

Heatwaves and health: a summer marked by multiple weather phenomena and a significant health impact

The summer 2022 monitoring period was marked by three intense episodes of heatwave, which affected 78% of the population in metropolitan France. This placed summer 2022 as the second hottest summer since 1900¹ and resulted in a significant health impact. During the three periods of heatwave, estimated national excess mortality from all causes combined was 2,816 deaths, equating to a relative excess mortality of +16.7%. These episodes occurred in a unique context, both in terms of the health situation, with the resurgence of COVID-19, as well as the climate situation. This review emphasises the importance of anticipating the impacts of hot weather in advance of heatwaves and in this respect supports a need to strengthen the strategy for mitigating and adapting to climate change across the whole country. Regional bulletins are also available.

Use of emergency care due to hot weather throughout the summer

Between 1 June and 15 September 2022, over **20,000 instances of health care use (emergency department visits, consultations with SOS Médecins)** were registered for the heatwave indicator 'iCanicule', covering hyperthermia, dehydration and hyponatremia.

More than 17,000 of these instances were visits to emergency departments, including 10,000 hospitalisations. Half (51%) of these visits to emergency departments and **29% of consultations within the SOS Médecins network of physicians** concerned people aged 75 and over.

This equates to double the number of emergency department visits and triple the number of SOS Médecins consultations observed during non-heatwave periods.

It is not possible to predict the impact of heat on mortality based on these uses of emergency care.

2,816 excess deaths during heatwave periods

The impact of heatwaves on mortality is estimated by comparing the number of deaths observed during the episodes to the number of deaths that would have occurred in the absence of a heatwave. The estimates calculated reflect the excess deaths that were recorded during heatwaves in the affected regions, but these cannot be solely attributed to heat.

In 2022, during the three periods of heatwave² and in the affected regions, **there were an estimated 2,816 excess deaths, or a relative excess mortality of +16.7%.**

Four regions cumulatively account for almost two-thirds of the national excess: Auvergne-Rhône-Alpes (+473 deaths), Nouvelle Aquitaine (+436 deaths), Occitania (+509 deaths) and Provence-Alpes-Côte d'Azur (+316 deaths). These were the regions most affected by heatwaves, which hit with great intensity in the south-west and at repeated, extended intervals in the south-east.

The highest excess mortality was observed during the second heatwave (+22.7%) in July. **People aged 75 and over were the most affected with 2,272 excess deaths, equating to 1 death in 6 being excess in this age group.**

The relative excess mortality was higher in the regions that were issued red warnings for heatwaves by the French meteorological service (+19.9%) than in other regions.

¹ Météo France

² From 14 to 22 June, from 9 to 27 July, and from 29 July to 14 August, 2022

During the three heatwave periods³ and in the same regions, **894 deaths due to COVID-19 were recorded in hospitals and in residential care facilities**⁴. People aged 75 years and over accounted for three-quarters of these deaths. **The deaths due to COVID-19 cannot be subtracted from the figures for excess mortality during the heatwaves:** COVID-19 could have increased susceptibility to heat in some people, while exposure to heat may have worsened the condition of certain COVID-19 patients.

Across the whole summer 2022 monitoring period (from 1 June to 15 September) there were an estimated 10,420 excess deaths from all causes (+6.1%) in metropolitan France. Part of the summer excess mortality was probably caused by the population's exposure to temperatures that were high but did not reach the heatwave alert threshold. Santé Publique France is currently working on an estimate for the imputable proportion.

Also during the monitoring period, **seven notifications for potentially heat-related fatal accidents at work were reported by the Direction générale du travail [General Directorate for Work] to Santé publique France.** These concerned men aged between 39 and 54, with a median age of 44 years. The fatal accidents mainly occurred during occupational activities conducted outdoors, including three deaths in the construction sector.

Escalation of climate change

Summer 2022 followed the trend observed over the past few years, whereby the escalating exposure to heatwaves in summer translates into a rise in the associated impacts on health. Other weather phenomena occurred in summer 2022 alongside the heatwaves: intense and long-lasting drought across the whole territory and forest fires affecting some regions for the first time. These kinds of phenomena may increase with climate change.

Since 2015, extended heatwaves that are atypical in terms of intensity or time and place of occurrence result in excess mortality every time.

In the context of climate change, these findings emphasise the need to strengthen the strategy for mitigating and adapting to climate change, nationally and regionally.

Preventing the health effects of heatwaves

The national prevention scheme, which aims to encourage the population to take steps to protect their health during very hot weather, **included a pilot text-messaging campaign this year.**

The scheme is based around two strands. The 'non-heatwave' strand is activated prior to the start of the monitoring period, informing the local and regional community and authorities (regional health agencies, local administrative authorities, support networks for the elderly/home carers, childcare networks, disability networks, health workers' associations, etc.) that resources are available.

The 'heatwave' strand is only activated in the event of an episode of extreme heat and consists of announcements broadcast on the radio or social media, plus a TV spot and two radio spots (in English and French), broadcast only if channels are requisitioned.

For the first time, a large-scale text messaging campaign was tested during periods of yellow and orange warnings for heatwave. The campaign targeted populations susceptible to heat: adults aged 65 and over, pregnant women/parents of young children. In total, over the three heatwaves, more than 4 million texts were sent out.

In addition, the heatwave information helpline, which offers advice on protecting oneself and those around you, especially populations who are more susceptible to heat, was activated for 26 days in total this year between 16 June and 13 August.

The current prevention scheme is being assessed to establish the extent of its coverage and its effectiveness, and to look for areas where prevention can be improved as part of a climate change adaptation strategy.

"Heatwaves are no longer an unusual weather event. Over the past ten years, this has been demonstrated by the recurrence of heatwaves, their growing intensity and the higher peak temperatures. These phenomena have a major impact on health and underscore how important it is to focus on anticipating the impact of hot weather prior to periods of heatwave. These phenomena also make the case for a very proactive strategy to strengthen climate

³ From 14 to 22 June, from 9 to 27 July, and from 29 July to 14 August, 2022

⁴ SI-VIC [information system for victims of attacks and unusual health situations] and SI-ESMS [residential care information system]

change mitigation and adaptation measures across the whole country.”

Prof. Laëtitia Huiart, Scientific Director of Santé publique France

Press contacts

Santé publique France - presse@santepubliquefrance.fr

Stéphanie Champion: +33 (0)1 41 79 67 48 - Marie Delibéros: +33 (0)1 41 79 69 61

Charlène Charbuy: +33 (0)1 41 79 68 64 – Cynthia Bessarion: +33 (0)1 71 80 15 66

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