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## ***Brain study links negative emotions and lowered immunity***

- 14:38 02 September 2003
- NewScientist.com news service
- Shaoni Bhattacharya

Brain activity linking negative emotions to a lower immune response against disease has been revealed for the first time, claim researchers.

Many previous studies have shown that emotions and stress can adversely affect the immune system. But this effect had not been directly correlated with activity in the brain, says study leader Richard Davidson, at the University of Wisconsin, Madison, in the US.

The part of the brain the team studied, the prefrontal cortex (PFC), is associated with depression. People who had the greatest activity in the right PFC when asked to dwell on distressing episodes in their life had a markedly lower antibody levels after an influenza vaccination. In contrast, those showing exceptional activity in the left PFC when recalling happy times developed high antibody levels.

Davidson says emotions play an important role in regulating systems in the body that influence health. "This study establishes that people with a pattern of brain activity that has been associated with positive [emotions] are also the ones to show the best response to the flu vaccine."

"It begins to suggest a mechanism for why subjects with a more positive emotional disposition may be healthier," he says. Janice Kiecolt-Glaser, an expert on stress and immunity at Ohio State University, told the *New York Times* that the study represents "some of the best evidence we've seen to date."

## ***Intense sadness***

Davidson, with colleagues at Wisconsin and Princeton University, New Jersey, asked 52 men and women who graduated from Wisconsin in 1957 to recount both the best and worst events in their lives on paper.

For their best experiences, the subjects were asked to write about an event where they experienced "intense happiness or joy". And for their worst experience they were asked to remember an event causing "the most intense sadness, fear, or anger".

During this autobiographical task, the electrical activity of the brain was measured. The subjects were then given flu shots and their antibody levels were measured after two weeks, four weeks and six months. The researcher found a clear link between strong activity in the left PFC and a large rise in antibodies, and vice versa. (*Proceedings of the National Academy of Sciences*, DOI: 10.1073/pnas.1534743100).

However, the study could not explain exactly how having a positive attitude boosts the immune system. The researchers say some evidence exists to suggest a link between the PFC and the immune system via a complex hormonal system governed by the hypothalamic, pituitary and adrenal glands.

Another study by Italian and UK researchers, also published on Monday, reveals that depressed elderly people have fewer lymphocytes and T-cells - white blood cells crucial for fighting disease. This study is published in *Psychotherapy and Psychosomatics* (vol 72, p 253)

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## ***In Hospital Deaths from Medical Errors at 195,000 per Year USA***

Main Category: [Medical Malpractice / Litigation News](#)

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An average of 195,000 people in the USA died due to potentially preventable, in-hospital medical errors in each of the years 2000, 2001 and 2002, according to a new study of 37 million patient records that was released today by HealthGrades, the healthcare quality company.

The HealthGrades Patient Safety in American Hospitals study is the first to look at the mortality and economic impact of medical errors and injuries that occurred during Medicare hospital admissions nationwide from 2000 to 2002. The HealthGrades study applied the mortality and economic impact models developed by Dr. Chunliu Zhan and Dr. Marlene R. Miller in a research study published in the Journal of the American Medical Association (JAMA) in October of 2003. The Zhan and Miller study supported the Institute of Medicine's (IOM) 1999 report conclusion, which found that medical errors caused up to 98,000 deaths annually and should be considered a national epidemic.

The HealthGrades study finds nearly double the number of deaths from medical errors found by the 1999 IOM report "To Err is Human," with an associated cost of more than \$6 billion per year. Whereas the IOM study extrapolated national findings based on data from three states, and the Zhan and Miller study looked at 7.5 million patient records from 28 states over one year, HealthGrades looked at three years of Medicare data in all 50 states and D.C. This Medicare population represented approximately 45 percent of all hospital admissions (excluding obstetric patients) in the U.S. from 2000 to 2002.

"The HealthGrades study shows that the IOM report may have underestimated the number of deaths due to medical errors, and, moreover, that there is little evidence that patient safety has improved in the last five years," said Dr. Samantha Collier, HealthGrades' vice president of medical affairs. "The equivalent of 390 jumbo jets full of people are dying each year due to likely preventable, in-hospital medical errors, making this one of the leading killers in the U.S."

