



Illustration: Polly Powell

## Source of Black Death Revisited

**C**enturies old, Black Death is not a thing of the past. Many residents of the tropics remain susceptible to and can be infected by *Yersinia pestis*. And there is some fear it could be used as a biological weapon.

As such, there is renewed interest and much debate over the origin of the plague that not only decimated half of the European population in 1348, but has lingered for nearly 700 years.

"We cannot rule out *Yersinia* as the cause of the Black Death," said Alan



## Knowledge is Key to Making Healthful Choices

An estimated \$58 billion added health care costs a year can be attributed to poor health literacy. The more informed an individual is, the better the chances are of decreasing obesity, being overweight and other chronic diseases.

"The health of our country depends on our understanding of basic health information in order to lead a healthy life," said Tommy G. Thompson, Health and Human Services secretary. "If children and adults think about the consequences of inactivity and a poor diet each day, they are beginning to take the necessary steps to lead a healthy lifestyle."

For example, patients with Type 2 diabetes are associated with poor glycemic control and elevated rates of complications than those who are better informed about their condition. Although the person may have an understanding of their health problem, they may have difficulty with some concepts and vocabulary related to diabetes.

Wise choices about meals and moderate physical activity made now could have positive effects 10, 15 or 20 years later, resulting in strides made in improved productivity and the health care system.

Cooper, head of the Ancient Biomolecules Centre at Oxford University, UK. "But right now there is no molecular evidence for it." Cooper's team conducted the latest research.

But researchers, headed by Susan Scott and her colleague Chris Duncan of the University of Liverpool, UK, concluded *Yersinia* was not the source of the plague but believe a virus like Ebola, one that causes heavy bleeding (*New Scientist* print edition, 24 November 2001).

Initial investigations pointed fingers at bubonic plague bacterium *Yersinia pestis*, which is transmitted courtesy of fleas and rats. However, recent analysis did not find *Yersinia* in the victims' remains. This is contrary to a French research team's assertion that they had found *Yersinia* in the remains.

There also was some speculation of the accuracy of the French team's findings. Three years ago, Didier Raoult and his colleagues at the University of the Mediterranean in Marseille, France, used the teeth of three 14th century bodies in their DNA testing. Raoult's team said the DNA sequences included some unique to *Yersinia*.

Scott and others questioned whether the remains used in Raoult's tests were from those killed by the Black Death. Raoult rejected their claims calling it "unsubstantiated speculation."

In their study, Oxford University's Cooper and his colleagues looked at more than 100 teeth from 66 skeletons found in five mass burial mounds for those who died of Black Death in 1349. Other graves

in England, Denmark, and France also were examined. The team used primers, DNA fragments that act as probes in the PCR test to amplify certain sequences unique to *Yersinia*.

None of the 122 teeth analyzed had identifiable *Yersinia* DNA, Cooper said. "And we used the same primers the French used ... We detected a lot of different bacteria, but none of the sequences were from *Yersinia*."

Raoult maintains his team avoided bacterial contamination in splitting and excavating the teeth. However, in a control test conducted by Cooper's team using modern DNA of *Yersinia*, there was a positive result from one tooth but it had been contaminated by modern DNA.

Despite the setback, Cooper's team found human mitochondrial DNA in the teeth, further proving DNA could survive. Not finding the *Yersinia* DNA doesn't confirm the victims died of Black Death, the bacterium just may not have permeated

to their teeth.

"If I can get some soft tissue from the plague, I'll look again," Cooper said.

In Raoult's study, the 14th century skeletons his teams used came from Montpellier. Almost all of his team's samples tested positive, a questionable result given the warmer climate and the DNA survival rate, Cooper said. Coupled with the imprecise primer test, Cooper is not convinced the French team identified the *Yersinia* dating back 700 years.

However in colder climes, such as Finland, victims buried in permafrost could make for conclusive results.

"If I can get some soft tissue from the plague, I'll look again."

ALAN COOPER

## No Rise in Dental Fear Despite Elevated Anxiety Level

Patients are finding themselves more comfortable in the dental chair these days thanks to advances in techniques and technology.

