

# Is tablet splitting safe?

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What do you mean you want to cut me in half?!

You're administering medications to Mr. A, a 63-year-old man who's hospitalized for chest pain. An order on the medication administration record reads "lisinopril 5 mg PO daily." You find that lisinopril is only available as a 10-mg tablet, and a call to the pharmacy confirms that the hospital only stocks 10-mg lisinopril tablets. The tablet is scored, but is it safe practice to split it in half?

This situation isn't unusual, and recent research suggests that tablet splitting may result in inaccurate dosages and medication errors. Nurses, as well as patients who administer their own medications at home, need to understand which medications can be safely split and which method for tablet splitting is the most accurate. The best rule to follow is to split tablets only when necessary.

In this article, I'll explain why patients and nurses may find tablet splitting necessary and how to safely split a tablet if you have to.

## Oral medication basics

Most oral medications, such as tablets and capsules, are available in the dosage strengths that are most commonly prescribed for patients. Before discussing the advantages and disadvantages of tablet splitting, it may be helpful to review the characteristics of these forms of medications.

**Tablets** contain an amount of the active drug plus binders, colorants, preservatives, and other substances. **Capsules** enclose the active drug in a gelatin capsule. Most tablets and capsules are made to dissolve in the acidic fluids of the stomach before absorption in the small intestine. Enteric-coated tablets and capsules are coated with a sub-

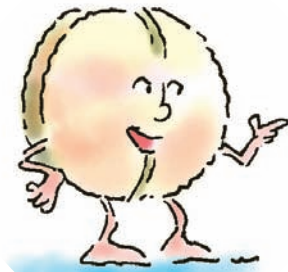
stance that prevents the drug from dissolving in the stomach. The purpose of enteric coating is to protect the gastric mucosa from irritation or to protect the drug from the acidic environment of the stomach. These drugs usually dissolve in the small intestine.

Currently, many medications are available in dosage forms that provide controlled release. These formulations allow for less frequent administration and more consistent serum drug levels. There are many names for controlled-release medications, such as timed release, sustained release, and extended release. You'll often find abbreviations such as CR, SR, and XL listed as part of the drug name. Because controlled-release medications are intended to be given once or twice daily (or even once a week), they should never be split, crushed, opened, or chewed. Altering the medications by any of these methods can allow the full dosage to be absorbed immediately and constitutes an overdose, which can potentially lead to organ damage or death.

## To "half" or to hold?

Splitting tablets in two (or sometimes fourths) is a common practice both in healthcare institutions and among patients at home. Some of the primary reasons for this practice are:

- **cost.** Different strengths of a medication may cost about the same. To save money, patients may request a higher dosage and split the pills in half.
- **difficulty swallowing.** Some patients may not be able to swallow whole large tablets.
- **insurance company policies.** Some insurance companies have denied payments for lower-strength tablets, which requires patients to obtain a larger dosage and split the tablets.



- **availability.** Some healthcare organizations, such as hospitals or long-term-care facilities, may not purchase all the available strengths of a medication, requiring nurses to split tablets to administer the ordered dosage.

According to the FDA, a recent survey by the American Pharmacists Association indicates that skipping doses and splitting tablets has become more common due to the recent downturn in the economy. However, tablet splitting can lead to medication errors. The most common error made by patients who tablet split at home is that they take too much medication.

Splitting tablets can be risky because:

- Patients can become confused about the correct dosage. They intend to split the tablets and then forget, or decide that tablet splitting takes too much time or effort. This can lead to accidentally taking too much medication.
- The active medication can be unequally distributed within the tablet. Some studies have shown that two halves of a tablet may look the same, but can contain a very different amount of medication. Even tablets that are scored have been found to contain unequal distribution of the medication, according to the FDA.
- Unusually shaped tablets may be hard to split.
- Some tablets break into fragments or crumble when split.
- Some patients believe that all medications are safe to split; this isn't correct. Capsules should only be divided under the supervision of a medical provider, and controlled-release medications shouldn't be split.
- The prescription may be confusing. The patient or the pharmacist may misread the prescription and instead of half a tablet may interpret the dosage as one to two tablets.

Comparisons of patients who first take whole tablets and then split tablets of medications such as simvastatin, lisinopril, and risperidone have shown no adverse changes in their condition. To decrease the risk of medication errors, both patients and nurses need to be aware of the best practices for tablet splitting. When considering whether to split a tablet, keep in mind that information about the appropriateness of splitting is con-

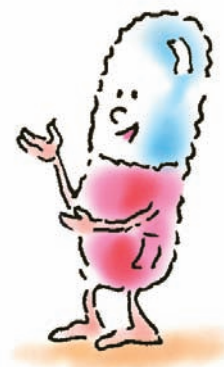
tained in a drug guide or printed in the "how supplied" sections of the label and patient package insert. Tablets that are approved for splitting by the FDA will be scored. For a brief list of medications not to be split, see *Common medications that shouldn't be split*. For a complete and up-to-date listing of medications that shouldn't be crushed, split, or chewed, visit <http://www.ismp.org/Tools/DoNotCrush.pdf>.