HealthGrades examined 16 of the 20 patient-safety indicators defined by the Agency for Healthcare Research and Quality (AHRQ) - from bedsores to post-operative sepsis - omitting four obstetrics-related incidents not represented in the Medicare data used in the study. Of these sixteen, the mortality associated with two, failure to rescue and death in low risk hospital admissions, accounted for the majority of deaths that were associated with these patient safety incidents. These two categories of patients were not evaluated in the IOM or JAMA analyses, accounting for the variation in the number of annual deaths attributable to medical errors. However, the magnitude of the problem is evident in all three studies.

"If we could focus our efforts on just four key areas - failure to rescue, bed sores, postoperative sepsis, and postoperative pulmonary embolism - and reduce these incidents by just 20 percent, we could save 39,000 people from dying every year," said Dr. Collier.

The HealthGrades study was released in conjunction with the company's first annual Distinguished Hospital Award for Patient Safety™, which honors hospitals with the best records of patient safety. Eighty-eight hospitals in 23 states were given the award for having the nation's lowest patient-safety incidence rates. A list of winners can be found at <http://www.healthgrades.com>.

Study Highlights Among the findings in the HealthGrades Patient Safety in American Hospitals study are as follows:

-- About 1.14 million patient-safety incidents occurred among the 37 million hospitalizations in the Medicare population over the years 2000-2002.

-- Of the total 323,993 deaths among Medicare patients in those years who developed one or more patient-safety incidents, 263,864, or 81 percent, of these deaths were directly attributable to the incident(s).

-- One in every four Medicare patients who were hospitalized from 2000 to 2002 and experienced a patient-safety incident died.

-- The 16 patient-safety incidents accounted for \$8.54 billion in excess in-patient costs to the Medicare system over the three years studied. Extrapolated to the entire U.S., an extra \$19 billion was spent and more than 575,000 preventable deaths occurred from 2000 to 2002.

-- Patient-safety incidents with the highest rates per 1,000 hospitalizations were failure to rescue, decubitus ulcer and postoperative sepsis, which accounted for almost 60 percent of all patient-safety incidents that occurred.

-- Overall, the best performing hospitals (hospitals that had the lowest overall patient safety incident rates of all hospitals studied, defined as the top 7.5 percent of all hospitals studied) had five fewer deaths per 1000 hospitalizations compared to the bottom 10th percentile of hospitals. This significant mortality difference is attributable to fewer patient-safety incidents at the best performing hospitals.

-- Fewer patient safety incidents in the best performing hospitals resulted in a lower cost of \$740,337 per 1,000 hospitalizations as compared to the bottom 10th percentile of hospitals.

[The complete study](http://www.healthgrades.com), including the list of AHRQ patient-safety indicators, can be found at <http://www.healthgrades.com>.

"If the Center for Disease Control's annual list of leading causes of death included medical errors, it would show up as number six, ahead of diabetes, pneumonia, Alzheimer's disease and renal disease," continued Dr. Collier. "Hospitals need to act on this, and consumers need to arm themselves with enough information to make quality-oriented health care choices when selecting a hospital."

#### Distinguished Hospital Awards and Findings

In addition to its findings on patient safety, HealthGrades today honored 88 hospitals in 23 states with the Distinguished Hospital Award for Patient Safety, the first national hospital award to focus purely on hospital patient safety. The award was designed to highlight hospitals with the best records of patient safety in the nation and to encourage consumers to research their local hospitals before undergoing a procedure.

HealthGrades based the awards on a detailed study of patient safety events in hospitals nationwide from 2000 to 2002, using the list of patient-safety incidents developed by AHRQ. "Best" hospitals were identified as the top 7.5 percent of the hospitals studied and had significantly different patient-safety incident rates and costs compared to hospitals that were average or in the bottom 10th percentile. Among the "best" hospitals, the lower number of avoidable deaths and in-patient hospital costs were directly related to their lower overall patient-safety incident rates.

"If all the Medicare patients who were admitted to the bottom 10th percentile of hospitals from 2000 to 2002 were instead admitted to the "best" hospitals, approximately 4,000 lives and \$580 million would have been saved," said Dr. Collier.

#### About HealthGrades

Health Grades, Inc. (OTCBB: HGRD) is the leading independent healthcare quality company, providing ratings, information and advisory services to healthcare providers, employers, health plans and insurance companies. HealthGrades works with healthcare providers to help assess, improve and promote their quality. HealthGrades provides consumers access to information about healthcare providers and practitioners through its Web site and provides liability insurers, employers and payers with critical information about healthcare quality.