
NTDB® data points

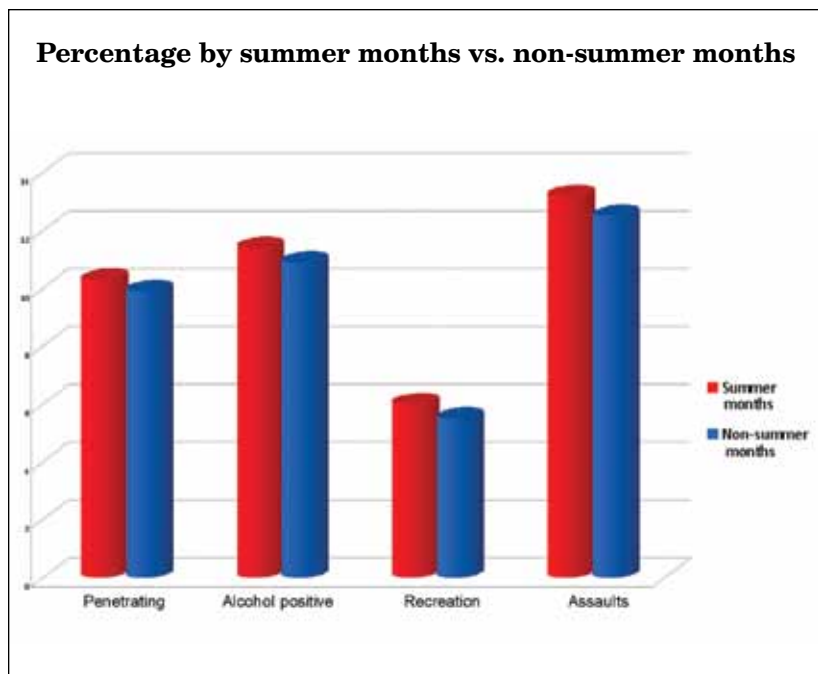
Falling down

by Richard J. Fantus, MD, FACS

Over the millennia, Earth's climate has changed many times, with periods ranging from the ice age all the way to long periods of heat. In the past, these climate changes occurred only from natural factors—including volcanic eruptions, alterations in the amount of energy released by the sun, and changes in the Earth's orbit. It was not until the Industrial Revolution began in the late 18th century that human activities very likely started to affect the composition of the atmosphere and the Earth's climate.

More than 200 years of deforestation and the burning of fossil fuels such as coal and oil have led to the increase of heat-trapping greenhouse gasses. Acting somewhat like the panels of a greenhouse, these gases prevent heat from escaping into space (for more information on climate change, visit <http://www.epa.gov/climatechange>). Global warming is a well-known phenomenon that has achieved worldwide focus and attention.

Many initiatives to combat global warming are under way or in the planning process at the local, state, national, and international levels. A hot news item was reported earlier this year pointing out that along with the well-known rise in the average global tem-



perature over the past 50 years comes a new finding that the hottest day of the year has shifted nearly two days earlier (Thomson DJ. Climate change: Shifts in season. *Nature*. 2009; 457:391-392).

Global warming may ultimately have an impact on trauma. Average temperatures tend to increase from winter to summer. This seasonal variation is more pronounced the farther one gets away from

the equator or large bodies of water. As seasons change and the temperatures go up during the summer, there is an accompanying increase in the trauma volume seen at trauma centers. This seasonal trend held true for all four census regions and was reported in a September 2006 *Bulletin* article, "Trauma season" (2006; 91(9):58-59).

Increased trauma in the summer months is most likely due

to a variety of factors that may include the temperature.

Many individuals can personally relate to the deterioration of their coping skills in challenging situations on the hottest day of the year, when the heat and humidity are rolling down one's forehead, as dramatized in the 1993 movie *Falling Down*, starring Michael Douglas. Along with the warmer weather of summer, there are more recreational activities and family vacations with their related risks.

In order to examine the occurrence of summer-related trauma in the National Trauma Data Bank Research dataset 2007 admissions (formerly called research dataset 8.0), records were searched for admission dates occurring in the months of June, July, and August (representing the three-month peak seasonal increase demonstrated in the 2006 *Bulletin* analysis).

Of the 507,262 incidents, there were 140,888 occurring during the three summer months. Of these, 125,866

records had discharge status recorded, including 96,174 discharged to home, and 15,682 to acute care/rehabilitation; 8,511 were sent to nursing homes, and 5,499 died. These patients were 65.2 percent male and on average 38.4 years of age; they had an average length of stay of 5.6 days, and an average injury severity score of 9.2.

When comparing the summer group with the remaining nine-month group (non-summer months), there were statistically significant increases in penetrating trauma, alcohol confirmed by test positive, location of injury as recreation, and assaults (these data are displayed in the graph on page 67).

Summer should be a time to kick back and enjoy the outdoors. Spend time with family and friends. Take a vacation, enjoy time on fossil fuel-propelled boats, all-terrain vehicles, planes, and trains. However, while one is relaxing and trying to beat the heat, take time to reflect on

the environment, on the generation of greenhouse gasses, and on global warming and its impact on "falling down."

The full NTDB *Annual Report Version 8.0* is available on the ACS Web site as a PDF and a PowerPoint presentation at <http://www.ntdb.org>.

If you are interested in submitting your trauma center's data, contact Melanie L. Neal, Manager, NTDB, at mneal@facs.org.

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