Antibiotic therapy isn't perfect at eliminating the bacterium, possibly because *H. pylori* hides under the thick layer of mucus that protect the stomach lining against gastric juices. Even a combination of antibiotics eliminates only about 80 percent of infections.

Nevertheless, there's little question about the benefit of antibiotic therapy for people suffering from ulcers. Getting rid of *H. pylori* infection also cures about half the patients with mucosa-associated lymphoid-tissue lymphoma. Medical organizations recommend that physicians test anyone with stomach cancer for *H. pylori* infection and treat them with antibiotics if they are infected, although the benefits of such treatment haven't been demonstrated.

It isn't clear whether getting rid of *H. pylori* in people with no symptoms will reduce the risk of their later developing stomach cancer. Once the bacterium has been eliminated, adults rarely become reinfected. Several analyses have suggested that one-time screening for *H. pylori* infection among high-risk groups (such as those with a family history of the disease or a Japanese or Korean heritage) would be worthwhile.

If eliminating *H. pylori* infection reduced a person's chance of developing stomach cancer by just 15 to 25 percent, once-in-a-lifetime screening and treatment might be as effective in preventing stomach cancer as are repeated mammograms for breast cancer or blood tests for prostate cancer, says A. Mark Fendrick of the University of Michigan in Ann Arbor.

Widespread screening, however, raises questions about whom to treat. Although preventive measures would benefit people who otherwise would go on to develop ulcers or cancer, most infected people never develop any symptoms. The drug regimen to kill the bacterium is expensive—perhaps prohibitively so in the countries with the largest numbers of people infected with *H. pylori*. Widespread treatment also might speed development of antibiotic resistance among bacteria.

Most physicians don't yet recommend widespread screening for *H. pylori* among people who have no symptoms of stomach ailments. "Vaccines—the most effective medical practice in controlling infectious diseases—may represent the ultimate solution," says Rappuoli. Several vaccines are now under development.

If doctors screen for the microbe and treat those who are infected or if a vaccine is developed and widely used, *H. pylori*'s disappearance is likely to accelerate, warns Blaser. Unlike many physicians, he recommends against testing for and treating *H. pylori* infection in people with stomach pain but no proven ulcer.

"*H. pylori* can be good or bad, depending on context. It's entirely possible that physicians in the future will be administering selected *H. pylori* strains to colonize selected patients to reduce risks for particular diseases," he says.

"I completely disagree," Lee counters. "Just at the time that we've finally started to convince people that this bug causes gastric cancer, this doubt is stopping us from going on and aggressively eradicating this disease."

Debate over whether it's worth eradicating a microbe that causes few symptoms in most people isn't new, Graham says. "A hundred years, ago doctors debated whether to treat asymptomatic syphilis and decided it should be done," he says. Today, asymptomatic cases are still treated aggressively.

Once better therapies or vaccines to fight *H. pylori* are developed, says Graham, "we should get rid of every case." □

Biomedicine

From San Francisco, at the 39th annual Interscience Conference on Antimicrobial Agents and Chemotherapy

Vaccines without a sticking point

Getting vaccinated generally means enduring an unpleasant needle jab. Preliminary studies in mice, however, suggest that injectable liquid vaccines can be processed, dried to a powder, and painlessly pushed into the skin with a puff of helium gas from a pneumatic gun.

The skin is an ideal target for vaccines, says Dexiang Chen of PowderJect Vaccines of Madison, Wis. It contains a powerful network of immune cells acting as the body's primary defender against infection (SN: 9/11/99, p. 164).

Powders made from flu, tetanus, hepatitis B, and other vaccines induced immune responses in mice as well as injected vaccines do, Chen reports. Because immune cells lie close to the skin's surface, the powdered vaccine can contain just a tenth the amount of material required in standard formulations and still work—at least in mice, he says.

"This technique is preliminary but promising," says Philippe H. Lagrange of the St. Louis Hospital in Paris. Most liquid vaccines require refrigeration, but the powdered vaccines will probably be stable at room temperature, making them especially useful in developing countries, he adds.

So far, Chen and his colleagues have not worked with any vaccines that contain live, weakened viruses. Drying these formulations will be more complicated, but possible, Chen says. —*D.C.*

New drug gets a grip on HIV

Currently available anti-HIV drugs either block the virus from copying itself into a person's genes or prevent the virus from spreading through the body. Because HIV mutates rapidly, these drugs become less effective at keeping the infection from developing into AIDS. A small protein called T-20, a novel drug that prevents HIV from binding to its target cells, may offer some hope to patients whose current drugs are failing.

People with high concentrations of HIV in their blood despite having taken combinations of AIDS medicines participated in a trial led by J. Lalezari of Quest Clinical Research in San Francisco. Each of the 55 patients switched to a new mix of drugs that included injections of T-20. After 4 months, virus concentrations fell significantly in 33 of the volunteers. In 20, the virus became too rare to be measured.

These results are comparable to those seen with several experimental therapies undertaken after standard AIDS drugs have failed, says Michael S. Saag of the University of Alabama at Birmingham. Last year, researchers there reported that intravenous infusions of T-20 alone controlled HIV in a smaller group of patients (SN: 11/7/98, p. 292).

Although HIV will probably develop resistance to T-20 eventually, it should take some time because "we are looking at something with a totally different method of action than current drugs," says Saag. T-20 has few side effects, and patients seem willing to inject the drug twice a day, he reports. —*D.C.*

Curbing the common cold?

A new drug helps fight viruses responsible for the common cold. These pathogens, known as rhinoviruses, need to subtly alter the shape of their outer shell in order to infect cells. The drug, called pleconaril, blocks that shift.

People taking pleconaril did not suffer sore throats and stuffy noses as long as people getting a placebo did, says Frederick G. Hayden of the University of Virginia School of Medicine in Charlottesville. He found that 347 adults with moderate or severe colds suffered for 10.5 days when given pleconaril. The 168 people given a placebo endured their sniffles for 14 days.

"This is one of the first studies showing that an agent might reduce not only the severity but the length of viral infections," said William A. Craig of the University of Wisconsin-Madison.

Other studies presented at the conference confirm that pleconaril also benefits patients suffering from more serious diseases—viral meningitis and bloodborne infections caused by enteroviruses, which are close relatives of rhinoviruses. —*D.C.*