### Safe practices

So how can patients and nurses safely split a tablet in two when it's determined to be necessary? A research study that compared various methods of tablet splitting by weighing the tablets and tablet parts before and after splitting found that large deviations can occur when splitting tablets. This study used five volunteers to perform the splitting (none were nurses) and compared the use of a tablet-splitting device, a kitchen knife, and scissors for unscored tablets and manual splitting for scored tablets. The results suggest that the most accurate way to split a tablet is to use a tablet-splitting device and only split when it's necessary.

Here are some considerations and recommendations to follow when instructing a patient about how to safely split pills:

- Verify that the tablet is suitable for splitting by checking drug references or calling a pharmacist.
- Ensure that your patient has the required level of ability, understanding, and



### Common medications that shouldn't be split

Generic name	Form	Reason
zolpidem	Tablet	Slow-release
isosorbide	Capsule	Slow-release
ferrous sulfate	Tablet	Enteric-coated
glipizide	Tablet	Slow-release
propranolol	Capsule	Slow-release
ibuprofen	Tablet	Taste
nifedipine	Tablet	Slow-release
tramadol	Tablet	Slow-release
vorinostat	Capsule	Irritant

If you must split tablets, use a tablet-splitting device.



motivation to perform safe tablet splitting. If the patient is unable, a qualified family member may need to help.

- Teach patients to wash their hands before splitting tablets.
- Make sure that patients who are splitting tablets at home use a tablet-splitting device and not a knife or scissors. Using a tablet-splitting device is also better than breaking scored pills by hand.
- Educate patients about their dosages and the appropriateness of splitting their medications. In general, controlled-release medications shouldn't be split.
- Instruct patients not to split the entire supply of tablets at one time and then store them for use later. Tablets should be split one at a time and both halves should be taken before splitting another tablet. Why? Because split tablets may be more affected by factors such as humidity

and heat in the damp environment of a bathroom medicine cabinet. Splitting one tablet at a time also ensures a more consistent dosage if the distribution of medication within the tablet isn't always consistent.

Nurses caring for inpatients should also verify that a tablet is suitable for splitting. When using a tablet-splitting device, health-care workers should use gloves and wash the device afterward to remove any particles or powder. It's important that you follow your institution's policy when splitting tablets. However, the Institute for Safe Medication Practices recommends that nurses working in inpatient institutions shouldn't be expected to split tablets. Pharmacy staff should split the tablets and repackage them so that exact dosages are dispensed.

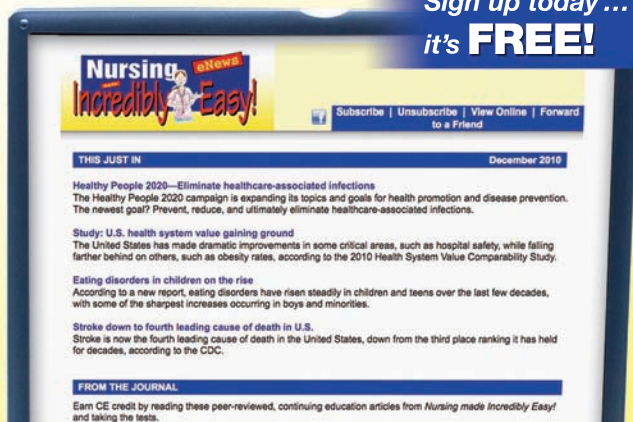
If medication administration in your facility requires you to split tablets, be sure to follow guidelines to ensure your patient receives the correct dosage of medication. You should also make sure that any patients who split tablets at home understand the procedures for doing so.

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### Your mission? Educate!

Although tablet splitting doesn't seem to lead to adverse clinical consequences, it may be dangerous if not done correctly. Nurses can decrease the risk of medication errors by following guidelines for best practices when splitting tablets and educating and monitoring patients who use this practice in their homes. ■

### Learn more about it

Abrams CA, Pennington SS, Lammon CB. *Clinical Drug Therapy: Rationales for Nursing Practice*. 9th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2009.

The Medical Letter. Tablet splitting. <http://secure.medicalletter.org/w1318b>.

U. S. Food and Drug Administration. Best practices for tablet splitting. <http://www.fda.gov/Drugs/ResourcesForYou/Consumers/BuyingUsingMedicineSafely/EnsuringSafeUseofMedicine/ucm184666.htm>.

U. S. Food and Drug Administration. Tablet splitting: a risky practice. <http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm171492.htm>.

Verrue C, Mehuys E, Boussery K, Remon JP, Petrovic M. Tablet-splitting: a common yet not so innocent practice. *J Adv Nurs*. 2010;67(1):26-32.

The author has disclosed that she has no significant relationship with or financial interest in any commercial companies that pertain to this educational activity.

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