Biomedicine

Travelers' advisory on tuberculosis

A hacking cough may prove more than a mere annoyance on a crowded airplane. Health authorities have now described the first case in which an airline passenger with *Mycobacterium tuberculosis* passed this nasty bug on to some of her fellow passengers.

The transmission of *M. tuberculosis* occurred during an 8-hour, 38-minute flight from Chicago to Honolulu. The state and federal health investigation focused on a female passenger with full-fledged tuberculosis (TB) who died just weeks after that flight.

The March 3 MORBIDITY AND MORTALITY WEEKLY REPORT (MMWR) indicates that four passengers became infected during that flight. All four sat in the same section of the plane as the woman with TB, who had been coughing. They presumably caught the bug by inhaling tiny, infectious droplets circulating in the air, says Kenneth G. Castro, director of the Division of Tuberculosis Elimination at the Centers for Disease Control and Prevention (CDC) in Atlanta.

Last year, CDC documented a case in which a flight attendant with tuberculosis had infected other crew members (SN: 10/15/94, p.255). That probe failed to show transmission to any passengers on the flights in question. Yet airlines do not routinely keep track of customers after they step off the jetway — a fact that hinders such investigations, Castro points out.

Health officials downplay the risk of catching TB on a crowded flight. "The risk for *M. tuberculosis* transmission on an aircraft does not appear to be greater than in other confined spaces," the MMWR report says.

"Theoretically, any time you have a combination of someone who's infectious with tuberculosis and exposure that lasts several hours — then there's a possibility that others will become infected," Castro says. Generally, only people with untreated, full-blown tuberculosis can transmit this microbe, he says. However, even with prolonged exposure, some people never become infected.

People with contagious tuberculosis should not travel commercially, the CDC advises. If an airline finds out that a passenger with TB has been on a flight lasting more than 8 hours, it should notify the other passengers and flight crew.

People concerned about a possible TB exposure can get a skin test from their doctor. If that test is positive, drug treatment can stop a simmering infection from developing into disease, Castro notes.

Shaving risk for hepatitis C?

The traditional barbershop shave, long considered one of the last bastions of male luxury, may prove risky.

A new study suggests that barbers who rely on time-honored shaving techniques run the risk of contracting hepatitis C, a virus that often causes chronic infection and can lead to liver disease. The findings suggest that customers may face the same threat.

Patrick Marcellin of Beaujon Hospital in Clichy, France, and his coworkers studied 37 Sicilian barbers who relied on nondisposable, nonsterilized blades. The barbers shaved with the same instruments they used on their customers.

The team found that 14 of the barbers (38 percent) had antibodies to hepatitis C. In comparison, 50 people being screened as blood donors showed no evidence of hepatitis C infection, the researchers note. In Italy, up to 1.5 percent of the general population carries hepatitis C, they point out.

Hepatitis C is known to be transmitted through exposure to infected blood or blood products. The authors believe their findings suggest that the use of nondisposable shaving blades can also transmit this microbe. They describe their results in the March 11 LANCET.

Earth Science

Weather satellite finally fit for work

Residents of the eastern United States won't see any difference in the satellite cloud pictures shown on television. But they may notice improvements in weather forecasts, now that the country's first advanced geostationary weather satellite has arrived for work — years behind schedule.

NASA had originally planned to launch the GOES-8 satellite in 1989, but equipment malfunctions and poor management of the craft's construction kept it grounded until April 1994. Once GOES-8 reached orbit and underwent a lengthy series of engineering tests, the National Oceanic and Atmospheric Administration (NOAA) took control of the satellite last October. NOAA ran its own trials and then moved the satellite into its final position of 75°W longitude on Feb. 27. It hopes to declare GOES-8 fully operational in a few weeks, says Gary Davis, head of satellite operations for NOAA.

Orbiting 22,500 miles above the equator, GOES-8 will monitor the eastern United States and the Atlantic Ocean, the birthing ground for hurricanes. NOAA has moved the aging GOES-7 satellite to 135°W longitude to overlook the western United States and central and eastern Pacific Ocean. Launched in 1987, GOES-7 has hobbled along well beyond its planned 5-year lifetime; a replacement is scheduled for May.

GOES-8 and its successors will help forecasters by improving the quality and speed of satellite weather measurements. Unlike earlier models, the advanced satellites can collect cloud images at the same time as they take profiles of temperature and moisture in the atmosphere. Scanners on the newer GOES provide more data than older instruments because they have better spatial resolution and collect information in more spectral bands. The satellites can also identify locations on Earth more precisely, enabling forecasters to better pinpoint storms, Davis says.

Good news on U.S. oil and gas reserves

Six years ago, the U.S. Geological Survey (USGS) offered sobering projections of the country's oil and natural gas resources. At 1989 rates of extraction, estimated reserves both on land and in coastal waters would dry up within 3 decades. But in a study presented last month, researchers suggest that deposits hold much more than previously thought.

USGS researchers try periodically to estimate the amount of potential fuel in currently known fields, as well as the extent of undiscovered deposits. In 1989, they calculated that roughly 78 billion barrels of oil and 504 trillion cubic feet of natural gas were recoverable by current technology. Those numbers have now grown to 110 billion barrels of oil and 715 trillion cubic feet of gas. Neither set of estimates includes offshore reserves, such as those in the Gulf of Mexico.

The optimistic calculations do not rest on wishful thinking about undiscovered fields. Those numbers have changed little since 1989. Instead, the new estimates primarily reflect better measurements of known fields, says Thomas Ahlbrandt, chief of USGS' petroleum geology branch in Denver.

The 1989 study relied on data compiled by the oil and gas industry through the late 1970s. The newer study includes industry data through the early 1990s and therefore benefits from the information collected during an exploration boom in the early 1980s. The 1995 study also adds a new category of deposits in broad reservoirs that were not considered in the 1989 survey. The gas contained in these reservoirs boosts the new estimates even higher, to a total of 1,070 trillion cubic feet, or more than twice the earlier projection.

The recent assessment does not project what fraction of U.S. reserves industry could profitably recover in today's depressed petroleum market. Future studies will address that question and update estimates of offshore deposits.