

Many drugs are just fine years after they 'expire,' study finds

October 9 2012, by Karen Kaplan

Chances are, your medicine cabinet contains some pills that are past their expiration date. You might even have some pain relievers, some cough syrup or some sleeping pills that were purchased back when Richard Nixon was in the White House. But you can't seem to throw them away because you suspect they might still be OK to take.

If you've wondered whether medicines really do need to be tossed after their expiration date, you've got some company at the California Poison Control System, the University of California, San Francisco, and UC Irvine. Researchers from those institutions decided to satisfy their curiosity by testing the effectiveness of eight drugs that had been sitting around, unopened, in pharmacies for years after they had supposedly gone bad.

These drugs were not just a few years past their prime, these medications were a full 28 to 40 years past their official expiration dates.

The eight drugs contained a total of 15 [active ingredients](#). The researchers couldn't find a standard test for one of them (homatropine), so they focused their analysis on the other 14.

The tablets and capsules were dissolved and subjected to chemical analysis using a [mass spectrometer](#). That revealed how much of the active ingredients remained in the pills.

Out of the 14 active ingredients, 12 were still at high enough

concentration - 90 percent of the amount stated on the label - to qualify as having "acceptable potency," the researchers found. These included:

- Acetaminophen (the [pain reliever](#) in Tylenol)
- Codeine (an opiate that treats pain and coughs)
- Hydrocodone (an opiate used to treat moderate to severe pain)
- Phenacetin (an analgesic that's not used much anymore)
- Caffeine (a stimulant)
- Chlorpheniramine (an [antihistamine](#) used to treat colds and allergies)
- Pentobarbital (a short-acting barbiturate)
- Butalbital (a barbiturate that lasts for an intermediate period of time)
- Secobarbital (a barbiturate used to treat insomnia)
- Phenobarbital (a barbiturate that controls seizures and relieves anxiety)
- Meprobamate (a tranquilizer to treat anxiety)
- Methaqualone (a sedative and muscle relaxant known by the brand name Quaaludes)

The only active ingredients that missed that cutoff were aspirin and the stimulant amphetamine.

The expiration date on a drug is usually one to five years after it was manufactured. But those dates are often set arbitrarily, since the Food

and Drug Administration doesn't require pharmaceutical makers to test how long the active ingredients will last, the researchers wrote.

They noted that the Shelf-Life Extension Program allows drugs in federal stockpiles to be retained for up to 278 months after their stated expiration date if tests show they are still potent. But some of the ingredients tested in this study remained good for 480 months - so far.

The research team's obvious conclusion? "Our results support the effectiveness of broadly extending expiration dates for many drugs," they wrote.

"The most important implication of our study involves the potential cost savings resulting from lengthier product expiration dating," they added. "Given that Americans currently spend more than \$300 billion annually on prescription medications, extending drug expiration dates could yield enormous health care expenditure savings."

The analysis was published online Monday by *Archives of Internal Medicine*.

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