Italian heat health prevention plan and warning system

Francesca de’Donato
EENA webinar - Natural hazards: Dealing with the unexpected
28 March 2022
• **Human-induced climate change**, including more frequent and intense extreme events, has **caused widespread adverse impacts** and related losses and damages to nature and people, beyond natural climate variability.

• In all regions **extreme heat events have resulted in human mortality and morbidity**.

• **Progress in adaptation** planning and implementation has been observed across all sectors and regions, generating multiple benefits ...however progress in uneven and gaps still exist.

**IPCC, AR6 WG2**
WHO Operational framework for building climate-resilient health systems

WHO supports countries to increase the climate-resilience of their health systems by providing direct support through projects on climate change and health, and through the generation of guidance for multiple areas of work that contribute to the overall functioning of health systems. The wide range of guidance developed to support countries on health adaptation to climate can be generally structured under ten components outlined in the

Leadership and governance: Component 1
Health workforce: Component 2
Health and climate research: Component 5
Climate-resilient and sustainable technologies and infrastructure: Component 6
Emergency preparedness and management: Component 9
Climate and health financing: Component 10
Vulnerability, capacity and adaptation assessment: Component 3
Integrated risk monitoring and early warning: Component 4
Management of environmental determinants of health: Component 7
Climate-informed health programmes: Component 8

WHO Guidance for Climate Resilient and Environmentally Sustainable Health Care Facilities

WHO, 2020
WHO Core elements of heat-health action plans

✓ Identification of lead body, interdepartmental co-operation
✓ Accurate and timely site-specific warning systems
✓ Information campaign (general pop, at risk groups, care givers etc.)
✓ Preparedness of the health/social care system
✓ Identification of vulnerable subgroups
✓ Real-time surveillance (mortality, ER visits, ambulance calls, Help lines)

• Reduction in indoor heat exposure
• Long-term urban planning
Local dissemination network

Rapid mortality surveillance system (SiSMG) 34 cities

ER visit rapid surveillance

Evaluation of heat waves on health

Prevention is graded based on level of warnings

Public Health Guidance

Identification of susceptible subgroups

Advice for susceptible subgroups and health care professionals

Survey of local prevention plans and adaptation measures
Governance Italian HHAP

Coordination of:
- heat warning system
- heat health guidance document
- information network and dissemination (via email, website, mobile application, social media) to focal points and general public
- surveillance system (mortality and ER visits)
- Ministry of Health helpline
- training and educational material (brochures, infographics) for health care professionals
- evaluation (annual survey, warning system effectiveness and epidemiological studies on health impact)

NATIONAL
Ministry of Health

REGIONAL
Regional heat plan based on national guidance
Regional public health policy
Definition of vulnerable subgroups for active surveillance
Information network (dissemination to health and social services, GPs, regional stakeholders, media)
Helpline

LOCAL
City heat plans
Health service or municipality social services focal point
Capillary dissemination of information (hospitals, nursing homes, NGOs, GPs, registered users)
Definition of emergency protocols by health care services
Active surveillance of high risk subgroups by GPs, health and social services
Helpline
Emergency services (civil protection, ambulance service, front line workers)

WHO 2021
Italian heat health prevention network

Local Prevention network
- Civil protection
- Health services
- Social services
- Local regional warning systems
City-specific models based on the temperature-mortality relationship.

On the basis of this relationship, defined using time series data, HHWW use weather forecast data to predict at-risk conditions associated to an increase in mortality.

2 models:

**Air mass-based models:**
Use of synoptic approach to identify oppressive air masses associated to an increase in mortality

**Temperature mortality regression models**
maximum apparent temperature, calendar month, consecutive hot days
Bollettini delle ondate di calore

Livelli di rischio, cosa fare

- **Livello 0**: Condizioni meteorologiche che non comportano rischi per la salute della popolazione.
- **Livello 1**: Pre-allerta, condizioni meteorologiche che possono precedere il verificarsi di un'ondata di calore.
- **Livello 2**: Ondata di calore, condizioni meteorologiche che possono avere effetti negativi sulla salute della popolazione, in particolare nei sottogruppi di popolazione suscettibili.

Consultare i dati dell'ultimo bollettino per città. Sono più evidenti le città con livelli di rischio più alti.

ANCONA BARI BOLOGNA BOLZANO BRESCIA CAGLIARI CAMPOBASSO CATANIA CIIVITAVECCHIA FIRENZE FROSINONE GENOVA LATINA MESSINA MILANO NAPOLI PALERMO PERUGIA PESCARA REGGIO CALABRIA RIELI ROMA TORINO TRIESTE VENEZIA VERONA VITERBO

**Temperatura ore 8:00**

<table>
<thead>
<tr>
<th>Data</th>
<th>Livello 0</th>
<th>Livello 1</th>
<th>Livello 2</th>
<th>Livello 3</th>
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<tbody>
<tr>
<td>08/08/2021</td>
<td>29</td>
<td>25</td>
<td>26</td>
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<td>09/08/2021</td>
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<tr>
<td>10/08/2021</td>
<td>37</td>
<td>38</td>
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</table>

**Temperatura massima percettiva**

Livelli di rischio non a rischio per la salute della popolazione.

Livello 1: Condizioni meteorologiche che possono precedere l'ondata di calore.

Livello 2: Ondata di calore, condizioni meteorologiche che possono avere effetti negativi sulla salute della popolazione, in particolare nei sottogruppi di popolazione suscettibili.

