

# Every degree fall in winter air temperature equals one percent drop in ambulance response time

February 27 2013

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Every one degree fall in outside air temperature during the winter corresponds to a drop in ambulance response time of more than 1 per cent, reveals research published online in *Emergency Medicine Journal*.

Increased demand and treacherous [road conditions](#) during the winter months combine to stretch ambulance services in England, which have a target of reaching 75% of immediately life-threatening (category A) calls within eight minutes, say the authors.

Studies on the impact of [extreme weather conditions](#) on health have tended to focus on associated illness and death, but there has been relatively little research on the impact of weather on NHS infrastructure in the UK, say the authors.

They therefore looked at how the weather affected daily ambulance call-out and [response times](#) in Birmingham, a major conurbation in the Midlands, over a five year period between 2007 and 2011.

This added up to 1705 days and 794,137 emergency calls, of which 282,978 were category A. And it included several [weather extremes](#): the floods of July 2007 and the very cold Decembers of 2009 and 2010.

Their analysis revealed a gradual rise in daily ambulance call-outs from an average of 400 in 2007 to just over 500 in 2011: an increase of 23%.

Both call-out and response times were significantly affected by extremes of weather. Winter was marginally worse for all 36 types of [medical condition](#) included in the analysis.

In December 2010, which was the coldest December on record for more than a century, with an [average temperature](#) of  $-1^{\circ}\text{C}$ , the average daily number of call-outs was 20% higher than in November 2010.

The target ambulance response time fell below 50% three days in a row. Rather than eight minutes, the average time taken to arrive was 15 minutes.

Every 1 degree fall in [air temperature](#) corresponded to a 1.3% drop in performance, as call-out volume increased and adverse weather conditions worsened road travel.

"Cold waves" are likely to have as great an impact on ambulance call-out and response times as heat waves, say the authors, who warn that climate change will prompt further temperature extremes.

"The impact of climate change will primarily be seen through more incidents of extreme cold and hot weather, and therefore it will be useful to examine adaption measures such as the use of winter tyres and more flexibility in the number of ambulances available for operation during extreme weather episodes," they write.

"Furthermore, with colder winters and hotter summers, the challenges associated with achieving summer/winter response times, particularly due to increases in call volume, are likely to increase," they warn.

**More information:** Ambulance call-outs and response times in Birmingham and the impact of extreme weather and climate change, Online First, [doi 10.1136/emmermed-2012-201817](https://doi.org/10.1136/emmermed-2012-201817)

Provided by British Medical Journal

Citation: Every degree fall in winter air temperature equals one percent drop in ambulance response time (2013, February 27) retrieved 4 May 2024 from

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