

## SHORT REPORT

## Effect of weather on attendance with injury at a paediatric emergency department

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**Objectives:** To ascertain whether the weather affects the attendance rate of children with injuries at a paediatric accident and emergency department.

**Methods:** The maximum daily temperature and weather conditions (rain/cloud/sun) were noted over a three month period in spring/summer 2002, together with the number of children attending with new injuries or trauma.

**Results:** There was a direct association between trauma attendance and clement weather with higher attendances on dry and sunny days. There was a less obvious association between maximum daily temperature and attendance.

**Conclusions:** These findings confirm the anecdotal belief that warm sunny weather results in a higher attendance of paediatric injuries.

It is a commonly held belief that emergency department attendance is affected by the weather. Previous papers have shown a definite correlation between bad weather and accident and emergency (A&E) attendance. Both severe gales<sup>1</sup> and blizzards<sup>2</sup> have resulted in a recorded increase in attendance as a result of injury, although Attia<sup>3</sup> showed that unfavourable weather did not affect the numbers or the nature of visits to a paediatric A&E department.

Anecdotally, our department is busier on a warm sunny day and this study aimed to confirm our suspicions that such conditions resulted in a higher attendance of children with injuries.

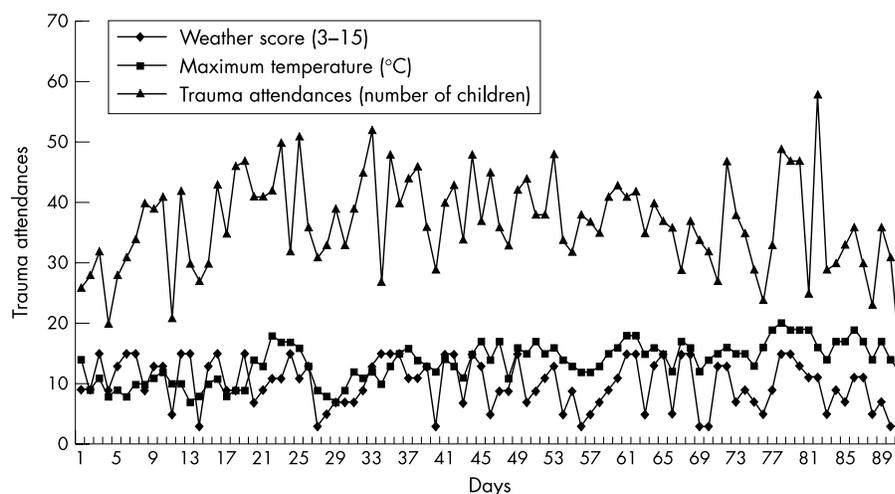
## METHODS

The Royal Aberdeen Children's Hospital has the only paediatric A&E department in the north east of Scotland, serving a

population of over half a million. The department sees over 20 000 new cases under the age of 14 years annually and is busiest in May and June, which, historically, are the sunniest and warmest months of the year in north east Scotland (in contrast with the rest of the UK). However, there is still significant rainfall here compared with areas in the south of the UK. The recorded maximum daily temperature (as published in the local paper) was noted daily throughout April, May, and June 2002. The weather was noted by the author each mid-morning, mid-afternoon, and early evening and recorded as sun, cloud, or rain. Mean temperature and daily hours of sunshine were not noted in the local paper and as the Met Office required a fee of £50 for such information, these parameters were not used. A scoring system was devised and applied by the author to enable representation of the weather conditions in a chart format: rain=1, cloud=3, sun=5. Thus a total daily score could be made to represent the average daily conditions—3 being the minimum (rain all day) and 15 being the maximum (sunny all day). Information was collected prospectively over these three months and the attendance records of all children presenting during these months were scrutinised daily and all those attending due to a new injury were noted. The injuries were typically head and limb injuries, lacerations, and soft tissue injuries. Attendances for conditions other than trauma, for example, medical conditions and burns (usually occurring indoors) were excluded. The results were plotted as a chart for the three months.

## RESULTS

A chart was produced for the three months (fig 1) This shows a direct correlation between trauma attendances and "weather scores" showing that there is an increase in attendance attributable to trauma on the days with a higher weather score—that is, the days with drier sunnier weather. There is



**Figure 1** Correlation between weather and paediatric A&E attendances.

also some correlation between attendance and daily temperature, which would be expected as the temperature is generally higher on sunny days. The findings were consistent for all three months. The attendances were not significantly higher at weekends or during holidays.

Unfortunately we were unable to compare these results with the equivalent months in previous years as temperature/weather has not been noted by the author before this study.

## DISCUSSION

On average the overall attendance numbers at our A&E department in the summer months (April–September) are 30% higher than in the winter months. There is a higher proportion of trauma: medical conditions in the summer, which is reversed in the winter months. Poor weather conditions have been shown to increase attendance with respiratory complaints such as asthma<sup>4</sup> and summer weather results in an increase in skin and allergic presentations.<sup>5</sup> Several papers in the past have shown no correlation between the number of admissions and “good” weather.<sup>6,7</sup> We have shown that in our area there is an obvious connection between trauma and weather. This may in part be attributable to the paucity of good weather in the north east of Scotland resulting in children taking full advantage of the few good days.

Diehl<sup>8</sup> has suggested that there could be financial savings if staffing levels could be tailored to patient flow and our findings may have implications for staffing levels in emergency departments. We have demonstrated that wishing for

rain to ensure a quiet shift is based on fact. Staffing in relation to weather forecast may be a possibility in the future, but only if forecasting were to become more reliable.

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