Frequently Asked Questions on Heat-Related Illness and Death Surveillance

1. What is the purpose of National Heat-Related Illness and Death surveillance?

The purpose of a public health surveillance is to inform policy and actions based on continuous, systemic collection, analysis and interpretation of health-related data and evaluation of public health practices.

National Heat-Related Illness and Death Surveillance is aimed to collect data on a severe heat-related illness i.e. heatstroke (cases and deaths) and routine parameters like emergency attendance, cardiovascular and total deaths from health facilities.

The purpose of the surveillance is envisioned

1. To estimate burden of illnesses and mortality due to extreme heat in the population
   Through distribution of heatstroke-specific cases and deaths and overall excess emergency attendance and health facility-based mortality, it is expected to provide understanding of severe health impacts of extreme heat.
2. To support planning of response to adapt & mitigate heat impact
   Localized understanding of health impacts that emerge from data collected over past few years can support in planning and implementation of localized and vulnerable population-centric solutions.
3. To evaluate impact of climate action and changing climate
   In long term, it is expected to register patterns of health impacts of extreme heat in context of changing global warning scenarios combined with our adaptation and mitigation efforts.

2. What are the health indicators data collected under National Heat-Related Illness and Death Surveillance?

National Action Plan on Heat-Related Illnesses (2021) developed under National Programme on Climate Change and Human Health at NCDC, MoHFW provides guidance on surveillance data collection formats and standard operating procedure. The guidelines formulated following evaluation of existing surveillance process and expert consultations is aimed to improve data quality, feasibility, timeliness and epidemiological utility of the data in line with emerging scientific methodologies.

National Heat-Related Illness and Death Surveillance focuses on the most severe form of manifestation of heat related illnesses i.e. heatstroke. It also enables estimation of excess admissions and deaths.

Data on following health indicators is being collected:

1. Emergency attendance (OPD/IPD)
2. Suspected heatstroke cases
3. Suspected heatstroke deaths
4. Confirmed heatstroke deaths
5. Confirmed cardiovascular deaths
6. Total deaths in the health care facility

3. How is the data on health indicators collected under National Heat-Related Illness and Death Surveillance?

Data on health indicators are entered by health care facilities on Integrated Health Information Platform of MoHFW since 2023. Health care facilities from levels of Primary Health Centre (PHC) and above, wherever a medical doctor is available, are required to report. States/UTs can determine health care facilities that can be part of the surveillance system including those from private sector. Relevant cases and deaths that occurred in facilities in a 24-hour period of 8am-8am are expected to be aggregated and entered by health personnel/data personnel daily based on the case definitions outlined.

4. Why is diagnosis of heatstroke recorded as suspected heatstroke?

Heatstroke results from total loss of the thermoregulatory function of the body. It is defined by triad of high body temperature >40.5°C (hyperthermia), central nervous system dysfunction and history of heat stress. In the context of heatstroke resulting from the exposure to ambient heat or heat with high humidity, development of heat stress can be a matter of few minutes to few days of exposure depending on the level of environmental parameters (hazard), severity and length of the exposure, physiological adaptation, physical fitness and exertion, and access to cooling and hydration (adaptation).

Clinically, diagnosis of heatstroke requires elimination of common causes of elevated body temperature (fever) and neurological dysfunction like infections, stroke and drug/medicine overdose. There is no single gold standard medical test that can detect heatstroke right away. The process of elimination of other diseases requires thorough clinical examination and laboratory testing of various biomarkers. If high environmental temperatures are being observed or forecasted, there should be a high clinical index of suspicion for the mentioned combination of presenting symptoms and sign as heatstroke. Till the time a conclusive diagnosis is derived, such cases are identified as a suspected heatstroke. Here, it is important to note that heatstroke can also occur at lower temperatures than those recognized for heatwave thresholds. In this scenario, diagnosis of heatstroke may present challenges.

Extreme heat is an environmental hazard with the potential to cause disastrous effects on population health, daily operations, and infrastructure. Hence, daily tracking of health indicators with meteorological parameters is the most useful timeframe for data collection and interpretation. In this context, notification of a heatstroke cases and deaths on the day of their occurrence, although in pre-confirmatory stages, is vital and useful than delayed reporting of those following necessary laboratory, forensic or epidemiological investigation assessments for confirmation.

5. How is a heatstroke death confirmed?

A heatstroke death can be confirmed through various methods e.g. clinical diagnosis, autopsy findings, epidemiological investigation or death audit. Under the surveillance, confirmation through any of these methods are accepted to report confirmed heatstroke

deaths. The method applicable often depends on the stage of heatstroke development at which the affected individual seeks medical attention.

6. How are heat-related deaths accounted for in the surveillance?

Extreme heat's health impacts are much wider than those reported as heat-related illnesses. It also leads to exacerbation of many pre-existing or chronic disease conditions during summer. Such conditions are accounted for under indicators of emergency attendance, total deaths and cardiovascular deaths in the facility.

7. How is the collected data utilized?

The National Heat-Related Illness and Death Surveillance is one of the top priorities under the National Programme on Climate Change and Human Health. The data is reviewed at senior level by the DGHS, MoHFW and NDMA to support necessary actions and responses.

Data submitted by health care facilities can be monitored and utilized by health departments at district and state levels through the district and state nodal officers of NPCCHH for necessary response. Provisioned under the programme, the institutional frameworks of State and District Task Forces and State Governing Body headed by functionaries of health departments are tasked to assess and identify locally relevant actions and ensure multi-sectoral engagement through heat-health action plans to lead health-centric response to climate change's health impacts including those of extreme heat.

From patient's arrival at the health care facility to emergency triage, clinical assessment and provisional diagnosis, emergency care, recording of patient care, retrieval and compilation of required surveillance aggregates and their accurate and timely entry, every step relies on manual processes. Considering the inherent challenges in timely diagnosis of heat strokes, importance of accuracy in sensitive data such as deaths, and health being a State subject, it is imperative to allow thorough verification of submitted data by States/UTs. This necessity for thorough verification prevents the real-time publication of surveillance data in the public domain. The process of reconciliation is carried out once at the end of peak summer season. Following with due permission, the data may be made available in public domain.

8. What are the future measures to improve recording of health impacts of extreme heat?

Overtime, the surveillance is planned to change from aggregate data collection to case-based data collection to improve recording of epidemiological parameters. In long run, once patient record system is digitized nation-wide, the query-based, automated retrieval of surveillance indicators is expected to provide more accurate, near-real time data.