Despite an increase in general anxiety in the U.S., studies reveal dental anxiety has not risen according to an August 2003 article in the *Journal of the American Dental Association*.

Previous studies showed direct links between an increase in general anxiety level and an increase in dental fear.

"The fact that dental anxiety is not rising when dentists are treating increasingly anxious patients is a tribute to advances made in dental technology and patient management skills," wrote investigators from the University of Kentucky's College of Medicine.

"Owing to this strong direct relationship between general anxiety and dental fear, we might expect a rise in the latter to follow an increase in the former," said Timothy A. Smith, PhD., professor of behavior science and lead author. "However, dental anxiety

does not seem to follow the trend of increasing general anxiety in the United States."

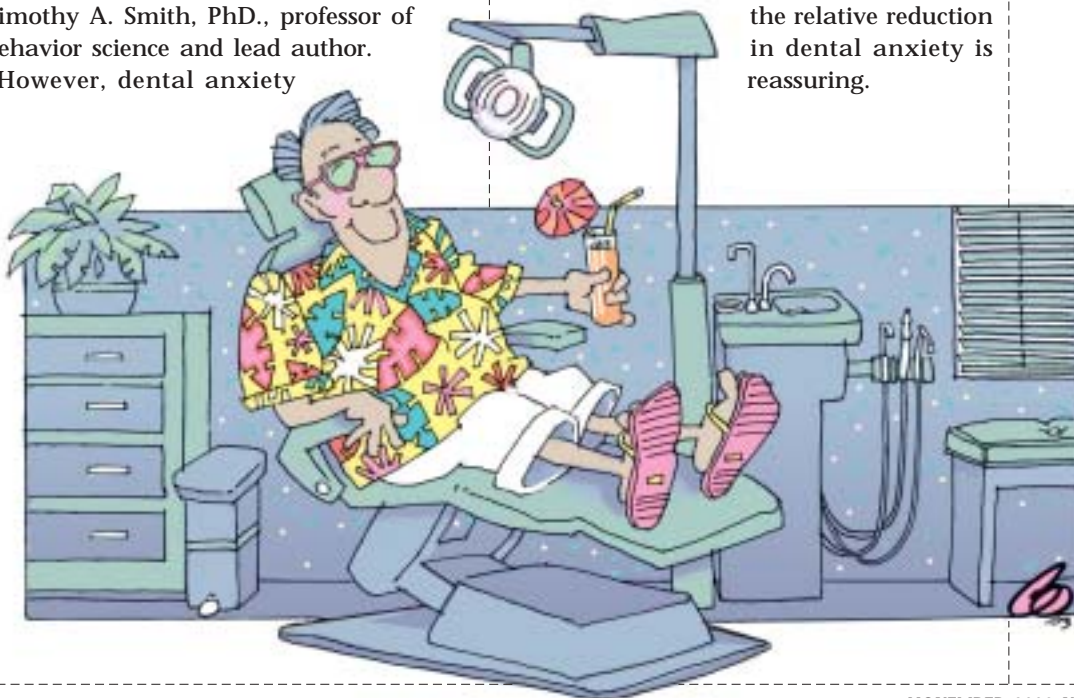
In the JADA report, authors pored over 200-plus articles, comparing 19 studies involving more than 10,000 adults to assess any mean anxiety scores for general adult and college student samples. Four measures of dental anxiety were used.

The findings? Dentistry has changed over the last 30 years. The adoption of lasers, bonding procedures and other less technically threatening methods to treat patients has had a profound effect.

These efforts appear to have had an impact on the problem of dental fear in our society and may be why 63 percent of adults surveyed in 1997 felt that less pain was involved during a dental visit as an adult than it was as a child, the authors said.

The authors also concluded that in comparison with the rising tide of general anxiety in the country, the relative reduction in dental anxiety is reassuring.

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of adults surveyed  
in 1997 felt that  
less pain was involved  
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it was as a child.



