

## Dirty birds

Even 'premium' chickens harbor dangerous bacteria

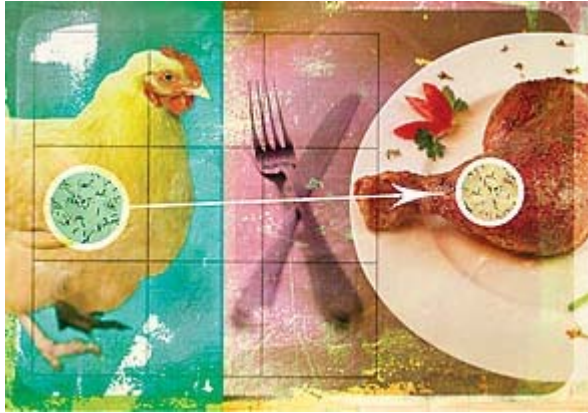


Illustration by Stuart Bradford

If you eat undercooked or mishandled chicken, our new tests indicate, you have a good chance of feeling miserable. CR's analysis of fresh, whole broilers bought nationwide revealed that 83 percent harbored campylobacter or salmonella, the leading bacterial causes of foodborne disease.

That's a stunning increase from 2003, when [we reported](#) finding that 49 percent tested positive for one or both pathogens. Leading chicken producers have stabilized the incidence of salmonella, but spiral-shaped campylobacter has wriggled onto more chickens than ever. And although the U.S. Department of Agriculture tests chickens for salmonella against a federal standard, it has not set a standard for campylobacter.

Our results show there should be. More than ever, it's up to consumers to make sure they protect themselves by cooking chicken to at least 165° F and guarding against cross-contamination.

Think premium brands are safer? Overall, chickens labeled as organic or raised without antibiotics and costing \$3 to \$5 per pound were more likely to harbor salmonella than were conventionally produced broilers that cost more like \$1 per pound.

Moreover, most of the bacteria we tested from all types of contaminated chicken showed resistance to one or more antibiotics, including some fed to chickens to speed their growth and those prescribed to humans to treat infections. The findings suggest that some people who are sickened by chicken might need to try several antibiotics before finding one that works.

In the largest national analysis of contamination and antibiotic resistance in store-bought chicken ever published, we tested 525 fresh, whole broilers bought at supermarkets, mass merchandisers, gourmet shops, and natural-food stores in 23 states last spring. Represented in our tests were four leading brands (Foster Farms, Perdue, Pilgrim's Pride, and Tyson) and 10 organic and 12 nonorganic no-antibiotics brands, including three that are "air chilled" in a newer slaughterhouse process designed to reduce contamination. Among our findings:

- Campylobacter was present in 81 percent of the chickens, salmonella in 15 percent; both bacteria in 13 percent. Only 17 percent had neither pathogen. That's the lowest percentage of clean birds in all four of our tests since 1998, and far less than the 51 percent of clean birds we found for [our 2003 report](#).
- No major brand fared better than others overall. Foster Farms, Pilgrim's Pride, and Tyson chickens were lower in salmonella incidence than Perdue, but they were higher in campylobacter.
- There was an exception to the poor showing of most premium chickens. As in our previous tests, Ranger--a no-antibiotics brand sold in the Northwest--was extremely clean. Of the 10 samples we analyzed, none had salmonella, and only two had campylobacter.
- Among all brands, 84 percent of the salmonella and 67 percent of the campylobacter organisms we analyzed showed resistance to one or more antibiotics.

### HOW THE BUGS GET TO YOU

Chickens become contaminated in many ways, among them by pecking at insects that pick up bacteria from the environment, pecking at droppings that carry germs, or drinking contaminated water. Both salmonella and campylobacter colonize the birds' intestines (usually without harm), but birds typically harbor more campylobacter than salmonella, and it spreads through flocks faster.

Among the measures taken to limit bacteria in chicken houses: disinfecting coops that may hold as many as 30,000 birds, shielding against bacterial carriers such as insects and rodents, ensuring that feed is clean, and using powerful ventilation systems to keep the chickens' bedding drier and less inviting to germs. But when a chicken is slaughtered, bacteria in its digestive tract can wind up on its carcass, where some hide in feather follicles.

To keep contamination in check, processors follow procedures collectively known as HACCP (pronounced hass-ip). The initials stand for Hazard Analysis and Critical Control Point, the consumer's main protection against contaminated chicken. HACCP requires companies to spell out where contamination could be controlled during processing, then build in procedures--such as scalding carcasses--to prevent it.

But our tests show the current practices aren't enough. Bell & Evans, producer of broilers raised without antibiotics, spent \$30 million to modernize its processing plant in 2005, including \$9 million for a high-tech air-chill system designed in part to reduce cross-contamination. The system whisks carcasses on two miles of track through chambers in which they're misted and chilled with air, then submerged in an antimicrobial dip. Tom Stone, the company's marketing director, says the measures helped reduce the rate of salmonella to less than 3 percent in recent in-house tests of chickens done before packaging. But in our tests of 28 store-bought chickens, 5 of the Bell & Evans samples had salmonella and 19 had campylobacter.

