Heat: the next big inequality issue

theguardian.com/cities/2018/aug/13/heat-next-big-inequality-issue-heatwaves-world

While the well-heeled residents of Montreal hunkered down in blissfully air conditioned offices and houses, the city's homeless population – not usually welcome in public areas such as shopping malls and restaurants – struggled to escape the blanket of heat.

Benedict Labre House, a day centre for homeless people, wasn't able to secure a donated air-conditioning unit until five days into the heatwave. "You can imagine when you have 40 or 50 people in an enclosed space and it's so hot, it's very hard to deal with," says Francine Nadler, clinical coordinator at the facility.

Fifty-four Montreal residents were killed by this summer's heat. Authorities haven't so far specified whether any homeless people were among them, but according to the regional department of public health, the majority were aged over 50, lived alone, and had underlying physical or mental health problems. None had air conditioning. Montreal coroner Jean Brochu told reporters that many of the bodies examined by his team "were in an advanced state of decay, having sometimes spent up to two days in the heat before being found".

It was the poor and isolated who quietly suffered the most in the heat – a situation echoed in overheated cities across the world. In the US, immigrant workers are three times more likely to die from heat exposure than American citizens. In India, where 24 cities are expected to reach average summertime highs of at least 35C (95F) by 2050, it is the slum dwellers who are most vulnerable. And as the global risk of prolonged exposure to deadly heat steadily rises, so do the associated risks of human catastrophe.

Last year, Hawaiian researchers projected that the share of the world's population exposed to deadly heat for at least 20 days a year will increase from 30% now to 74% by 2100 if greenhouse gas emissions are allowed to grow. (It will rise to 48% with "drastic reductions".) They concluded that "an increasing threat to human life from excess heat now seems almost inevitable".

"Dying in a heatwave is like being slowly cooked," said lead author Professor Camilo Mora at the time of publication. "It's pure torture. The young and elderly are at particular risk, but we found that this heat can kill soldiers, athletes, everyone."

The year 2018 is set to be among the hottest since records began, with unprecedented peak temperatures engulfing the planet, from 43C (109F) in Baku, Azerbaijan, to the low 30s across Scandinavia. In Kyoto, Japan, the mercury did not dip below 38C (100F) for a week. In the US, an unusually early and humid July heatwave saw 48.8C (120F) in Chino, inland of Los Angeles. Residents blasted their air conditioners so much they caused power shortages.

Urban areas are reaching these killer temperatures faster than those that are less populated. Cities absorb, create and radiate heat. Asphalt, brick, concrete and dark roofs act like sponges for heat during the day and emit warmth at night. Air conditioning is a lifesaver for those who can afford it, but it makes the streets even hotter for those who can't.

"Urban heat islands, combined with an ageing population and increased urbanisation, are projected to increase the vulnerability of urban populations, especially the poor, to heat-related health impacts in the future," a US government assessment warned.

The World Health Organisation says that 60% of people will live in cities by 2030, and the more densely populated they become, the hotter they'll get. Considering that recent predictions warn temperatures in South Asia will exceed the limits of human survival by the end of the century, every degree counts. Even this year, 65 people have perished from nearly 44C (111F) heat in Karachi, Pakistan – a city used to extreme heat.

But the impact is not evenly distributed. For example, there is a strong correlation between an area's green spaces and its wealth; when shade from tree canopies can lower surfaces' peak temperature by 11–25°C, "landscape is a predictor for morbidity in heatwaves", says Tarik Benmarhnia, public health researcher at University of California San Diego. A review paper he recently co-authored found that people living in less vegetated areas had a 5% higher risk of death from heat-related causes.

In 2017, researchers at University of California, Berkeley were able to map racial divides in the US by proximity to trees. Black people were 52% more likely than white people to live in areas of unnatural "heat risk-related land cover", while Asians were 32% more likely and Hispanics 21%.

Air pollution is more deadly in these areas, too, as nitrous oxides generate ozone when heated by the sun, inflaming airways and increasing mortality risk. "These problems are worse," says Benmarhnia, "for vulnerable or low-income populations living near traffic in poor housing with no air conditioning."

But air conditioning will remain out of reach for many, even as it increasingly becomes a necessity. In 2014, Public Health England raised concerns that "the distribution of cooling systems may reflect socioeconomic inequalities unless they are heavily subsidised," adding that rising fuel costs could further exacerbate this. And when we need to use less energy and cool the planet, not just our homes and offices, relying upon air conditioning is not a viable long-term plan – and certainly not for everyone.