

CARE IN PEDIATRIC ONCOLOGY



Care in Pediatric Oncology

Editors

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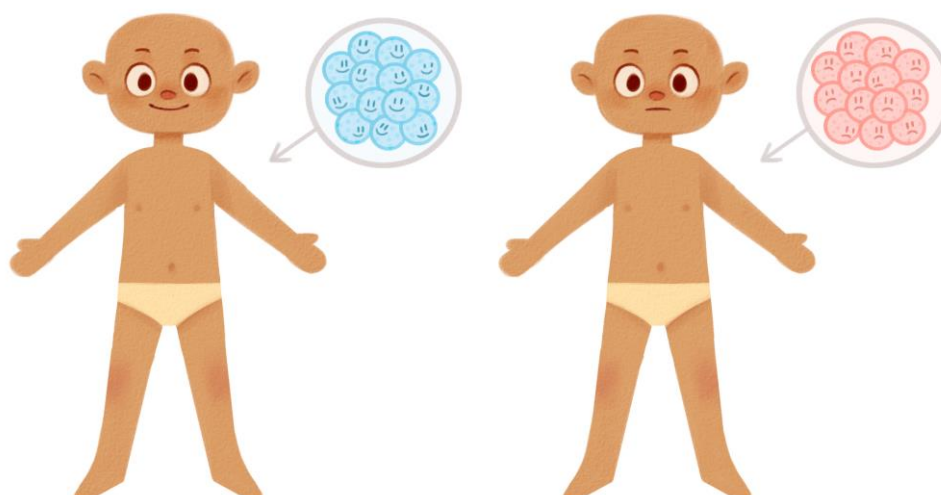
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Splitting Antineoplastic Pills

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Having cancer means that the cell factory, somewhere in time, started to have problems or make cells in a different size – some of them are unready to leave the factory, therefore causing an imbalance in the child's/teenager's body (Park et al., 2020; Uthamacumaran, 2020). Thus, treatment is necessary to bring everything back to normal. The most common form of cancer in children/teenagers is in the blood, but it may occur in other places (Miller et al., 2020).



Chemotherapy is frequently used for cancer in children and teenagers and can involve various drugs. The drugs affect the growth and multiplication of the cells. To eliminate cancerous cells, the drugs may be used alone or in combination, depending on the type of cancer. The medication to treat cancer can be used through the vein, but it is also common in

a pill. The pills are often used, mainly because they are easy to take, cheaper, and less affected when compared to other forms of medication (Instituto Nacional de Câncer - INCA, 2022a).



Treatment for cancer involves a series of steps. Some are done in the hospital, but others can be done at home, with drugs through the mouth (orally), under the family's responsibility (INCA, 2022b). This stage of the treatment is as valuable as the one given at the hospital to reach the cure and avoid that the cancer comes back (Schmiegelow et al., 2014). The adequate adjustment of the medication's dosage is important so the drug to treat cancer works while the bad effects are not so bad and allows the child to be cured during the treatment (Pui; Evans, 2013).

Sometimes medications in the correct dosage for the children cannot be found. Thus, it is necessary to split the pills. This situation is even more serious regarding cancer treatment, once these medications are considered potentially dangerous and can contaminate the whole family, especially the person who takes care of the sick child (Roos et al., 2021).

Dangerous medications can cause cancer, affect genetics, fertility, pregnancy, and babies who are still in their mother's womb. The medications to treat cancer can have harmful effects on other organs of the body. This also applies to new drugs with a similar effect to others that have already been considered dangerous (National Institute for Occupational Safety and Health - NIOSH, 2016). People who are trying to have children, who are pregnant or breastfeeding, should avoid this kind of medication (Polovich, 2017).

When we talk about children and teenagers, the dosages can vary a lot according to age and treatment. Thus, the adjustment of the dosage to each one is normal and sometimes,

splitting pills is necessary (INCA, 2022a; Bjerknes et al., 2017; Richey et al., 2017; Conroy et al., 2003; Mulla et al., 2016; Andersson et al., 2016).

