

Poultry drug increases levels of toxic arsenic in chicken meat

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(Medical Xpress)—Chickens likely raised with arsenic-based drugs result in chicken meat that has higher levels of inorganic arsenic, a known carcinogen, according to a new study led by researchers at the Johns Hopkins Center for a Livable Future at the Bloomberg School of Public Health.

This is the first study to show concentrations of specific forms of arsenic (e.g., [inorganic arsenic](#) versus other forms) in retail [chicken meat](#), and the first to compare those concentrations according to whether or not the poultry was raised with arsenical drugs. The findings provide evidence that arsenical use in [chickens](#) poses public health risks and indicate that the [Food and Drug Administration](#) (FDA), the agency responsible for regulating animal drugs, should ban arsenicals. The study was published online today in the scientific journal *Environmental Health Perspectives*.

Conventional, antibiotic-free, and USDA Organic chicken samples were purchased from 10 U.S. metropolitan areas between December 2010 and June 2011, when an arsenic-based drug then manufactured by Pfizer and known as roxarsone was readily available to poultry companies that wished to add it to their feed. In addition to inorganic arsenic, the researchers were able to identify residual roxarsone in the [meat](#) they studied; in the meat where roxarsone was detected, levels of inorganic arsenic were four times higher than the levels in USDA Organic chicken (in which roxarsone and other arsenicals are prohibited from use).

Arsenic-based drugs have been used in [poultry production](#) for decades.

Arsenical drugs are approved to make poultry grow faster and improve the [pigmentation](#) of the meat. The drugs are also approved to treat and prevent parasites in poultry. In 2010, industry representatives estimated that 88 percent of the roughly nine billion chickens raised for [human consumption](#) in the U.S. received roxarsone. In July 2011, Pfizer voluntarily removed roxarsone from the U.S. market, but the company may sell the drug overseas and could resume marketing it in the U.S. at any time. Pfizer still domestically markets the arsenical drug nitarsone, which is chemically similar to roxarsone. Currently in the U.S., there is no federal law prohibiting the sale or use of arsenic-based drugs in poultry feed. (In January, Maryland became the first U.S. state to ban the use of most arsenicals in chicken feed.)

Lead author Keeve Nachman, PhD, said, "The suspension of roxarsone sales is a good thing in the short term, but it isn't a real solution. Hopefully this study will persuade FDA to ban the drug and permanently keep it off the market."

Chronic inorganic arsenic exposure has been shown to cause lung, bladder and skin cancers and has been associated with other conditions, as well, including heart disease, type 2 diabetes, cognitive deficits, and adverse pregnancy outcomes. According to National Health and Nutrition Examination Survey data, at least 75 percent of Americans regularly eat chicken.

The FDA has not established safety standards for inorganic arsenic in foods, although the agency did, for a brief time in 2011, suggest that concentrations should be well below 1 microgram per kilogram of meat. The levels of inorganic arsenic discovered in the meat where roxarsone was found were two and three times greater than that level.

Another significant finding of the study is that when roxarsone was present in raw meat, cooking decreased the levels of roxarsone and

increased the levels of inorganic arsenic.

Provided by Johns Hopkins University Bloomberg School of Public Health

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