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KEY POINTS

- Meteorological affects on trauma admissions vary widely based on locale
- Cold weather decreases overall trauma admissions
- Day-of-the-week effects on trauma admissions depend on population

Tis the season to be jolly, and if your house is like mine, it's decked with boughs of holly. There are stockings on the mantle and I still wonder what sugar plums are. Stores have been playing Christmas music since Halloween, traffic is backed up from the interstate to the mall, and every day of the week is named after some other kind of sale. Does the season of good will and gay ole feelings mellow out all that intentional trauma? Or does all the late-night parties, extra helpings of nog, and holiday stress push revelers over the edge? What if this year we are having a white Christmas? Do ladders and Christmas lights mix well?

This question is not unique. Trauma centers have to figure how to staff when everyone wants to be at home, which brings a whole new slew of questions. Is the number of complaints from employees who want to spend time with their family and the additional holiday pay justified by the public demand?

The University of Louisville's Trauma Data Registry was mined from 1996 to 2002.¹ They had, on average, 4 trauma admissions per day. They found that traumas peaked at 5 PM during the day, Saturdays during the week, and in the summer months during the year. There was an increase in trauma admissions for an increase in temperature and an increase in precipitation.

Leicester Royal Infirmary, who has 3000 trauma admissions a year, looked at trauma activations in 1998.² They had on average, about 8 trauma admissions a day. They also found that traumas increased in the summer, however, it was mainly due to pediatric trauma. Adult trauma stayed roughly the same throughout the year. Rain lead to higher amounts of trauma, adult trauma appeared to be attracted to the Monday (apparently it's when the elderly do their shopping), and pediatric trauma was higher when it was warmer. No relationship to holidays was identified.

The Level 1 Trauma Centers in the Minneapolis-St. Paul metropolitan area between 2003 and 2007 had on average a little more than 11 trauma admissions per day.³ Daily average of trauma admissions peaks on Saturday, and seasonally during the summer (every 10 degrees



Fahrenheit change in temperature is associated with a 0.6 change in patients admitted). No changes were noticed around holidays.

Many factors besides timing, temperature, and holidays have been studied. Other investigators have noticed positive, negative, and no correlation with rainfall.^{1,3} Along with changes in temperature, duration of sunlight is associated with changes in trauma admissions.^{1,3} There has also been mixed reporting regarding snow fall,^{1,3} but some studies have shown an increase in hip fractures during the winter months.²

In summary, it does not look like any investigator has found a strong link between holidays and trauma, although trauma rates seem to vary widely depending on local cultural customs. While overall trauma admissions may be down during the winter months, sadly there has been reports of abusive head trauma increasing.⁴ Rainfall, temperature, and daylight also probably contribute. So if you are expecting a cold, snowy, White Christmas this year, you should have plenty of time to roast those chestnuts. However, if Christmas happens to fall on a rainy Saturday (or Monday if you live in a place like Leicester), and you live south of the equator, staff accordingly....

References

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