New Media

Using computer technology to help keep investigators honest

The April 2000 issue of *Anesthesia and Analgesia* contains a very unusual letter to the editor (Anesth Analg 90: 1004–7). A team from Germany scrutinized 47 articles on antiemetic therapy that were published by a Japanese team. The authors of the letter used advanced statistical methods to demonstrate the existence of serious flaws in the Japanese research and conclude that “there must have been an underlying influence causing such incredibly nice data”. In essence, the antiemetic data was demonstrated to be untrustworthy.

When I studied biology in university and learned about Mendel’s seminal studies on the genetics of peas, the instructor in our class told us that when Mendel’s published data was examined many years after his death, biostatisticians found that his data were too good to be true and suspect that he may have ignored some findings that did not meet his expectations.

As investigators become more comfortable with statistical methods and as statistical software becomes less expensive and easier to use, this kind of plausibility analysis will become more frequent. Indeed, the ready availability of cheap computing may also help reduce the incidence of plagiarism. With the advent of electronic publishing it will be possible to electronically and automatically scan all electronically published reports for sequences of words that are the same or even similar. Thus, theft of sentences or paragraphs from other reports in submitted or already published manuscripts would be brought to light. Software to do this is already in development for use in detecting plagiarism among university students. In response to the increasing number of companies which sell term papers online, as well as in response to the large amount of material already available freely on the Internet, computer science researchers are developing Internet portals designed to assist university professors in detecting plagiarism. The professor, upon receiving a disk with an essay from a student, submits the file on disk to a special search engine that looks for sequences

of words that exist in its database of previously published or previously submitted work. While the computational load associated with such enterprise can be enormous, one need only wait one or two generations of computers (about five years) to expect that such a service will become commonplace.

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Web Page Review: The Answer Page / Anesthesiology

<http://theanswerpage.com/anesthesiology/>

This excellent anesthesia education site was kindly brought to my attention by Dr. Mark Glube, a senior anesthesia resident at our hospital who has used this service as a part of his preparation for the anesthesia fellowship examination. Every day, a question is posted at the site, with an accompanying answer about one to three pages in length, usually supported by extensive literature references. Most of the questions and answers are supplied by Stephen B. Corn M.D. and B. Scott Segal M.D. of the Department of Anesthesia, Harvard Medical School. If you visit the site daily you will undoubtedly get a good CME experience. The exclusive sponsor of The Answer Page/Anesthesiology is Vital Signs, Inc. Plans for formal CME credits relating to this service are underway. As an example, here are the questions addressed for March 30, 2000: “Does propofol increase the chance of postoperative infection? What mechanisms may explain an association with postoperative infection?” The questions addressed on March 31, 2000 were: “Does etomidate suppress adrenocortical function? What is the mechanism of this effect? Can a single induction dose cause this effect? Do propofol, thiopental, midazolam, or methohexital share any of these effects on adrenocortical function?” The AnswerPage/Anesthesiology attempts to “follow a syllabus that mirrors the American Board of Anesthesiology Content Outline (1996 revision), so that daily users will have completed an online review course

of anesthesiology over the course of a year". You can view the full syllabus at <http://theanswerpage.com/anesthesiology/news.html#Syllabus>. Finally, there is also a search feature where one can search through past questions for certain key words.

I was most impressed with this marvelous educational initiative. Highly recommended.

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Truth, Lies, and the Internet

"The truth shall make you free, but first it shall make you angry." - Anon.

"All great truths begin as blasphemies." - George Bernard Shaw

"It is hard to believe that a man is telling the truth when you know that you would lie if you were in his place." - H.L. Mencken

"As scarce as truth is, the supply has always been in excess of the demand." - Josh Billings

One of the unexpected advantages of the explosion of information on the Internet is the realization by most people (or at the least the more sophisticated individuals among us) that one can't always believe everything one reads. While political radicals have been sending this message about the print and broadcast media for years (consider, for instance, the writings of Noam Chomsky [<http://www.zmag.org/chomsky>]), the awareness that the Internet runs rampant with spoofs, false virus scares, urban legends, and outright lies has sensitized individuals to the need for critical appraisal of whatever passes before their eyes.

The fact that a message can circulate from its point of origin to all corners of the globe in minutes is both one of the Internet's greatest strengths and one of its greatest weaknesses. Recently, this duality was convincingly demonstrated by the Kurt Vonnegut E-mail hoax, where a University graduation speech purportedly given at the Massachusetts Institute of Technology by Mr. Vonnegut, a well-known writer, was in fact a Chicago Tribune piece written by Mary Schmich, until recently a little-known columnist. <http://chicagotribune.com/news/columnists/schmich/0,1122,SAV-9706010178,00.html>

The alleged speech, which began by advising graduates to wear sunscreen, charmed countless thousands of readers and was even cast into a popular song (Sun Screen Song. Something For Everybody. Baz Luhrmann). The message spread via E-mail from

friend to friend, co-worker to co-worker, around the world. Even Vonnegut's wife received the message - and believed it to be genuine. Few readers had reason to doubt the authenticity of the material until the hoax was exposed. Details of the story are available on the Internet [<http://urbanlegends.miningco.com/library/weekly/aa081097.htm>].

While this hoax was a relatively harmless occurrence, one can easily imagine embarrassing or even libelous consequences from false information on the Internet. For instance, veteran American newsman Pierre Salinger's widely reported missile theory for the downing of flight TWA 800, based primarily on Internet sources, turned out to be completely without foundation [<http://infomanage.com/secrets/twa800/govsal800.htm>].

On the other hand, the Internet has sometimes served as an important source of information before being disseminated by conventional media. For instance, information about the Monica Lewinsky affair took place first on the Internet, initially through the "scoop" of Matt Drudge, (<http://www.drudgereport.com>) which made it news before it reached the newspapers, then through the publication of the Starr Report on government websites, which recorded six million hits within twenty-four hours. (Incidentally, a nice parody of the Drudge Report is available at <http://www.drudge.com>).

The Internet is also one of the most powerful agents of freedom. For example, it played an important role in providing accurate information to the West during the brief Soviet military coup when Gorbachev was in power (mostly via E-mail from Russian scientists sent to colleagues around the world). Indeed, it is no wonder that most governments with totalitarian tendencies fear the Internet.

These issues notwithstanding, Internet misinformation remains a problem. Serious misuses of the Internet include stock manipulation, false advertising, as well as using "chat lines" under an assumed identity with a view to corrupting children. Information on these and other Internet crimes are available at the addresses below:

<http://ciac.llnl.gov/ciac/CIACHoaxes.html>

<http://www.urbanlegends.com/>

The Internet has been especially useful to individuals wishing to promote unproven clinical treatments. An Internet search using the term "alternative medicine" will produce hundreds upon hundreds of hits covering chiropractic, homeopathy, iridology, reflexology and many other controversial therapies. Many of these sites offer useless or even dangerous products for sale. Many sites also have a legal disclaimer such as the following