## Gene Therapy Will Help Unlock Secrets of Saliva

Gene therapy may hold the key in treating patients with salivary dysfunction.

Chih-Ko Yeh, PhD, BDS, associate professor of dental diagnostic science at the University of Texas Health Science Center in San Antonio, and fellow researchers are hoping to treat the problem by regenerating the salivary gland.

"Gene therapy would be an ideal way to treat this disorder," Yeh said in an article in May 2003 issue of *The Mission*.

"We could inject the gene therapy directly into the glands themselves. That's our dream. We're working on it."

Saliva aids in digesting food, but its central role is protecting the mouth's tissue

against decay and disease. On the average, a person produces more than two cups of saliva every day. Those who produce less and patients with salivary dysfunction are prone to serious risks to their overall health.

Those with less than average saliva rates experience complications in swallowing, chewing and talking. The high concentration of calcium in the saliva prevents teeth from dissolving. Coating the mouth to maintain hydration, saliva's anti-microbial proteins also guard against disease. The proteins, according to the article, protect the body from viruses and bacteria attempting to enter via the mouth.

Yeh and his colleagues hope to learn how saliva and salivary glands are affected by age, HIV infection and Sjogren's syndrome. Despite the widely held view that saliva is not affected as a person ages, researchers say it is a factor.

"We're finding a link between salivary dysfunction and major diseases like diabetes, hypertension and HIV," said Yeh. "And we also see a correlation between salivary dysfunction and certain drugs."



## Senate Confirms Appointment of Dentist as Indian Health Service Director

Public Health Service dentist and rear admiral Dr. Charles W. Grim recently was confirmed by the U.S. Senate as director of the Indian Health Service (IHS).

"Since his appointment as interim director last August (2002), Dr. Grim has demonstrated his ability as a compassionate leader, effective manager, and worthy advocate for Indian Health programs," said HHS secretary Tommy G. Thompson.

A 1983 graduate of the University of Oklahoma College of Dentistry, Dr. Grim started his career as a Public Health Service commissioned officer. In his four-year post as IHS director, he will administer the nationwide, multi-billion dollar healthcare system providing curative, preventative and community general and oral healthcare services to an estimated 1.6 million American Indians and Native Alaskans. Dr. Grim, who will be promoted to the rank of two-star admiral, is a member of the Cherokee Nation of Oklahoma.

"I will strive to ensure that the IHS continues to be an organization that is very sensitive to the cultural beliefs and traditions in the communities we serve," said Dr. Grim. "The greater involvement of Indian tribes and Indian people in decisions affecting their health has helped produce significant health improvement in their communities."



## Give Kids a Smile Registration Streamlined

Registering on the web for the Feb. 6, 2004, Give Kids a Smile just got a whole lot easier. Simply go to [www.cda.org](http://www.cda.org), follow the link to the forms, fill them out and submit them online.

Additionally, CDA has a separate form requesting the name of the participating society, the date of the event, time, location, a brief description of the event, and the ages of children treated. Participants should submit this information to Molly Woodward at CDA via fax (916) 442-2943, or send it to her attention at 1201 K Street Mall, P.O. Box 13749, Sacramento 95853. The deadline to submit this form is Dec. 3. Please note that submitting this participation form to CDA does not automatically register participants for the Give Kids a Smile program.

If participants need assistance with

publicity prior to the event, they should submit a Request for Local Press Release form via fax or mail to Woodward at CDA by Dec. 8.

Following the event, participants should update their information to assist CDA in evaluating the campaign and obtaining data such as the total number of children treated, volunteers donating their time and skill, and the quantity of programs held throughout the state.

Last year, 5,000 Give Kids a Smile care sites across the country treated an estimated one million low-income children. The free services, which also included education, screening and treatment, were valued at \$100 million.



## The Missing Link in the Child Identification Program

Of the estimated 840,300 people reported missing in 2001 in the U.S., approximately 85 to 90 percent of them were under-age. With teens and children, now more than ever, at a higher risk of being abducted, it is important to have identification process in place.

Enter Toothprints® a bite impression and link to CHIP (Child Identification Program), a tool many states have used over the last two decades.

