

## Heatwave poses challenge to Japanese medical system already stressed by virus

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In recent years, eastern Australia, like Japan, has experienced extremely high maximum temperatures that are consistent with patterns of global changes in climate. Fortunately, last summer's heatwaves in Australia occurred before the prevalence of COVID-19, and if Australia is able to maintain its suppression of the virus, it may be able to avoid the compounding effects of those conditions. This briefing demonstrates that even with the low prevalence of the virus in Japan, these compounding effects can be significant.

The number of people showing signs of heatstroke or heat exhaustion has sharply increased recently. Temperatures soared to 41.1 C in Hamamatsu in central Japan on Monday (Mainichi Shimbun, 2020a), tying with the country's highest-ever temperature, marked in Kumagaya near Tokyo in 2018.

### The 2018 Heatwave

During the 2018 heatwave, Mainichi Shimbun (2018) showed that the 94 people who died included 26 fatalities in Tokyo, where the heat reached 40.8 degrees in the suburban city of Ome. Saitama Prefecture also reported nine deaths, while in the western part of the country, Osaka Prefecture had six, Mie and Hyogo five each, and Hiroshima saw four. Aichi Prefecture in central Japan also announced four deaths. (According to Slate (2020), more than a thousand people died from heat-related illnesses over the course of those few weeks).

When broken down by the gender of the victims, there were 52 women and 42 men (Mainichi Shimbun, 2018). All of them were 40 years old or older. Those in their 80s constituted the largest group with 37 deaths, followed by 22 in their 70s, 15 in their 60s, 10 in their 90s, five in their 50s and four in their 40s.

Among the victims, 28 fell ill while they were outside, and many were farming in their fields. As many as 36 people were found ill or unconscious while they were inside, due in several cases to broken air conditioners or electric fans. In some cities such as Yamato, elderly residents who live alone are monitored day and night by an elaborate system of motion sensors and communication protocols between city officials, residents and their relatives.

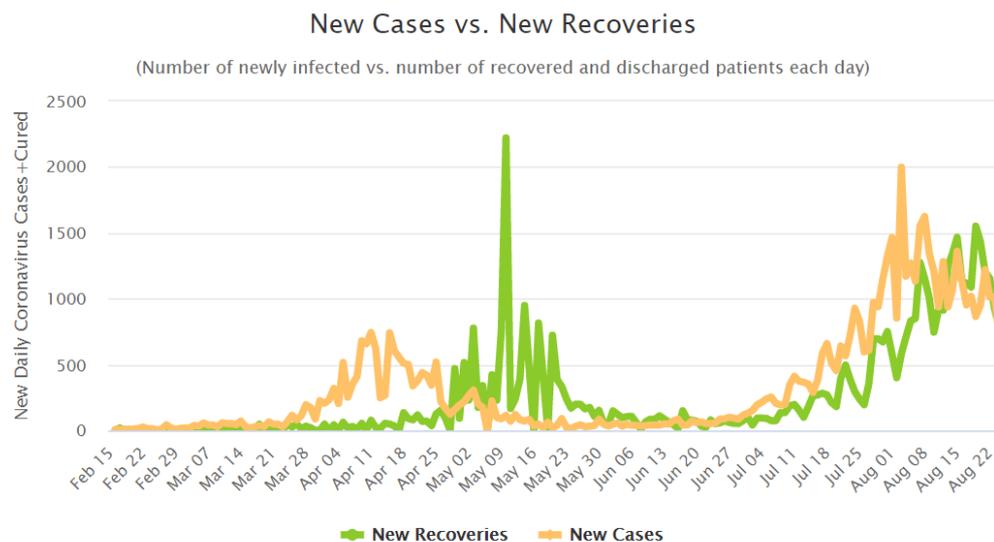
Older people tend to have difficulty recognizing when they are dehydrated. They face the risk of their conditions deteriorating before realizing it, even when they are not subject to searing heat. Lowering temperatures inside using air conditioning is important, but not all homes have air conditioners.

### 2020 Heatwave - Distinguishing heatwave symptoms from corona virus symptoms

On August 19, 2020, officials in Tokyo reported that 28 people died of heatstroke in the city during the eight-day period from August 12 to August 19, bringing the total number of

fatalities in Tokyo in August to 131 (NHK, 2020). The Medical Examiner's Office said that 11 of the 28 victims were in their 70s, ten were in their 80s, and about 80 percent of the victims were at least 70 years old. Eleven of the victims died at night and 27 died indoors, of whom 25 were not using air conditioners.

In the midst of this year's heatwave, it is reported that medical workers worry that the similarity of heat stress symptoms to COVID-19 may place extra pressure on a health care system already creaking under the strain of the coronavirus pandemic (Mainichi Shimbun, 2020a). There are times when medical personnel cannot immediately distinguish those suffering from heat-related illness from those with COVID-19 when the patient is feeling unwell with high fever because that is a symptom they have in common. Japan has a relatively small number of COVID-19 cases (Figure 1), with only 1,169 deaths so far. The Japanese Health Ministry reported no evidence of excess deaths during April and May (the latest months for which data are available), and it is likely that undetected COVID-19 cases are contributing significantly to the numbers of heatwave deaths that are being reported.



**Figure 1.** COVID-19 cases in Japan. Cases: 62,507; Deaths: 1,181; Recovered: 49,340. Source: Worldometers (2020), 25 August 2020.