When contaminated chickens arrive at supermarkets, problems can multiply. Just one slip-up in storage, handling, or cooking, and you're at risk. Both salmonella and campylobacter can cause intestinal distress, and campylobacter can also lead to meningitis, arthritis, and Guillain-Barré syndrome, a neurological disorder. Campylobacter and salmonella from all food sources sickened more than 3.4 million Americans and killed more than 700, according to the latest estimates from the federal Centers for Disease Control and Prevention, dating from 1999.

The CDC notes that the rate of laboratory-confirmed infections has decreased somewhat since 2001. However, the toll may be far higher than the numbers indicate because only a small percentage of foodborne illnesses are reported to public-health authorities. The CDC said that in 2004, poultry was involved in 24 percent of outbreaks in which a single product was identified, up from 20 percent in 1998. Also in 2004, the CDC noted, 53 percent of campylobacter samples and 18 percent of salmonella samples were resistant to at least one antibiotic.

## WHAT THE NUMBERS SHOWED

**Contamination.** Among the major brands, campylobacter incidence ranged from 74 percent, in Perdue, to 89 percent, in Tyson. Samples from organic and no-antibiotics brands, as a group, averaged within that range.

Salmonella incidence in Foster Farms, Tyson, and Pilgrim's Pride was 3 percent, 5 percent, and 8 percent, respectively--notably lower than in the organic and no-antibiotics types, which had an overall incidence of roughly 25 percent.

None of Ranger's 10 samples harbored salmonella. We questioned Rick Koplowitz, chief executive officer of Draper Valley Farms, which raises Ranger chickens, but he revealed no unusual measures to prevent contamination.

**Antibiotic resistance.** When we took bacteria samples from contaminated broilers and tested for sensitivity to antibiotics, there was evidence of resistance not just to individual drugs but to multiple classes of drugs. That indicates there may be fewer to choose from, and infections may be more stubborn. We didn't have enough data to assess whether there were differences in resistance among brands.

It's not surprising that we found antibiotic-resistant bacteria even in chickens that were raised without antibiotics: Those germs are widespread and can persist in the environment.

Twenty percent of campylobacter samples were resistant to ciprofloxacin (Cipro), a drug similar to the one the U.S. Food and Drug Administration banned chicken producers from using as of September 2005 to protect its effectiveness in people.

## HOLES IN THE SAFETY NET

Inspectors for the USDA's Food Safety and Inspection Service (FSIS) check carcasses in each plant and reject those with visible fecal matter, defects, and signs of illness. They also collect one broiler on each of 51 consecutive days of chicken production and have it tested for salmonella. Asked if the agency has enough funds to inspect chickens adequately, FSIS spokesman Steven Cohen said it did.

Plants that produce more than 12 salmonella-positive samples during that time fail to meet the minimum federal standard. When a plant fails, the USDA can suspend chicken production, but it has no authority to levy fines and can't close plants by withdrawing inspectors solely because a plant doesn't meet the federal salmonella standard, a federal court ruled in 2001. To get processors to clean up their act, the USDA threatened in February 2006 to publicly disclose processors' salmonella test results.

A nonprofit group beat the agency to it. In July 2006, Food & Water Watch, an environmental health organization based in Washington, D.C., published the names of 106 chicken processing plants--including some operated by the four leading brands we tested--that failed federal salmonella standards in at least one test period between 1998 and 2005. When we contacted those four companies for comment, all said they've taken steps to reduce salmonella contamination.

In August 2006, the USDA reported that the rate of positive salmonella tests in broilers had jumped to 16.3 percent in 2005, up from 11.5 percent in 2002. Richard Lobb, a spokesman for the National Chicken Council, a trade group, said it's not clear why the rate went up in 2005, but he cited preliminary government data indicating that it has since declined. Cohen of the FSIS added that the agency has begun an initiative aimed at curbing salmonella by focusing on plants that failed the federal standard or had problems meeting it.

That leaves campylobacter. Now that a test method was recently validated, Cohen said, the USDA has announced it will begin collecting data on campylobacter in broilers in processing plants nationwide. It's too soon to say whether data collection will lead to a federal limit and routine testing, he added.

Based on our tests, that's what needs to happen. All indications are that it won't be easy to banish campylobacter, but the government can start by implementing a realistic standard, then start testing and monitoring in processing plants. Some of the chicken producers we asked said they already target campylobacter in HACCP plans. Others said they assume that what works against salmonella will also work against campylobacter. Clearly, it doesn't.

"The USDA has moved at glacial speeds on controlling campylobacter in the chicken industry," says Caroline Smith De Waal, director of food safety for the Center for Science in the Public Interest. For more on how the government can make food safer, see [Food safety](#).

## WHAT YOU CAN DO

Make chicken one of the last items you buy before heading to the checkout line. If you choose organic, no-antibiotics, or air-chilled chicken, do so for reasons other than avoiding bacteria.

- In the supermarket, choose well-wrapped chicken, and put it in a plastic bag to keep juices from leaking.
- Store chicken at 40° F or below. If you won't use it for a couple of days, freeze it.
- Thaw frozen chicken in a refrigerator (in its packaging and on a plate), or on a plate in a microwave oven. Cook chicken thawed in a microwave oven right away.
- Separate raw chicken from other foods. Immediately after preparing it, wash your hands with soap and water, and clean anything you or raw chicken touched.
- To kill harmful bacteria, cook chicken to at least 165° F.
- Don't return cooked meat to the plate that held it raw.
- Refrigerate or freeze leftovers within two hours of cooking.