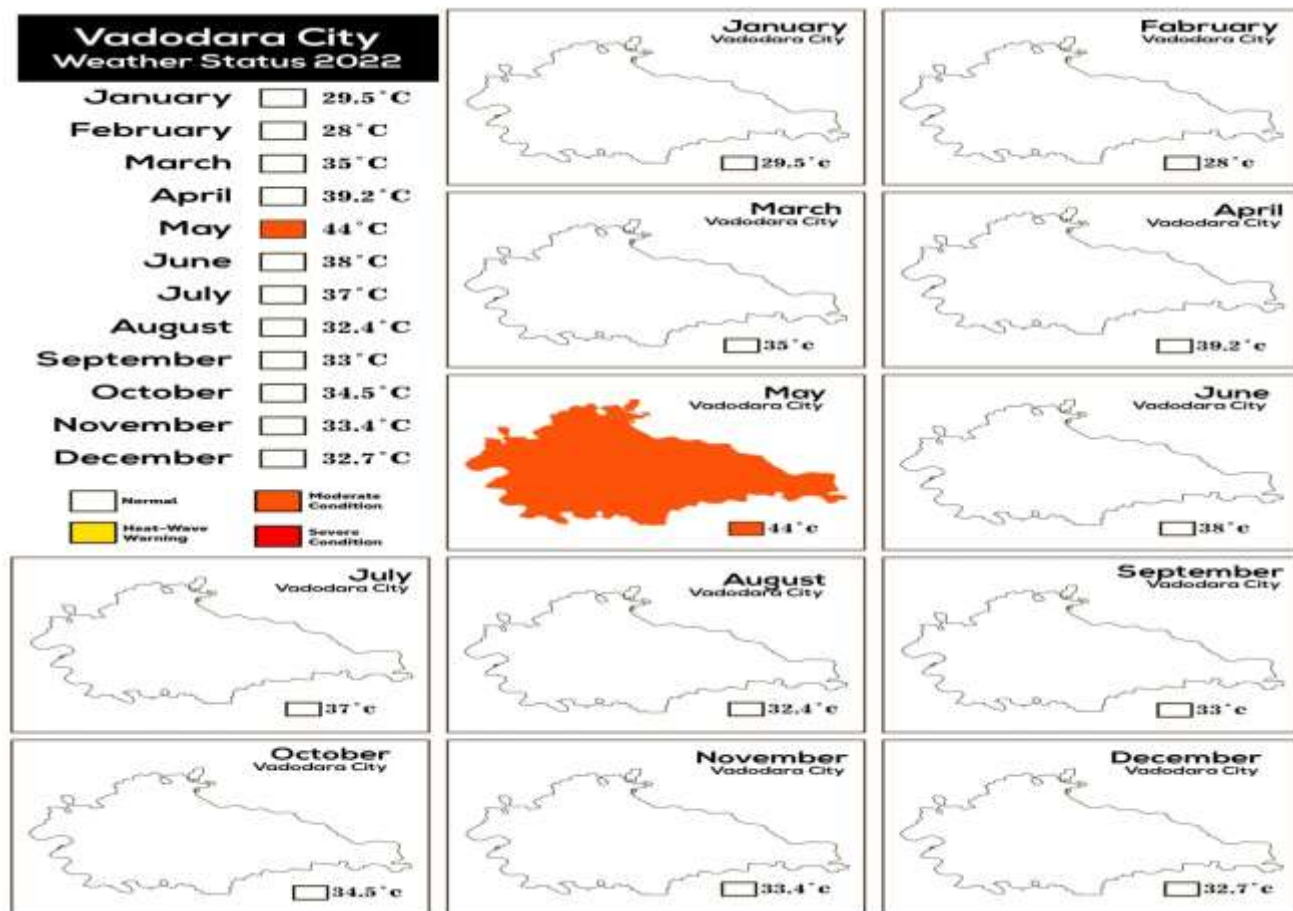


<b>YELLOW ALERT</b>	<b>Hot Day Advisory</b>	<b>41.1°C – 43°C</b>
<b>ORANGE ALERT</b>	<b>Heat Alert Day</b>	<b>43.1°C – 44.9°C</b>
<b>RED ALERT</b>	<b>Extreme Heat Alert Day</b>	<b>≥ 45°C</b>

**Table No 04: Vadodara City Weather Status 2024**

Sr. No.	Name of the Month	Average Temperature		Average Humidity
		Highest	Lowest	
1	January	29.5°C	12.5.0°C	45 %
2	February	31.9 °C	14.2 °C	43 %
3	March	36.2 °C	18.4°C	35 %
4	April	39.2 °C	23°C	33 %
5	May	40.1 °C	26.6°C	49 %
6	June	36.8 °C	27 °C	67 %
7	July	32.5°C	25.8 °C	80 %
8	August	31.4 °C	25.5 °C	75 %
9	September	33°C	24°C	73 %
10	October	35.5°C	21.4 °C	62 %
11	November	34.4 °C	16.9 °C	58 %
12	December	30.7°C	13.7 °C	54 %

