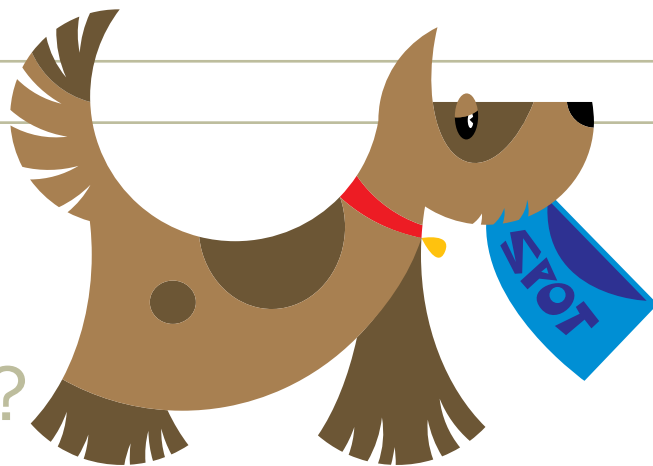


# The pet food recall puzzle: Who, what, why, and how much?



Last spring, North America was gripped in the largest pet food recall in history. News outlets reported tens of thousands of dogs and cats becoming ill, and many dying, as a result of ingesting contaminated pet food. Several pet owners have filed lawsuits against the manufacturers and distributors of the pet food products. I think this is an excellent real-life science story to use with students to show science investigation in action, and to discuss the intersections between the role of regulatory agencies and the public.

In order to understand the case, you first have to know the facts. We'll begin with a timeline; unless otherwise noted, all dates occurred in 2007. Below each significant date are questions that can be explored with students.

## Timeline and questions for discussion

**February 20**—Menu Foods Inc., the manufacturer of 95 top brands of pet food, first notices that some of their cats participating in taste testing become ill; nine cats subsequently died. Fourteen additional pet deaths are later reported to the company; renal (kidney) failure appears to be the cause of death in all of these cases. Menu Foods conducts an investigation to determine the link between the food and renal failure and contacts outside laboratories for assistance, but they do not notify the U.S. Food and Drug Administration (FDA) at this time.

**Questions:** What could be the link between the food and kidney failure? Why are only a few of the pets—compared to the likely hundreds of thousands that consume the food—becoming sick?

**March 15**—Menu Foods notifies the FDA of the problem, still with an unknown cause.

**Question:** Given the small number of cases reported by this date, do you think the company is justified in *not* reporting their findings to the public at this time?

**March 16**—Menu Foods initiates a voluntary recall of 60 million cans and pouches of dog and cat foods produced in Kansas and New Jersey between December 3, 2006, and March 6, 2007. At this time, the affected products

are all wet, rather than dry, pet foods. Pet owners are told to dispose of any foods on the recall list, and to look for symptoms of illness or renal failure in their pets and seek medical treatment immediately if they arise.

**Questions:** Why are only wet foods, rather than dry, being affected? The recall that Menu Foods issues is *voluntary*—do you think the FDA should have required Menu Foods to issue a *mandatory* recall?

**March 23**—Aminopterin, a chemical component in rat poison, is announced as a possible cause of the pets' illnesses by a New York State agency. This finding is never confirmed in laboratory tests by the FDA and other labs, and is subsequently dismissed as the cause.

**Question:** What are some possible explanations for why one laboratory can come to a conclusion that aminopterin was contaminating the food, when no other laboratories reached that same conclusion?

**March 30**—Cornell College of Veterinary Medicine and the FDA announce that melamine, a chemical found in pesticides and plastics, was found as a contaminant in wheat gluten in the pet food. Additional pet-food companies voluntarily recall foods and treats containing wheat gluten as a precautionary measure. Melamine ingestion does not normally cause renal failure in dogs and cats, and scientists continue to investigate why the effects of melamine ingestion in these cases are so severe.

Also on March 30, the FDA confirms the melamine-contaminated wheat gluten was supplied by a Chinese company, and that this company provided analysis documents to the pet-food manufacturers stating that the wheat gluten was safe—however, the presence of melamine is not normally tested for in pet foods. A second Chinese company is later named as an additional supplier.

**Questions:** Why would melamine, which is normally not fatal if ingested, cause such a serious reaction in these pets? If the Chinese company provided documents that were found to be untrue, to what extent are the pet-food manufacturers to blame for these pet illnesses and deaths?

Should pet owners be able to sue the Chinese company only for their economic losses, or should they also be able to sue for emotional damages? Given that it is impossible to test for every possible contaminant, what would you recommend as the procedure for materials testing?

**April 3**—ChemNutra, a Nevada company, announces that it is the firm that imported the contaminated wheat gluten from China and then provided it to the pet-food companies.

**Question:** What is ChemNutra's responsibility in this case?

**April 6**—Dr. Stephen F. Sundlof of the FDA, in an interview with CNN, states that melamine may have been *intentionally* added to the wheat gluten by the Chinese companies in order to increase the protein level so that it can be sold at a higher price, or to make it more appealing to consumers who want a higher protein level in their pet foods. "Wheat gluten is a high-protein substance, and by trying to artificially inflate the protein level, it could command a higher price," said Dr. Sundlof. This supposition would be supported if no other component of fertilizer were found in the tainted wheat gluten. If the wheat gluten were accidentally contaminated, other fertilizer components would be present.