Splitting pills can alter the dosage up or down (Teixeira et al., 2016), so when splitting (dividing) cannot be avoided, it is important to follow a script to reduce the risk for children, teenagers, and caregivers (Tessmann et al., 2020).

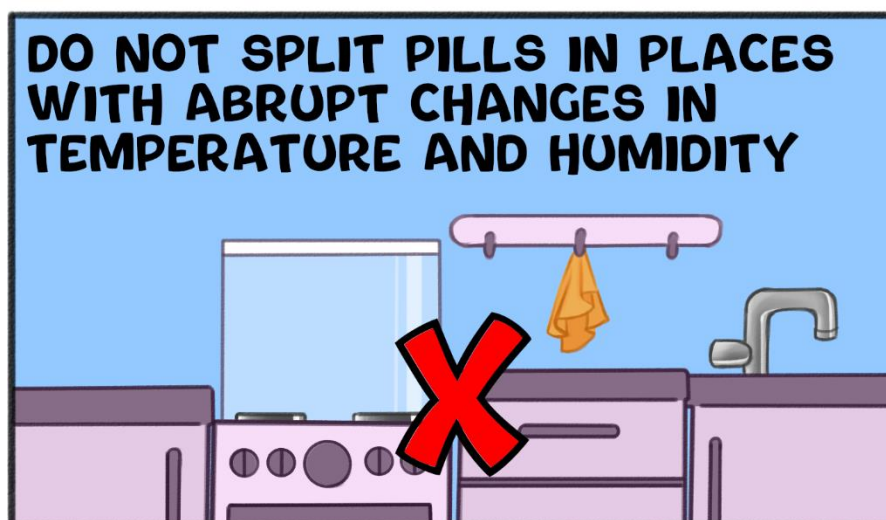
In Brazil, there is no legal rule to be followed on splitting pills. In the United States, there is a rule in which only pills with a groove can be split. This norm helps to have greater certainty in the splitting (Teixeira et al., 2016).