Source: IMD weather details 2024

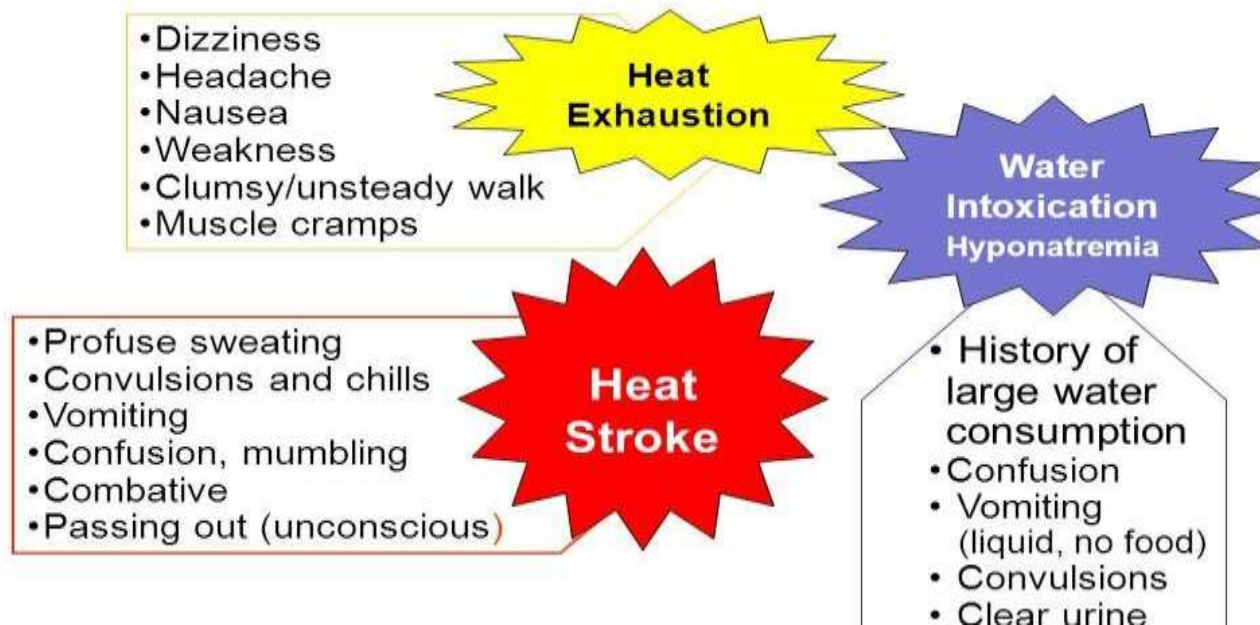


## 5.4 Type of Heat Illness

There are mainly three categories of heat injuries:-

- Heat Cramps.
- Heat Exhaustion.
- Heat Stroke.
- Hot weather.
- Humid weather.
- Sun – you absorb more heat if you are in the sun.
- Our bodies generate heat when we are physically active and doing hard work
- Too little fluid.
- Too few electrolytes (Salt or minerals)

## Recognizing Heat-Related Illnesses



### 5.4.1 Factors on exposure to heat wave

#### A. Situations Where Heat Injury Is likely

- Prolonged exposed to extreme heat from the sun or high temperatures.
- Wearing too much clothing in hot climates.
- Work to rest cycle

#### B. Individual risk factor

- History of prior heat injury.
- Poor fitness.
- Large body mass.
- Minor illness.
- Recent alcohol use.

- Skin conditions.
- Improper conditioning.
- Poor diet.
- Age over 40.

## **5.5 Cooling Mechanisms of the body**

The body maintains its temperature by balancing heat gain with heat loss regulated by the hypothalamus. As the major heat dissipating organ, the skin can transfer heat to the environment through conduction, convection, radiation, and evaporation.

### **Factors that interfere with heat dissipation**

- Inadequate intravascular volume
- Cardiovascular dysfunction
- Abnormal skin.
- High temperatures and humidity
- Drugs
- Hypothalamic dysfunction

## **5.6 Heat Cramps**

Heat cramps are painful muscle spasms most often caused by loss of electrolytes from physical exertion in extreme heat, or prolonged exposure to heat without adequate hydration. Muscles most often affected are those in the lower legs, arms, abdominal wall, and back.

### **Prevention:**

- Acclimate prior to strenuous activity.
- Wear appropriate clothing.
- Hydrate and maintaining diet rich in sodium.

### **Signs and symptoms:**

- Muscle spasms
- Thirst and Sweating.
- Fatigue & Dizziness.

**Treatment:**

- Move people to a cool or shaded area to rest.
- Loosen the soldiers clothing
- Hydrate people orally
- Ice massages affected muscle.

**5.7 Heat Exhaustion**

Heat exhaustion is caused by loss electrolytes without proper fluid replacement. Heat exhaustion can affect even those who are not identified as having risk factors for heat injury. Otherwise fit individuals can be affected when involved in strenuous physical activity in a hot climate, especially if they haven't been acclimated.

**Prevention:**

- Acclimate prior to strenuous activity.
- Wear of appropriate clothing.
- Hydrate and maintaining diet rich in sodium.
- Following work / rest cycle.
- Use shaded areas when available.

**Signs and symptoms:**

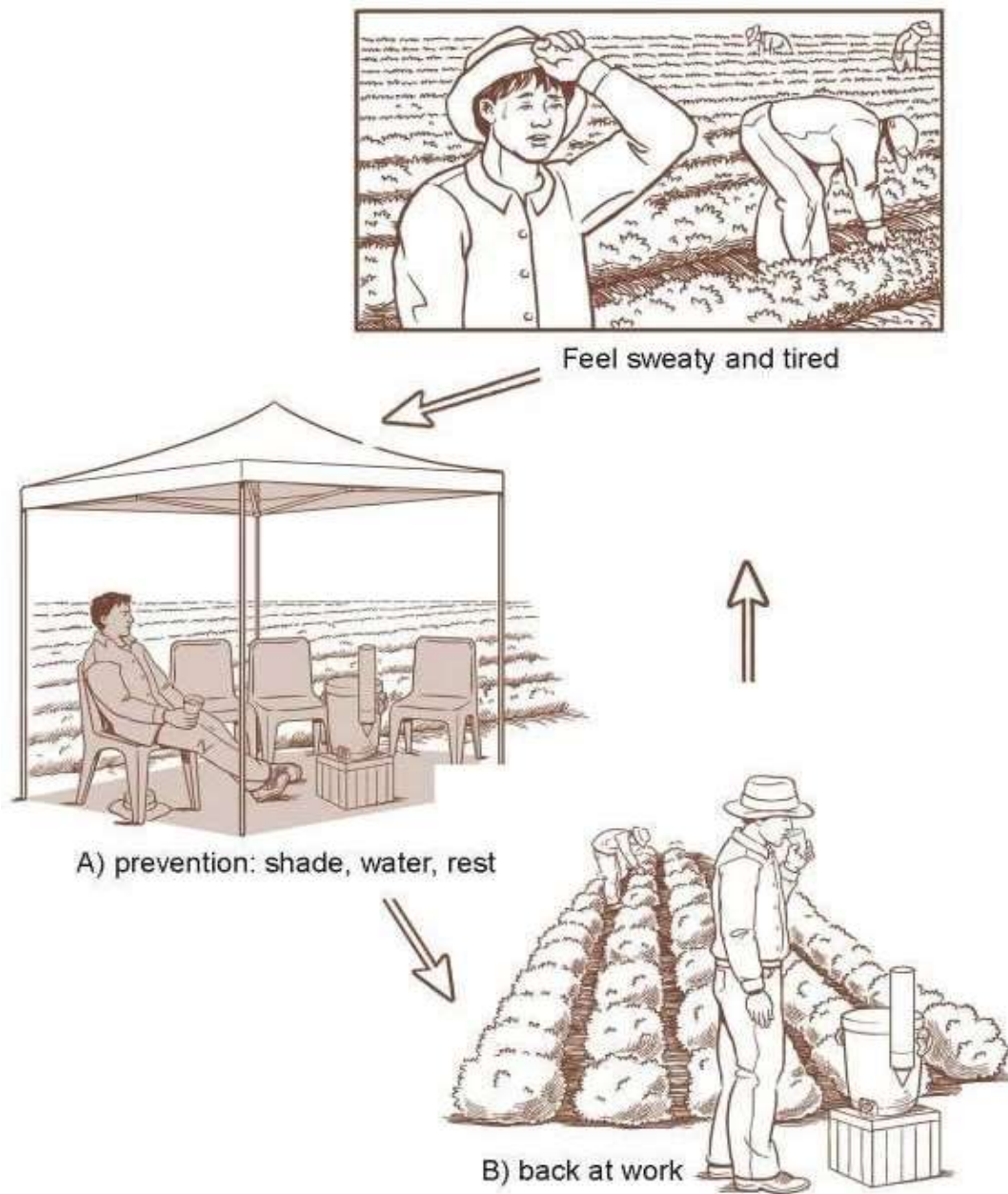
- Excessive sweating & fatigue.
- Headache & dizziness.
- Loss of appetite & cramping.
- Nausea and vomiting.
- Chills
- Tingling in hands or feet
- Altered mental status.

