



The Medicine Cabinet: Storage of Medication at home and school

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When we take our medications that have been dispensed by the community or hospital pharmacy do we realise that there are specific storage requirements with each medication?

We know that all medication should be stored in such a way as it is out of the reach of children. This can mean using a locked cupboard or storage box but where should that be stored? All medications undergo strict testing so that an expiry date can be applied to the medication but this expiry date is dependent on how the medication is stored. All medications should be stored in a child proof container 1.5m above the floor. For further guidelines <https://www1.health.gov.au/internet/publications/publishing.nsf/Content/nmp-guide-medmgt-jul06-contents~nmp-guide-medmgt-jul06-guidepr8>

The expiry date of the active and non-active ingredients within a medication can be altered with a change in the storage conditions. This will then affect the efficacy and effectiveness of the active ingredient. For example we know until recently the Pfizer/BioNTech vaccine for COVID-19 (COMIRNATY™) had different storage conditions of the multiuse vials. The storage of the COMIRNATY™ is for 6 months at -60- -90° C (deep freeze temperature) but then when thawed it can be stored at 2-8° C (normal refrigeration temperature) for 1 month from the original 5 days but once reconstituted has to be used within 6 hours from reconstituting. This change is envisaging more flexible distribution and thus rollout of the vaccine. So to ensure there is adequate supplies of vaccine these requirements are necessary and monitored.

Most oral medications can be stored at room temperature but this means below 25° C and those that need refrigeration it is stored between 2-8° C. Antibiotic mixtures prior to reconstitution can be stored at room temperature and an expiry date – the one printed on the manufacturer's label. But once made up, ie with sterile water added, then it is stored at 2-8° C in the normal household refrigerator, this will also affect the

expiry date which is then changed when the mixture is made up and each different antibiotic mixture has a different expiry date. The expiry date should be noted on the dispensing label and monitored as it can expire prior to the mixture being consumed. As these mixtures do not contain preservatives, the mixture should be discarded at the expiry date. So when storing medications within the home, the best place to store is in a cool dry place not in the kitchen except for refrigerated items or bathroom. If the refrigerator is accessible by children then any medications should be stored in such a way as to make sure the children cannot inadvertently take a dose or more.

Expiry dates on medication are determined by the temperature in which the medication is stored and as well as the physical nature of the medication's active ingredient. Most medication needs to be stored in cool (under 25 C) and dry conditions to ensure that the dosage form ie the tablets are not absorbing moisture to as the render the active ingredient less efficacious and ineffective. Medications are given an expiry date which is the point in time when a pharmaceutical product is no longer acceptable under the specifications for potency and stability. Further information is available <https://www.nps.org.au/australian-prescriber/articles/expiry-dates>

Within hospitals there are rules about storage of medications and where they can be stored as well as temperature monitoring. Some medications require additional storage requirements in hospital due to the nature of the active ingredient such as psychostimulants - methylphenidate and dexamfetamine, which need to be stored in a locked safe bolted to the floor and a register kept of each dose and who it has been given to. This is because psychostimulants are controlled substances such that the prescribing is controlled and only certain doctors can prescribe and supply to certain patients which can be audited at any time. Even the loss of a psychostimulant prescription which are usually kept by the original dispensing pharmacy is signifi-

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cant and can lead to a lot of investigation including the Ministry of Health.

Just taking or giving to a child the medication that is prescribed for the individual is a significant concern. Sometimes people think the medication prescribed for one might be helpful to another but without the right medical oversight, problems can happen. So making sure the correct medication is given to the correct patient is an important part of the pharmacist's duty when dispensing medication. This also is important within a hospital where usually 2 people may be needed to give a particular dose of medication. One to get the medication and calculate the dose and another person to verify that the right medication has been obtained and the calculation for the dose is correct and then given to the patient making sure the correct medication is being given to the right patient. A recent press release from the TGA reports on the taking of **pet's medication by humans** <https://www.tga.gov.au/blogs/tga-topics/dangers-taking-your-pets-medication>

All liquid medications should be administered using oral syringes. A 5ml dose might be a standard teaspoon in Australia but each teaspoon in cutlery set does not have to be the standard 5ml. Using oral syringes ensures that the correct amount of medication is given. Shaking a suspension prior to administration is also important as suspensions can settle over time and thus just taking the top portion of the suspension will have less active ingredient than the bottom portion. This can then lead to over or under dosing. Check the ancillary labels put onto the dispensed liquids by the dispensing pharmacist to ensure that the liquids are correctly administered.

Sometimes medications are dissolved in water and a portion or aliquot of the final solution is taken to give a dose. This depends on the solubility of the active ingredient as well as the volume of water it is dissolved in. Each community pharmacy has access to a book ‘Don't Rush to Crush’ which will give information about

the solubility of medication and approximate time it takes to dissolve or disperse and also about the suitability to administer via various feeding tubes.

What happens in schools and long day care? In NSW schools there are some requirements outlined by the Department of Education. <https://education.nsw.gov.au/student-wellbeing/health-and-physical-care/health-care-procedures/administering-medication> whereby the prescriber of the medications should notify the school about the medication and need to administer the medication during school hours. Also the medication should also be accompanied with any consumables needed to administer the medication such as oral syringes for measuring the volume of a liquid preparation to be given. When not being supervised by an education staff member who has done the required training, a child or adolescent who can safely administer their own medication is encouraged to do so. Parents/carers are also required to fill out the appropriate forms for administration of medication whilst at school.



When schools are administering multiple medications to multiple different children there should be a storage system to ensure the right person gets the right dose at the right time. This could be achieved using different storage aids for different children and these clearly marked to avoid any confusion about whose medication it is or what the contents are.

So the 5 rights of medication administration are;

Right Patient.

Right Drug.

Right Dose.

Right Time.

Right Route.

So we all need to ensure that these happen and the medication being administered is safe and efficacious.

So when travelling for example on holiday or overseas, these principles also apply and further information can

be found https://www.medicinesforchildren.org.uk/sites/default/files/files/Travelling%20with%20medicines%2030_11_17.pdf