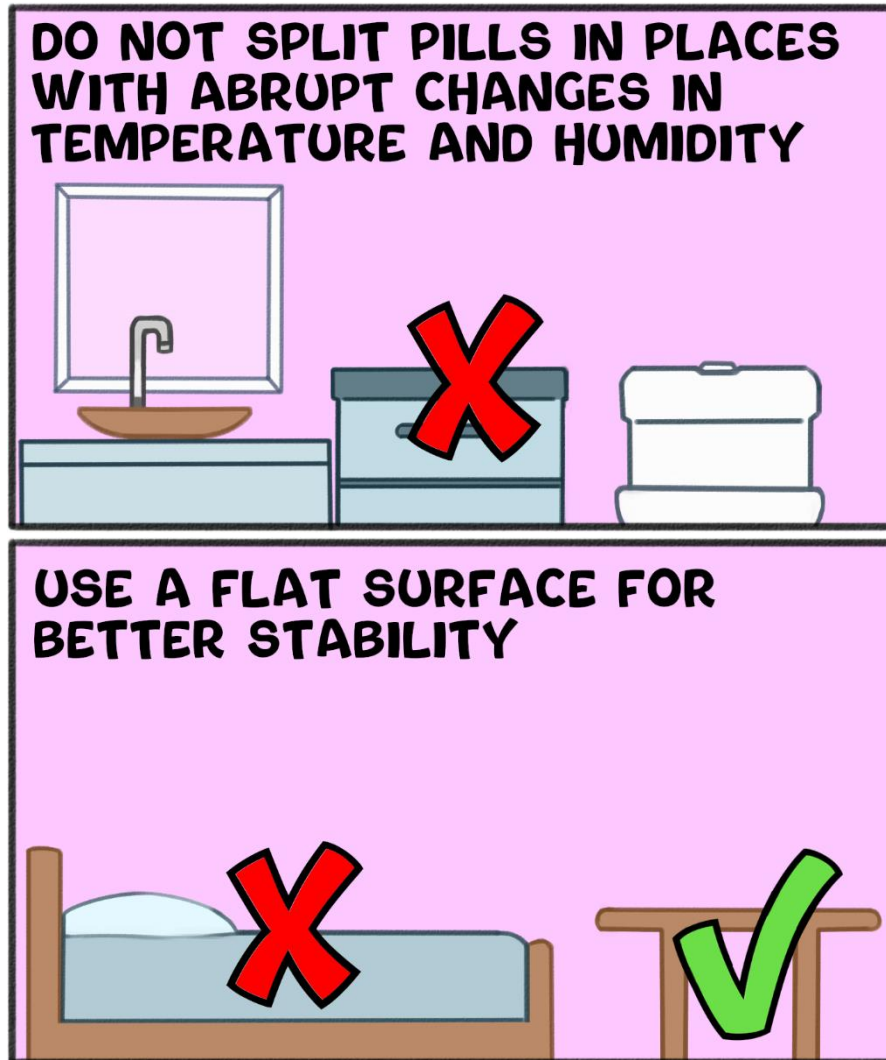
CAUTION WHEN SPLITTING PILLS

As the medications for cancer are dangerous (Instituto para Práticas Seguras no Uso de Medicamentos - ISMP, 2019) and their splitting can leave a powder that can cause bad effects (Mulla et al., 2016), a capable health professional should do it, being careful so the dosage is right and there is no contamination of people and objects. When splitting the pills by a professional is not possible, it may be necessary to split them at home. But some caution must be taken (Tessmann et al., 2020).

Before splitting the pills, it is essential to check the prescription and medical advice.

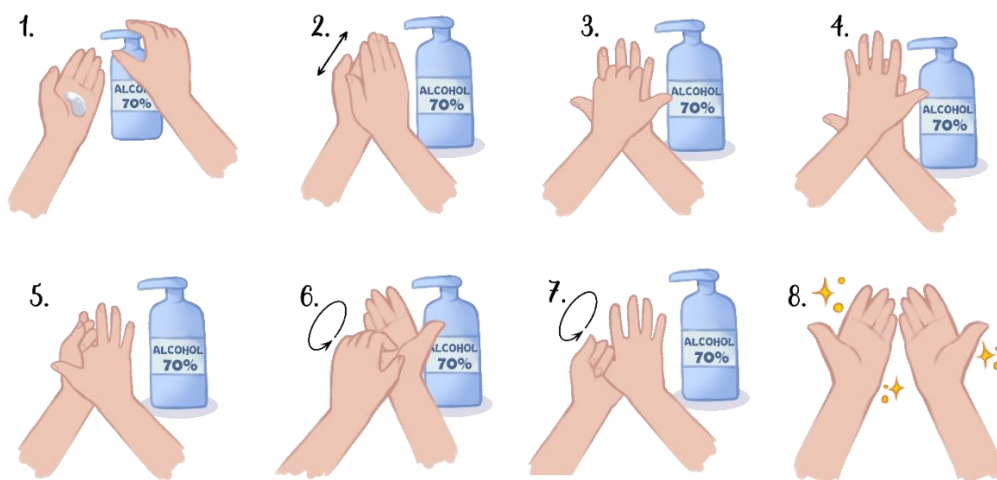
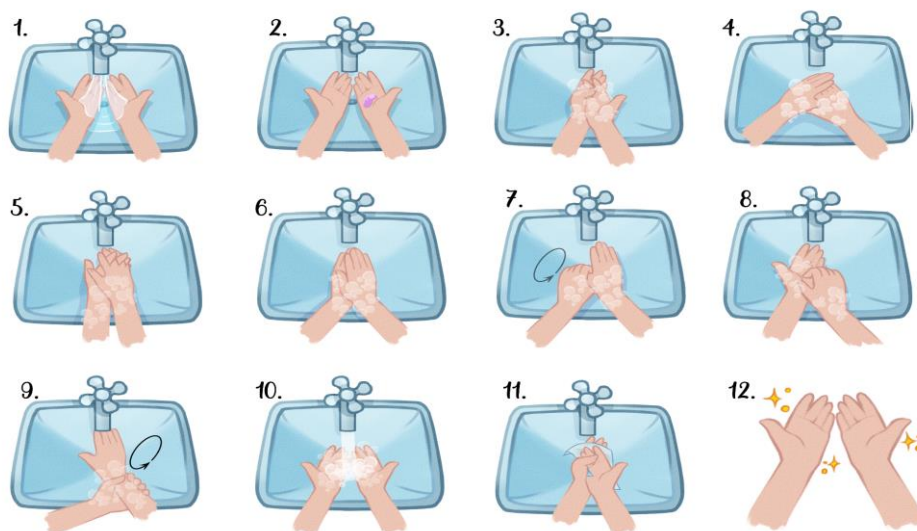
It is also necessary to choose a good place for the splitting. Avoid areas that have abrupt changes in temperature and humidity (such as bathrooms and the kitchen) (Bragalone, 2019). The medications must also stay away from kitchen utensils and other objects in the home (St. Jude Children's Research Hospital, 2022) since the residues can mix with the food and cause intoxication (Bragalone, 2019; Power; Coyne, 2018). So, in the areas where the medications are administered and manipulated, one should abstain from eating, drinking, and storing food (Power; Coyne, 2018).