**Treatment:**

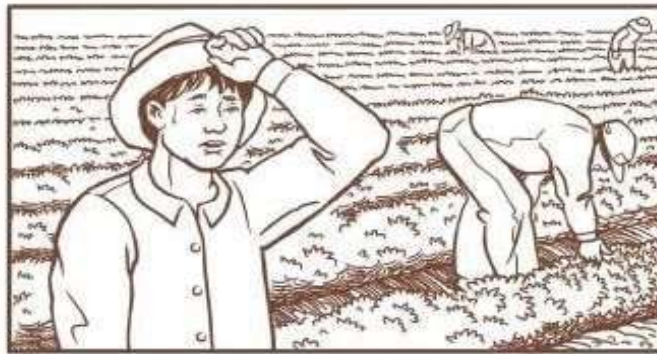
- Move peoples to a cool or shaded area to rest.
- Loosen the peoples clothing.
- Hydrate people orally with cool water.



- Elevate the legs.



**Diagram 01: Preventing Health Illness**



Feel sweaty and tired



C) heavy sweating,  
cramps, rapid pulse,  
headache, nausea,  
vomiting



D) dry, red, hot skin,  
high body temperature,  
disoriented, confused

NEED MEDICAL HELP

Diagram 02:

Effect of Heat

Health

## **5.8 Heat Stroke**

Heat stroke (also known as hyperthermia) is the most severe form of the heat related illnesses.

### **There are two forms of heatstroke.**

- Exertional heatstroke
- Non-exertional heat stroke.

### **Prevention:**

- Acclimate prior to strenuous activity.
- Wear appropriate clothing.
- Hydrate.
- Use work/ rest cycle.

### **Signs and symptoms:**

- Weakness.
- Headache & dizziness.
- Loss of appetite.
- Cramping & nausea.
- Seizures
- Weak pulse.
- Tachycardia & altered mental status.

### **Treatment:**

- Heatstroke is a medical emergency and can be fatal. Peoples should be medevacked to the nearest hospital.
- Position the victim in the shade and begin cooling immediately.
- Elevate the legs.
- Massage the limbs to promote blood flow.

## **CHAPTER 06** **CONCLUSION**

### **6.1 Detail of Medical Officer- UPHC- VMC**

<b>Sr. No.</b>	<b>Zone</b>	<b>U-PHC</b>	<b>U-PHC Postal Address with city &amp; pincode</b>	<b>Name of Doctor</b>	<b>E-mail</b>	<b>CUG</b>
1	East	Bapod	Zala Bharvad Nu Ghar, Bapod Panchayat Office Pase, Bapod Nani Talav Najk, Bapod, Vadodara - 390019	Dr. Sama Mansuri	mouphcbapod.health.vmc@gmail.com	6357977355
2		Panigate	Opp. Panigate juni shak market, old bavchavad - 390019	Dr. Sadiya Mansuri	mouphcpanigate.health.vmc@gmail.com	6357977366
3		Kishanwadi	near community hall, Gujarat housing board near, kishan wadi , ajwa road vadodara - 390019	Dr. Ashishkumar Rathva	mouphckishanwadi.health.vmc@gmail.com	6357977373
4		Ramdev nagar	B/12, panchal nagar, Ajwa road, vadodara -390019	Dr. Manisha Parmar	mouphcramdevnagar.health.vmc@gmail.com	6357977388
5		Sawad	Dhaval hospital char rasta, Harni warasiya ring road 390002	Dr Jyoti Gadkari	mouphcsawad.health.vmc@gmail.com	6357977399
6		Sudamapuri	Aman soc, near Rubi complex ,opp varsha soc,Navjivan,	Dr. Krishna Patel	mouphcsudamapuri.health.vmc@gmail.com	6357977400

			ajwa road, vadodara - 390019			
7		Warasiya	near Paras soc , old RTO Road, warasiya - 390006	Dr. Vyoma Rana	mouphcwarasiya.he alth.vmc@gmail.co m	6357977377
8		Yamuna mill	Yamunamill UPHC,Beside Gajarawadi Fire Station,Patel Estate,Gajaraw adi WaterTank,Wa di,Vadodara PIN-390017	Dr. Kalpesh Rathwa	mouphcyamunamill .health.vmc@gmail .com	6357977351
9		Gajrawadi	Ramvatika Society,Nr.Prak ruti Tenament,maha devTalav,Vado dara.PIN- 390017	Dr Bhavna Mayavanshi	mouphcgajarawadi. heath.vmc@gmail.c om	6357977352
10		Khodiyar nagar	near community hall, Gujarat housing board near, kishanwadi , ajwa road vadodara - 390019	Dr. Nevil Katariya	mouphckhodiya gar.health.vmc@g mail.com	6357977353
11	West	Diwalipura	Diwalipura UHC Opp. word-11 Makrand desai road -390007	Dr. Ronak Patel	mouphcdiwalipura. health.vmc@gamil. com	6357977354
12		Atladara	Atladara Urban Health Center, Behind BAPS Mandir Vasava Mahollo - 390012	Dr. Sweta Rajnikant Patel	mouphcataladra.hea lth.vmc@gmail.co m	6357977356
13		Tandalja	Patrakar colony Behind Water	Dr. Arman Vora	mouphctandalja.hea lth.vmc@gmail.co	6357977357

			Tank -390005		m	
14		Mujmahuda (Jetalpur)	Akota shivajipuri near sudhrai colony opp. register office -390020	Dr Aadityndra Arya	mouphcjetalpur.hea lth.vmc@gmail.co m	6357977358
15		Akota	Akota shivajipuri near sudhrai colony opp. register office -390020	Dr. Nirmal Gohel	mouphcakota.health .vmc@gmail.com	6357977359
16		Subhanpura	Subhanpura UPHC near Reliance petro pump High tension road subhan pura - 390023	Dr. Bhupendra sinh Rathod	mouphcsubhanpura. health.vmc@gmail. com	6357977360
17		Gorwa	Gorwa Urban Health center Near vegetable Market -390016	Dr. Tejas Patel	mouphcgorwa.healt h.vmc@gmail.com	6357977361
18		Gotri	Near Talati Office Gotri Gaum -390021	Dr. Shashank Suthar	mouphcgotri.health. vmc@gmail.com	6357977362
19		Gokulnagar	Gokulnagar UHC Gayatri nagar, OPP. Gulabi Saibaba Mandir - 390021	Dr. Shivangi Inamdar	mouphcgokulnagar. health.vmc@gmail. com	6357977363
20		Undera	Undera UPHC,Old undera sub center building, Besides undera grampanchayat. Undera, Vadodara - 391330	Dr. Akshay Patel	mouphcundera.heal th.vmc@gmail.com	6357977364
21		Bhayli	Uphc Bhayli,Near Bhayli D- Mart,Bhayli Road	Dr. Marval Dave	mouphcbhayli.healt h.vmc@gmail.com	6357977365

