UNSAFE AS HOUSES: COLD-HOUSING DEATHS IN THE ACT

better renting

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Better Renting, August 2019

This report estimates the annual number of cold-related deaths in the ACT caused by low-quality housing. By comparing temperature data with statistics on monthly deaths for the period 2009-17, we estimate annual cold-related mortality at 140 deaths, based on current population. Conservatively, we attribute 30% of these deaths to cold housing, indicating that 42 cold weather deaths are linked to cold housing in particular. The people most affected are low-income renters aged 65 and above.

Introduction

Despite its relatively hot climate, Australia has more deaths due to cold than much cooler countries like Sweden and Canada.[1] This is likely because temperate-climate countries tend to build less energy-efficient housing, with relatively poor insulation and heating.[2] Australia's housing is of a lower standard than in other comparable countries[3], and research shows a high rate of hypothermic fatalities occurring indoors.[4]

Inefficient housing means Australia's population is more exposed to the health risks of low indoor temperatures. These risks are worse for people who rent, who are more likely to be living in an inefficient dwelling.[5] However, the conventional perception of Australia as a hot country interferes with an understanding of the public health risks from cold homes.

In this report, we aim to improve understanding of this issue by attempting to quantify the annual death toll from cold housing in the Australian Capital Territory (ACT). Using data from the Australian Bureau of Statistics (ABS) and the Bureau of Meteorology (BOM) and using the approaches and findings of international researchers, we estimate the number of deaths that could be avoided by improving the quality of homes in the ACT. We then discuss which people are most at risk, and thus, most likely to benefit from a policy response.

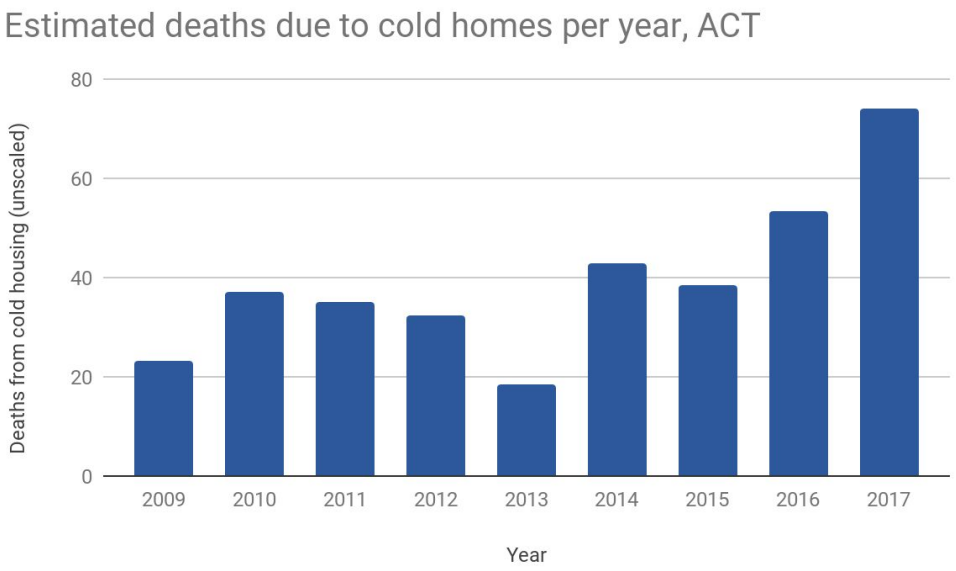
Method

Excess winter mortality (EWM) is conventionally measured by comparing average monthly deaths in winter months (June to September in the Southern hemisphere; December to March in the Northern Hemisphere) with average monthly deaths in the preceding and following four months.[6]

However, this measure has been criticised as temperatures outside the winter period may still be low enough to cause cold-related mortality.[7] Taking this into account, we used BOM data from two ACT weather stations to calculate the average temperature for each month from January 2009 to December 2017.* We thus identified all cold months: in addition to June to September in every year studied, this also included May, which was often colder than September. September 2013 was excluded as its average temperature was greater than twelve degrees celsius. By comparing death rates in these months with death rates in warmer months, we can estimate the cold-related mortality in the ACT. Death totals from years 2009-2016 have been scaled upwards to reflect population growth in subsequent years. An example calculation is included in the Appendix.

In order to estimate the number of deaths attributable to cold housing in particular, we draw upon Rudge (2011) which conservatively estimates that 30% of total excess winter deaths are related to cold housing. We then compare this finding with the international study by Gasparini et al (2015), which included three Australian cities.