The person in charge of splitting the pills must do it on a clean surface, which can be covered with waxed paper (Roos et al., 2021; NIOSH, 2016; Polovich, 2017; Bjerknes et al., 2017; Richey et al., 2017; Conroy et al., 2003; Mulla et al., 2016; Andersson et al., 2016; Tessmann et al., 2020; ISMP, 2019; Bragalone, 2019; Power; Coyne, 2018; St. Jude Children’s Research Hospital, 2022).

Before and after manipulating the medications, hands must be thoroughly washed, dried, and sanitized (alcohol 70% can be used).



It is recommended to use protective gear, as indicated, e.g., gloves, masks, and safety glasses.

Latex gloves or gloves that are torn or punctured must not be used. Disposable nitrile gloves should be used, if possible, because they are more resistant than the ones made of latex and are better for people who are allergic to latex. Gloves help protect the caregivers from the absorption of medications through the skin and should be used every time the medications are handled, except by the child in treatment. Even so, the child or teenager must wash their hands thoroughly with water and soap before and after handling the medications (Roos et al., 2021; St. Jude Children’s Research Hospital, 2022).

The protective masks keep the caregivers from inhaling the medications and can be deemed necessary when splitting or crushing pills. The caregiver must wear the mask as advised by the doctor or pharmacist (Roos et al., 2021; St. Jude Children’s Research Hospital, 2022).

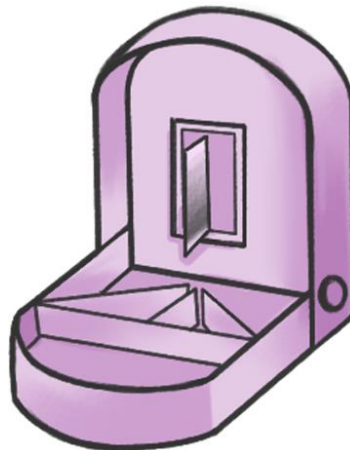
The safety glasses protect the eyes from chemotherapy, especially in the case of medications in liquid form. If there is any chance of spillage, the eyes must be protected (Roos et al., 2021; St. Jude Children’s Research Hospital, 2022).

Pills should not be split at once and be used little by little. When a pill is split, all the pieces must be used before splitting the next one, to avoid harmful effects of heat, humidity, and storage (St. Jude Children’s Research Hospital, 2022).

Elongated, grooved, and safe medication pills are the best to split, but they do not always come this way because they are manufactured in many different forms (St. Jude Children’s Research Hospital, 2022; Helmy, 2015).

Box cutters and kitchen knives should not be used to split pills (Roos et al., 2021). In most cases, a very clean pill cutter is appropriate (Figure 1). This utensil is usually found in drugstores and has a V-shaped holder to center the pills and a blade that cuts. But, in some cases, there may be better choices than this instrument, as when the pills have different forms and sizes or are very brittle (Shah et al., 2010; Food and Drug Administration – FDA, 2013).