			Vadodara-391410			
22		Bil	Bill UPHC, Opp. Bill Gram Panchayat Office, Bill-391014	Dr. Mohamad Issrarali M Saiyed	mouphcbill.health.vmc@gmail.com	6357977367
23	North	Ekta nagar	Ektanagar UPHC ,Tp 13 Ding Dong Chokdi Pase Satyanarayan Society Ni Pase-390024	Dr Deepakkumar Solanki	mouphcektanagar.health.vmc@gmail.com	6357977368
24		Navayard	Navayard UPHC, Next To Ren Basera, D Cabin, B/H Deep Theatre, Vadodara-390024	Dr. Soham Patel	mouphcnayayard.health.vmc@gmail.com	6357977369
25		Navidharti	Opp. Bhathiji Temple Near Old Ward 8, Nagarwada Vadodara.390008	Dr. Rajeshri Devmurari	mouphcnavidharti.health.vmc@gmail.com	6357977370
26		Chhani	opp. chhani bus stand., chhani, vadodara-391740	Dr. Puja Kharvad	mouphcchhani.health.vmc@gmail.com	6357977371
27		Siyabagh	Shiyabaug urban health centre, ward 5 ni old office, bordifaliyu, Khanderav Market ni pachad, Vadodara 390001	Dr. Purvika Patel	mouphcshiyabaug.health.vmc@gmail.com	6357977372
28		Navapura	Navapura UPHC Opp. Deepak Open theatre, Azad Maidan, Madan	Dr. Vipul Shrimali	mouphcnayapura.health.vmc@gmail.com	6357977374

			Zampa Road, Vadodara			
29		Sama	sama uphc , opp. Ayyappa ground .Near Abhilasha chokdi., sama, Vadodara. 390008	Dr. Anand popat	mouphcsama.health .vmc@gmail.com	6357977375
30		Fatehpura	Fatehpura Uphc, Nr Mahakali Temple, Opp Mangleshwar Zampa, Fatehpura, Vadodara	Dr. Mohit Maurya	mouphcfatehpura.h ealth.vmc@gmail.c om	6357977376
31		Harni	b/h sashwat flat, nr. Gada circle, harni road, vadodara- 390022	Dr. Sakshi Kulkarni	mouphcharani.healt h.vma@gmail.com	6357977378
32		Fatehgunj	-	Dr. Ashok Rajpurohit	mouphcfatehgunj.h ealth.Vmc@gmail.c om	6357977379
33	South	Kapurai	Old Octroi naka building, Near Kapurai Bypass,Dabhoi Road,Vadodara .PIN-390025	Dr Ashish Gamit	mouphckapurai.hea lth.vmc@gmail.co m	6357977380
34		Danteshwar	Vambe Housing, Near Danteswar Muktidham, Vadodara, Gujarat 390004	Dr. Dhaval Patel	Mouphcdanteshwer .health.vmc@gmail .com	6357977381
35		Tarsali	Tarsali UPHC,near Sharadnagar Postoffice,Baro da Dairy Rd, Sharad Nagar, Tarsali, Vadodara, PIN-	Dr Abhishekku mar Charel	tarsaliuphc07@gma il.com	6357977382



			390009			
36		Maneja	Near Swaminarayan Mandir, Maneja gam, Vadodara. PIN-390013	Dr. Hiral Kharva	mouphcmaneja.health.vmc@gmail.com	6357977383
37		Makarpura	Makarpura UPHC, Opp. Makarpura Garden, Makarpura Gam, Vadodara, PIN-390014	Dr. Hiral Rana	mouphcmakarpura.health.vmc@gmail.com	6357977384
38		Manjalpur	Manjalpur UPHC, Gajanan d Society, Nr. Mahatma Gandhi School, Manjalpur, Vadodara	Dr Chetna Patel	mouphcmanjalpur.health.vmc@gmail.com	6357977385
39		Vadsar	Prior To vadsar Bridge, Makarpura GIDC, Opp. Yugdharma store, Vadodara	Dr. Dipti Chaudhari	mouphcvadsar.health.vmc@gmail.com	6357977386
40		Adarsh nagar	Vambe Housing, Near Danteswar Muktidham, Vadodara, Gujarat 390004	Dr. Anjali Makwana	mouphcadarshnagar.health.vmc@gmail.com	6357977387
41	Health main office			Dr. Smita Vasava	cmovmc1@gmail.com	9825503817
42	Add. Moh			Dr. Jayesh Khushalani		8007972255

\* Emergency Contact No 108 ambulance (Toll Free)

## 6.2 List of UCHC-Vadodara City

Sr. No.	Zone	Name	Address	Name of the doctor	Email-id	Contact No
1	South	Manjalpur UCHC	Opp.panchal Wadi,Ranjit Petrol Pump Line,Sarswati Cross Road, Manjalpur Vadodara 390011	Dr Anisa Soni	uchcmanjalpur@gmail.com	8780773149
2				Dr Siddharth Rajpura		9909911719
3				Dr Mausami Kothari		9825856172
5				Dr.Kamax i Jonwal		9978836100 8849492558
8				Dr. Parthiv Shah		9909927425
9				Dr. Manisha Rathva		9714417967
10	West	Atladra	In Front Of Atladara Garden,B/H Jupiter Hospital,Near Brahm Kumari, Sunpharma Road,Vadodara 390012	Dr Bhumi vasetian	uchcatladara@gmail.com	9978445615
11				Dr Priyank Trivedi		9265136709
13				Dr Neetal Thakkar		9909927436
14				Dr. Himanshu Machhaliya		9998004029
16				Dr Namrata Chauhan		9824021956
17				Dr Parul Tank		9909927426
19	NORTH	Chhani	Opp.Gurudwara ,Chhani Jakat Naka,Vadodara 391740	Dr Vinay Bhabhor	uchcchhani@gmail.com	8238022731
21				Dr. Yesha Rajput		9016428119
22				Dr		972776733

				mahendra Mokani		3
23				Dr. Hetal Patel		971228588 0
24				Dr Sakshi Kulkarni		990992743 1
25				Dr Abhisek Rathod		992403861 3
27				Dr. Vallari Parmar		798464630 7
28				Dr. Piyush Rathod		787457824 8
			B/H Kishanwadi Uphe ,Opp Vuda Makan,Near	Dr. Dipen Chaudhar y		940878134 4
	EAST	Kishanwa di	Community Hall,Gadheda Market Cross Road,Vadodara.3900 19	Dr.Prakas h Prajapati	kishanwadiuchc@gmail.com	990991171 9
				Dr.Ekta Shah		990992743 0
				Dr. khushbu parmar		997803650 1