**Questions:** Should Dr. Sundlof be permitted to suggest a possible motive for including melamine in the wheat gluten as he does? Why or why not? If the contamination is intentional, what should be the penalties for the Chinese company? Should pet owners take legal action against them?

**April 18**—After additional dogs and cats are reported ill, melamine is also found in other companies' pet foods that contain rice protein concentrate from China. Pet-food companies recall foods with contaminated rice protein as a result.

**Question:** Given that this situation is now extending to companies other than Menu Foods, and that the contamination is in more than one type of raw material (wheat gluten and rice protein concentrate), should additional testing of other materials be required by the government?

**May 1**—The American Veterinary Medical Association announces that melamine *and* cyanuric acid interaction may play a part in the kidney failure in pets that ingested the tainted food. Analysis of the crystals in the kidneys of affected animals revealed they were 70% cyanuric acid—a chemical found in swimming-pool chlorinator—and 30% melamine. In addition, interaction of two other contaminants, ammeline and ammilide, may also contribute to the

illness. This finding helps explain why in previous studies, melamine exposure did not cause such severe reactions as seen in this case. It appears from the cases that cats are more susceptible than dogs, as there are more reported cases of cats becoming ill both from the public and from the pet-food manufacturers' internal testing. In general, cats are more sensitive to many chemicals, even at lower doses, and this is proposed as the reason why more cats are affected.

**Questions:** Why would cyanuric acid be added to the food? What is its function?

**May 16**—The American Veterinary Medical Association, in a FAQ update of the case, states that the FDA determined that the wheat gluten and rice protein concentrate are both actually *wheat flour* being mislabeled by the Chinese companies. However, this has no effect on the recalls because it does not change the fact that the pet food is contaminated with melamine.

**Question:** Even if the distributors and manufacturers didn't find evidence of contamination, should they have found that the two contaminated products were actually wheat flour rather than what they were supposed to be?

**July 20**—The Chinese government closes down the two companies that supplied the contaminated wheat gluten/flour to the pet-food companies. Also in July, multiple measures to improve the safety of exports from China are announced by the Chinese government, amid accusations that cutting corners has been happening for years. These actions follow a May 29 issuance of a death sentence for a former director of the Chinese State Food and Drug Administration for taking bribes in exchange for approving untested medicines.

**Questions:** Should the FDA change their regulations and require pet-food manufacturers to retest all raw materials before they are processed into pet food? What would be the economic effects, on both the companies and on the consumers, of extra testing? What is your opinion of the actions China is taking to increase confidence in the food and drug products it supplies? Will they help to make food and drugs safer?

### Case in review

When all of these facts are examined, it is apparent that pet-food manufacturers and the materials suppliers were given inaccurate information by the Chinese companies on at least three critical issues: (1) they certified the raw materials to be free of contaminants on analysis docu-

ments, when they were not; (2) they mislabeled wheat flour as wheat gluten and rice protein concentrate; and (3) they misrepresented the true protein level contained in the raw materials as a result of the contaminants, falsely boosting protein levels. At this time, there is no definitive evidence that the Chinese companies intentionally added melamine or other contaminants to the pet food, but the high percentages of contaminants in the food and the economic benefits to including them support this proposal from the scientists investigating the case.

### Economic and emotional impact

While the number of reported cases of pet illness due to contaminated pet-food ingestion is in the tens of thousands, it is now proposed that the numbers of fatal cases is likely much lower, and possibly in the hundreds. In cases where the pets were promptly treated by veterinarians, most recovered. However, to the many pet owners who lost their four-legged family members, the result is still devastating. The economic impact of medical treatment and discarded food also cannot be ignored; the Veterinary Information Network currently estimates the cost of medical care alone for the affected pets to be \$20 million.

### Legal ramifications

What is the legal responsibility of the pet-food manufacturer to assure that their products are safe? The FDA requires that pet foods, like human foods, be pure and wholesome, safe to eat, produced under sanitary conditions, contain no harmful substances, and be truthfully labeled. Current law states that the pet-food manufacturer is responsible for ensuring that the ingredients are free of contamination—they are supposed to maintain records of the ingredients that they received, with analyses of the safety of the products, and test the final products. In this case, Menu Foods and the other manufacturers were given these safety certificates by the Chinese companies, and did indeed test the final products—it was their own taste tests that indicated something might be wrong with the food. However, some pet owners believe that Menu Foods did not act quickly enough in reporting their suspicions to the public; several class-action suits have made this claim and are awaiting their day in court.

### Lesson ideas

I plan to use this case as a Science and Society link to a review of the processes of science—perfect for the beginning of the year. With the findings listed in the timeline, we are going to discuss the questions above. We may also debate the issue of responsibility, with teams representing the pet-food manufacturers and the pet owners. My ultimate goal in using this case study will be to show students

that science is exciting, relevant to their lives, constantly open to change and new information, and intertwined with many facets of society—economic, personal, and legal.

### Resources

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