CHIP originally utilized a videotaped interview and fingerprinting as part of its identification program. Five years ago, Dr. David B. Harte, a dentist and current CHIP director, implemented the bite impression component to make CHIP the most complete identification program in the U.S, wrote Laura J. Najjar, CDA, BA, MEd, in the March/April 2003 the *Dental Assistant*.

Like fingerprints, toothprints are distinctive, and because teeth can endure temperatures up to 5000 degrees, it is far stronger. Additionally, saliva provides a DNA sample and can be a substantial scent tracer for police dogs.

Najjar suggests children leave a spit trail if lost in the mountains or forest. This "trail" can assist search and rescue canine teams.

The use of dental sealants, dental education and fluoridated water, juveniles' teeth often are restorative-free, thus making positive identification a challenge through dental charts. Najjar said the toothprint is extremely conclusive. It can distinguish the imprint of a dental sealant which children commonly have.





## Zapping Your Water Could Be Risky

Heating water in a microwave could potentially blow up in your face. That's because microwaves heat things quicker and more evenly than a stove. What's more, using a newer cup adds to the hazard, said physicist Steve Snyder, PhD, of the Franklin Institute Science Museum in Philadelphia.

"If the cup is new, smooth and clean, there's a chance the water in it can be a good bit past the boiling point, and there might be no bubbles at all to warn you about the temperature," Snyder said in the spring 2003 *Living Healthy*, a newsletter of the Blue Cross Blue Shield and Blue Care Network Michigan.

The fewer flaws in the container, the less likely there will be bubbles indicating water is at the boiling point. On the other hand,

an older cup probably is more uneven and worn. Such imperfections allow bubbles to form.

"We don't realize how quickly water is becoming so hot when it happens behind the closed door of the microwave," Snyder said.

Glass, Snyder cautioned, presents more of a potential for catastrophe because of its smoothness. Taking the cup from the microwave tends to jar the superheated water. Numerous bubbles can immediately form, causing the water to explode.

Use a kettle on the stove to boil water, recommended Snyder. "But if you use the microwave, check the water frequently and absolutely never look closely at the cup to determine how hot your water is."

## Upcoming Meetings

### 2003

Nov. 2-7	U.S. Dental Tennis Association Annual Meeting, Palm Desert, Calif., (800) 445-2524.
Nov. 8	Association of Managed Care Dentists, LAX Marriott, Calif., (310) 453-3439, <a href="http://www.amcd.org">www.amcd.org</a> .
Nov. 8-9	International Conference on Evidence-Based Dentistry, Chicago, <a href="mailto:j.riley@elsevier.com">j.riley@elsevier.com</a>
Nov. 16-22	Annual Meeting of the United States Dental Golf Association, Scottsdale, Ariz., (631) 361-7127, <a href="mailto:usdga@optonline.net">usdga@optonline.net</a> .
Dec. 5-7	California Academy of General Dentistry Annual Meeting, San Diego, (877) 408-0738, <a href="http://www.cagd.org">www.cagd.org</a> .

### 2004

March 3-6	Academy of Laser Dentistry 11th Annual Conference, Palm Springs, Calif., (954) 346-3776, <a href="http://www.laserdentistry.org">www.laserdentistry.org</a> .
April 15-18	CDA Spring Scientific Session, Anaheim, (866) CDA-MEMBER (232-6362).
Sept. 8-11	International Federation of Endodontic Associations Sixth Endodontic World Congress, Brisbane, Queensland, Australia, <a href="http://www.ifea2004.im.com.au">www.ifea2004.im.com.au</a> .
Sept. 10-12	CDA Fall Scientific Session, San Francisco, (866) CDA-MEMBER (232-6362).
Sept. 30-Oct. 3	ADA Annual Session, Orlando, Fla., (312) 440-2500.

To have an event included on this list of nonprofit association meetings, please send the information to Upcoming Meetings, *CDA Journal*, P.O. Box 13749, Sacramento, CA 95853 or fax the information to (916) 443-2943.