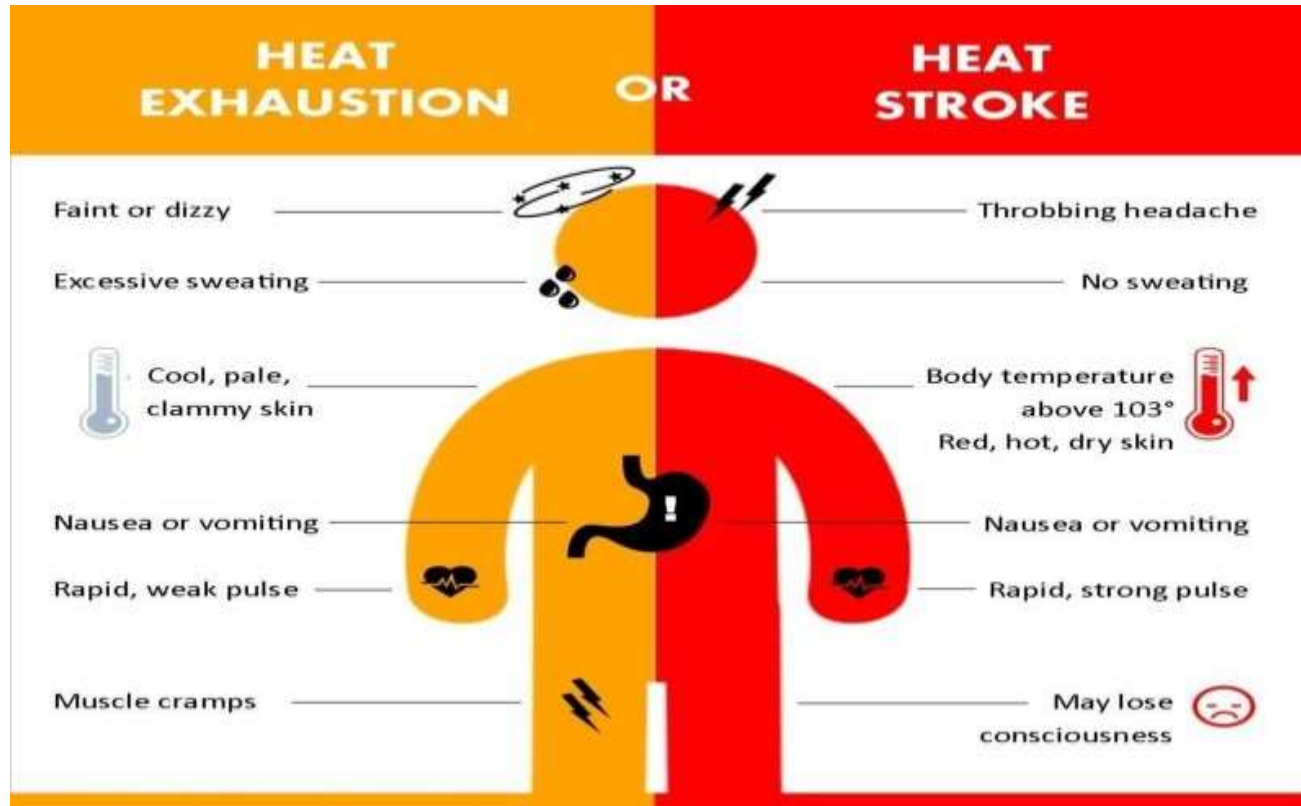
### **6.3 List of public Health facility unit- Vadodara City**

<b>Sr. No.</b>	<b>Health Facility Details</b>	<b>Total No</b>	<b>Bed Details</b>
1	UPHC (Govt.)	40	-
2	Urban CHC (Govt.)	4	200
3	Govt. Major Hospitals	4	1960
4	Private Facilities	1116	2240
5	Day care facility	92	285
6	Maternity/Nursing Home	138	1984
7	Others	306	-

### **6.4 List of Shelter houses - Vadodara City**

<b>Sr.No.</b>	<b>Shelter Name</b>	<b>Total No</b>
<b>Non-Day NULM Centre</b>		
1	Below Vishwamitri Bridge	35
2	Amar nagar, Navayard	88
3	Below vadsar Bridge	10
4	GIDC Makarpura	10
5	Below Gorwa Bridge	30
<b>Total</b>		<b>173</b>
<b>Day NULM Centre</b>		
1	Lalbaug Bridge	81
2	Below Aksharchowk Bridge	165
3	Below Soma Tadav Bridge	368
4	Below Vadsar Bridge	168
5	Behind	216
<b>Total</b>		<b>998</b>

## **6.5 Cooling Techniques for Heat Injury**



### **Evaporative Cooling**

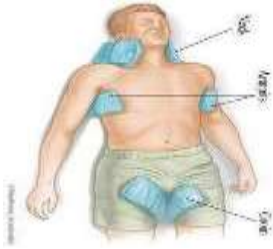
- Remove excess clothing
- Mist the skin constantly and fan.
- Complications: None.

### **Ice Sheets**

- Remove excess clothing
- Wrap soldier in cold wet sheet. Include the head.
- Monitor the soldier closely.
- Complications: discomfort or shivering, hypothermia.

### **Strategic Ice Packing**

- Remove excess clothing
- Place ice packs in the patient's groin, in the axillae, and around the anterior neck.
- Complications: discomfort or shivering.



### Strategic Ice Packing



Heat emergencies are of three types: heat cramps (caused by loss of salt), heat exhaustion (caused by dehydration) and heat stroke (shock). Remove the victim from the heat and have him lie down. Apply cool compresses, elevate the feet, drink fluids and use a fan to blow cool air. Get medical help if needed.

## **6.6 Do's and Don'ts of Heat wave**

Heat Wave conditions can result in physiological strain, which could even result in death. To minimize the impact during the heat wave and to prevent serious ailment or death because of heat stroke, you can take the following measures:

- Avoid going out in the sun, especially between 12.00 noon and 3.00 p.m.
- Drink sufficient water and as often as possible, even if not thirsty
- Wear lightweight, light-colored, loose, and porous cotton clothes. Use protective goggles, umbrella/hat, shoes or chappals while going out in sun.
- Avoid strenuous activities when the outside temperature is high.
- While travelling, carry water with you.
- Avoid alcohol, tea, coffee and carbonated soft drinks, which dehydrates the body.
- If you work outside, use a hat or an umbrella and also use a damp cloth on your head, neck, face and limbs
- Do not leave children or pets in parked vehicles
- If you feel faint or ill, see a doctor immediately.
- Use ORS, homemade drinks like lassi, torani (rice water), lemon water, buttermilk, etc. which helps to re-hydrate the body.
- Keep animals in shade and give them plenty of water to drink.
- Keep your home cool, use curtains, shutters or sunshade and open windows at night.
- Use fans, damp clothing and take bath in cold water frequently.

