

When Drugs Go Bad

By Christina Johnson | June 25, 2014

We all know how to tell if the milk is too old: Just give it the 'ole sniff test and toss it out if it smells a bit off. But what about our medications? How do we know when they've lost potency or effectiveness, when they've gone bad?

The Food and Drug Administration recommends that consumers always read and follow the expiration date on medical products. "Once the expiration date has passed, there is no guarantee that your medicine will be safe or effective," said FDA pharmacist Ilisa Bernstein.

If your medicine has expired, its chemical composition may have changed, according to the FDA. This can make your medicine weaker and unlikely to provide the treatment you need.

[Lee Cantrell, PharmD](#) [↗](#), director of the [California Poison Control System, San Diego Division, at UC San Diego Medical Center](#), agrees with the FDA's recommendation but says the issue of when a drug loses its potency and becomes unsafe is much more nuanced than what the consumer might guess from the expiration date alone.



Expiration dates are basically arbitrary, Cantrell says. Most drugs are labeled as expiring three years after their manufacture, but this doesn't mean the drug has necessarily gone bad. "All the expiration date tells you is the last day that the manufacturer guarantees the drug's full potency and safety."

"We don't have a one-stop answer for when drugs lose their potency or become unsafe," said Cantrell. "There is little evidence to show expired drugs become dangerous over time and there is little evidence to show they remain effective over time."

Cantrell has [published research](#) [↗](#) showing that drugs often contain the same amounts of their active ingredients years, sometimes decades, after their expiration date has passed. His analysis, though, was conducted on drugs sealed in their original containers and stored under ideal, controlled conditions for temperature and humidity and away from sunlight.

It is not clear that the same results would be obtained in the real world of bathroom medicine cabinets, and his research did not address other issues that are relevant to consumers, such as whether old drugs would still dissolve and be effectively absorbed in the body or whether undesired degradation products might be present.

“The main thrust of our study was to emphasize the need to re-evaluate the way that drugs are arbitrarily assigned expiration dates,” he said. “Given that Americans spend more than \$300 billion annually on prescription medications, extending drug expiration dates could have huge potential cost savings for consumers.”

How to store prescriptions

Be sure to read the label for storage instructions. Some medications require refrigeration, for example. The bathroom medicine cabinet is often not the best place to store medicines because local humidity (from showers and baths) can dissolve the outer coatings of some capsules. Some drugs, notably aspirin, break down rapidly under humid conditions.

“You want to keep your medicines sealed in their containers so they are airtight and away from sunlight, and in areas that cannot be accessed by small children,” Cantrell said.

How to dispose of unused medicines

Look for drug destruction and take-back day events in your community for opportunities to [drop off and dispose](#) of prescription drugs safely. Flushing medications down the drain or toilet is not advised, as many of the chemicals in pharmaceutical products are not removed during waste water treatment and can be harmful to sensitive aquatic life. If you do throw your drugs in the trash, you can mix drugs with coffee grinds or dirty cat litter to prevent people from taking the drugs, accidentally or on purpose.