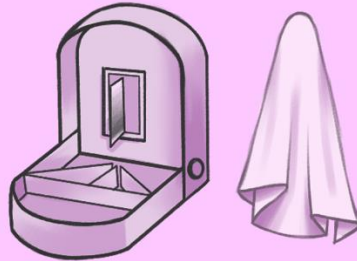
Figure 1 - Pill cutter



Some medications should not be split because they may lose their expected effects (Tessmann et al., 2020), i.e., the good effect of the medication to treat cancer. Amongst the medications to treat cancer that cannot be split are drugs that have effects over a long time (extended-release medications), capsules filled with liquid or grains, pills that do not have two equal sides (asymmetric pills), or ones that are very small (Cleveland Clinic, 2022). The health professional can recommend the best method to split the pills (FDA, 2013).

The hygiene in the splitting process is also essential because very thin powder can be aspirated through the nose, skin, or mouth (Teixeira et al., 2016; Roos et al., 2021; Bragalone, 2019; Power; Coyne, 2018; NIOSH, 2004). Rules for cleaning must be established to keep everyone’s safety (Böhlandt et al., 2017). After splitting the pills, the cutter must be cleaned with disposable material and stored in a safe place (Roos et al., 2021).

AFTER SPLITTING, CLEAN THE CUTTER WITH WET PAPER OR TISSUE



After the split, it is better to use a cup than the hand to give the medication (FDA, 2013).

When the pills are taken from the original packaging, they can begin to go bad (Marriott; Nation, 2002). Besides, when the pills are stored together, they may start to crumble if they hit each other (Shah et al., 2010).

One of the most important things to be careful with is to expose the medications as little as possible to light and humidity (Marriott; Nation, 2002). So, it is not recommended to keep the piece left in the pill cutter or other containers (Shah et al., 2010; Borja-Oliveira, 2013).

Some studies say that it is possible to use the packaging of the medication (Shah et al., 2010; Borja-Oliveira, 2013), but the other half of the pill can also be wrapped in cotton in an exclusive pill organizer (Roos et al., 2021).

Overall, it is important to remember that these materials should not be disposed of in general waste. The items should be put in a bag and taken for disposal in the hospital in your next appointment (Roos et al., 2021).




To sum up, here is the information and the necessary caution to safely split the pills of drugs for cancer (Roos et al., 2021):

HOW TO SPLIT A PILL?