### **6.6.1 Measures one should do to minimize the impact during heat wave**

- Avoid going out in the sun, especially between 12.00 noon and 3.00 p.m.
- Drink sufficient water and as often as possible, even if not thirsty
- Wear lightweight, light-coloured, loose, and porous cotton clothes. Use protective goggles, umbrella/hat, shoes or chappals while going out in sun.
- Avoid strenuous activities when the outside temperature is high. Avoid working outside between 12 noon and 3 p.m.
- While travelling, carry water with you.
- Avoid alcohol, tea, coffee and carbonated soft drinks, which dehydrates the body.

- Avoid high-protein food and do not eat stale food.
- If you work outside, use a hat or an umbrella and also use a damp cloth on your head, neck, face and limbs
- Do not leave children or pets in parked vehicles
- If you feel faint or ill, see a doctor immediately.
- Use ORS, homemade drinks like lassi, torani (rice water), lemon water, buttermilk, which helps to re-hydrate the body.
- Keep animals in shade and give them plenty of water to drink.
- Keep your home cool, use curtains, shutters or sunshade and open windows at night.
- Use fans, damp clothing and take bath in cold water frequently.

#### **TIPS FOR TREATMENT OF A PERSON AFFECTED BY SUNSTROKE:**

- Lay the person in a cool place, under a shade. Wipe her/him with a wet cloth/wash the body frequently. Pour normal temperature water on the head. The main thing is to bring down the body temperature.
- Avoid heat exposure– keep cool. Avoid dehydration, Drink sufficient water- even if not thirsty.
- Give the person ORS to drink or lemon sarbat/torani or whatever is useful to rehydrate the body.
- Take the person immediately to the nearest health centre. The patient needs immediate hospitalization, as heat strokes could be fatal.

#### **ACCLIMATISATION**

- People at risk are those who have come from a cooler climate to a hot climate. You may have such a person(s) visiting your family during the heat wave season. They should not move about in open field for a period of one week till the body is acclimatized to heat and should drink plenty of water. Acclimatization is achieved by gradual exposure to the hot environment during heat wave.

➤

### **6.7 Roles of Parks and Gardens in VMC**

- Vadodara Municipal Corporation has been surrounded with green cover with which resulting



the lower temperature and supply of oxygen as well.

- Rooftop garden has been a boon to the modern urban housing structure which gives coolant effect on households.
- VMC in process of maximum Greenbelt development throughout the city and via corridors too.

### **6.8 Zone wise green cover-Vadodara City**

<b>Sr.No.</b>	<b>Area Name</b>	<b>Total Area sq m</b>
1	East Zone	672529.5
2	West Zone	245390.29
3	North Zone	124175.8
4	South Zone	151851.3
<b>Total</b>		<b>1193946.89</b>

