



How the brain's auditory cortex stores memories was the focus of a recent Dartmouth study. Published in *Nature*, it measured subjects' brain activity while they listened to familiar songs.

Rise in cancer rate was real, study found

I expected one thing and found something else," says Gilbert Welch, M.D., M.P.H. He's talking about a study he recently published that confirmed the rapid rise of a deadly but very rare cancer, esophageal adenocarcinoma. From 1975 to 2001, the incidence of this glandular cancer increased sixfold in the United States—from 4 to 23 cases per million. This got Welch's attention.

Detect: "Whenever the number of new cancers is growing quite rapidly," says Welch, "I ask the question 'Is there a change in diagnostic practice?'" An internist on the DMS faculty, he is the author of *Should I Be Tested for Cancer? Maybe Not and Here's Why*. His research focuses on problems created by efforts to detect disease early and by expansions in the definition of diseases. Whenever doctors screen more intensively for disease or widen the parameters for defining a disease, they find more of it, he explains. Welch suspected that the rise in esophageal adenocarcinoma was the result of a change in diagnostic capabilities. "In the

last 20 years, the use of endoscopy—that flexible tube that we pass into the mouth, down the esophagus, into the stomach—has grown exponentially," he points out.

To test this hypothesis, Welch and Heiko Pohl, M.D., a gastroenterology fellow, compared the number of new cases of esophageal adenocarcinoma with the number of deaths from the cancer, per million Americans. "If it's real cancer, and it's really increasing," says Welch, "you'd expect death rates to rise." And that's exactly what the research team found. The number of new cases and the number of deaths from the cancer are increasing at nearly the same rate. Between 1975 and 2001, deaths from esophageal adenocarcinoma increased sevenfold, from 2 to 15 deaths per million. "Conclusion: The rising incidence of esophageal adenocarcinoma represents a real increase in disease burden," Pohl and Welch wrote in their article, which was published in the *Journal of the National Cancer Institute*.

Discover: Not knowing what you're going to discover in a study "is what makes research interesting," says Welch. "You may have an idea, and it may be right or it may not be. Here, either answer was interesting to me."

Welch says that he doesn't plan to do any further studies of esophageal adenocarcinoma, but he hopes that others will. It's still a very rare cancer, he emphasizes, but even so "we should be trying to understand why it could possibly be going up so fast."

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Gil Welch's finding in a recent study was unexpected but interesting.

Inflammatory matter

DMS researchers reported on a molecule that seems to play a key role in diseases of the central nervous system, such as multiple sclerosis (MS), and inflammatory responses in general. Pathologist William Hickey, M.D., and others demonstrated the anti-inflammatory effects of antisecretory factor (ASF). Increased expression of ASF may be "a means of counteracting the pro-inflammatory environment and limiting [the] tissue damage" associated with MS and other inflammatory diseases of the central nervous system, the authors wrote in the *Journal of Leukocyte Biology*.



Brainstorm

A big brain—or, more accurately, a brain with a lot of surface area—has long been associated with higher-order cognitive ability. Researchers at DMS and the University of California discovered one of the genes responsible for brain size. They found that the gene *Id4* regulates the timing, number, and differentiation of cortical neurons, the cells that make up the cerebral cortex. "This study reveals a crucial role for *Id4* in cortical development and identifies the molecular pathways over which its effects are mediated, while suggesting important new areas for future study," they wrote in the journal *Development*.