The problem posed by the pandemic is that treatment has to take account of the possibilities of both COVID-19 and heat-related conditions when staff cannot rule out the possibility of coronavirus infection. Amid reported public fears that mask-wearing to prevent the spread of the novel coronavirus could itself cause heatstroke or heat exhaustion, 12,804 people were taken to hospital across Japan between Aug. 10 and Aug. 16 for heat-related conditions, up from 6,664 people the previous week, according to the Fire and Disaster Management Agency. There is a concern that this large number of patients being taken to the hospital may cause the hospital system to collapse if the heatwave continues.

Recent heatwave conditions in the United States have also seen authorities needing to adapt plans to account for the risks of COVID-19, with fears that people may be reluctant to leave

their homes to seek cooler shelter due to infection risks. Adaptions have included restricting the number of people accommodated within cooling centres to allow social distancing.

Some resources compiled by the Global Heat Health Information Network on COVID-19 and heatwaves are available here: [www.ghhin.org/heat-and-covid-19](http://www.ghhin.org/heat-and-covid-19).

### Public Information on Heat Stress

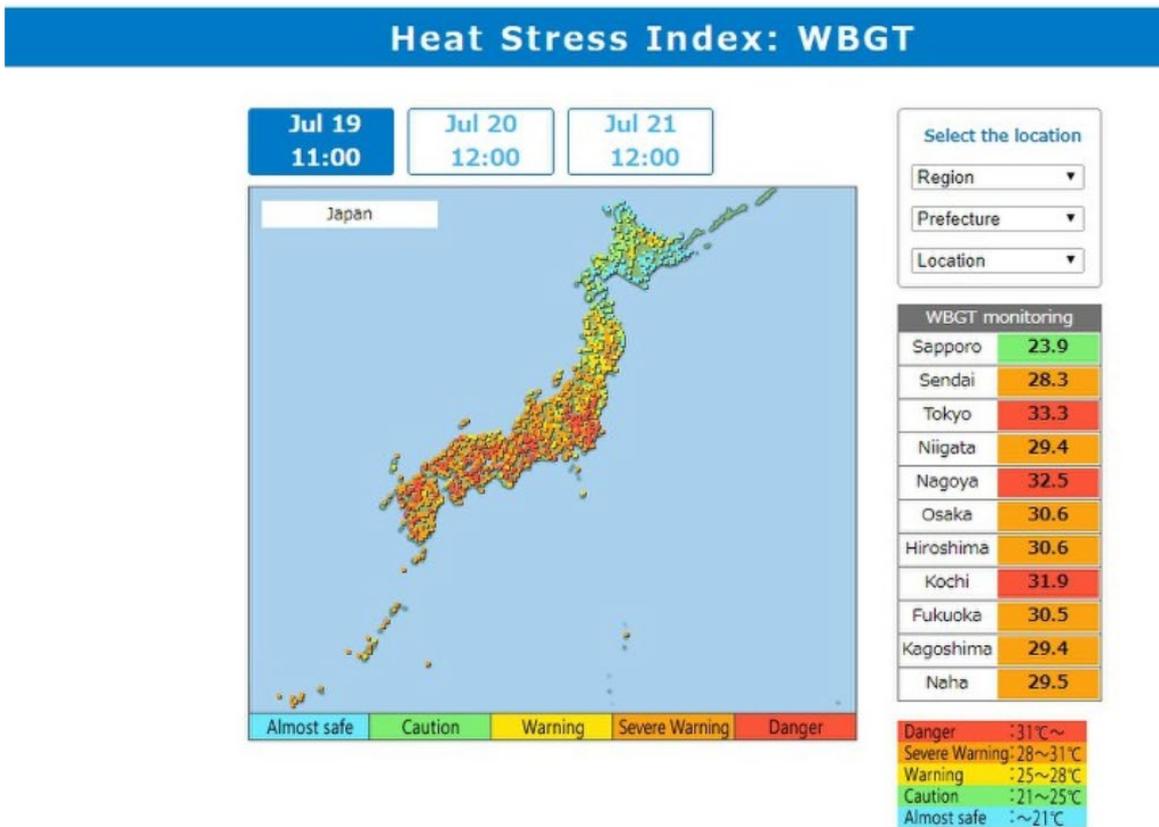
The Ministry of the Environment is providing English-language information about the heat stress index on its website in a bid to prevent illnesses caused by intense heat, which has become a major threat to health and even life in Japan in recent summers (Mainichi Shimbun, 2020c).

The website, designed for viewing by both smartphones and personal computers, indicates the intensity of the heat effect throughout the country in five colors, from blue (almost safe) to red (danger). It also provides two-day predictions for the heat stress index, as well as data for each observation point nationwide.

The heat stress index, also called the Wet Bulb Globe Temperature (WBGT), is one of the empirical indices showing the heat stress an individual is exposed to. It is calculated incorporating factors such as humidity, sunlight and reflection intensities and atmospheric temperature.

According to the ministry website, the number of people suffering from heatstroke shoots up rapidly when the WBGT, which is denoted in degrees but is different from normal air temperature, exceeds the upper threshold of the "Warning" level (25-28 degrees), when the air temperature is between 28 and 31 degrees Celsius.

For the warning level indicated in yellow, people are advised to rest often. When the index is at the "Severe Warning" level of orange, people are advised to refrain from heavy exercise. At the "Danger" level shown in red, people should stop all exercise.



**Figure 2.** Screen capture showing the Ministry of Environment website providing heat stress index information. Mainichi Shimbun (2020d).

## References

Mainichi Shimbun:

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