\*\*Total Zone wise green cover- 0.54%

## 6.9 List of Urban Forest/Green Cover

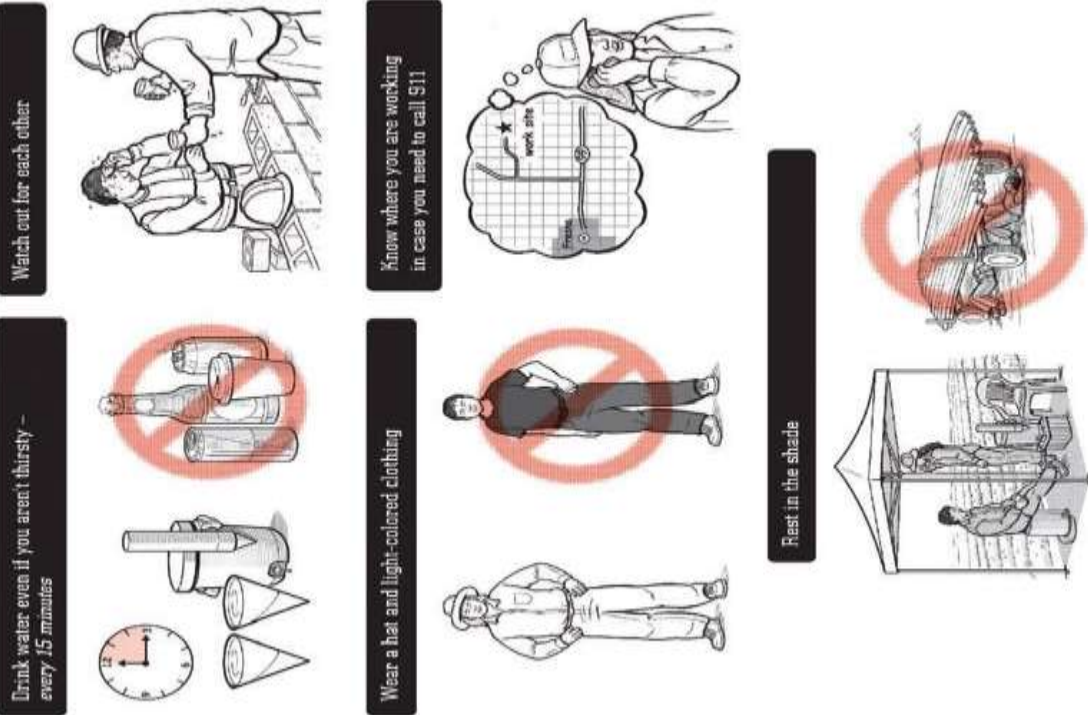
Sr.No	ગિન સ્પેસ/અર્બન ફોરેસ્ટ
1	ડી.પી.0૯, એકુપી ૩૩, મેંજાજીવોત સોસાયટી અને જીવોત પાર્કની વચ્ચે
2	ડી.પી.0૫ એકુપી ૪૭૫, મહાવીર હોલ ચાર રસ્તા પાસે
3	ડી.પી.0૫ એકુપી ૭૫૦, બહાર કોલોની પાસે આજવા રોડ
4	સુભાષ લાક્ષ્મી, વાપોડીયા રોડ
5	કમલનગર તાલુકાની બાજુમાં
6	વિક્રમનગર, કારેલીબાગ
7	ડી.પી.૨૪ એકુપી ૫૭૩, સનકુમાર રોડની પાછળ, હાઇટેન્શન લાઇનની નીચે
8	ડી.પી.૨૫ એકુપી ૧૪૦, મુક્તિનગર સોસાયટીની પાછળ તાડલજા એસ.ક્યુબ રેસીડેન્સીની પાછળ
9	વડસર લેન્ડ ફિલ્ડ સાઇટ
11	ડી.પી.૧૧ એકુપી ૨૨૩, ગાયત્રીનગર સોસાયટી સામે રંજનબેનના ઘરની સામે
12	ડી.પી.૧૨ એકુપી ૮૨, વસીયા કોલોની પાસે, જલ ક્યોલેટ એપાર્ટમેન્ટ અભીલાષા ચાર રસ્તા ડેપો રોડ
13	ડી.પી.૧૨ એકુપી ૪૪૯, મુક્તિનગર સોસાયટી પોસ્ટોફિસ ધરોની ગલી માં ન્યુ ઇસ્ટફલ રોડ
14	ડી.પી.૧૧ એકુપી ૫૦૭, ચાલક્યપુરી ચાર રસ્તા પાસે ચાલક્યપુરી સોસાયટી
15	ડી.પી.૧ એકુપી ૧૫, હાઇટેન્શન સાંસ બાજુરગ સો બિલની બાજુમાં
16	ડી.પી.૧૧ એકુપી ૩૦, ચાલક્યપુરી ચાર રસ્તા પાસે મેન રોડ
17	ડી.પી.૧૮ એકુપી ૩૫, ડોન બોક્સો સ્કૂલની બાજુમાં
18	ડી.પી.૧૭ એકુપી ૭૫, ધર્મ રાજ નગર સોસાયટી બાજુમાં
19	ડી.પી.૧૮ એકુપી ૧૫૩, મેધામોલ ની બાજુમાં
20	ડી.પી.૧૭ એકુપી ૭૨, રેલ્વે ક્વટરની બાજુમાં
21	દિવ્યજ્યોત બાગ સામેની પ્લોટ
22	ડી.પી.૪ એકુપી ૫૨૫, નહેલર નગર સોસાયટી બ્રાહ્મપોદ તળાવ
23	ડી.પી.૫ એકુપી ૨૮૧, કેસવ પટ્ટીલ પંથ, રમેશ્વર પોન્ટીંગ પેસ
24	બોડિયારનગર તળાવ
25	ડી.પી.૪૫ એકુપી ૫૪૧, રજીવનગરા એસ.ડી.પી. એપોઈ નજીક
26	સમા ફલેંગ ગાર્ડન, સમા તળાવ
27	કરણી અર્બન ફેલ્ડ સેન્ટર, કરણી
28	મકરપુરા વાઘા: અર્બન ફેલ્ડ સેન્ટર, મકરપુરા
29	બિલ ડી.પી.૧ એકુપી ૩૨, આશાશામ આશ્રમ નજીક, બિલ
30	આનપુરા તવાસા ડી.પી.૧ એકુપી ૧૨૪, રલોડ તોરાચડી
31	ડી.પી.૧ એકુપી ૧૬૪, સેસવ સ્કૂલ, ગંગા નગર સોસાયટી, યશ કોમ્પ્લેક્સ
32	ડી.પી.૧૨ એકુપી ૫૫/૧, બીરેશજી શોશાયટી, તામા
33	ડી.પી.૧૨ એકુપી ૨૦૩, સરસ્વતી સ્કૂલ, ડાંગ્રેજી ચાર રસ્તા પાસે
34	ડી.પી.૬ એકુપી ૧૫૩, અજીતનાથ સોસાયટી, કારેલીબાગ
35	ડી.પી.૪ એકુપી ૪૫૭, બીલીયાદેવ નગર
36	ડી.પી.૫ એકુપી ૪૨૦, ભાના, બોડિયા, પાલી ગોડ
37	ડી.પી.૧ એકુપી ૧૫૫, કરણી, મહાદેવ નગર
38	ડી.પી.૧ સમા એકુપી ૭, સમા તળાવ નજીક
39	ડી.પી.૩ એકુપી ૧૦૨૪, પલેકુરીર વાપોડીયા રોડ
40	ડી.પી.૨૫ એકુપી ૭૪, દાડુલ્લામ મદરેસા
41	ભાગલા ડી.પી.૧ એકુપી ૧૨૬, ન્યુ માઉન્ટ બિલ્ડ
42	ડી.પી.૬ એકુપી ૨૭૮, આમીતનગર
43	ડી.પી.૪ એકુપી ૧૨૫, આપોદ તાલુકાવિવારથ

અનુ.	બગીચા નું નામ
૧	પાર્કસ એન્ડ ગાર્ડન ઓફીસ
૨	સયાજીબાગ સફેદ બગીચો
૩	સયાજીબાગ જોય ટ્રેન ઓફીસ
૪	સયાજીબાગ મ્યુઝીકસીસ્ટમ ઓફીસ
૫	સયાજીબાગ હાજરી પોઈન્ટ
૬	સયાજીબાગ બેન્ડ સ્ટેન્ડ
૭	નિમેટા બગીચાની બુકીંગ ઓફીસ
૮	નિમેટા બગીચાની ઓફીસ
૯	આજવા ક્રીમ ઓફીસ