*Data obtained from http://www.bom.gov.au/climate/data/index.shtml. Stations used were 070351 Canberra Airport and 070339 Tuggeranong.



Results

In addition to a high rate of deaths per cold month, the ACT has a particularly long cold period, stretching in most cases from May to September. On average, each of these cold months results in 28 excess cold-related deaths. Based on the ACT's current population, each year sees an average of 140 deaths due to cold.

Research from Europe, the UK, and Ireland suggests that 30-50% of EWM is related to housing.[8] This implies a range of 42-70 annual deaths attributable specifically to the quality of homes in the ACT. We use the lower end of this range as a conservative estimate that indicates the minimum number of deaths due to cold; the actual number could be as high as 70. We thus estimate that cold housing contributes to at least 42 deaths from each year in the ACT. Generally, these people would be dying from cardiovascular or respiratory disease.[9]

For comparison, Gasparini et al (2015) calculates that 6.5% of deaths in Australia can be attributed to cold, based upon analysis of Brisbane, Melbourne, and Sydney. If we consider the 1957 deaths that occurred in the ACT in 2017[10] and use the 30% figure, this gives an estimate of 38 deaths likely due to cold housing. Our conservative estimate, 42 deaths, is consistent with this.

Discussion

Who are these people dying preventable deaths from cold housing? There are three factors that make a person more vulnerable to the health effects of cold:

1. The person is 65 or older;
2. The person has an increased need to heat their home, ie, the home is less energy-efficient; and
3. The person has a reduced capability to heat their home, ie, lower income combined with higher utility costs.

Older people are more vulnerable to indoor cold due to a combination of greater time spent indoors, reduced mobility, and decreased physical resilience.[11] In England and Wales, people aged 65 and over account for about 93% of excess winter deaths.[12] While the same data are not available in Australia, it is likely that the vast majority of deaths from cold are happening to older Australians. However, these deaths are still preventable: these people would have lived longer if not for cold housing.

An inefficient home requires more heating in order to maintain a healthy temperature. Our previous research has found that people who rent are more likely to be living in an inefficient home: comparing advertised energy efficiency ratings for properties for lease and for sale in the ACT, two in five rental properties have a rating of zero, compared to only one in twenty properties for sale.[13] A renter is thus much more likely than a homeowner to be in an inefficient dwelling that offers less protection against outdoor cold.

Finally, low-income households are more likely to abstain from heating in winter in order to reduce energy costs.[14] All else being equal, this will result in lower indoor temperatures and greater risk of death from cold. In addition, being on a low-income makes it more likely that someone will be renting.[15]

Overall, the people most at risk of dying from cold housing are: aged 65 and over, renting, and on a low-income. As our population ages, energy costs increase, and renting continues to become more popular, the risk of death from cold housing will continue to worsen.

Conclusion

In this paper we sought to estimate the number of annual deaths in the ACT occurring because of cold housing. By identifying cold months and comparing the average monthly deaths with other months, we estimate that around 140 people die each year in the ACT from cold weather. The literature suggests that between 42 and 70 of these deaths are attributable to cold housing in particular. Our conservative estimate is the lower end of this range, 42 deaths.

These deaths are not evenly distributed across the population. People aged 65, on a low-income, and renting, are most likely to be dying from cold housing. This is due to a combination of physiological vulnerability, limited capacity to afford heating, and lower-quality housing that requires more heating. Any intervention to improve the energy efficiency of rental properties will be particularly beneficial for this cohort. It would also assist in lowering the ACT's egregious death toll from low-quality cold housing.

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Appendix: Example calculation

In 2009, May through September had cold outdoor temperatures (an average of less than twelve degrees celsius). On average, 145.6 deaths occurred in each of these five months. For the preceding five months, and the following five months, the average number of deaths is 130.2. Thus, on average, 15.4 additional deaths occurred in each cold month. Over five months, the total number of excess cold-weather deaths is 77.

In 2009, the ACT population was 350,000. As the 2017 population was 409,000, the 2009 figure has been scaled upwards using a scaling factor equivalent to the 2017 population divided by the 2009 population. In this example, this factor equalled 1.169. This results in a scaled deaths figure of 90.03. At least 30% of this figure, or 30 deaths, is attributable to cold housing.

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The views expressed in this document do not necessarily reflect the views of Energy Consumers Australia nor the ACT Government.