

How to Store Your Drugs for an Extended Shelf Life

By Kathryn Dench

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In our recent article discussing the real expiration date of the drugs in your medicine cabinet, we established that storing drugs in line with the manufacturer's recommendations is important, if we are to consider using the drugs past their printed expiration date. This article focuses on those recommendations and how to store medications to keep them in good condition for as long as possible.

What Are the Manufacturer's Recommendations?

You will find below the printed storage recommendations for 15 commonly prescribed medications in the United States:

Drug	Use	Storage Recommendations			Where to Store it?
		Temp	Humidity	Light	
Acetaminophen	Pain relief	59 – 86°F	Avoid	Avoid	Medicine box
Acetaminophen–hydrocodone	Pain relief	68 – 77°F	Avoid		Medicine box
Albuterol inhaler	Asthma treatment	59 – 77°F	Avoid	Avoid	Medicine box
Amlodipine	Blood				

	pressure	59 – 86°F	Avoid	Avoid	Medicine box
Amoxicillin	Antibiotic	59 – 86°F	Avoid	Avoid	Medicine box
Atorvastatin	Cholesterol	68 – 77°F	Avoid		Medicine box
Chloramphenicol	Eye infections	36 – 46°F	–	–	Refrigerator
Chloramphenicol	Eye infections	Below 77°F or 25°C	Avoid	Avoid	Medicine Box
Gabapentin	nerve pain	68 – 77°F	Avoid	–	Medicine box
Insulin	Diabetes	36 – 46°F	–	–	Refrigerator
Latanoprost	Glaucoma	36 – 46°F	–	–	Refrigerator
LevothyroxineHypo	thyroid	59 – 86°F	Avoid	Avoid	Medicine box
Lisinopril	Blood pressure	59 – 86°F	Avoid	–	Medicine box
Losartan	Blood pressure	59 – 86°F	Avoid	Avoid	Medicine box
Omeprazole	Stomach acid	59 – 86°F	Avoid	Avoid	Medicine box

From this information, we can see that the manufacturer’s recommendations are almost always to keep medications away from humidity and direct light.

Humidity can damage the physical structure of the medication and cause the active ingredients to break down more quickly. Direct light can cause intense temperature changes, as well as causing some medications to degrade.

The temperature recommendations for different drugs vary, but can be broadly grouped into two categories: refrigerator and room temperature.

The Ideal Medicine Box

You can maintain a dark and dry environment for your medications using a sealed opaque box, and including a couple of sachets of silica gel to reduce humidity. The silica gel will need to be checked from time to time and replaced or refreshed, if it has changed color.

Many medications can be dangerous if taken accidentally by children or pets, so keeping your medicine box out of the reach and sight of children is very important. A lockable box also helps keep them safe from accidentally accessing your medications.

Drugs should also be kept in their original containers for storage, both to protect them and to ensure nobody mistakes them for different drugs at a later date. Your medicine box will need to be big enough to accommodate the bottles and packages of the medications you are storing.

How to Store Medications in the Refrigerator

There are specific drugs that need to be stored in the refrigerator, including medications such as insulin and eye drops. The need to be at a low temperature is sometimes related to keeping the drug sterile and avoiding bacterial contamination, and sometimes because of properties of the medication itself. Insulin, for example, is a protein and is at risk of degrading if it gets too warm.

Conversely, extremely low temperatures can also damage your medicine. Freezing can cause insulin to immediately lose its efficacy. So it is important that your drugs don't come into contact with the cooling element at the back of your refrigerator, as this area can be colder than the rest of the refrigerator and can lead to freezing.

If you are using a sealed medicine box as discussed above, there should be no concern of contamination of your medication from food and other products in your fridge.

How to Store Medications at Room Temperature

Most drugs need to be stored at "room temperature", but the ranges for room temperature cited by different manufacturers are variable. Some have a broad range from 59 to 86°F (15 to 30°C), while others are much more restricted, ranging between 68 and 77°F (20 and 25°C).

In reality, the differences in the temperature ranges cited probably have more to do with the storage regimes implemented by the manufacturer, rather than genuine differences in drug stability. If the manufacturer's own storage protocol maintains a temperature between 68 and 77°F, and the drug is proven safe and effective based on this regime, then those will be the recommendations applied to the drug storage on the license.

Nevertheless, if we wish to ensure our medications stay in good condition for as long as possible, we need to try to adhere to these recommendations, and ideally find somewhere that sits in the 68 to 77°F range.

Unlike pharmacies and military storage facilities, the temperatures of our homes are not constant. Room temperature varies according to the climate where you live, the time of year, any heating or air conditioning you may use and even the time of day.

The temperature will also be different in different rooms of your house: the bathroom and kitchen are most likely to experience dramatic changes in temperature and humidity, and are not good choices for storing medicines.

It is worth taking the time to decide on the best location for your medicine box within your home. If you have a thermometer that can register maximum and minimum temperatures over the course of a few days, it is helpful to check the temperature in different areas of the house, to understand which areas tend to maintain a more stable temperature.

Bedrooms and the living room are likely to have a more stable temperature than a utility room, garage or attic, but may be above the recommended temperature range. You may find that different parts of the house suit the temperature needs of your medicine box in different seasons.

By taking the time to ensure you have a well-designed medicine box stored in the part of your house that fits the recommended storage conditions, you can be confident that your drugs will maintain their efficacy for as long as possible.

Comments

Chuckster59 June 25, 15:42

Kids will be kids so it is best to get a box that locks AND seals well for your medications (MTM Case-Gard AC3 50 Caliber 3 Can Ammo Crate at Amazon for under \$40). Purchase a small tumble combination lock for it and set the combination to something you will remember easily. Throw a silica humidity pack in there for good measure. Find a Doc with a Prepper mindset that may prescribe a bit more than you need as you build up your med supply. Surprisingly, in these challenging times that may not be as difficult to find.

left coast chuck June 25, 17:24

I would suggest storing your meds in a Styrofoam ice chest. Styrofoam is an excellent insulating medium and using it as a storage device will help ameliorate any temperature swings. If you want to store your meds in a lockable box, I would suggest a soft sided cooler bag stuffed inside the MTM ammo crate would make the ideal locked meds storage device.

I use a Styrofoam ice chest to store water in my car and even on days when opening the car door is like facing a blast furnace, the water in Styrofoam ice chest will be cool to the touch. which means it is less than 96°F while the inside temp of the car may be 120°F or higher. If you have an interior closet that closet will probably have the least amount of temperature shift of any room in your house.

Of course, in this day and age, if you have a/c and keep your whole house at between 68° and 72° year round, you don't need to worry about temperature swings.

This was a valuable article. I appreciate the time taken to do the research required.

Dee June 25, 23:34

Great article. Also don't store your medication with food. We always had sperate refrigerators in the pharmacy for drugs.

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