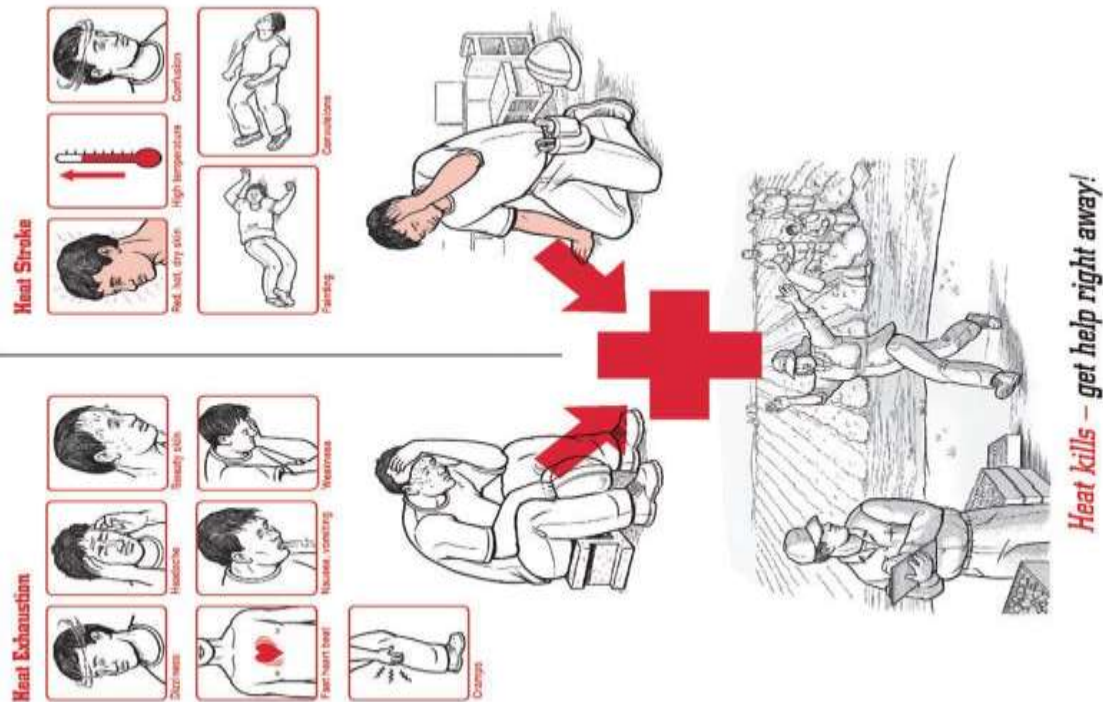
## CHAPTER 07

### ANNEXURES AND IEC MATERIALS ON HEAT WAVE PREVENTION

#### Stay safe and healthy!



#### Two types of heat illness:





## Health effects of heat

Two types of heat illness:

### Heat Exhaustion



### Heat Stroke



**Watch out for early symptoms.** You may need medical help.  
People react differently — you may have just a few of these symptoms, or most of them.

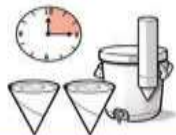
**1**



## Stay safe and healthy!

**WATER. REST. SHADE.** The work can't get done without them.

**Drink water even if you aren't thirsty — every 15 minutes.**



**Rest in the shade.**



**Watch out for each other.**



**Wear hats and light-colored clothing.**



**"Easy does it"** on your first days of work in the heat. You need to get used to it.  
**Rest in the shade** — at least 5 minutes as needed to cool down.

**2**



# સનસ્ટ્રોક

# (લુ)થી બચવા



SWACHH  
SURVEKSHAN  
Tharu Bhab, 10th Floor, 2021



૧. ગરમીમાં બને ત્યાં સુધી બહાર જવાનું ટાળવું

૩. નાના બાળકો, સગર્ભા માતાઓ, વૃદ્ધો તથા અશક્ત વ્યક્તિઓએ તડકામાં ફરવું નહીં

૨. ઊનાળાની ઋતુ દરમિયાન ખુલ્લા, સફેદ, સુતરાઉ કપડાં પહેરવાં જોઈએ

૪. દિવસ દરમિયાન પુષ્કળ પ્રમાણમાં પ્રવાહી પીવું જોઈએ, શક્ય હોય તો લીંબુનું શરબત બનાવીને પીવું જોઈએ

૫. ભીના કપડાથી માથું ઢાંકી રાખવું અને જરૂર જણાયે અવાર-નવાર ભીના કપડાથી શરીર લુછવું

## વડોદરા મ્યુનિસિપલ કોર્પોરેશન

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SWACHH  
SURVEKSHAN  
2022



## ઉનાળામાં લૂથી બચવા આટલું જરૂર કરો.



છત્રી સાથે અથવા કપડા કે ટોપીથી માથું ઢાંકી બહાર નીકળો.



વારંવાર પાણી પીવો જેથી શરીરમાં પાણીની માત્રા જળવાય.



છાસ, લીંબુ સરખત જેવા પીણાનું સેવન કરો.



સુતરાઈ કપડાં પહેરો. સિન્થેટિક અને નાયલોન કપડાં પહેરવાનું ટાળો.

## તાપથી બચો, સ્વાસ્થ્ય સાચવો



## વડોદરા મ્યુનિસિપલ કોર્પોરેશન

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# લુ લાગવા (હીટ સ્ટ્રોક) ના લક્ષણો

સાવધાન રહો, લક્ષણો ઓળખો  
અને સાવચેતી રાખો.



ગરમ, લાલાશ  
અને શુષ્ક ત્વચા



શરીરનું તાપમાન  
≥ 40° C or  
104° FZ



માથાનો દુખાવો



ઉબકા અને  
ઉલ્ટી થવી



શ્વાસોશ્વાસ અને હૃદયના  
ઘબકારા ઝડપી થવા.



સ્નાયુની નબળાઈ  
અથવા ખેંચાણ

જો લક્ષણો જણાય તો...



વધુ પાણી  
પીવું.



ઠંડી જગ્યાએ જાઓ  
અને આરામ કરો.



સ્નાન  
લો.

ડૉક્ટરની મુલાકાત લો અથવા કોલ કરી એમ્બ્યુલન્સ(૧૦૮)બોલાવો.



સ્નાયુના ખેંચાણ એક  
કલાક થી વધુ ચાલે છે.



બેભાન  
થઈ જવું



શરીરનું તાપમાન  
≥ 40° C or  
104° FZ



લક્ષણો વધારે  
ગંભીર થાય તો



વડોદરા મ્યુનિસિપલ કોર્પોરેશન

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## सनस्ट્રોક (લુ) લાગવાથી આરોગ્ય ઉપર થતી વિપરીત અસરો

શરીર અને હાથપગમાં અસહ્ય દુઃખાવો,  
ખુબ તરસ લાગવી, ગભરામણ થવી,  
ચક્કર આવવા, શ્વાસ ચઢવો,  
હૃદયના ઘબકારા વધી જવા.



### વડોદરા મ્યુનિસિપલ કોર્પોરેશન

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## ગરમીથી કેવી રીતે બચીશું?

- વધુ પ્રમાણમાં પાણી, છાશ અથવા અન્ય પ્રવાહી પીવું.
- લાંબો સમય તડકામાં નહીં રહીએ
- આખું શરીર અને માથું ઢંકાએ તે રીતે સફેદ સુતરાઉ ખુલતા કપડાં પહેરવા
- ઠંડકવાળા સ્થળ પર સમયાંતરે આરામ કરવો
- નાના બાળકો વૃદ્ધો અને સગર્ભા સ્ત્રીઓનું ખાસ ધ્યાન રાખવું
- બજારમાં મળતો ખુલ્લો, વાસી ખોરાક ખાવો નહીં, બજારમાં માળતા બરફનો ઉપયોગ ટાળવો, લગ્ન પ્રસંગે દૂધ, માવાની આઈટમ ખાવી નહીં.

## લૂ લાગવા (હીટ સ્ટ્રોક) ના લક્ષણો

- ગરમીની અળાઇઓ નિકળવી
- ખૂબ પરસેવો થવો અને અશક્તિ લાગવી
- માથાનો દુખાવો, ચક્કર આવવા
- ચામડી લાલ, સૂકી અને ગરમ થઈ જવી
- સ્નાયુઓમાં દુખાવો અને અશક્તિ
- ઊબકા અને ઉલ્ટી થવી
- અતિગંભીર કિસ્સામાં ખેંચ આવવી