CHECK WHAT HAS BEEN PRESCRIBED



WASH HANDS AND USE ALCOHOL 70%



IT IS RECOMMENDED TO USE MASKS AND SAFETY GLOVES AND TO COVER THE TABLE WHERE YOU SPLIT THE PILLS WITH WAXED PAPER



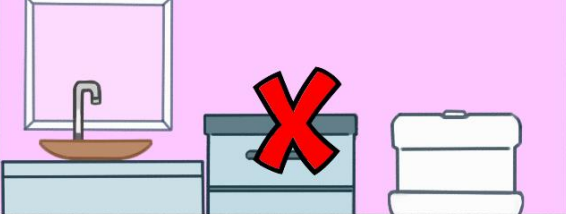
SET APART ONLY THE PILL THAT WILL BE TAKEN AT THAT MOMENT



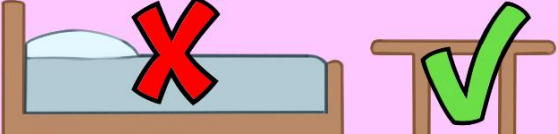
DO NOT SPLIT PILLS IN PLACES WITH ABRUPT CHANGES IN TEMPERATURE AND HUMIDITY




DO NOT SPLIT PILLS IN PLACES WITH ABRUPT CHANGES IN TEMPERATURE AND HUMIDITY



USE A FLAT SURFACE FOR BETTER STABILITY

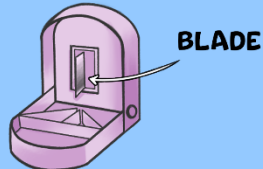


DO NOT USE BOX CUTTERS OR KNIVES TO SPLIT A PILL

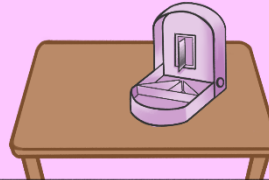


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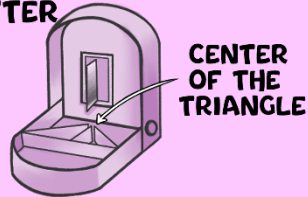
THE BEST WAY TO SPLIT A PILL IS BY USING A CLEAN PILL CUTTER WITH AN APPROPRIATE BLADE



WHEN USING A CUTTER, PUT IT ON A FLAT SURFACE TO ENSURE STABILITY



IF THE PILL DOES NOT HAVE A GROOVE, HOLD IT IN THE CENTER OF THE TRIANGLE IN THE CUTTER

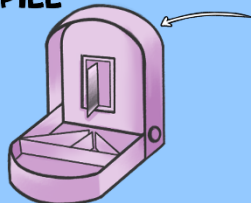


IF THERE IS A GROOVE, CENTER THE BLADE ON THE GROOVE.

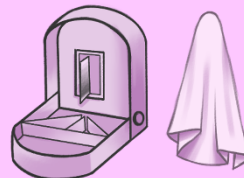


THE GROOVE MAKES IT EASIER TO SPLIT THE PILL

CLOSE THE UPPER PART OF THE CUTTER AND PUSH IT TO SPLIT THE PILL



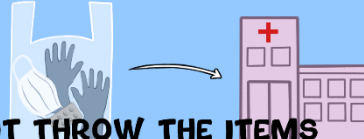
AFTER SPLITTING, CLEAN THE CUTTER WITH WET PAPER OR TISSUE



KEEP THE OTHER HALF OF THE PILL WRAPPED IN COTTON IN A PILL ORGANIZER EXCLUSIVELY SELECTED FOR THAT



PUT ALL THE ITEMS IN A BAG AND TAKE THEM TO THE HOSPITAL FOR DISPOSAL IN YOUR NEXT APPOINTMENT.



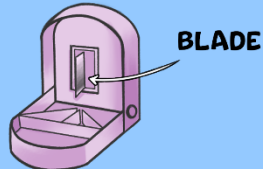
DO NOT THROW THE ITEMS AWAY IN GENERAL WASTE

IF THE HALF FRAGMENTS DURING OR AFTER PARTITION, ENSURE THAT THE PATIENT TAKES ALL THE PIECES.

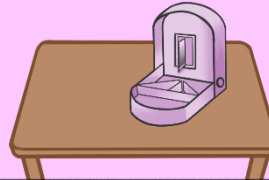


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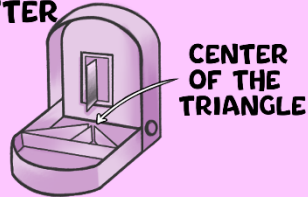
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WHEN USING A CUTTER, PUT IT ON A FLAT SURFACE TO ENSURE STABILITY



IF THE PILL DOES NOT HAVE A GROOVE, HOLD IT IN THE CENTER OF THE TRIANGLE IN THE CUTTER

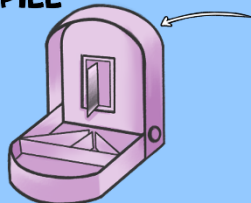


IF THERE IS A GROOVE, CENTER THE BLADE ON THE GROOVE.

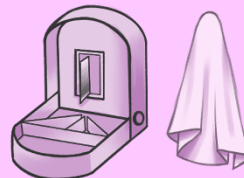


THE GROOVE MAKES IT EASIER TO SPLIT THE PILL

CLOSE THE UPPER PART OF THE CUTTER AND PUSH IT TO SPLIT THE PILL



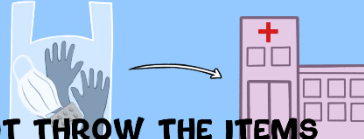
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