Livello 3: Ondata di calore, condizioni meteorologiche che persistono per 3 o più giorni consecutivi.

*Indicatori di misura termometrica che tiene conto della temperatura esterna e dell'umidità relativa.

Per approfondimenti: https://www.salute.gov.it/portale/
Information Network: dissemination of warning to stakeholders.

**Local information Network**

- Hospitals
- Retirement homes
- Social services
- Local health Authorities
- GPs and Primary care
- Media/press
- Registered users

**DEPLAZIO**

- Ministry of Health
  - Publication on website
  - Heat-health Call centre

- Local Centre
  - (Local Civil Protection, Local Health Authorities, Municipality)
PREVENTION national guidance and advice for susceptible subgroups

- Elderly
- Subjects with chronic disease
- Children
- Pregnant women
- Workers
## Health Prevention measures

### Ondate di calore

### Mappa servizi sul territorio

Regions, Comuni, Aziende sanitarie, in collaborazione con le organizzazioni del volontariato sociale, attivano servizi utili ai cittadini per prevenire gli effetti delle ondate di calore sulla salute.

Per saperne di più vai alla pagina [Piani locali](#).

### Condividi

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### Tag associati a questa pagina

- Avanzi
- Assistenza territoriale
- Caldo
- Prevenzione

### Table: Preventive measures

<table>
<thead>
<tr>
<th>Preventive measure</th>
<th>Coverage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written prevention plan</td>
<td>+++</td>
<td>Guidelines including prevention activities and health/social services available</td>
</tr>
<tr>
<td>Educational campaign</td>
<td>+++</td>
<td>Informative fliers in health centres and GPs. Specific advices during heat waves.</td>
</tr>
<tr>
<td>Educational programmes</td>
<td>++</td>
<td>Training, seminars/workshops, diffusion of guidelines among health/social workers</td>
</tr>
<tr>
<td>Emergency protocols</td>
<td>+</td>
<td>Measures to improve operative efficiency in hospitals, nursing homes, social centers</td>
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<tr>
<td>Availability of air-conditioning</td>
<td>++</td>
<td>Air-conditioning in health/social centres and increase access during heat waves</td>
</tr>
<tr>
<td>Register of susceptible subjects</td>
<td>++</td>
<td>Identification using health information system or notification by GPs/social workers</td>
</tr>
<tr>
<td>Health surveillance</td>
<td>++</td>
<td>Phone calls and home visits by GPs. Help-line and network of health/social services</td>
</tr>
<tr>
<td>Telephone help-line</td>
<td>+++</td>
<td>Dedicated help-line providing social support services or regular telephone contact</td>
</tr>
<tr>
<td>Social support services</td>
<td>+++</td>
<td>Home visits, personal, home care, pharmacy services by social workers or volunteers</td>
</tr>
</tbody>
</table>

* +: <50%; ++: 50-70%; +++: >70%
LAZIO regional health Authorities

Heatwave Exercise in Rome

LIST of PATIENTS with vulnerability SCORE

ACTIVE SURVEILLANCE

Warning system
Direct surveillance by health services via tele services (phone call and APP)

Questionnaire and health check up

Triage clinical parameters (MEWS) and monitoring of severity of health conditions

Self reporting

Alerts real time

Database

users

citizens

GPs

Health districts

Local health authority

Emergency health services
Rapid mortality surveillance system (SISMG)

50 cities included: regional capitals and cities with > 150,000 inhabitants
Ondate di calore

Sistema di sorveglianza mortalità giornaliera

Attività di monitoraggio della mortalità giornaliera – Popolazione 65+ anni – Anno 2022

24 marzo 2022 - Andamento della mortalità giornaliera (SISMG) nelle città italiane in relazione all’epidemia di Covid-19 - 1 gennaio 2021 - 15 marzo 2022
Area: Covid-19

11 marzo 2022 - Andamento della mortalità giornaliera (SISMG) nelle città italiane in relazione all’epidemia di Covid-19 - 1 gennaio 2021 - 1 marzo 2022
Area: Covid-19

4 marzo 2022 - Andamento della mortalità giornaliera (SISMG) nelle città italiane in relazione all’epidemia di Covid-19 - 1 gennaio 2021 - 3 marzo 2022
Area: Covid-19
In Italy a positive temperature anomaly of +1.6°C was registered during summer.
Number of warning issued each year during summer between 2010-2021

- nord
- centro
- sud
Evaluation: heat wave impacts summer 2021

3 heat wave episodes
Heat effects. Daily mortality and temperature trends during summer 2021
Evaluation: weakly mortality during summer in cities in the north and centre-south of Italy during summer 2021.
Evaluation: Temperature-mortality association in cities on the north and centre south of Italy.
The Impact of the February 2012 Cold Spell on Health in Italy Using Surveillance Data

Francesca K. de’Donato, Michela Leone, Damia Noca, Marina Davoli, Paola Michelozzi

Rapid Communications
Excess all-cause and influenza-attributable mortality in Europe, December 2016 to February 2017

Original Research
Temporal variation in the effect of heat and the role of the Italian heat prevention plan

F. de’Donato, M. Scottichini, M. De Sario, A. de Martino, P. Michelozzi

Changes in the effects of heat on mortality among the elderly from 1998–2010: results from a multicenter time series study in Italy

Patrizia Schifano, Michela Leone, Manuela De Sario, Francesca de’Donato, Anna Maia Bargagli, Daniela Distefano, Claudia Marino and Paola Michelozzi
Thank you

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